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Shri S. Basu, M.Sc., F.N.I.  
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## Instruments and their Constants

STATION	INSTRUMENT	COMPT	PERIOD IN SECS	STATIC MAGNIFI- CATION	DAMPING RATIO	PAPER SPEED mm/min.	STATION	INSTRUMENT	COMPT	PERIOD IN SECS	STATIC MAGNIFI- CATION	DAMPING RATIO	PAPER SPEED mm/min.
AGRA	Columbia Long Period Seismograph	E	To=15 Tg=100	-	-	15	KODAIKANAL	Milneshaw	E	10	250	20:1	
		N	To=15 Tg=85	-	-	15	MADRAS	Sprengnether	E	To=Tg=7.2	-	-	30
		Z	To=15 Tg=70	-	-	15	POONA	Sprengnether	Z	To=Tg=1.6	-	Critical	30
BOKARO	Milneshaw Milneshaw Wood Anderson Wood Anderson	N	12	250	20:1	16	PORT BLAIR	Wood Anderson	E	0.8	1000	h=0.8	30
		E	12	250	20:1	16		Wood Anderson	N	2.0	1000	20:1	30
		E	To=0.8	960	h=0.8	60		Milneshaw	E	12.0	250	20:1	8
		N	To=0.8	1000	h=0.8	60		SHILLONG	Wood Anderson	N	0.8	1000	h=0.8
BOMBAY	Milneshaw Milneshaw Sprengnether	N	12	350	30:1	16	Wood Anderson	E	0.8	1000	h=0.8	30	
		E	12	350	15:1	8	Milneshaw	N	12	350	20:1	8	
		E	To=Tg=	-	-	30	Benioff	Z	To=1.0 Tg=0.18	-	-	60	
CALCUTTA	Milneshaw Wood Anderson Omori Ewing Omori Ewing	E	12	250	20:1	8	Sprengnether	E	To=Tg=6.6 To=Tg=6.5	-	Critical	30	
		N	2	870	Critical	30		from 29.1.58					
		N	15	32	-	25.4		Wenner Acce- lerograph	-	-	-	-	
		E	21	30	-	25.4							
DEHRA DUN	Wood Anderson Wood Anderson Milneshaw Milneshaw	N	0.8	950	Critical	60	TOCKLAI	Wood Anderson	E	0.8	1000	h=0.8	60
		E	0.8	850	Critical	60	VIZIANAGRAM	Wood Anderson	E	0.8	1000	h=0.8	30
		N	12	250	20:1	8		Wood Anderson		2.0	1000	20:1	30
		E	12	250	20:1	8							
HYDERABAD	Milneshaw Milneshaw	E	12	254	20:1	8							
		N	12	249	20:1	8							

STATION	LATITUDE	LONGITUDE	HEIGHT a. s. l. (Metres)	LITHOLOGIC FOUNDATION	STATION	LATITUDE	LONGITUDE	HEIGHT a. s. l. (Metres)	LITHOLOGIC FOUNDATION
AGRA	27° 10' N	78° 02' E	169	Indo-gange- tic Alluvium	MADRAS	13° 00' N	80° 11' E	15	
BOKARO	23° 50' N	85° 48' E	-	Rock	POONA	18° 32' N	73° 51' E	560	Deccan Trap
BOMBAY	18° 54' N	72° 49' E	6	Deccan Trap	PORT BLAIR	11° 40' N	72° 43' E	-	
CALCUTTA	22° 32' N	88° 22' E	7	Alluvium	SHILLONG	25° 34' N	91° 53' E	1600	Quartzite Sand Stone (Shillong Quartzite)
DEHRA DUN	30° 19' N	78° 02' E	682	Gravel	TOCKLAI	26° 45' N	94° 46' E	-	Alluvium
HYDERABAD	17° 26' N	78° 27' E	536	Granite	VIZIANAGRAM	18° 07' N	83° 27' E	-	
KODAIKANAL	16° 14' N	77° 28' E	2346	Rock					

DATE STATION COMPT PHASE G. M. T. Δ REMARKS  
 h. m. s. km

January 1957  
 01 Epc: Off East Coast of Kamchatka, 53 $\frac{1}{2}$ <sup>o</sup>N, 159<sup>o</sup>E.  
 - H = 00h 56m 40s (U.S.C.G.S). -h. 150 km  
 - H = 00h 56m 40s (Moskva) -h. 100 km

SHILLONG Z eP 01 06 09 Slight, distant  
 CHATRA Z eP 01 06 23 Slight, distant  
 POONA Z iP 01 07 56 Slight, distant

01 Epc: 54 $\frac{1}{2}$ <sup>o</sup>N, 164<sup>o</sup>W. Unimak Islands.  
 - H = 03h 25m 05s (U.S.C.G.S)

SHILLONG Z iP 03 37 01 Slight, distant  
 CHATRA Z iP 04 04 02 160 Feeble  
 E iS 04 22  
 SHILLONG Z eP 04 04 43 570 Slight  
 PP 04 50  
 Pg 05 06  
 Lq 05 30  
 iS 05 43  
 SSS 06 00  
 Sg/M 06 07

01 CHATRA Z iP 09 45 02 170 Feeble  
 iS 45 23

SHILLONG Z eP 09 45 37 Feeble

01 SHILLONG Z eP 10 46 04 Very feeble

01 SHILLONG Z iP 16 21 51 Slight, local

01 DEHRA DUN N,E e 17 42 10 Tremor

01 SHILLONG Z eP 17 55 24 Feeble, local

01 SHILLONG Z eP 21 23 11 Slight

01 SHILLONG Z eP 22 02 58 Very feeble

01 SHILLONG Z iP 23 22 48 Feeble

02 Epc: Fox Islands, Aleutian Islands,  
 53<sup>o</sup>N, 168<sup>o</sup>W. (Shillong). -H-00h 39m 22s (U.S.C.G.S)  
 53<sup>o</sup>N, 168<sup>o</sup>W -H- 00h 39m 20s (Shillong).  
 Magnitude: 6 $\frac{1}{4}$ -6 $\frac{1}{2}$ (Pas), 6 $\frac{1}{4}$ (Moskva, Hurbanovo)  
 6.4(Takubaya), 6-6 $\frac{1}{4}$ (Praha).

SHILLONG Z,E iP 00 51 11 8420 Moderate  
 E PcP 51 22  
 PP 54 03  
 N,E iS 01 00 53  
 SKS 01 13  
 ScS 01 22  
 PS 01 31  
 PPS 01 50

02 SHILLONG N,E SS 01 05 42  
 SSS 08 57

02 CHATRA Z eP 00 51 21 8820 Slight  
 iS 01 01 22

DEHRA DUN N,E eP 00 51 30 8850 Slight  
 N pp 54 29  
 iS 01 01 32  
 PS 02 32  
 Lq 13 11  
 M 23 43

BOKARO N,E eP 00 51 38 8960 Moderate, distant  
 iS 01 01 45 Initial ground  
 PS 02 28 movement towards  
 PPS 02 57 South and West.

HYDERABAD E eP 00 52 23 9470 Moderate  
 PP 55 59  
 iS 01 02 53  
 SKS2 03 05  
 PS 04 02  
 SS 08 41  
 SSS 11 47  
 PKKS<sub>1</sub> 12 56  
 PKKS<sub>2</sub> 14 43  
 Lq 15 41  
 SKKS<sub>2</sub> 16 47  
 Lr 20 53  
 M 26 26

Per. = 15 secs  
 Δ = 8

DATE STATION COMPT PHASE G. M. T. Δ REMARKS  
 h. m. s. km

January 1957  
 02 MADRAS Contd.

E eP 00 52 30 9730 Slight  
 eS 01 03 11  
 PS 04 24  
 PPS 05 00  
 Lq? 17 00  
 M? 02 03 46

POONA Z iP 00 52 31 9560 Moderate  
 N iS 01 03 05 Initial ground  
 E,N PS 03 50 movement towa-  
 N PPS 04 23 rds South and  
 E,N SSS 12 08 West. Compression  
 E Lq 16 02  
 N Lr 19 17  
 M 27 01 Per. = 17.3 secs  
 Mn 36 36 Δ = 5.2

BOMBAY N,E eP 00 52 35 10240 Moderate  
 SKS 01 03 10  
 eS 03 36  
 E PS 04 22  
 e 05 37  
 N SS 09 36  
 M 35 40 Per. = 18 secs  
 E M 39 34 Δ = 6  
 Per. = 17 secs  
 Δ = 6

COLOMBO E e 01 03 42

KODAIKANAL E e 01 03 41 Tremor

02 Epc: 52 $\frac{1}{2}$ <sup>o</sup>N, 168<sup>o</sup>W, Fox Islands, Aleutian Islands  
 - H = 02h 17m 35s (U.S.C.G.S)  
 - H = 02h 17m 37s (Moskva)  
 49<sup>o</sup>N, 170<sup>o</sup>W. - H = 02h 17m 34s (Shillong)

Magnitude = 6 $\frac{1}{4}$ (Pas), 6.9(Uppsala), 6.6(Takubaya),  
 6.8 (Praha), 6 $\frac{1}{4}$ -(Hurbanovo).

SHILLONG Z,E iP 02 29 26 8470 Moderate  
 E PcP 29 39  
 SP 30 19  
 PP 32 40  
 N,E iS 39 08  
 ScS 39 39  
 PS 39 51  
 PPS 40 10  
 SS 43 52  
 SSS 46 44

CHATRA Z iQ 02 39 34 Slight  
 E eQ

DEHRA DUN N,E eP 02 29 42 8800 Moderate  
 N PP 32 45  
 iS 39 42  
 PS 40 32  
 PPS 40 59  
 SS 45 11  
 SSS 48 30  
 Lq 51 27  
 Lr 54 44  
 M 03 01 28

BOKARO N,E iP 02 29 51 9000 Moderate  
 iS 40 01 Initial  
 PS 41 18 ground movement  
 towards South  
 and West.  
 M 58 57 Per. = 16.9 secs  
 Δ = 24

NEW DELHI N iP 02 29 53 9110 Moderate.  
 PP 32 57 Initial ground  
 iS 40 07 movement towards  
 PS 40 49 South.  
 PPS 41 10  
 SS 45 34  
 Lr 55 29  
 M 03 02 35

HYDERABAD E iP 02 30 36 9370 Moderate  
 PP 34 01  
 SKS<sub>1</sub> 40 41  
 iS 41 02  
 ScS 41 16  
 PS 41 53





DATE	STATION	COMPT	PHASE	G	M	T	Δ	REMARKS	DATE	STATION	COMPT	PHASE	G	M	T	Δ	REMARKS	
				h	m	s	km						h	m	s	km		
January 1957																		
06	SHILLONG	Z	iP	21	09	33		Very feeble	08	DEHRA DUN	N E	e	05	29	44		Feeble Phases not clear	
07	SHILLONG	Z	eP	02	07	11		Slight		HYDERABAD	E	eS	05	33	02		Slight	
07	CHATRA	Z	iP iS	05	34	03	140	Feeble				M		43	32		Per 12 secs 4	
07	CHATRA	Z	iP iS	08	11	18	250	Feeble	08	Epc: 52½°N. 168°W. Fox Islands Aleutian Islands. H 17h 29m 36s (U.S.C.G.S.)								
07	SHILLONG	Z	iP	16	10	49		Slight local		SHILLONG	Z	iP	17	41	25		Slight Compression	
07	Epc: 8½°N. 126°E. Phillipines - h-250 Km H 16h 45m 02s (U.S.C.G.S.)									08	SHILLONG	Z	eP	18	16	04		Slight Compression
	SHILLONG	Z	iP	16	51	47		Slight	08	Epc: Fox Islands, Aleutian Islands. H 20h 14m 46s (U.S.C.G.S.)								
	POONA	Z	eP i	16	53	49		Feeble shock Phases not clear		SHILLONG	Z	eP	20	26	31		Slight Compression	
07	SHILLONG	Z	iP	18	20	32		Very feeble local	08	CHATRA	Z	iPg iSg	21	34	16	60	Feeble	
07	SHILLONG	Z	iP	18	55	38		Slight	08	CHATRA	Z	iPg iSg	22	06	40	120	Feeble	
07	SHILLONG	Z	iP	23	22	00		Slight	08	SHILLONG	Z	eP	22	23	51		Slight	
08	Epc: About 150 miles off West Coast of Sumatra. H 01h 20m 15s (U.S.C.G.S.)									08	SHILLONG	Z	eP	22	26	49		Slight
	MADRAS	E	e	01	25	33		Slight	09	CHATRA	Z	iP iS	00	22	45	270	Feeble	
	SHILLONG	Z E N E	iP i	01	26	11		Slight	09	Epc: 54°N. 169°E. Komandosskie Islands. H 01h 38m 50s (U.S.C.G.S.)								
	POONA	Z	eP	01	26	44		Distant shock Phases not clear		SHILLONG	Z	eP	01	49	09		Slight	
	BOMBAY	E	eP PP e N E E	01	27	01	3570	Slight	09	Epc: New Britain Region. H 06h 15m 37s (U.S.C.G.S.)								
										SHILLONG	Z	eP	06	26	04		Slight	
	DEHRA DUN	N E	e	01	28	48		Feeble Phases not clear.		POONA	Z	iP	06	27	31		Tremor	
	HYDERABAD	E	e M	01	31	11		Moderate Per 12 secs 3	09	SHILLONG	Z	eP	06	52	22		Slight	
08	SHILLONG	Z	iP	03	41	57		Slight Compression	09	SHILLONG	Z	eP	07	59	49		Slight	
08	SHILLONG	Z	eP	03	44	03		Slight	09	Epc: 53°N. 167°W. Fox Islands H 07h 52m 56s (U.S.C.G.S.) H 07h 53m 00s (Moskva) Magnitude 5½(Pas). 6¼(Uppsala).								
08	Epc: 2°S. 09°E. Off West Coast of Sumatra H 05h 22m 26s (U.S.C.G.S.) H 05h 22m 25s (Moskva).									SHILLONG	Z E E N	eP eS	08	04	46	8470	Slight	
	MADRAS	E	eP eS SSS Lr M? i	05	27	41	2710	Slight		DEHRA DUN	N E	eP eS	08	05	05	9420	Feeble Phases not clear	
	SHILLONG	Z E E	iP iS	05	28	21	3110	Slight		POONA	Z	eP	08	06	05		Distant shock Phases not clear	
	CHATRA	Z E	iP iS	05	28	45	3430	Slight		BOMBAY	N E	eP eS	08	06	08	10390	Slight	
	POONA	Z E	eP e e	05	28	54		Slight			N	M		17	15		Per 19 secs 3	
	BOMBAY	E	eP e N E E	05	29	09	3550	Slight			E	M		53	19		Per 17 secs 3	
										HYDERABAD	E	e M	08	16	32		Per 18 secs 8	
										MADRAS	E	e	08	16	51		Feeble	
									09	SHILLONG	Z	iP	08	43	21		Slight	
									09	SHILLONG	Z	eP	08	45	02		Slight	
										KODAIKANAL	E	e	08	49	40		Tremor	
										COLOMBO	E	L M	08	55	50		Amp. 0.8 mm	



January 1957

h. m. s. km

January 1957

h. m. s. km

Date	Station	Magnitude	Depth (km)	Direction	Time (h:m:s)	Distance (km)	Intensity	Notes
13	SHILLONG	Z	eP	12 40 16			Slight	
	POONA	Z	iP	12 50 25 i 50 30			Tremor	
13	CHATRA	Z	iP	15 02 17 iS 02 40		190	Feeble	
13	SHILLONG	Z	eP	19 31 43			Slight	
14	SHILLONG	Z	eP	00 24 53			Slight	
14	Epc: 11°S. 163°E. Solomon Islands H: 00h 28m 38s (U.S.C.G.S) 11°S. 163°E. H: 00h 28m 40s (B.C.I.S.)							
	SHILLONG	Z	eP	00 40 41			Slight	
14	SHILLONG	Z	eP	04 46 26			Slight	
14	POONA	Z	eP	04 53 35 i 55 49			Tremor	
14	DEHRA DUN	N E	e	13 46 29			Tremor	
14	SHILLONG	Z	eP	13 47 47			Slight	
14	Epc: 22°S. 179°W. Fiji Islands Region H: 14h 20m 17s (U.S.C.G.S) h 600 km.							
	SHILLONG	Z	iP	14 32 57			Slight	
14	CHAEKA	Z	eP	17 57 08 iS 58 06		550	Slight	
15	Epc: 2°S. 76½°W. Equator. h 100 km H: 04h 09m 15s (U.S.C.G.S).							
	SHILLONG	Z	eP	04 29 03			Slight	
15	SHILLONG	Z	iP	05 53 12			Slight, local	
15	SHILLONG	Z E	eP	20 14 53			Slight	
15	Epc: 6½°N. 127°E. About 100 miles Off East Coast of Mindanao, Philippine Islands. h 100 km H: 20h 21m 45s (U.S.C.G.S)							
	SHILLONG	Z E	iP	20 29 05			Slight	
15	SHILLONG	Z	iP	20 37 43			Slight, local	
15	SHILLONG	Z	iP	20 41 42			Slight, local	
15	CHATRA	Z	eP	21 42 24 iS 43 34		670	Feeble	
16	Epc: 10°S. 67½°E. Chagos Island Region H: 11h 43m 30s (U.S.C.G.S) H: 11h 43m 27s (B.C.I.S.)							
	COLOMBO	F	P	11 48 20	2240			
			S	52 02				
			L	54 45				
			M	56 35			Amp. 1.4 mm	
	KODAIKANAL	E	iP	11 48 33	2590		Initial ground movement towards East. Moderate	
			PP	49 06				
			PPP	49 21				
			S	52 42				
			Lq	53 03				
			SSS	53 54				
			Lr	54 35			Per 9 secs	
			M	56 30			L 14.3	
	MADRAS	E	eP	11 49 04	2860		Slight	
			PP	49 40				
			eS	53 31				
			Lq	54 17				
			Lr	55 30				
			M	57 11				
	POONA	Z	iP	11 49 28	3120		Moderate	
		E	PP	50 24				
		N E	eS	54 12				
		E	Lq	55 51				
			SSS	56 12				
			M	59 32				
16	BOMBAY	N	eP	11 49 30	3230		Slight	
	Contd	E	eP	49 38				
		N E	PP	50 23				
		N	eS	54 22				
		E	eS	54 27				
			Lq	55 13				
			Lr	56 23				
			M	12 00 26			Per 11 secs	
							L 1.3	
		N	M	05 02			Per 9 secs	
							L 1.3	
	HYDERABAD	E	PP	11 50 16	3200		Moderate	
			eS	54 23				
			Lq	54 57				
			SS	55 23				
			Lr	56 21				
			M	58 23			Per 10 secs	
							L 1.4	
	NEW DELHI	N	eP	11 50 56	4250		Slight	
			PP	52 27				
			eS	56 51				
			SSS	12 00 03				
	CHATRA	Z	i	11 51 15			Slight, distant	
	SHILLONG	Z E	iP	11 51 25	4670		Slight	
			iS	57 45				
	DEHRA DUN	N E	e	11 51 50			Slight, Phases not clear.	
			iS	57 29				
16	SHILLONG	Z	eP	14 07 17			Feeble	
15	SHILLONG	Z	eP	18 46 53			Very feeble, Distant	
16	SHILLONG	Z	eP	19 31 07			Very feeble Distant	
17	SHILLONG	Z	eP	00 44 54			Slight	
17	SHILLONG	Z	iP	02 10 15			Slight	
17	SHILLONG	Z	iP	04 29 08			Slight, local	
	CHATRA	Z	iP	04 29 47	430		Slight	
			iS	39 40				
17	Epc: 7½°S. 129°E. h 100 km							
	SHILLONG	Z	iP	07 32 26			Slight	
17	SHILLONG	Z	eP	10 15 03			Very feeble, distant.	
17	SHILLONG	Z	eP	10 58 09			Slight	
17	SHILLONG	Z	eP	14 22 49			Feeble	
17	CHATRA	Z	iPg	15 05 26	100		Slight	
			iSg	05 40				
17	Epc: 21°N. 121°E. Batan Island Region H: 16h 21m 08s (U.S.C.G.S)							
	SHILLONG	Z	eP	16 26 55			Very feeble	
	DEHRA DUN	N E	e	19 02 48			Feeble, Phases not clear	
			i	09 52				
	CHATRA	Z	iP	19 10 04	1880		Slight	
			iS	13 12				
17	SHILLONG	Z	eP	19 10 47			Feeble	
17	Epc: 33°N. 137½°E. South of Honshu, Japan H: 22h 26m 10s (U.S.C.G.S) h 350 km 33°N. 137.8°E. (JMA Japan) h 360 km H: 22h 26m 49s (B.C.I.S.)							
	SHILLONG	Z E	iP	22 33 53	4330		Slight	
			iS	39 06				
		E	e	39 36				



DATE	STATION	COMPT	PHASE	G	M	T	$\Delta$	REMARKS	DATE	STATION	COMPT	PHASE	G	M	T	$\Delta$	REMARKS			
January 1957									January 1957											
				h	m	s	km						h	m	s	km				
17	CHATRA Contd.	Z	iP e	22	34	23		Slight	20	BOMBAY Contd	N E N.E	eP ePP PPP	18	16	51	2000	Slight and somewhat deep			
	DEHRA DUN	N.E	e	22	35	12		Feeble Phases not clear			N	eS SS SSS	17	21	20	20				
	POONA	Z	iP	22	36	10		Feeble shock Phases not clear			E	e	20	23	20	42				
	BOMBAY	N,E E N,E	eP PP eS PPS	22	36	15	6440	Slight and somewhat deep		POONA	Z N.E	eP eS SS Lr M e	18	16	53	2120	Moderate			
18	SHILLONG	Z	iP	03	45	33		Very feeble		SHILLONG	Z.E E	iP PP PPP iS Lq Lr SS SSS i(?) Lr M	18	17	23	2390	Slight Depth 200 km			
18	SHILLONG	Z	eP	05	43	11		Feeble, local					17	53	18	09				
18	SHILLONG	Z	eP	11	56	01		Very feeble					21	09	22	43				
18	SHILLONG	Z	eP	11	56	33		Feeble					21	53	22	10				
18	CHATRA	Z	iP iS	15	42	43	180	Feeble					22	10	22	20				
18	CHATRA	Z	iP iS	18	01	47	150	Feeble					22	40	24	14				
19	Epc: 214°S, 179°W. Fiji Islands Region - H = 05h 16m 37s (U.S.C.G.S.) - h = 650 km Magnitude = 6.4(Pas), 6.4(Berk)																			
	SHILLONG	Z	eP	05	29	13		Slight		HYDERABAD	E	ePP eS e SS Lr M	18	17	43	2280	Slight			
19	SHILLONG	Z	eP	08	07	12		Slight, local					21	29	21	43		Per 5 secs		
19	SHILLONG	Z	eP	11	37	59		Slight, local		MADRAS	E	eS i	18	22	29		Slight	4		
	CHATRA	Z	iPg iSg	11	54	32	80	Feeble		KODAIKANAL	E	eSS	18	24	40		Tremor			
19	SHILLONG	Z,E E	iP i i	14	19	15		Slight		21 SHILLONG	Z	eP	04	35	17		Slight			
	DEHRA DUN	N,E	e i	14	29	27		Feeble Phases not clear		21 SHILLONG	Z	iP	05	22	33		Slight			
19	CHATRA	Z	iPg iSg	16	32	55	100	Feeble		21 DEHRA DUN	N,E	e	07	31	19		Tremor			
20	POONA	Z	ePP	11	08	55		Tremor		21 SHILLONG	Z	eP	14	39	30		Slight			
20	Epc: 29°N, 129°E. Northern Ryukyu Islands - H = 13h 52m 40s (U.S.C.G.S. & B.C.I.S.) 28°N, 130°E. - H = 13h 52m 33s (JMA, Japan)																			
	SHILLONG	Z	eP	13	59	24		Slight		21 SHILLONG	Z	eP	19	49	19		Very feeble			
	CHATRA	Z	ePPP	13	59	59		Slight, distant		22 POONA	Z	iP i	11	27	23		Tremor			
20	Epc: 36 1/2°N, 71 1/2°E. Hindukush - h = 150 km - H = 18h 12m 47s (U.S.C.G.S. & B.C.I.S.) 37°N, 71°E - H = 18h 12m 48s (Moskva) 36.8°N, 71.5°E - H = 18h 12m 40s (Shillong) - h = 200 km										22 Epc: 41°S, 284°E. Belgicaongo - H 11h 18m 23s (U.S.C.G.S.) 44°S, 284°E. - H = 11h 18m 27s (B.C.I.S.) 44°S, 294°E. (Tonganyaka) Magnitude: 6.3(Luizo) 6.1(Asitida)									
	DEHRA DUN	N,E N	eP PP Lq iS SS/Lr SSS Sg/M	18	14	48	910	Slight		BOMBAY	E N	eP e eS M	11	27	28	5410	Slight			
	NEW DELHI.	N	eP P* Pg Lq iS SS SSS Sg	18	15	02	1120	Slight					11	27	28		Per 19 secs			
	CHATRA	E	eP iS	18	16	37	1990	Slight		SHILLONG	Z	iP	11	29	29		Slight	2		
				15	32	16	06			COLOMBO	E	L M	11	45	22		Amp = 0.2 mm			
				16	06	16	43			MADRAS	E	e	11	46	52		Feeble			
				16	43	16	19			HYDERABAD	E	M	11	51	04		Per 15 secs			
				16	54	17	08										3			
				17	08	17	20			22 Epc: 11°S, 166 1/2°E - H = 12h 31m 54s (U.S.C.G.S.)										
				17	55					SHILLONG	Z	iP	12	44	15		Slight			
										CHATRA	Z	iP	12	44	36		Slight, distant			
										22 CHATRA	Z	iPg iSg	21	31	28	70	Feeble			

DATE	STATION	COMPT	PHASE	Q	M	T	REMARKS	DATE	STATION	COMPT	PHASE	Q	M	T	REMARKS
January 1957															
22	MADRAS	E						24							
	SHILLONG	Z													
	POONA	Z													
23	SHILLONG	Z													
23	SHILLONG	Z													
23	DEHRA DUN	N, E													
23	CHATRA	Z													
23	DEHRA DUN	N, E													
23	Epc: 37°N, 22½°E Near ... H = 17h 25m 51s ... Magnitude: 5½ (Athens ...)														
	POONA	Z													
	CHATRA	Z													
23	Epc: 42½°N, 42½°E ... H = 22h 04 ... H = 22h 02 ...														
	SHILLONG	Z													
24	CHATRA	Z						24	DEHRA DUN	N, E					
24	Epc: 6°S, 147°E ... H = 01h 17m ...														
	MADRAS	E													
	DEHRA DUN	N, E													
	POONA	Z													
	POONA	E													
	BOOMBAY	E													
24	SHILLONG	Z													
	DEHRA DUN	N, E													
24	Epc: 12½°S, 78 ... H = 07h ... Magnitude: 6½ (Berk) ...														
	POONA	Z													
	BOOMBAY	N, E													
	SHILLONG	Z													
24	CHATRA	Z						25	SHILLONG	Z					
24	COLOMBO	E													
	HYDERABAD	E													
24	SHILLONG	Z													
	CHATRA	Z						25	SHILLONG	Z					
	POONA	Z													
	CHATRA	Z						25	SHILLONG	Z					
	POONA	Z													
	BOOMBAY	E													

DATE	STATION	COMPT	PHASE	G.	M.	T.	$\Delta$	REMARKS	DATE	STATION	COMPT	PHASE	G.	M.	T.	$\Delta$	REMARKS
January 1957				h.	m.	s.	km		January 1957				h.	m.	s.	km	
26	SHILLONG	Z	eP	06	28	23		Slight	27	BOMBAY	E	eP	14	12	39	5745	Slight
	DEHRA DUN	N,E	e	07	19	12		Feeble, phases not clear	Contd.		N,E	eS		14	41		
			i		20	18					E	e		24	08		
			i		20	28					M			39	11		Per. = 17 secs $\mu = 1$
	CHATRA	Z	eP	07	20	41	1350	Slight		DEHRA DUN	N,E	i	14	15	43		Feeble, phases not clear
	SHILLONG	Z	iP	07	21	23		Feeble	28	Epc: 27°N, 130°E. Ryukyu Islands							
	POONA	Z	eP	07	24	59		Tremor		H = 05h 23m 25s (U.S.C.G.S)							
26	Epc: 11°N, 125°E. Near the East Coast of Samar, Phillipines.								CHATRA	Z	eP	05	30	49			Slight, distant
	H = 08h 57m 50s (U.S.C.G.S).								POONA	Z	iP	05	32	42			Tremor
	SHILLONG	Z	iP	09	04	40					i			32	47		
	CHATRA	Z	iP	09	05	18		Feeble, near	DEHRA DUN	N,E	e	05	38	34			Feeble, phases not clear
	POONA	Z	iP	09	06	48		Tremor	BOMBAY	N,E	eS	05	40	21			Very feeble
			ipP		07	02				N	M		58				
	SHILLONG	Z	e	09	10	54		Slight		E	M	06	01				
26	SHILLONG	Z	eP	09	26	06		Slight	28	Epc: 38°N, 69°E. Ryukyu Islands							
26	SHILLONG	Z	iP	16	26	43		Feeble, distant		37°N, 69°E. Tadzhek, U.S.S.R.							
										H = 21h 01m 42s (U.S.C.G.S)							
26	Epc: 42°N, 42°E. Georgia, U.S.S.R.								DEHRA DUN	N,E	e	21	05	09			Feeble, phases not clear
	H = 16h 30m 48s (U.S.C.G.S)																
	42°N, 42°E. H = 16h 30m 48s (Moskva and B.C.I.S). Magnitude = 5 (Moskva).								28	POONA	Z	eP	21	05	48		Tremor
											e			05	58		
	POONA	Z	eP	16	37	50	3890	Tremor	28	Epc: 49°N, 156°E. Northern Kurile Islands							
			ipP		38	15				H = 23h 18m 51s (U.S.C.G.S)							
	CHATRA	Z	e	16	38	22		Slight, distant	POONA	Z	iP	23	30	08			Tremor
	SHILLONG	Z	iP	16	38	56		Slight, very distant			i		30	14			
26	SHILLONG	Z	iP	17	35	30		Very feeble, distant	29	SHILLONG	Z	eP	12	11	45		Slight
	CHATRA	Z	e	17	39	40		Tremor	29	CHATRA	Z	eP	14	12	53	820	Slight
26	SHILLONG	Z	iP	17	51	42		Slight, distant			iS		14	18			
26	CHATRA	Z	i	20	08	51		Tremor	29	SHILLONG	Z	eP	14	39	15		Slight
26	SHILLONG	Z	eP	22	40	58		Very feeble	29	SHILLONG	Z	eP	15	07	08		Slight
26	SHILLONG	Z	eP	23	54	57		Very feeble	29	Epc: 42°N, 42°E. Georgia After shock							
27	CHATRA	Z	iPg	00	47	27	70	Feeble		H = 15h 17m 30s (Moskva)							
			iSg		47	36				43°N, 43°E. H = 15h 17m 30s (U.S.C.G.S)							
27	SHILLONG	Z	e	11	11	12		Slight	SHILLONG	Z	eP	15	25	38			Slight
			i		12	03			29	Epc: Georgia After shock. H = 15h 21m 26s (Moskva).							
27	COLOMBO	E	L	11	30	21		Amp. = 0.4 mm	SHILLONG	Z	eP	15	29	33			Slight
			M		33	31			29	DEHRA DUN	N,E	e	15	36	14		Feeble. Phases not clear
27	Epc: 10°N, 126°E. Mindanao, Phillipine Islands. Felt: Surigao. H = 14h 03m 22s (U.S.C.G.S) Magnitude = 5½ (Moskva).								29	SHILLONG	Z	eP	18	34	47		Slight
	SHILLONG	Z	iP	14	10	25		Slight	29	SHILLONG	Z	eP	18	56	35		Slight
	MADRAS	E	eP	14	11	44	5150	Slight, distant	29	SHILLONG	Z	iP	21	28	09		Slight
			eS		18	32			30	SHILLONG	Z	eP	02	01	20		Slight
			M		27	33			30	CHATRA	Z	iP	16	26	12	190	Slight
27	HYDERABAD	E	eP	14	11	55	5170	Slight			iS		26	35			
			PP		13	49			31	SHILLONG	Z	iP	05	27	11		Slight
			PcS		17	23			31	CHATRA	Z	iP	19	10	21	970	Slight
			eS		18	44					iS		12	01			
			PS		18	57											
			PPS		19	05											
			SS		22	16											
			L		25	00		Per. = 21 secs $\mu = 5$									
			M		29	50											
27	COLOMBO	E	P	14	11	51	5020										
			S		18	31											
			L		28	21		Amp. = 0.8 mm									
			M		32	11											
	POONA	Z	iP	14	12	32	5600	Tremor									
			ipP		12	42											

1970

1970



GOVERNMENT OF INDIA  
METEOROLOGICAL DEPARTMENT

SEISMOLOGICAL BULLETIN



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*Shri S. Basu, M.Sc., F.N.I.,*  
Director General of Observatories

List of Seismograph stations with their Instruments and Constants

Station	Latitude	Longitude	Height a. s. l. (Metres)	Lithographic foundation	Instrument	Comp.	Period in secs	Static Magnification	Damping ratio	Paper speed mm/min
Bombay	18° 54' N	72° 49' E	6	Deccan Trap	Milne-Shaw	N	12	350	13:1	16
					Milne-Shaw	E	12	350	23:1	8
					Sprengnether	E	To = Tg = 7 secs		30	
Bokaro	23° 50' N	85° 48' E	-	Rock	Milne-Shaw	N	12	250	20:1	16
					Milne-Shaw	E	12	250	20:1	16
					Wood-Anderson	E	0.8	960	h=0.8	0
					Wood-Anderson	N	0.8	1000	h=0.8	60
Calcutta	22° 32' N	88° 22' E	(1) 7 (Milne-Shaw) (2) 6 (Omori-Ewing)	Alluvium	Milne-Shaw	E	12	250	20:1	8
					Wood-Anderson	N	2	870	Critical	30
					Omori-Ewing	N	16	32	-	25.4
					Omori-Ewing	E	21	30	-	25.4
Chatra	26° 50' N	87° 10' E	161	Sand Stone	Milne-Shaw	E	12	250	20:1	16
					Wood-Anderson	N	1	1000	30:1	60
					Benioff	Z	To=0.72 Tg=0.45 secs.		Critical	60
					Wenner-Accelerograph	ZNE	-	-	-	-
Colombo	06° 54' N	79° 52' E	7	Beach Sand	Milne-Shaw	E	12	250	20:1	-
Dehra Dun	30° 19' N	78° 02' E	682	Gravel	Wood-Anderson	N	0.8	950	Critical	60
					Wood-Anderson	E	0.8	850	Critical	60
					Milne-Shaw	N	12	250	20:1	8
					Milne-Shaw	E	12	250	20:1	8
Hyderabad	17° 26' N	78° 27' E	536	Granite	Milne-Shaw	E	12	250	20:1	8
					Milne-Shaw	N	12	250	20:1	8
Kodaikanal	10° 14' N	77° 28' E	2346	Rock	Milne-Shaw	E	10	250	20:1	8
Madras	13° 00' N	80° 11' E	15	-	Sprengnether	E	To=Tg=72 secs		Critical	30
New Delhi	28° 35' N	77° 12' E	207	Massive Quartzite						
Poona	18° 32' N	73° 51' E	560	Deccan Trap	Sprengnether	Z	To=Tg=1.6		Critical	30
					Wood-Anderson	E	4	1000	20:1	16
					Milne-Shaw	N	12	280	20:1	8
Port Blair	11° 40' N	92° 43' E	-	-	Wood-Anderson	N	2	1000	20:1	30
					Wood-Anderson	E	0.8	1000	66:1	30
					Milne-Shaw	N	12	350	20:1	8
Shillong	25° 34' N	91° 53' E	1600	Quartzite Sand Stone (Shillong Quartzite)	Wood-Anderson	N	0.8	1000	h=0.8	30
					Wood-Anderson	E	0.8	1000	h=0.8	30
					Milne-Shaw	N	12	250	20:1	8
					Benioff	Z	To=1.0 Tg=0.18		-	60
					Sprengnether	E	To=Tg=6.5		Critical	30
Tocklai	28° 45' N	94° 46' E	-	Alluvium	Wenner Accelerograph	ZNE	-	-	-	-
					Wood-Anderson	E	0.8	970	h=0.8	60
Vizianagram	18° 07' N	83° 27' E	-	-	Wood-Anderson	E	0.8	1000	h=0.8	30
					Wood-Anderson	N	2	1000	20:1	30

DATE	STATION	COMPT	PHASE	G. M. T.	$\Delta$	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T.	$\Delta$	REMARKS	
				h. m. s.	km						h. m. s.	km		
February 1957														
01	SHILLONG	Z	eP	11 48 07		Slight	03	Epc: 53 $\frac{1}{2}$ $^{\circ}$ N, 159 $^{\circ}$ E. Kamchatka. Aftershock of previous Kamchatka shock. - H = 22h 58m 24s (U.S.C.G.S).						
01	DEHRA DUN	N,E	e i i	15 12 43 14 13 14 35		Feeble. Phases not clear		POONA	Z N	iP M	23 09 51 41 11		Slight. Other phases not clear	
	CHATRA	Z	iP i	15 14 27 17 54		Slight		HYDERABAD	E	e	23 39 04			
	POONA	Z	iP i	15 14 43 14 50		Tremor	04	CHATRA	Z	eP iS	01 36 58 37 11	100	Feeble	
01	POONA	Z	iP i	15 18 30 18 50		Tremor	04	SHILLONG	Z	iP	07 17 46		Slight Rarefaction	
01	CHATRA	Z	eP iS	21 05 52 06 32	260	Feeble	04	SHILLONG	Z	eP	09 21 25		Slight	
01	DEHRA DUN	N,E	e	23 52 11		Tremor	04	Epc: 51 $^{\circ}$ N, 160 $^{\circ}$ E. Off South Coast of Kamchatka. - H = 10h 28m 27s (U.S.C.G.S) Magnitude = 5 $\frac{1}{2}$ (Moscow)						
	CHATRA	Z	iP iS	23 52 59 56 11	1920	Feeble		SHILLONG	Z N	iP eP eS M	10 38 19 46 10 58 25	6280	Rarefaction	
02	CHATRA	Z	iP iS	01 36 50 37 23	490	Slight		CHATRA	Z E	iP e	10 38 30 38 45			
02	DEHRA DUN	N,E	e	13 43 12		Tremor		POONA	Z N N,E N	iP PP e eS e M Mn	10 40 03 42 33 48 49 49 35 53 26 56 20 11 06 58 09 10	8220	Per. = 21 secs $\mu = 6.3$	
02	DEHRA DUN	N,E	e	14 26 12		Tremor		BOMBAY	E	eP eS M	10 40 05 49 39 11 16 39	8250	Per. = 15 secs $\mu = 1$	
02	DEHRA DUN	N,E	e	14 36 57		Tremor	04	DEHRA DUN	N,E	i	10 47 20		Feeble. Phases not clear	
02	COLOMBO	E	e e e e	17 46 55 55 30 18 12 25 16 30				SHILLONG	Z	eP	10 46 18		Slight Rarefaction	
03	SHILLONG	Z	iPg eSg	00 17 31 17 34	70	Slight. Felt locally	04	HYDERABAD	E	M	11 11 13		Per. = 14 secs $\mu = 3$	
	CHATRA	Z E	eP e	00 18 38 19 46	750	Feeble	04	SHILLONG	Z	eP	14 43 27		Slight Rarefaction	
03	DEHRA DUN	N,E	e	16 37 39		Feeble. Phases not clear	05	SHILLONG	Z	ePg	04 03 35		Slight	
03	Epc: 53 $\frac{1}{2}$ $^{\circ}$ N, 159 $^{\circ}$ E. Kamchatka - H = 17h 24m 50s (U.S.C.G.S) - H = 17h 24m 52s (Moscow) Magnitude = 6 $\frac{1}{2}$ -(Pasadena), 6 $\frac{1}{4}$ -(Moscow, Berkeley).							05	SHILLONG	Z	e	08 54 25		Slight
	CHATRA	Z E	eP eS	17 34 43 42 45	6480		05	CHATRA	Z	iP iS	12 12 09 12 19	70	Feeble, distant	
	NEW DELHI	N	eP PP e iS i i	17 35 16 37 56 42 24 43 52 45 00 47 03	7110		05	SHILLONG	Z	eP	16 09 45		Slight Compression	
	POONA	Z N N,E N	iP PP PPP eS e e M	17 36 17 38 57 40 44 45 27 50 33 53 43 18 05 24	7780	Slight Per. = 15 secs $\mu = 11.3$	06	SHILLONG	Z	eP	03 12 21		Slight	
	BOMBAY	N N,E N E	eP PP eS M	17 36 18 39 07 45 31 18 08 45	7830	Moderate Per. = 15 secs $\mu = 9$ Per. = 18 secs $\mu = 7$	06	SHILLONG	Z	eP	04 31 32		Slight	
	MADRAS	E	e e	17 39 11 18 09 08		Feeble	06	SHILLONG	Z	eP	05 12 46		Slight Rarefaction	
	HYDERABAD	E	e M	17 54 55 18 05 04		Per. = 15 secs $\mu = 7$	06	SHILLONG	Z	eP	08 31 12		Slight	
	KODAIKANAL	E	e	18 06 15			06	SHILLONG	Z	iP	12 00 27		Slight Compression	
03	CHATRA	Z	iP iS	18 07 27 07 52	210	Slight	06	Epc: 5 $^{\circ}$ N, 106 $^{\circ}$ E. Lake Baikal Region - H = 20h 34m 55s (U.S.C.G.S) 50 $\frac{1}{2}$ $^{\circ}$ N, 105 $^{\circ}$ E. - H = 20h 35m 01s (Moscow). Magnitude = 6.4 (Uppsala, Kiruna), 6 (Moscow), 6 $\frac{1}{4}$ (Prah).						
								SHILLONG	N	eP eS	20 40 40 45 19	3030		





DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	$\Delta$ km	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	$\Delta$ km	REMARKS	
February 1957							February 1957							
10	HYDERABAD Contd.	E	iP PcP PP PPP iS PS SS Lr M	22 40 49 42 20 42 38 43 37 47 41 47 50 51 12 54 13 58 14	5220	Initial ground movement towards West.	11	MADRAS Contd.	E	eP PP PPP eS PPS SS Lq M	01 23 01 24 52 25 23 29 22 29 38 32 26 33 03 38 56	4690		
	COLOMBO	E	S e M	22 47 51 58 06 23 02 01		Per. = 17 secs $\Delta$ = 18  Amp: 3.6 mm		COLOMBO	E	P S L M	01 23 21 29 51 39 51 42 51	4830	Amp. = 2.6 mm	
	KODAIKANAL	E	iP PP PPP S SS SSS Lr M	22 41 02 42 56 43 53 48 08 51 38 53 05 55 26 59 32	5480	Per. = 15 secs $\Delta$ = 19.6		HYDERABAD	E	iP PP PPP iS ScS SS Lq Lr M	01 23 21 25 13 25 46 30 10 32 52 33 41 34 34 36 43 40 48	5170	Initial ground movement towards West.  Per. = 18 secs $\Delta$ = 20	
	DEHRA DUN	N, E N	eP PPP iS PS SS Lq SSS Lr M	22 41 00 44 02 48 07 48 25 51 36 52 25 52 51 54 48 58 43	5500			DEHRA DUN	N, E N	eP iS PS Lq Lr M	01 23 36 30 37 30 50 34 50 37 25 41 25	5390		
	NEW DELHI	N	eP PPP e iS i ScS SS SSS i M	22 41 02 43 56 47 46 48 10 49 07 50 54 51 51 53 11 54 25 59 29	5510			KODAIKANAL	E	iP PP PPP S SS SSS Lr M	01 23 32 25 26 26 23 30 38 34 08 35 35 37 56 42 02	5480	Initial ground movement towards East  Per. = 20 secs $\Delta$ = 40	
	POONA	Z E	iP PP PPP e eS e e	22 41 22 43 12 44 15 48 32 48 38 50 46 51 54	5650			POONA	Z E	iP eS	01 23 47 31 05	5690	Aftershock of the previous one	
	BOMBAY	E	eP PP eS PS PPS i i M	22 41 30 43 29 48 52 49 03 49 08 23 02 14 07 30 26 --	5750			BOMBAY	N, E  E N E	eP PP PcS eS PS Lq M M	01 24 03 26 06 29 05 31 23 31 37 35 43 46 39 54 11	5720	Per. = 22 secs $\Delta$ = 16 Per. = 15 secs $\Delta$ = 8	
10	CHATRA	Z	e	22 58 32			11	SHILLONG	Z	iP	03 18 46		Slight Compression	
	BOKARO	N, E	i i i i	22 58 35 59 56 23 00 13 00 39		Slight. Phases not clear	11	SHILLONG	Z	iP	03 32 25		Slight Compression	
	POONA	Z E	iP eS	22 59 59 23 07 18	5700	Moderate, after- shock of the previous one.	11	SHILLONG	Z	iP	03 43 16		Slight Rarefaction	
11	Epc: 10°N, 126°E. Mindanao, Philippines - H = 01h 14m 44s (U.S.C.G.S) Magnitude = 6.6 (Uppsala, Kiruna), 6½ (Pasadena, Praha).							11	SHILLONG	Z	iP	03 51 35		Slight Rarefaction
	SHILLONG	N	iP PP PPP iS SSS M	01 21 43 23 13 23 39 27 17 30 06 34 29	3930		11	SHILLONG	Z	iP	03 52 13		Feeble, distant	
	CHATRA	Z	i	01 22 24		Distant	11	SHILLONG	Z	eP	04 11 43		Compression Slight	
	BOKARO	N, E	i	01 22 32			11	SHILLONG	E	e e	04 11 49 14 29		Amp. = 0.4 mm	
							11	SHILLONG	Z	eP	04 02 09		Slight Compression	
							11	SHILLONG	Z	eP	04 54 57		Slight	
							11	SHILLONG	Z	iP	04 58 56		Slight Rarefaction	
							11	SHILLONG	Z	iP	06 54 42		Slight	
							11	SHILLONG	Z	eP	07 04 11		Slight	

DATE	STATION	COMPT	PHASE	G	M	T	$\Delta$	REMARKS	DATE	STATION	COMPT	PHASE	G	M	T	$\Delta$	REMARKS
				h	m	s	km						h	m	s	km	
February 1957																	
11	SHILLONG	Z	iP'	07	35	32		Slight	12	HYDERABAD	E	M	09	33	19		Per: 15 secs $\mu$ = 2
11	SHILLONG	Z	eP	07	51	58		Slight Rarefaction	12	CHATRA	Z	iP	10	45	48	80	Slight
11	SHILLONG	Z	eP	09	48	29		Slight	13	Epc: 10°N 126°E Mindanao aftershock							
11	SHILLONG	Z	eP	11	12	35		Slight		H = 00h 29m 48s (U.S.C.G.S).							
11	Epc: 10°N 126°E Mindanao, Philippines H = 14h 25m 38s (U.S.C.G.S). Mindanao aftershock. Magnitude: 6.6(Pasadena), 6.2(Uppsala, Kiruna).									SHILLONG	N.E	iP	00	36	54	3970	
	SHILLONG	Z	eP	14	32	40						PP	38	18			
	CHATRA	Z	e	14	33	22		Distant				PPP	38	40			
		E	e		43	26		surface waves.				iS	42	31			
	MADRAS	E	eP	14	34	01	5080					SS	44	55			
			PP		35	49						Lq	45	03			
			e		39	45						SSS	45	29			
			eS		40	44						Lr	46	47			
			SS?		43	56						M	49	23			
			M		50	15											
	COLOMBO	E	P	14	34	08	5100										
			S		40	52											
			L		52	55		Amp: 0.7 mm									
			M		55	40											
	HYDERABAD	E	iP	14	34	14	5220	Initial ground									
			PP		36	04		movement towards									
			PcS		39	47		West									
			iS		41	06											
			Lr		47	35											
			M		51	33		Per: 15 secs $\mu$ = 4									
	KODAIKANAL	E	e	14	34	22											
	DEHRA DUN	N.E	e	14	34	44		Phases not									
			i		41	39		clear									
	POONA	Z	iP	14	34	49	5710	Slight									
		E	eS		42	08											
	BOMBAY	N.E	eP	14	34	57	5750										
		E	PP		37	00											
		N.E	eS		42	18											
		E	PS		42	30											
			Lq		46	34											
			M		15	01	34	Per: 15 secs $\mu$ = 2									
	BOKARO	N	e	14	39	31											
11	SHILLONG	Z	eP	16	05	17		Slight Rarefaction									
11	SHILLONG	Z	eP	16	13	18		Slight									
11	COLOMBO	E	P	19	11	50											
			L		23	50											
			M		26	30		Amp: 0.2 mm									
12	SHILLONG	Z	eP	03	32	03		Slight									
12	SHILLONG	Z	iP	04	56	10		Slight									
12	CHATRA	Z	iP	05	34	44	150	Feeble									
			iS		35	03											
12	Epc: 48°N 155°E. Northern Kurile Islands H = 08h 52m 48s (U.S.C.G.S)																
	SHILLONG	Z	iP	09	02	12		Slight									
	CHATRA	Z	e	09	02	29		Feeble, distant									
	DEHRA DUN	N.E	e	09	02	51		Tremor									
	POONA	Z	iP	09	04	07		Tremor									
			i		04	27											
	BOMBAY	N.E	eP	09	04	10	7810	Slight									
		E	eS		13	22											
			M		38	22		Per: 13 secs $\mu$ = 1									
		N	M		38	23		Per: 15 secs $\mu$ = 2									
13	MADRAS	E	e	04	47	50		Feeble									
	SHILLONG	Z	eP	04	48	23		Slight									
	CHATRA	Z	eP	04	48	53	2150	Slight									
		E	iS		52	26											
	POONA	Z	eP	04	49	27		Tremor									
13	SHILLONG	Z	eP	10	08	46		Feeble									
13	SHILLONG	Z	eP	12	44	30		Slight									

DATE	STATION	COMPT	PHASE	G. h.	M. m.	T. s.	Δ km	REMARKS	DATE	STATION	COMPT	PHASE	G. h.	M. m.	T. s.	Δ km	REMARKS
February 1957									February 1957								
13	SHILLONG	Z	eP	14	17	28		Slight	16	CHATRA	Z	iP	14	19	13		Slight
13	SHILLONG	Z	eP	14	51	09		Slight	Contd.			i	21	10			
13	SHILLONG	Z	iP	16	45	34		Slight, local		POONA	Z	iP	14	19	45		Tremor
13	SHILLONG	Z	iP	17	02	28		Slight	16	SHILLONG	Z	iP	15	34	03		Slight
13	SHILLONG	Z	ePg Sg	19	34	37 34	90	Slight	16	SHILLONG	Z	eP	20	10	49		Slight, local
13	SHILLONG	Z	iP	20	30	41 30		Slight, distant	16	SHILLONG	Z	iP	21	08	48		Feeble, distant
13	SHILLONG	Z	iP	21	43	35		Feeble	16	SHILLONG	Z	eP	23	55	29		Very feeble
13	SHILLONG	Z	eP	22	50	33		Very feeble	17	SHILLONG	Z	iP	07	39	41		Slight
14	SHILLONG	Z	eP	10	23	19		Feeble	17	SHILLONG	Z	iP	09	57	02		Slight, distant
14	SHILLONG	Z	eP	16	47	41		Slight	17	SHILLONG	Z	eP Sg	16	01	40 02	180	Slight
14	SHILLONG	Z	eP Sg	16	10	48 11	200	Feeble	17	SHILLONG	Z	iP Sg	13	32	18 32	210	Slight
14	CHATRA	Z	i	18	30	38		Feeble, near	17	SHILLONG	Z	eP Sg	14	55	04 55	210	Feeble, local
	SHILLONG	Z	eP Sg	18	30	43 31	200	Very feeble	17	SHILLONG	Z	eP	16	05	56		Feeble
14	CHATRA	Z	iP iS	20	03	17 03	180	Feeble		POONA	Z	iP i	16	06	19 06		Tremor
14	SHILLONG	Z	eP	20	44	49		Very slight, local.	17	SHILLONG	Z	iP	16	12	44		Slight
14	SHILLONG	Z	iP	22	32	18		Slight	17	SHILLONG	Z	eP	17	53	50		Slight
14	SHILLONG	Z	iP	23	07	00		Slight	17	SHILLONG	Z	eP	20	34	55		Very feeble
	DEHRA DUN	N, E	e	23	22	16		Feeble. Phases not clear	17	SHILLONG	Z	iP Sg	21	18	59 19	160	Slight
14	SHILLONG	Z	iP	23	41	07		Feeble	17	SHILLONG	Z	eP	22	17	47		Very feeble
15	SHILLONG	Z	eP	07	16	31		Slight	18	SHILLONG	Z	iP	00	27	38		Slight
15	SHILLONG	Z	eP	07	52	46		Feeble	18	SHILLONG	Z	iP	00	33	48		Slight
15	SHILLONG	Z	e	07	53	25		Feeble	18	SHILLONG	Z	iP	00	55	49		Very feeble, distant
15	SHILLONG	Z	eP	07	59	01		Feeble	18	SHILLONG	Z	iP	02	39	58		Slight
15	SHILLONG	Z	eP	11	25	17		Slight		CHATRA	Z	eP iS	02	40	26 41	300	Feeble
15	SHILLONG	Z	iP	12	09	12		Slight, local	18	SHILLONG	Z	iP	07	26	16		Slight
15	CHATRA	Z	iP iS	12	10	02 11	1040	Feeble	18	SHILLONG	Z	iP	08	00	58		Slight
15	SHILLONG	Z	iP	16	43	10		Slight	18	SHILLONG	Z	eP	14	00	10		Very feeble
15	SHILLONG	Z	eP	16	59	57		Very feeble		POONA	Z	eP	14	51	02		Tremor
15	SHILLONG	Z	eP	17	52	24		Very feeble	18	DEHRA DUN	N, E	e i	15	14	55 15		Feeble. Phases not clear
15	SHILLONG	Z	iP	17	56	51		Slight		CHATRA	Z	eP iS	15	16	32 18	1190	Slight
15	SHILLONG	Z	eP	18	58	25		Very feeble	18	SHILLONG	Z	eP	16	21	49		Feeble, distant
15	SHILLONG	Z	eP	19	46	03		Feeble	18	SHILLONG	Z	eP	21	28	26	260	Slight
15	SHILLONG	Z	iP	20	13	31		Feeble		CHATRA	Z	iP iS	21	28	26 28		
15	SHILLONG	Z	iP	21	55	12		Feeble	18	SHILLONG	Z	eP	21	33	12		Very feeble distant
15	SHILLONG	Z	eP	22	13	58		Very feeble	18	SHILLONG	Z	eP	22	44	44		Feeble, distant
15	SHILLONG	Z	eP	22	24	32		Feeble	19	POONA	Z	iP i	00	09	31 09		Tremor
16	SHILLONG	Z	eP	09	56	57		Very feeble		SHILLONG	Z	iP	00	09	46		Slight, very distant
16	SHILLONG	Z	eP	11	22	34		Feeble									
16	Epc: 5 1/2° S, 110° E. Java Sea. - h = 55 Km Ca. - H = 14h 12m 30s (U.S.C.G.S).																
	SHILLONG	Z	iP	14	18	48		Slight									

DATE	STATION	COMPT	PHASE	G. M. T.			$\Delta$ km	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T.			$\Delta$ km	REMARKS
				h	m	s							h	m	s		
February 1957																	
19	SHILLONG	Z	eP	04	37	25		Slight distant	20	MADRAS	E	iP	22	03	03	2200	Ground movement towards East.
19	SHILLONG	Z	iP	05	22	00		Slight distant Rarefaction	Contd.			PP	03	24			
19	SHILLONG	Z	eP	07	47	12		Slight distant				eS	06	41			
19	Epc: 36°N, 22°E. Near South Coast of Greece.											Lq	06	49			
	36½°N, 21½°E. - H = 07h 43m 54s (U.S.C.G.S.)											SS	07	11			
	Magnitude = 6¾(Uppsala, Kiruna, Bratestava), 6 2(Kew), 6 (Athenes).											SSS?	07	29			
	DEHRA DUN	N,E	e	07	52	24		Phases not clear				Lr	07	51			
	BOMBAY	N,E	eP	07	52	38	5300					M	09	37			
	POONA	Z	iP	07	52	45		Feeble shock									
	CHATRA	Z	i	07	53	31		Feeble near									
	SHILLONG	Z	eP	07	53	47		Moderate distant									
	HYDERABAD	E	eS	08	02	40		Per. 12 secs									
	19 CHATRA	Z	i	13	55	56		Feeble near									
	19 SHILLONG	Z	iP	17	01	42		Slight distant Compression									
	19 SHILLONG	Z	iP	17	26	10		Moderate distant Rarefaction									
	19 SHILLONG	Z	iP	17	31	31		Tremor Rarefaction									
	19 Epc: 56°N, 164°E. Near East Coast of Kamchatka																
	56°N, 163°E. - H = 19h 58m 55s (U.S.C.G.S.)																
	Magnitude = 5½ (Moscoa).																
	SHILLONG	Z	eP	20	08	57		Distant Rarefaction									
	POONA	Z	i	20	11	27											
	19 SHILLONG	Z	iP	20	25	43		Distant Rarefaction									
	CHATRA	Z	iP	20	27	41											
	20 SHILLONG	Z	iP	04	52	15		Slight distant Compression									
	20 SHILLONG	Z	eP	06	44	15		Feeble distant									
	20 SHILLONG	Z	eP	09	43	18		Feeble distant Compression									
	20 SHILLONG	Z	eP	13	09	23		Slight distant									
	20 CHATRA	Z	i	13	09	36		Feeble. near									
	20 CHATRA	Z	iP	14	07	50	100	Feeble									
	20 SHILLONG	Z	eP	17	22	23		Slight distant Compression									
	20 SHILLONG	Z	eP	20	18	28		Slight distant Compression									
	20 Epc: 2°N, 97°E. Near Coast of Sumatra																
	2°N, 97°E. - H = 21h 58m 23s (U.S.C.G.S.)																
	2°N, 97°E. - H = 21h 58m 25s (B.C.I.S.)																
	2°N, 98°E. - H = 21h 58m 25s (Shillong)																
	Magnitude = 6.3 (Uppsala, Kiruna).																
	COLOMBO	E	P	22	02	30											
			e	06	08												
			e	08	10												
			e	09	45												



DATE	STATION	COMPT	PHASE	G. M. T.	$\Delta$	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T.	$\Delta$	REMARKS
				h. m. s.	km						h. m. s.	km	
February 1957													
23	SHILLONG	Z	eP	23 06 12		Feeble, distant Compression	27	Epc: 24°N H		121½°E.	Formosa aftershock 15h 01m 22s (U.S.C.G.S)		
24	SHILLONG	Z	eP	04 16 17		Slight, distant Compression	SHILLONG	Z E	iP	15 07 06	3030	Slight Compression	
	CHATRA	Z	iP iS	04 32 50 33 13	190	Feeble			PP	07 54			
									S	11 45			
									Lq	12 47			
									M	16 19			
24	CHATRA	Z	i	04 33 59		Feeble, near							
24	DEHRA DUN	N. E	e	08 50 54		Tremor	CHATRA	Z	e	15 07 46		Feeble near	
								E	e	07 48			
24	SHILLONG	Z	eP	14 15 16		Slight distant	POONA	Z	iP	15 09 38		Tremor	
24	SHILLONG	Z	eP	17 13 06		Slight, distant	27 SHILLONG	Z	iP	16 20 18		Slight Compression	
24	SHILLONG	Z	eP	17 30 14		Slight, distant	28 SHILLONG	Z	iP	00 31 13		Slight	
24	SHILLONG	Z	eP	17 54 08		Local, slight	28 CHATRA	Z	e(P)? i(S)?	09 43 31 45 35		Feeble near	
24	SHILLONG	Z	eP	18 13 48		Slight, distant	28 SHILLONG	Z	iP	11 12 56		Slight Compression	
24	SHILLONG	Z	iP	21 53 08		Slight, distant Compression	28 SHILLONG	Z	eP	19 32 40		Slight	
24	SHILLONG	Z	eP	22 52 35		Slight distant Compression	28 CHATRA	Z	iP iS	23 11 26 11 35	70	Feeble	
25	SHILLONG	Z	iP	02 12 05		Slight, distant Compression	28 Epc: Western Indian Ocean about 1300 Kms Off Coast of Madagascar. H - 23h 31m 25s (U.S.C.G.S) 33°S 58½°E. H - 23h 31m 22s (B.C.I.S)						
25	SHILLONG	Z	iP	13 30 06		Slight Compression	POONA	Z	iP	23 40 36	5860	Slight	
	POONA	Z	iP i	13 31 31 31 35		Tremor		N	PP	42 22			
									eS	48 03			
									SS	51 45			
									Lq	53 39			
25	SHILLONG	Z	iP	22 33 52		Slight Rarefaction	SHILLONG	Z	i	23 42 07		Slight distant	
25	DEHRA DUN	N. E	e i	23 35 41 37 30		Feeble, Phases not clear	DEHRA DUN	N. E	e	23 47 23		Feeble, Phases not clear.	
25	SHILLONG	Z	e	23 38 02		Slight	HYDERABAD	E, N N E	e e e	23 48 06 55 55 56 06			
25	SHILLONG	Z	i	00 49 49		Slight, local							
26	SHILLONG	Z	iP	01 07 30		Slight, local							
26	SHILLONG	Z	iP	03 01 35		Slight Compression							
26	MADEAS	E	e e	03 03 09 09 46		Feeble							
	POONA	Z	eP	03 03 48		Tremor							
26	SHILLONG	Z	e	14 06 42		Tremor							
26	SHILLONG	Z	iP	15 23 23		Slight Compression							
26	SHILLONG	Z	iP	16 54 15		Slight, distant							
26	SHILLONG	Z	iP	21 53 04		Slight, distant							
27	SHILLONG	Z	iP	07 02 31		Slight, distant							

*Earthquake Reports  
(Non Instrumental Reports)*

Following is the list of earthquakes that were reported by  
Voluntary Observers from different stations during the month of  
February 1957

PLACE AT WHICH FELT	DATE IN G. M. T.	TIME IN G. M. T.	NO. OF SHOCKS	DURATION OF SHOCKS IN SECS	INTENSITY IN R. F. SCALE	REMARKS
		h. m.				
SHILLONG	03	00 17	1	2	II	
SHILLONG	23	01 05	1	15	II	
JABALPUR	28	09 45	1	2 to 3	-	

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GOVERNMENT OF INDIA  
METEOROLOGICAL DEPARTMENT

SEISMOLOGICAL BULLETIN



Published under the direction of  
*Shri S. Basu, M.Sc., F.N.I.,*  
Director General of Observatories

List of Seismograph stations with their Instruments and Constants

| Station     | Latitude  | Longitude | Height a.s.l. (Metres)                    | Lithographic foundation                   | Instrument           | Comp. | Period in secs       | Static Magnification | Damping ratio | Paper speed mm/min |
|-------------|-----------|-----------|-------------------------------------------|-------------------------------------------|----------------------|-------|----------------------|----------------------|---------------|--------------------|
| Bombay      | 18° 54' N | 72° 49' E | 6                                         | Deccan Trap                               | Milne-Shaw           | N     | 12                   | 350                  | 13:1          | 16                 |
|             |           |           |                                           |                                           | Milne-Shaw           | E     | 12                   | 350                  | 23:1          | 8                  |
|             |           |           |                                           |                                           | Spreng-nether        | E     | To = Tg = 7 secs     |                      |               | 30                 |
| Bokaro      | 23° 50' N | 85° 48' E | -                                         | Rock                                      | Milne-Shaw           | N     | 12                   | 250                  | 20:1          | 16                 |
|             |           |           |                                           |                                           | Milne-Shaw           | E     | 12                   | 250                  | 20:1          | 16                 |
|             |           |           |                                           |                                           | Wood-Anderson        | E     | 0.8                  | 960                  | h=0.8         | 60                 |
|             |           |           |                                           |                                           | Wood-Anderson        | N     | 0.8                  | 1000                 | h=0.8         | 60                 |
| Calcutta    | 22° 32' N | 88° 22' E | (1) 7 (Milne-Shaw)<br>(2) 6 (Omori-Ewing) | Alluvium                                  | Milne-Shaw           | E     | 12                   | 250                  | 20:1          | 8                  |
|             |           |           |                                           |                                           | Wood-Anderson        | N     | 2                    | 870                  | Critical      | 30                 |
|             |           |           |                                           |                                           | Omori-Ewing          | N     | 16                   | 32                   | -             | 25.4               |
|             |           |           |                                           |                                           | Omori-Ewing          | E     | 21                   | 30                   | -             | 25.4               |
| Chatra      | 26° 50' N | 87° 10' E | 161                                       | Sand Stone                                | Milne-Shaw           | E     | 12                   | 250                  | 20:1          | 16                 |
|             |           |           |                                           |                                           | Wood-Anderson        | N     | 1                    | 1000                 | 30:1          | 60                 |
|             |           |           |                                           |                                           | Benioff              | Z     | To=0.72 Tg=0.45 secs |                      |               | Critical 60        |
|             |           |           |                                           |                                           | Wenner-Accelerograph | ZNE   | -                    | -                    | -             | -                  |
| Colombo     | 06° 54' N | 79° 52' E | 7                                         | Beach Sand                                | Milne-Shaw           | E     | 12                   | 250                  | 20:1          | -                  |
| Dehra Dun   | 30° 19' N | 78° 02' E | 682                                       | Gravel                                    | Wood-Anderson        | N     | 0.8                  | 950                  | Critical      | 60                 |
|             |           |           |                                           |                                           | Wood-Anderson        | E     | 0.8                  | 850                  | Critical      | 60                 |
|             |           |           |                                           |                                           | Milne-Shaw           | N     | 12                   | 250                  | 20:1          | 8                  |
|             |           |           |                                           |                                           | Milne-Shaw           | E     | 12                   | 250                  | 20:1          | 8                  |
| Hyderabad   | 17° 26' N | 78° 27' E | 536                                       | Granite                                   | Milne-Shaw           | E     | 12                   | 250                  | 20:1          | 8                  |
|             |           |           |                                           |                                           | Milne-Shaw           | N     | 12                   | 250                  | 20:1          | 8                  |
| Kodaikanal  | 10° 14' N | 77° 28' E | 2346                                      | Rock                                      | Milne-Shaw           | E     | 10                   | 250                  | 20:1          | 8                  |
| Madras      | 13° 00' N | 80° 11' E | 15                                        | -                                         | Spreng-nether        | E     | To=Tg=72 secs        |                      |               | Critical 30        |
| New Delhi   | 28° 35' N | 77° 12' E | 207                                       | Massive Quartzite                         |                      |       |                      |                      |               |                    |
| Poona       | 18° 32' N | 73° 51' E | 560                                       | Deccan Trap                               | Spreng-nether        | Z     | To=Tg=1.6            |                      |               | Critical 30        |
|             |           |           |                                           |                                           | Wood-Anderson        | E     | 4                    | 1000                 | 20:1          | 16                 |
|             |           |           |                                           |                                           | Milne-Shaw           | N     | 12                   | 280                  | 20:1          | 8                  |
| Port Blair  | 11° 40' N | 92° 43' E | -                                         | -                                         | Wood-Anderson        | N     | 2                    | 1000                 | 20:1          | 30                 |
|             |           |           |                                           |                                           | Wood-Anderson        | E     | 0.8                  | 1000                 | 66:1          | 30                 |
|             |           |           |                                           |                                           | Milne-Shaw           | N     | 12                   | 350                  | 20:1          | 8                  |
| Shillong    | 25° 34' N | 91° 53' E | 1600                                      | Quartzite Sand Stone (Shillong Quartzite) | Wood-Anderson        | N     | 0.8                  | 1000                 | h=0.8         | 30                 |
|             |           |           |                                           |                                           | Wood-Anderson        | E     | 0.8                  | 1000                 | h=0.8         | 30                 |
|             |           |           |                                           |                                           | Milne-Shaw           | N     | 12                   | 250                  | 20:1          | 8                  |
|             |           |           |                                           |                                           | Benioff              | Z     | To=1.0 Tg=0.18       |                      |               | 60                 |
|             |           |           |                                           |                                           | Spreng-nether        | E     | To=Tg=6.5            |                      |               | Critical 30        |
| Tocklai     | 28° 45' N | 94° 46' E | -                                         | Alluvium                                  | Wenner Accelerograph | ZNE   | -                    | -                    | -             | -                  |
|             |           |           |                                           |                                           | Wood-Anderson        | E     | 0.8                  | 970                  | h=0.8         | 60                 |
|             |           |           |                                           |                                           | Wood-Anderson        | E     | 0.8                  | 1000                 | h=0.8         | 30                 |
| Vizianagram | 18° 07' N | 83° 27' E | -                                         | -                                         | Wood-Anderson        | N     | 2                    | 1000                 | 20:1          | 30                 |
|             |           |           |                                           |                                           | Wood-Anderson        | N     | 2                    | 1000                 | 20:1          | 30                 |



| DATE       | STATION                                                                                                                                                                    | COMPT | PHASE | G. | M. | T. | △     | REMARKS         | DATE       | STATION                                                                             | COMPT    | PHASE | G. | M. | T. | △    | REMARKS         |                 |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|----|----|----|-------|-----------------|------------|-------------------------------------------------------------------------------------|----------|-------|----|----|----|------|-----------------|-----------------|
|            |                                                                                                                                                                            |       |       | h. | m. | s. | km    |                 |            |                                                                                     |          |       | h. | m. | s. | km   |                 |                 |
| March 1957 |                                                                                                                                                                            |       |       |    |    |    |       |                 | March 1957 |                                                                                     |          |       |    |    |    |      |                 |                 |
| 01         | POONA                                                                                                                                                                      | Z     | e     | 07 | 42 | 47 |       | Tremor          | 02         | COLOMBO                                                                             | E        | P     | 01 | 47 | 21 |      |                 |                 |
| 01         | SHILLONG                                                                                                                                                                   | Z     | i     | 10 | 21 | 57 |       | Slight, local   | Contd.     |                                                                                     |          | e     | 02 | 44 | 11 |      |                 |                 |
| 01         | SHILLONG                                                                                                                                                                   | Z     | eP    | 12 | 04 | 56 |       | Slight, near    |            | SHILLONG                                                                            | Z        | i     | 01 | 55 | 13 |      | Slight          |                 |
| 01         | Epc: 29.2°N, 80.2°E. India Nepal Border.<br>- H = 15h 40m 09s (Shillong)<br>29½°N, 79½°E. - H = 15h 40m 06s (Quetta and B.C.I.S). Felt at Mukteswar.                       |       |       |    |    |    |       |                 |            | CHATRA                                                                              | E        | eP    | 01 | 55 | 52 |      | Slight          |                 |
|            | DEHRA DUN                                                                                                                                                                  | N,E   | eP    | 15 | 40 | 39 | 200   | Slight          |            |                                                                                     |          | i     | 56 | 25 |    |      |                 |                 |
|            |                                                                                                                                                                            | N     | Pg    | 40 | 42 |    |       |                 | 02         | SHILLONG                                                                            | Z        | iP    | 06 | 44 | 34 |      | Slight, distant |                 |
|            |                                                                                                                                                                            |       | PP    | 40 | 46 |    |       |                 |            | BOMBAY                                                                              | N,E      | e     | 06 | 51 | 07 |      |                 |                 |
|            |                                                                                                                                                                            |       | PPP   | 40 | 52 |    |       |                 |            | POONA                                                                               | Z        | iP    | 06 | 51 | 13 |      | Very feeble     |                 |
|            |                                                                                                                                                                            |       | iS    | 41 | 02 |    |       |                 | 02         | SHILLONG                                                                            | Z        | iP    | 06 | 53 | 19 |      | Slight          |                 |
|            |                                                                                                                                                                            |       | S*    | 41 | 03 |    |       |                 |            |                                                                                     |          |       |    |    |    |      | Compression     |                 |
|            |                                                                                                                                                                            |       | Sg    | 41 | 05 |    |       |                 | 02         | SHILLONG                                                                            | Z        | iP    | 07 | 10 | 59 |      | Slight          |                 |
|            |                                                                                                                                                                            |       | SS    | 41 | 15 |    |       |                 |            |                                                                                     |          |       |    |    |    |      | Compression     |                 |
|            |                                                                                                                                                                            |       | SSS   | 41 | 25 |    |       |                 |            | POONA                                                                               | Z        | iP    | 07 | 16 | 55 |      | Tremor          |                 |
|            | NEW DELHI                                                                                                                                                                  | N     | eP    | 15 | 40 | 57 | 310   | Slight          |            | DEHRA DUN                                                                           | N,E      | e     | 07 | 17 | 17 |      | Feeble. Phase   |                 |
|            |                                                                                                                                                                            |       | iS    | 41 | 32 |    |       |                 |            |                                                                                     |          | i     | 26 | 43 |    |      | not clear       |                 |
|            |                                                                                                                                                                            |       | SS    | 41 | 42 |    |       |                 |            |                                                                                     |          |       |    |    |    |      |                 |                 |
|            | CHATRA                                                                                                                                                                     | E     | eP    | 15 | 42 | 06 |       | Slight          | 02         | Epc: 6°S, 151°E. Near South Coast of New Britain.<br>- H = 08h 10m 24s (U.S.C.G.S). |          |       |    |    |    |      |                 |                 |
|            |                                                                                                                                                                            |       | i     | 44 | 00 |    |       |                 |            | SHILLONG                                                                            | Z        | iP    | 08 | 21 | 10 |      | Slight          |                 |
|            | SHILLONG                                                                                                                                                                   | Z     | eP    | 15 | 42 | 48 | 1200  | Slight, distant |            |                                                                                     |          |       |    |    |    |      | Compression     |                 |
|            |                                                                                                                                                                            | E     | eS    | 44 | 51 |    |       |                 |            | POONA                                                                               | Z        | iP    | 08 | 22 | 36 | 8830 | Feeble          |                 |
|            | BOKARO                                                                                                                                                                     | N,E   | eS    | 15 | 42 | 51 |       | Slight          |            |                                                                                     | E        | eS    | 32 | 37 |    |      |                 |                 |
|            |                                                                                                                                                                            |       | e     | 44 | 41 |    |       |                 |            | CHATRA                                                                              | Z        | e     | 08 | 21 | 40 |      | Feeble, distant |                 |
|            | MADRAS                                                                                                                                                                     | E     | eS    | 15 | 47 | 10 |       | Feeble          |            | BOMBAY                                                                              | N,E      | eP    | 08 | 22 | 44 | 9350 | Slight          |                 |
|            | HYDERABAD                                                                                                                                                                  | E     | e     | 15 | 47 | 38 |       |                 |            |                                                                                     | E        | eS    | 33 | 09 |    |      |                 |                 |
|            |                                                                                                                                                                            | N     | e     | 47 | 47 |    |       |                 |            |                                                                                     | M        | M     | 09 | 01 | 00 |      |                 |                 |
| 02         | Epc: 18°N, 78°W. Jamaica. - H = 00h 27m 33s<br>(U.S.C.G.S) and (B.C.I.S).<br>Magnitude = 6½(Pasadena), 6.7(Tambaya), 6.5(Uppsala, Kiruna), 6.3(Skalnate Pleso), 6(Moscow). |       |       |    |    |    |       |                 |            | DEHRA DUN                                                                           | N,E      | e     | 08 | 22 | 45 |      | Feeble. Phases  |                 |
|            | SHILLONG                                                                                                                                                                   | Z     | e     | 00 | 46 | 46 |       |                 |            |                                                                                     |          |       |    |    |    |      | not clear       |                 |
|            | HYDERABAD                                                                                                                                                                  | N     | ePKP1 | 00 | 46 | 51 | 15260 |                 | 02         | SHILLONG                                                                            | Z        | eP    | 08 | 49 | 53 |      | Slight, distant |                 |
|            |                                                                                                                                                                            |       | PP    | 49 | 53 |    |       |                 |            | 02                                                                                  | POONA    | Z     | iP | 09 | 16 | 26   |                 | Tremor          |
|            |                                                                                                                                                                            |       | PKS2  | 50 | 47 |    |       |                 |            | 02                                                                                  | POONA    | Z     | iP | 15 | 43 | 05   | 1340            | Slight          |
|            |                                                                                                                                                                            |       | SKS2  | 54 | 17 |    |       |                 |            |                                                                                     |          | eS    | 45 | 22 |    |      |                 |                 |
|            |                                                                                                                                                                            | E     | SS    | 01 | 07 | 56 |       |                 |            | 02                                                                                  | SHILLONG | Z     | iP | 18 | 48 | 42   |                 | Slight, distant |
|            |                                                                                                                                                                            | N     | SS    | 07 | 59 |    |       |                 |            | 03                                                                                  | SHILLONG | Z     | iP | 01 | 00 | 31   |                 | Slight, local   |
|            |                                                                                                                                                                            |       | Lr    | 31 | 59 |    |       | Per. = 19 secs  |            |                                                                                     |          |       |    |    |    |      | Other phases    |                 |
|            |                                                                                                                                                                            |       | M     | 44 | 20 |    |       | μ = 7           |            |                                                                                     |          |       |    |    |    |      | not clear.      |                 |
|            |                                                                                                                                                                            | E     | M     | 44 | 35 |    |       | Per. = 18 secs  |            |                                                                                     |          |       |    |    |    |      |                 |                 |
|            |                                                                                                                                                                            |       |       |    |    |    |       | μ = 6           |            | 03                                                                                  | CHATRA   | Z     | iP | 01 | 01 | 31   | 880             | Feeble          |
|            | POONA                                                                                                                                                                      | Z     | ePKP1 | 00 | 46 | 53 |       |                 |            |                                                                                     |          | iS    | 03 | 12 |    |      |                 |                 |
|            |                                                                                                                                                                            |       | e     | 49 | 30 |    |       |                 |            |                                                                                     |          |       |    |    |    |      |                 |                 |
|            |                                                                                                                                                                            |       | i     | 50 | 30 |    |       |                 |            | 03                                                                                  | SHILLONG | Z     | iP | 03 | 51 | 26   |                 | Slight,         |
|            |                                                                                                                                                                            | N     | e     | 52 | 13 |    |       |                 |            |                                                                                     |          |       |    |    |    |      |                 | Dilatation      |
|            |                                                                                                                                                                            |       | e     | 56 | 28 |    |       |                 |            | 03                                                                                  | SHILLONG | Z     | e  | 05 | 32 | 39   |                 | Tremor          |
|            |                                                                                                                                                                            |       | e     | 01 | 07 | 19 |       |                 |            |                                                                                     |          |       |    |    |    |      |                 |                 |
|            | DEHRA DUN                                                                                                                                                                  | N,E   | e     | 00 | 48 | 47 |       |                 |            | 03                                                                                  | CHATRA   | Z     | iP | 13 | 48 | 28   | 190             | Slight          |
|            |                                                                                                                                                                            |       | i     | 53 | 56 |    |       |                 |            |                                                                                     | E        | iS    | 48 | 51 |    |      |                 |                 |
|            |                                                                                                                                                                            |       | i     | 58 | 48 |    |       |                 |            |                                                                                     |          |       |    |    |    |      |                 |                 |
|            |                                                                                                                                                                            |       | i     | 01 | 08 | 35 |       |                 |            | 03                                                                                  | CHATRA   | Z     | iP | 15 | 32 | 46   | 70              | Slight          |
|            | BOMBAY                                                                                                                                                                     | E     | e     | 00 | 49 | 26 |       |                 |            |                                                                                     | E        | iS    | 32 | 56 |    |      |                 |                 |
|            |                                                                                                                                                                            |       | e     | 50 | 31 |    |       |                 |            |                                                                                     |          |       |    |    |    |      |                 |                 |
|            |                                                                                                                                                                            |       | e     | 52 | 10 |    |       |                 |            | 03                                                                                  | SHILLONG | Z     | iP | 21 | 00 | 34   |                 | Slight          |
|            |                                                                                                                                                                            |       | i     | 56 | 10 |    |       |                 |            |                                                                                     |          |       |    |    |    |      |                 | Dilatation      |
|            |                                                                                                                                                                            |       | e     | 59 | 08 |    |       |                 |            |                                                                                     |          |       |    |    |    |      |                 |                 |
|            |                                                                                                                                                                            |       | e     | 01 | 00 | 04 |       |                 |            |                                                                                     |          |       |    |    |    |      |                 |                 |
|            |                                                                                                                                                                            |       | e     | 01 | 30 |    |       |                 |            |                                                                                     |          |       |    |    |    |      |                 |                 |
|            |                                                                                                                                                                            |       | e     | 04 | 30 |    |       |                 |            |                                                                                     |          |       |    |    |    |      |                 |                 |
|            |                                                                                                                                                                            |       | e     | 07 | 04 |    |       |                 |            |                                                                                     |          |       |    |    |    |      |                 |                 |
|            |                                                                                                                                                                            |       | e     | 55 | 21 |    |       |                 |            | 03                                                                                  | SHILLONG | Z     | eP | 23 | 53 | 37   |                 | Slight          |
|            | MADRAS                                                                                                                                                                     | E     | e     | 00 | 51 | 00 |       |                 |            |                                                                                     |          |       |    |    |    |      |                 | Compression     |
|            |                                                                                                                                                                            |       | e     | 01 | 52 | 00 |       |                 |            | 04                                                                                  | SHILLONG | Z     | iP | 00 | 30 | 30   |                 | Slight          |
| 02         | POONA                                                                                                                                                                      | Z     | eP    | 01 | 43 | 04 |       | Tremor          | 04         | Epc: Kirghis. - H = 03h 29m 03s (B.C.I.S).                                          |          |       |    |    |    |      |                 |                 |

| DATE       | STATION                                                                                          | COMPT                                                                                                    | PHASE | G  | M  | T  | Δ    | REMARKS                                                               |  |
|------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-------|----|----|----|------|-----------------------------------------------------------------------|--|
|            |                                                                                                  |                                                                                                          |       | h  | m  | s  | km   |                                                                       |  |
| March 1957 |                                                                                                  |                                                                                                          |       |    |    |    |      |                                                                       |  |
| 04         | SHILLONG                                                                                         |                                                                                                          |       |    |    | 33 |      | Slight Compression                                                    |  |
|            | DEHRA DUN                                                                                        |                                                                                                          |       |    |    | 34 |      | Tremor                                                                |  |
|            | POONA                                                                                            |                                                                                                          |       |    |    | 33 |      | Feeble. Other phases not clear                                        |  |
| 04         | CHATRA                                                                                           | Z                                                                                                        | EP    | 17 | 17 | 20 | 210  | Feeble                                                                |  |
|            |                                                                                                  |                                                                                                          | AS    |    |    | 45 |      |                                                                       |  |
| 04         | SHILLONG                                                                                         | Z                                                                                                        | i     | 17 | 26 | 49 |      | Slight local                                                          |  |
|            | CHATRA                                                                                           | Z                                                                                                        | EP    | 17 | 27 | 46 | 510  | Slight                                                                |  |
|            |                                                                                                  |                                                                                                          | AS    |    |    | 30 |      |                                                                       |  |
| 05         | Epc 33°N                                                                                         | 14h 04 North Atlantic Ocean                                                                              |       |    |    |    |      |                                                                       |  |
|            | H                                                                                                | 14h 24 08s (U.S.C.G.S.)                                                                                  |       |    |    |    |      |                                                                       |  |
|            | Magnitude                                                                                        | 6½(Pasadena) 6¼(Lwiro) 5½(Moscow)                                                                        |       |    |    |    |      |                                                                       |  |
|            | DEHRA DUN                                                                                        |                                                                                                          |       |    |    | 18 |      | Phases not clear                                                      |  |
|            | BOMBAY                                                                                           |                                                                                                          |       |    |    | 27 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 19 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 13 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 08 |      |                                                                       |  |
|            | COLOMBO                                                                                          |                                                                                                          |       |    |    | 55 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 50 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 29 |      |                                                                       |  |
|            | HYDERABAD                                                                                        |                                                                                                          |       |    |    | 27 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 63 |      |                                                                       |  |
| 05         | SHILLONG                                                                                         | Z                                                                                                        | iP    | 10 | 34 | 35 |      | Slight distant Compression                                            |  |
| 05         | SHILLONG                                                                                         | Z                                                                                                        | i     | 10 | 56 | 58 |      | Tremor                                                                |  |
| 05         | SHILLONG                                                                                         | Z                                                                                                        | EP    | 10 | 26 | 01 |      | Feeble distant Compression                                            |  |
| 05         | SHILLONG                                                                                         | Z                                                                                                        | i     | 10 | 14 | 10 |      | Slight distant Compression                                            |  |
| 06         | SHILLONG                                                                                         | Z                                                                                                        | i     | 06 | 19 |    |      | Feeble distant                                                        |  |
| 06         | SHILLONG                                                                                         | Z                                                                                                        | EP    | 11 | 36 | 08 |      | Slight distant Compression                                            |  |
| 06         | SHILLONG                                                                                         | Z                                                                                                        | EP    | 13 | 36 | 14 |      | Feeble distant                                                        |  |
| 06         | CHATRA                                                                                           | Z                                                                                                        | EP    | 19 | 20 | 06 | 190  | Feeble                                                                |  |
|            |                                                                                                  |                                                                                                          | AS    |    |    | 29 |      |                                                                       |  |
| 06         | SHILLONG                                                                                         | Z                                                                                                        | EP    | 20 | 17 | 14 |      | Feeble distant                                                        |  |
| 07         | SHILLONG                                                                                         | Z                                                                                                        | EP    | 10 | 34 | 45 |      | Distant feeble                                                        |  |
| 07         | SHILLONG                                                                                         | Z                                                                                                        | EP    | 10 | 37 | 18 |      | Distant feeble                                                        |  |
| 07         | SHILLONG                                                                                         | Z                                                                                                        | EP    | 11 | 46 | 20 |      | Distant feeble Compression                                            |  |
| 07         | SHILLONG                                                                                         | Z                                                                                                        | EP    | 10 | 36 | 10 |      | Tremor Compression                                                    |  |
| 06         | CHATRA                                                                                           | Z                                                                                                        | EP    | 11 | 42 | 23 | 430  | Slight                                                                |  |
|            |                                                                                                  |                                                                                                          | AS    |    |    | 10 |      |                                                                       |  |
| 08         | Epc 40°N                                                                                         | 22°E Eastern Greece                                                                                      |       |    |    |    |      |                                                                       |  |
|            | H                                                                                                | 12h 14m 10s (Shillong)                                                                                   |       |    |    |    |      |                                                                       |  |
|            | 39°50'N                                                                                          | 12h 14m 14s (B.C.I.S.)                                                                                   |       |    |    |    |      |                                                                       |  |
|            | H                                                                                                | 12h 14m 12s (U.S.C.G.S.)                                                                                 |       |    |    |    |      |                                                                       |  |
|            | Magnitude                                                                                        | 6½(Pasadena) 6¼(Kiruna) 6¼(Strasbourg), 6¼(Praha) 6¼(Moscow) 6¼(Hurbanovo), 5.3(Roma), 6(Skalnate Pleso) |       |    |    |    |      |                                                                       |  |
|            | NEW DELHI                                                                                        |                                                                                                          |       |    |    | 39 | 4900 | Direction of first motion North                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 27 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 04 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 13 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 35 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 35 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 18 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 25 |      |                                                                       |  |
| March 1957 |                                                                                                  |                                                                                                          |       |    |    |    |      |                                                                       |  |
| 08         | DEHRA DUN                                                                                        |                                                                                                          |       |    |    | 42 | 4930 |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 32 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 17 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 38 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 08 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 37 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 24 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 57 |      |                                                                       |  |
|            | BOMBAY                                                                                           |                                                                                                          |       |    |    | 55 | 5370 | Foreshock of the succeeding main shock. Superimposed by another shock |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 50 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 55 |      |                                                                       |  |
|            | POONA                                                                                            |                                                                                                          |       |    |    | 00 | 5440 | Initial ground movement towards North and West                        |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 57 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 04 |      |                                                                       |  |
|            | HYDERABAD                                                                                        |                                                                                                          |       |    |    | 32 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 56 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 32 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 19 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 32 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 51 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 58 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 04 |      |                                                                       |  |
|            | BOKARO                                                                                           |                                                                                                          |       |    |    | 48 |      | Other phases doubtful                                                 |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 47 |      |                                                                       |  |
|            | KODAIKANAL                                                                                       |                                                                                                          |       |    |    | 02 |      | Initial ground movement towards East. Per. 15 secs                    |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 02 |      | Per. 9.7                                                              |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 17 |      |                                                                       |  |
|            | MAKAS                                                                                            |                                                                                                          |       |    |    | 02 | 5360 | Moderate                                                              |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 01 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 27 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 24 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 58 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 00 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 50 |      |                                                                       |  |
|            | SHILLONG                                                                                         |                                                                                                          |       |    |    | 11 | 6550 | Compression First motion South and East                               |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 17 |      |                                                                       |  |
|            | COLOMBO                                                                                          |                                                                                                          |       |    |    | 26 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 22 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 18 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 50 |      | Amp 1.2 mm                                                            |  |
| 08         | Epc 39°50'N                                                                                      | 22°8'E Eastern Greece                                                                                    |       |    |    |    |      |                                                                       |  |
|            | H                                                                                                | 12h 21m 14s (B.C.I.S.)                                                                                   |       |    |    |    |      |                                                                       |  |
|            | 39°5'N                                                                                           | 23°E H 12h 21m 08s (U.S.C.G.S.)                                                                          |       |    |    |    |      |                                                                       |  |
|            | 3 dead, many injured and moderate property damage at Farsala Larissa and Volos.                  |                                                                                                          |       |    |    |    |      |                                                                       |  |
|            | Magnitude: 7(Strasbourg) 6.7(Praha) 6.7(Hurbanovo), 6.6(Roma), 6.3(Skalnate Pleso) 6.4(Pasadena) |                                                                                                          |       |    |    |    |      |                                                                       |  |
|            | BOMBAY                                                                                           |                                                                                                          |       |    |    | 52 | 5370 | Moderate Superimposed on the earlier shock.                           |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 52 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 52 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 39 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 36 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 33 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 15 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 22 |      | Per. 17 secs                                                          |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 29 |      | Per. 7                                                                |  |
|            | POONA                                                                                            |                                                                                                          |       |    |    | 01 | 5440 | Aftershock, phases mixed up.                                          |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 58 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 05 |      |                                                                       |  |
|            | CHATRA                                                                                           |                                                                                                          |       |    |    | 40 |      |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 28 |      |                                                                       |  |
|            | SHILLONG                                                                                         |                                                                                                          |       |    |    | 11 | 6450 |                                                                       |  |
|            |                                                                                                  |                                                                                                          |       |    |    | 11 |      |                                                                       |  |
| 08         | SHILLONG                                                                                         |                                                                                                          |       |    |    | 36 |      | Slight                                                                |  |



| DATE       | STATION                                                                          | COMPT | PHASE | G. | M. | T. | △     | REMARKS  |
|------------|----------------------------------------------------------------------------------|-------|-------|----|----|----|-------|----------|
|            |                                                                                  |       |       | h. | m. | s. | km    |          |
| March 1957 |                                                                                  |       |       |    |    |    |       |          |
| 09         | POONA                                                                            | Z     | eP    | 16 | 48 | 50 |       | Feeble   |
| 09         | SHILLONG                                                                         | Z     | iP    | 16 | 51 | 05 |       | Slight   |
| 09         | SHILLONG                                                                         | Z     | iP    | 16 | 56 | 46 |       | Slight   |
|            | POONA                                                                            | Z     | i     | 16 | 58 | 15 |       | Tremor   |
| 09         | POONA                                                                            | Z     | i     | 16 | 58 | 59 |       | Tremor   |
| 09         | SHILLONG                                                                         | Z     | iP    | 17 | 02 | 04 |       | Slight   |
| 09         | SHILLONG                                                                         | Z     | iP    | 17 | 21 | 45 |       | Slight   |
|            | POONA                                                                            | Z     | i     | 17 | 23 | 10 |       | Slight   |
|            |                                                                                  |       | i     |    | 23 | 23 |       |          |
| 09         | SHILLONG                                                                         | Z     | iP    | 17 | 31 | 56 |       | Slight   |
| 09         | SHILLONG                                                                         | Z     | iP    | 17 | 40 | 54 |       | Slight   |
| 09         | SHILLONG                                                                         | Z     | iP    | 17 | 42 | 29 |       | Slight   |
| 09         | POONA                                                                            | Z     | i     | 17 | 43 | 56 |       | Tremor   |
| 09         | POONA                                                                            | Z     | e     | 17 | 51 | 40 |       | Feeble   |
| 09         | POONA                                                                            | Z     | eP    | 17 | 56 | 10 |       | Slight   |
| 09         | SHILLONG                                                                         | Z     | eP    | 18 | 03 | 15 |       | Slight   |
|            | POONA                                                                            | Z     | e     | 18 | 04 | 39 |       | Feeble   |
| 09         | POONA                                                                            | Z     | i     | 18 | 07 | 10 |       | Feeble   |
| 09         | SHILLONG                                                                         | Z     | iP    | 18 | 09 | 20 |       | Slight   |
| 09         | SHILLONG                                                                         | Z     | eP    | 18 | 15 | 45 |       | Slight   |
| 09         | SHILLONG                                                                         | Z     | eP    | 18 | 24 | 04 |       | Slight   |
| 09         | SHILLONG                                                                         | Z     | eP    | 18 | 25 | 23 |       | Slight   |
| 09         | POONA                                                                            | Z     | i     | 18 | 27 | 01 |       | Feeble   |
| 09         | SHILLONG                                                                         | Z     | iP    | 18 | 29 | 10 |       | Slight   |
| 09         | SHILLONG                                                                         | Z     | eP    | 18 | 33 | 39 |       | Slight   |
|            | POONA                                                                            | Z     | i     | 18 | 34 | 35 |       | Feeble   |
| 09         | POONA                                                                            | Z     | i     | 18 | 41 | 28 |       | Feeble   |
| 09         | SHILLONG                                                                         | Z     | iP    | 18 | 57 | 41 |       | Slight   |
|            | POONA                                                                            | Z     | iP    | 18 | 59 | 08 |       | Feeble   |
| 09         | SHILLONG                                                                         | Z     | eP    | 19 | 05 | 00 |       | Slight   |
| 09         | SHILLONG                                                                         | Z     | iP    | 19 | 10 | 01 |       | Slight   |
|            | POONA                                                                            | Z     | iP    | 19 | 11 | 28 |       | Slight   |
| 09         | SHILLONG                                                                         | Z     | iP    | 19 | 24 | 01 |       | Slight   |
| 09         | SHILLONG                                                                         | Z     | eP    | 19 | 25 | 17 |       | Slight   |
|            | POONA                                                                            | Z     | iP    | 19 | 26 | 40 |       | Slight   |
| 09         | SHILLONG                                                                         | Z     | iP    | 19 | 31 | 00 |       | Slight   |
|            | POONA                                                                            | Z     | i     | 19 | 32 | 20 |       | Feeble   |
| 09         | BOMBAY                                                                           | E     | e     | 19 | 38 | 27 |       |          |
| 09         | SHILLONG                                                                         | Z     | eP    | 19 | 46 | 31 |       | Slight   |
|            | POONA                                                                            | Z     | i     | 19 | 47 | 54 |       | Feeble   |
| 09         | Epc: 51°N, 173°W. Andreevof Islands in Aleutians.<br>H = 19h 37m 31s (U.S.C.G.S) |       |       |    |    |    |       |          |
|            | SHILLONG                                                                         | Z     | iP    | 19 | 49 | 01 | 8070  | Slight   |
|            |                                                                                  | E     | eS    |    | 58 | 25 |       |          |
|            | POONA                                                                            | Z     | iP    | 19 | 50 | 27 | 10080 | Moderate |
|            |                                                                                  | E     | eS    | 20 | 01 | 22 |       |          |

| DATE       | STATION                                                                                                                                                      | COMPT | PHASE            | G. | M. | T. | △     | REMARKS                                         |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------|----|----|----|-------|-------------------------------------------------|
|            |                                                                                                                                                              |       |                  | h. | m. | s. | km    |                                                 |
| March 1957 |                                                                                                                                                              |       |                  |    |    |    |       |                                                 |
| 09         | BOMBAY                                                                                                                                                       | N E   | eP               | 19 | 50 | 29 |       | Slight                                          |
|            |                                                                                                                                                              | E     | e                |    | 50 | 35 |       |                                                 |
|            |                                                                                                                                                              | N.E   | e                | 20 | 01 | 12 |       |                                                 |
| 09         | SHILLONG                                                                                                                                                     | Z     | iP               | 19 | 56 | 18 |       |                                                 |
| 09         | SHILLONG                                                                                                                                                     | Z     | iP               | 20 | 07 | 40 |       |                                                 |
| 09         | Epc: 51°N, 170°E Fox Islands in the Aleutians.<br>H = 20h 00m 56s (U.S.C.G.S)                                                                                |       |                  |    |    |    |       |                                                 |
|            | SHILLONG                                                                                                                                                     | Z     | eP               | 20 | 12 | 37 |       |                                                 |
|            | CHATRA                                                                                                                                                       | Z     | i                | 20 | 12 | 49 |       | Feeble, distant                                 |
|            | POONA                                                                                                                                                        | Z     | i                | 20 | 14 | 02 |       | Feeble.                                         |
|            | BOMBAY                                                                                                                                                       | N.E   | eP               | 20 | 14 | 03 | 10000 | Slight                                          |
|            |                                                                                                                                                              | E     | eS               |    | 24 | 55 |       |                                                 |
|            |                                                                                                                                                              | N.E   | eS               |    | 25 | 06 |       |                                                 |
|            |                                                                                                                                                              | E     | SS               |    | 31 | 00 |       |                                                 |
| 09         | POONA                                                                                                                                                        | Z     | e                | 20 | 20 | 05 |       | Feeble                                          |
| 09         | Epc: 52°N, 169°W. Fox Islands in the Aleutians.<br>H = 20h 22m 02s (U.S.C.G.S)                                                                               |       |                  |    |    |    |       |                                                 |
|            | SHILLONG                                                                                                                                                     | Z     | eP               | 20 | 23 | 48 | 8150  | Slight                                          |
|            |                                                                                                                                                              |       | eS               |    | 43 | 17 |       |                                                 |
|            | DEHRA DUN                                                                                                                                                    | N.E   | e                | 20 | 34 | 09 |       | Tremor                                          |
|            | POONA                                                                                                                                                        | Z     | iP               | 20 | 35 | 11 |       | Slight                                          |
|            | BOMBAY                                                                                                                                                       | N     | eP               | 20 | 35 | 12 | 10390 | Slight                                          |
|            |                                                                                                                                                              | N.E   | SKS <sub>1</sub> |    | 45 | 58 |       |                                                 |
| 09         | SHILLONG                                                                                                                                                     | Z     | iP               | 20 | 43 | 46 |       |                                                 |
|            | CHATRA                                                                                                                                                       | Z     | iP               | 20 | 43 | 58 |       | Slight                                          |
|            |                                                                                                                                                              |       | i                |    | 44 | 41 |       |                                                 |
|            | NEW DELHI                                                                                                                                                    | N     | eP               | 20 | 44 | 35 | 8910  | Moderate                                        |
|            |                                                                                                                                                              |       | iS               |    | 54 | 40 |       |                                                 |
|            |                                                                                                                                                              |       | Lq               | 21 | 06 | 58 |       |                                                 |
|            |                                                                                                                                                              |       | Lr               |    | 10 | 54 |       |                                                 |
|            |                                                                                                                                                              |       | M                |    | 17 | 41 |       |                                                 |
|            | POONA                                                                                                                                                        | Z     | e                | 20 | 45 | 08 |       | Feeble                                          |
| 09         | POONA                                                                                                                                                        | Z     | i                | 20 | 45 | 57 |       | Slight                                          |
| 09         | Epc: 52°N, 169°W. Fox Islands in Aleutians.<br>H = 20h 39m 15s (U.S.C.G.S)<br>Magnitude = 7.4 (Hurbanova), 7.3 (Skalnate Pleso),<br>7 (Uppsala, Kiruna, Kew) |       |                  |    |    |    |       |                                                 |
|            | SHILLONG                                                                                                                                                     | Z     | iP               | 20 | 50 | 59 | 8260  | Initial ground movement towards South and West. |
|            |                                                                                                                                                              | N.E   | PcP              |    | 51 | 14 |       |                                                 |
|            |                                                                                                                                                              |       | PP               |    | 53 | 44 |       |                                                 |
|            |                                                                                                                                                              |       | PPP              |    | 55 | 29 |       |                                                 |
|            |                                                                                                                                                              |       | iS               | 21 | 00 | 33 |       |                                                 |
|            |                                                                                                                                                              |       | PS               |    | 01 | 03 |       |                                                 |
|            |                                                                                                                                                              |       | PPS              |    | 01 | 18 |       |                                                 |
|            |                                                                                                                                                              |       | SS               |    | 05 | 11 |       |                                                 |
|            |                                                                                                                                                              |       | SSS              |    | 08 | 26 |       |                                                 |
|            |                                                                                                                                                              |       | Lq               |    | 10 | 19 |       |                                                 |
|            |                                                                                                                                                              |       | Lr               |    | 13 | 49 |       |                                                 |
|            |                                                                                                                                                              |       | M                |    | 19 | 49 |       |                                                 |
|            |                                                                                                                                                              |       |                  |    |    |    |       | Per. = 30 secs<br>Amp. = 15 mm.                 |
|            | CHATRA                                                                                                                                                       | Z     | i                | 20 | 51 | 12 |       | Distant                                         |
|            | DEHRA DUN                                                                                                                                                    | N.E   | eP               | 20 | 51 | 22 | 8780  |                                                 |
|            |                                                                                                                                                              | N     | PP               |    | 54 | 16 |       |                                                 |
|            |                                                                                                                                                              |       | PPP              |    | 56 | 12 |       |                                                 |
|            |                                                                                                                                                              |       | iS               | 21 | 01 | 21 |       |                                                 |
|            |                                                                                                                                                              |       | PPS              |    | 02 | 18 |       |                                                 |
|            |                                                                                                                                                              |       | SS               |    | 06 | 48 |       |                                                 |
|            |                                                                                                                                                              |       | SSS              |    | 09 | 47 |       |                                                 |
|            |                                                                                                                                                              |       | Lr               |    | 12 | 38 |       |                                                 |
|            |                                                                                                                                                              |       | M                |    | 16 | 50 |       |                                                 |
|            | BOKARO                                                                                                                                                       | N.E   | iP               | 20 | 51 | 26 | 8800  | Probably after shock of the previous one.       |
|            |                                                                                                                                                              | N     | iS               | 21 | 01 | 26 |       |                                                 |
|            | NEW DELHI                                                                                                                                                    | N     | iP               | 20 | 51 | 35 | 9130  |                                                 |
|            |                                                                                                                                                              |       | PP               |    | 54 | 40 |       |                                                 |
|            |                                                                                                                                                              |       | i                | 21 | 01 | 35 |       |                                                 |
|            |                                                                                                                                                              |       | iS               |    | 01 | 50 |       |                                                 |

| DATE | STATION                    | COMPT                                        | PHASE                                                                 | C  | M  | I                                                                    | R     | REMARKS                                                 | DATE | STATION  | COMPT                               | PHASE              | C                   | M  | I              | R                    | REMARKS                                                                                            |
|------|----------------------------|----------------------------------------------|-----------------------------------------------------------------------|----|----|----------------------------------------------------------------------|-------|---------------------------------------------------------|------|----------|-------------------------------------|--------------------|---------------------|----|----------------|----------------------|----------------------------------------------------------------------------------------------------|
|      |                            |                                              |                                                                       | h. | m. | s.                                                                   | km    |                                                         |      |          |                                     |                    | h.                  | m. | s.             | km                   |                                                                                                    |
| 09   | NEW DELHI<br>Contd. Contd. | N                                            | PS<br>PPS<br>SS<br>Lq<br>M                                            | 21 | 02 | 27<br>46<br>58<br>52<br>50<br>43                                     |       |                                                         |      |          |                                     |                    |                     |    |                |                      |                                                                                                    |
|      |                            |                                              |                                                                       |    |    |                                                                      |       | Per.: 21 secs<br>h = 106                                |      | 09       | CHAIWA<br>Contd.<br>POONA<br>BOMBAY | Z<br>Z<br>E<br>N.E | i<br>eP<br>eP<br>eS | 23 | 11             | 24<br>34<br>34<br>26 | Feeble near<br>Slight<br>10000 Slight                                                              |
|      |                            |                                              |                                                                       |    |    |                                                                      |       |                                                         |      | 09       | SHILLONG                            | Z                  | iP                  | 23 | 16             | 54                   | Slight                                                                                             |
|      | HYDERABAD                  | E N<br>N                                     | iP<br>PP<br>PPP<br>SKS1<br>iS<br>PPS<br>SS<br>SSS<br>PKKS1<br>Lr<br>M | 20 | 52 | 16<br>18<br>18<br>25<br>25<br>07<br>13<br>03<br>58<br>58<br>13<br>52 | 9480  | Initial ground<br>movement<br>towards South<br>and West |      | 09       | SHILLONG<br>POONA<br>BOKARO         | Z<br>Z<br>N.E      | iP<br>iP<br>i       | 23 | 18<br>20<br>21 | 40<br>05<br>38       | Slight<br>Slight<br>Tremor Probab<br>ly faintly<br>recorded after<br>shock of the<br>previous one. |
|      |                            |                                              |                                                                       |    |    |                                                                      |       | Per.: 18 secs<br>h = 81                                 |      |          | POONA                               | Z                  | i                   | 23 | 22             | 28                   | Feeble                                                                                             |
|      |                            |                                              |                                                                       |    |    |                                                                      |       | Per.: 17 secs<br>h = 61                                 |      | 09       | SHILLONG                            | Z                  | eP                  | 23 | 24             | 19                   | Slight                                                                                             |
|      | POONA                      | Z<br>E                                       | iP<br>eS                                                              | 20 | 52 | 21<br>16                                                             | 10080 |                                                         | 09   | POONA    | Z                                   | i                  | 23                  | 25 | 48             | Feeble               |                                                                                                    |
|      |                            |                                              |                                                                       |    |    |                                                                      |       |                                                         | 09   | SHILLONG | Z                                   | iP                 | 23                  | 30 | 47             | Slight               |                                                                                                    |
|      | BOMBAY                     | N E<br>E<br>N E<br>E<br>N E<br>E<br>N E<br>N | eP<br>e<br>PP<br>PPP<br>SKS1<br>eS<br>PS<br>PPS<br>SS<br>Lq<br>M      | 20 | 52 | 22<br>29<br>00<br>18<br>58<br>18<br>36<br>00<br>57<br>52<br>24       | 10100 |                                                         | 09   | SHILLONG | Z                                   | iP                 | 23                  | 32 | 22             | Slight               |                                                                                                    |
|      |                            |                                              |                                                                       |    |    |                                                                      |       |                                                         |      | POONA    | Z                                   | i                  | 23                  | 33 | 50             | Feeble               |                                                                                                    |
|      |                            |                                              |                                                                       |    |    |                                                                      |       |                                                         | 09   | POONA    | Z                                   | i                  | 23                  | 35 | 06             | Slight               |                                                                                                    |
|      |                            |                                              |                                                                       |    |    |                                                                      |       |                                                         | 09   | SHILLONG | Z                                   | e                  | 23                  | 36 | 37             | Feeble               |                                                                                                    |
|      |                            |                                              |                                                                       |    |    |                                                                      |       |                                                         | 09   | SHILLONG | Z                                   | eP                 | 23                  | 49 | 39             | Slight               |                                                                                                    |
|      |                            |                                              |                                                                       |    |    |                                                                      |       | Per.: 19 secs<br>h = 71                                 |      |          | POONA                               | Z                  | e                   | 23 | 50             | 46                   | Feeble                                                                                             |
|      |                            |                                              |                                                                       |    |    |                                                                      |       | Per.: 19 secs<br>h = 79                                 |      | 10       | SHILLONG                            | Z                  | iP                  | 00 | 09             | 10                   | Slight                                                                                             |
|      |                            |                                              |                                                                       |    |    |                                                                      |       |                                                         |      | POONA    | Z                                   | e                  | 00                  | 10 | 40             | Feeble               |                                                                                                    |
|      | MADRAS                     | E                                            | eP<br>i                                                               | 20 | 52 | 25<br>00                                                             |       | Phases not<br>clear                                     | 10   | SHILLONG | Z                                   | iP                 | 00                  | 18 | 17             | Slight               |                                                                                                    |
|      | KODAIKANAL                 | E                                            | eP<br>SKS<br>e<br>e<br>e<br>e<br>e<br>M                               | 20 | 52 | 42<br>19<br>12<br>33<br>09<br>39<br>03<br>39                         | 10670 |                                                         | 10   | SHILLONG | Z                                   | iP                 | 00                  | 22 | 56             | Slight               |                                                                                                    |
|      |                            |                                              |                                                                       |    |    |                                                                      |       |                                                         |      | POONA    | Z                                   | iP                 | 00                  | 24 | 35             | Slight               |                                                                                                    |
|      |                            |                                              |                                                                       |    |    |                                                                      |       |                                                         | 10   | SHILLONG | Z                                   | eP                 | 00                  | 29 | 13             | Slight               |                                                                                                    |
|      |                            |                                              |                                                                       |    |    |                                                                      |       |                                                         | 10   | SHILLONG | Z                                   | eP                 | 00                  | 51 | 45             | Slight               |                                                                                                    |
|      |                            |                                              |                                                                       |    |    |                                                                      |       | Per.: 18 secs<br>h = 36.7                               |      |          | POONA                               | Z                  | i                   | 00 | 53             | 13                   | Feeble                                                                                             |
|      | COLOMBO                    | E                                            | P<br>e<br>e<br>e                                                      | 20 | 52 | 51<br>29<br>51<br>26                                                 |       |                                                         | 10   | SHILLONG | Z                                   | iP                 | 01                  | 02 | 01             | Slight               |                                                                                                    |
|      |                            |                                              |                                                                       |    |    |                                                                      |       |                                                         | 10   | SHILLONG | Z                                   | eP                 | 01                  | 05 | 26             | Slight               |                                                                                                    |
| 09   | SHILLONG                   | Z                                            | iP                                                                    | 21 | 09 | 13                                                                   |       | Slight                                                  | 10   | SHILLONG | Z                                   | iP                 | 01                  | 12 | 12             | Slight               |                                                                                                    |
|      | POONA                      | Z                                            | i                                                                     | 21 | 09 | 33                                                                   |       | Feeble                                                  | 10   | SHILLONG | Z                                   | iP                 | 01                  | 18 | 33             | Slight               |                                                                                                    |
|      |                            |                                              |                                                                       |    |    |                                                                      |       |                                                         | 10   | SHILLONG | Z                                   | eP                 | 01                  | 21 | 46             | Slight               |                                                                                                    |
| 09   | SHILLONG                   | Z                                            | iP                                                                    | 21 | 27 | 13                                                                   |       | Slight                                                  | 10   | SHILLONG | Z                                   | eP                 | 01                  | 25 | 28             | Slight               |                                                                                                    |
| 09   | SHILLONG                   | Z                                            | eP                                                                    | 21 | 31 | 57                                                                   |       | Slight                                                  | 10   | SHILLONG | Z                                   | iP                 | 01                  | 28 | 29             | Slight               |                                                                                                    |
| 09   | SHILLONG                   | Z                                            | eP                                                                    | 21 | 46 | 20                                                                   |       | Slight                                                  |      | POONA    | Z                                   | eP                 | 01                  | 29 | 54             | Feeble               |                                                                                                    |
| 09   | SHILLONG                   | Z                                            | iP                                                                    | 21 | 53 | 14                                                                   |       | Slight                                                  | 10   | SHILLONG | Z                                   | iP                 | 01                  | 33 | 51             | Slight               |                                                                                                    |
| 09   | SHILLONG                   | Z                                            | iP                                                                    | 21 | 59 | 24                                                                   |       | Slight                                                  |      | POONA    | Z                                   | e                  | 01                  | 35 | 12             | Feeble               |                                                                                                    |
| 09   | SHILLONG                   | Z                                            | eP                                                                    | 22 | 06 | 27                                                                   |       | Slight                                                  | 10   | SHILLONG | Z                                   | eP                 | 01                  | 39 | 37             | Slight               |                                                                                                    |
| 09   | SHILLONG                   | Z                                            | eP                                                                    | 22 | 08 | 11                                                                   |       | Slight                                                  | 10   | SHILLONG | Z                                   | eP                 | 01                  | 54 | 52             | Slight               |                                                                                                    |
|      | CHATRA                     | Z                                            | i                                                                     | 22 | 08 | 22                                                                   |       | Feeble near                                             | 10   | SHILLONG | Z                                   | iP                 | 02                  | 34 | 13             | Slight               |                                                                                                    |
|      | POONA                      | Z                                            | iP                                                                    | 22 | 09 | 38                                                                   |       | Slight                                                  |      | POONA    | Z                                   | i                  | 02                  | 35 | 35             | Feeble               |                                                                                                    |
| 09   | SHILLONG                   | Z                                            | eP                                                                    | 22 | 15 | 25                                                                   |       | Slight                                                  | 10   | SHILLONG | Z                                   | iP                 | 02                  | 42 | 27             | Slight               |                                                                                                    |
| 09   | SHILLONG                   | Z                                            | iP                                                                    | 22 | 25 | 12                                                                   |       | Slight                                                  | 10   | SHILLONG | Z                                   | eP                 | 02                  | 45 | 01             | Slight               |                                                                                                    |
| 09   | SHILLONG                   | Z                                            | eP                                                                    | 22 | 33 | 18                                                                   |       | Slight                                                  | 10   | SHILLONG | Z                                   | eP                 | 02                  | 46 | 46             | Slight               |                                                                                                    |
| 09   | SHILLONG                   | Z                                            | iP                                                                    | 22 | 35 | 29                                                                   |       | Slight                                                  | 10   | POONA    | Z                                   | i                  | 02                  | 49 | 12             | Feeble               |                                                                                                    |
| 09   | SHILLONG                   | Z                                            | iP                                                                    | 22 | 54 | 05                                                                   |       | Slight                                                  | 10   | SHILLONG | Z                                   | eP                 | 03                  | 03 | 23             | Slight               |                                                                                                    |
| 09   | SHILLONG                   | Z<br>E                                       | eP<br>iS                                                              | 23 | 11 | 08<br>44                                                             | 8300  | Slight                                                  |      | POONA    | Z                                   | i                  | 03                  | 05 | 34             | Feeble               |                                                                                                    |

Table with columns: DATE, STATION, COMPT, PHASE, T, M, I, Δ, REMARKS. Contains seismic event data for stations like DEHRA DUN, SHILLONG, DELHI, BOMBA, HYDERABAD, POONA, BOMBAY, KOLKATNA, COLOMBO, and SHILLONG.

| DATE | STATION                                                             | COMPT. PHASE | G. M. T.<br>h. m. s.                                                          | $\Delta$<br>km | REMARKS                                        | DATE       | STATION                            | COMPT. PHASE                                                                                                                     | G. M. T.<br>h. m. s.                                           | $\Delta$<br>km        | REMARKS                                        |                             |
|------|---------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------|----------------|------------------------------------------------|------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-----------------------|------------------------------------------------|-----------------------------|
|      |                                                                     |              |                                                                               |                |                                                | March 1957 |                                    |                                                                                                                                  |                                                                |                       |                                                |                             |
| 10   | POONA                                                               | Z            | e 07 19 15                                                                    |                | Feeble                                         | 10         | SHILLONG                           | Z                                                                                                                                | iP 11 58 06                                                    |                       | Slight                                         |                             |
| 10   | SHILLONG                                                            | Z            | iP 07 23 58                                                                   |                | Slight                                         | 10         | SHILLONG                           | Z                                                                                                                                | iP 11 59 14                                                    |                       | Slight                                         |                             |
| 10   | SHILLONG                                                            | Z            | iP 07 34 42                                                                   |                | Slight                                         |            | POONA                              | Z                                                                                                                                | i 12 00 41                                                     |                       | Feeble                                         |                             |
| 10   | CHATRA                                                              | Z            | iP 07 34 54<br>iS 35 12                                                       | 140            | Slight                                         | 10         | POONA                              | Z                                                                                                                                | i 12 01 41                                                     |                       | Feeble                                         |                             |
| 10   | POONA                                                               | Z            | iP 07 36 10                                                                   |                | Feeble                                         | 10         | MADRAS                             | E                                                                                                                                | e 12 23 00<br>e 33 27                                          |                       | Slight,<br>distant                             |                             |
| 10   | SHILLONG                                                            | Z            | iP 07 43 21                                                                   |                | Slight                                         | 10         | SHILLONG                           | Z                                                                                                                                | iP 12 23 40                                                    |                       | Slight                                         |                             |
|      | POONA                                                               | Z            | i 07 44 31                                                                    |                | Feeble                                         | 10         | POONA                              | Z                                                                                                                                | eP 12 25 14                                                    |                       | Slight                                         |                             |
| 10   | SHILLONG                                                            | Z            | iP 08 05 59                                                                   |                | Slight                                         | 10         | SHILLONG                           | Z                                                                                                                                | iP 12 47 44                                                    |                       | Slight                                         |                             |
| 10   | SHILLONG                                                            | Z            | eP 08 43 08                                                                   |                | Slight                                         | 10         | CHATRA                             | E,N                                                                                                                              | e 12 48 09                                                     |                       | Feeble, near                                   |                             |
| 10   | SHILLONG                                                            | Z            | eP 08 53 11                                                                   |                | Slight                                         |            | DEHRA DUN                          | N,E                                                                                                                              | e 12 48 23                                                     |                       | Tremor                                         |                             |
| 10   | SHILLONG                                                            | Z            | eP 09 02 12                                                                   |                | Slight                                         |            | POONA                              | Z                                                                                                                                | eP 12 49 11                                                    |                       | Slight                                         |                             |
| 10   | SHILLONG                                                            | Z            | iP 09 16 02                                                                   |                | Slight                                         | 10         | SHILLONG                           | Z                                                                                                                                | eP 12 55 36                                                    |                       | Slight                                         |                             |
| 10   | SHILLONG                                                            | Z            | iP 09 32 49                                                                   |                | Slight                                         | 10         | DEHRA DUN                          | N,E                                                                                                                              | e 12 58 20                                                     |                       | Feeble                                         |                             |
| 10   | SHILLONG                                                            | Z            | iP 09 35 09                                                                   |                | Slight                                         |            | POONA                              | Z                                                                                                                                | i 12 58 23                                                     |                       | Feeble                                         |                             |
| 10   | SHILLONG                                                            | Z            | iP 09 37 01                                                                   |                | Slight                                         | 10         | Epc: 50°N, 180°E, in the Aleutians |                                                                                                                                  |                                                                |                       |                                                |                             |
| 10   | SHILLONG                                                            | Z            | eP 08 49 35                                                                   |                | Slight                                         |            | SHILLONG                           | Z,N,E<br>N,E                                                                                                                     | iP 13 21 21<br>eS 30 32                                        | 7790                  | Slight                                         |                             |
| 10   | SHILLONG                                                            | Z            | iP 10 02 35                                                                   |                | Slight                                         |            | CHATRA                             | E,N                                                                                                                              | e 13 21 39                                                     |                       | Feeble, near                                   |                             |
| 10   | SHILLONG                                                            | Z            | iP 10 24 20                                                                   |                | Slight                                         |            | DEHRA DUN                          | N,E<br>N                                                                                                                         | eP 13 21 48<br>PPP 26 25<br>iS 31 35<br>SS 36 56<br>M 53 29    | 8530                  | Slight, other<br>phases not<br>clear           |                             |
| 10   | POONA                                                               | Z            | i 10 25 47                                                                    |                | Feeble                                         |            | POONA                              | Z                                                                                                                                | eP 13 22 55<br>eS 33 33                                        | 9670                  | Slight                                         |                             |
| 10   | SHILLONG                                                            | Z            | eP 10 27 47                                                                   |                | Slight                                         |            | BOMBAY                             | N,E                                                                                                                              | eP 13 23 02<br>SKS 33 34<br>eS 33 45<br>PS 34 56<br>M 14 00 04 | 9780                  | Slight                                         |                             |
| 10   | SHILLONG                                                            | Z            | iP 10 48 31                                                                   |                | Slight                                         |            |                                    | E                                                                                                                                | M 00 11                                                        |                       | Per. 15 secs<br>L = 7<br>Per. 15 secs<br>L = 5 |                             |
|      | POONA                                                               | Z            | i 10 49 56                                                                    |                | Feeble                                         |            | KODAIKANAL                         | E                                                                                                                                | e 13 23 27                                                     |                       | Tremor                                         |                             |
| 10   | Epc: 52°N, 171°W, in the Aleutians<br>- H = 11h 20m 45s (U.S.C.G.S) |              |                                                                               |                |                                                |            | 10                                 | SHILLONG                                                                                                                         | Z                                                              | iP 13 30 45           |                                                | Slight                      |
|      | SHILLONG                                                            | Z            | iP 11 32 25                                                                   |                | Slight                                         |            | COLOMBO                            | E                                                                                                                                | P 13 33 53<br>L 03 21<br>M 06 41                               |                       | Amp. 0.2 mm                                    |                             |
|      | CHATRA                                                              | E,N          | e 11 32 39                                                                    |                | Feeble, near                                   |            | 10                                 | Epc: 51°N, 179°W, Andeanof Islands in Aleutians<br>- H = 13h 28m 30s (U.S.C.G.S)<br>Mag: 6½ (Uppsala, Kiruna), 6.2 (Kew, Praha). |                                                                |                       |                                                |                             |
|      | DEHRA DUN                                                           | N,E<br>N     | eP 11 32 47<br>iS 42 43<br>PS 43 20<br>M 12 03 42                             | 8710           | Slight, other<br>phases not<br>clear           |            | SHILLONG                           | Z                                                                                                                                | iP 13 39 43                                                    |                       |                                                |                             |
|      | NEW DELHI                                                           | N            | eP 11 33 00<br>eS 43 00                                                       | 8800           | Moderate                                       |            | POONA                              | Z                                                                                                                                | iP 13 41 15                                                    |                       |                                                |                             |
|      | HYDERABAD                                                           | E,N          | iP 11 33 42<br>iS 44 10<br>SKS1 44 25<br>SS 50 07<br>PKK1 51 16<br>M 12 07 07 | 9410           | Moderate                                       |            | BOMBAY                             | N,E                                                                                                                              | eP 13 41 16<br>eS 51 48                                        | 9510                  |                                                |                             |
|      |                                                                     | E            | M 12 07 07                                                                    |                | Per. 15 secs<br>L = 6                          |            | 10                                 | SHILLONG                                                                                                                         | Z                                                              | iP 13 48 48           |                                                | Slight                      |
|      |                                                                     | N            | M 09 13                                                                       |                | Per. 16 secs<br>L = 16                         |            | 10                                 | SHILLONG                                                                                                                         | Z                                                              | iP 13 57 13           |                                                | Slight                      |
|      | KODAIKANAL                                                          | E            | e 11 33 45                                                                    |                | Tremor                                         |            | 10                                 | SHILLONG                                                                                                                         | Z                                                              | iP 14 01 03           |                                                | Slight                      |
|      | POONA                                                               | Z            | iP 11 33 53<br>eS 44 40                                                       | 9890           | Slight                                         |            | 10                                 | DEHRA DUN                                                                                                                        | N,E                                                            | e 14 05 12<br>i 07 22 |                                                | Feeble, phases<br>not clear |
|      | BOMBAY                                                              | N,E          | eP 11 33 53<br>e 44 20<br>e 44 36<br>e 44 56<br>N M 12 10 28                  |                | Slight                                         |            | 10                                 | SHILLONG                                                                                                                         | Z                                                              | iP 14 08 58           |                                                | Slight                      |
|      |                                                                     | E            | M 16 25                                                                       |                | Per. 20 secs<br>L = 3<br>Per. 17 secs<br>L = 6 |            | 10                                 | POONA                                                                                                                            | Z                                                              | e 14 12 20            |                                                | Feeble                      |
|      | MADRAS                                                              | E            | e 11 33 55<br>e 44 23                                                         |                | Slight and<br>distant                          |            | 10                                 | SHILLONG                                                                                                                         | Z                                                              | iP 14 20 43           |                                                | Slight                      |
| 10   | SHILLONG                                                            | Z            | iP 11 38 27                                                                   |                | Slight                                         |            | 10                                 | SHILLONG                                                                                                                         | Z                                                              | iP 14 41 02           |                                                | Slight                      |
|      | COLOMBO                                                             | E            | P 11 38 36<br>e 44 51<br>e 12 21 51<br>e 24 41                                |                |                                                |            | 10                                 | SHILLONG                                                                                                                         | Z                                                              | iP 14 55 41           |                                                | Slight                      |
| 10   | SHILLONG                                                            | Z            | eP 11 42 03                                                                   |                | Slight                                         |            | 10                                 | SHILLONG                                                                                                                         | Z                                                              | iP 14 57 21           |                                                | Slight                      |
| 10   | SHILLONG                                                            | Z            | iP 11 46 35                                                                   |                | Slight                                         |            | 10                                 | SHILLONG                                                                                                                         | Z                                                              | iP 15 01 00           |                                                | Slight                      |
|      |                                                                     |              |                                                                               |                |                                                |            | 10                                 | SHILLONG                                                                                                                         | Z                                                              | iP 15 21 38           |                                                |                             |
|      |                                                                     |              |                                                                               |                |                                                |            | 10                                 | SHILLONG                                                                                                                         | Z                                                              | iP 15 16 33           |                                                | Slight                      |

| DATE | STATION                                | COMPT | PHASE | G. M. T. | $\Delta$ | REMARKS                                         | DATE       | STATION                                | COMPT | PHASE | G. M. T. | $\Delta$ | REMARKS                                      |
|------|----------------------------------------|-------|-------|----------|----------|-------------------------------------------------|------------|----------------------------------------|-------|-------|----------|----------|----------------------------------------------|
|      |                                        |       |       | h. m. s. | km       |                                                 | March 1957 |                                        |       |       | h. m. s. | km       |                                              |
| 10   | CHATRA                                 | E     | eP    | 15 36 50 |          | Slight                                          | 10         | Epc: 51 $^{\circ}$ N, 173 $^{\circ}$ W |       |       |          |          | Andreasof Islands in the Aleutians           |
|      | Contd.                                 | N     | i     | 38 26    |          |                                                 |            |                                        |       |       |          |          | - H = 16h 37m 45s (U.S.C.G.S)                |
| 10   | Epc: 52 $^{\circ}$ N, 173 $^{\circ}$ W |       |       |          |          |                                                 |            |                                        |       |       |          |          | Mag: 6.1 (Berkeley), 6.5 (Praha, Strasbourg) |
|      | SHILLONG                               | Z,N,E | iP    | 15 37 57 | 8090     |                                                 |            | SHILLONG                               | Z     | iP    | 16 49 20 |          |                                              |
|      |                                        | E     | PcP   | 38 17    |          |                                                 |            | CHATRA                                 | E     | eP    | 16 49 36 |          |                                              |
|      |                                        |       | iS    | 47 22    |          |                                                 |            |                                        |       | i     | 51 36    |          |                                              |
|      | POONA                                  | Z     | i     | 15 37 57 |          |                                                 |            | POONA                                  | Z     | i     | 16 50 44 | 9930     | Slight                                       |
|      | DEHRA DUN                              | N,E   | eP    | 15 38 20 | 8610     |                                                 | 10         | Epc: Aleutians Region                  |       |       |          |          | - H = 16h 39m 08s (B.C.I.S)                  |
|      |                                        | N     | PP    | 41 11    |          |                                                 |            | SHILLONG                               | Z     | iP    | 16 51 19 |          | Slight                                       |
|      |                                        |       | iS    | 48 11    |          |                                                 |            | BOMBAY                                 | E     | eP    | 16 52 31 | 10250    | Slight                                       |
|      |                                        |       | PPS   | 49 12    |          |                                                 |            |                                        | N     | eS    | 52 46    |          |                                              |
|      |                                        |       | SS    | 53 06    |          |                                                 |            |                                        | N,E   | eS    | 17 03 32 |          |                                              |
|      |                                        |       | Lq    | 59 02    |          |                                                 |            | POONA                                  | Z     | iP    | 16 52 44 |          | Slight                                       |
|      |                                        |       | M     | 16 09 19 |          |                                                 |            |                                        | E     | e     | 17 03 33 |          |                                              |
|      | BOKARO                                 | N,E   | iP    | 15 38 24 | 8710     | Initial ground movement towards South and West. |            | SHILLONG                               | Z     | eP    | 16 58 22 |          | Slight                                       |
|      |                                        |       | iS    | 48 20    |          |                                                 |            | SHILLONG                               | Z     | eP    | 17 29 45 |          | Slight                                       |
|      | NEW DELHI                              | N     | iP    | 15 38 30 | 8800     |                                                 |            | SHILLONG                               | Z     | eP    | 17 35 20 |          | Slight                                       |
|      |                                        |       | iS    | 48 30    |          |                                                 |            | SHILLONG                               | Z     | eP    | 17 50 56 |          | Slight                                       |
|      |                                        |       | SS    | 53 39    |          |                                                 |            | SHILLONG                               | Z     | iP    | 17 57 04 |          | Slight                                       |
|      |                                        |       | SSS   | 57 39    |          |                                                 |            | POONA                                  | Z     | e     | 17 58 32 |          | Feeble                                       |
|      |                                        |       | Lr    | 16 03 43 |          |                                                 |            | SHILLONG                               | Z     | iP    | 18 03 22 |          | Slight                                       |
|      |                                        |       | M     | 10 39    |          |                                                 |            | SHILLONG                               | Z     | iP    | 18 08 29 |          | Slight                                       |
|      | HYDERABAD                              | E,N   | iP    | 15 39 12 | 9320     | Initial ground movement towards South and West. |            | BOMBAY                                 | N,E   | e     | 18 09 14 |          | Slight                                       |
|      |                                        | N     | PP    | 42 41    |          |                                                 |            | SHILLONG                               | Z     | eP    | 18 15 09 |          | Slight                                       |
|      |                                        |       | PPP   | 44 23    |          |                                                 |            | SHILLONG                               | Z     | iP    | 18 31 02 |          | Slight                                       |
|      |                                        | E,N   | iS    | 49 36    |          |                                                 |            | SHILLONG                               | Z     | iP    | 18 33 17 |          | Slight                                       |
|      |                                        |       | ScS   | 49 54    |          |                                                 |            | SHILLONG                               | Z     | iP    | 18 34 40 |          | Slight                                       |
|      |                                        | N     | PPS   | 50 53    |          |                                                 |            | SHILLONG                               | Z     | eP    | 19 04 21 |          | Slight                                       |
|      |                                        |       | PKKK1 | 56 56    |          |                                                 |            | SHILLONG                               | Z     | eP    | 19 13 12 |          | Slight                                       |
|      |                                        |       | SSS   | 58 56    |          |                                                 |            | SHILLONG                               | Z     | iP    | 19 22 51 |          | Slight                                       |
|      |                                        | E     | Lr    | 16 06 21 |          | Per. = 18 secs                                  |            | SHILLONG                               | Z     | eP    | 19 26 31 |          | Slight                                       |
|      |                                        | N     | Lr    | 06 53    |          | LL = 11                                         |            | SHILLONG                               | Z     | iP    | 19 26 27 |          | Slight                                       |
|      |                                        | E     | M     | 12 38    |          | Per. = 18 secs                                  |            | SHILLONG                               | Z     | eP    | 19 29 49 |          | Slight                                       |
|      |                                        | N     | M     | 13 45    |          | LL = 11                                         |            | SHILLONG                               | Z     | eP    | 19 29 49 |          | Slight                                       |
|      | POONA                                  | Z     | iP    | 15 39 21 | 9890     |                                                 |            | POONA                                  | Z     | i     | 19 31 18 |          | Feeble                                       |
|      |                                        | E     | S     | 50 08    |          |                                                 |            | DEHRA DUN                              | N,E   | e     | 19 39 56 |          | Feeble                                       |
|      | BOMBAY                                 | N,E   | eP    | 15 39 21 | 9890     |                                                 |            | BOMBAY                                 | N,E   | e     | 19 42 03 |          |                                              |
|      |                                        |       | eS    | 50 08    |          |                                                 |            | SHILLONG                               | Z     | eP    | 19 48 13 |          | Slight                                       |
|      |                                        |       | ScS   | 50 21    |          | Per. = 19 secs                                  |            | Epc: 52 $^{\circ}$ N, 173 $^{\circ}$ W |       |       |          |          | Andreasof Islands in Aleutians               |
|      |                                        | N     | M     | 16 21 21 |          | LL = 11                                         |            |                                        |       |       |          |          | - H = 19h 40m 55s (U.S.C.G.S)                |
|      |                                        | E     | M     | 24 16    |          | Per. = 19 secs                                  |            | SHILLONG                               | Z     | iP    | 19 52 27 |          | Slight                                       |
|      |                                        |       |       |          |          | LL = 11                                         |            | POONA                                  | Z     | i     | 19 53 53 |          | Feeble                                       |
|      | MADRAS                                 | E     | eP    | 15 39 24 |          |                                                 |            | BOMBAY                                 | N,E   | eP    | 19 54 05 | 9910     | Slight                                       |
|      |                                        |       | e     | 49 51    |          |                                                 |            |                                        | E     | eS    | 20 04 38 |          |                                              |
|      | KODAIKANAL                             | E     | eP    | 15 39 45 |          |                                                 |            |                                        |       | eS    | 04 53    |          |                                              |
|      |                                        |       | e     | 50 30    |          |                                                 |            | SHILLONG                               | Z     | eP    | 20 01 54 |          | Slight                                       |
|      |                                        |       | M     | 16 15 06 |          |                                                 |            | SHILLONG                               | Z     | eP    | 20 16 52 |          | Slight                                       |
|      | COLOMBO                                | E     | eP    | 15 39 51 |          |                                                 |            | SHILLONG                               | Z     | eP    | 20 22 54 |          | Slight                                       |
|      |                                        |       | e     | 50 21    |          |                                                 |            | SHILLONG                               | Z     | eP    | 20 33 17 |          | Slight                                       |
|      |                                        |       | e     | 16 21 06 |          |                                                 |            | SHILLONG                               | Z     | iP    | 20 45 48 |          | Slight                                       |
|      |                                        |       | M     | 26 36    |          | Amp = 1.0 mm                                    |            | SHILLONG                               | Z     | eP    | 20 48 18 |          | Slight                                       |
| 10   | SHILLONG                               | Z     | iP    | 15 50 19 |          | Slight                                          |            | SHILLONG                               | Z     | iP    | 20 59 19 |          | Slight                                       |
| 10   | SHILLONG                               | Z     | eP    | 15 55 13 |          | Slight                                          |            | SHILLONG                               | Z     | iP    | 21 08 50 |          | Slight                                       |
| 10   | SHILLONG                               | Z     | eP    | 15 57 27 |          | Slight                                          |            |                                        |       |       |          |          |                                              |
| 10   | SHILLONG                               | Z     | iP    | 16 00 29 |          | Slight                                          |            |                                        |       |       |          |          |                                              |
| 10   | SHILLONG                               | Z     | eP    | 16 11 16 |          | Slight                                          |            |                                        |       |       |          |          |                                              |
| 10   | SHILLONG                               | Z     | eP    | 16 19 11 |          | Slight                                          |            |                                        |       |       |          |          |                                              |
| 10   | SHILLONG                               | Z     | eP    | 16 27 37 |          | Slight                                          |            |                                        |       |       |          |          |                                              |
| 10   | SHILLONG                               | Z     | eP    | 16 39 58 |          | Slight                                          |            |                                        |       |       |          |          |                                              |
| 10   | SHILLONG                               | Z     | iP    | 16 41 44 |          | Slight                                          |            |                                        |       |       |          |          |                                              |
| 10   | SHILLONG                               | Z     | iP    | 16 42 51 |          | Slight                                          |            |                                        |       |       |          |          |                                              |
|      | POONA                                  | Z     | i     | 16 44 16 |          | Feeble                                          |            |                                        |       |       |          |          |                                              |



| STATION                                                                                                                                                                               | TIME        | PHASE       | AMPLITUDE | PERIOD | REMARKS                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|-----------|--------|-------------------------------------------------------------|
| SHILLONG                                                                                                                                                                              | 21 01 01    | Slight      |           |        |                                                             |
| SHILLONG                                                                                                                                                                              | 21 02 30    | Slight      |           |        |                                                             |
| SHILLONG                                                                                                                                                                              | 21 55 01    | Slight      |           |        |                                                             |
| SHILLONG                                                                                                                                                                              | 22 01 01    | Slight      |           |        |                                                             |
| SHILLONG                                                                                                                                                                              | 22 10 44    | Slight      |           |        |                                                             |
| SHILLONG                                                                                                                                                                              | 22 23 09    | Slight      |           |        |                                                             |
| SHILLONG                                                                                                                                                                              | 22 21 09    | Slight      |           |        |                                                             |
| SHILLONG                                                                                                                                                                              | 22 27 05    | Slight      |           |        |                                                             |
| SHILLONG                                                                                                                                                                              | 22 29 10    | Slight      |           |        |                                                             |
| SHILLONG                                                                                                                                                                              | 22 45 00    | Slight      |           |        |                                                             |
| SHILLONG                                                                                                                                                                              | 22 51 05    | Slight      |           |        |                                                             |
| SHILLONG                                                                                                                                                                              | 22 03 05    | Slight      |           |        |                                                             |
| POONA                                                                                                                                                                                 | 22 04 07    | Feeble      |           |        |                                                             |
| SHILLONG                                                                                                                                                                              | 22 06 01    | Slight      |           |        |                                                             |
| SHILLONG                                                                                                                                                                              | 22 11 01    | Slight      |           |        |                                                             |
| BOMBAY                                                                                                                                                                                | 22 00 01 00 |             |           |        |                                                             |
| POONA                                                                                                                                                                                 | 22 04 01 00 | Feeble      |           |        |                                                             |
| BOMBAY                                                                                                                                                                                | 22 03 01 00 | Feeble      |           |        |                                                             |
| SHILLONG                                                                                                                                                                              | 22 01 01 00 | Slight      |           |        |                                                             |
| SHILLONG                                                                                                                                                                              | 22 01 10 01 | Slight      |           |        |                                                             |
| SHILLONG                                                                                                                                                                              | 22 02 02 01 | Slight      |           |        |                                                             |
| POONA                                                                                                                                                                                 | 22 04 03    | Feeble      |           |        |                                                             |
| <p>11 E 52°N, 177°W Andean of Islands to the A. Station<br/> H = 0.3h 12m 49s (Shillong)<br/> S = 51°N, 177°W H = 0.3h 12m 49s (U S C G S)<br/> Mag 7.1 (R. S. P. S.) (Berkelley)</p> |             |             |           |        |                                                             |
| SHILLONG                                                                                                                                                                              | Z, N, E     | 23 24 02    | 8850      |        | Wavefaction<br>Initial ground<br>movement East<br>and North |
|                                                                                                                                                                                       | N, E        | 24 13       |           |        |                                                             |
|                                                                                                                                                                                       | PP          | 26 47       |           |        |                                                             |
|                                                                                                                                                                                       | PP          | 28 37       |           |        |                                                             |
|                                                                                                                                                                                       | S           | 33 10       |           |        |                                                             |
|                                                                                                                                                                                       | SKS         | 33 53       |           |        |                                                             |
|                                                                                                                                                                                       | PP          | 34 02       |           |        |                                                             |
|                                                                                                                                                                                       | PPS         | 34 14       |           |        |                                                             |
|                                                                                                                                                                                       | SS          | 38 06       |           |        |                                                             |
|                                                                                                                                                                                       | SS          | 41 18       |           |        |                                                             |
|                                                                                                                                                                                       | Lq          | 43 25       |           |        |                                                             |
|                                                                                                                                                                                       | M           | 51 02       |           |        |                                                             |
|                                                                                                                                                                                       | N           | 51 02       |           |        |                                                             |
|                                                                                                                                                                                       |             |             |           |        | Per = 22.5 Secs<br>L = 6.0 ms                               |
| CHATRA                                                                                                                                                                                | Z           | 23 24 13    | 8330      |        |                                                             |
|                                                                                                                                                                                       | E           | 25 51       |           |        |                                                             |
| DEBRAJUN                                                                                                                                                                              | N, E        | 24 24 29    | 8470      |        |                                                             |
|                                                                                                                                                                                       | N           | 27 27       |           |        |                                                             |
|                                                                                                                                                                                       | PP          | 28 49       |           |        |                                                             |
|                                                                                                                                                                                       | S           | 34 10       |           |        |                                                             |
|                                                                                                                                                                                       | PS          | 34 49       |           |        |                                                             |
|                                                                                                                                                                                       | PPS         | 35 15       |           |        |                                                             |
|                                                                                                                                                                                       | SS          | 39 05       |           |        |                                                             |
|                                                                                                                                                                                       | SSS         | 40 12       |           |        |                                                             |
|                                                                                                                                                                                       | Lq          | 41 55       |           |        |                                                             |
| BOMBAY                                                                                                                                                                                | N, E        | 23 24 02    | 8550      |        | Initial ground<br>movement South<br>and South West          |
|                                                                                                                                                                                       | PP          | 24 21       |           |        |                                                             |
|                                                                                                                                                                                       | PP          | 28 11       |           |        |                                                             |
|                                                                                                                                                                                       | SS          | 32 50       |           |        |                                                             |
|                                                                                                                                                                                       | Lq          | 36 30       |           |        |                                                             |
|                                                                                                                                                                                       | L           | 39 13       |           |        |                                                             |
|                                                                                                                                                                                       |             |             |           |        | Per = 24.5 Secs<br>L = 8.7                                  |
| COCHIN                                                                                                                                                                                | E           | 23 24 25    |           |        |                                                             |
|                                                                                                                                                                                       |             | 24 01       |           |        |                                                             |
|                                                                                                                                                                                       |             | 24 06 27    |           |        |                                                             |
|                                                                                                                                                                                       |             | 24 08       |           |        |                                                             |
| SHILLONG                                                                                                                                                                              | Z           | 23 24 02    |           |        |                                                             |
| POONA                                                                                                                                                                                 | Z           | 22 04 03    |           |        |                                                             |
| BOMBAY                                                                                                                                                                                | N, E        | 22 03 01 00 | 9980      |        | Slight                                                      |
|                                                                                                                                                                                       | E           | SKS         | 22 19     |        |                                                             |
|                                                                                                                                                                                       | N, E        | 22 03 01 00 |           |        |                                                             |
| SHILLONG                                                                                                                                                                              | Z           | 22 03 01 00 |           |        | Slight                                                      |
| CHATRA                                                                                                                                                                                | Z           | 22 03 01 00 |           |        | Slight                                                      |



| DATE        | TIME  | COMP | PHASE            | H  | M        | S             | REMARKS                                   | DATE     | STATION   | COMP | PHASE              | H  | M  | S                  | REMARK                                    |
|-------------|-------|------|------------------|----|----------|---------------|-------------------------------------------|----------|-----------|------|--------------------|----|----|--------------------|-------------------------------------------|
| 11          | 08 45 | N    | SKS              | 15 | 16       | 51            | Initial ground movement towards West      | 11       | SHILLONG  | Z    | eP                 | 18 | 01 | 30                 | Very faint distant                        |
|             |       |      | Lq               | 30 | 40       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | M                | 36 | 31       |               |                                           |          |           |      |                    |    |    |                    |                                           |
| NEW DELHI   | 07 12 | N    | PP               | 15 | 07       | 12            | 3350 Initial ground movement towards West | 11       | SHILLONG  | Z    | eP                 | 18 | 06 | 50                 | Very faint distant                        |
|             |       |      | PP-              | 16 | 00       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | S                | 18 | 47       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | PS               | 18 | 00       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | S                | 16 | 51       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | SS               | 21 | 53       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | Lq               | 26 | 47       |               |                                           |          |           |      |                    |    |    |                    |                                           |
| M           | 36    | 51   |                  |    |          |               |                                           |          |           |      |                    |    |    |                    |                                           |
| HYDERABAD   | 07 15 | E    | iP               | 15 | 07       | 15            | 6210 Initial ground movement towards West | 11       | SHILLONG  | Z    | eP                 | 20 | 53 | 47                 | Very faint distant                        |
|             |       |      | PP               | 11 | 13       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | PPP              | 13 | 12       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | S                | 18 | 13       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | PS               | 19 | 10       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | PPS              | 19 | 49       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | S                | 23 | 18       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | PKKP1            | 25 | 48       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | SBS              | 27 | 00       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | PKKS             | 29 | 44       |               |                                           |          |           |      |                    |    |    |                    |                                           |
| Lq          | 30    | 57   |                  |    |          |               |                                           |          |           |      |                    |    |    |                    |                                           |
| SKKS        | 32    | 02   |                  |    |          |               |                                           |          |           |      |                    |    |    |                    |                                           |
| M           | 42    | 15   |                  |    |          |               |                                           |          |           |      |                    |    |    |                    |                                           |
| BOMBAY      | 08 33 | N.E  | iP               | 15 | 08       | 33            | 9520                                      | 12       | SHILLONG  | Z    | iP                 | 20 | 20 | 31                 | Very faint distant                        |
|             |       |      | PP               | 11 | 26       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | PPP              | 13 | 28       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       | E    | e                | 15 | 21       | 12            |                                           | SHILLONG | Z         | eP   | 01                 | 01 | 00 | Slight distant     |                                           |
|             |       |      | SKS <sub>1</sub> | 18 | 26       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | S                | 18 | 40       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       | N.E  | PS               | 19 | 28       | 12            |                                           | SHILLONG | Z         | eP   | 01                 | 58 | 04 | Slight distant     |                                           |
|             |       |      | PPS              | 19 | 47       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | SS               | 24 | 31       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       | E    | SS               | 24 | 50       | 12            |                                           | SHILLONG | Z         | eP   | 01                 | 24 | 00 | Slight distant     |                                           |
|             |       |      | S                | 23 | 02       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | Lq               | 31 | 25       |               |                                           |          |           |      |                    |    |    |                    |                                           |
| N           | M     | 42   | 45               | 12 | SHILLONG | Z             | eP                                        | 03       | 09        | 06   | Very faint distant |    |    |                    |                                           |
|             | M     | 48   | 58               |    |          |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             | M     | 48   | 58               |    |          |               |                                           |          |           |      |                    |    |    |                    |                                           |
| POONA       | 08 04 | Z    | iP               | 15 | 08       | 04            | 12                                        | SHILLONG | Z         | eP   | 01                 | 57 | 00 | Slight distant     |                                           |
|             |       |      | e                | 28 | 06       |               |                                           |          |           |      |                    |    |    |                    |                                           |
| MADRAS      | 08 06 | E    | eP               | 15 | 08       | 06            | 3560                                      | 12       | CHITRA    | E    | eP                 | 06 | 09 | 06                 | 4500 Initial ground movement towards West |
|             |       |      | PP               | 13 | 29       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | SKS              | 18 | 31       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | PS               | 19 | 54       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | PPS              | 20 | 34       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | SS               | 24 | 19       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | Lq               | 31 | 44       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | M                | 46 | 50       |               |                                           |          |           |      |                    |    |    |                    |                                           |
| KODAIKANAL  | 08 44 | E    | iP               | 15 | 08       | 44            | Initial ground movement towards West      | 12       | SHILLONG  | Z    | eP                 | 07 | 40 | 18                 | Very faint distant                        |
|             |       |      | e                | 38 | 57       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | M                | 44 | 04       |               |                                           |          |           |      |                    |    |    |                    |                                           |
| COLOMBO     | 08 33 | E    | P                | 15 | 08       | 33            | 9490                                      | 12       | DEHRA DUN | N.E  | eP                 | 07 | 43 | 44                 | 84°0                                      |
|             |       |      | e                | 19 | 01       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | e                | 49 | 51       |               |                                           |          |           |      |                    |    |    |                    |                                           |
|             |       |      | e                | 58 | 06       |               |                                           |          |           |      |                    |    |    |                    |                                           |
| 11 CHATRA   | 07 25 | E    | e                | 07 | 25       | Surface waves | 12                                        | BOKARO   | N.E       | eP   | 07                 | 43 | 49 | Very faint distant |                                           |
|             |       |      | M                | 10 | 17       |               |                                           |          |           |      |                    |    |    |                    |                                           |
| 11 SHILLONG | 07 06 | Z    | iP               | 15 | 07       | 06            | Slight distant                            | 12       | SHILLONG  | Z    | eP                 | 07 | 43 | 49                 | Very faint distant                        |
|             |       |      | M                | 10 | 17       |               |                                           |          |           |      |                    |    |    |                    |                                           |
| DEHRA DUN   | 07 35 | N.E  | e                | 15 | 07       | 35            | Initial ground movement towards West      | 12       | SHILLONG  | Z    | eP                 | 07 | 43 | 49                 | Very faint distant                        |
|             |       |      | M                | 10 | 17       |               |                                           |          |           |      |                    |    |    |                    |                                           |
| POONA       | 08 30 | Z    | iP               | 15 | 08       | 30            | Slight distant                            | 12       | SHILLONG  | Z    | eP                 | 07 | 43 | 49                 | Very faint distant                        |
|             |       |      | S                | 59 | 09       |               |                                           |          |           |      |                    |    |    |                    |                                           |
| 11 SHILLONG | 16 50 | Z    | eP               | 16 | 13       | 50            | Slight distant                            | 12       | SHILLONG  | Z    | eP                 | 07 | 43 | 49                 | Very faint distant                        |
|             |       |      | M                | 10 | 17       |               |                                           |          |           |      |                    |    |    |                    |                                           |
| 11 SHILLONG | 16 20 | Z    | eP               | 16 | 28       | 20            | Slight distant                            | 12       | SHILLONG  | Z    | eP                 | 07 | 43 | 49                 | Very faint distant                        |
|             |       |      | M                | 10 | 17       |               |                                           |          |           |      |                    |    |    |                    |                                           |
| 11 SHILLONG | 16 53 | Z    | eP               | 16 | 41       | 53            | Very faint distant                        | 12       | SHILLONG  | Z    | eP                 | 07 | 43 | 49                 | Very faint distant                        |
|             |       |      | M                | 10 | 17       |               |                                           |          |           |      |                    |    |    |                    |                                           |
| 11 SHILLONG | 17 55 | Z    | eP               | 16 | 55       | 55            | Very faint distant                        | 12       | SHILLONG  | Z    | eP                 | 07 | 43 | 49                 | Very faint distant                        |
|             |       |      | M                | 10 | 17       |               |                                           |          |           |      |                    |    |    |                    |                                           |
| 11 SHILLONG | 17 55 | Z    | eP               | 17 | 08       | 55            | Very faint distant                        | 12       | SHILLONG  | Z    | eP                 | 07 | 43 | 49                 | Very faint distant                        |
|             |       |      | M                | 10 | 17       |               |                                           |          |           |      |                    |    |    |                    |                                           |

| DATE | STATION                                                                                                                                   | COMPT        | PHASE                                                                           | G. M. T.                                                                                                                | Δ    | REMARKS                                          | DATE       | STATION             | COMPT                                          | PHASE                                                                              | G. M. T.                                                                                                                | Δ                                   | REMARKS                                                                                             |                         |        |
|------|-------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|------|--------------------------------------------------|------------|---------------------|------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------|-------------------------|--------|
|      |                                                                                                                                           |              |                                                                                 | h. m. s.                                                                                                                | km   |                                                  | March 1957 |                     |                                                |                                                                                    | h. m. s.                                                                                                                | km                                  |                                                                                                     |                         |        |
| 12   | BOMBAY<br>Contd.                                                                                                                          | N,E          | eP<br>SKS<br>eS<br>i<br>SSS<br>M                                                | 07 41 43<br>52 14<br>52 33<br>52 51<br>08 02 37<br>23 45                                                                | 9550 | Per. 19 secs<br>μ = 20<br>Per. 19 secs<br>μ = 14 | 12         | DEHRA DUN<br>Contd. | N,E<br>N                                       | eP<br>PP<br>PPP<br>iS<br>PS<br>SS<br>SSS<br>Lq<br>Lr<br>M                          | 11 56 46<br>12 00 01<br>01 45<br>00 22<br>00 40<br>21 33<br>24 39<br>20 51<br>19 58<br>26 51                            | 8300                                |                                                                                                     |                         |        |
|      | POONA                                                                                                                                     | Z            | iP                                                                              | 07 41 48                                                                                                                |      |                                                  |            | BOKARO              | N,E<br>N                                       | iP<br>pP<br>PP<br>PPP<br>iS                                                        | 11 56 46<br>57 14<br>59 43<br>12 01 46<br>00 29                                                                         | 3000                                | Initial ground movement towards North and East                                                      |                         |        |
|      | MADRAS                                                                                                                                    | E            | eP<br>e<br>e                                                                    | 07 41 48<br>52 15<br>08 18 00                                                                                           |      |                                                  |            | NEW DELHI           | N                                              | iP<br>i<br>e<br>e<br>e<br>e<br>e<br>M<br>Mn                                        | 11 56 58<br>12 06 38<br>07 08<br>11 39<br>15 05<br>17 32<br>20 40<br>25 41<br>38 02                                     |                                     | Per. 17 secs<br>μ = 20                                                                              |                         |        |
|      | KODAIKANAL                                                                                                                                | E            | P<br>e<br>e                                                                     | 07 42 11<br>52 47<br>08 18 02                                                                                           |      | Initial ground movement towards West             |            |                     |                                                |                                                                                    |                                                                                                                         |                                     |                                                                                                     |                         |        |
| 12   | CHATRA                                                                                                                                    | E            | eP<br>i                                                                         | 07 50 12<br>08 00 06                                                                                                    |      |                                                  |            |                     |                                                |                                                                                    |                                                                                                                         |                                     |                                                                                                     |                         |        |
| 12   | Epc: 52°N, 178°W. In the Aleutians<br>- H = 07h 39m 17s (U.S.C.G.S)<br>Mag: 6½ (Uppsala, Kiruna)                                          |              |                                                                                 |                                                                                                                         |      |                                                  |            |                     |                                                |                                                                                    |                                                                                                                         |                                     |                                                                                                     |                         |        |
|      | SHILLONG                                                                                                                                  | Z,N,E<br>N,E | iP<br>PcP<br>iS<br>PS<br>PPS<br>SKSi<br>SS<br>SSS<br>Lq<br>Lr<br>M              | 07 50 33<br>51 07<br>59 45<br>08 00 00<br>00 23<br>00 41<br>04 03<br>07 00<br>08 23<br>10 47<br>16 51                   | 8090 | Compression<br>Per. 18.7 secs<br>μ = 1.75        |            | HYDERABAD           | N,N<br>E,N<br>N<br>E,N<br>N<br>E,N<br>E,N<br>E | iP<br>PP<br>PPP<br>iS<br>ScS<br>PS<br>SS<br>SSS<br>PKKS1<br>Lq<br>SKKS2<br>Lr<br>M | 11 57 34<br>12 01 04<br>03 16<br>07 56<br>08 24<br>09 08<br>13 31<br>17 46<br>19 01<br>21 09<br>22 22<br>25 13<br>31 10 | 9280                                | Initial ground movement towards North and East.<br>Per. 15 secs<br>μ = 50<br>Per. 16 secs<br>μ = 56 |                         |        |
|      | POONA                                                                                                                                     | Z<br>E       | iP<br>eS                                                                        | 07 52 06<br>08 02 41                                                                                                    | 9580 | Slight                                           |            | POONA               | Z<br>E<br>N                                    | P<br>e<br>e                                                                        | 11 57 40<br>12 08 23<br>34 --                                                                                           |                                     |                                                                                                     |                         |        |
|      | COLOMBO                                                                                                                                   | E            | e<br>e<br>e                                                                     | 08 03 31<br>25 51<br>29 41                                                                                              |      |                                                  |            | BOMBAY              | N,E<br>E<br>N,E<br>E<br>N<br>E                 | eP<br>PP<br>PPP<br>SKS1<br>iS<br>PS<br>PPS<br>SS<br>SS<br>SSS<br>M                 | 11 57 43<br>12 01 19<br>03 28<br>08 11<br>08 25<br>09 12<br>09 32<br>13 51<br>14 05<br>17 27<br>37 07                   | 9750                                | Per. 19 secs<br>μ = 42<br>Per. 18 secs<br>μ = 53                                                    |                         |        |
| 12   | SHILLONG                                                                                                                                  | Z            | iP                                                                              | 08 14 29                                                                                                                |      | Slight                                           |            | MADRAS              | E                                              | eP<br>PP<br>iS<br>PS<br>PPS<br>SS<br>SS<br>M                                       | 11 57 49<br>12 01 16<br>08 11<br>09 07<br>13 58<br>14 05<br>38 20                                                       | 9290                                |                                                                                                     |                         |        |
|      | POONA                                                                                                                                     | Z            | iP                                                                              | 08 16 03                                                                                                                |      | Slight                                           |            | COLOMBO             | E                                              | e<br>e<br>e<br>e                                                                   | 11 58 06<br>12 02 21<br>08 43<br>37 39<br>42 21                                                                         |                                     |                                                                                                     |                         |        |
| 12   | SHILLONG                                                                                                                                  | Z            | iP                                                                              | 08 29 17                                                                                                                |      | Slight                                           |            |                     |                                                |                                                                                    |                                                                                                                         |                                     |                                                                                                     |                         |        |
| 12   | SHILLONG                                                                                                                                  | Z            | eP                                                                              | 08 40 53                                                                                                                |      | Slight                                           |            | 12                  | BOKARO                                         | N                                                                                  | e<br>e<br>e<br>e                                                                                                        | 12 07 13<br>17 10<br>20 50<br>26 39 |                                                                                                     | Per. 30 secs<br>μ = 200 |        |
| 12   | SHILLONG                                                                                                                                  | Z            | eP                                                                              | 08 58 13                                                                                                                |      | Slight                                           |            |                     |                                                |                                                                                    |                                                                                                                         |                                     |                                                                                                     |                         |        |
| 12   | SHILLONG                                                                                                                                  | Z            | iP                                                                              | 09 33 04                                                                                                                |      | Slight                                           |            | 12                  | SHILLONG                                       | Z                                                                                  | iP                                                                                                                      | 12 14 21                            |                                                                                                     | Slight                  |        |
| 12   | SHILLONG                                                                                                                                  | Z            | eP                                                                              | 10 49 01                                                                                                                |      | Feeble                                           |            |                     |                                                |                                                                                    |                                                                                                                         |                                     |                                                                                                     |                         |        |
| 12   | SHILLONG                                                                                                                                  | Z            | iP                                                                              | 10 50 01                                                                                                                |      | Slight                                           |            | 12                  | SHILLONG                                       | Z                                                                                  | iP                                                                                                                      | 12 57 56                            |                                                                                                     | Slight                  |        |
| 12   | SHILLONG                                                                                                                                  | Z            | eP                                                                              | 11 12 09                                                                                                                |      | Slight                                           |            |                     | DEHRA DUN                                      | N,E                                                                                | e                                                                                                                       | 12 58 19                            |                                                                                                     | Tremo.                  |        |
| 12   | SHILLONG                                                                                                                                  | Z            | iP                                                                              | 11 51 24                                                                                                                |      | Slight, felt locally.                            |            |                     | POONA                                          | Z                                                                                  | eP                                                                                                                      | 12 59 21                            |                                                                                                     | Slight                  |        |
|      | POONA                                                                                                                                     | Z            | iP                                                                              | 11 51 29                                                                                                                |      | Feeble                                           |            |                     | 12                                             | SHILLONG                                                                           | Z                                                                                                                       | eP                                  | 14 43 29                                                                                            |                         | Slight |
| 12   | CHATRA                                                                                                                                    | E            | e                                                                               | 11 53 42                                                                                                                |      | Feeble, near                                     |            |                     | 12                                             | SHILLONG                                                                           | Z                                                                                                                       | eP                                  | 15 17 23                                                                                            |                         | Feeble |
| 12   | Epc: 51°N, 177°W. In the Aleutians<br>- H = 11h 44m 50s (U.S.E.G.S)<br>Mag: 7.5 (Hurbanova), 7¼ (Strasbourg, Moscow),<br>7.7¼ (Pasadena). |              |                                                                                 |                                                                                                                         |      |                                                  |            |                     |                                                |                                                                                    |                                                                                                                         |                                     |                                                                                                     |                         |        |
|      | SHILLONG                                                                                                                                  | Z,N<br>N     | iP<br>PcP<br>PP<br>PPP<br>i(?)<br>iS<br>PS<br>PPS<br>SS<br>SSS<br>Lq<br>Lr<br>M | 11 56 07<br>56 22<br>58 52<br>12 00 29<br>00 59<br>05 25<br>05 44<br>06 03<br>10 00<br>13 04<br>14 38<br>17 57<br>24 12 | 7930 | Compression<br>Per. 22.5 secs<br>μ = 8           |            |                     |                                                |                                                                                    |                                                                                                                         |                                     |                                                                                                     |                         |        |
|      | CHATRA                                                                                                                                    | E            | eP<br>i                                                                         | 11 56 14<br>12 05 52                                                                                                    |      |                                                  |            |                     |                                                |                                                                                    |                                                                                                                         |                                     |                                                                                                     |                         |        |

| DATE | STATION                                                                                                                            | COMPT | PHASE | G. h. | M. m. | T. s. | $\Delta$ km | REMARKS         | DATE                                                                                                                                                                                  | STATION   | COMPT   | PHASE | G. h. | M. m. | T. s. | $\Delta$ km | REMARKS                                               |
|------|------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------|-------|-------|-------|-------|-------------|-------------------------------------------------------|
| 12   | SHILLONG                                                                                                                           | Z     | iP    | 15    | 30    | 03    |             | Feeble          | 13                                                                                                                                                                                    | SHILLONG  | Z       | iP    | 03    | 44    | 26    |             | Slight, distant<br>Compression                        |
| 12   | SHILLONG                                                                                                                           | Z     | eP    | 15    | 41    | 36    |             | Feeble          |                                                                                                                                                                                       | CHATRA    | Z       | e     | 03    | 44    | 34    |             |                                                       |
| 12   | SHILLONG                                                                                                                           | Z     | eP    | 15    | 52    | 38    |             | Slight          | 13                                                                                                                                                                                    | POONA     | Z       | iP    | 03    | 45    | 52    |             | Feeble                                                |
| 12   | SHILLONG                                                                                                                           | Z     | eP    | 15    | 55    | 35    |             | Slight          | 13                                                                                                                                                                                    | SHILLONG  | Z       | eP    | 06    | 48    | 21    |             | Feeble                                                |
| 12   | SHILLONG                                                                                                                           | Z     | iP    | 16    | 14    | 28    |             | Slight          | 13                                                                                                                                                                                    | SHILLONG  | Z       | eP    | 07    | 06    | 41    |             | Very feeble                                           |
| 12   | SHILLONG                                                                                                                           | Z     | iP    | 16    | 44    | 37    |             | Slight          | 13                                                                                                                                                                                    | SHILLONG  | Z       | iP    | 07    | 03    | 11    |             | Slight, compression                                   |
| 12   | SHILLONG                                                                                                                           | Z     | eP    | 16    | 46    | 17    |             | Slight          |                                                                                                                                                                                       | POONA     | Z       | e     | 07    | 34    | 38    |             | Tremor                                                |
|      |                                                                                                                                    |       | i(?)  | 46    | 41    |       |             |                 | 13                                                                                                                                                                                    | SHILLONG  | Z       | eP    | 09    | 01    | 47    |             | Slight                                                |
| 12   | SHILLONG                                                                                                                           | Z     | iP    | 17    | 00    | 10    |             | Slight          |                                                                                                                                                                                       | POONA     | Z       | e     | 09    | 03    | 12    |             | Tremor                                                |
| 12   | SHILLONG                                                                                                                           | Z     | iP    | 17    | 11    | 51    |             |                 | 13                                                                                                                                                                                    | SHILLONG  | Z       | iP    | 09    | 21    | 18    |             | Slight                                                |
|      | POONA                                                                                                                              | Z     | iP    | 17    | 13    | 19    |             | Feeble          |                                                                                                                                                                                       | POONA     | Z       | i     | 09    | 22    | 40    |             | Tremor                                                |
| 12   | SHILLONG                                                                                                                           | Z     | eP    | 18    | 04    | 22    |             | Feeble          | 13                                                                                                                                                                                    | SHILLONG  | Z       | eP    | 10    | 35    | 19    |             | Feeble                                                |
|      |                                                                                                                                    |       | i(?)  | 04    | 29    |       |             |                 | 13                                                                                                                                                                                    | SHILLONG  | Z       | eP    | 10    | 40    | 17    |             | Very feeble                                           |
| 12   | SHILLONG                                                                                                                           | Z     | iP    | 18    | 32    | 26    |             | Slight, distant | 13                                                                                                                                                                                    | SHILLONG  | Z       | eP    | 11    | 40    | 59    |             | Slight                                                |
| 12   | SHILLONG                                                                                                                           | Z     | eP    | 18    | 36    | 37    |             | Slight, distant | 13                                                                                                                                                                                    | SHILLONG  | Z       | iP    | 11    | 49    | 09    |             | Slight, compression                                   |
| 12   | SHILLONG                                                                                                                           | Z     | eP    | 20    | 04    | 55    |             | Feeble, distant |                                                                                                                                                                                       | POONA     | Z       | e     | 11    | 50    | 39    |             | Tremor                                                |
| 12   | SHILLONG                                                                                                                           | Z     | eP    | 20    | 12    | 26    |             | Feeble, distant | 13                                                                                                                                                                                    | SHILLONG  | Z       | iP    | 12    | 09    | 33    |             | Slight, compression                                   |
| 12   | SHILLONG                                                                                                                           | Z     | eP    | 20    | 19    | 26    |             | Feeble          |                                                                                                                                                                                       | POONA     | Z       | e     | 12    | 10    | 39    |             | Tremor                                                |
| 12   | SHILLONG                                                                                                                           | Z     | eP    | 20    | 50    | 36    |             | Feeble          | 13                                                                                                                                                                                    | SHILLONG  | Z       | iP    | 12    | 53    | 59    |             | Slight, distant                                       |
| 12   | SHILLONG                                                                                                                           | Z     | eP    | 21    | 19    | 27    |             | Very feeble     |                                                                                                                                                                                       | POONA     | Z       | e     | 12    | 55    | 12    |             | Tremor                                                |
| 12   | SHILLONG                                                                                                                           | Z     | eP    | 21    | 31    | 18    |             | Feeble          | 13                                                                                                                                                                                    | SHILLONG  | Z       | eP    | 13    | 12    | 29    |             | Slight, distant                                       |
| 12   | SHILLONG                                                                                                                           | Z     | eP    | 21    | 42    | 45    |             | Very feeble     |                                                                                                                                                                                       | POONA     | Z       | eP    | 13    | 34    | 19    |             | Feeble, distant                                       |
|      | POONA                                                                                                                              | Z     | eP    | 21    | 42    | 47    |             | Feeble          | 13                                                                                                                                                                                    | SHILLONG  | Z       | eP    | 13    | 47    | 44    |             | Very feeble,<br>distant                               |
| 12   | SHILLONG                                                                                                                           | Z     | eP    | 22    | 03    | 04    |             | Slight          | 13                                                                                                                                                                                    | SHILLONG  | Z       | eP    | 13    | 56    | 41    |             | Very feeble                                           |
| 12   | SHILLONG                                                                                                                           | Z     | eP    | 22    | 11    | 21    |             | Very feeble     | 13                                                                                                                                                                                    | SHILLONG  | Z       | eP    | 15    | 00    | 36    |             | Slight, distant                                       |
| 12   | SHILLONG                                                                                                                           | Z     | eP    | 22    | 31    | 54    |             | Feeble          | 13                                                                                                                                                                                    | SHILLONG  | Z       | eP    | 15    | 06    | 27    |             | Very feeble<br>distant                                |
|      |                                                                                                                                    |       | i(?)  | 38    | 51    |       |             |                 |                                                                                                                                                                                       |           |         |       |       |       |       |             |                                                       |
| 12   | SHILLONG                                                                                                                           | Z     | iP    | 23    | 56    | 57    |             | Slight          | 13                                                                                                                                                                                    | SHILLONG  | Z       | eP    | 15    | 14    | 15    |             | Slight, distant                                       |
| 12   | POONA                                                                                                                              | Z     | iP    | 23    | 58    | 26    | 9890        | Slight          | 13                                                                                                                                                                                    | SHILLONG  | Z       | eP    | 15    | 14    | 15    |             | Slight, distant                                       |
| 12   | POONA                                                                                                                              | Z     | iP    | 23    | 58    | 39    | 9910        | Slight          | 13 Epc. 51°N, 178°W. In the Aleutians<br>- H = 15h 24m 10s (Moscow)<br>Mag: 6.9 (Uppsala, Kiruna), 6% (Pasadena, Moscow, Berkeley,<br>Prague, Roma), 6.6 (Skalnate Pleso, Hurbanova). |           |         |       |       |       |       |             |                                                       |
| 13   | POONA                                                                                                                              | E     | eS    | 00    | 09    | 23    |             |                 |                                                                                                                                                                                       |           |         |       |       |       |       |             |                                                       |
| 13   | POONA                                                                                                                              | E     | eS    | 00    | 09    | 29    |             |                 |                                                                                                                                                                                       |           |         |       |       |       |       |             |                                                       |
| 13   | CHATRA                                                                                                                             | Z     | iP    | 02    | 32    | 09    | 90          | Slight          |                                                                                                                                                                                       | SHILLONG  | Z, N, E | iP    | 15    | 53    | 21    | 7790        | Compression                                           |
|      |                                                                                                                                    |       | iS    | 32    | 24    |       |             |                 |                                                                                                                                                                                       |           | N, E    | pP    | 53    | 45    |       |             |                                                       |
| 13   | Epc. 52°N, 171°W. In the Aleutians<br>- H = 02h 48m 20s (U.S.C.G.S)<br>Mag: 6.2 (Wellington, Christchurch), 6.1 (Uppsala, Kiruna). |       |       |       |       |       |             |                 |                                                                                                                                                                                       |           |         |       |       |       |       |             |                                                       |
|      | SHILLONG                                                                                                                           | Z     | eP    | 02    | 59    | 54    |             | Distant         |                                                                                                                                                                                       |           |         | PcP   | 53    | 50    |       |             |                                                       |
|      |                                                                                                                                    |       | i(?)  | 03    | 00    | 01    |             |                 |                                                                                                                                                                                       |           |         | PP    | 55    | 58    |       |             |                                                       |
|      | HYDERABAD                                                                                                                          | E, N  | iP    | 03    | 01    | 17    | 9370        |                 |                                                                                                                                                                                       |           |         | PPP   | 57    | 34    |       |             |                                                       |
|      |                                                                                                                                    |       | AS    | 11    | 43    |       |             |                 |                                                                                                                                                                                       |           |         | PcS   | 57    | 55    |       |             |                                                       |
|      |                                                                                                                                    | N     | Lr    | 29    | 07    |       |             | Per. = 21 secs  |                                                                                                                                                                                       |           |         | iS    | 16    | 02    | 27    |             |                                                       |
|      |                                                                                                                                    |       | M     | 35    | 17    |       |             | = 10            |                                                                                                                                                                                       |           |         | PS    | 03    | 01    |       |             |                                                       |
|      |                                                                                                                                    | E     | M     | 36    | 24    |       |             | Per. = 18 secs  |                                                                                                                                                                                       |           |         | AS    | 03    | 11    |       |             |                                                       |
|      |                                                                                                                                    |       |       |       |       |       |             | = 5             |                                                                                                                                                                                       |           |         | PPS   | 03    | 20    |       |             |                                                       |
|      | POONA                                                                                                                              | Z     | iP    | 03    | 01    | 24    | 9860        |                 |                                                                                                                                                                                       |           |         | SKS   | 03    | 39    |       |             |                                                       |
|      |                                                                                                                                    | E     | eS    | 12    | 10    |       |             |                 |                                                                                                                                                                                       |           |         | S     | 06    | 43    |       |             |                                                       |
|      | BOMBAY                                                                                                                             | N, E  | eP    | 03    | 01    | 25    | 9890        | Slight          |                                                                                                                                                                                       |           |         | SSS   | 09    | 13    |       |             |                                                       |
|      |                                                                                                                                    | N     | e     | 01    | 45    |       |             |                 |                                                                                                                                                                                       |           |         | Lq    | 10    | 55    |       |             |                                                       |
|      |                                                                                                                                    | N, E  | SKS1  | 11    | 51    |       |             |                 |                                                                                                                                                                                       |           |         | Lr    | 13    | 52    |       |             |                                                       |
|      |                                                                                                                                    |       | eS    | 12    | 12    |       |             |                 |                                                                                                                                                                                       |           |         | N     | M     | 19    | 32    |             | Per. = 22.5 secs                                      |
|      |                                                                                                                                    | E     | M     | 40    | 32    |       |             |                 |                                                                                                                                                                                       |           |         | E     | M     | 19    | 32    |             | = 30                                                  |
|      |                                                                                                                                    |       |       |       |       |       |             |                 |                                                                                                                                                                                       |           |         |       |       |       |       |             |                                                       |
| 13   | SHILLONG                                                                                                                           | Z     | iP    | 03    | 09    | 34    |             | Slight, distant |                                                                                                                                                                                       | CHATRA    | E       | eP    | 15    | 53    | 34    | 7890        |                                                       |
| 13   | SHILLONG                                                                                                                           | Z     | eP    | 03    | 18    | 59    |             | Slight, distant |                                                                                                                                                                                       |           |         | iS    | 16    | 02    | 52    |             |                                                       |
|      |                                                                                                                                    |       |       |       |       |       |             |                 |                                                                                                                                                                                       | DEHRA DUN | N, E    | eP    | 15    | 53    | 49    | 8180        |                                                       |
|      |                                                                                                                                    |       |       |       |       |       |             |                 |                                                                                                                                                                                       |           | N       | PP    | 56    | 52    |       |             |                                                       |
|      |                                                                                                                                    |       |       |       |       |       |             |                 |                                                                                                                                                                                       |           |         | iS    | 16    | 03    | 19    |             |                                                       |
|      |                                                                                                                                    |       |       |       |       |       |             |                 |                                                                                                                                                                                       |           |         | SS    | 08    | 28    |       |             |                                                       |
|      |                                                                                                                                    |       |       |       |       |       |             |                 |                                                                                                                                                                                       |           |         | Lq    | 13    | 09    |       |             |                                                       |
|      |                                                                                                                                    |       |       |       |       |       |             |                 |                                                                                                                                                                                       |           |         | Lr    | 17    | 07    |       |             |                                                       |
|      |                                                                                                                                    |       |       |       |       |       |             |                 |                                                                                                                                                                                       |           |         | M     | 22    | 00    |       |             |                                                       |
| 13   | SHILLONG                                                                                                                           | Z     | iP    | 03    | 09    | 34    |             | Slight, distant |                                                                                                                                                                                       | BOKARO    | N, E    | iP    | 15    | 53    | 52    | 8290        | Initial ground<br>movement towards<br>North and East. |
| 13   | SHILLONG                                                                                                                           | Z     | eP    | 03    | 18    | 59    |             | Slight, distant |                                                                                                                                                                                       |           | N       | PcP   | 54    | 09    |       |             |                                                       |
|      |                                                                                                                                    |       |       |       |       |       |             |                 |                                                                                                                                                                                       |           |         | pP    | 54    | 19    |       |             |                                                       |
|      |                                                                                                                                    |       |       |       |       |       |             |                 |                                                                                                                                                                                       |           |         | iS    | 10    | 03    | 28    |             |                                                       |



| DATE | STATION                                                                                                                                                                                                            | COMPT                                           | PHASE                                                                            | G<br>h | M<br>m | T<br>s | $\Delta$<br>km | REMARKS                                          | DATE | STATION                                                                                                                                                                                                                                          | COMPT           | PHASE                                                            | G<br>h | M<br>m | T<br>s | $\Delta$<br>km | REMARKS                                                    |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------------------|--------|--------|--------|----------------|--------------------------------------------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------------------------------------------------|--------|--------|--------|----------------|------------------------------------------------------------|
| 14   | POONA                                                                                                                                                                                                              | Z                                               | iP<br>eS                                                                         | 10     | 07     | 16     | 1640           | Initial ground movement towards West Compression | 14   | BOMBAY                                                                                                                                                                                                                                           | E               | M                                                                | 15     | 38     | 28     |                | Per. 18 secs<br>$\mu = 136$<br>Per. 19 secs<br>$\mu = 195$ |
|      | BOMBAY                                                                                                                                                                                                             | N, E                                            | e<br>e<br>e                                                                      | 10     | 07     | 22     |                | N. deep                                          |      | MADRAS                                                                                                                                                                                                                                           | E               | eP<br>e<br>e<br>i<br>e                                           | 15     | 00     | 38     |                |                                                            |
|      | MADRAS                                                                                                                                                                                                             | E                                               | eP<br>i                                                                          | 10     | 07     | 25     |                |                                                  |      |                                                                                                                                                                                                                                                  |                 |                                                                  | 11     | 14     |        |                |                                                            |
| 14   | SHILLONG                                                                                                                                                                                                           | Z                                               | iP                                                                               | 12     | 41     | 21     |                | Slight rarefaction                               |      | KODAIKANAL                                                                                                                                                                                                                                       | E               | iP<br>e<br>e<br>e<br>e<br>e                                      | 15     | 00     | 53     |                | Initial ground movement towards West                       |
| 14   | SHILLONG                                                                                                                                                                                                           | Z                                               | iP                                                                               | 12     | 59     | 20     |                | Slight, rarefaction                              |      |                                                                                                                                                                                                                                                  |                 |                                                                  | 06     | 16     |        |                |                                                            |
| 14   | POONA                                                                                                                                                                                                              | Z                                               | e                                                                                | 13     | 00     | 43     |                | Tremo:                                           |      |                                                                                                                                                                                                                                                  |                 |                                                                  | 11     | 34     |        |                |                                                            |
| 14   | SHILLONG                                                                                                                                                                                                           | Z                                               | iP                                                                               | 13     | 14     | 03     |                | Slight, rarefaction                              |      |                                                                                                                                                                                                                                                  |                 |                                                                  | 13     | 10     |        |                |                                                            |
| 14   | Epc: $51\frac{1}{2}^{\circ}$ N, $177^{\circ}$ W In the Aleutians<br>- H = 14h 47m 45s (U. S. C. G. S.)<br>Mag: $7\frac{1}{4}$ (Pasadena Moscow, Hurbanova), $7.4$ (Roma, Skalnate Pleso), $7.1$ (Uppsala, Kiruna). |                                                 |                                                                                  |        |        |        |                |                                                  | 14   | SHILLONG                                                                                                                                                                                                                                         | Z               | eP                                                               | 15     | 08     | 09     |                | Slight                                                     |
|      | SHILLONG                                                                                                                                                                                                           | Z, N, E<br>N, E                                 | iP<br>PcP<br>PP<br>PPP<br>PcP<br>iS<br>PS<br>PPS<br>SKS<br>SS<br>SSS<br>Lq<br>Lr | 14     | 55     | 04     | 7310           | Compression First movement West                  | 14   | SHILLONG                                                                                                                                                                                                                                         | Z               | iP                                                               | 15     | 16     | 27     |                | Slight                                                     |
|      |                                                                                                                                                                                                                    | N                                               | M                                                                                | 26     | 24     |        |                | Per. 18.6 secs<br>$\mu = 16$                     | 14   | SHILLONG                                                                                                                                                                                                                                         | Z               | eP                                                               | 15     | 17     | 53     |                | Slight                                                     |
|      |                                                                                                                                                                                                                    | E                                               | M                                                                                | 26     | 24     |        |                |                                                  | 14   | SHILLONG                                                                                                                                                                                                                                         | Z               | eP                                                               | 15     | 24     | 03     |                | Slight                                                     |
|      | CHATRA                                                                                                                                                                                                             | Z                                               | iP<br>i                                                                          | 14     | 59     | 17     |                |                                                  | 14   | POONA                                                                                                                                                                                                                                            | Z               | e                                                                | 15     | 35     | 23     |                | Feeble                                                     |
|      | BOKARO                                                                                                                                                                                                             | N, E<br>N                                       | iP<br>PcP<br>PP<br>PPP<br>iS<br>SSS<br>Lq<br>Lr<br>M                             | 14     | 59     | 35     | 8350           | Initial ground movement towards South and West   | 14   | SHILLONG                                                                                                                                                                                                                                         | Z               | eP                                                               | 15     | 39     | 24     |                | Slight                                                     |
|      |                                                                                                                                                                                                                    |                                                 |                                                                                  | 15     | 02     | 19     |                | Per. 24 secs<br>$\mu = 286$                      | 14   | DEHRA DUN                                                                                                                                                                                                                                        | N, E<br>N       | eP<br>PP<br>PPP<br>iS<br>PS<br>PPS<br>SS<br>SSS<br>Lq<br>Lr<br>M | 15     | 59     | 32     | 8260           | Moderate                                                   |
|      | NEW DELHI                                                                                                                                                                                                          | N                                               | iP<br>PP<br>iS<br>PS<br>PPS<br>i<br>SS<br>SSS<br>M<br>Mn                         | 14     | 59     | 44     | 8500           | Initial ground movement towards South            | 14   | POONA                                                                                                                                                                                                                                            | Z               | e                                                                | 17     | 19     | 10     |                | Feeble                                                     |
|      |                                                                                                                                                                                                                    |                                                 |                                                                                  | 15     | 02     | 36     |                | Per. 15 secs<br>$\mu = 77$                       | 14   | SHILLONG                                                                                                                                                                                                                                         | Z               | eP                                                               | 20     | 07     | 53     |                | Slight, distant                                            |
|      | POONA                                                                                                                                                                                                              | Z<br>E                                          | iP<br>e                                                                          | 15     | 00     | 22     |                |                                                  | 14   | SHILLONG                                                                                                                                                                                                                                         | Z               | iP                                                               | 20     | 26     | 35     |                | Slight, distant                                            |
|      | HYDERABAD                                                                                                                                                                                                          | E, N<br>N<br>N<br>E<br>N                        | iP<br>PP<br>PPP<br>iSKS<br>e<br>e<br>e<br>M                                      | 15     | 00     | 28     | 9500           |                                                  | 14   | SHILLONG                                                                                                                                                                                                                                         | Z               | eP                                                               | 21     | 51     | 39     |                | Slight, distant                                            |
|      |                                                                                                                                                                                                                    | E                                               | M                                                                                | 32     | 08     |        |                | Per. 18 secs<br>$\mu = 148$                      | 14   | SHILLONG                                                                                                                                                                                                                                         | Z               | eP                                                               | 22     | 26     | 03     | 180            | Slight, local                                              |
|      |                                                                                                                                                                                                                    | N                                               | M                                                                                | 32     | 54     |        |                | Per. 18 secs<br>$\mu = 214$                      | 14   | SHILLONG                                                                                                                                                                                                                                         | Z               | iP                                                               | 22     | 29     | 42     |                | Slight, distant compression                                |
|      | BOMBAY                                                                                                                                                                                                             | N, E<br>N<br>N, E<br>E<br>N<br>E<br>N<br>E<br>N | eP<br>PP<br>eS<br>PS<br>PS<br>PPS<br>SS<br>SS<br>SSS<br>SSS<br>Lr                | 15     | 00     | 35     | 9610           |                                                  | 14   | POONA                                                                                                                                                                                                                                            | Z               | e                                                                | 22     | 31     | 09     |                | Feeble                                                     |
|      |                                                                                                                                                                                                                    |                                                 |                                                                                  | 04     | 06     |        |                |                                                  | 14   | SHILLONG                                                                                                                                                                                                                                         | Z               | iP                                                               | 23     | 21     | 11     |                | Slight, compression                                        |
|      |                                                                                                                                                                                                                    |                                                 |                                                                                  | 11     | 11     |        |                |                                                  | 14   | SHILLONG                                                                                                                                                                                                                                         | Z               | eP                                                               | 23     | 30     | 35     |                | Slight                                                     |
|      |                                                                                                                                                                                                                    |                                                 |                                                                                  | 12     | 08     |        |                |                                                  | 14   | SHILLONG                                                                                                                                                                                                                                         | Z               | eP                                                               | 23     | 51     | 38     |                | Very feeble, distant                                       |
|      |                                                                                                                                                                                                                    |                                                 |                                                                                  | 12     | 17     |        |                |                                                  | 15   | SHILLONG                                                                                                                                                                                                                                         | Z               | iP                                                               | 01     | 17     | 14     |                | Slight, distant compression                                |
|      |                                                                                                                                                                                                                    |                                                 |                                                                                  | 12     | 47     |        |                |                                                  | 15   | Epc $53^{\circ}$ N, $167^{\circ}$ W In the Aleutians<br>- H = 02h 52m 08s (U. S. C. G. S.)<br>- H = 02h 52m 10s (Moscow)<br>Mag: $6\frac{1}{2}$ (Pasadena), $6.7$ (Tacubaya), $6\frac{1}{2}$ - $6\frac{1}{2}$ (M' Bour), $6.6$ (Skalnate Pleso). |                 |                                                                  |        |        |        |                |                                                            |
|      |                                                                                                                                                                                                                    |                                                 |                                                                                  | 16     | 47     |        |                |                                                  |      | SHILLONG                                                                                                                                                                                                                                         | Z, N, E<br>N, E | iP<br>PcP<br>PP<br>PPP<br>iS<br>SKS                              | 03     | 02     | 58     | 7890           | Distant, compression, initial ground movement towards West |
|      |                                                                                                                                                                                                                    |                                                 |                                                                                  | 16     | 56     |        |                |                                                  |      |                                                                                                                                                                                                                                                  |                 |                                                                  | 05     | 44     |        |                |                                                            |
|      |                                                                                                                                                                                                                    |                                                 |                                                                                  | 20     | 13     |        |                |                                                  |      |                                                                                                                                                                                                                                                  |                 |                                                                  | 07     | 29     |        |                |                                                            |
|      |                                                                                                                                                                                                                    |                                                 |                                                                                  | 20     | 17     |        |                |                                                  |      |                                                                                                                                                                                                                                                  |                 |                                                                  | 12     | 12     |        |                |                                                            |
|      |                                                                                                                                                                                                                    |                                                 |                                                                                  | 29     | 09     |        |                |                                                  |      |                                                                                                                                                                                                                                                  |                 |                                                                  | 12     | 47     |        |                |                                                            |





| DATE | STATION          | COMPT                                              | PHASE                                                                                       | G. h. | M. m. | T. s.                                                                                                                            | $\Delta$ km | REMARKS                                                    | DATE | STATION   | COMPT                                                                                        | PHASE                | G. h.    | M. m. | T. s.                         | $\Delta$ km | REMARKS                                                    |                                |
|------|------------------|----------------------------------------------------|---------------------------------------------------------------------------------------------|-------|-------|----------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------|------|-----------|----------------------------------------------------------------------------------------------|----------------------|----------|-------|-------------------------------|-------------|------------------------------------------------------------|--------------------------------|
| 16   | CHATRA<br>Contd. | E                                                  | e                                                                                           | 02    | 45    | 46                                                                                                                               |             |                                                            | 16   | SHILLONG  | Z                                                                                            | eP                   | 09       | 41    | 55                            |             | Slight, distant<br>compression                             |                                |
|      | BOKARO           | N, E<br>N                                          | iP<br>PcP<br>iS<br>PS<br>PPS<br>M                                                           | 02    | 45    | 51<br>46 17<br>55 33<br>55 59<br>56 12<br>03 13 55                                                                               | 8420        | Initial ground<br>movement toward<br>rds South and<br>West |      | CHATRA    | Z                                                                                            | e                    | 09       | 42    | 07                            |             | Feeble, near                                               |                                |
|      |                  | E                                                  | M                                                                                           |       | 13    | 55                                                                                                                               |             | Per. 25 secs<br>$\mu = 243$<br>Per. 28 secs<br>$\mu = 126$ |      | POONA     | Z                                                                                            | i                    | 09       | 43    | 03                            |             | Feeble                                                     |                                |
|      | NEW DELHI        | N                                                  | iP<br>PP<br>PPP<br>iS<br>PS<br>SS<br>Lq<br>Lr<br>M                                          | 02    | 46    | 02<br>48 58<br>50 47<br>55 54<br>56 25<br>03 00 46<br>06 00<br>09 36<br>14 40                                                    | 8630        | Initial ground<br>movement toward<br>rds South             |      | 16        | CHATRA                                                                                       | Z                    | iF<br>iS | 10    | 28                            | 01<br>28 47 | 430                                                        | Slight                         |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             | Per. 21 secs<br>$\mu = 148$                                |      | SHILLONG  | Z                                                                                            | eP<br>e              | 10       | 28    | 37<br>28 52                   |             | Slight                                                     |                                |
|      | HYDERABAD        | E, N<br>N<br>N<br>E, N<br>N<br>E<br>N<br>E<br>N    | iP<br>PP<br>PPP<br>iS<br>ScS<br>PS<br>SS<br>PKKP1<br>SSS<br>SKKS2<br>Lr<br>Lr<br>SKKKS<br>M | 02    | 46    | 45<br>50 09<br>52 25<br>57 10<br>57 34<br>58 07<br>03 10<br>04 31<br>06 10<br>11 10<br>12 10<br>13 13<br>16 53<br>20 01<br>20 10 | 9350        | Initial ground<br>movement toward<br>rds West and<br>South |      | 16        | SHILLONG                                                                                     | Z                    | iP       | 12    | 24                            | 31<br>26 01 |                                                            | Feeble, phases<br>not clear    |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             | Per. 18 secs<br>$\mu = 95$<br>Per. 16 secs<br>$\mu = 139$  |      | CHATRA    | Z                                                                                            | eP<br>iS             | 12       | 26    | 14<br>29 21                   | 1870        | Slight                                                     |                                |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | SHILLONG  | Z                                                                                            | iP                   | 12       | 27    | 03                            |             | Slight, distant<br>rarefaction                             |                                |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | POONA     | Z                                                                                            | e                    | 12       | 46    | 42                            |             | Feeble                                                     |                                |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 16        | SHILLONG                                                                                     | Z                    | iP       | 14    | 22                            | 03          |                                                            | Slight, distant<br>compression |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | POONA     | Z                                                                                            | e                    | 14       | 23    | 36                            |             | Tremor                                                     |                                |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 16        | SHILLONG                                                                                     | Z                    | eP       | 14    | 56                            | 40          |                                                            | Slight, distant                |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 16        | SHILLONG                                                                                     | Z                    | iP       | 15    | 41                            | 28          |                                                            | Slight, distant<br>compression |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 16        | SHILLONG                                                                                     | Z                    | iP       | 18    | 56                            | 15          |                                                            | Feeble,<br>compression         |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 16        | SHILLONG                                                                                     | Z                    | eP       | 20    | 07                            | 33          |                                                            | Very feeble,<br>distant        |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 16        | SHILLONG                                                                                     | Z                    | iP       | 20    | 46                            | 47          |                                                            | Slight, distant<br>rarefaction |
|      | POONA            | Z                                                  | iP                                                                                          | 02    | 46    | 55                                                                                                                               |             |                                                            |      | 16        | SHILLONG                                                                                     | Z                    | iP       | 22    | 10                            | 36          |                                                            | Slight, distant<br>rarefaction |
|      |                  | E                                                  | e                                                                                           |       | 57    | 33                                                                                                                               |             |                                                            |      |           |                                                                                              |                      |          |       |                               |             |                                                            |                                |
|      |                  | N                                                  | e                                                                                           | 03    | 28    |                                                                                                                                  |             |                                                            |      |           |                                                                                              |                      |          |       |                               |             |                                                            |                                |
|      | BOMBAY           | N, E<br>E<br>N, E<br>E<br>N, E<br>N<br>E<br>N<br>E | eP<br>PP<br>PPP<br>SKS<br>eS<br>ScS<br>PS<br>PPS<br>SS<br>e<br>Lq<br>M                      | 02    | 46    | 57<br>50 26<br>52 22<br>57 11<br>57 32<br>57 47<br>58 36<br>58 54<br>03 03 05<br>04 15<br>10 26<br>27 42<br>27 57                | 9590        |                                                            |      | 16        | SHILLONG                                                                                     | Z                    | iP       | 20    | 46                            | 47          |                                                            | Slight, distant<br>rarefaction |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             | Per. 21 secs<br>$\mu = 194$<br>Per. 21 secs<br>$\mu = 180$ |      | 16        | SHILLONG                                                                                     | Z                    | iP       | 22    | 10                            | 36          |                                                            | Slight, distant<br>rarefaction |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 16        | SHILLONG                                                                                     | Z                    | iP       | 20    | 46                            | 47          |                                                            | Slight, distant<br>rarefaction |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 16        | SHILLONG                                                                                     | Z                    | iP       | 18    | 56                            | 15          |                                                            | Feeble,<br>compression         |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 16        | SHILLONG                                                                                     | Z                    | eP       | 20    | 07                            | 33          |                                                            | Very feeble,<br>distant        |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 16        | SHILLONG                                                                                     | Z                    | iP       | 20    | 46                            | 47          |                                                            | Slight, distant<br>rarefaction |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 16        | SHILLONG                                                                                     | Z                    | iP       | 22    | 10                            | 36          |                                                            | Slight, distant<br>rarefaction |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 17        | SHILLONG                                                                                     | Z                    | eP       | 00    | 01                            | 37          |                                                            | Slight, distant                |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 17        | SHILLONG                                                                                     | Z                    | eP       | 00    | 14                            | 08          |                                                            | Very feeble                    |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 17        | SHILLONG                                                                                     | Z                    | eP       | 00    | 44                            | 51          |                                                            | Very feeble                    |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 17        | SHILLONG                                                                                     | Z                    | iP       | 00    | 46                            | 38          |                                                            | Feeble                         |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 17        | SHILLONG                                                                                     | Z                    | iP       | 01    | 58                            | 11          |                                                            | Slight<br>rarefaction          |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 17        | SHILLONG                                                                                     | Z                    | iP       | 02    | 59                            | 55          |                                                            | Slight                         |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 17        | POONA                                                                                        | Z                    | e        | 03    | 01                            | 24          |                                                            | Feeble                         |
|      | MADRAS           | E                                                  | eP<br>PP<br>eSKS<br>PS<br>PPS<br>SS<br>SSS<br>Lq<br>M                                       | 02    | 47    | 00<br>50 24<br>57 37<br>58 21<br>59 00<br>03 03 10<br>06 25<br>09 30<br>25 54                                                    | 9890        |                                                            |      | 17        | SHILLONG                                                                                     | Z                    | eP       | 04    | 20                            | 53          |                                                            | Feeble                         |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             | Per. 21 secs<br>$\mu = 194$<br>Per. 21 secs<br>$\mu = 180$ |      | CHATRA    | Z<br>E                                                                                       | iP<br>iS             | 04       | 21    | 51<br>22 19                   | 240         | Slight                                                     |                                |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 17        | SHILLONG                                                                                     | Z                    | iP<br>Sg | 04    | 22                            | 03<br>22 19 | 130                                                        | Slight                         |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 17        | SHILLONG                                                                                     | Z                    | iP       | 07    | 16                            | 27          |                                                            | Slight, distant<br>rarefaction |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | POONA     | Z                                                                                            | e                    | 07       | 17    | 47                            |             | Feeble                                                     |                                |
|      |                  |                                                    |                                                                                             |       |       |                                                                                                                                  |             |                                                            |      | 17        | Epc: 51°N, 179°W. In the Aleutians<br>- H: 07h 53m 51s (U. S. C. G. S)<br>Mag: 6.1 (Uppsala) |                      |          |       |                               |             |                                                            |                                |
| 16   | SHILLONG         | Z                                                  | eP                                                                                          | 03    | 13    | 26                                                                                                                               |             | Slight, distant                                            |      | SHILLONG  | Z, N, E<br>N, E                                                                              | iP<br>iS             | 08       | 05    | 02<br>14 10                   | 7710        |                                                            |                                |
| 16   | SHILLONG         | Z                                                  | iP                                                                                          | 03    | 45    | 30                                                                                                                               |             | Slight, distant<br>rarefaction                             |      | CHATRA    | Z                                                                                            | e                    | 08       | 05    | 14                            |             |                                                            |                                |
| 16   | SHILLONG         | Z                                                  | iP                                                                                          | 06    | 03    | 43                                                                                                                               |             | Slight, distant                                            |      | DEHRA DUN | N, E<br>N                                                                                    | eP<br>iS<br>PPS<br>M | 08       | 05    | 34<br>15 02<br>15 48<br>34 41 | 8130        | Other phases<br>not clear                                  |                                |
| 16   | SHILLONG         | Z                                                  | eP                                                                                          | 06    | 19    | 03                                                                                                                               |             | Feeble                                                     |      | HYDERABAD | E, N<br>N                                                                                    | iP<br>iS<br>PS<br>SS | 08       | 06    | 22<br>16 44<br>17 37<br>22 21 | 9280        | Initial ground<br>movement toward<br>rds West and<br>South |                                |
| 16   | SHILLONG         | Z                                                  | iP                                                                                          | 06    | 50    | 56                                                                                                                               |             | Slight, compression                                        |      |           |                                                                                              |                      |          |       |                               |             |                                                            |                                |
| 16   | SHILLONG         | Z                                                  | eP                                                                                          | 07    | 42    | 08                                                                                                                               |             | Slight, distant<br>compression                             |      |           |                                                                                              |                      |          |       |                               |             |                                                            |                                |
| 16   | SHILLONG         | Z                                                  | eP                                                                                          | 09    | 05    | 26                                                                                                                               |             | Very feeble                                                |      |           |                                                                                              |                      |          |       |                               |             |                                                            |                                |

| DATE | STATION                                                                                                                 | COMPT               | PHASE                      | G. h. | M. m. | T. s. | $\Delta$ km | REMARKS                                                                    | DATE       | STATION             | COMPT     | PHASE                                                            | G. h.                                                                                                 | M. m. | T. s. | $\Delta$ km                                                                  | REMARKS                          |
|------|-------------------------------------------------------------------------------------------------------------------------|---------------------|----------------------------|-------|-------|-------|-------------|----------------------------------------------------------------------------|------------|---------------------|-----------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------|-------|------------------------------------------------------------------------------|----------------------------------|
| 17   | HYDERABAD<br>Contd.                                                                                                     | N<br>E<br>N         | Lr<br>Lr<br>M              | 08    | 33    | 07    |             |                                                                            | 17         | DEHRA DUN<br>Contd. | N, E<br>N | eP<br>iS<br>PS<br>SS<br>M                                        | 22 56 57<br>23 07 09<br>08 03<br>12 58<br>30 55                                                       | 9070  |       |                                                                              | Other phases not clear           |
|      |                                                                                                                         | E                   | M                          | 39    | 04    |       |             | Per. $\approx$ 18 secs<br>$\mu = 8$<br>Per. $\approx$ 15 secs<br>$\mu = 5$ | March 1957 |                     |           |                                                                  |                                                                                                       |       |       |                                                                              |                                  |
|      | POONA                                                                                                                   | Z<br>E              | eP<br>eS                   | 08    | 06    | 34    | 9490        |                                                                            |            | NEW DELHI           | N         | iP<br>PP<br>iS<br>ScS<br>PS                                      | 22 57 06<br>23 00 10<br>07 19<br>07 41<br>08 11                                                       | 9090  |       |                                                                              |                                  |
|      | BOMBAY                                                                                                                  | N, E<br>E<br>N<br>E | eP<br>iS<br>PS<br>PPS<br>M | 08    | 06    | 36    | 9590        |                                                                            |            | BOKARO              | N, E      | i                                                                | 22 57 07                                                                                              |       |       |                                                                              | Other phases not clear<br>Tremor |
|      |                                                                                                                         |                     |                            | 17    | 11    |       |             | Per. $\approx$ 18 secs<br>$\mu = 2$                                        |            | KODAIKANAL          | E         | e                                                                | 22 57 17                                                                                              |       |       |                                                                              |                                  |
|      |                                                                                                                         |                     |                            | 18    | 10    |       |             | Per. $\approx$ 18 secs<br>$\mu = 3$                                        |            | HYDERABAD           | E, N<br>N | iP<br>PP<br>PPP<br>iS<br>ScS<br>PS<br>PPS<br>SS<br>Lr<br>Lr<br>M | 22 57 50<br>23 01 27<br>03 18<br>08 15<br>08 52<br>09 09<br>09 33<br>13 33<br>25 03<br>25 36<br>31 12 | 9350  |       | Initial ground movement towards West and South                               |                                  |
|      | MADRAS                                                                                                                  | E                   | eP<br>e<br>e               | 08    | 06    | 42    |             |                                                                            |            |                     | E, N<br>N | iP<br>PP<br>iS<br>ScS<br>PS<br>PPS<br>SS<br>Lr<br>Lr<br>M        | 22 57 50<br>23 01 27<br>03 18<br>08 15<br>08 52<br>09 09<br>09 33<br>13 33<br>25 03<br>25 36<br>31 12 |       |       |                                                                              |                                  |
|      | COLOMBO                                                                                                                 | E                   | e<br>e                     | 08    | 17    | 35    |             |                                                                            |            |                     | E         | Lr<br>Lr<br>M                                                    | 25 36<br>31 12                                                                                        |       |       | Per. $\approx$ 18 secs<br>$\mu = 11$<br>Per. $\approx$ 18 secs<br>$\mu = 17$ |                                  |
| 17   | SHILLONG                                                                                                                | Z                   | eP<br>i(?)                 | 08    | 23    | 52    |             | Slight                                                                     |            |                     | N         | M                                                                | 31 33                                                                                                 |       |       |                                                                              |                                  |
|      | BOKARO                                                                                                                  | N, E                | i                          | 09    | 15    | 10    |             | Tremor                                                                     |            | BOMBAY              | N, E<br>E | eP<br>eS<br>e<br>PPS<br>M                                        | 22 57 57<br>23 08 50<br>09 12<br>10 27<br>44 20                                                       | 10030 |       | Moderate                                                                     |                                  |
| 17   | SHILLONG                                                                                                                | Z                   | iP<br>i(?)                 | 14    | 51    | 05    |             | Slight, distant rarefaction                                                |            |                     | N         | M                                                                | 44 22                                                                                                 |       |       |                                                                              |                                  |
| 17   | SHILLONG                                                                                                                | Z                   | eP                         | 15    | 03    | 32    |             | Slight, local                                                              |            | POONA               | Z<br>E    | eP<br>eS                                                         | 22 57 58<br>23 08 55                                                                                  | 10130 |       | Moderate                                                                     |                                  |
| 17   | POONA                                                                                                                   | Z                   | iP                         | 15    | 24    | 53    |             | Feeble                                                                     |            | MADRAS              | E         | e<br>e                                                           | 22 58 13<br>23 08 34                                                                                  |       |       | Feeble                                                                       |                                  |
| 17   | BOMBAY                                                                                                                  | E                   | e                          | 15    | 35    | 56    |             |                                                                            |            | COLOMBO             | E         | e<br>e<br>e<br>e                                                 | 22 58 36<br>23 08 26<br>38 51<br>44 31                                                                |       |       |                                                                              |                                  |
| 17   | SHILLONG                                                                                                                | Z                   | iP                         | 16    | 29    | 09    |             | Slight, distant rarefaction                                                |            | 18 SHILLONG         | Z         | eP                                                               | 00 23 25                                                                                              |       |       | Slight, distant                                                              |                                  |
|      | CHATRA                                                                                                                  | Z                   | iP<br>i                    | 16    | 29    | 18    |             | Feeble                                                                     |            | 18 POONA            | Z         | e                                                                | 00 54 57                                                                                              |       |       | Feeble                                                                       |                                  |
|      | DEHRA DUN                                                                                                               | N, E                | e                          | 16    | 29    | 28    |             | Tremor                                                                     |            | 18 SHILLONG         | Z         | eP<br>i(?)                                                       | 02 36 17<br>37 05                                                                                     |       |       | Slight                                                                       |                                  |
|      | POONA                                                                                                                   | Z<br>E              | eP<br>eS                   | 16    | 30    | 28    | 10240       | Slight                                                                     |            | HYDERABAD           | N         | iP<br>iS<br>PPS<br>PKKS<br>M                                     | 02 38 21<br>48 42<br>50 11<br>59 15<br>03 12 15                                                       | 9260  |       | Slight                                                                       |                                  |
|      | BOMBAY                                                                                                                  | N<br>E<br>N         | e<br>e<br>e                | 16    | 30    | 32    |             | Very feeble                                                                |            |                     |           | e<br>e                                                           | 02 38 30<br>49 21                                                                                     |       |       | Very slight                                                                  |                                  |
|      | MADRAS                                                                                                                  | E                   | e<br>e                     | 16    | 31    | 27    |             | Feeble                                                                     |            | POONA               | Z<br>E    | iP<br>eS                                                         | 02 38 28<br>49 14                                                                                     | 9870  |       | Feeble                                                                       |                                  |
| 17   | SHILLONG                                                                                                                | Z, N, E             | iP                         | 16    | 38    | 07    |             | Slight, local, other phases not clear                                      |            | 18 POONA            | Z<br>E    | eP<br>e                                                          | 05 21 13<br>31 59                                                                                     |       |       | Feeble                                                                       |                                  |
|      | CHATRA                                                                                                                  | Z                   | eP<br>i                    | 16    | 39    | 12    |             | Slight                                                                     |            | BOMBAY              | N, E      | eP<br>eS                                                         | 05 21 26<br>31 56                                                                                     | 9470  |       | Slight                                                                       |                                  |
| 17   | SHILLONG                                                                                                                | Z                   | eP                         | 17    | 32    | 06    |             | Feeble                                                                     |            | HYDERABAD           | N         | S<br>M                                                           | 05 21 27<br>54 11                                                                                     |       |       | Per. $\approx$ 15 secs<br>$\mu = 4$                                          |                                  |
| 17   | SHILLONG                                                                                                                | Z                   | iP                         | 17    | 32    | 20    |             | Slight, distant rarefaction                                                |            | 18 SHILLONG         | Z         | eP                                                               | 08 30 51                                                                                              |       |       | Slight                                                                       |                                  |
| 17   | SHILLONG                                                                                                                | Z                   | iP                         | 18    | 45    | 02    |             | Very feeble                                                                |            | 18 SHILLONG         | Z         | eP                                                               | 10 11 33                                                                                              |       |       | Slight, local                                                                |                                  |
| 17   | SHILLONG                                                                                                                | Z                   | iP                         | 19    | 16    | 42    |             | Slight, local                                                              |            | 18 DEHRA DUN        | N, E      | e                                                                | 14 57 26                                                                                              |       |       | Tremor                                                                       |                                  |
| 17   | SHILLONG                                                                                                                | Z                   | iP                         | 19    | 48    | 09    |             | Slight rarefaction                                                         |            | SHILLONG            | Z         | iP                                                               | 14 58 01                                                                                              |       |       | Slight                                                                       |                                  |
| 17   | CHATRA                                                                                                                  | Z                   | eP<br>i                    | 20    | 03    | 42    |             | Feeble                                                                     |            | 18 SHILLONG         | Z         | iP                                                               | 15 36 52                                                                                              |       |       | Slight                                                                       |                                  |
| 17   | SHILLONG                                                                                                                | Z                   | iP                         | 21    | 16    | 13    |             | Slight rarefaction                                                         |            |                     |           |                                                                  |                                                                                                       |       |       |                                                                              |                                  |
| 17   | Epc: 54°N, 166°W. In the Aleutians<br>- H = 22h 44m 44s (U.S.C.G.S)<br>Mag: 6½(Pasadena, Moscow, Lwiro), 6¼(Strasbourg) |                     |                            |       |       |       |             |                                                                            |            |                     |           |                                                                  |                                                                                                       |       |       |                                                                              |                                  |
|      | SHILLONG                                                                                                                | Z                   | eP                         | 22    | 56    | 38    |             | Distant                                                                    |            |                     |           |                                                                  |                                                                                                       |       |       |                                                                              |                                  |
|      | CHATRA                                                                                                                  | Z                   | i                          | 22    | 56    | 49    |             | Distant                                                                    |            |                     |           |                                                                  |                                                                                                       |       |       |                                                                              |                                  |

| DATE | STATION                                                                                                                    | COMPT     | PHASE                           | G. M. T.                                                 | $\Delta$ | REMARKS                        | DATE         | STATION                                                                                                     | COMPT                                                             | PHASE                                                                                            | G. M. T. | $\Delta$                                                   | REMARKS                                                  |
|------|----------------------------------------------------------------------------------------------------------------------------|-----------|---------------------------------|----------------------------------------------------------|----------|--------------------------------|--------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|----------|------------------------------------------------------------|----------------------------------------------------------|
|      |                                                                                                                            |           |                                 | h. m. s.                                                 | km       |                                | March 1957   |                                                                                                             |                                                                   |                                                                                                  | h. m. s. | km                                                         |                                                          |
| 18   | SHILLONG                                                                                                                   | Z         | eP                              | 16 13 37                                                 |          | Slight, distant rare action    | 19           | Epc: 51 $\frac{1}{2}$ <sup>o</sup> N, 175 <sup>o</sup> W In the Aleutians<br>- H : 12h 50m 51s (U.S.C.G.S.) |                                                                   |                                                                                                  |          |                                                            |                                                          |
|      | CHATRA                                                                                                                     | Z         | i                               | 16 44 01                                                 |          | Feeble, distant                |              | Mag: 6.8 (Roma), 6 $\frac{1}{2}$ (Pasadena, Skalnate Pleso),<br>6 $\frac{1}{2}$ (Strasbourg, Praha).        |                                                                   |                                                                                                  |          |                                                            |                                                          |
| 18   | SHILLONG                                                                                                                   | Z         | iP                              | 19 18 36                                                 |          | Slight, distant                | SHILLONG     | Z, N<br>E                                                                                                   | eP<br>PcP<br>PP<br>PPP<br>iS<br>PS<br>PPS<br>SS<br>SSS<br>Lq<br>M | 13 02 18<br>02 39<br>04 5<br>06 2<br>11 41<br>11 59<br>12 16<br>15 51<br>15 15<br>20 41<br>29 45 | 8020     |                                                            |                                                          |
| 18   | SHILLONG                                                                                                                   | Z         | iP                              | 20 02 55                                                 |          | Slight, distant compression    |              |                                                                                                             |                                                                   |                                                                                                  |          |                                                            |                                                          |
| 18   | SHILLONG                                                                                                                   | Z         | iP                              | 20 14 58                                                 |          | Slight, distant rare action    |              |                                                                                                             |                                                                   |                                                                                                  |          |                                                            |                                                          |
|      | CHATRA                                                                                                                     | Z         | i                               | 20 15 10                                                 |          | Feeble, near                   |              |                                                                                                             |                                                                   |                                                                                                  |          |                                                            | Per: 18<br>$\mu$ = 48                                    |
| 18   | Epc: 6 <sup>o</sup> S, 152 <sup>o</sup> E New Britain - H : 21h 14m 12s                                                    |           |                                 |                                                          |          |                                | CHATRA       | E                                                                                                           | eP<br>i                                                           | 13 02 36<br>12 44                                                                                |          |                                                            |                                                          |
|      | SHILLONG                                                                                                                   | Z         | iP<br>iS                        | 21 25 09<br>33 59                                        | 9390     | Slight, distant rarefaction    | DEHRA DUN    | N, E<br>N                                                                                                   | eP<br>PPP<br>iS<br>PPS<br>SS<br>SSS<br>Lq<br>Lr<br>M              | 3 02 41<br>07 1<br>12 32<br>13 24<br>17 29<br>20 22<br>23 20<br>27 02<br>32 16                   | 8620     |                                                            |                                                          |
|      | CHATRA                                                                                                                     | Z         | i                               | 21 25 37                                                 |          | Slight, distant                |              |                                                                                                             |                                                                   |                                                                                                  |          |                                                            |                                                          |
|      | COLOMBO                                                                                                                    | E         | e                               | 21 25 54<br>35 19<br>56 54<br>22 04 04                   |          |                                |              |                                                                                                             |                                                                   |                                                                                                  |          |                                                            |                                                          |
|      | KODAIKANAL                                                                                                                 | E         | e                               | 21 26 14                                                 |          | Tremor                         | BOKARO       | N, E<br>N                                                                                                   | eP<br>PcP<br>iS<br>PPS<br>M                                       | 13 02 53<br>03 00<br>1 46<br>13 10<br>14 47<br>30 51                                             | 8640     | Per: 18 sec<br>$\mu$ = 113                                 |                                                          |
|      | DEHRA DUN                                                                                                                  | N, E<br>N | e<br>i<br>e<br>e                | 21 26 29<br>36 28<br>37 22<br>37 42                      |          | Slight, other phases not clear |              |                                                                                                             |                                                                   |                                                                                                  |          |                                                            |                                                          |
|      | POONA                                                                                                                      | Z<br>E    | iP<br>e                         | 21 26 36<br>36 58                                        |          | Slight                         | 19 NEW DELHI | N                                                                                                           | iP<br>i<br>e<br>e<br>e                                            | 13 03 00<br>12 52<br>13 14<br>13 54<br>17 53<br>35 25                                            |          |                                                            |                                                          |
|      | BOMBAY                                                                                                                     | N, E      | eP<br>iS                        | 21 26 41<br>36 55                                        | 9110     | Slight                         | HYDERABAD    | E, N<br>N                                                                                                   | iP<br>iS<br>PPS<br>SS<br>SKKF1<br>SSS<br>Lq<br>SKKS2<br>Lr<br>M   | 13 03 40<br>14 07<br>15 19<br>19 28<br>21 08<br>23 10<br>26 20<br>28 04<br>30 34<br>36 55        | 9110     | Initial ground movement towards West and South             |                                                          |
|      | HYDERABAD                                                                                                                  | N         | e                               | 21 36 02                                                 |          |                                |              |                                                                                                             |                                                                   |                                                                                                  |          |                                                            | Per: 18 secs<br>$\mu$ = 25<br>Per: 22 secs<br>$\mu$ = 38 |
| 18   | SHILLONG                                                                                                                   | Z         | iP                              | 22 19 21                                                 |          | Slight, local                  | POONA        | Z<br>E                                                                                                      | iP<br>e                                                           | 13 03 44<br>14 35                                                                                |          |                                                            |                                                          |
| 18   | SHILLONG                                                                                                                   | Z         | eP                              | 23 26 24                                                 |          | Feeble                         | BOMBAY       | N, E<br>E<br>N, E<br>E<br>N, E<br>E<br>N, E<br>E                                                            | eP<br>SKS<br>eS<br>ScS<br>PS<br>SS<br>e<br>SSS<br>Lq<br>M         | 13 03 47<br>14 20<br>14 37<br>14 48<br>15 43<br>20 22<br>20 56<br>23 33<br>27 51<br>40 53        | 9960     | Per: 19 secs<br>$\mu$ = 41<br>Per: 21 secs<br>$\mu$ = 32   |                                                          |
| 19   | SHILLONG                                                                                                                   | Z         | eP                              | 00 31 49                                                 |          | Slight                         |              |                                                                                                             |                                                                   |                                                                                                  |          |                                                            |                                                          |
| 19   | SHILLONG                                                                                                                   | Z         | iP                              | 03 51 02                                                 |          | Slight, compression            | MADRAS       | E                                                                                                           | eP<br>PP<br>e<br>i<br>e<br>e<br>e                                 | 13 03 52<br>07 34<br>13 44<br>14 24<br>15 43<br>20 19<br>27 24<br>43 40                          |          |                                                            |                                                          |
|      | POONA                                                                                                                      | Z         | i                               | 03 52 28                                                 |          | Feeble                         | COLOMBO      | E                                                                                                           | P<br>e<br>e<br>e                                                  | 13 04 26<br>14 53<br>42 21<br>49 23                                                              |          |                                                            |                                                          |
| 19   | SHILLONG                                                                                                                   | Z         | iP                              | 08 24 27                                                 |          | Slight, distant                | 19 SHILLONG  | Z                                                                                                           | iP                                                                | 13 32 02                                                                                         |          |                                                            | Slight compression                                       |
| 19   | SHILLONG                                                                                                                   | Z         | iP                              | 08 25 59                                                 |          | Slight, distant                | 19 SHILLONG  | Z                                                                                                           | eP                                                                | 13 37 06                                                                                         |          |                                                            | Slight compression                                       |
| 19   | SHILLONG                                                                                                                   | Z         | iP                              | 08 25 59                                                 |          | Slight, dilation               |              |                                                                                                             |                                                                   |                                                                                                  |          |                                                            |                                                          |
|      | POONA                                                                                                                      | Z<br>E    | iP<br>eS                        | 08 27 20<br>37 56                                        | 9580     | Feeble                         |              |                                                                                                             |                                                                   |                                                                                                  |          |                                                            |                                                          |
|      | BOMBAY                                                                                                                     | E         | e                               | 08 38 02                                                 |          |                                |              |                                                                                                             |                                                                   |                                                                                                  |          |                                                            |                                                          |
| 19   | Epc: 51 $\frac{1}{2}$ <sup>o</sup> N, 176 $\frac{1}{2}$ <sup>o</sup> W In the Aleutians.<br>- H : 11h 28m 50s (U.S.C.G.S.) |           |                                 |                                                          |          |                                | SHILLONG     | Z, E<br>E                                                                                                   | iP<br>PcP<br>PP<br>iS<br>PS<br>PPS                                | 11 40 11<br>40 37<br>42 44<br>49 28<br>49 53<br>50 06                                            | 79100    | Slight, compression, initial ground movement towards West. |                                                          |
|      | CHATRA                                                                                                                     | E         | eP                              | 11 40 27                                                 |          | Feeble, distant                |              |                                                                                                             |                                                                   |                                                                                                  |          |                                                            |                                                          |
|      | DEHRA DUN                                                                                                                  | N, E      | e<br>i                          | 11 40 37<br>50 17                                        |          | Feeble, phases not clear       |              |                                                                                                             |                                                                   |                                                                                                  |          |                                                            |                                                          |
|      | HYDERABAD                                                                                                                  | E, N<br>N | iP<br>iS<br>ScS<br>Lr<br>M<br>E | 11 41 28<br>51 52<br>52 14<br>12 08 28<br>15 07<br>16 02 | 9320     | Moderate                       |              |                                                                                                             |                                                                   |                                                                                                  |          |                                                            | Per: 15 secs<br>$\mu$ = 5<br>Per: 15 secs<br>$\mu$ = 4   |
|      | POONA                                                                                                                      | Z<br>E    | eP<br>eS                        | 11 41 38<br>12 14 35                                     | 9687     | Slight                         |              |                                                                                                             |                                                                   |                                                                                                  |          |                                                            |                                                          |
|      | BOMBAY                                                                                                                     | N, E      | eP<br>e<br>e                    | 11 41 43<br>52 20<br>52 36                               |          | Slight                         |              |                                                                                                             |                                                                   |                                                                                                  |          |                                                            |                                                          |

| DATE | STATION                                                            | COMPT | PHASE | G. M. T. | $\Delta$ | REMARKS             | DATE | STATION                                                                                                        | COMPT | PHASE | G. M. T. | $\Delta$ | REMARKS             |
|------|--------------------------------------------------------------------|-------|-------|----------|----------|---------------------|------|----------------------------------------------------------------------------------------------------------------|-------|-------|----------|----------|---------------------|
|      |                                                                    |       |       | h. m. s. | km       |                     |      |                                                                                                                |       |       | h. m. s. | km       |                     |
| 19   | SHILLONG                                                           | Z     | iP    | 14 07 13 |          | Slight, dilatation  | 20   | CHATRA                                                                                                         | Z     | iP    | 11 13 30 |          | Feeble              |
| 19   | SHILLONG                                                           | Z     | iP    | 14 23 59 |          | Slight, compression |      | POONA                                                                                                          | Z     | iP    | 11 14 45 | 9960     | Feeble              |
| 19   | SHILLONG                                                           | Z     | iP    | 14 34 38 |          | Slight, compression |      | BOMBAY                                                                                                         | N, E  | eS    | 11 25 34 |          |                     |
| 19   | SHILLONG                                                           | Z     | eP    | 14 44 35 |          | Slight distant      | 20   | SHILLONG                                                                                                       | Z     | eP    | 12 59 55 |          | Slight, compression |
| 19   | SHILLONG                                                           | Z     | iP    | 15 26 36 |          | Slight dilatation   |      | CHATRA                                                                                                         | Z     | i     | 13 00 25 |          | Feeble, very near   |
| 19   | SHILLONG                                                           | Z     | eP    | 15 59 02 |          | Slight              | 20   | SHILLONG                                                                                                       | Z     | eP    | 15 12 32 |          | Slight              |
| 19   | POONA                                                              | Z     | iP    | 16 00 25 | 9960     | Feeble              | 20   | CHATRA                                                                                                         | Z     | eP    | 17 48 04 | 200      | Feeble              |
|      |                                                                    | E     | eS    | 11 15    |          |                     |      |                                                                                                                | iS    | 48 28 |          |          |                     |
| 19   | BOMBAY                                                             | N, E  | e     | 16 11 18 |          | Very feeble         | 20   | SHILLONG                                                                                                       | Z     | eP    | 18 46 14 |          | Slight              |
| 19   | SHILLONG                                                           | Z     | iP    | 16 33 34 |          | Slight compression  | 20   | SHILLONG                                                                                                       | Z     | iP    | 19 02 32 |          | Slight compression  |
| 19   | SHILLONG                                                           | Z     | iP    | 17 16 06 |          | Slight, compression |      | CHATRA                                                                                                         | Z     | e     | 19 02 46 |          | Feeble, distant     |
|      | POONA                                                              | Z     | i     | 17 17 28 |          | Feeble              | 20   | SHILLONG                                                                                                       | Z     | iP    | 19 25 35 |          | Slight, dilatation  |
| 19   | SHILLONG                                                           | Z     | eP    | 19 20 40 |          | Slight compression  | 20   | SHILLONG                                                                                                       | Z     | iP    | 20 04 41 |          | Slight, dilatation  |
| 19   | SHILLONG                                                           | Z     | eP    | 20 36 09 |          | Slight              | 20   | SHILLONG                                                                                                       | Z     | iP    | 20 10 27 |          | Slight compression  |
| 19   | SHILLONG                                                           | Z     | iP    | 23 35 33 |          | Slight compression  |      | CHATRA                                                                                                         | Z     | e     | 20 10 39 |          | Feeble, distant     |
| 20   | SHILLONG                                                           | Z     | iP    | 00 12 26 |          | Slight, dilatation  | 20   | SHILLONG                                                                                                       | Z     | iP    | 20 39 34 |          | Slight compression  |
|      | POONA                                                              | Z     | eP    | 00 13 48 |          | Feeble              |      | CHATRA                                                                                                         | Z     | e     | 20 39 50 |          | Feeble, near        |
| 20   | SHILLONG                                                           | Z     | iP    | 00 34 09 |          | Slight compression  | 20   | POONA                                                                                                          | Z     | i     | 20 41 05 |          | Slight              |
| 20   | POONA                                                              | Z     | e     | 00 35 30 |          | Feeble              | 20   | SHILLONG                                                                                                       | Z     | iP    | 22 52 15 |          | Slight, dilatation  |
| 20   | SHILLONG                                                           | Z     | iP    | 00 50 00 |          | Slight compression  | 20   | SHILLONG                                                                                                       | Z     | eP    | 23 39 26 |          | Feeble              |
| 20   | SHILLONG                                                           | Z     | iP    | 00 54 51 |          | Slight compression  | 21   | SHILLONG                                                                                                       | Z     | eP    | 00 40 06 |          | Slight compression  |
| 20   | POONA                                                              | Z     | iP    | 03 07 52 | 9710     | Feeble              | 21   | SHILLONG                                                                                                       | Z     | iP    | 04 40 35 |          | Slight compression  |
|      |                                                                    | E     | eS    | 18 32    |          |                     |      | POONA                                                                                                          | Z     | iP    | 04 41 59 |          | Slight              |
|      | SHILLONG                                                           | Z     | iP    | 03 09 49 |          | Slight compression  | 21   | SHILLONG                                                                                                       | Z     | iP    | 06 39 32 |          | Slight, dilatation  |
| 20   | SHILLONG                                                           | Z     | iP    | 03 36 26 |          | Slight compression  | 21   | SHILLONG                                                                                                       | Z     | iP    | 08 43 15 |          | Slight, dilatation  |
|      | BOMBAY                                                             | N, E  | e     | 03 48 34 |          | Very feeble         | 21   | SHILLONG                                                                                                       | Z     | eP    | 09 04 08 |          | Tremor              |
| 20   | SHILLONG                                                           | Z     | iP    | 05 49 04 |          | Slight, dilatation  |      | POONA                                                                                                          | Z     | iP    | 09 04 25 |          | Feeble              |
| 20   | SHILLONG                                                           | Z     | iP    | 06 17 35 |          | Slight compression  | 21   | SHILLONG                                                                                                       | Z     | iP    | 11 14 16 |          | Slight, dilatation  |
|      | BOMBAY                                                             | N, E  | e     | 06 27 17 |          | Very feeble         | 21   | SHILLONG                                                                                                       | Z     | iP    | 12 20 06 |          | Slight compression  |
| 20   | SHILLONG                                                           | Z     | iP    | 06 36 03 |          | Slight, dilatation  | 21   | POONA                                                                                                          | Z     | iP    | 12 34 36 |          | Feeble              |
| 20   | SHILLONG                                                           | Z     | iP    | 07 11 43 | 150      | Slight compression  | 21   | SHILLONG                                                                                                       | Z     | iP    | 12 43 11 |          | Slight compression  |
|      |                                                                    |       | Pg    | 11 46    |          |                     | 21   | SHILLONG                                                                                                       | Z     | iP    | 13 41 35 |          | Slight, dilatation  |
|      |                                                                    |       | PP    | 11 51    |          |                     | 21   | SHILLONG                                                                                                       | Z     | iP    | 14 23 29 |          | Slight, dilatation  |
|      |                                                                    |       | PPP   | 11 57    |          |                     | 21   | POONA                                                                                                          | Z     | eP    | 15 39 12 |          | Feeble              |
|      |                                                                    |       | Sg    | 12 04    |          |                     | 21   | SHILLONG                                                                                                       | Z     | iP    | 15 57 44 |          | Slight, dilatation  |
| 20   | SHILLONG                                                           | Z     | eP    | 07 31 13 |          | Slight              | 21   | SHILLONG                                                                                                       | Z     | iP    | 15 57 44 |          | Slight, dilatation  |
| 20   | SHILLONG                                                           | Z     | iP    | 07 58 48 | 500      | Slight, dilatation  | 21   | SHILLONG                                                                                                       | Z     | iP    | 16 45 28 |          | Compression         |
|      |                                                                    |       | PP    | 58 56    |          |                     |      | SHILLONG                                                                                                       | Z     | iP    | 16 45 28 |          | Compression         |
|      |                                                                    |       | Pg    | 59 09    |          |                     |      | COLOMBO                                                                                                        | E     | e     | 16 46 23 |          |                     |
|      |                                                                    |       | S     | 59 42    |          |                     |      |                                                                                                                |       | e     | 55 28    |          |                     |
|      |                                                                    |       | S*    | 59 58    |          |                     |      |                                                                                                                |       | e     | 17 11 21 |          |                     |
|      |                                                                    |       | Sg    | 08 00 09 |          |                     |      |                                                                                                                |       | e     | 15 01    |          |                     |
| 20   | Epc: 52°N, 172°W. In the Aleutians<br>- H: 11h 01m 42s (U.S.C.G.S) |       |       |          |          |                     |      | Epc: 3°S, 144°E. Near North Coast of New Guinea<br>- H: 16h 35m 28s (U.S.C.G.S)<br>Mag: 6.3 (Uppsala, Kiruna). |       |       |          |          |                     |
|      | SHILLONG                                                           | Z     | iP    | 11 13 18 | 8220     | Slight, dilatation  |      | SHILLONG                                                                                                       | Z     | iP    | 16 45 28 |          | Compression         |
|      |                                                                    | E     | PcP   | 13 36    |          |                     |      | COLOMBO                                                                                                        | E     | e     | 16 46 23 |          |                     |
|      |                                                                    |       | iS    | 22 50    |          |                     |      |                                                                                                                |       | e     | 55 28    |          |                     |
|      |                                                                    |       | SKS   | 23 24    |          |                     |      | MADRAS                                                                                                         | E     | e     | 16 46 30 |          |                     |
|      |                                                                    |       |       |          |          |                     |      |                                                                                                                |       | e     | 55 13    |          |                     |
|      |                                                                    |       |       |          |          |                     |      | POONA                                                                                                          | Z     | eP    | 16 47 05 |          |                     |



| DATE      | STATION  | COMPT PHASE | G. M. T.    | $\Delta$ | REMARKS          | DATE       | STATION                                                 | COMPT PHASE | G. M. T.      | $\Delta$ | REMARKS                |
|-----------|----------|-------------|-------------|----------|------------------|------------|---------------------------------------------------------|-------------|---------------|----------|------------------------|
|           |          |             | h. m. s.    | km       |                  | March 1957 |                                                         |             | h. m. s.      | km       |                        |
| 23        | SHILLONG | Z, N, E     | iP 05 21 14 | 5050     | Compression      | 23         | BOMBAY                                                  | E           | M 05 53 38    |          | Per. $\approx$ 7 secs  |
| Contd.    |          | E           | pP 22 00    |          | First movement   | Contd.     |                                                         |             |               |          | $\mu = 5$              |
|           |          |             | sP 22 12    |          | West and North   |            | KODAIKANAL                                              | E           | iP 05 23 07   |          | Initial ground         |
|           |          |             | PP 23 11    |          |                  |            |                                                         |             | e 30 40       |          | movement towards       |
|           |          |             | PPP 23 52   |          |                  |            |                                                         |             |               |          | West                   |
|           |          |             | iS 28 01    |          |                  | 23         | SHILLONG                                                | Z           | eP 09 04 55   |          | Slight                 |
|           |          |             | PS 28 07    |          |                  |            |                                                         |             |               |          | compression            |
|           |          |             | PPS 28 15   |          |                  | 23         | SHILLONG                                                | Z           | iP 09 15 39   |          | Slight, dilatation     |
|           |          |             | sS 29 08    |          |                  |            |                                                         |             |               |          |                        |
|           |          |             | i 30 54     |          |                  | 23         | SHILLONG                                                | Z           | eP 09 22 10   |          | Remor                  |
|           |          |             | SS 31 20    |          |                  |            |                                                         |             |               |          |                        |
|           |          |             | SSS 32 55   |          |                  | 23         | SHILLONG                                                | Z           | iP 10 41 04   |          | Slight                 |
| COLOMBO   | E        | P           | 05 21 44    | 5700     | Initial ground   |            |                                                         |             |               |          | compression            |
|           | N        | PP          | 22 27       |          | movement towards | 23         | SHILLONG                                                | Z           | iP 10 41 04   |          |                        |
|           |          | iS          | 29 03       |          | North and West   |            |                                                         |             |               |          |                        |
|           |          | SS          | 30 16       |          |                  | 23         | SHILLONG                                                | Z           | iP 13 04 52   |          | Slight                 |
|           |          | PPS         | 32 03       |          |                  |            |                                                         |             |               |          | compression            |
|           |          | Lq/SSS      | 41 55       |          |                  | 23         | POONA                                                   | Z           | e 13 37 31    |          | Feeble                 |
|           |          | Lr          | 43 46       |          |                  |            |                                                         |             |               |          |                        |
| CHATRA    | Z        | iP          | 05 21 50    | 5830     |                  | 23         | SHILLONG                                                | Z           | i(P) 13 50 53 |          | Slight, local          |
|           | E        | iS          | 29 16       |          |                  |            |                                                         |             |               |          |                        |
| MADRAS    | E        | iP          | 05 21 52    | 6080     | Ground movement  |            | POONA                                                   | Z           | i 13 52 53    |          | Feeble                 |
|           |          | ppP         | 22 36       |          | towards West     | 23         | SHILLONG                                                | Z           | iP 16 30 15   |          | Slight, dilatation     |
|           |          | PcP         | 22 56       |          |                  |            |                                                         |             |               |          |                        |
|           |          | PPP         | 25 04       |          |                  | 23         | SHILLONG                                                | Z           | iP 19 10 52   |          | Slight, dilatation     |
|           |          | ScP         | 26 43       |          |                  |            |                                                         |             |               |          |                        |
|           |          | iS          | 29 16       |          |                  | 23         | CHATRA                                                  | Z           | eP 20 42 00   | 840      | Slight                 |
|           |          | PPS         | 29 36       |          |                  |            |                                                         |             | iS 43 27      |          |                        |
|           |          | SS          | 30 30       |          |                  | 23         | SHILLONG                                                | Z           | iP 23 20 25   |          | Slight, distant        |
|           |          | ScS         | 31 08       |          |                  |            |                                                         |             |               |          |                        |
|           |          | SS?         | 32 46       |          |                  | 24         | SHILLONG                                                | Z           | P 04 47 16    |          | Slight                 |
|           |          | SSS?        | 34 07       |          |                  |            |                                                         |             |               |          | ompression             |
|           |          | Lr          | 36 27       |          |                  |            |                                                         |             |               |          |                        |
|           |          | M           | 40 00       |          |                  | 24         | SHILLONG                                                | Z           | eP 05 16 45   |          | Slight, dilatation     |
| HYDERABAD | E, N     | iP          | 05 22 10    | 6120     | Initial ground   | 24         | BOMBAY                                                  | E           | e 07 08 26    |          | Very slight            |
|           | N        | PcP         | 23 09       |          | movement towards |            |                                                         | N           | e 09 11       |          |                        |
|           |          | PP          | 24 11       |          | West and North   | 24         | SHILLONG                                                | Z           | iP 07 40 30   |          | Slight, dilatation     |
|           |          | PPP         | 25 39       |          |                  | 24         | Epc: 51°N, 130°W. - H $\approx$ 08h 22m 23s (U.S.C.G.S) |             |               |          |                        |
|           |          | PcS         | 27 09       |          |                  |            | Mag: 6 $\frac{1}{2}$ 7 (Pasadena)                       |             |               |          |                        |
|           | E, N     | iS          | 29 52       |          |                  | BOMBAY     | N                                                       | e 08 41 19  |               |          |                        |
|           | N        | PS          | 30 08       |          |                  |            | E                                                       | e 52 19     |               |          |                        |
|           |          | ScS         | 31 42       |          |                  |            |                                                         | e 09 00 36  |               |          |                        |
|           |          | SS          | 33 30       |          |                  |            | N, E                                                    | e 01 09     |               |          |                        |
|           | E        | Lr          | 37 57       |          |                  |            |                                                         | M 30 --     |               |          |                        |
|           | N        | Lr          | 38 24       |          |                  | 24         | DEHRA DUN                                               | N, E        | e 08 46 30    |          |                        |
|           |          | M           | 43 53       |          |                  |            |                                                         | i 48 22     |               |          |                        |
|           |          |             |             |          |                  |            |                                                         |             |               |          | Per. $\approx$ 18 secs |
|           |          |             |             |          |                  |            |                                                         |             |               |          | $\mu = 12$             |
|           |          |             |             |          |                  |            |                                                         |             |               |          | Per. $\approx$ 21 secs |
|           |          |             |             |          |                  |            |                                                         |             |               |          | $\mu = 16$             |
| POONA     | Z        | iP          | 05 22 42    |          |                  | 24         | HYDERABAD                                               | N           | M 09 20 23    |          | Per. $\approx$ 18 secs |
|           | E        | e           | 24 32       |          |                  |            |                                                         |             |               |          | $\mu = 5$              |
|           | N, E     | i           | 30 51       |          |                  | 24         | BOMBAY                                                  | N           | e 11 12 20    |          | Slight                 |
|           | E        | e           | 30 56       |          |                  |            |                                                         | e 13 22     |               |          |                        |
|           |          | e           | 31 03       |          |                  | 24         | Epc: 52°N, 169°W. In the Aleutians                      |             |               |          |                        |
|           |          | e           | 32 11       |          |                  |            | - H $\approx$ 11h 06m 10s (U.S.C.G.S)                   |             |               |          |                        |
|           | N        | e           | 34 47       |          |                  | SHILLONG   | Z, E                                                    | iP 11 17 52 | 8380          |          | Slight, first          |
|           | E        | e           | 37 02       |          |                  |            | E                                                       | PcP 18 04   |               |          | movement West          |
|           | N        | e           | 37 21       |          |                  |            |                                                         | iS 27 32    |               |          | Compression            |
| NEW DELHI | N        | eP          | 05 22 45    |          |                  |            |                                                         | SKS 27 56   |               |          |                        |
|           |          | i           | 30 54       |          |                  |            |                                                         | PPS 28 19   |               |          |                        |
|           |          | i           | 32 22       |          |                  |            |                                                         | SS 32 22    |               |          |                        |
|           |          | e           | 35 04       |          |                  |            |                                                         | M 45 51     |               |          |                        |
|           |          | e           | 37 34       |          |                  |            |                                                         |             |               |          |                        |
|           |          | e           | 40 25       |          |                  |            |                                                         |             |               |          |                        |
|           |          | e           | 45 40       |          |                  |            |                                                         |             |               |          |                        |
| DEHRA DUN | N, E     | eP          | 05 22 49    | 6670     |                  | CHATRA     | Z                                                       | i 11 18 05  |               |          | Feeble, near           |
|           | N        | PPP         | 26 34       |          |                  |            |                                                         |             |               |          |                        |
|           |          | iS          | 31 01       |          |                  | POONA      | Z                                                       | iP 11 19 16 | 10030         |          | Slight                 |
|           |          | PS          | 31 19       |          |                  |            | E                                                       | eS 40 04    |               |          |                        |
|           |          | PPS         | 31 35       |          |                  | BOMBAY     | N, E                                                    | eP 11 19 22 | 10390         |          | Slight                 |
|           |          | SS          | 35 02       |          |                  |            | E                                                       | SKS 29 46   |               |          |                        |
|           |          | SSS         | 37 24       |          |                  |            | N, E                                                    | SKKS 29 58  |               |          |                        |
|           |          | Lq          | 38 11       |          |                  |            |                                                         | eS 30 29    |               |          |                        |
|           |          | Lr          | 40 51       |          |                  | DEHRA DUN  | N, E                                                    | e 11 28 31  |               |          | Feeble, phases         |
|           |          | M           | 46 07       |          |                  |            |                                                         |             |               |          | not clear              |
| BOMBAY    | N        | eP          | 05 22 49    | 6700     |                  | 24         | Epc: 52°N, 171°W. In the Aleutians                      |             |               |          |                        |
|           | E        | iP          | 23 28       |          |                  |            | - H $\approx$ 11h 36m 50s (U.S.C.G.S)                   |             |               |          |                        |
|           | E        | e           | 25 08       |          |                  | SHILLONG   | Z, E                                                    | iP 11 48 27 | 8180          |          | Initial ground         |
|           |          | PP          | 25 08       |          |                  |            | E                                                       | PcP 48 41   |               |          | movement towa-         |
|           |          | PPP         | 26 41       |          |                  |            |                                                         | PP 51 21    |               |          | rds West.              |
|           |          | PcS         | 27 48       |          |                  |            |                                                         | PPP 53 03   |               |          | Compression            |
|           | N, E     | iS          | 31 03       |          |                  |            |                                                         | iS 57 57    |               |          |                        |
|           |          | PPS         | 31 45       |          |                  |            |                                                         | SKS 58 26   |               |          |                        |
|           |          | SKS         | 32 31       |          |                  |            |                                                         | ScS 58 33   |               |          |                        |
|           |          | SS          | 35 02       |          |                  |            |                                                         | PS 58 41    |               |          |                        |
|           | E        | Lq          | 38 11       |          |                  |            |                                                         | PPS 58 59   |               |          |                        |
|           | N        | M           | 48 42       |          |                  |            |                                                         |             |               |          |                        |
|           |          |             |             |          |                  |            |                                                         |             |               |          | Per. $\approx$ 16 secs |
|           |          |             |             |          |                  |            |                                                         |             |               |          | $\mu = 5$              |

| DATE   | STATION                                                                                                                                                                                   | COMPT | PHASE | G. H. | M. m. | T. s. | $\Delta$ km | REMARKS                                   | DATE | STATION                                                                                                | COMPT | PHASE | G. H. | M. m. | T. s. | $\Delta$ km | REMARKS                                   |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|-------------------------------------------|------|--------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|-------------------------------------------|
| 24     | POONA                                                                                                                                                                                     | Z     | iP    | 11    | 49    | 50    |             | Slight                                    | 25   | SHILLONG                                                                                               | Z     | iP    | 10    | 36    | 05    |             | Slight, dilatation                        |
| Contd. |                                                                                                                                                                                           | E     | e     | 12    | 00    | 39    |             |                                           | 25   | SHILLONG                                                                                               | Z     | iP    | 14    | 25    | 28    |             | Slight, dilatation                        |
|        | HYDERABAD                                                                                                                                                                                 | H     | M     | 11    | 55    | 17    |             | Per. $\approx$ 16 secs<br>$\mu \approx 4$ | 25   | DEHRA DUN                                                                                              | N,E   | e     | 15    | 04    | 01    |             | Feeble                                    |
|        | COLOMBO                                                                                                                                                                                   | E     | e     | 12    | 06    | 11    |             |                                           | 25   | DEHRA DUN                                                                                              | N,E   | e     | 17    | 56    | 08    |             | Feeble                                    |
|        |                                                                                                                                                                                           |       | e     |       | 09    | 36    |             |                                           |      | POONA                                                                                                  | Z     | iP    | 17    | 59    | 44    |             | Feeb                                      |
|        | BOMBAY                                                                                                                                                                                    | N,E   | e     | 12    | 06    | 33    |             | Slight                                    | 25   | SHILLONG                                                                                               | Z     | iP    | 18    | 30    | 08    |             | Slight compression                        |
|        |                                                                                                                                                                                           |       | e     |       | 09    | 10    |             |                                           | 25   | SHILLONG                                                                                               | Z     | e     | 18    | 40    | 25    |             | Tremor                                    |
|        |                                                                                                                                                                                           | N     | e     |       | 10    | 00    |             |                                           | 25   | SHILLONG                                                                                               | Z     | iP    | 21    | 25    | 18    |             | Slight compression                        |
|        |                                                                                                                                                                                           | N,E   | e     |       | 12    | 28    |             |                                           |      | BOMBAY                                                                                                 | N,E   | e     | 21    | 34    | 58    |             | Very slight                               |
| 24     | Epc: $37^{\circ}$ N, $71^{\circ}$ E. In Hindukush. - h $\approx$ 200 KmCa<br>- H $\approx$ 12h 05m 10s (U.S.C.G.S)<br>$36^{\circ}$ N, $70^{\circ}$ E. - H $\approx$ 12h 05m 18s (Quetta). |       |       |       |       |       |             |                                           | 26   | SHILLONG                                                                                               | Z     | iP    | 02    | 22    | 09    |             | Slight compression                        |
|        | DEHRA DUN                                                                                                                                                                                 | N,E   | eP    | 12    | 07    | 17    | 880         | Slight                                    |      | COLOMBO                                                                                                | E     | L     | 21    | 56    | 13    |             | Amp: 0.6 mm                               |
|        |                                                                                                                                                                                           | N     | Lq    |       | 08    | 37    |             |                                           | 26   | SHILLONG                                                                                               | Z     | iP    | 02    | 59    | 11    |             | Slight compression                        |
|        |                                                                                                                                                                                           |       | iS    |       | 08    | 47    |             |                                           | 26   | SHILLONG                                                                                               | Z     | iP    | 02    | 59    | 11    |             | Slight compression                        |
|        |                                                                                                                                                                                           |       | SS/Lr |       | 09    | 00    |             |                                           | 26   | SHILLONG                                                                                               | Z,E   | eP    | 03    | 16    | 42    |             | Slight                                    |
|        |                                                                                                                                                                                           |       | SSS   |       | 09    | 12    |             |                                           |      | POONA                                                                                                  | Z     | iP    | 03    | 18    | 05    |             | Tremor                                    |
|        | NEW DELHI                                                                                                                                                                                 | N     | eP    | 12    | 07    | 26    | 970         | Slight                                    |      | BOMBAY                                                                                                 | N,E   | e     | 03    | 28    | 30    |             | Slight                                    |
|        |                                                                                                                                                                                           |       | iS    |       | 09    | 06    |             |                                           |      |                                                                                                        |       | e     |       | 29    | 11    |             |                                           |
|        |                                                                                                                                                                                           |       | SS    |       | 09    | 28    |             |                                           |      | HYDERABAD                                                                                              | N     | M     | 03    | 41    | 25    |             | Per. $\approx$ 18 secs<br>$\mu \approx 4$ |
|        |                                                                                                                                                                                           |       | S*    |       | 09    | 39    |             |                                           | 26   | Epc: $28^{\circ}$ N, $52^{\circ}$ E. Near South Coast of Ind.<br>- H $\approx$ 04h 49m 20s (U.S.C.G.S) |       | eP    | 04    | 54    | 05    | 2370        | Slight                                    |
|        |                                                                                                                                                                                           |       | Sg    |       | 10    | 07    |             |                                           |      |                                                                                                        |       | eS    |       | 57    | 58    |             |                                           |
|        | CHATRA                                                                                                                                                                                    | Z     | iP    | 12    | 09    | 03    | 1920        | Slight                                    |      | BOMBAY                                                                                                 | N,E   | eP    | 04    | 54    | 05    | 2370        | Slight                                    |
|        |                                                                                                                                                                                           | E     | iS    |       | 12    | 15    |             |                                           |      |                                                                                                        |       | eS    |       | 57    | 58    |             |                                           |
|        | POONA                                                                                                                                                                                     | Z     | iP    | 12    | 09    | 16    | 1950        | Moderate                                  |      | POONA                                                                                                  | Z     | iP    | 04    | 54    | 16    | 2490        | Feeble                                    |
|        |                                                                                                                                                                                           |       | eS    |       | 12    | 30    |             |                                           |      |                                                                                                        | E     | PP    |       | 54    | 48    |             |                                           |
|        | SHILLONG                                                                                                                                                                                  | Z     | iP    | 12    | 09    | 43    |             | Slight compression                        |      |                                                                                                        |       | PPP   |       | 55    | 03    |             |                                           |
|        |                                                                                                                                                                                           |       |       |       |       |       |             |                                           |      |                                                                                                        |       | eP    |       | 58    | 18    |             |                                           |
|        | MADRAS                                                                                                                                                                                    | E     | eP    | 12    | 10    | 27    | 3000        | Feeble                                    |      |                                                                                                        |       | Lq    |       | 58    | 55    |             |                                           |
|        |                                                                                                                                                                                           |       | eS    |       | 15    | 04    |             |                                           |      |                                                                                                        |       | Lr    |       | 59    | 59    |             |                                           |
|        |                                                                                                                                                                                           |       | M     |       | 18    | 20    |             |                                           |      | DEHRA DUN                                                                                              | N,E   | e     | 04    | 54    | 38    |             | Slight                                    |
|        | COLOMBO                                                                                                                                                                                   | E     | L     | 12    | 32    | 36    |             | Amp: 0.5 mm                               |      |                                                                                                        |       | i     |       | 58    | 36    |             |                                           |
|        |                                                                                                                                                                                           |       | M     |       | 36    | 36    |             |                                           |      |                                                                                                        |       | i     |       | 59    | 33    |             |                                           |
| 24     | SHILLONG                                                                                                                                                                                  | Z     | iP    | 14    | 05    | 09    |             | Slight, dilatation                        |      | HYDERABAD                                                                                              | N     | e     | 04    | 59    | 26    |             | Tremor                                    |
| 24     | SHILLONG                                                                                                                                                                                  | Z     | iP    | 16    | 44    | 13    |             | Slight compression                        | 26   | SHILLONG                                                                                               | Z     | eP    | 16    | 00    | 34    |             | Tremor                                    |
| 24     | CHATRA                                                                                                                                                                                    | Z     | i     | 17    | 40    | 46    |             | Feeble, near                              | 26   | SHILLONG                                                                                               | Z     | iP    | 16    | 13    | 07    |             | Slight rarefaction                        |
| 24     | SHILLONG                                                                                                                                                                                  | Z     | iP    | 19    | 14    | 26    |             | Slight compression                        | 26   | POONA                                                                                                  | Z     | i     | 18    | 29    | 31    |             | Tremor                                    |
| 24     | SHILLONG                                                                                                                                                                                  | Z     | eP    | 20    | 05    | 12    |             | Slight compression                        | 26   | SHILLONG                                                                                               | Z     | iP    | 19    | 28    | 02    |             | Slight rarefaction                        |
| 24     | SHILLONG                                                                                                                                                                                  | Z     | eP    | 21    | 14    | 17    |             | Slight                                    | 26   | SHILLONG                                                                                               | Z     | eP    | 21    | 06    | 15    |             | Tremor                                    |
| 25     | SHILLONG                                                                                                                                                                                  | Z     | eP    | 00    | 26    | 09    |             | Slight                                    |      | POONA                                                                                                  | Z     | i     | 21    | 44    | 38    |             | Tremor                                    |
| 25     | SHILLONG                                                                                                                                                                                  | Z     | iP    | 00    | 51    | 18    |             | Slight, compression                       | 27   | SHILLONG                                                                                               | Z     | iP    | 04    | 25    | 35    |             | Slight compression                        |
| 25     | DEHRA DUN                                                                                                                                                                                 | N,E   | e     | 01    | 02    | 03    |             | Feeble, phases not clear                  | 27   | SHILLONG                                                                                               | Z     | iP    | 13    | 11    | 14    |             | Slight compression                        |
| 25     | BOMBAY                                                                                                                                                                                    | E     | e     | 01    | 30    | 08    |             | Slight                                    | 27   | SHILLONG                                                                                               | Z     | eP    | 13    | 36    | 54    |             | Slight                                    |
| 25     | SHILLONG                                                                                                                                                                                  | Z     | iP    | 01    | 30    | 20    |             | Slight compression                        | 27   | SHILLONG                                                                                               | Z     | iP    | 16    | 08    | 36    |             | Slight                                    |
| 25     | SHILLONG                                                                                                                                                                                  | Z     | eP    | 02    | 47    | 55    |             | Feeble                                    | 27   | SHILLONG                                                                                               | Z     | iP    | 20    | 27    | 19    |             | Slight rarefaction                        |
|        | POONA                                                                                                                                                                                     | Z     | iP    | 02    | 48    | 14    |             | Tremor                                    | 27   | SHILLONG                                                                                               | Z     | eP    | 22    | 58    | 51    |             | Slight rarefaction                        |
| 25     | SHILLONG                                                                                                                                                                                  | Z     | eP    | 03    | 18    | 09    |             | Slight compression                        |      |                                                                                                        |       | i     |       | 59    | 49    |             |                                           |
| 25     | SHILLONG                                                                                                                                                                                  | Z     | iPg   | 03    | 20    | 39    | 60          | Slight, local                             | 27   | SHILLONG                                                                                               | Z     | eP    | 23    | 11    | 35    |             | Slight                                    |
|        |                                                                                                                                                                                           |       | iSg   |       | 20    | 45    |             |                                           | 28   | SHILLONG                                                                                               | Z     | iP    | 01    | 26    | 50    |             | Slight compression                        |
| 25     | SHILLONG                                                                                                                                                                                  | Z     | iP    | 07    | 15    | 10    |             | Slight compression                        | 28   | SHILLONG                                                                                               | Z     | eP    | 06    | 25    | 35    |             | Slight                                    |
| 25     | SHILLONG                                                                                                                                                                                  | Z     | eP    | 08    | 35    | 13    |             | Slight                                    | 28   | SHILLONG                                                                                               | Z     | iP    | 13    | 52    | 19    |             | Slight, near rarefaction                  |
| 25     | SHILLONG                                                                                                                                                                                  | Z     | iP    | 08    | 56    | 03    |             | Slight, dilatation                        |      |                                                                                                        |       |       |       |       |       |             |                                           |
| 25     | SHILLONG                                                                                                                                                                                  | Z     | iP    | 09    | 24    | 53    |             | Slight compression                        |      |                                                                                                        |       |       |       |       |       |             |                                           |
| 25     | SHILLONG                                                                                                                                                                                  | Z     | iP    | 10    | 19    | 09    |             | Slight, dilatation                        |      |                                                                                                        |       |       |       |       |       |             |                                           |

| DATE | STATION                                 | COMPT PHASE | G. M. T. | $\Delta$ | REMARKS                                                         | DATE       | STATION   | COMPT PHASE | G. M. T. | $\Delta$ | REMARKS                                                |
|------|-----------------------------------------|-------------|----------|----------|-----------------------------------------------------------------|------------|-----------|-------------|----------|----------|--------------------------------------------------------|
|      |                                         |             | h. m. s. | km       |                                                                 | March 1957 |           |             | h. m. s. | km       |                                                        |
| 28   | SHILLONG                                | Z eP        | 14 32 58 |          | Slight                                                          | 29         | HYDERABAD | E,N i       | 05 33 51 |          |                                                        |
| 28   | CHATRA                                  | Z eP        | 17 58 03 | 1780     | Slight                                                          | Contd.     | Contd.    | N e         | 34 34    |          |                                                        |
|      |                                         | iS          | 18 01 01 |          |                                                                 |            |           | e           | 38 58    |          |                                                        |
| 28   | SHILLONG                                | Z iP        | 18 04 24 |          | Slight compression                                              |            |           | E e         | 41 04    |          |                                                        |
| 28   | SHILLONG                                | Z iP        | 18 40 22 |          | Slight compression                                              |            |           | e           | 44 25    |          |                                                        |
| 28   | SHILLONG                                | Z iP        | 20 06 57 |          | Slight compression                                              |            |           | e           | 49 31    |          |                                                        |
| 28   | SHILLONG                                | Z iP        | 20 19 59 |          | Slight compression                                              |            |           | e           | 49 40    |          |                                                        |
| 28   | POONA                                   | Z iP        | 20 21 24 |          | Feeble, phases not clear                                        | BOMBAY     | N,E       | aP          | 05 23 37 | 10000    |                                                        |
| 28   | DEHRA DUN                               | N,E e       | 20 30 31 |          | Feeble                                                          |            |           | PP          | 27 8     |          |                                                        |
|      | HYDERABAD                               | E,N e       | 20 31 58 |          |                                                                 |            |           | SKS         | 34 07    |          |                                                        |
|      |                                         | E e         | 56 28    |          |                                                                 |            |           | eS          | 37 29    |          |                                                        |
|      |                                         | N e         | 57 25    |          |                                                                 |            |           | PS          | 35 36    |          |                                                        |
| 28   | BOMBAY                                  | N,E e       | 20 32 26 |          | Slight                                                          |            |           | PPS         | 36 08    |          |                                                        |
| 28   | SHILLONG                                | Z eP        | 20 56 05 |          | Slight, local                                                   |            |           | M           | 06 07 45 |          | Per. = 21 secs<br>   = 51<br>Per. = 24 secs<br>   = 48 |
| 28   | CHATRA                                  | Z iP        | 22 22 03 | 70       | Feeble                                                          | MADRAS     | E         | eP          | 05 23 38 | 10080    |                                                        |
|      |                                         | iS          | 22 13    |          |                                                                 |            |           | e           | 34 10    |          |                                                        |
| 29   | COLOMBO                                 | E L         | 05 04 31 |          |                                                                 |            |           | iS          | 34 33    |          |                                                        |
| 29   | Epc: 52°N, 170°W. In the Aleutians      |             |          |          |                                                                 |            |           | PS          | 36 09    |          |                                                        |
|      | 53°N, 167°W. H = 05h 10m 34s (Shillong) |             |          |          |                                                                 |            |           | Lq          | 52 36    |          |                                                        |
|      | H = 05h 10m 28s (U.S.C.G.S)             |             |          |          |                                                                 |            |           | M           | 06 00 07 |          |                                                        |
|      | H = 05h 10m 33s (Moscow)                |             |          |          |                                                                 |            |           |             |          |          |                                                        |
|      | Mag: 6.9 (Skalnate Pleso), 6.4 (Moscow) |             |          |          |                                                                 |            |           |             |          |          |                                                        |
|      | SHILLONG                                | Z,N,E iP    | 05 22 18 | 8310     |                                                                 | 29         | SHILLONG  | Z iP        | 05 45 50 |          | Slight, local                                          |
|      |                                         | N,E PeP     | 22 33    |          |                                                                 |            |           | E e         | 27 00    |          |                                                        |
|      |                                         | PP          | 25 01    |          |                                                                 |            |           | i           | 34 25    |          |                                                        |
|      |                                         | PPP         | 26 43    |          |                                                                 |            |           | e           | 35 28    |          |                                                        |
|      |                                         | iS          | 31 55    |          |                                                                 |            |           | e           | 35 03    |          |                                                        |
|      |                                         | SKS         | 32 13    |          |                                                                 |            |           | e           | 40 14    |          |                                                        |
|      |                                         | PS/ScS      | 32 24    |          |                                                                 |            |           | e           | 47 59    |          |                                                        |
|      |                                         | PPS         | 32 29    |          |                                                                 |            |           | e           | 52 33    |          |                                                        |
|      |                                         | SS          | 36 39    |          |                                                                 |            |           | e           | 06 07 -- |          |                                                        |
|      |                                         | SSS         | 39 52    |          |                                                                 |            |           |             |          |          |                                                        |
|      |                                         | Lq          | 41 56    |          |                                                                 |            |           |             |          |          |                                                        |
|      |                                         | Lr          | 45 28    |          |                                                                 |            |           |             |          |          |                                                        |
|      |                                         | M           | 49 48    |          |                                                                 |            |           |             |          |          |                                                        |
|      |                                         | M           | 49 48    |          |                                                                 |            |           |             |          |          |                                                        |
|      |                                         |             |          |          |                                                                 |            |           |             |          |          | Per. = 30 secs<br>Amp: 6 mm                            |
|      | CHATRA                                  | Z eP        | 05 22 29 | 8550     |                                                                 | 29         | SHILLONG  | Z iP        | 05 47 38 |          | Feeble, phases mixed up with the previous one.         |
|      |                                         | E eS        | 32 17    |          |                                                                 |            |           |             |          |          |                                                        |
|      | DEHRA DUN                               | N,E eP      | 05 22 37 | 8670     |                                                                 | 29         | SHILLONG  | Z eP        | 05 51 40 |          | Slight, distant                                        |
|      |                                         | N PP        | 25 51    |          |                                                                 |            |           | Z eP        | 07 37 49 |          | Slight, distant                                        |
|      |                                         | iS          | 32 31    |          |                                                                 |            |           | Z eP        | 08 27 54 |          | Slight, distant                                        |
|      |                                         | PS          | 33 41    |          |                                                                 |            |           | Z eP        | 09 34 32 |          | Tremor                                                 |
|      |                                         | SS          | 38 07    |          |                                                                 |            |           | Z eP        | 14 36 50 |          | Slight, phases not clear                               |
|      |                                         | SSS         | 42 07    |          |                                                                 |            |           | N eP        | 14 37 16 | 270      | Slight                                                 |
|      |                                         | Lq          | 43 57    |          |                                                                 |            |           | Pg          | 37 27    |          |                                                        |
|      |                                         | Lr          | 48 59    |          |                                                                 |            |           | iS          | 37 47    |          |                                                        |
|      |                                         | M           | 56 23    |          |                                                                 |            |           | Sg          | 37 56    |          |                                                        |
|      | BOKARO                                  | N,E iP      | 05 22 47 | 8780     | Direction of the initial ground movement towards South and West |            | CHATRA    | Z eP        | 14 38 27 | 920      | Slight                                                 |
|      |                                         | N eS        | 32 46    |          |                                                                 |            |           | iS          | 40 02    |          |                                                        |
|      |                                         | PS          | 33 38    |          |                                                                 |            |           |             |          |          |                                                        |
|      |                                         | PPS         | 33 55    |          |                                                                 |            |           |             |          |          |                                                        |
|      |                                         | M           | 52 04    |          |                                                                 |            |           |             |          |          |                                                        |
|      | NEW DELHI                               | N iP        | 05 22 49 | 8860     |                                                                 |            | SHILLONG  | Z eP        | 14 39 21 |          | Slight                                                 |
|      |                                         | PP          | 25 48    |          |                                                                 |            |           | Z eP        | 14 41 46 |          | Slight, near phases not clear                          |
|      |                                         | e           | 29 37    |          |                                                                 |            |           |             |          |          |                                                        |
|      |                                         | iS          | 32 51    |          |                                                                 |            |           |             |          |          |                                                        |
|      |                                         | e           | 33 05    |          |                                                                 |            |           |             |          |          |                                                        |
|      |                                         | i           | 33 20    |          |                                                                 |            |           |             |          |          |                                                        |
|      |                                         | e           | 34 04    |          |                                                                 |            |           |             |          |          |                                                        |
|      |                                         | e           | 34 26    |          |                                                                 |            |           |             |          |          |                                                        |
|      |                                         | e           | 38 45    |          |                                                                 |            |           |             |          |          |                                                        |
|      |                                         | e           | 42 44    |          |                                                                 |            |           |             |          |          |                                                        |
|      |                                         | e           | 48 33    |          |                                                                 |            |           |             |          |          |                                                        |
|      |                                         | M           | 55 29    |          |                                                                 |            |           |             |          |          |                                                        |
|      | HYDERABAD                               | E,N iP      | 05 23 31 |          | Initial ground movement towards West and South                  |            | SHILLONG  | Z iP        | 20 02 17 |          | Slight, distant                                        |
|      |                                         | N e         | 26 55    |          |                                                                 |            |           | Z iP        | 22 16 26 |          | Feeble rarefaction                                     |
|      |                                         | e           | 28 37    |          |                                                                 |            |           | Z iP        | 23 01 37 |          | Slight, distant compression                            |
|      |                                         | e           | 33 21    |          |                                                                 |            |           |             |          |          |                                                        |



| DATE | STATION             | COMPT | PHASE | G  | M  | T  | Δ    | REMARKS                     | DATE  | STATION   | COMPT | PHASE | G  | M  | T  | Δ    | REMARKS                     |
|------|---------------------|-------|-------|----|----|----|------|-----------------------------|-------|-----------|-------|-------|----|----|----|------|-----------------------------|
|      |                     |       |       | h  | m  | s  | km   |                             | March | 1957      |       |       | h  | m  | s  | km   |                             |
| 29   | DEHRA DUN<br>Contd. | N, E  |       | 23 | 02 | 01 |      | Feeble, phases not clear    | 30    | SHILLONG  | Z     | iP    | 11 | 23 | 2  |      | Slight, distant compression |
|      | HYDERABAD           | N, E  | iP    | 21 | 02 | 5  | 9530 | Slight                      | 30    | SHILLONG  | Z     | eP    | 16 | 25 | 50 |      | Feeble                      |
|      |                     | E     | iS    | 13 | 47 |    |      | Per. 15 secs                | 30    | SHILLONG  | Z     | iP    | 16 | 37 | 48 |      | Slight, distant rarefaction |
|      |                     | N     | M     | 35 | 25 |    |      | Per. 15 secs                | 30    | SHILLONG  | Z     | eP    | 17 | 56 | 03 |      | Very feeble                 |
|      | BOMBAY              | N, E  | eP    | 23 | 02 | 57 | 9950 | Slight                      | 30    | SHILLONG  | Z     | iP    | 18 | 38 | 13 |      | Very feeble, rarefaction    |
|      |                     | E     | SKKS  | 13 | 29 |    |      |                             | 30    | SHILLONG  | Z     | eP    | 19 | 36 | 57 |      | Very feeble                 |
|      |                     |       | eS    | 13 | 47 |    |      | Per. 17 secs                | 31    | SHILLONG  | Z     | iP    | 02 | 42 | 21 |      | Slight, distant             |
|      |                     |       | M     | 14 | 14 |    |      | Per. 2                      | 31    | SHILLONG  | Z     | iP    | 06 | 38 | 48 |      | Slight, distant rarefaction |
|      | POONA               | Z     | eP    | 23 | 02 | 58 |      | Tremor                      | 31    | SHILLONG  | Z     | iP    | 10 | 19 | 44 |      | Slight compression          |
|      | CHATRA              | Z     | eP    | 23 | 03 | 25 | 180  | Feeble                      |       | CHATRA    | Z     | i     | 10 | 19 | 56 |      | Feeble, near                |
| 29   | SHILLONG            | Z     | iP    | 23 | 50 | 53 |      | Slight, distant compression |       | HYDERABAD | E, N  | iP    | 10 | 21 | 01 | 9320 | Slight                      |
|      | COLOMBO             | E     | e     | 23 | 52 | 02 |      |                             |       |           |       | iS    | 31 | 25 |    |      | Per. 15 secs                |
|      |                     |       | e     | 55 | 32 |    |      |                             |       |           |       | M     | 55 | 52 |    |      | Per. 15 secs                |
| 30   | SHILLONG            | Z     | eP    | 00 | 05 | 10 |      | Feeble                      |       |           |       | N     | M  | 55 | 59 |      | Per. 4                      |
| 30   | SHILLONG            | Z     | iP    | 00 | 53 | 51 |      | Slight, distant             |       |           |       |       |    |    |    |      | Per. 4                      |
|      | CHATRA              | Z     | iP    | 00 | 54 | 05 | 110  | Feeble                      |       | POONA     | Z     | iP    | 10 | 21 | 12 |      | Feeble                      |
|      |                     |       | iS    | 54 | 20 |    |      |                             |       | BOMBAY    | N, E  | eP    | 10 | 21 | 13 | 9530 | Slight                      |
|      | POONA               | Z     | iP    | 00 | 55 | 22 |      | Feeble, phases not clear    |       |           |       | eS    | 31 | 46 |    |      |                             |
|      |                     |       |       | 55 | 52 |    |      |                             | 31    | DEHRA DUN | N, E  | e     | 10 | 29 | 43 |      | Feeble, phases not clear    |
|      | BOMBAY              | N, E  | e     | 00 | 55 | 20 |      | Slight                      | 31    | SHILLONG  | Z     | iP    | 10 | 40 | 35 | 130  | Slight                      |
|      |                     | E     | e     | 01 | 06 | 02 |      |                             |       |           |       | Sg    | 40 | 51 |    |      |                             |
|      |                     |       | e     | 07 | 30 |    |      |                             | 31    | SHILLONG  | Z     | eP    | 11 | 17 | 12 |      | Feeble                      |
| 30   | SHILLONG            | Z     | iP    | 01 | 28 | 19 |      | Slight compression          | 31    | SHILLONG  | Z     | eP    | 13 | 10 | 49 |      | Slight                      |
|      | CHATRA              | Z     | e     | 01 | 28 | 45 |      | Feeble, distant             | 31    | SHILLONG  | Z     | eP    | 17 | 32 | 33 |      | Slight, distant             |
| 30   | SHILLONG            | Z     | eP    | 04 | 56 | 01 |      | Slight, local               | 31    | SHILLONG  | Z     | iP    | 21 | 00 | 31 | 890  | Slight, near compression    |
| 30   | SHILLONG            | Z     | iP    | 06 | 48 | 18 |      | Slight, distant rarefaction |       |           |       | iS    | 01 | 53 |    |      |                             |
|      | CHATRA              | Z     | e     | 06 | 48 | 31 |      | Feeble, distant             |       | CHATRA    | Z     | iP    | 21 | 01 | 17 | 920  | Slight                      |
| 30   | SHILLONG            | Z     | eP    | 06 | 54 | 36 |      | Feeble                      |       |           |       | iS    | 03 | 31 |    |      |                             |
|      | BOKARO              | N, E  | i     | 06 | 58 | 23 |      | Tremor                      | 31    | SHILLONG  | Z     | iP    | 21 | 52 | 23 |      | Feeble compression          |
| 30   | POONA               | Z     | iP    | 07 | 49 | 47 |      | Feeble                      |       |           |       |       |    |    |    |      |                             |
| 30   | SHILLONG            | Z     | iP    | 09 | 28 | 26 |      | Slight, distant rarefaction |       |           |       |       |    |    |    |      |                             |
|      | CHATRA              | Z     | e     | 09 | 20 | 38 |      | Feeble, near                |       |           |       |       |    |    |    |      |                             |
|      | POONA               | Z     | iP    | 09 | 29 | 52 |      | Feeble                      |       |           |       |       |    |    |    |      |                             |
|      | BOMBAY              | N, E  | eP    | 09 | 29 | 53 | 9730 | Slight                      |       |           |       |       |    |    |    |      |                             |
|      |                     |       | eS    | 40 | 34 |    |      |                             |       |           |       |       |    |    |    |      |                             |

*Earthquake Reports*  
(*Non Instrumental Reports*)

Following is the list of Earthquakes that were reported by  
voluntary Observers from different stations during the month of March  
1957.

| Place     | Date in<br>G. M. T | Time in<br>G. M. T<br>h. m. s. | No. of<br>shocks | Duration of<br>shocks in<br>secs. | Intensity<br>in R. F.<br>scale | Remarks         |
|-----------|--------------------|--------------------------------|------------------|-----------------------------------|--------------------------------|-----------------|
| Mukteswar | 1. 3. 57           | 15 41                          | 5                | 5                                 | VI                             | -               |
| Srinagar  | 10. 3. 57          | 03 32                          | 5                | 5                                 | III                            | -               |
| Shillong  | 12. 3. 57          | 11 54                          | 1                | 3                                 | II                             | -               |
| Gangtok   | 14. 3. 57          | 09 39                          | 2                | 3                                 | II                             | N. E. Direction |
| Bandogra  | 14. 3. 57          | 10 04                          | 1                | 10                                | IV                             | -               |
| Katmundo  | 14. 3. 57          | 11 15                          | 1                | 5                                 | II                             | -               |
| Shillong  | 17. 3. 57          | 16 37                          | 1                | 10                                | IV                             | -               |
| Gauhati   | 17. 3. 57          | 16 38                          | 1                | 30                                | IV                             | N. E. Direction |
| Dhanbad   | 22. 3. 57          | 10 25                          | 1                | -                                 | II                             | -               |



GOVERNMENT OF INDIA  
METEOROLOGICAL DEPARTMENT

SEISMOLOGICAL BULLETIN



Published under the direction of  
*Shri S. Basu, M.Sc., F.N.I.,*  
Director General of Observatories

## List of Seismograph stations with their Instruments and Constants

| Station     | Latitude | Longitude | Height<br>a. s. l.<br>(Metres) | Lithographic<br>foundation                         | Instrument         | Comp.       | Period<br>in<br>secs               | Static<br>Magni-<br>fication | Damping<br>ratio | Over<br>speed,<br>mm/min |      |
|-------------|----------|-----------|--------------------------------|----------------------------------------------------|--------------------|-------------|------------------------------------|------------------------------|------------------|--------------------------|------|
| Bombay      | 18°54'N  | 72°49'E   | 6                              | Deccan Trap                                        | Milne-Shaw         | N           | 12                                 | 350                          | 13:1             | 14                       |      |
|             |          |           |                                |                                                    | Milne-Shaw         | E           | 12                                 | 350                          | 23:1             | 8                        |      |
|             |          |           |                                |                                                    | Spreng-<br>nether  | E           | To = Tg = 7 secs                   |                              | 30               |                          |      |
| Dokaro      | 23°50'N  | 85°48'E   | -                              | Rock                                               | Milne-Shaw         | N           | 12                                 | 250                          | 20:1             | 16                       |      |
|             |          |           |                                |                                                    | Milne-Shaw         | E           | 12                                 | 250                          | 20:1             | 8                        |      |
|             |          |           |                                |                                                    | Wood-Ander-<br>son | E           | 0.8                                | 960                          | h=0.8            | -                        |      |
|             |          |           |                                |                                                    | Wood-Ander-<br>son | N           | 0.8                                | 1000                         | h=0.8            | 60                       |      |
| Calcutta    | 22°32'N  | 88°22'E   | (1) 7<br>(2) 6                 | 7 (Milne-Shaw)<br>6 (Omori-Ewing)                  | Milne-Shaw         | E           | 12                                 | 250                          | 20:1             | 8                        |      |
|             |          |           |                                |                                                    | Wood-Ander-<br>son | N           | 2                                  | 870                          | Critical         | 30                       |      |
|             |          |           |                                | Alluvium                                           |                    | Omori-Ewing | N                                  | 16                           | 32               | -                        | 25.4 |
|             |          |           |                                | Omori-Ewing                                        | E                  | 21          | 30                                 | -                            | 25.4             |                          |      |
| Chatra      | 26°50'N  | 87°10'E   | 161                            | Sand Stone                                         | Milne-Shaw         | E           | 12                                 | 250                          | 20:1             | 16                       |      |
|             |          |           |                                |                                                    | Wood-Ander-<br>son | N           | 1                                  | 1000                         | 30:1             | 60                       |      |
|             |          |           |                                |                                                    | Benioff            | Z           | To=0.72 Tg=0.45 Cri-<br>secs tical |                              | 60               |                          |      |
|             |          |           |                                | Wenner-Ac-<br>celerograph                          | ZNE                | -           | -                                  | -                            | -                |                          |      |
| Colombo     | 06°54'N  | 79°52'E   | 7                              | Beach Sand                                         | Milne-Shaw         | E           | 12                                 | 250                          | 20:1             | -                        |      |
| Lehra Dun   | 30°19'N  | 78°02'E   | 682                            | Gravel                                             | Wood-Ander-<br>son | N           | 0.8                                | 950                          | Critical         | 60                       |      |
|             |          |           |                                |                                                    | Wood-Ander-<br>son | E           | 0.8                                | 850                          | Critical         | 60                       |      |
|             |          |           |                                |                                                    | Milne-Shaw         | N           | 12                                 | 250                          | 20:1             | 8                        |      |
|             |          |           |                                |                                                    | Milne-Shaw         | E           | 12                                 | 250                          | 20:1             | 8                        |      |
| Hyderabad   | 17°26'N  | 78°27'E   | 536                            | Granite                                            | Milne-Shaw         | E           | 12                                 | 250                          | 20:1             | 8                        |      |
|             |          |           |                                |                                                    | Milne-Shaw         | N           | 12                                 | 250                          | 20:1             | 8                        |      |
| Kodaikanal  | 10°14'N  | 77°28'E   | 2346                           | Rock                                               | Milne-Shaw         | E           | 10                                 | 250                          | 20:1             | 8                        |      |
| Madras      | 13°00'N  | 80°11'E   | 15                             | "                                                  | Spreng-<br>nether  | E           | To=Tg=72 secs                      |                              | Critical         | 30                       |      |
| New Lelhi   | 28°35'N  | 77°12'E   | 207                            | Massive Quartzite                                  |                    |             |                                    |                              |                  |                          |      |
| Poona       | 18°32'N  | 73°51'E   | 560                            | Deccan Trap                                        | Spreng-<br>nether  | Z           | To=Tg=16                           |                              | Critical         | 30                       |      |
|             |          |           |                                |                                                    | Wood-Ander-<br>son | E           | 4                                  | 1000                         | 20:1             | 16                       |      |
|             |          |           |                                |                                                    | Milne-Shaw         | N           | 12                                 | 280                          | 20:1             | 8                        |      |
| Port Blair  | 11°40'N  | 92°43'E   | -                              | -                                                  | Wood-Ander-<br>son | N           | 2                                  | 1000                         | 20:1             | 30                       |      |
|             |          |           |                                |                                                    | Wood-Ander-<br>son | E           | 0.8                                | 1000                         | 66:1             | 30                       |      |
|             |          |           |                                |                                                    | Milne-Shaw         | N           | 12                                 | 350                          | 20:1             | 8                        |      |
| Shillong    | 25°34'N  | 91°53'E   | 1600                           | Quartzite<br>Sand Stone<br>(Shillong<br>Quartzite) | Wood-Ander-<br>son | N           | 0.8                                | 1000                         | h=0.8            | 30                       |      |
|             |          |           |                                |                                                    | Wood-Ander-<br>son | E           | 0.8                                | 1000                         | h=0.8            | 30                       |      |
|             |          |           |                                |                                                    | Milne-Shaw         | N           | 12                                 | 250                          | 20:1             | 8                        |      |
|             |          |           |                                |                                                    | Benioff            | Z           | To=1.0 Tg=0.18                     |                              | 60               |                          |      |
|             |          |           |                                |                                                    | Spreng-<br>nether  | E           | To=Tg=6.5                          |                              | Critical         | 30                       |      |
|             |          |           |                                | Wenner Acce-<br>lerograph                          | ZNE                | -           | -                                  | -                            | -                |                          |      |
| Tocklai     | 28°45'N  | 94°46'E   | -                              | Alluvium                                           | Wood-Ander-<br>son | E           | 0.8                                | 970                          | h=0.8            | 60                       |      |
| Vizianagram | 18°07'N  | 83°27'E   | -                              | -                                                  | Wood-Ander-<br>son | E           | 0.8                                | 1000                         | h=0.8            | 30                       |      |
|             |          |           |                                |                                                    | Wood-Ander-<br>son | N           | 2                                  | 1000                         | 20:1             | 30                       |      |







| DATE | STATION             | COMPT                       | PHASE                                               | G. M. T.                                                                                                       | $\Delta$ | REMARKS                                                      | DATE | STATION                                                                                                                                                                                                  | COMPT                 | PHASE                                                          | G. M. T.                                                                                     | $\Delta$ | REMARKS                                                      |
|------|---------------------|-----------------------------|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------|----------|--------------------------------------------------------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------|--------------------------------------------------------------|
|      |                     |                             |                                                     | h. m. s.                                                                                                       | km       |                                                              |      |                                                                                                                                                                                                          |                       |                                                                | h. m. s.                                                                                     | km       |                                                              |
| 11   | DEHRA DUN<br>Contd. | N, E<br>N                   | eP<br>PP<br>PPP<br>iS<br>PPS<br>SSS<br>Lr<br>M      | 18 57 07<br>58 54<br>59 15<br>19 03 13<br>03 37<br>06 25<br>08 33<br>11 13                                     | 4450     | Moderate                                                     | 12   | Epc: 41 $\frac{1}{2}$ <sup>o</sup> N, 142 $\frac{1}{2}$ <sup>o</sup> E. Near South Coast of Hokkaido, Japan.<br>H = 08h 28m 34s (U.S.C.G.S)                                                              |                       |                                                                |                                                                                              |          |                                                              |
|      | COLOMBO             | E                           | P<br>S<br>L<br>M                                    | 18 57 10<br>19 03 20<br>10 20<br>16 52                                                                         | 4500     | Amp. = 1.1 mm                                                |      | SHILLONG                                                                                                                                                                                                 | Z, N, E<br>E          | iP<br>PP<br>sP<br>P*<br>PPP<br>N, E<br>E                       | 08 36 49<br>37 10<br>37 27<br>38 37<br>39 20<br>43 18<br>43 53<br>46 46                      | 5000     | Moderate<br>compression                                      |
|      | KODAIKANAL          | E                           | iP<br>PP<br>iS<br>SS<br>SSS<br>Lr<br>M              | 18 57 26<br>59 47<br>19 03 47<br>06 53<br>07 44<br>09 32<br>13 02                                              | 4680     | Moderate Initial ground movement 'East'                      |      | CHATRA                                                                                                                                                                                                   | Z<br>E                | iP<br>eP<br>iS                                                 | 08 37 11<br>44 22                                                                            | 5550     | Slight                                                       |
|      | POONA               | Z<br>N, E<br>E<br>N, E<br>N | iP<br>PP<br>PPP<br>iS<br>PPS<br>SS<br>Lq<br>Lr<br>M | 18 57 35<br>59 25<br>19 00 01<br>04 03<br>04 22<br>07 22<br>08 00<br>10 03<br>12 52                            | 4810     | Moderate. Initial ground movement towards 'East' Rarefaction |      | DEHRA DUN                                                                                                                                                                                                | N, E                  | eP<br>i                                                        | 08 37 59<br>45 19                                                                            |          | Feeble                                                       |
|      | BOMBAY              | N, E<br>E<br>N, E<br>N      | iP<br>PP<br>PPP<br>iS<br>PPS<br>SS<br>Lq<br>Lr<br>M | 18 57 45<br>59 32<br>19 00 18<br>04 20<br>04 29<br>04 38<br>04 46<br>07 51<br>08 08<br>08 23<br>10 56<br>18 18 | 4930     | Moderate                                                     |      | POONA                                                                                                                                                                                                    | Z<br>E                | iP<br>i<br>i<br>i                                              | 08 38 56<br>39 03<br>39 43<br>42 26                                                          |          | Slight Phases not clear                                      |
|      | SHILLONG            | Z                           | i                                                   | 19 21 08                                                                                                       |          | Feeble, local rarefaction                                    |      | COLOMBO                                                                                                                                                                                                  | E                     | P<br>M                                                         | 08 44 --<br>09 13 20                                                                         |          | Amp = 0.3 mm                                                 |
|      | SHILLONG            | Z, E                        | iPg<br>e<br>iSg                                     | 23 14 44<br>14 50<br>14 51                                                                                     | 70       | Slight, local                                                |      | EOMBAY                                                                                                                                                                                                   | E<br>N<br>E<br>N<br>E | e<br>e<br>e<br>M<br>M                                          | 08 47 29<br>47 44<br>47 49<br>09 10 --<br>15 --                                              |          | Very slight                                                  |
|      | SHILLONG            | Z, N, E<br>N, E             | iPg<br>iSg                                          | 23 35 44<br>36 00                                                                                              | 130      | Slight                                                       | 12   | SHILLONG                                                                                                                                                                                                 | Z                     | iP                                                             | 11 15 59                                                                                     |          | Feeble, near compression                                     |
|      | SHILLONG            | Z, N, E<br>N, E             | iPg<br>iSg                                          | 23 35 44<br>36 00                                                                                              | 130      | Slight                                                       | 12   | SHILLONG                                                                                                                                                                                                 | Z                     | iP<br>iSg                                                      | 11 43 01<br>43 22                                                                            | 170      | Feeble, local compression                                    |
|      | SHILLONG            | Z                           | i                                                   | 19 21 08                                                                                                       |          | Feeble, local rarefaction                                    | 12   | SHILLONG                                                                                                                                                                                                 | Z                     | iPg                                                            | 18 17 37                                                                                     |          | Feeble, local                                                |
|      | SHILLONG            | Z, N, E<br>N, E             | iPg<br>iSg                                          | 23 35 44<br>36 00                                                                                              | 130      | Slight                                                       | 13   | Epc: 53.5 <sup>o</sup> N, 173.3 <sup>o</sup> W In the Aleutians<br>H = 10h 40m 36s (Shillong)<br>51 $\frac{1}{2}$ <sup>o</sup> N, 175 <sup>o</sup> W H = 10h 40m 30s (U.S.C.G.S)<br>Mag. = 7 (Pasadena). |                       |                                                                |                                                                                              |          |                                                              |
|      | SHILLONG            | Z, N, E<br>E                | iP<br>eS                                            | 00 05 20<br>14 37                                                                                              | 7900     | Slight compression                                           |      | SHILLONG                                                                                                                                                                                                 | N                     | iP<br>PcP<br>PP<br>PPP<br>iS<br>SKS<br>SS<br>Lq<br>Lr          | 10 52 02<br>52 24<br>54 47<br>56 13<br>11 01 21<br>02 06<br>05 21<br>11 05<br>14 44          | 7970     |                                                              |
|      | DEHRA DUN           | N, E                        | e(P)<br>i(S)                                        | 00 05 45<br>15 28                                                                                              | 8450     | Feeble                                                       |      | DEHRA DUN                                                                                                                                                                                                | N, E<br>N             | eP<br>PP<br>iS<br>PS<br>SS<br>SSS<br>Lq<br>Lr<br>M             | 10 52 31<br>55 23<br>11 02 11<br>02 52<br>07 42<br>09 53<br>11 39<br>15 26<br>21 58          | 8380     |                                                              |
|      | POONA               | Z<br>N                      | iP<br>e<br>e                                        | 00 06 47<br>09 15<br>17 24                                                                                     |          | Slight, distant Other phases not clear                       |      | BOKARO                                                                                                                                                                                                   | N, E<br>E             | iP<br>PcP<br>iS<br>PS<br>PPS                                   | 10 52 35<br>52 44<br>11 02 22<br>02 52<br>03 24                                              | 8530     | Initial ground movement towards 'South and West'             |
|      | SHILLONG            | Z                           | iP                                                  | 00 10 33                                                                                                       |          | Slight, distant rarefaction                                  |      | PORT BLAIR                                                                                                                                                                                               | N                     | iP<br>eS/SKS                                                   | 10 53 09<br>11 03 27                                                                         | 9200     | Slight                                                       |
|      | BOMBAY              | N<br>E<br>N                 | e<br>e<br>e<br>e<br>M                               | 00 17 18<br>17 33<br>17 45<br>23 56<br>46 42<br>49 16                                                          |          | Slight                                                       |      | HYDERABAD                                                                                                                                                                                                | E                     | iP<br>PP<br>PPP<br>SKS1<br>iS<br>ScS<br>SS<br>PKKP1<br>Lr<br>M | 10 53 25<br>56 46<br>58 53<br>11 03 45<br>04 03<br>04 19<br>09 58<br>11 22<br>21 43<br>26 04 | 9660     | Initial ground movement towards 'West'                       |
|      | COLOMBO             | E                           | P<br>M                                              | 00 17 30<br>52 22                                                                                              |          | Amp. = 0.2 mm                                                |      | POONA                                                                                                                                                                                                    | Z<br>Np<br>N, E<br>N  | iP<br>PP<br>PPP<br>eS<br>PS                                    | 10 53 37<br>56 58<br>59 05<br>11 04 12<br>05 16                                              | 9710     | Initial ground movement towards 'South and West' Compression |
|      | HYDERABAD           | E                           | M                                                   | 00 39 40                                                                                                       |          | Per. = 18 secs<br>$\mu = 6$                                  |      | SHILLONG                                                                                                                                                                                                 | Z                     | iP                                                             | 03 10 49                                                                                     |          | Feeble, near compression                                     |









| DATE   | STATION    | COMPT PHASE | G<br>h          | M<br>m | T<br>s | Δ<br>km              | REMARKS                                           | DATE | STATION                                           | COMPT PHASE | G<br>h                                                                         | M<br>m                                                                             | T<br>s | Δ<br>km                                                                                                                 | REMARKS                                          |
|--------|------------|-------------|-----------------|--------|--------|----------------------|---------------------------------------------------|------|---------------------------------------------------|-------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| 19     | KODAIKANAL | E           | e               | 08     | 26     | 22                   |                                                   | 22   | DEHRA DUN                                         | N E         | e                                                                              | 05                                                                                 | 05     | 02                                                                                                                      | Tremor                                           |
| Contd. |            |             |                 |        |        |                      |                                                   |      |                                                   |             |                                                                                |                                                                                    |        |                                                                                                                         |                                                  |
| 19     | SHILLONG   | Z           | iP              | 16     | 00     | 02                   |                                                   |      | SHILLONG                                          | Z           | i                                                                              | 05                                                                                 | 05     | 15                                                                                                                      | Tremor                                           |
| 19     | CHATRA     | Z           | iPg<br>iSg      | 19     | 14     | 22<br>14 33          | 80 Feeble                                         | 22   | SHILLONG                                          | Z           | e                                                                              | 06                                                                                 | 38     | 23                                                                                                                      | Tremor                                           |
|        |            |             |                 |        |        |                      |                                                   |      | CHATRA                                            | Z           | i                                                                              | 06                                                                                 | 38     | 34                                                                                                                      | Feeble distant                                   |
| 20     | SHILLONG   | Z           | iP              | 00     | 38     | 54                   | Distant slight rarefaction                        |      | DEHRA DUN                                         | N E         | e                                                                              | 06                                                                                 | 38     | 38                                                                                                                      | Slight                                           |
| 20     | SHILLONG   | Z N E       | iP              | 01     | 15     | 24                   | Slight distant rarefaction other phases not clear |      |                                                   |             | i                                                                              | 41                                                                                 | 48     | Phases not clear                                                                                                        |                                                  |
|        |            |             |                 |        |        |                      |                                                   |      |                                                   |             | i                                                                              | 45                                                                                 | 28     |                                                                                                                         |                                                  |
|        |            |             |                 |        |        |                      |                                                   |      |                                                   |             | i                                                                              | 47                                                                                 | 40     |                                                                                                                         |                                                  |
|        |            |             |                 |        |        |                      |                                                   |      |                                                   |             | i                                                                              | 52                                                                                 | 49     |                                                                                                                         |                                                  |
|        |            |             |                 |        |        |                      |                                                   |      |                                                   |             | i                                                                              | 56                                                                                 | 29     |                                                                                                                         |                                                  |
|        | CHATRA     | Z           | iP<br>eP<br>i   | 01     | 15     | 59<br>24 15          | Slight                                            | 22   | SHILLONG                                          | Z           | i                                                                              | 07                                                                                 | 00     | 54                                                                                                                      | Tremor                                           |
|        |            | E           |                 |        |        |                      |                                                   | 22   | POONA                                             | Z           | iP<br>i                                                                        | 08                                                                                 | 38     | 41<br>38 57                                                                                                             | Feeble                                           |
|        | DEHRA DUN  | N, E        | e               | 01     | 25     | 47                   | Feeble                                            | 22   | CHATRA                                            | Z           | iPg<br>iSg                                                                     | 11                                                                                 | 07     | 08<br>07 17                                                                                                             | 80 Slight                                        |
| 20     | KODAIKANAL | E           | e               | 04     | 34     | 55                   | Tremor                                            | 22   | SHILLONG                                          | Z           | i                                                                              | 14                                                                                 | 40     | 23                                                                                                                      | Tremor                                           |
| 20     | SHILLONG   | Z           | iP              | 08     | 18     | 25                   | Feeble near compression                           | 22   | SHILLONG                                          | Z           | i                                                                              | 16                                                                                 | 44     | 25                                                                                                                      | Tremor                                           |
| 20     | SHILLONG   | Z           | eP              | 08     | 52     | 34                   | Feeble near                                       | 22   | SHILLONG                                          | Z           | i                                                                              | 18                                                                                 | 05     | 42                                                                                                                      | Tremor                                           |
| 20     | CHATRA     | Z           | iPg<br>iSg      | 14     | 52     | 01<br>52 12          | 90 Feeble                                         | 22   | Epc. 1° S. 137° E. Near North Coast of New Guinea |             |                                                                                |                                                                                    |        |                                                                                                                         |                                                  |
| 20     | CHATRA     | Z           | iPg<br>iSg      | 20     | 45     | 26<br>45 31          | 40 Feeble                                         |      |                                                   |             | H                                                                              | 23h                                                                                | 50m    | 35s (Shillong)                                                                                                          |                                                  |
| 20     | CHATRA     | Z           | i               | 20     | 49     | 16                   | Tremor                                            |      |                                                   |             | H                                                                              | 23h                                                                                | 50m    | 23s (U S C G S)                                                                                                         |                                                  |
|        |            |             |                 |        |        |                      |                                                   |      |                                                   |             | Mag                                                                            | 7 <sup>1</sup> / <sub>2</sub> (Shillong), 7 <sup>1</sup> / <sub>2</sub> (Pasadena) |        |                                                                                                                         |                                                  |
| 20     | CHATRA     | Z           | i               | 20     | 49     | 16                   | Tremor                                            |      | PORT BLAIR                                        | N           | eP<br>iS                                                                       | 23                                                                                 | 58     | 53<br>30 05 28                                                                                                          | 4950                                             |
| 20     | CHATRA     | Z           | iPg<br>iSg      | 20     | 52     | 34<br>52 41          | 50 Feeble                                         |      | SHILLONG                                          | Z N E       | iP<br>eP<br>PP<br>PP<br>PcS<br>iS<br>ScS<br>sS<br>SSS<br>Lq<br>Lr              | 23                                                                                 | 59     | 22<br>00 01 52<br>02 29<br>03 32<br>05 33<br>06 43<br>09 21<br>10 31<br>11 49<br>14 12                                  | 5580                                             |
| 20     | CHATRA     | Z           | i               | 21     | 01     | 37                   | Feeble near                                       |      |                                                   |             |                                                                                |                                                                                    |        |                                                                                                                         | Compression First ground movement West and North |
| 21     | PORT BLAIR | N           | ePg<br>iSg      | 02     | 17     | 11<br>17 19          | 10 Slight                                         |      |                                                   |             |                                                                                |                                                                                    |        |                                                                                                                         |                                                  |
| 21     | SHILLONG   | Z           | iP              | 15     | 01     | 28                   | Feeble local rarefaction                          |      |                                                   |             |                                                                                |                                                                                    |        |                                                                                                                         |                                                  |
| 21     | SHILLONG   | Z           | i               | 15     | 50     | 34                   | Tremor                                            |      | CHATRA                                            | Z N E       | iP<br>iS                                                                       | 00                                                                                 | 00     | 04<br>07 45                                                                                                             | 6110                                             |
| 21     | SHILLONG   | Z           | i               | 16     | 51     | 09                   | Tremor                                            |      |                                                   |             |                                                                                |                                                                                    |        |                                                                                                                         |                                                  |
| 21     | SHILLONG   | Z           | i               | 17     | 30     | 05                   | Tremor                                            |      | BOHARU                                            | N E         | iP<br>PcP<br>PP<br>PP<br>PPP<br>iS<br>sS<br>Lq                                 | 00                                                                                 | 00     | 05<br>00 56<br>01 20<br>01 58<br>03 26<br>07 51<br>10 01<br>13 20                                                       | 6190                                             |
| 21     | SHILLONG   | Z           | iP              | 18     | 04     | 39                   | Slight distant compression                        |      |                                                   |             |                                                                                |                                                                                    |        |                                                                                                                         | Deep focus                                       |
| 21     | CHATRA     | Z           | i               | 18     | 47     | 58                   | Slight distant                                    |      |                                                   |             |                                                                                |                                                                                    |        |                                                                                                                         |                                                  |
|        | POONA      | Z           | iP              | 18     | 49     | 30                   | Feeble                                            |      | MADRAS                                            | E           | iP<br>s<br>L<br>M                                                              | 00                                                                                 | 00     | 20<br>01 20<br>02 31<br>03 54<br>05 00<br>08 10<br>08 22<br>08 31<br>09 46<br>11 44<br>14 18<br>14 40<br>17 18<br>22 13 | 6250                                             |
|        | DEHRA DUN  | N, E        | e               | 18     | 56     | 49                   | Feeble                                            |      |                                                   |             |                                                                                |                                                                                    |        |                                                                                                                         | Ground movement West                             |
| 21     | SHILLONG   | Z           | e               | 20     | 34     | 52                   | Tremor                                            |      |                                                   |             |                                                                                |                                                                                    |        |                                                                                                                         |                                                  |
|        | DEHRA DUN  | N, E        | e<br>i          | 21     | 37     | 58<br>39 31          | Feeble                                            |      |                                                   |             |                                                                                |                                                                                    |        |                                                                                                                         |                                                  |
|        | CHATRA     | Z           | i               | 21     | 39     | 04                   | Feeble distant                                    |      |                                                   |             |                                                                                |                                                                                    |        |                                                                                                                         |                                                  |
| 21     | SHILLONG   | Z           | e               | 22     | 06     | 26                   | Tremor                                            |      |                                                   |             |                                                                                |                                                                                    |        |                                                                                                                         |                                                  |
| 21     | SHILLONG   | Z N E       | iP<br>eS<br>SSS | 23     | 22     | 37<br>24 26<br>24 50 | 1050 Slight compression                           |      |                                                   |             |                                                                                |                                                                                    |        |                                                                                                                         |                                                  |
|        | CHATRA     | Z           | eP<br>i         | 23     | 23     | 42<br>27 47          |                                                   |      | COLOMBO                                           | E           | iP<br>s<br>L<br>M                                                              | 00                                                                                 | 00     | 20<br>08 20<br>19 35<br>23 55                                                                                           | 6440                                             |
|        | DEHRA DUN  | N, E        | e<br>i<br>i     | 23     | 25     | 31<br>29 29<br>33 09 | Feeble Phases not clear                           |      |                                                   |             |                                                                                |                                                                                    |        |                                                                                                                         | Amp 8.3 mm                                       |
|        | BOMBAY     | E<br>N<br>E | e<br>e<br>e     | 23     | 30     | 03<br>35 56<br>36 36 | Very slight                                       |      | HYDERABAD                                         | E           | iP<br>PcP<br>PP<br>PPP<br>PcS<br>iS<br>PS<br>SeS<br>SS<br>SSS<br>Lq<br>Lr<br>M | 00                                                                                 | 00     | 37<br>01 33.<br>02 53<br>04 09<br>04 57<br>08 51<br>09 14<br>10 34<br>12 46<br>15 50<br>16 24<br>19 24<br>24 40         | 6590                                             |
| 21     | SHILLONG   | Z, N, E     | iP              | 23     | 42     | 00                   | Distant slight compression Other phases not clear |      |                                                   |             |                                                                                |                                                                                    |        |                                                                                                                         | Initial ground movement East                     |
| 22     | SHILLONG   | Z, N, E     | iPg<br>iSg      | 00     | 53     | 47<br>53 51          | 30 Feeble                                         |      |                                                   |             |                                                                                |                                                                                    |        |                                                                                                                         | Per 24 sets<br>11 73                             |





| DATE         | STATION   | COMPT | PHASE      | G. M. T.          | REMARKS                  |
|--------------|-----------|-------|------------|-------------------|--------------------------|
|              |           |       |            | h. m. s. km       |                          |
| 29<br>Contd. | CHATRA    | Z     | iP<br>i    | 23 32 25<br>33 37 | Slight                   |
|              | DEHRA DUN | N F   | e          | 23 35 30          | Tremor                   |
| 29           | SHILLONG  | Z     | iPg<br>iSg | 23 42 13<br>42 32 | 150 Feeble local<br>felt |
| 30           | SHILLONG  | Z     | ePg<br>Sg  | 10 17 37<br>17 47 | 90 Slight                |
| 30           | SHILLONG  | Z     | eP         | 12 40 18          | Slight                   |
| 30           | SHILLONG  | Z     | eP         | 21 25 03          | Slight                   |

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No Voluntary Earthquake reports during  
the month of June 1957.

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GOVERNMENT OF INDIA  
METEOROLOGICAL DEPARTMENT

SEISMOLOGICAL BULLETIN



Published under the direction of  
*Shri S. Basu, M.Sc., F.N.I.,*  
Director General of Observatories

## List of Seismograph stations with their Instruments and Constants

Station	Latitude	Longitude	Height a. s. l. (Metres)	Lithographic foundation	Instrument	Comp.	Period in secs	Static Magni- fication	Damping ratio	Paper speed mm/min
Bombay	18°54'N	72°49'E	6	Deccan Trap	Milne-Shaw	N	12	350	13:1	16
					Milne-Shaw	E	12	350	23:1	8
					Spreng- nether	E	To = Tg = 7 secs		30	
Bokaro	23°50'N	85°48'E	-	Rock	Milne-Shaw	N	12	250	20:1	16
					Milne-Shaw	E	12	250	20:1	16
					Wood-Anderson	E	0.8	960	h=0.8	60
					Wood-Anderson	N	0.8	1000	h=0.8	60
Calcutta	22°32'N	88°22'E	(1) 7 (2) 6	7(Milne-Shaw) (Omori-Ewing) Alluvium	Milne-Shaw	E	12	250	20:1	8
					Wood-Anderson	N	2	870	Critical	30
					Omori-Ewing	N	16	32	-	25.4
					Omori-Ewing	E	21	30	-	25.4
Chatra	26°50'N	87°10'E	161	Sand Stone	Milne-Shaw	E	12	250	20:1	16
					Wood-Anderson	N	1	1000	30:1	60
					Benioff	Z	To=0.72 Tg=0.45		Critical	60
					Wenner-Accelerograph	ZNE	-	-	-	-
Colombo	06°54'N	79°52'E	7	Beach Sand	Milne-Shaw	E	12	250	20:1	-
Dehra Dun	30°19'N	78°02'E	682	Gravel	Wood-Anderson	N	0.8	950	Critical	60
					Wood-Anderson	E	0.8	850	Critical	60
					Milne-Shaw	N	12	250	20:1	8
					Milne-Shaw	E	12	250	20:1	8
Hyderabad	17°26'N	78°27'E	536	Granite	Milne-Shaw	E	12	250	20:1	8
					Milne-Shaw	N	12	250	20:1	8
Kodaikanal	10°14'N	77°28'E	2346	Rock	Milne-Shaw	E	10	250	20:1	8
Madras	13°00'N	80°11'E	15	-	Spreng- nether	E	To=Tg=72 secs		Critical	30
New Delhi	28°35'N	77°12'E	207	Massive Quartzite						
Poona	18°32'N	73°51'E	560	Deccan Trap	Spreng- nether	Z	To=Tg=1.6		Critical	30
					Wood-Anderson	E	4	1000	20:1	16
					Milne-Shaw	N	12	280	20:1	8
Port Blair	11°40'N	92°43'E	-	-	Wood-Anderson	N	2	1000	20:1	30
					Wood-Anderson	E	0.8	1000	66:1	30
					Milne-Shaw	N	12	350	20:1	8
Shillong	25°34'N	91°53'E	1600	Quartzite Sand Stone (Shillong Quartzite)	Wood-Anderson	N	0.8	1000	h=0.8	30
					Wood-Anderson	E	0.8	1000	h=0.8	30
					Milne-Shaw	N	12	250	20:1	8
					Benioff	Z	To=1.0 Tg=0.18		-	60
					Spreng- nether	E	To=Tg=6.5		Critical	30
Tocklai	28°45'N	94°46'E	-	Alluvium	Wenner Accelerograph	ZNE	-	-	-	-
					Wood-Anderson	E	0.8	970	h=0.8	60
Vizianagram	18°07'N	83°27'E	-	-	Wood-Anderson	E	0.8	1000	h=0.8	30
					Wood-Anderson	N	2	1000	20:1	30

DATE	STATION	COMPT	PHASE	G	M	T	$\Delta$	REMARKS	DATE	STATION	COMPT	PHASE	G	M	T	$\Delta$	REMARKS	
				h	m	s.	km						h	m	s.	km		
01	Epc 41 $\frac{1}{2}$ <sup>o</sup> N - H 00h 45m 00s		78 $\frac{1}{2}$ <sup>o</sup> E	Kirghiz-China Border (U.S.C.G.S)						02	BOMBAY	N	e	04	08	15		Very slight
	DEHRA DUN	N, E	eP	00	47	40	1150	Slight Phases not clear		contd.	E	e	14	26				
			eS	49	38						N, E	e	18	50				
			i	51	12					POONA	Z	iP	04	08	16		Feeble	
	CHATRA	Z	eP	00	48	40		Feeble		02	SHILLONG	Z	eP	04	34	31		Slight, near
	SHILLONG	Z	eP	00	49	20		Slight		02	SHILLONG	Z	iP	09	27	42		Slight, local Other phases not clear.
	POONA	Z	eP	00	50	12		Feeble		02	SHILLONG	Z	iP	10	00	55		Slight, near
01	CHATRA	Z	iP	00	58	48		Slight		CHATRA	Z	iP	10	01	53		Feeble	
			i	59	13							i	03	11				
01	PORT BLAIR	N	iPg	03	55	44	40	Slight		02	DEHRA DUN	N, E	e	10	29	58		Tremor
			iSg	55	49					SHILLONG	Z	eP	10	33	55		Slight compression	
01	SHILLONG	Z	iP	04	21	45		Slight, near compression		02	SHILLONG	Z	e	10	53	42		Tremor
	CHATRA	Z	iP	04	22	47				DEHRA DUN	N, E	e	10	54	18		Tremor	
			i	24	43					POONA	N	eP	10	57	05		Feeble	
01	PORT BLAIR	N	iPg	08	15	45	40	Slight		BOMBAY	N	e	10	57	28		Distant	
			iSg	15	50						E	e	57	46				
01	SHILLONG	Z, E	iP	13	53	16	450	Slight Rarefaction				e	11	15	16		Per 20 secs	
			Pg	53	27							M	56	34			$\mu = 9$	
			PPP	53	30													
			P*	53	35													
			Lq	53	55													
			S	54	04													
			Lr	54	06													
			Sg	54	28													
	CHATRA	Z	iP	13	54	16		Slight		02	Epc 52 $\frac{1}{2}$ <sup>o</sup> N, 169 <sup>o</sup> W.						Fox Islands in Aleutians	
		E	eP	56	52					SHILLONG	Z	iP	11	41	00		Slight, Initial ground motion towards West Compression.	
01	SHILLONG	Z	iP	14	03	32		Slight compression										
01	SHILLONG	Z	iP	18	19	52	80	Slight		CHATRA	Z	iP	11	41	09	8420	Slight	
			Sg	20	01						E	eP	50	51				
01	DEHRA DUN	N, E	eP	20	03	35	830	Slight Other phases not clear		POONA	Z	eP	11	42	20		Slight Phases not clear	
		N	iS	05	01					KODAIKANAL	E	e	11	45	39		Tremor	
			SS	05	15					HYDERABAD	N	M	11	48	04		Per 18 secs	
			SSS	05	25						E	M	48	22			$\mu = 11$ Per 19 secs $\mu = 5$	
	CHATRA	Z	iP	20	05	18		Slight		DEHRA DUN	N, E	eP	11	50	57	9420	Slight	
		E	eP	08	31						N	iS	12	01	25			
	POONA	Z	eP	20	05	44		Feeble				SS	06	33				
	SHILLONG	Z	iP	20	06	04		Slight Rarefaction				SSS	09	58				
	PORT BLAIR	N	e	20	32	29		Slight				Lr	17	57				
01	SHILLONG	Z	iP	20	35	34		Slight Rarefaction		BOKARO	N, E	e	11	51	15		Slight, distant	
01	PORT BLAIR	N	e	20	43	03		Slight				i	12	01	12		Phases not clear	
01	SHILLONG	Z	e	20	46	20		Tremor				i	01	25				
01	PORT BLAIR	N	e	21	08	44		Slight		HYDERABAD	N, E	eP	11	51	53	9350	Moderate	
01	CHATRA	Z	iPg	23	20	13	40	Feeble			N	iS	12	02	18		Per 18 secs	
			iSg	20	18							M	25	34			$\mu = 10$	
01	SHILLONG	Z	iP	23	39	48		Slight compression			E	M	25	49			Per 18 secs	
	CHATRA	Z	i	23	39	58		Feeble									$\mu = 5$	
	POONA	Z	iP	23	41	10		Feeble		POONA	Z	eP	11	52	01	10140	Slight	
01	SHILLONG	Z	iP	23	49	23		Slight			E	eS	12	02	35			
02	SHILLONG	Z	eP	02	00	57		Slight compression										
	POONA	Z	iP	02	02	22		Feeble		BOMBAY	N, E	e	11	52	01		Slight	
	BOMBAY	E	e	02	02	31		Feeble			E	e	12	02	25			
			e	12	41							M	30	01			Per 19 secs	
02	SHILLONG	Z	iP	02	34	09		Slight compression			N	M	30	30			Per 22 secs	
	POONA	Z	iP	02	02	22		Feeble		COLOMBO	E	L	11	53	44			
	BOMBAY	E	e	02	02	31		Feeble				M	56	34			Amp. 20.4 mm	
			e	12	41					02	COLOMBO	E	e	12	44	59		
02	SHILLONG	Z	iP	02	34	09		Slight compression				e	50	29				
02	SHILLONG	Z	iP	04	07	54		Slight compression		02	POONA	Z	e	14	06	15		Tremor
			iP	04	07	54		Slight compression		02	SHILLONG	Z	e	20	11	31		Tremor

DATE	STATION	COMPT PHASE	G. M. T.	$\Delta$	REMARKS	DATE	STATION	COMPT PHASE	G. M. T.	$\Delta$	REMARKS
			h m s	km		May 1957			h m s	km	
02	KODAIKANAL	E	e 20 12 2		Tremor	03	POONA	Z	iP 14 51 59	5590	Slight
Contd.						Contd.		E	S 59 12		
	COLOMBO	E	L 20 13 07			BOMBAY	E	eP 14 52 08	5700	Slight	
			M 15 24		Amp 0.3 mm			eS 59 27			
	HYDERABAD	E	M 20 17 44		Per - 12 secs	COLOMBO	E	L 15 13 --			Amp 0.2 mm
		N	M 18 09		Per - 9 secs			M 18 31			
					Per - 2						
02	SHILLONG	Z	iP 21 26 59		Slight compression	03	SHILLONG	Z	e 15 42 31		Tremor
						03	SHILLONG	Z	iP 16 26 11		Slight Rarefaction
02	Epc $7\frac{1}{2}^{\circ}$ S $120^{\circ}$ E Flores Sea. h 600 KmCa					03	CHATRA	Z	eP 18 43 20		Feeble
	H 21h 36m 25s (U S C G S)							i 43 40			
	PORT BLAIR	N	eP 21 42 31		Slight	03	CHATRA	Z	iP 18 49 55		Slight
			i 47 01					i 51 15			
			i 52 09			04	SHILLONG	Z	i 08 47 28		Local
	COLOMBO	E	P 21 43 34	3900		04	Epc $3\frac{1}{2}^{\circ}$ S $137^{\circ}$ E Western New Guinea				
			S 49 07					H 10h 05m 45s (U S C G S)			
			L 59 32		Amp 0.3 mm	COLOMBO	E	i 10 14 55			
			M 22 03 15					e 23 32			
	SHILLONG	Z, E	iP 21 43 37	4050	Slight Rarefaction			e 38 38			
		E	iS 49 19					e 43 05			
	POONA	Z	iP 21 43 49		Feeble	SHILLONG	Z	eP 10 14 56	5870	Slight	
			i 45 51				E	iP 15 00		Compression	
	MADRAS	E	iP 21 43 51	4190	Slight Initial ground movement towards East.			PP 15 53			
			PP 45 24					PPP 17 41			
			PcP 45 35					S 22 24			
			ScP 49 14					PS 22 27			
			iS 49 42					PPS 22 44			
			SS 52 31					SS 24 30			
			Lg 52 41					SSS 26 01			
			SSS 52 56								
			ScS? 53 26			CHATRA	Z, E	iP 10 15 31	6300		
			Lr 54 33				E	iS 23 23			
	CHATRA	Z	i 21 44 04		Slight distant	MADRAS	E	eP 10 15 42	6470	Slight	
								PcP 16 18			
	KODAIKANAL	E	iP 21 44 06	4330	Slight Initial ground movement towards East			PP 17 49			
			PP 45 36					PPP 19 16			
			PPP 46 06					PcS 20 14			
			S 50 06					eS 23 43			
			SSS 53 36					PS 24 00			
	BOMBAY	N, E	eP 21 44 57	5110	Slight deep			PPS 24 06			
			e 46 47					ScS 25 14			
			iS 51 42			DEHRA DUN	N, E	eP 10 16 30	7220	Slight	
	DEHRA DUN	N, E	eP 21 45 06	7370	Slight Phases not clear		N	iS 25 12			
			iS 53 55					PPS 25 55			
	BOKARO	N, E	e 21 45 45		Slight			SS 29 51			
			i 49 57					Lq 33 35			
	HYDERABAD	N	iP 21 46 04		Slight Initial ground movement towards North			Lr 36 03			
			i 50 23					M 41 50			
			e 53 05			POONA	Z	eP 10 16 32		Slight	
			M 54 23		Per - 9 secs		E	e 16 48			
					Per - 3			e 25 08			
02	POONA	Z	iP 21 46 39		Feeble			e 25 33			
								e 25 45			
02	POONA	Z	iP 21 51 27		Slight						
03	SHILLONG	Z	iP 02 31 31	400	Slight	BOMBAY	E	eP 10 16 38	7370	Slight	
03	SHILLONG	Z	e 03 25 56		Tremor			PP 19 08			
03	SHILLONG	Z	iP 07 21 34		Slight Rarefaction			PPP 20 44			
								eS 25 27			
	CHATRA	Z	i 07 21 46		Feeble near			PS 26 20			
								SKS1 26 37			
	POONA	Z	i 07 23 04		Tremor			SS 29 48			
								M 44 26			Per - 19 secs
	BOMBAY	N, E	e 07 33 38			KODAIKANAL	E	e 10 23 53			Per - 2
		E	M 08 05			HYDERABAD	E	M 10 24 16			Per - 12 secs
							N	M 24 26			Per - 6 secs
											Per - 2
03	Epc $12\frac{1}{2}^{\circ}$ N $125\frac{1}{2}^{\circ}$ E. In the Philippines					04	BOKARO	N, E	e 11 23 17		Tremor
	H 14h 43m 03s (U S C G S)					04	CHATRA	Z	iP 14 38 36		Slight
								i 39 00			
	SHILLONG	Z	iP 14 49 49	3760	Slight Compression	SHILLONG	Z	eP 14 38 52	220	Slight	
		E	eS 55 13					e 38 55			
	MADRAS	E	eP 14 51 20	4920	Feeble			S 39 18			
			PcP 52 38					e 39 34			
			PP 53 04			04	Epc $37^{\circ}$ N $96\frac{1}{2}^{\circ}$ E. Chinghai Province				
			eS 57 55					H 14h 52m 20s (U S C G S)			
			PS 58 01								
			SS? 15 01 12								
	DEHRA DUN	N, E	e 14 51 32		Feeble Phases not clear						
			e 53 41								
			e 58 32								

DATE	STATION	COMPT	PHASE	G h	M m	T s.	$\Delta$ km	REMARKS	DATE	STATION	COMPT	PHASE	G h	M m	T s.	$\Delta$ km	REMARKS
04	SHILLONG Contd	Z	iP	14	55	09	2430	Slight Rarefaction	06	HYDERABAD Contd	E	M	01	42	42		Per. -9 secs $\mu$ 3 Per. -9 secs $\mu$ 2
		E	iS			59					06	N	M				
			Lq			59				KODAIKANAL	E	e	01	46	33		Tremor
			SS			59			06	CHATRA	Z	iP	07	00	32		Slight
			Lr	15	00	20						i		01	49		
			M			01			06	SHILLONG	Z	iP	11	29	47		Slight Compression
	CHATRA	Z	eP	14	55	21		Slight									
			i			59											
	POONA	Z	eP	14	58	04	3220	Slight									
		E	eS	15	02	55				CHATRA	Z	iP	11	29	52		Feeble
			M			08						i		31	26		
	BOMBAY	Z	eP	14	58	04	3230	Slight		POONA	Z	i	11	31	12		Tremor
		E	eS	15	02	55											
			M			08				SHILLONG	Z	iP	11	31	20		Slight Compression
04	BOMBAY	E	eP	14	58	05	3450	Slight	06	POONA	Z	i	11	33	45		Tremor
			eS	15	03	10											
			M			10			06	SHILLONG	Z	e	14	44	28		Tremor
	DEHRA DUN	N. E	e	14	59	28		Feeble	06	DEHRA DUN	N. E	e	15	12	19		Feeble. Phases not clear
			e			15						i		16	14		
	BOKARO	N. E	e	15	00	48		Slight				e		21	49		
			i			02				POONA	Z	i	15	12	42		Tremor
			M	15	02	20		Per. -9 secs $\mu$ 4		CHATRA	Z	i	15	13	13		Slight distant
			M			02		Per. -12 secs $\mu$ 3									
	KODAIKANAL	E	e	15	08	50		Tremor		SHILLONG	Z	iP	15	13	54		Slight Rarefaction
04	DEHRA DUN	N. E	e	15	45	26		Tremor		BOMBAY	E	e	15	17	11		Very slight
04	SHILLONG	Z	e	15	20	29		Slight local		HYDERABAD	N	M	15	20	34		Per. -21 secs $\mu$ - 8
			i			20						E	M	20	43		Per. -18 secs $\mu$ 5
04	PORT BLAIR	N	ePg	17	18	03	20	Slight									
			eSg			18			06	SHILLONG	Z	e	16	48	15		Tremor
04	SHILLONG	Z	iP	23	42	56		Slight Compression	06	SHILLONG	Z	iP	18	09	38		Slight Rarefaction
06	CHATRA	Z	iP	00	52	56		Feeble	06	SHILLONG	Z	iP	19	26	17		Slight Rarefaction
			i			54			06	SHILLONG	Z	eP	19	41	36		Slight Compression
06	NEW DELHI	N	e	01	00	51		Slight	06	SHILLONG	Z	eP	20	40	57		Slight
			i			02			06	SHILLONG	Z	iP	21	13	21		Slight Compression
	DEHRA DUN	N. E	e	01	00	57		Feeble	06	SHILLONG	Z	iP	21	48	37		Slight Rarefaction
			i			02			06	SHILLONG	Z	iP	22	02	57		Slight Compression
	BOKARO	N. E	e	01	02	26		Slight Phases not clear	06	SHILLONG	Z	iP	22	49	30		Slight Compression
			i			03			06	SHILLONG	Z	e	23	28	33		Tremor
	POONA	Z	e	01	03	11		Feeble	06	SHILLONG	Z	iP	23	50	05		Slight Compression
	BOMBAY	E	e	01	06	22		Slight near	06	SHILLONG	Z	e	23	53	18		Tremor
		N. E	e			07			06	SHILLONG	Z	iP	22	02	57		Slight Compression
		E	e			07			06	SHILLONG	Z	iP	22	49	30		Slight Compression
		N	e			08			06	SHILLONG	Z	iP	22	49	30		Slight Compression
		N. E	e			08			06	SHILLONG	Z	e	23	28	33		Tremor
	HYDERABAD	E	M	01	06	30		Per. -6 secs $\mu$ 2	06	SHILLONG	Z	iP	23	50	05		Slight Compression
		N	M			07		Per. -9 secs $\mu$ 2	06	SHILLONG	Z	e	23	28	33		Tremor
	KODAIKANAL	E	e	01	10	48		Tremor	06	SHILLONG	Z	iP	23	50	05		Slight Compression
06	CHATRA	Z	iP	01	36	22		Slight	06	SHILLONG	Z	e	23	53	18		Tremor
			i			37			07	SHILLONG	Z	Pg	03	40	58	20	Slight local
	DEHRA DUN	N. E	e	01	36	45		Feeble				Sg		41	01		
			i			38			07	SHILLONG	Z	Pg	04	33	04	110	Slight, near
	NEW DELHI	N	e	01	36	58		Slight				Sg		33	17		
			i			38			07	SHILLONG	Z	e	04	38	15		Tremor
	BOKARO	N. E	e	01	38	22		Slight Phases not clear	07	SHILLONG	Z	i	05	45	11		Slight
			i			39			07	SHILLONG	Z	i		45	13		
	POONA	Z	e	01	41	35		Feeble	07	SHILLONG	Z	iP	05	45	48		Slight Compression
	BOMBAY	N. E	e	01	41	43		Slight near		CHATRA	Z	i	05	47	52		Slight distant
		E	e			42				POONA	Z	iP	05	49	13		Feeble
			e			43				BOMBAY	E	e	05	59	43		Very slight
		N. E	e			43			08	SHILLONG	Z	iP	12	14	39	290	Slight
		E	e			44						P		14	42		
	MADRAS	E	eP	01	42	37	1240	Slight				Pg		14	47		
			PP			42											
			PPP			42											
			Lq			44											
			eS			44											
			SS			45											
			SSS			45											
			M			46											

DATE	STATION	COMPT PHASE	G. M. T.			$\Delta$ km	REMARKS	DATE	STATION	COMPT PHASE	G. M. T.			$\Delta$ km	REMARKS
			h.	m.	s.						h.	m.	s.		
08	SHILLONG	Z	S	12	15	11		12	BOMBAY	N, E	eP	05	16	19	9220 Slight
	Contd. Contd.		Sg		15	18				E	PP		19	24	
											PPP		22	32	
08	CHATRA	Z	i	13	38	44	Slight. distant				eS		26	38	
											SS		31	14	
08	DEHRA DUN	N, E	e	14	27	20	Feeble		COLOMBO	E	L	05	36	39	Amp. = 0.6 mm
			e		29	25					M		41	31	
	SHILLONG	Z	iP	14	29	24	Slight Compression	12	SHILLONG	Z	e	05	37	25	Tremor
	POONA	Z	eP	14	29	39	Feeble	12	SHILLONG	Z	eP	06	56	57	Slight, beginning uncertain
08	BOMBAY	E	e	14	37	39	Feeble								
08	CHATRA	Z	iPg	16	37	31	Feeble	12	DEHRA DUN	N, E	e	07	16	22	Tremor
			iSg		37	43									
08	BOMBAY	E	e	20	35	40	Feeble								
08	SHILLONG	Z	iP	21	43	52	Slight rarefaction	12	SHILLONG	Z	iP	11	08	17	Slight compression
09	SHILLONG	Z	iPg	07	32	41	70 Slight, local	12	Epc $8^{\circ}$ S. $110^{\circ}$ E. Near South Coast of Java. H = 11h 29m 00s (Shillong) $8\frac{1}{2}^{\circ}$ S. $107\frac{1}{2}^{\circ}$ E. H = 11h 29m 07s (U. S. C. G. S)						
			iSg		32	49									
09	DEHRA DUN	N, E	e	08	46	47	Feeble		COLOMBO	E	P	11	35	31	3670
			e		48	50					S		40	49	
	CHATRA	Z, E	eP	08	48	27	Slight				L		46	09	
		E	e		55	22					M		48	01	Amp. = 3.2 mm
	POONA	Z	iP	08	48	57	Slight		KODAIKANAL	E	iP	11	36	04	4100
											PP		37	28	Initial ground movement
	SHILLONG	Z	eP	08	49	15	Slight				PPP		37	52	towards West
			i		49	17					S		41	49	Moderate
	BOMBAY	E	e	08	52	42	Surface waves				SS		44	19	
			e		55	04					SSS		44	58	
											Lq		44	34	
											Lr		46	22	
											M		49	22	
09	SHILLONG	Z	iP	10	44	48	Slight near rarefaction								Per. = 12 secs L = 13
09	SHILLONG	Z	i	19	56	05	Slight		SHILLONG	Z	iP	11	36	19	4140
			i		56	12				E	PP		37	36	Slight rarefaction
			i		56	22					PPP		38	00	
											iS		42	07	
10	SHILLONG	Z	e	01	07	56	Slight, near				PcS		42	34	
											SS		44	29	
10	SHILLONG	Z	e	13	07	31	Slight near				Lq		44	48	
			e		08	15					Lr		45	34	
											M		49	41	Per. = 15 secs L = 30
10	CHATRA	Z	iP	18	42	34	Slight								
			i		43	53									
	SHILLONG	Z	iP	18	43	23	Slight rarefaction		BOKARO	N, E	iP	11	36	34	4410
										N	iS		42	38	Moderate
											Lq		45	13	Initial ground movement towards North and West
	DEHRA DUN	N, E	e	18	44	27	Tremor				Lr		47	23	
											M		57	02	Per. = 23 secs L = 30
10	SHILLONG	Z	iP	19	17	23	Slight rarefaction		HYDERABAD	E	eP	11	36	36	4410
											iS		42	40	Moderate
10	CHATRA	Z	eP	23	10	33	Feeble				PS		42	52	
			i		10	57					PPS		43	04	
11	CHATRA	Z	eP	03	34	45	Feeble				SS		45	55	
			i		37	17					Lq		46	17	
11	SHILLONG	Z	iP	09	04	00	520 Slight compression				SSS		46	52	
			P		04	15					Lr		48	22	
			Pg		04	23					M		52	58	
			iS		04	55									
			S		05	10									
			Sg		05	30									
11	SHILLONG	Z	e	05	45	24	Slight beginning doubtful		CHATRA	Z	iP	11	36	48	4630
			i		45	27				E	eP				Slight
			i		46	01					iS		43	06	
11	SHILLONG	Z	eP	07	41	37	Slight compression		POONA	Z	eP	11	37	08	4870
										E	PP		38	47	Moderate
											PPP		39	32	
											iS		43	39	
											PPS		43	51	
											ScS		46	34	
											SS		46	43	
											Lq		47	44	
											SSS		47	55	
											Lr		49	47	
											M		53	43	
11	SHILLONG	Z	e	19	49	38	Tremor		BOMBAY	N, E	eP	11	37	16	5110
										E	PP		39	24	Moderate
										N	PPP		39	53	
										E	PPP		40	02	
										N, E	eS		44	01	
										E	PPS		44	25	
											SS		47	00	
12	SHILLONG	Z	iP	02	37	10	Slight compression								
12	SHILLONG	Z	iP	05	06	47	Slight rarefaction								

DATE	STATION	COMPT	PHASE	G	M	T	Δ	REMARKS	DATE	STATION	COMPT	PHASE	G	M	T	Δ	REMARKS																																																																													
				h.	m.	s.	km						h.	m.	s.	km																																																																														
12	BOMBAY Contd Contd	N	SS	11	47	13			15	BOMBAY Contd.	E	e	01	27	23		Very slight near																																																																													
			N E	Lq	48	22		N				e	28	28																																																																																
			E	Lr	50	31		E				e	28	53																																																																																
		N	M	55	26				Per. 14 secs	HYDERABAD	N	M	M	01	30	02		Per. 5 secs L 2 Per. 5 secs L 3																																																																												
			M	58	06			L 15 Per. 18 secs L 16	E					M	30	05																																																																														
12	DEHRA DUN	N E	eP	11	37	47	5390	Moderate	15	SHILLONG	Z	iP	01	54	31		Slight rarefaction																																																																													
			PPP	40	27			16				CHATRA	Z	iP	19	12		16		Slight																																																																										
			iS	44	48									SHILLONG	Z	iP		05	07		18		Slight rarefaction																																																																							
			PS	45	13											SHILLONG		Z	iP		10	11		14	180	Slight, near																																																																				
			SS	48	13														SHILLONG		Z	iP		13	07		19		Slight, near																																																																	
			SSS	49	35																	18		Epc	51 <sup>U</sup> <sub>N</sub> H		171 <sup>O</sup> <sub>W</sub> 05h 24m 01s	Fox Islands in the Aleutians. (U. S. C. G. S.)		8590	Slight																																																															
			Lr	52	00			CHATRA																								Z	E	iP	05	35	55	45																																																								
M	55	43			POONA	Z	N		iP	05	37	06	10080	Slight																																																																																
12	SHILLONG	Z	e	12				15							07		Tremor	17	SHILLONG	Z	iP	10	11	14		Slight, near																																																																				
12	SHILLONG	Z	Pg	15	11	29	110	Slight, near	17	SHILLONG	Z	iP	13	07	19		Slight, near																																																																													
12	MADRAS	E	eP	17	05	58			18	CHATRA	Z	E	iP	05	37	11	10070	Slight																																																																												
			PP	07	19			HYDERABAD											E	M	06	11	15	Per. 15 secs L 4																																																																						
			PPP	07	46																				DEHRA DUN	N E	e	13	35	02	Feeble																																																															
			PcP	08	14																											SHILLONG	Z	eP	13	38	27	Slight																																																								
			eS	11	33																																		SHILLONG	Z	iP	13	53	42	Slight rarefaction																																																	
			ScP	11	54																																									18	FORT BLAIR	N	eP	14	30	53	50	Slight																																								
			Lq	14	03																																																		18	CHATRA	Z	iP	15	16	09	Slight																																
			SS	14	09																																																										19	SHILLONG	Z	i	04	59	05	Slight local																								
			SSS	14	27																																																																		19	SHILLONG	Z	iP	11	32	10	Slight, local																
			Lr	15	54																																																																										20	BOMBAY	N E	eP	02	03	07	9470	Slight							
			M	18	51																																																																																			N E	eS	14	07	41	15	Per. 18 secs L 1 Per. 17 secs L 2
			13	SHILLONG	Z	iP	00																																																																																							
13	SHILLONG	Z	iP	08	27	58		Slight, near compression	18	SHILLONG	Z	iP	13	53	42		Slight rarefaction																																																																													
	CHATRA	Z	iP	08	28	57		Slight	20	DEHRA DUN	N E	e	04	45	04		Tremor																																																																													
13	SHILLONG	Z	iP	13	24	05		Slight compression	20	SHILLONG	Z	iP	10	35	35		Slight compression																																																																													
13	SHILLONG	Z	iP	15	26	36		Slight compression	20	SHILLONG	Z	iP	18	21	07		Slight rarefaction																																																																													
13	SHILLONG	Z	eP	19	25	45		Slight rarefaction	20	SHILLONG	Z	iP	20	08	17		Slight rarefaction																																																																													
14	SHILLONG	Z	eP	14	43	06	200	Slight	20	SHILLONG	Z	i	20	41	36		Slight, near																																																																													
			Pg	43	09				20	SHILLONG	Z	e	23	17	57		Tremor																																																																													
			iS	43	30				21	Epc	193 <sup>O</sup> <sub>N</sub> H	141 <sup>O</sup> <sub>E</sub> 01h 12m 10s	Mariana Islands Region (Shillong)			5110	Slight First movement West Compression.																																																																													
			Sg	43	33					21 $\frac{1}{2}$ <sup>O</sup> <sub>N</sub> H	144 <sup>O</sup> <sub>E</sub> 01h 11m 58s	(U. S. C. G. S.)																																																																																		
14	SHILLONG	Z	e	18	34	32		Slight, distant	SHILLONG	Z	iP	01	20	31																																																																																
			i	34	34				E	i	20	51																																																																																		
14	SHILLONG	Z	iP	18	55	03		Slight compression	19	SHILLONG	Z	i	59	22																																																																																
14	CHATRA	Z	iP	23	08	32		Slight	19	SHILLONG	Z	iP	11	32	10		Slight, local																																																																													
			i	09	10							i	32	24																																																																																
15	Epc 35 <sup>O</sup> <sub>N</sub> H	70 <sup>O</sup> <sub>E</sub>	Northern Afganistan. 01h 19m 59s (U. S. C. G. S.)							20	BOMBAY	N	eP	02	03	07	9470	Slight																																																																												
	DEHRA DUN	N E	e	01	22	11		Feeble Phases not clear			N E	eS	14	07																																																																																
			e	23	28						N	M	41	15																																																																																
	NEW DELHI	N	iP	01	22	13	910	Slight, near			E	M	41	37																																																																																
			eS	23	47																																																																																									
	CHATRA	Z	eP	01	23	50		Slight																																																																																						
			i	29	16																																																																																									
	POONA	Z	iP	01	24	04	2040	Slight																																																																																						
		E	eS	27	26																																																																																									
			SS	27	47																																																																																									
			SSS	28	01																																																																																									
			Lr	28	15																																																																																									
			PcP	29	43																																																																																									
	SHILLONG	Z	iP	01	24	45		Slight rarefaction																																																																																						
	MADRAS	E	eP?	01	25	18	3050	Feeble																																																																																						
			PP	26	05																																																																																									
			eS?	29	58																																																																																									
			Lq	31	20																																																																																									
			SS	31	31																																																																																									
			ScP	31	41																																																																																									
			Lr	32	45																																																																																									
			M	35	02																																																																																									





DATE	STATION	COMPT	PHASE	G h	M m	T s	△ km	REMARKS	DATE	STATION	COMPT	PHASE	G h	M m	T s	△ km	REMARKS
May 1957																	
23	HYDERABAD Contd	E	M	09	26	03		Per. 9 secs $\mu = 2$	26	POONA Contd	E	PS PPS SS ScS Lq SSS Lr Mn	06 48 48 10 50 58 51 09 51 33 51 47 53 23 07 03				
24	POONA	Z E	iP PP PPP iS SS SSS Lr M PcS	02	57	15 27 33 35 59 11 29 03 03 04 59	2000	Slight		HYDERABAD Contd	E	iP PcP PP PPP PcS iS PS PPS SS Lq Lr M	06 42 38 43 43 50 49 08 49 23 51 47 52 41 55 17 59 38	5170		Initial ground movement towards West	
	CHATRA	Z	i	02	57	24		Slight, distant		CHATRA	Z E	iP iP iS	06 42 49 18	5490			
	SHILLONG	Z	iP	02	57	29		Slight rarefaction		BOKARO	N N	E iP PP PPP iS SS Lq Lr M	06 42 16 44 02 44 55 49 13 52 40 53 25 55 59 55	5310		Initial ground movement towards South	
	COLOMBO	E	P	02	57	52											
	BOMBAY	N <sub>2</sub> E E	e e	03	00	20 26		Distant and deep									Per. 21 secs $\mu = 506$
	DEHRA DUN	N <sub>2</sub> E	e	03	00	46		Feeble		CHATRA	Z	iP iP	06 42 11	5490			
24	CHATRA	Z	e	03	10	21		Feeble near									
24	SHILLONG	Z	iP	03	48	20		Slight compression									
	POONA	Z	iP	03	49	42		Tremor									
24	SHILLONG	Z	e	04	23	10		Tremor									
	HYDERABAD	E	M	04	24	07		Per. 18 secs $\mu = 5$									Per. 19 secs $\mu = 474$
	COLOMBO	E	L M	04	32 34	40		Amp. 0.1 mm		KODAIKANAL	E	iP PP PPP S PPS SS SSS Lr M	06 42 36 44 30 45 33 49 51 50 09 53 18 54 51 57 15 07 01 21	5630		Initial ground movement towards West	
24	SHILLONG	Z	eP	07	03	03		Slight rarefaction									
24	SHILLONG	Z	iP	10	23	58		Slight compression									
24	SHILLONG	Z	iP	10	16	43		Slight compression									Per. 15 secs $\mu = 48$
24	DEHRA DUN	N E	e	15	51	54		Tremor		MADRAS	E	iP PcP PP PPP ScP iS PS PPS ScS SS Lq Lr	06 42 36 43 44 44 33 45 38 47 29 49 51 49 57 50 07 52 04 53 18 55 03 57 33	5630		Initial ground movement towards West	
24	SHILLONG	Z	iP	17	19	36		Slight rarefaction									
24	SHILLONG	Z	iP	18	46	22		Slight rarefaction									
24	SHILLONG	Z	iP	22	13	00		Slight compression									
25	DEHRA DUN	N E	e	01	18	58		Tremor									
25	SHILLONG	Z	iP	14	44	11		Slight rarefaction		SHILLONG	Z, N, E N	iP PcP PP PPP PcS E iS PS SS Lq/SSS M	06 42 44 43 47 44 51 45 49 47 47 50 07 50 17 53 48 55 10 57 48	5780		First movement East and South	
25	SHILLONG	Z	iP	22	33	05		Slight compression									
26	SHILLONG	Z	iP	00	05	27		Slight rarefaction									
26	SHILLONG	Z	iP	00	45	32		Slight rarefaction									Per. 18 secs $\mu = 425$
26	SHILLONG	Z	eP	04	28	36		Slight		COLOMBO	E	P S L M	06 43 06 50 31 07 02 36 09 21	5810		Amp. 17.0 mm	
26	Epc 41°N, 31°E Bolu Praince Turkey H = 06h 31m 33s (Shillong) H = 06h 31m 31s (U.S.C.G.S) Mag: 7.5 (Shillong), 7 (Pasadena) 53 persons killed, 70 injured and major property damage									PORT BLAIR	N	iP	06	43	48		
	DEHRA DUN	N <sub>2</sub> E	eP PP PPP iS SS SSS Lr M	06	41	03 42 37 42 57 46 57 49 49 50 30 51 58 54 58	4230			BOMBAY	N E	M M	07 06 03 07 11				Moderate. Per. 17 secs $\mu = 70$ Per. 23 secs $\mu = 242$
	POONA	Z E	iP PP PPP PcS iS	06	41	32 43 15 43 44 46 55 47 55	4720		26	SHILLONG	Z	iP	09	04	00		Slight compression
								Per. 17 secs $\mu = 27.6$	26	SHILLONG	Z	iP	09	22	54		Slight rarefaction
									26	SHILLONG	Z	iP	09	25	43		Slight rarefaction
									26	Epc 41°N, 31°E Turkey aftershock H = 09h 36m 33s (U.S.C.G.S)							



DATE	STATION	COMPT	PHASE	G	M	T	Δ	REMARKS	DATE	STATION	COMPT	PHASE	G	M	T	Δ	REMARKS
				h.	m.	s.	km		May 1957				h.	m.	s.	km	
29	CHATRA Contd.	Z	iP iS	06	09	40	600	Slight	31	DEHRA DUN	N, E	e	02	35	05		Feeble
29	CHATRA	Z	iP iS	06	53	01	230	Feeble		CHATRA	Z	iP i	02	35	18		Slight
29	SHILLONG	Z	e	07	59	21		Tremor		SHILLONG	Z	iP	02	35	22		Slight, distant rarefaction
29	CHATRA	Z	i	18	48	40		Feeble	31	SHILLONG	Z	iP	03	22	20		Feeble, distant compression
	SHILLONG	Z	iP	18	49	07		Slight compression	31	SHILLONG	Z	iP	16	31	18		Feeble distant compression
29	SHILLONG	Z	iP	21	39	07		Slight rarefaction	31	CHATRA	Z	i	22	17	22		Feeble, distant
30	SHILLONG	Z	iP	03	26	37		Slight rarefaction		SHILLONG	Z	iP	22	17	26		Slight, distant compression
30	SHILLONG	Z	eP	09	13	26		Slight compression	31	Epc 51°N H : 22h 17m	179½°W 10s (U. S. C G S)	Andeanof Islands Region					
30	SHILLONG	Z	e	10	46	49		Tremor		SHILLONG	Z, N, E N, E	iP iS	22	28	20	7780	Slight, other phases not clear
30	SHILLONG	Z	iP i	11	55	04		Slight, near compression		CHATRA	Z	i	22	28	35		Feeble
30	SHILLONG	Z	iP	13	17	09		Slight rarefaction		DEHRA DUN	N, E	e	22	28	52		Slight, Phases not clear
30	SHILLONG	Z	iP	13	34	10		Slight rarefaction		POONA	Z N	eP eS	22	29	52	9490	Slight
30	SHILLONG	Z	iP	18	12	26		Slight compression		HYDERABAD	N	e M	22	40	03		Per. 15 secs L = 4
30	SHILLONG	Z	iP	19	57	40		Slight compression			E	M		10	03		Per. 11 secs L = 2
30	SHILLONG	Z	e	21	11	02		Tremor									
30	SHILLONG	Z	iP	21	39	40		Slight compression									
30	SHILLONG	Z	iP	21	43	25		Slight rarefaction		BOMBAY	E	e	22	40	32		Very slight

*Earthquake Reports*  
(Non-Instrumental reports)

The following is the list of Earthquakes that were reported by Voluntary Observers from different stations during the month of May 1957

PLACE	DATE IN G. M. T	TIME IN G. M. T h m	NO. OF SHOCKS	DURATION OF SHOCKS in secs.	INTENSITY IN R. F. SCALE	REMARKS
Gulmarg	1	Between 1900 hrs and 1930 hrs	2			
Shillong	22	12 20	3		IV	
Pasighat	28	05 35	2	20	IV	
Rowriah (Jorhat)	28	05 48	-	40	V	
North Lakhim- pur	28	05 50	3	7	V	
Bindukuri	28	05 57	3	20		
Dibrugrah	28	05 55	1	5	V	
Lumding	28	05 53	1	15	V	
Dhubri	28	05 54	1	20	IV	
Tezpur	28	05 53	1	3	III	
Gauhati	28	05 53	2	10	IV	
Kohima	28	06 00	-	1	III	
Mazbat	28	05 54	-	20	V	

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GOVERNMENT OF INDIA  
METEOROLOGICAL DEPARTMENT

SEISMOLOGICAL BULLETIN



Published under the direction of  
*Shri S. Basu, M.Sc., F.N.I.,*  
Director General of Observatories

## List of Seismograph stations with their instruments and constants

| Station     | Latitude  | Longitude | Height<br>a. s. l.<br>(Metres) | Lithographic<br>foundation                         | Instrument                | Comp. | Period<br>in<br>secs    | Static<br>Magni-<br>fication | Damping<br>ratio | Paper<br>speed<br>mm/min |
|-------------|-----------|-----------|--------------------------------|----------------------------------------------------|---------------------------|-------|-------------------------|------------------------------|------------------|--------------------------|
| Bombay      | 19° 54' N | 72° 49' E | 6                              | Deccan Trap                                        | Milne-Shaw                | N     | 12                      | 350                          | 13:1             | 15                       |
|             |           |           |                                |                                                    | Milne-Shaw                | E     | 12                      | 350                          | 23:1             | 8                        |
|             |           |           |                                |                                                    | Spreng-<br>nether         | E     | To = Tg = 7 secs        |                              | 30               |                          |
| Lokaro      | 23° 50' N | 85° 48' E | -                              | Rock                                               | Milne-Shaw                | N     | 12                      | 250                          | 20:1             | 16                       |
|             |           |           |                                |                                                    | Milne-Shaw                | E     | 12                      | 250                          | 20:1             | 16                       |
|             |           |           |                                |                                                    | Wood-Ander-<br>son        | E     | 0.8                     | 960                          | h=0.8            | 30                       |
|             |           |           |                                |                                                    | Wood-Ander-<br>son        | N     | 0.8                     | 1000                         | h=0.8            | 60                       |
| Calcutta    | 22° 32' N | 88° 22' E | (1) 7<br>(2) 6                 | (Milne-Shaw)<br>(Omori-Ewing)<br>Alluvium          | Milne-Shaw                | E     | 12                      | 250                          | 20:1             | 8                        |
|             |           |           |                                |                                                    | Wood-Ander-<br>son        | N     | 2                       | 870                          | Critical         | 30                       |
|             |           |           |                                |                                                    | Omori-Ewing               | N     | 16                      | 32                           | -                | 25.4                     |
|             |           |           |                                |                                                    | Omori-Ewing               | E     | 21                      | 30                           | -                | 25.4                     |
| Chatra      | 26° 50' N | 87° 10' E | 161                            | Sand Stone                                         | Milne-Shaw                | E     | 12                      | 250                          | 20:1             | 16                       |
|             |           |           |                                |                                                    | Wood-Ander-<br>son        | N     | 1                       | 1000                         | 30:1             | 60                       |
|             |           |           |                                |                                                    | Benioff                   | Z     | To=0.72 Tg=0.45<br>secs |                              | Cri-<br>tical    | 60                       |
|             |           |           |                                |                                                    | Wenner-Ac-<br>celerograph | ZNE   | -                       | -                            | -                | -                        |
| Colombo     | 06° 54' N | 79° 52' E | 7                              | Beach Sand                                         | Milne-Shaw                | E     | 12                      | 250                          | 20:1             | -                        |
| Dehra Dun   | 30° 19' N | 78° 02' E | 682                            | Gravel                                             | Wood-Ander-<br>son        | N     | 0.8                     | 950                          | Critical         | 60                       |
|             |           |           |                                |                                                    | Wood-Ander-<br>son        | E     | 0.8                     | 850                          | Critical         | 60                       |
|             |           |           |                                |                                                    | Milne-Shaw                | N     | 12                      | 250                          | 20:1             | 8                        |
|             |           |           |                                |                                                    | Milne-Shaw                | E     | 12                      | 250                          | 20:1             | 8                        |
| Hyderabad   | 17° 26' N | 78° 27' E | 536                            | Granite                                            | Milne-Shaw                | E     | 12                      | 250                          | 20:1             | 8                        |
|             |           |           |                                |                                                    | Milne-Shaw                | N     | 12                      | 250                          | 20:1             | 8                        |
| Kodaikanal  | 10° 14' N | 77° 28' E | 2346                           | Rock                                               | Milne-Shaw                | E     | 10                      | 250                          | 20:1             | 8                        |
| Madras      | 13° 00' N | 80° 11' E | 15                             | -                                                  | Spreng-<br>nether         | E     | To=Tg=72 secs           |                              | Critical         | 30                       |
| New Delhi   | 28° 35' N | 77° 12' E | 207                            | Massive Quartzite                                  | -                         | -     | -                       | -                            | -                | -                        |
| Poona       | 18° 32' N | 73° 51' E | 560                            | Deccan Trap                                        | Spreng-<br>nether         | Z     | To=Tg=1.6               |                              | Critical         | 30                       |
|             |           |           |                                |                                                    | Wood-Ander-<br>son        | E     | 4                       | 1000                         | 20:1             | 16                       |
|             |           |           |                                |                                                    | Milne-Shaw                | N     | 12                      | 280                          | 20:1             | 8                        |
| Port Blair  | 11° 40' N | 92° 43' E | -                              | -                                                  | Wood-Ander-<br>son        | N     | 2                       | 1000                         | 20:1             | 30                       |
|             |           |           |                                |                                                    | Wood-Ander-<br>son        | E     | 0.8                     | 1000                         | 66:1             | 30                       |
|             |           |           |                                |                                                    | Milne-Shaw                | N     | 12                      | 350                          | 20:1             | 8                        |
| Shillong    | 25° 34' N | 91° 53' E | 1600                           | Quartzite<br>Sand Stone<br>(Shillong<br>Quartzite) | Wood-Ander-<br>son        | N     | 0.8                     | 1000                         | h=0.8            | 30                       |
|             |           |           |                                |                                                    | Wood-Ander-<br>son        | E     | 0.8                     | 1000                         | h=0.8            | 30                       |
|             |           |           |                                |                                                    | Milne-Shaw                | N     | 12                      | 250                          | 20:1             | 8                        |
|             |           |           |                                |                                                    | Benioff                   | Z     | To=1.0 Tg=0.18          |                              | -                | 60                       |
|             |           |           |                                |                                                    | Spreng-<br>nether         | E     | To=Tg=6.5               |                              | Critical         | 30                       |
| Tocklai     | 28° 45' N | 94° 46' E | -                              | Alluvium                                           | Wenner Acce-<br>lerograph | ZNE   | -                       | -                            | -                | -                        |
|             |           |           |                                |                                                    | Wood-Ander-<br>son        | E     | 0.8                     | 970                          | h=0.8            | 60                       |
| Vizianagram | 18° 07' N | 83° 27' E | -                              | -                                                  | Wood-Ander-<br>son        | E     | 0.8                     | 1000                         | h=0.8            | 30                       |
|             |           |           |                                |                                                    | Wood-Ander-<br>son        | N     | 2                       | 1000                         | 20:1             | 30                       |

| DATE | STATION                                                                             | COMPT | PHASE | G M T |     |      |      | REMARKS                | LATE | STATION                                                                                                                     | COMPT | PHASE | G M T |    |    |                         | REMARKS |
|------|-------------------------------------------------------------------------------------|-------|-------|-------|-----|------|------|------------------------|------|-----------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|----|----|-------------------------|---------|
|      |                                                                                     |       |       | h     | m   | s    | km   |                        |      |                                                                                                                             |       |       | h     | m  | s  | km                      |         |
|      |                                                                                     |       |       |       |     |      |      | April 1957             |      |                                                                                                                             |       |       |       |    |    |                         |         |
| 01   | SHILLONG                                                                            | Z     | iP    | 07    | 37  | 16   |      | Slight compression     | 02   | SHILLONG                                                                                                                    | Z     | eP    | 06    | 23 | 22 | Slight                  |         |
|      | CHATRA                                                                              | Z     | e     | 07    | 37  | 52   |      | Feeble near            | 02   | SHILLONG                                                                                                                    | Z     | eP    | 08    | 40 | 03 | Slight                  |         |
| 01   | Epc 4½°N 129°E H 07h 54m 20s (U S C G S)                                            |       |       | h     | 100 | KmCa |      |                        |      | CHATRA                                                                                                                      | Z     | iP    | 08    | 40 | 34 | Slight                  |         |
|      | SHILLONG                                                                            | Z E   | iP    | 08    | 02  | 00   |      | Slight                 |      | POONA                                                                                                                       | Z     | iP    | 08    | 42 | 20 | Feeble                  |         |
|      | CHATRA                                                                              | Z     | iP    | 08    | 02  | 33   |      | Feeble                 | 02   | SHILLONG                                                                                                                    | Z     | eP    | 17    | 36 | 08 | Slight                  |         |
|      | POONA                                                                               | Z     | i     | 08    | 03  | 48   |      | Feeble                 | 02   | Epc 51½°N 173°W In the Aleutians H 20h 16m 57s (U S C G S) Mag. 6.3 (Uppsala Kiruna)                                        |       |       |       |    |    |                         |         |
| 01   | Epc 51°N 173°W In the Aleutians H 11h 35m 30s (U S C G S) Mag. 6.1 (Uppsala Kiruna) |       |       |       |     |      |      |                        |      | SHILLONG                                                                                                                    | Z E   | iP    | 20    | 28 | 34 | 8130                    |         |
|      | SHILLONG                                                                            | Z     | eP    | 11    | 47  | 07   |      |                        |      |                                                                                                                             | E     | iS    |       | 38 | 02 |                         |         |
|      | CHATRA                                                                              | Z     | eP    | 11    | 47  | 17   |      |                        |      | DEHRA DUN                                                                                                                   | N E   | e     | 20    | 29 | 06 | Phases not clear        |         |
|      | DEHRA DUN                                                                           | N E   | e(P)  | 11    | 47  | 32   | 8570 | Other phases not clear |      | POONA                                                                                                                       | Z     | iP    | 20    | 29 | 55 |                         |         |
|      | POONA                                                                               | Z     | iP    | 11    | 48  | 30   |      |                        |      |                                                                                                                             | E     | e     |       | 40 | 48 |                         |         |
|      | BOMBAY                                                                              | N E   | eP    | 11    | 48  | 33   | 9930 |                        |      | LOMBAY                                                                                                                      | N E   | eP    | 20    | 30 | 04 | 9930                    |         |
|      | SHILLONG                                                                            | Z     | eP    | 11    | 54  | 25   |      | Slight                 |      | LOKARO                                                                                                                      | N E   | i     | 20    | 38 | 59 |                         |         |
|      | HYDERABAD                                                                           | N     | M     | 12    | 22  | 20   |      | Peri. 18 secs          | 02   | SHILLONG                                                                                                                    | Z     | iP    | 20    | 50 | 37 | Slight                  |         |
|      |                                                                                     | E     | M     |       | 22  | 25   |      | Peri. 18 secs          | 02   | HYDERABAD                                                                                                                   | N E   | e     | 21    | 03 | 34 |                         |         |
| 01   | SHILLONG                                                                            | Z     | eP    | 15    | 14  | 52   |      | Feeble                 |      |                                                                                                                             | E     | e     |       | 03 | 34 |                         |         |
| 01   | DEHRA DUN                                                                           | N E   | e     | 17    | 03  | 27   |      | Feeble                 |      | SHILLONG                                                                                                                    | Z     | iP    | 21    | 39 | 27 | Slight                  |         |
|      | CHATRA                                                                              | Z     | eP    | 17    | 04  | 45   |      | Feeble                 |      | DEHRA DUN                                                                                                                   | N E   | e     | 21    | 39 | 53 | Feeble                  |         |
|      | SHILLONG                                                                            | Z     | eP    | 17    | 05  | 38   |      | Slight                 |      |                                                                                                                             | i     |       |       | 40 | 43 |                         |         |
|      | POONA                                                                               | Z     | e     | 17    | 08  | 37   |      | Feeble                 |      | POONA                                                                                                                       | Z     | iP    | 21    | 40 | 57 | 9890                    |         |
|      | BOMBAY                                                                              | N E   | e     | 17    | 10  | 10   |      | Very slight            |      |                                                                                                                             | E     | eS    |       | 51 | 43 | Slight                  |         |
| 01   | CHATRA                                                                              | Z     | ePg   | 19    | 04  | 42   | 140  | Feeble                 |      | BOMBAY                                                                                                                      | N E   | eP    | 21    | 40 | 59 | 9930                    |         |
|      |                                                                                     |       | eSg   |       | 05  | 00   |      |                        |      |                                                                                                                             | E     | eS    |       | 51 | 48 | Slight                  |         |
| 01   | SHILLONG                                                                            | Z     | iP    | 19    | 15  | 57   |      | Slight rarefaction     | 03   | BOMBAY                                                                                                                      | E     | e     | 01    | 33 | 14 | Slight                  |         |
| 01   | SHILLONG                                                                            | Z     | iP    | 20    | 15  | 14   |      | Slight                 |      |                                                                                                                             | e     |       |       | 38 | 36 |                         |         |
| 01   | SHILLONG                                                                            | Z     | iP    | 20    | 57  | 23   |      | Slight rarefaction     | 03   | POONA                                                                                                                       | Z     | iP    | 01    | 38 | 40 | Feeble Phases not clear |         |
| 02   | Epc 51°N 173°W In the Aleutians H 00h 39m 42s (U S C G S) Mag. 6.3 (Uppsala Kiruna) |       |       |       |     |      |      |                        | 03   | SHILLONG                                                                                                                    | Z     | iP    | 02    | 43 | 16 | Slight                  |         |
|      | SHILLONG                                                                            | Z N E | iP    | 00    | 51  | 16   | 8220 |                        |      | CHATRA                                                                                                                      | Z     | eP    | 02    | 44 | 00 | Slight                  |         |
|      | CHATRA                                                                              | Z     | e     | 00    | 51  | 28   |      | Distant                |      | N E                                                                                                                         | i     |       |       | 45 | 40 |                         |         |
|      | DEHRA DUN                                                                           | N E   | e(P)  | 00    | 51  | 42   | 8630 | Other phases not clear | 03   | CHATRA                                                                                                                      | Z     | eP    | 10    | 31 | 17 | Slight                  |         |
|      | POONA                                                                               | Z     | iP    | 00    | 52  | 42   |      |                        |      |                                                                                                                             | i     |       |       | 31 | 51 |                         |         |
|      | BOMBAY                                                                              | E     | e     | 00    | 53  | 13   |      | Very slight            | 03   | SHILLONG                                                                                                                    | Z     | iP    | 17    | 00 | 46 | Slight                  |         |
| 02   | CHATRA                                                                              | E     | e     | 01    | 01  | 11   |      | Feeble distant         | 03   | SHILLONG                                                                                                                    | Z     | eP    | 18    | 30 | 07 | Slight                  |         |
| 02   | HYDERABAD                                                                           | N E   | e     | 01    | 26  | 47   |      |                        | 03   | SHILLONG                                                                                                                    | Z     | eP    | 22    | 18 | 13 | Slight                  |         |
| 02   | SHILLONG                                                                            | Z     | iP    | 02    | 54  | 19   |      | Slight                 | 03   | SHILLONG                                                                                                                    | Z     | eP    | 22    | 34 | 23 | Slight                  |         |
| 02   | SHILLONG                                                                            | Z     | eP    | 04    | 42  | 31   |      | Slight                 | 03   | SHILLONG                                                                                                                    | Z     | iP    | 23    | 20 | 37 | Slight                  |         |
| 02   | BOMBAY                                                                              | E     | e     | 04    | 47  | 38   |      | Very slight            | 04   | Epc 58°N 155½°W Near Coast of Alaska Peninsula H 00h 13m 08s (U S C G S) H 00h 12m 52s (B-C I.S.) Mag. 6.0 (Uppsala Kiruna) |       |       |       |    |    |                         |         |
|      |                                                                                     |       | e     |       | 52  | 12   |      |                        |      | CHATRA                                                                                                                      | Z     | i     | 00    | 22 | 10 | Feeble                  |         |
|      |                                                                                     |       | e     |       | 52  | 46   |      |                        |      | SHILLONG                                                                                                                    | Z     | iP    | 00    | 25 | 03 | Slight                  |         |
|      |                                                                                     |       | e     |       | 52  | 46   |      |                        |      | DEHRA DUN                                                                                                                   | N E   | e     | 00    | 25 | 13 | Feeble Phases not clear |         |
|      |                                                                                     |       | e     |       | 52  | 46   |      |                        |      |                                                                                                                             | i     |       |       | 35 | 19 |                         |         |
|      |                                                                                     |       | e     |       | 52  | 46   |      |                        |      | POONA                                                                                                                       | Z     | iP    | 00    | 26 | 13 | Slight                  |         |
|      |                                                                                     |       | e     |       | 52  | 46   |      |                        |      |                                                                                                                             | E     | e     |       | 37 | 10 |                         |         |
|      |                                                                                     |       | e     |       | 52  | 46   |      |                        |      | LOMBAY                                                                                                                      | E     | e     | 00    | 35 | 38 | Very slight             |         |
|      |                                                                                     |       | e     |       | 52  | 46   |      |                        |      |                                                                                                                             | e     |       |       | 37 | 10 |                         |         |





| DATE | STATION                                                                                                                                   | COMPT           | PHASE                                                                    | G  | M  | T  | km   | REMARKS                                    | DATE | STATION                                                                                                                                                                                        | COMPT           | PHASE                                   | G  | M  | T  | km   | REMARKS                                                           |  |  |  |  |
|------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------|----|----|----|------|--------------------------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------------------------|----|----|----|------|-------------------------------------------------------------------|--|--|--|--|
|      |                                                                                                                                           |                 |                                                                          | h  | m  | s  |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    | h  | m    | s                                                                 |  |  |  |  |
| 05   | CHATRA                                                                                                                                    | Z               | ePg<br>iSg                                                               | 13 | 41 | 56 | 20   | Feeble                                     | 08   | SHILLONG                                                                                                                                                                                       | Z               | eP                                      | 00 | 18 | 01 |      | Slight                                                            |  |  |  |  |
| 05   | DEHRA DUN                                                                                                                                 | N, E            | e                                                                        | 14 | 09 | 25 |      | Feeble                                     |      | CHATRA                                                                                                                                                                                         | Z               | e                                       | 00 | 18 | 13 |      | Feeble, near                                                      |  |  |  |  |
| 06   | DEHRA DUN                                                                                                                                 | N, E            | e                                                                        | 14 | 40 | 53 |      | Feeble                                     | 08   | SHILLONG                                                                                                                                                                                       | Z               | iP                                      | 00 | 18 | 19 |      | Slight                                                            |  |  |  |  |
| 06   | SHILLONG                                                                                                                                  | Z               | iP                                                                       | 14 | 41 | 04 |      | Slight                                     | 08   | CHATRA                                                                                                                                                                                         | Z               | iPg<br>iSg                              | 07 | 01 | 56 | 130  | Slight                                                            |  |  |  |  |
| 06   | SHILLONG                                                                                                                                  | Z               | iP                                                                       | 15 | 25 | 51 |      | Slight                                     |      |                                                                                                                                                                                                | Z E             |                                         | 07 | 03 |    |      |                                                                   |  |  |  |  |
| 06   | SHILLONG                                                                                                                                  | Z               | eP                                                                       | 16 | 15 | 13 |      | Slight                                     | 08   | DEHRA DUN                                                                                                                                                                                      | N, E            | e                                       | 00 | 18 | 12 |      | Feeble                                                            |  |  |  |  |
| 06   | SHILLONG                                                                                                                                  | Z               | iP                                                                       | 16 | 56 | 17 |      | Slight                                     | 08   | SHILLONG                                                                                                                                                                                       | Z               | iP                                      | 16 | 12 | 25 |      | Slight                                                            |  |  |  |  |
| 06   | SHILLONG                                                                                                                                  | Z               | iP                                                                       | 18 | 15 | 53 |      | Slight                                     | 08   | SHILLONG                                                                                                                                                                                       | Z               | eP                                      | 16 | 31 | 49 |      | Slight                                                            |  |  |  |  |
| 06   | SHILLONG                                                                                                                                  | Z               | iP                                                                       | 18 | 16 | 56 |      | Slight                                     | 08   | SHILLONG                                                                                                                                                                                       | Z               | eP                                      | 16 | 33 | 37 |      | Slight                                                            |  |  |  |  |
| 07   | SHILLONG                                                                                                                                  | Z               | iP                                                                       | 00 | 20 | 14 |      | Slight                                     | 08   | CHATRA                                                                                                                                                                                         | Z               | eP                                      | 17 | 09 | 31 |      | Feeble                                                            |  |  |  |  |
| 07   | SHILLONG                                                                                                                                  | Z               | iP                                                                       | 00 | 42 | 43 |      | Slight                                     |      |                                                                                                                                                                                                |                 |                                         | 17 | 09 | 31 |      |                                                                   |  |  |  |  |
| 07   | SHILLONG                                                                                                                                  | Z               | eP                                                                       | 07 | 45 | 13 |      | Slight                                     | 08   | POGNA                                                                                                                                                                                          | Z               | iP                                      | 20 | 37 | 48 |      | Feeble                                                            |  |  |  |  |
| 07   | SHILLONG                                                                                                                                  | Z               | eP                                                                       | 08 | 15 | 35 |      | Slight                                     |      | SHILLONG                                                                                                                                                                                       | Z               | iP                                      | 20 | 37 | 49 |      | Slight                                                            |  |  |  |  |
| 07   | CHATRA                                                                                                                                    | Z               | ePg<br>iSg                                                               | 09 | 43 | 10 | 100  | Feeble                                     | 08   | SHILLONG                                                                                                                                                                                       | Z               | eP                                      | 20 | 34 | 06 |      | Slight                                                            |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 43 | 24 |    |      |                                            | 08   | SHILLONG                                                                                                                                                                                       | Z               | iP                                      | 23 | 37 | 08 |      | Slight                                                            |  |  |  |  |
| 07   | SHILLONG                                                                                                                                  | Z               | iP                                                                       | 09 | 52 | 17 |      | Slight                                     | 08   | SHILLONG                                                                                                                                                                                       | Z               | eP                                      | 23 | 40 | 34 |      | Slight                                                            |  |  |  |  |
| 07   | CHATRA                                                                                                                                    | Z               | i                                                                        | 08 | 52 | 48 |      | Feeble near                                | 08   | SHILLONG                                                                                                                                                                                       | Z               | i                                       | 23 | 52 | 18 |      | Slight                                                            |  |  |  |  |
| 07   | SHILLONG                                                                                                                                  | Z               | eP                                                                       | 09 | 57 | 18 |      | Slight                                     | 09   | SHILLONG                                                                                                                                                                                       | Z               | eP                                      | 09 | 52 | 18 |      | Slight                                                            |  |  |  |  |
| 07   | Epic 29°S 138½°E Near North Coast of New Guinea<br>H = 10h 14m 08s (U S C G S)<br>Mag 6.4 (Uppsala, Kituna), 6.54 (Pasadena), 6.1 (Praha) |                 |                                                                          |    |    |    |      |                                            | 09   | Epic 29°N 139°E Off South Coast of Honshu Japan<br>H = 600 KmCa - H = 00h 24m 44s (Shillong)<br>30½°N 138½°E H = 450 KmCa<br>H = 00h 24m 39s (U S C G S)<br>Mag 6.4 (Pasadena), 6.4 (Berkeley) |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      | SHILLONG                                                                                                                                  | Z, N, E<br>N, E | iP<br>iS                                                                 | 10 | 23 | 13 | 5620 |                                            |      | SHILLONG                                                                                                                                                                                       | Z, N, E<br>N, E | iP<br>pP<br>sP<br>iS<br>sS<br>SS<br>M   | 00 | 31 | 44 | 3970 | Rarefaction<br>Initial ground<br>motion towards<br>North and East |  |  |  |  |
|      | BOKARO                                                                                                                                    | N, E            | i<br>i                                                                   | 10 | 23 | 42 |      | Phases not<br>clear                        |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      | CHATRA                                                                                                                                    | Z               |                                                                          | 10 | 23 | 47 |      | Distant                                    |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      | COLOMBO                                                                                                                                   | E               | P<br>S<br>L<br>M                                                         | 10 | 24 | 03 | 6230 |                                            |      | CHATRA                                                                                                                                                                                         | Z<br>E          | iP<br>iS                                | 00 | 32 | 15 | 4400 | Per = 15 secs<br>Amp = 1 mm                                       |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 31 | 59 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 45 | 13 |    |      | Amp 0.4 mm                                 |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      | MADRAS                                                                                                                                    | E               | eP<br>PcP<br>PPP<br>eS<br>PPS<br>e<br>SSS                                | 10 | 24 | 04 | 6450 |                                            |      | BOKARO                                                                                                                                                                                         | N, E<br>N       | iP<br>pP<br>PPP<br>iS<br>SS<br>sS<br>Lr | 00 | 32 | 33 | 4590 | Initial ground<br>motion towards<br>North and East                |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 24 | 39 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 27 | 39 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 32 | 04 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 32 | 37 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 34 | 13 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 38 | 24 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      | HYDERABAD                                                                                                                                 | E               | iP<br>PcP<br>PPP<br>PcS<br>iS<br>PS<br>ScS<br>SS<br>SSS<br>Lq<br>Lr<br>M | 10 | 24 | 20 | 6770 | Initial ground<br>movement<br>towards West |      | DEHRA DUN                                                                                                                                                                                      | N, E<br>N       | eP<br>iS<br>PS<br>SS<br>Lq<br>M         | 00 | 33 | 05 | 5130 |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 25 | 05 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 28 | 05 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 29 | 08 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 32 | 38 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 32 | 53 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 33 | 58 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 36 | 50 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 38 | 53 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 39 | 44 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 42 | 05 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 47 | 42 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      | KODAIKANAL                                                                                                                                | E               | iP<br>eS                                                                 | 10 | 24 | 21 | 6800 | Initial ground<br>motion towards<br>West   |      | HYDERABAD                                                                                                                                                                                      | N, E            | iP<br>PcP<br>PP<br>iS<br>PS<br>e<br>ScS | 00 | 33 | 35 | 5570 | Initial ground<br>motion towards<br>North and East                |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 32 | 40 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      | DEHRA DUN                                                                                                                                 | N, E            | e                                                                        | 10 | 24 | 47 |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      | POONA                                                                                                                                     | Z               | iP<br>PcP<br>PP<br>PPP<br>eS<br>PPS<br>ScS                               | 10 | 24 | 53 | 7140 |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 25 | 19 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 27 | 15 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 28 | 47 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           | N, E            |                                                                          | 33 | 31 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 34 | 02 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 34 | 29 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      | BOMBAY                                                                                                                                    | N, E            | eP<br>e                                                                  | 10 | 24 | 59 |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      |                                                                                                                                           |                 |                                                                          | 33 | 46 |    |      |                                            |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |
|      | SHILLONG                                                                                                                                  | Z               | iP                                                                       | 13 | 53 | 55 |      | Slight                                     |      | MADRAS                                                                                                                                                                                         | E               | iP<br>PP<br>eS<br>i                     | 00 | 33 | 41 | 5590 | Initial ground<br>motion towards<br>East                          |  |  |  |  |
|      | SHILLONG                                                                                                                                  | Z               | iP                                                                       | 22 | 50 | 34 |      | Slight                                     |      |                                                                                                                                                                                                |                 |                                         |    |    |    |      |                                                                   |  |  |  |  |

|                                               |     |       |          |                                                   |                                             |       |          |          |       |                                              |
|-----------------------------------------------|-----|-------|----------|---------------------------------------------------|---------------------------------------------|-------|----------|----------|-------|----------------------------------------------|
| MADRAS                                        | E   | ScS   | 00 42 38 |                                                   | 09 SHILLONG                                 | Z     | iP       | 16 10 08 |       | Slight                                       |
| Contd.                                        |     | i     | 43 45    |                                                   | 09 SHILLONG                                 | Z     | iP       | 17 51 28 |       | Slight rarefaction                           |
|                                               |     | SSS   | 46 08    |                                                   |                                             |       |          |          |       |                                              |
|                                               |     | M     | 52 05    |                                                   | 09 Epc. 52½°N, 169°W. In the Aleutians      |       |          |          |       |                                              |
| COLOMBO                                       | E   | P     | 00 33 59 | 5970                                              | - H = 20h 23m 56s (U.S.C.G.S)               |       |          |          |       |                                              |
|                                               |     | S     | 41 32    |                                                   | SHILLONG                                    | Z     | iP       | 20 35 40 |       | Slight compression                           |
| POONA                                         | Z   | iP    | 00 33 59 |                                                   | DEHRA DUN                                   | N,E   | e        | 20 36 12 |       | Slight, phases not clear                     |
|                                               | E   | PcP   | 34 42    |                                                   |                                             |       | i        | 46 26    |       |                                              |
|                                               |     | PP    | 36 03    | PPP 37m 19s                                       | POONA                                       | Z     | iP       | 20 37 01 | 10140 | Slight                                       |
|                                               |     | PcS   | 38 25    |                                                   |                                             | E     | eS       | 47 58    |       |                                              |
|                                               |     | iS    | 41 32    |                                                   | HYDERABAD                                   | E     | M        | 21 17 14 |       | Per. = 12 secs                               |
|                                               |     | PS    | 41 45    |                                                   |                                             | N     | M        | 17 38    |       | Per. = 15 secs                               |
|                                               |     | ScS   | 43 02    |                                                   |                                             |       |          |          |       | L = 4                                        |
|                                               |     | SS    | 45 10    |                                                   |                                             |       |          |          |       |                                              |
|                                               |     | Lq    | 47 46    |                                                   | 09 SHILLONG                                 | Z     | eP       | 21 45 13 | 70    | Feeble                                       |
|                                               |     | Lr    | 50 34    |                                                   |                                             |       | Sg       | 45 20    |       |                                              |
| BOMBAY                                        | N,E | iP    | 00 34 05 | 6080                                              | 09 SHILLONG                                 | Z     | iP       | 22 23 39 |       | Slight distant Compression                   |
|                                               | E   | PP    | 35 37    |                                                   | 09 SHILLONG                                 | Z     | iP       | 22 45 16 |       | Slight, distant Compression                  |
|                                               |     | iS    | 41 44    |                                                   | 09 SHILLONG                                 | Z     | iP       | 23 00 52 |       | Slight, distant Compression                  |
|                                               |     | SS    | 44 26    |                                                   | 10 SHILLONG                                 | Z     | iP       | 01 30 07 |       | Slight, local                                |
| 09 Epc. 22½°N, 144½°E. Mariana Islands Region |     |       |          |                                                   | 10 SHILLONG                                 | Z     | iP       | 03 37 08 |       | Slight, distant Compression                  |
| - H = 02h 17m 06s (U.S.C.G.S)                 |     |       |          |                                                   | POONA                                       | Z     | iP       | 03 38 28 |       | Very feeble                                  |
| Mag: 5.7 (Roma), 5¼ (Praha)                   |     |       |          |                                                   | BOMBAY                                      | N,N,E | eP       | 03 38 29 | 10030 | Slight                                       |
| SHILLONG                                      | Z   | iP    | 02 25 48 | Rarefaction                                       |                                             | N,E   | eS       | 49 22    |       |                                              |
| POONA                                         | Z   | iP    | 02 27 57 | 7060                                              | 10 BOMBAY                                   | N,E   | e        | 05 31 45 |       | Slight, distant                              |
|                                               | E   | iS    | 36 40    |                                                   |                                             | E     | e        | 32 58    |       |                                              |
| BOMBAY                                        | N,E | e     | 02 36 53 |                                                   |                                             | N     | e        | 38 15    |       |                                              |
|                                               |     | e     | 37 11    |                                                   | POONA                                       | Z     | iP       | 05 31 48 |       | Feeble                                       |
| CHATRA                                        | Z   | e     | 02 41 20 | Distant                                           | HYDERABAD                                   | N     | e        | 05 31 54 |       | Per. = 18 secs                               |
| 09 SHILLONG                                   | Z   | iP    | 07 09 36 | Slight, local                                     |                                             | M     | 06 26 48 |          | L = 8 |                                              |
| 09 SHILLONG                                   | Z   | iP    | 07 51 31 | Slight compression                                | 10 SHILLONG                                 | Z,E   | iP       | 09 20 43 | 7930  | Slight, distant Rarefaction                  |
| 09 SHILLONG                                   | Z   | iP    | 10 10 44 | Slight                                            |                                             | N,E   | iS       | 30 01    |       |                                              |
| CHATRA                                        | Z   | e     | 10 10 57 | Feeble, distant                                   | CHATRA                                      | Z     | i        | 09 20 53 |       | Feeble, distant                              |
| 09 SHILLONG                                   | Z   | iP    | 10 42 34 | Slight rarefaction                                | POONA                                       | Z     | iP       | 09 22 10 |       | Tremor                                       |
| 09 CHATRA                                     | Z   | i     | 10 43 04 | Feeble, near                                      | BOKARO                                      | N,E   | e        | 09 30 57 |       | Tremor                                       |
|                                               | E   | e     | 43 07    |                                                   | HYDERABAD                                   | N     | e        | 09 32 30 |       | Per. = 18 secs                               |
| 09 Epc. 51½°N, 178½°W. In the Aleutians       |     |       |          |                                                   |                                             | M     | 59 57    |          | L = 5 |                                              |
| - H = 11h 02m 09s (U.S.C.G.S)                 |     |       |          |                                                   | 10 Epc. 54.5°N, 153°W Kodiak Islands Region |       |          |          |       |                                              |
| Mag: 6.1 (Kew), 6.0 (Uppsala, Kiruna)         |     |       |          |                                                   | - H = 11h 29m 54s (Shillong)                |       |          |          |       |                                              |
| SHILLONG                                      | Z   | eP    | 11 13 25 | 7830                                              | 56°N, 154°W - H = 11h 29m 58s (U.S.C.G.S)   |       |          |          |       |                                              |
|                                               | N,E | iS    | 22 37    |                                                   | Mag: 7 (Pasadena), 7¼ (Berkeley)            |       |          |          |       |                                              |
| CHATRA                                        | Z   | e     | 11 13 38 | Distant                                           | SHILLONG                                    | Z,N,E | iP       | 11 42 17 | 9130  | Initial ground motion towards South and West |
|                                               |     | e     | 23 07    |                                                   |                                             | N,E   | PP       | 45 12    |       |                                              |
| DEHRA DUN                                     | N,E | eP    | 11 14 00 | 8130 Phases not clear                             |                                             |       | PPP      | 47 14    |       |                                              |
|                                               |     | eS    | 23 28    |                                                   |                                             |       | iS       | 52 32    |       |                                              |
| HYDERABAD                                     | N,E | iP    | 11 14 52 | 9170 Initial ground motion towards North and East |                                             |       | SKS      | 52 40    |       |                                              |
|                                               |     | PP    | 18 08    |                                                   |                                             |       | PS       | 53 21    |       |                                              |
|                                               |     | iS    | 25 09    |                                                   |                                             |       | PPS      | 53 37    |       |                                              |
|                                               | N   | ScS   | 25 34    |                                                   |                                             |       | SS       | 57 57    |       |                                              |
|                                               | N,E | PPS   | 26 39    |                                                   |                                             |       | SSS      | 12 01 17 |       |                                              |
|                                               | N   | SS    | 30 28    |                                                   |                                             |       | Lq       | 03 41    |       |                                              |
|                                               | N   | PKKS1 | 36 13    | Per. = 15 secs                                    |                                             |       | Lr       | 07 35    |       |                                              |
|                                               |     | M     | 47 37    | L = 5                                             |                                             |       | M        | 13 35    |       | Per. = 25 secs                               |
|                                               | E   | M     | 48 07    | Per. = 16 secs                                    |                                             |       |          |          |       | Amp = 18.5 mm                                |
|                                               |     |       |          | L = 4                                             |                                             |       |          |          |       |                                              |
| POONA                                         | Z   | iP    | 11 14 55 | 9490                                              | CHATRA                                      | Z     | iP       | 11 42 23 |       |                                              |
|                                               | E   | eS    | 25 30    |                                                   |                                             | E     | eP       | 11 42 23 |       |                                              |
| BOMBAY                                        | N,E | eP    | 11 15 04 |                                                   | DEHRA DUN                                   | N,E   | eP       | 11 42 27 | 9240  |                                              |
|                                               |     | e     | 25 33    |                                                   |                                             | N     | PP       | 45 38    |       |                                              |
|                                               | N   | M     | 51 --    |                                                   |                                             |       | PPP      | 47 40    |       |                                              |
| BOKARO                                        | N,E | i     | 11 23 38 |                                                   |                                             |       | iS       | 52 47    |       |                                              |
| COLOMBO                                       | E   | S     | 11 25 53 |                                                   |                                             |       | PS       | 54 00    |       |                                              |
|                                               |     | L     | 57 01    |                                                   |                                             |       | SS       | 58 17    |       |                                              |
|                                               |     | M     | 12 02 36 |                                                   |                                             |       | SSS      | 12 03 17 |       |                                              |
| 09 SHILLONG                                   | Z   | iP    | 14 22 55 | Slight Compression                                |                                             |       | Lr       | 09 22    |       |                                              |
| 09 CHATRA                                     | Z   | iP    | 16 09 49 | Slight                                            |                                             |       | M        | 16 41    |       | Per. = 15 secs                               |
|                                               | E   | eP    | 10 12    |                                                   |                                             |       |          |          |       | L = 123                                      |
|                                               |     | i     | 10 12    |                                                   |                                             |       |          |          |       |                                              |





| Station                                                                                                                                                               | Time                   | Mag                                                                                                 | Dir | Depth | Origin                                                                                           | Station                                                                | Time                 | Mag                                                        | Dir                                                                                       | Depth | Origin                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------|-----|-------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|----------------------|------------------------------------------------------------|-------------------------------------------------------------------------------------------|-------|----------------------------------------------|
| 15 POONA                                                                                                                                                              | Z<br>E<br>e<br>e       | 02 54 31<br>56 54<br>58 21                                                                          |     |       |                                                                                                  |                                                                        |                      |                                                            |                                                                                           |       |                                              |
| BOMBAY                                                                                                                                                                | N<br>e<br>e            | 02 57 07<br>59 03                                                                                   |     |       | Slight                                                                                           |                                                                        |                      |                                                            |                                                                                           |       |                                              |
| MADRAS                                                                                                                                                                | E<br>eP<br>e<br>e<br>e | 02 58 04<br>59 45<br>03 01 13<br>00 42                                                              |     |       | Feeble                                                                                           | BOKARO                                                                 | N E<br>N             | iP<br>PP<br>pP<br>PPP<br>PcP<br>iS<br>Lq<br>SS<br>sS<br>Lr | 04 10 15<br>11 08<br>11 11<br>11 18<br>13 18<br>15 00<br>16 18<br>16 38<br>16 53<br>17 38 | 3520  | Per = 12.5 secs<br>Amp = 5 mm                |
| HYDERABAD                                                                                                                                                             | E<br>N                 | M 02 59 23<br>M 59 31                                                                               |     |       | Per = 9 secs<br>L = 2<br>Per = 8 secs<br>L = 2                                                   |                                                                        |                      |                                                            |                                                                                           |       |                                              |
| 15 CHATRA                                                                                                                                                             | Z                      | e 04 59 40                                                                                          |     |       | Feeble, near                                                                                     | HYDERABAD                                                              | N E<br>N<br>N E<br>E | iP<br>i<br>e<br>e<br>e<br>M                                | 04 10 21<br>15 13<br>16 49<br>17 02<br>18 32<br>21 01                                     |       | Initial ground motion towards South and East |
| 15 CHATRA                                                                                                                                                             | Z<br>E                 | iP 08 50 12<br>iS 51 42                                                                             |     | 870   | Slight                                                                                           |                                                                        |                      |                                                            |                                                                                           |       |                                              |
| BOMBAY                                                                                                                                                                | N                      | e 08 57 38                                                                                          |     |       | Very slight                                                                                      |                                                                        |                      |                                                            |                                                                                           |       |                                              |
| 15 Epc 51 1/2°N 179°W In the Aleutians<br>H = 10h 38m 37s (U.S.C.G.S.)<br>Mag 5 1/2 (Moscow)                                                                          |                        |                                                                                                     |     |       |                                                                                                  | CHATRA                                                                 | Z<br>E               | iP<br>i                                                    | 04 10 28<br>15 32                                                                         |       | Per = 10 secs<br>L = 7                       |
| SHILLONG                                                                                                                                                              | Z, N, E<br>E           | iP 10 49 48<br>iS 58 55                                                                             |     | 7700  | Compression                                                                                      | POONA                                                                  | Z<br>E               | iP<br>PP<br>PPP<br>PcP<br>iS<br>SS<br>SSS<br>ScS<br>M      | 04 10 55<br>12 15<br>12 32<br>13 33<br>16 18<br>18 35<br>18 57<br>20 53<br>22 53          |       |                                              |
| CHATRA                                                                                                                                                                | Z<br>E                 | eP 10 50 03<br>iS 59 26                                                                             |     | 8040  |                                                                                                  |                                                                        |                      |                                                            |                                                                                           |       |                                              |
| HYDERABAD                                                                                                                                                             | N, E<br>E<br>N         | iP 10 51 11<br>iS 11 01 33<br>ScS 01 48<br>M 24 33<br>M 25 30                                       |     | 9480  | Initial ground motion towards South and West<br>Per = 18 secs<br>L = 5<br>Per = 17 secs<br>L = 5 |                                                                        |                      |                                                            |                                                                                           |       |                                              |
| BOMBAY                                                                                                                                                                | N                      | eP 10 51 22<br>SKS 11 01 57<br>eS 02 09                                                             |     | 9890  |                                                                                                  | BOMBAY                                                                 | N                    | iP<br>PP<br>PPP<br>iS<br>ScS<br>Lq<br>SS<br>Lr             | 04 11 03<br>12 14<br>12 53<br>16 35<br>17 37<br>18 40<br>18 55<br>20 05                   | 4300  |                                              |
| MADRAS                                                                                                                                                                | E                      | i 10 51 23<br>i 52 04                                                                               |     |       |                                                                                                  |                                                                        |                      |                                                            |                                                                                           |       |                                              |
| POONA                                                                                                                                                                 | Z<br>E                 | iP 10 52 18<br>e 11 02 49                                                                           |     |       |                                                                                                  |                                                                        |                      |                                                            |                                                                                           |       |                                              |
| 15 Epc 52 1/2°N 167°E Fox Islands in the Aleutians<br>H = 21h 33m 05s (U.S.C.G.S.)                                                                                    |                        |                                                                                                     |     |       |                                                                                                  | SHILLONG                                                               | Z                    | iP                                                         | 11 53 47                                                                                  |       | Slight compression                           |
| CHATRA                                                                                                                                                                | Z<br>E                 | iP 21 45 18<br>iS 55 07                                                                             |     | 8570  | Slight                                                                                           | 16 CHATRA                                                              | Z<br>E               | eP<br>e                                                    | 15 15 06<br>16 32                                                                         |       | Slight                                       |
| BOMBAY                                                                                                                                                                | E                      | e 21 45 26<br>e 57 21                                                                               |     |       | Slight                                                                                           | SHILLONG                                                               | Z                    | iP                                                         | 15 15 54                                                                                  |       | Slight compression                           |
| HYDERABAD                                                                                                                                                             | N                      | iP 21 46 11<br>iS 56 48<br>ScS 57 07<br>PS 57 46<br>PPS 58 19<br>SS 22 02 52<br>Lr 14 55<br>M 18 25 |     | 9630  |                                                                                                  | 16 SHILLONG                                                            | Z                    | iP                                                         | 15 17 06                                                                                  |       | Slight                                       |
| POONA                                                                                                                                                                 | Z                      | iP 21 46 20                                                                                         |     |       | Very feeble                                                                                      | 16 SHILLONG                                                            | Z                    | iP                                                         | 17 07 55                                                                                  |       | Slight                                       |
| 16 Epc 3°S, 104°E Western Java Sea<br>H = 300 KmCa<br>4 1/2°S, 107 1/2°E - h = 600 KmCa<br>H = 04h 04m 20s (Shillong)<br>Mag 7 1/2 (Pasadena), 7 3 (Uppsala, Kiruna). |                        |                                                                                                     |     |       |                                                                                                  | CHATRA                                                                 | Z                    | eP<br>e                                                    | 17 08 40<br>10 20                                                                         |       | Slight                                       |
| C OLOMBO                                                                                                                                                              | E                      | P 04 09 20<br>e 12 08<br>e 15<br>e 16 45                                                            |     |       |                                                                                                  | 16 SHILLONG                                                            | Z                    | eP                                                         | 18 04 39                                                                                  |       | Slight                                       |
| MADRAS                                                                                                                                                                | E                      | iP 04 09 49<br>i 10 36<br>i 12 57<br>iS 14 12<br>iS 15 52<br>i 16 16                                |     | 3190  | Initial ground motion towards East                                                               | 16 CHATRA                                                              | Z                    | e                                                          | 22 52 24                                                                                  |       | Feeble                                       |
| SHILLONG                                                                                                                                                              | Z, N, E                | iP 04 10 02<br>pP 11 01<br>PP 11 09                                                                 |     | 3390  | Initial ground motion towards South and East                                                     | 17 SHILLONG                                                            | Z                    | eP<br>Sg                                                   | 00 25 47<br>25 58                                                                         | 90    | Slight                                       |
|                                                                                                                                                                       |                        |                                                                                                     |     |       |                                                                                                  | 17 HYDERABAD                                                           | E                    | M                                                          | 03 22 47                                                                                  |       | Per = 15 secs<br>L = 3                       |
|                                                                                                                                                                       |                        |                                                                                                     |     |       |                                                                                                  | 17 SHILLONG                                                            | Z                    | iP<br>Sg                                                   | 05 06 49<br>07 20                                                                         | 220   | Slight compression                           |
|                                                                                                                                                                       |                        |                                                                                                     |     |       |                                                                                                  | CHATRA                                                                 | Z                    | i                                                          | 06 22 07                                                                                  |       | Feeble, near                                 |
|                                                                                                                                                                       |                        |                                                                                                     |     |       |                                                                                                  | 17 SHILLONG                                                            | Z                    | eP                                                         | 09 39 34                                                                                  |       | Slight distant                               |
|                                                                                                                                                                       |                        |                                                                                                     |     |       |                                                                                                  | 17 SHILLONG                                                            | Z                    | iP                                                         | 10 29 17                                                                                  |       | Slight                                       |
|                                                                                                                                                                       |                        |                                                                                                     |     |       |                                                                                                  | CHATRA                                                                 | Z                    | iP<br>i                                                    | 10 30 18<br>32 18                                                                         |       | Feeble                                       |
|                                                                                                                                                                       |                        |                                                                                                     |     |       |                                                                                                  | 17 Epc 52 1/2°N 169°W In the Aleutians<br>H = 13h 24m 58s (U.S.C.G.S.) |                      |                                                            |                                                                                           |       |                                              |
|                                                                                                                                                                       |                        |                                                                                                     |     |       |                                                                                                  | SHILLONG                                                               | Z                    | eP                                                         | 13 36 46                                                                                  |       | Slight                                       |
|                                                                                                                                                                       |                        |                                                                                                     |     |       |                                                                                                  | CHATRA                                                                 | Z                    | e                                                          | 13 36 54                                                                                  |       | Feeble, distant                              |
|                                                                                                                                                                       |                        |                                                                                                     |     |       |                                                                                                  | POONA                                                                  | Z<br>E               | iP<br>e                                                    | 13 38 06<br>48 58                                                                         |       | Slight                                       |

| Station     | Component                            | Time          | Amplitude | Duration                                                        | Notes | Station                                         | Component | Time          | Amplitude | Duration | Notes          |
|-------------|--------------------------------------|---------------|-----------|-----------------------------------------------------------------|-------|-------------------------------------------------|-----------|---------------|-----------|----------|----------------|
| HYDERABAD   | E                                    | M 14 16 20    |           | Per: 15 secs                                                    |       |                                                 |           |               |           |          |                |
|             | N,E                                  | eS 49 03      |           | U = 2                                                           |       | POONA                                           | Z         | iP 15 58 06   | 10140     |          | Feeble         |
|             |                                      | 49 20         |           | Per: 15 secs                                                    |       |                                                 | E         | eS 16 09 03   |           |          |                |
|             | N                                    | M 19 02       |           | U = 3                                                           |       | BOMBAY                                          | N,E       | eP 15 58 08   | 10190     |          | Slight         |
| 17 SHILLONG | Z                                    | iP 15 19 23   |           | Slight compression                                              |       |                                                 | E         | eP 16 08 55   |           |          |                |
| 17 SHILLONG | Z                                    | iP 16 56 51   | 220       | Slight compression                                              |       | 19 BOMBAY                                       | E         | e 17 44 10    |           |          | Slight         |
|             | Sg                                   | 57 21         |           |                                                                 |       |                                                 | e         | 48 20         |           |          |                |
| 17 SHILLONG | Z                                    | eP 18 06 37   | 240       | Slight                                                          |       |                                                 | N,E       | e 48 27       |           |          |                |
|             | Sg                                   | 07 12         |           |                                                                 |       | 19                                              |           |               |           |          |                |
| 17 POONA    | Z                                    | iP 18 29 13   |           | Very feeble                                                     |       | Epc: 52°N, 166½°W. Fox Islands in the Aleutians |           |               |           |          |                |
| 17 SHILLONG | Z                                    | eP 18 30 45   |           | Slight                                                          |       | - H = 22h 19m 26s G.M.T. (U.S.C.G.S)            |           |               |           |          |                |
| 17 SHILLONG | Z                                    | eP 19 05 35   |           | Feeble                                                          |       | Mag: 7-7½ (Pasadena)                            |           |               |           |          |                |
| 17 SHILLONG | Z                                    | eP 22 00 04   |           | Tremor                                                          |       |                                                 |           |               |           |          |                |
| 17 SHILLONG | Z                                    | iP 22 24 15   |           | Slight                                                          |       | SHILLONG                                        | Z,N,E     | iP 22 31 26   | 9400      |          | Rarefaction    |
| 17 CHATRA   | Z                                    | iPg 23 46 55  | 130       | Slight                                                          |       |                                                 | N,E       | PeP 31 40     |           |          | Initial ground |
|             | E                                    | iSg 47 12     |           |                                                                 |       |                                                 |           | PP 34 16      |           |          | motion towards |
| SHILLONG    | Z                                    | iP 23 47 55   |           | Slight                                                          |       |                                                 |           | PPP 36 03     |           |          | North and East |
| 18 SHILLONG | Z                                    | iP 00 27 57   |           | Slight, distant                                                 |       |                                                 |           | iS 41 07      |           |          |                |
| 18 CHATRA   | Z                                    | i 05 32 14    |           | Feeble, near                                                    |       |                                                 |           | SKS 41 29     |           |          |                |
| 18 SHILLONG | Z                                    | iP 07 11 26   |           | Slight compression                                              |       |                                                 |           | ScS 41 36     |           |          |                |
| CHATRA      | Z                                    | e 07 11 39    |           | Feeble, distant                                                 |       |                                                 |           | PS 41 43      |           |          |                |
| 18 SHILLONG | Z                                    | iP 07 55 38   |           | Tremor                                                          |       |                                                 |           | PPS 41 58     |           |          |                |
| 18 SHILLONG | Z                                    | iP 13 32 12   |           | Tremor                                                          |       |                                                 |           | SS 45 58      |           |          |                |
| 18 SHILLONG | Z                                    | eP 16 39 43   |           | Slight                                                          |       |                                                 |           | SSS 49 08     |           |          |                |
| 18 SHILLONG | Z                                    | iP 17 03 26   |           | Slight compression                                              |       |                                                 |           | Lq 51 18      |           |          |                |
| CHATRA      | Z                                    | eP 17 04 17   |           | Feeble                                                          |       |                                                 |           | Lr 54 54      |           |          |                |
|             | i                                    | 05 50         |           |                                                                 |       |                                                 |           | M 23 01 14    |           |          | Per: 26 secs   |
| 18 SHILLONG | Z                                    | iP 19 55 03   |           | Slight                                                          |       |                                                 |           |               |           |          | Amp: 3 mm      |
| 18 CHATRA   | Z                                    | i 22 12 40    |           | Feeble, near                                                    |       | CHATRA                                          | Z         | iP 22 31 33   | 8570      |          |                |
| DEHRA DUN   | N,E                                  | e 22 14 35    |           | Feeble                                                          |       |                                                 | E         | iS 41 22      |           |          |                |
| SHILLONG    | Z                                    | eP 22 18 58   |           | Slight                                                          |       | DEHRA DUN                                       | N,E       | eP 22 31 39   | 8870      |          |                |
|             | e                                    | 19 22         |           |                                                                 |       |                                                 | N         | PP 34 45      |           |          |                |
| 19 SHILLONG | Z                                    | iP 08 50 50   |           | Slight compression                                              |       |                                                 |           | iS 41 42      |           |          |                |
| 19 CHATRA   | Z                                    | eP 12 11 33   |           | Feeble                                                          |       |                                                 |           | PPS 42 46     |           |          |                |
|             | i                                    | 12 01         |           |                                                                 |       |                                                 |           | SS 47 13      |           |          |                |
| SHILLONG    | Z                                    | eP 12 12 42   |           | Slight, local                                                   |       |                                                 |           | SSS 51 13     |           |          |                |
| 19 CHATRA   | Z                                    | i 14 57 31    |           | Tremor                                                          |       |                                                 |           | Lq 53 16      |           |          |                |
| 19          | Epc: 51°N, 168°W. Fox Islands        |               |           |                                                                 |       |                                                 |           | M 23 03 52    |           |          |                |
|             | - H = 15h 44m 53s G.M.T. (U.S.C.G.S) |               |           |                                                                 |       | BOKARO                                          | N,E       | iP 22 31 50   | 9040      |          | Initial ground |
| SHILLONG    | Z,E                                  | iP 15 56 44   | 8360      | Slight. Initial ground motion towards North & East. Rarefaction |       |                                                 |           | iS 42 01      |           |          | motion towards |
|             | N,E                                  | iS 16 06 23   |           |                                                                 |       |                                                 |           |               |           |          | North and East |
| DEHRA DUN   | N,E                                  | e(P) 15 56 46 | 8910      | Feeble                                                          |       | NEW DELHI                                       | N         | iP 22 31 52   | 9090      |          | Initial ground |
|             |                                      | i(S) 16 06 51 |           |                                                                 |       |                                                 |           | PPP 35 45     |           |          | motion towards |
| CHATRA      | Z                                    | iP 15 56 57   |           | Slight                                                          |       |                                                 |           | i 41 13       |           |          | North          |
| HYDERABAD   | N                                    | iP 15 57 59   | 9370      | Slight. Initial ground motion towards North                     |       |                                                 |           | iS 42 05      |           |          |                |
|             |                                      | PP 16 01 23   |           |                                                                 |       |                                                 |           | SS 47 13      |           |          |                |
|             |                                      | iS 08 25      |           |                                                                 |       |                                                 |           | Lq 53 54      |           |          |                |
|             |                                      | ScS 08 44     |           |                                                                 |       |                                                 |           | M 23 04 58    |           |          |                |
|             |                                      | PS 08 59      |           |                                                                 |       | HYDERABAD                                       | N,E       | iP 22 32 35   | 9370      |          | Initial ground |
|             |                                      | PPS 10 05     |           |                                                                 |       |                                                 | N         | PP 36 08      |           |          | motion towards |
|             |                                      | SS 14 09      |           |                                                                 |       |                                                 | N,E       | iS 43 01      |           |          | North and East |
|             |                                      |               |           |                                                                 |       |                                                 |           | ScS 43 26     |           |          |                |
|             |                                      |               |           |                                                                 |       |                                                 |           | PPS 44 26     |           |          |                |
|             |                                      |               |           |                                                                 |       |                                                 |           | SS 48 05      |           |          |                |
|             |                                      |               |           |                                                                 |       |                                                 |           | N PKKP1 49 45 |           |          |                |
|             |                                      |               |           |                                                                 |       |                                                 |           | SSS 51 29     |           |          |                |
|             |                                      |               |           |                                                                 |       |                                                 |           | PKKS1 54 05   |           |          |                |
|             |                                      |               |           |                                                                 |       |                                                 |           | E Lr 23 00 11 |           |          |                |
|             |                                      |               |           |                                                                 |       |                                                 |           | N Lr 00 20    |           |          | Per: 27 secs   |
|             |                                      |               |           |                                                                 |       |                                                 |           | M 05 33       |           |          | U = 1.39       |
|             |                                      |               |           |                                                                 |       |                                                 |           | E M 06 08     |           |          | Per: 16 secs   |
|             |                                      |               |           |                                                                 |       |                                                 |           |               |           |          | U = 1.0        |
|             |                                      |               |           |                                                                 |       | BOMBAY                                          | E         | iP 22 32 42   | 10250     |          |                |
|             |                                      |               |           |                                                                 |       |                                                 |           | SKS1 43 14    |           |          |                |
|             |                                      |               |           |                                                                 |       |                                                 |           | SKKS1 43 25   |           |          |                |
|             |                                      |               |           |                                                                 |       |                                                 |           | iS 43 43      |           |          |                |
|             |                                      |               |           |                                                                 |       |                                                 |           | PS 45 10      |           |          |                |
|             |                                      |               |           |                                                                 |       |                                                 |           | PPS 45 26     |           |          |                |
|             |                                      |               |           |                                                                 |       |                                                 |           | SS 50 01      |           |          |                |
|             |                                      |               |           |                                                                 |       |                                                 |           | SSP 50 18     |           |          |                |
|             |                                      |               |           |                                                                 |       |                                                 |           | N M 23 17 --  |           |          | Per: 21 secs   |
|             |                                      |               |           |                                                                 |       |                                                 |           |               |           |          | U = 1.14       |
|             |                                      |               |           |                                                                 |       |                                                 |           | E M 19 16     |           |          | Per: 23 secs   |
|             |                                      |               |           |                                                                 |       |                                                 |           |               |           |          | U = 1.16       |
|             |                                      |               |           |                                                                 |       | POONA                                           | Z         | iP 22 32 43   | 10220     |          |                |
|             |                                      |               |           |                                                                 |       |                                                 | E         | PP 36 27      |           |          |                |
|             |                                      |               |           |                                                                 |       |                                                 |           | PPP 38 44     |           |          |                |
|             |                                      |               |           |                                                                 |       |                                                 |           | SKS1 42 56    |           |          |                |
|             |                                      |               |           |                                                                 |       |                                                 |           | SKKS1 43 02   |           |          |                |

| DATE | STATION        | COMPT   | PHASE | G  | M  | T  | $\Delta$ | REMARKS                                    | DATE | STATION    | COMPT | PHASE      | G              | M  | T           | $\Delta$   | REMARKS                   |
|------|----------------|---------|-------|----|----|----|----------|--------------------------------------------|------|------------|-------|------------|----------------|----|-------------|------------|---------------------------|
|      |                |         |       |    |    |    |          |                                            |      |            |       |            |                |    |             |            |                           |
| 19   | POONA          | E       | iS    | 22 | 43 | 43 |          |                                            | 21   | BOMBAY     | N E   | ePKP1      | 21             | 32 | 05          | 16290      |                           |
|      | Con'd          |         | FS    | 45 | 16 |    |          |                                            |      |            | E     | PPP        | 38             | 25 |             |            |                           |
| 19   | MADRAS         | E       | iP    | 22 | 32 | 48 | 10260    | Initial ground<br>movement<br>towards East | 21   | MADRAS     | N E   | PPS        | 48             | 22 |             |            |                           |
|      |                |         | PP    | 36 | 40 |    |          |                                            |      |            | N     | e          | 54             | 05 |             |            |                           |
| 19   | KODAIKANAL     | E       | iP    | 22 | 33 | 08 | 10890    | Initial ground<br>motion towards<br>West   | 21   | KODAIKANAL | E     | e          | 22             | 32 | 09          |            | Tremor distant            |
|      |                |         | SKS   | 43 | 39 |    |          |                                            |      |            | E     | iPKP1      | 21             | 32 |             |            | Other phases<br>not clear |
| 19   | SHILLONG       | Z       | eP    | 23 | 03 | 13 |          |                                            | 22   | SHILLONG   | Z     | eP         | 23             | 29 | 17          |            | Slight                    |
|      |                |         | iS    | 57 | 24 |    |          |                                            |      |            | Epc   | 30°N 84½°E | Southern Tibet | H  | 00h 18m 20s | (Shillong) |                           |
| 19   | SHILLONG       | Z       | eP    | 23 | 03 | 13 |          | Slight local                               |      |            |       |            |                |    |             |            |                           |
| 20   | CHATRA         | Z       | e     | 03 | 14 | 07 |          | Feeble, near                               |      |            |       |            |                |    |             |            |                           |
| 20   | CHATRA         | Z       | eP    | 08 | 59 | 05 |          | Feeble                                     |      |            |       |            |                |    |             |            |                           |
| 20   | Epc 30°N 84½°E |         |       |    |    |    |          |                                            |      |            |       |            |                |    |             |            |                           |
|      | CHATRA         | Z       | eP    | 00 | 19 | 34 |          | Slight                                     |      |            |       |            |                |    |             |            |                           |
|      | SHILLONG       | Z, N, E | iP    | 00 | 20 | 20 | 890      | Slight                                     |      |            |       |            |                |    |             |            |                           |
|      | COLOMBO        | E       | P     | 12 | 41 | 50 | 7670     |                                            |      |            |       |            |                |    |             |            |                           |
|      | MADRAS         | E       | eP    | 12 | 41 | 50 |          | Slight                                     |      |            |       |            |                |    |             |            |                           |
|      | HYDERABAD      | E       | e     | 12 | 42 | 04 |          |                                            |      |            |       |            |                |    |             |            |                           |
|      | POONA          | Z       | iP    | 12 | 42 | 37 | 8780     | Feeble                                     |      |            |       |            |                |    |             |            |                           |
|      | DEHRA DUN      | N, E    | e     | 12 | 42 | 38 |          | Feeble                                     |      |            |       |            |                |    |             |            |                           |
|      | BOMBAY         | E       | eP    | 12 | 42 | 38 | 8750     | Slight                                     |      |            |       |            |                |    |             |            |                           |
| 20   | CHATRA         | Z       | eP    | 15 | 56 | 00 | 810      | Slight                                     |      |            |       |            |                |    |             |            |                           |
| 20   | SHILLONG       | Z       | eP    | 23 | 03 | 13 |          | Slight, local                              |      |            |       |            |                |    |             |            |                           |
| 21   | SHILLONG       | Z       | eP    | 14 | 11 | 39 | 150      | Slight local                               |      |            |       |            |                |    |             |            |                           |
| 21   | CHATRA         | Z       | iS    | 20 | 05 | 20 | 390      | Feeble                                     |      |            |       |            |                |    |             |            |                           |
| 21   | Epc 12°N 12°W  |         |       |    |    |    |          |                                            |      |            |       |            |                |    |             |            |                           |
|      | CHATRA         | Z       | ePKP1 | 21 | 31 | 56 |          |                                            |      |            |       |            |                |    |             |            |                           |
|      | POONA          | Z       | PKP1  | 21 | 31 | 57 |          |                                            |      |            |       |            |                |    |             |            |                           |
|      | SHILLONG       | Z       | ePKP1 | 21 | 31 | 59 |          | Compression                                |      |            |       |            |                |    |             |            |                           |
|      | BOMBAY         | N E     | eP    | 01 | 44 | 29 |          | Slight                                     |      |            |       |            |                |    |             |            |                           |
|      | POONA          | Z       | iP    | 01 | 45 | 58 | 1580     | Slight                                     |      |            |       |            |                |    |             |            |                           |
|      | BOMBAY         | N E     | eP    | 01 | 46 | 05 | 1590     | Slight                                     |      |            |       |            |                |    |             |            |                           |
|      |                |         | eS    | 48 | 45 |    |          |                                            |      |            |       |            |                |    |             |            |                           |
|      |                |         | e     | 49 | 38 |    |          |                                            |      |            |       |            |                |    |             |            |                           |
|      |                |         | M     | 53 | 28 |    |          | Per: 26secs                                |      |            |       |            |                |    |             |            |                           |
|      |                |         | M     | 53 | 35 |    |          | Per: 27secs                                |      |            |       |            |                |    |             |            |                           |

| DATE | STATION                 | COMPT      | PHASE                                       | G. h. | M. m. | T. s.                                        | $\Delta$ km | REMARKS               | DATE | STATION                               | COMPT                     | PHASE                                                            | G. h. | M. m.                                        | T. s.                                                                            | $\Delta$ km            | REMARKS                                            |
|------|-------------------------|------------|---------------------------------------------|-------|-------|----------------------------------------------|-------------|-----------------------|------|---------------------------------------|---------------------------|------------------------------------------------------------------|-------|----------------------------------------------|----------------------------------------------------------------------------------|------------------------|----------------------------------------------------|
| 22   | MADRAS<br>Contd.        | E          | eP<br>e<br>eS<br>SS<br>e<br>M<br>ScP<br>ScS | 01    | 46    | 34<br>49<br>50<br>50<br>50<br>52<br>54<br>58 | 2120        | Slight                | 23   | CHATRA                                | Z<br>E                    | iP<br>i                                                          | 19    | 42                                           | 25<br>43                                                                         |                        | Slight                                             |
|      |                         |            |                                             |       |       |                                              |             |                       |      |                                       |                           |                                                                  |       |                                              |                                                                                  |                        |                                                    |
|      | KODAIKANAL              | E          | eP<br>e<br>e<br>e<br>e                      | 01    | 51    | 06<br>24<br>36<br>06<br>18                   |             | Slight                |      | SHILLONG                              | Z                         | iP                                                               | 19    | 43                                           | 13                                                                               |                        | Slight                                             |
|      |                         |            |                                             |       |       |                                              |             |                       |      |                                       |                           |                                                                  |       |                                              |                                                                                  |                        |                                                    |
|      |                         |            |                                             |       |       |                                              |             |                       |      | DEHRA DUN                             | N,E                       | e                                                                | 19    | 44                                           | 19                                                                               |                        | Tremor                                             |
| 22   | SHILLONG                | Z          | iP                                          | 04    | 29    | 58                                           |             | Slight<br>compression | 23   | SHILLONG                              | Z                         | eP                                                               | 21    | 21                                           | 26                                                                               |                        | Slight                                             |
|      |                         |            |                                             |       |       |                                              |             |                       |      | CHATRA                                | Z                         | eP<br>i                                                          | 21    | 22                                           | 21<br>45                                                                         |                        | Feeble                                             |
|      |                         |            |                                             |       |       |                                              |             |                       | 23   | POONA                                 | Z                         | iP                                                               | 22    | 18                                           | 26                                                                               |                        | Very feeble                                        |
|      |                         |            |                                             |       |       |                                              |             |                       | 23   | SHILLONG                              | Z                         | iP                                                               | 22    | 18                                           | 48                                                                               |                        | Slight                                             |
|      |                         |            |                                             |       |       |                                              |             |                       | 23   | SHILLONG                              | Z                         | eP                                                               | 23    | 17                                           | 39                                                                               |                        | Slight                                             |
| 22   | Epc: 31°N, 91°E. Tibet. | -          | H                                           | -     | 05h   | 29m 01s                                      |             | (U S C. G. S)         | 24   | SHILLONG                              | Z                         | eP                                                               | 00    | 19                                           | 59                                                                               |                        | Slight                                             |
|      | CHATRA                  | Z          | iP<br>i                                     | 05    | 30    | 21<br>57                                     |             | Slight                | 24   | SHILLONG                              | Z                         | eP                                                               | 10    | 57                                           | 16                                                                               |                        | Slight                                             |
|      | SHILLONG                | Z,N,E<br>E | iP<br>P*<br>Pg<br>eS<br>S*<br>Sg            | 05    | 30    | 25<br>30<br>50<br>30<br>48<br>04             | 610         | Slight<br>rarefaction | 24   | CHATRA                                | Z                         | iP<br>i                                                          | 19    | 00                                           | 01<br>27                                                                         |                        | Slight                                             |
|      | BOKARO                  | N,E        | e<br>e<br>i                                 | 05    | 32    | 36<br>04<br>30                               |             | Slight                | 24   | Epc: 36°N, 28½°E. Turkey              | -                         | H                                                                | -     | 19h 10m 05s                                  |                                                                                  | (USCGS)                |                                                    |
|      | POONA                   | Z          | iP                                          | 05    | 33    | 37                                           |             |                       |      | Mag: 6½-7 (Pasadena), 7-7½ (Berkeley) |                           |                                                                  |       |                                              |                                                                                  |                        |                                                    |
|      | BOMBAY                  | E          | eP<br>e<br>e<br>e<br>e<br>e                 | 05    | 33    | 42<br>28<br>22<br>44<br>40<br>23<br>51       |             | Slight                |      | NEW DELHI                             | N                         | iP<br>PP<br>PPP<br>iS<br>SS<br>Lq<br>SSS<br>M                    | 19    | 17                                           | 51<br>29<br>58<br>58<br>44<br>10<br>22<br>54                                     | 4460                   | Direction of<br>first motion<br>North              |
|      |                         |            |                                             |       |       |                                              |             |                       |      | BOMBAY                                | N,E<br>E<br>N,E<br>E<br>N | eP<br>e<br>PP<br>PPP<br>PcS<br>eS<br>PS<br>SS<br>Lq<br>SSS<br>M  | 19    | 18                                           | 08<br>19<br>55<br>36<br>55<br>26<br>44<br>36<br>22<br>08                         | 4630                   |                                                    |
| 22   | DEHRA DUN               | N,E        | e                                           | 12    | 38    | 37                                           |             | Tremor                |      |                                       |                           |                                                                  |       |                                              |                                                                                  |                        |                                                    |
| 22   | SHILLONG                | Z          | iP                                          | 14    | 02    | 46                                           |             | Slight<br>compression |      |                                       |                           |                                                                  |       |                                              |                                                                                  |                        |                                                    |
| 22   | SHILLONG                | Z          | iP                                          | 15    | 56    | 54                                           |             | Slight, distant       |      |                                       |                           |                                                                  |       |                                              |                                                                                  |                        |                                                    |
| 22   | SHILLONG                | Z          | eP                                          | 19    | 12    | 59                                           |             | Tremor                |      |                                       |                           |                                                                  |       |                                              |                                                                                  |                        |                                                    |
| 22   | DEHRA DUN               | N,E        | e                                           | 19    | 56    | 59                                           |             | Tremor                |      | POONA                                 | Z<br>E                    | iP<br>PP<br>PPP                                                  | 19    | 18                                           | 13<br>51<br>35                                                                   | 4710                   |                                                    |
| 22   | SHILLONG                | Z          | iP                                          | 19    | 55    | 18                                           |             | Slight<br>rarefaction |      |                                       | N,E<br>E                  | iS<br>PPS<br>SS<br>Lq<br>SSS<br>Lr<br>M                          | 24    | 36<br>50<br>40<br>06<br>28<br>37<br>01<br>-- |                                                                                  | Per ~24 secs<br>   ~49 |                                                    |
| 22   | KODAIKANAL              | E          | eP                                          | 20    | 26    | 09                                           |             | Tremor                |      | HYDERABAD                             | N                         | iP<br>PcP<br>PP<br>iS<br>PPS<br>ScS<br>SS<br>SSS<br>Lr<br>M      | 19    | 18                                           | 44<br>00<br>41<br>33<br>01<br>37<br>19<br>01<br>57                               | 5170                   | Initial ground<br>movement<br>towards North        |
| 22   | CHATRA                  | Z<br>E     | iP<br>i                                     | 21    | 35    | 40<br>17                                     |             | Slight                |      |                                       |                           |                                                                  |       |                                              |                                                                                  |                        |                                                    |
|      | SHILLONG                | Z          | eP                                          | 21    | 36    | 27                                           |             | Slight                |      |                                       |                           |                                                                  |       |                                              |                                                                                  |                        |                                                    |
| 22   | SHILLONG                | Z          | iP                                          | 21    | 38    | 37                                           |             | Slight<br>compression |      |                                       |                           |                                                                  |       |                                              |                                                                                  |                        |                                                    |
|      | DEHRA DUN               | N,E        | e<br>i                                      | 21    | 38    | 48<br>19                                     |             | Feeble                |      |                                       |                           |                                                                  |       |                                              |                                                                                  |                        |                                                    |
|      | POONA                   | Z          | iP                                          | 21    | 42    | 59                                           |             | Very feeble           |      |                                       |                           |                                                                  |       |                                              |                                                                                  |                        |                                                    |
|      | BOMBAY                  | N,E<br>E   | e<br>e<br>e                                 | 21    | 43    | 58<br>15<br>26                               |             | Very slight,<br>near  |      |                                       |                           |                                                                  |       |                                              |                                                                                  |                        |                                                    |
| 22   | CHATRA                  | Z          | iPg<br>iSg                                  | 22    | 01    | 04<br>21                                     | 130         | Slight                |      | CHATRA                                | Z<br>E                    | iP<br>iS                                                         | 19    | 19                                           | 03<br>03                                                                         | 5370                   |                                                    |
| 22   | CHATRA                  | Z          | iPg<br>iSg                                  | 22    | 33    | 54<br>12                                     | 140         | Slight                |      | BOKARO                                | N,E<br>E                  | iP<br>i<br>i<br>PcP<br>pP<br>PP<br>i<br>i<br>i<br>sS<br>Lq<br>Lr | 19    | 19                                           | 07<br>11<br>32<br>21<br>23<br>54<br>07<br>12<br>02<br>45<br>02<br>24<br>41<br>25 | 5460                   | Initial ground<br>motion towards<br>North and West |
| 22   | SHILLONG                | Z          | iP<br>Sg                                    | 23    | 29    | 39<br>52                                     | 110         | Slight                |      |                                       |                           |                                                                  |       |                                              |                                                                                  |                        |                                                    |
| 23   | SHILLONG                | Z          | iP                                          | 03    | 14    | 31                                           |             | Slight                |      |                                       |                           |                                                                  |       |                                              |                                                                                  |                        |                                                    |
| 23   | SHILLONG                | Z          | eP                                          | 11    | 40    | 05                                           |             | Slight                |      |                                       |                           |                                                                  |       |                                              |                                                                                  |                        |                                                    |
| 23   | SHILLONG                | Z          | eP                                          | 16    | 13    | 40                                           |             | Slight                |      |                                       |                           |                                                                  |       |                                              |                                                                                  |                        |                                                    |
|      | CHATRA                  | Z          | eP<br>i                                     | 16    | 14    | 10<br>04                                     |             | Feeble                |      |                                       |                           |                                                                  |       |                                              |                                                                                  |                        |                                                    |





|                                                                       |              |                                        |                                                                         |                                          |                                                                                         |                                                                                                            |          |                                                                      |                                                                                                    |                                                                                                             |                                                         |
|-----------------------------------------------------------------------|--------------|----------------------------------------|-------------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|----------|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| 25 POONA<br>Contd.                                                    | Z            | iP<br>i                                | 07 28 12<br>28 22<br>28 33                                              | Feeble.<br>Phases not<br>clear           | 27 Epc: 0°N, 121½°E. Near Coast of Celebes<br>H = 160 KmCa. H = 00h 09m 47s (U.S.C.G.S) | SHILLONG                                                                                                   | Z,N,E    | eP<br>iS                                                             | 00 17 08<br>23 04                                                                                  | 4280 Slight                                                                                                 |                                                         |
| 25 HYDERABAD                                                          | N            | e                                      | 08 02 36                                                                |                                          |                                                                                         | COLOMBO                                                                                                    | E        | P<br>e<br>L<br>M                                                     | 00 17 37<br>23 59<br>33 --<br>37 09                                                                | Amp. 0.2 mm                                                                                                 |                                                         |
| SHILLONG                                                              | Z            | eP                                     | 08 35 10                                                                | Slight                                   |                                                                                         | CHATRA                                                                                                     | Z<br>E   | iP<br>i                                                              | 00 17 43<br>24 23                                                                                  | Slight                                                                                                      |                                                         |
| 25 DEHRA DUN                                                          | N,E          | e<br>e                                 | 09 14 01<br>21 24                                                       | Feeble                                   |                                                                                         | POONA                                                                                                      | Z        | iP                                                                   | 00 18 44                                                                                           | Feeble                                                                                                      |                                                         |
| 25 POONA                                                              | Z            | iP                                     | 10 27 12                                                                | Feeble                                   |                                                                                         | BOMBAY                                                                                                     | E<br>N,E | eP<br>eS<br>e                                                        | 00 18 55<br>26 19<br>30 10                                                                         | 5630 Slight                                                                                                 |                                                         |
| 25 BOMBAY                                                             | N,E<br>E     | e<br>e                                 | 10 35 40<br>37 07                                                       | Slight                                   |                                                                                         | DEHRA DUN                                                                                                  | N,E      | e                                                                    | 06 22 40                                                                                           |                                                                                                             |                                                         |
| 25 CHATRA                                                             | Z<br>E       | iP<br>eP<br>i                          | 11 14 26<br>21 05                                                       | Slight                                   |                                                                                         | 27 SHILLONG                                                                                                | Z        | eP                                                                   | 07 48 02                                                                                           | Slight                                                                                                      |                                                         |
| POONA                                                                 | Z            | iP                                     | 11 16 33                                                                | Feeble                                   |                                                                                         | 27 SHILLONG                                                                                                | Z        | eP                                                                   | 13 40 27                                                                                           | Slight                                                                                                      |                                                         |
| 25 CHATRA                                                             | Z            | iPg<br>iSg                             | 13 35 26<br>35 27                                                       | 10 Feeble                                |                                                                                         | CHATRA                                                                                                     | Z        | iP<br>i                                                              | 13 41 26<br>43 02                                                                                  | Slight                                                                                                      |                                                         |
| 25 BOMBAY                                                             | N,E          | e                                      | 18 08 27                                                                | Slight                                   |                                                                                         | 28 Epc: 7°N, 127°E Off Coast of Mindanao Islands<br>H = 01h 23m 40 s (U.S.C.G.S)<br>Mag: 5½ - 6 (Pasadena) | SHILLONG | Z,N,E<br>N,E                                                         | iP<br>PP<br>PPP<br>iS<br>PS<br>PPS<br>SS<br>Lq<br>SSS<br>ScS<br>Lr<br>M                            | 01 31 05<br>32 42<br>33 21<br>36 53<br>37 04<br>37 15<br>39 38<br>39 53<br>40 19<br>40 56<br>41 49<br>45 12 | 4140 Initial ground<br>motion towards<br>North and West |
| 25 CHATRA                                                             | Z            | iPg<br>i                               | 20 15 25<br>15 33                                                       | Feeble                                   |                                                                                         | CHATRA                                                                                                     | Z<br>E   | iP<br>i                                                              | 01 31 35<br>38 26                                                                                  | Per. 17.6 secs<br>Amp. 1.3 mm                                                                               |                                                         |
| 25 CHATRA                                                             | Z            | iP<br>i                                | 22 03 46<br>04 52                                                       | Feeble                                   |                                                                                         | BOKARO                                                                                                     | N,E      | iP<br>i                                                              | 01 31 42<br>38 17                                                                                  |                                                                                                             |                                                         |
| 26 NEW DELHI                                                          | N            | i<br>i<br>i                            | 01 18 27<br>20 15<br>20 45                                              | Slight, near                             |                                                                                         | COLOMBO                                                                                                    | E        | P<br>S<br>L<br>M                                                     | 01 32 08<br>39 00<br>45 52<br>49 55                                                                | Amp. 0.8 mm                                                                                                 |                                                         |
| 26 DEHRA DUN                                                          | N,E<br>N     | eP<br>PP<br>P*<br>iS<br>SSS<br>Sg/M    | 02 10 40<br>10 47<br>10 56<br>12 10<br>12 33<br>12 58                   | 850 Slight                               |                                                                                         | MADRAS                                                                                                     | E        | iP<br>PcP<br>PP<br>PPP<br>ScPp<br>iS<br>ScS<br>SS<br>Lq<br>SSS<br>Lr | 01 32 13<br>33 28<br>34 03<br>34 59<br>37 16<br>39 13<br>41 41<br>42 35<br>44 03<br>44 11<br>46 29 | 5370 Ground movement<br>East                                                                                |                                                         |
| CHATRA                                                                | Z<br>N,E     | iP<br>i                                | 02 15 38<br>18 47                                                       | Slight                                   |                                                                                         | DEHRA DUN                                                                                                  | N,E<br>N | eP<br>PPP<br>iS<br>FS<br>SS<br>Lr<br>M                               | 01 32 21<br>35 56<br>39 48<br>40 19<br>43 44<br>47 59<br>52 19                                     |                                                                                                             |                                                         |
| BOMBAY                                                                | N<br>N,E     | e<br>e<br>e                            | 02 15 50<br>16 37<br>18 59                                              | Slight                                   |                                                                                         | POONA                                                                                                      | Z        | iP<br>PcP<br>PP<br>PPP<br>eS<br>PPS<br>SS<br>SSS                     | 01 33 02<br>33 55<br>35 06<br>36 21<br>40 42<br>40 55<br>44 23<br>46 20                            | 5900                                                                                                        |                                                         |
| POONA                                                                 | Z<br>Z,E     | iP<br>eS                               | 02 16 13<br>19 12                                                       | 1790 Slight                              |                                                                                         | BOMBAY                                                                                                     | N,E<br>E | iP<br>e<br>e<br>e<br>e<br>e<br>e                                     | 01 33 08<br>35 20<br>36 29<br>40 22<br>40 34<br>43 06<br>44 44<br>59 44                            | Slight                                                                                                      |                                                         |
| SHILLONG                                                              | N,E          | eP<br>iS                               | 02 16 21<br>20 05                                                       | 2260 Slight                              |                                                                                         | DEHRA DUN                                                                                                  | N,E      | e                                                                    | 00 15 35                                                                                           | Feeble                                                                                                      |                                                         |
| BOKARO                                                                | N,E          | e<br>i                                 | 02 16 22<br>18 58                                                       | Slight                                   |                                                                                         |                                                                                                            |          |                                                                      |                                                                                                    |                                                                                                             |                                                         |
| 26 Epc: 36½°N, 29°E. Turkey aftershock<br>H = 06h 33m 32s (U.S.C.G.S) |              |                                        |                                                                         |                                          |                                                                                         |                                                                                                            |          |                                                                      |                                                                                                    |                                                                                                             |                                                         |
| DEHRA DUN                                                             | N,E<br>N     | eP<br>iS<br>SS<br>Lr                   | 06 39 35<br>45 32<br>48 06<br>49 45                                     | 4270 Slight Other<br>phases not<br>clear |                                                                                         |                                                                                                            |          |                                                                      |                                                                                                    |                                                                                                             |                                                         |
| BOMBAY                                                                | N,E          | eP<br>PP<br>PPP<br>eS<br>e<br>E<br>N,E | 06 41 31<br>43 15<br>43 37<br>47 48<br>48 27<br>51 16<br>51 31<br>51 49 | 4620 Slight                              |                                                                                         |                                                                                                            |          |                                                                      |                                                                                                    |                                                                                                             |                                                         |
| POONA                                                                 | Z            | iP<br>i                                | 06 41 39<br>41 59                                                       | Slight, distant<br>Phases not clear      |                                                                                         |                                                                                                            |          |                                                                      |                                                                                                    |                                                                                                             |                                                         |
| CHATRA                                                                | Z<br>E       | iP<br>i                                | 06 42 29<br>49 37                                                       | Slight                                   |                                                                                         |                                                                                                            |          |                                                                      |                                                                                                    |                                                                                                             |                                                         |
| BOKARO                                                                | N,E          | e<br>iS                                | 06 42 31<br>49 38                                                       | 5480 Slight                              |                                                                                         |                                                                                                            |          |                                                                      |                                                                                                    |                                                                                                             |                                                         |
| SHILLONG                                                              | Z,N,E<br>N,E | iP<br>iS                               | 06 42 59<br>50 32                                                       | 5970 Slight                              |                                                                                         |                                                                                                            |          |                                                                      |                                                                                                    |                                                                                                             |                                                         |
| 26 CHATRA                                                             | Z<br>E       | iP<br>i                                | 17 46 33<br>47 57                                                       | Slight                                   |                                                                                         |                                                                                                            |          |                                                                      |                                                                                                    |                                                                                                             |                                                         |
| 26 BOMBAY                                                             | E            | e                                      | 17 53 34                                                                | Slight                                   |                                                                                         |                                                                                                            |          |                                                                      |                                                                                                    |                                                                                                             |                                                         |
| 27 DEHRA DUN                                                          | N,E          | e                                      | 00 15 35                                                                | Feeble                                   |                                                                                         |                                                                                                            |          |                                                                      |                                                                                                    |                                                                                                             |                                                         |

| DATE       | STATION                            | COMPT                     | PHASE    | G M T |          |        | REMARKS        | DATE      | STATION                                | COMPT                     | PHASE    | G M T |        |           | REMARKS |        |     |        |               |        |                         |           |           |     |          |          |     |                                    |        |                    |                    |
|------------|------------------------------------|---------------------------|----------|-------|----------|--------|----------------|-----------|----------------------------------------|---------------------------|----------|-------|--------|-----------|---------|--------|-----|--------|---------------|--------|-------------------------|-----------|-----------|-----|----------|----------|-----|------------------------------------|--------|--------------------|--------------------|
|            |                                    |                           |          | h     | m        | s      |                |           |                                        |                           |          | h     | m      | s         |         |        |     |        |               |        |                         |           |           |     |          |          |     |                                    |        |                    |                    |
| APRIL 1952 |                                    |                           |          |       |          |        |                |           |                                        |                           |          |       |        |           |         |        |     |        |               |        |                         |           |           |     |          |          |     |                                    |        |                    |                    |
| 28         | KODAIKANAL                         | E                         | iP       | 02    | 33       | 33     | Moderate       | 29        | MADRAS                                 | E                         | eP       | 21    | 03     | 00        | Feeble  |        |     |        |               |        |                         |           |           |     |          |          |     |                                    |        |                    |                    |
|            |                                    |                           |          | 02    | 33       | 42     | Initial ground |           |                                        |                           |          | 29    | MADRAS | E         |         | e      | 03  | 28     |               |        |                         |           |           |     |          |          |     |                                    |        |                    |                    |
|            |                                    |                           |          | 02    | 34       | 28     | motion towards |           |                                        |                           |          |       |        |           |         |        | 29  | MADRAS | E             | e      | 05                      | 34        |           |     |          |          |     |                                    |        |                    |                    |
|            |                                    |                           |          | 02    | 37       | 51     | West           |           |                                        |                           |          |       |        |           |         |        |     |        |               |        | 29                      | SHILLONG  | Z N E     | iP  | 21       | 03       | 11  | 4050 Moderate                      |        |                    |                    |
|            |                                    |                           |          | 02    | 39       | 48     | Initial ground |           |                                        |                           |          |       |        |           |         |        |     |        |               |        |                         |           |           |     | 29       | SHILLONG | N E |                                    | PP     | 04                 | 31                 |
|            |                                    |                           |          | 02    | 42       | 28     |                |           |                                        |                           |          |       |        |           |         |        |     |        |               |        |                         |           |           |     |          |          |     |                                    |        | movement           | 29                 |
| 02         | 47                                 | 30                        | towards  | 29    | SHILLONG | N E    | iS             | 08        | 55                                     |                           |          |       |        |           |         |        |     |        |               |        |                         |           |           |     |          |          |     |                                    |        |                    |                    |
| 02         | 51                                 | 45                        |          |       |          |        |                | South and | 29                                     | SHILLONG                  | N E      | SS    | 10     | 47        |         |        |     |        |               |        |                         |           |           |     |          |          |     |                                    |        |                    |                    |
| 28         | SHILLONG                           | Z                         | iP       | 03    | 05       | 45     | Slight         |           |                                        |                           |          |       | 29     | SHILLONG  | Z       | iP     | 11  | 04     | East          |        |                         |           |           |     |          |          |     |                                    |        |                    |                    |
|            |                                    |                           |          | 03    | 11       | 03     |                | Slight    | 29                                     | SHILLONG                  | Z        | iS    |        |           |         |        | 11  | 56     |               |        |                         |           |           |     |          |          |     |                                    |        |                    |                    |
| 28         | CHATRA                             | Z                         | iP       | 03    | 11       | 03     | Slight         |           |                                        |                           |          |       | 29     | CHATRA    | Z       | iP     | 12  | 02     | Per 12.5 secs |        |                         |           |           |     |          |          |     |                                    |        |                    |                    |
|            |                                    |                           |          | 03    | 11       | 53     |                | Slight    | 29                                     | CHATRA                    | Z        | iS    |        |           |         |        | 12  | 02     |               |        |                         |           |           |     |          |          |     |                                    |        |                    |                    |
| 28         | Epoc 6°S 155°E. Solomon Islands    | H 10h 36m 41s (U.S.C.G.S) | 7480     | Z N E | iP       | 10     | 47             |           |                                        |                           |          |       | 40     | Slight    | 29      | LOKARO | N E | e      | 21            | 03     | 27                      | Slight    |           |     |          |          |     |                                    |        |                    |                    |
|            |                                    |                           |          |       |          |        |                | Z N E     | iS                                     | 10                        | 49       | 04    |        |           |         |        |     |        |               |        |                         |           | Feeble    | 29  | LOKARO   | N E      | e   | 21                                 | 03     | 27                 | Slight             |
| POONA      | Z                                  | iP                        | 10       | 49    | 04       | Feeble | 29             |           |                                        |                           |          |       | CHATRA | Z         | iP      | 21     | 03  | 35     | 4570 Slight   |        |                         |           |           |     |          |          |     |                                    |        |                    |                    |
|            |                                    |                           |          |       |          |        |                | BOMBAY    | E                                      | eP                        | 10       | 49    |        |           |         |        |     |        |               | 08     | 9220 Slight             | 29        | CHATRA    | E   | iS       | 09       | 49  | Slight                             |        |                    |                    |
| DEHKA DUN  | N.E                                | eS                        | 10       | 49    | 44       | Feeble | 29             |           |                                        |                           |          |       | POONA  | Z         | eP      | 21     | 03  | 53     | 4720 Slight   |        |                         |           |           |     |          |          |     |                                    |        |                    |                    |
|            |                                    |                           |          |       |          |        |                | DEHKA DUN | N.E                                    | e                         | 10       | 49    |        |           |         |        |     |        |               | 09     | Feeble                  | 29        | POONA     | E   | PP       | 05       | 43  | Slight                             |        |                    |                    |
| 28         | Epoc 5 2/3°N 168 1/2°W Fox Islands | H 14h 48m 52s (U.S.C.G.S) | SHILLONG | Z N E | iP       | 15     | 00             |           |                                        |                           |          |       | 40     | Slight    | 29      | BOMBAY | E   | eP     | 21            |        |                         |           |           |     |          |          |     |                                    | 04     | 07                 | 4980 Slight        |
|            |                                    |                           |          |       |          |        |                | DEHRA DUN | N E                                    | eP                        | 15       | 01    |        |           |         |        |     |        |               | 06     | Feeble Phases not clear | 29        | BOMBAY    | E   | PP       | 05       | 58  | Slight                             |        |                    |                    |
| POONA      | Z                                  | iP                        | 15       | 02    | 03       | Feeble | 29             |           |                                        |                           |          |       | BOMBAY | E         | PPP     | 06     | 41  | Slight |               |        |                         |           |           |     |          |          |     |                                    |        |                    |                    |
|            |                                    |                           |          |       |          |        |                | BOMBAY    | E                                      | e                         | 15       | 12    |        |           |         |        |     |        | 37            | Slight | 29                      | DEHKA DUN | N E       | eP  | 21       | 04       | 45  | 5320 Slight Other phases not clear |        |                    |                    |
| 28         | SHILLONG                           | Z                         | iP       | 18    | 59       | 55     | Slight         |           |                                        |                           |          |       | 29     | DEHKA DUN | N       | e      | 11  | 32     |               |        |                         |           |           |     |          |          |     |                                    | Slight |                    |                    |
|            |                                    |                           |          |       |          |        |                | 28        | SHILLONG                               | Z                         | iP       | 19    |        |           |         |        |     |        | 34            | 04     | Slight                  | 29        | DEHKA DUN | N   | e        | 11       | 32  | Slight                             |        |                    |                    |
| 28         | POONA                              | Z                         | e        | 20    | 16       | 34     | Tremor         |           |                                        |                           |          |       | 29     | SHILLONG  | Z       | iP     | 03  | 39     |               |        |                         |           |           |     |          |          |     |                                    | 54     | Slight compression |                    |
|            |                                    |                           |          |       |          |        |                | 28        | SHILLONG                               | Z                         | iP       | 21    |        |           |         |        |     |        | 31            | 44     | Slight                  | 29        | SHILLONG  | Z   | iP       | 04       | 49  | 42                                 |        |                    | 100 Slight         |
| 29         | SHILLONG                           | Z                         | iP       | 01    | 57       | 12     | Slight         |           |                                        |                           |          |       | 29     | CHATRA    | Z       | iSg    | 49  | 56     |               |        |                         |           |           |     |          |          |     |                                    | Slight |                    |                    |
|            |                                    |                           |          |       |          |        |                | 29        | SHILLONG                               | Z                         | iP       | 03    |        |           |         |        |     |        | 57            | 25     | Slight                  | 29        | CHATRA    | Z   | iP       | 08       | 19  | 14                                 |        | Feeble             |                    |
| 29         | SHILLONG                           | Z                         | eP       | 04    | 41       | 48     | Slight         |           |                                        |                           |          |       | 29     | CHATRA    | Z       | i      | 20  | 33     |               |        |                         |           |           |     |          |          |     |                                    | Feeble |                    |                    |
|            |                                    |                           |          |       |          |        |                | 29        | CHATRA                                 | Z                         | i        | 04    |        |           |         |        |     |        | 41            | 57     | Feeble distant          | 29        | DEHKA DUN | N E | e        | 08       | 19  | 53                                 |        | Feeble             |                    |
| 29         | POONA                              | Z                         | iP       | 04    | 43       | 13     | Tremor         |           |                                        |                           |          |       | 29     | SHILLONG  | Z       | iP     | 08  | 20     |               |        |                         |           |           |     |          |          |     |                                    | 07     |                    | Slight Rarefaction |
|            |                                    |                           |          |       |          |        |                | 29        | BOMBAY                                 | N E                       | e        | 04    |        |           |         |        |     |        | 54            | 07     | Slight                  | 29        | SHILLONG  | Z   | iP       | 18       | 11  | 26                                 |        | Slight Rarefaction |                    |
| 29         | SHILLONG                           | Z                         | iP       | 19    | 29       | 48     | Slight         |           |                                        |                           |          |       | 29     | CHATRA    | Z       | eP     | 18  | 12     |               |        |                         |           |           |     |          |          |     |                                    | 13     |                    | Feeble             |
|            |                                    |                           |          |       |          |        |                | 29        | Epoc 9°S 107°E Off South Coast of Java | H 20h 55m 57s (U.S.C.G.S) | SHILLONG | Z     |        |           |         |        |     |        | iP            | 19     | 29                      | 48        | Slight    | 29  | SHILLONG | Z        | iP  | 18                                 |        | 07                 |                    |
| 29         | SHILLONG                           | Z                         | Fg       | 22    | 24       | 04     | 70 Slight      |           |                                        |                           |          |       |        |           |         |        |     |        |               |        |                         |           |           |     |          |          |     |                                    |        |                    |                    |



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GOVERNMENT OF INDIA  
METEOROLOGICAL DEPARTMENT

SEISMOLOGICAL BULLETIN



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*Shri S. Basu, M.Sc., F.N.I.,*  
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### Instruments and their Constants

| STATION       | INSTRUMENT    | COMPT. | PERIOD<br>IN<br>SECS | STATIC<br>MAGNIFI-<br>CATION | DAMPING<br>RATIO   | PAPER<br>SPEED<br>mm/min | STATION    | INSTRUMENT    | COMPT.        | PERIOD<br>IN<br>SECS | STATIC<br>MAGNIFI-<br>CATION | DAMPING<br>RATIO   | PAPER<br>SPEED<br>mm/min |    |
|---------------|---------------|--------|----------------------|------------------------------|--------------------|--------------------------|------------|---------------|---------------|----------------------|------------------------------|--------------------|--------------------------|----|
| BOMBAY        | Milne-Shaw    | N      | 12                   | 350                          | 23:1               | 16                       | HYDERABAD  | Milne-Shaw    | E             | 12                   | 250                          | 20:1               | 8                        |    |
|               | Milne-Shaw    | E      | 12                   | 350                          | 12:1               | 8                        |            | Milne-Shaw    | N             | 12                   | 250                          | 20:1               | 8                        |    |
|               | Sprengnether  | E      | To: Tg=7             |                              | -                  | 30                       |            |               |               |                      |                              |                    |                          |    |
| BOKARO        | Milne-Shaw    | N      | 12                   | 250                          | 20:1               | 16                       | KODAIKANAL | Milne-Shaw    | E             | 10                   | 250                          | 20:1               | 8                        |    |
|               | Milne-Shaw    | E      | 12                   | 250                          | 20:1               | 16                       |            | MADRAS        | Sprengnether  | E                    | To: Tg=7.4                   |                    | -                        | 30 |
|               | Wood-Anderson | E      | 0.8                  | 960                          | h <sub>a</sub> 0.8 | 60                       |            |               |               |                      |                              |                    |                          |    |
|               | Wood-Anderson | N      | 0.8                  | 1000                         | h <sub>a</sub> 0.8 | 60                       |            |               |               |                      |                              |                    |                          |    |
| COLOMBO       | Milne-Shaw    | E      | 11.9                 | 250                          | 20:1               | -                        | POONA      | Sprengnether  | Z             | To: Tg=1.6           |                              | Critical           | 30                       |    |
|               |               |        |                      |                              |                    |                          |            | Wood-Anderson | E             | 4                    | 1000                         | 20:1               | 16                       |    |
| CALCUTTA      | Milne-Shaw    | E      | 12                   | 250                          | 20:1               | 8                        | PORT BLAIR | Milne-Shaw    | N             | 12                   | 280                          | 20:1               | 8                        |    |
|               | Wood-Anderson | N      | 2                    | 870                          | Critical           | 30                       |            | Wood-Anderson | N             | 2                    | 1000                         | 20:1               | 30                       |    |
|               | Omori-Ewing   | N      | 16                   | 32                           | -                  | 25.4                     |            |               |               |                      |                              |                    |                          |    |
|               | Omori-Ewing   | E      | 21                   | 30                           | -                  | 25.4                     |            |               |               |                      |                              |                    |                          |    |
| CHATRA        | Milne-Shaw    | E      | 12                   | 250                          | 20:1               | 16                       | SHILLONG   | Wood-Anderson | N             | 0.8                  | 1000                         | h <sub>a</sub> 0.8 | 30                       |    |
|               | Milne-Shaw    | N      | 10                   | 150                          | 20:1               | 16                       |            | Wood-Anderson | E             | 0.8                  | 1000                         | h <sub>a</sub> 0.8 | 30                       |    |
|               | Wood-Anderson | E      | 1                    | 1000                         | 30:1               | 60                       |            | Milne-Shaw    | N             | 12                   | 250                          | 20:1               | 8                        |    |
|               | Wood-Anderson | N      | 1                    | 1000                         | 40:1               | 60                       | Bentoff    | Z             | To: 1.0       |                      | -                            | 60                 |                          |    |
|               | Wood-Anderson | N      | 1                    | 1000                         | 40:1               | 60                       |            |               |               |                      |                              |                    |                          |    |
|               | Bentoff Short | Z      | To: .72              |                              | Critical           | 60                       |            | Sprengnether  | E             | To: Tg=6.8           |                              | -                  | 30                       |    |
|               | Wenner        |        | Tg: .45              |                              | -                  | -                        |            | Wenner        |               |                      |                              |                    |                          |    |
| Accelerograph | ENZ           | -      | -                    | -                            | -                  | Accelerograph            | ENZ        | -             | -             | -                    | -                            |                    |                          |    |
|               |               |        |                      |                              |                    |                          |            |               |               |                      |                              |                    |                          |    |
| DEHRA DUN     | Wood-Anderson | N      | 0.8                  | 950                          | Critical           | 60                       | TOCKLAI    | Wood-Anderson | E             | 0.8                  | 970                          | h <sub>a</sub> 0.8 | 60                       |    |
|               | Wood-Anderson | E      | 0.8                  | 850                          | Critical           | 60                       |            | VIZIANAGRAM   | Wood-Anderson | E                    | 0.8                          | 1000               | h <sub>a</sub> 0.8       | 30 |
|               | Milne-Shaw    | N      | 12                   | 250                          | 20:1               | 8                        |            |               | Wood-Anderson | N                    | 2                            | 1000               | 20:1                     | 30 |
|               | Milne-Shaw    | E      | 12                   | 250                          | 20:1               | 8                        |            |               |               |                      |                              |                    |                          |    |
|               |               |        |                      |                              |                    |                          |            |               |               |                      |                              |                    |                          |    |
|               |               |        |                      |                              |                    |                          |            |               |               |                      |                              |                    |                          |    |

### List of Seismograph station

| Station     | Latitude | Longitude | Height<br>a.s.l<br>(Metres)             | Lithographic foundation                      |
|-------------|----------|-----------|-----------------------------------------|----------------------------------------------|
| BOMBAY      | 18°54'N  | 72°49'E   | 6                                       | Deccan Trap                                  |
| BOKARO      | 23°50'N  | 85°48'E   | -                                       | Rock                                         |
| COLOMBO     | 06°54'N  | 79°52'E   | 7                                       | Beach Sand                                   |
| CALCUTTA    | 22°32'N  | 88°22'E   | (1) 7(Milne-Shaw)<br>(2) 6(Omori-Ewing) | Alluvium                                     |
| CHATRA      | 26°50'N  | 87°10'E   | 161                                     | Sand Stone                                   |
| DEHRA DUN   | 30°19'N  | 78°02'E   | 682                                     | Gravel                                       |
| HYDERABAD   | 17°26'N  | 78°27'E   | 536                                     | Granite                                      |
| KODAIKANAL  | 10°14'N  | 77°28'E   | 2346                                    | Rock                                         |
| MADRAS      | 13°00'N  | 80°11'E   | 15                                      | -                                            |
| NEW DELHI   | 28°35'N  | 77°12'E   | 207                                     | Massive Quartzite                            |
| POONA       | 18°32'N  | 73°51'E   | 560                                     | Deccan Trap                                  |
| PORT BLAIR  | 11°40'N  | 92°43'E   | -                                       | -                                            |
| SHILLONG    | 25°34'N  | 91°53'E   | 1600                                    | Quartzite Sand Stone<br>(Shillong Quartzite) |
| TOCKLAI     | 26°45'N  | 94°46'E   | -                                       | Alluvium                                     |
| VIZIANAGRAM | 18°07'N  | 83°27'E   | -                                       | -                                            |







| DATE      | STATION                                                                                         | COMPT | PHASE            | G. M. T.                            | $\Delta$ | REMARKS                        | DATE      | STATION                                                                                                                                             | COMPT    | PHASE                       | G. M. T.                                                                                                          | $\Delta$ | REMARKS                                                        |
|-----------|-------------------------------------------------------------------------------------------------|-------|------------------|-------------------------------------|----------|--------------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------|-------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------------------------------|
|           |                                                                                                 |       |                  | h m s                               | km       |                                |           |                                                                                                                                                     |          |                             | h m s                                                                                                             | km       |                                                                |
| July 1957 |                                                                                                 |       |                  |                                     |          |                                | July 1957 |                                                                                                                                                     |          |                             |                                                                                                                   |          |                                                                |
| 03        | SHILLONG                                                                                        | Z     | ePg<br>Sg        | 18 13 03<br>13 10                   | 60       | Slight                         | 07        | SHILLONG                                                                                                                                            | Z        | eP                          | 15 48 35                                                                                                          |          | Slight, distant                                                |
| 03        | SHILLONG                                                                                        | Z     | eP<br>eS         | 21 28 17<br>28 31                   | 100      | Slight                         | 07        | Epc: 6°S, 155°E. Solomon Islands<br>H = 12h 11m 15s (U.S.C.G.S)<br>Magnitude = 6% (Pos)                                                             |          |                             |                                                                                                                   |          |                                                                |
| 03        | SHILLONG                                                                                        | Z     | eP               | 22 27 58                            |          | Slight, distant<br>Compression |           | SHILLONG                                                                                                                                            | Z        | iP                          | 16 22 38                                                                                                          |          | Slight,<br>compression                                         |
| 03        | SHILLONG                                                                                        | Z     | eP               | 22 44 43                            |          | Slight, distant<br>Rarefaction |           | DEHRA DUN                                                                                                                                           | N.E      | e                           | 16 11 39<br>16                                                                                                    |          | Tremor                                                         |
| 04        | SHILLONG                                                                                        | Z     | iP               | 01 02 35                            |          | Slight,<br>rarefaction         |           | POONA                                                                                                                                               | Z        | iP<br>i                     | 16 23 00<br>24 01                                                                                                 |          | Tremor                                                         |
| 04        | DEHRA DUN                                                                                       | N.E   | i                | 02 53 58                            |          | Tremor                         | 07        | SHILLONG                                                                                                                                            | Z        | eP                          | 18 19 43                                                                                                          |          | Slight                                                         |
| 04        | SHILLONG                                                                                        | Z     | iP               | 07 45 44                            |          | Slight,<br>rarefaction         | 08        | Epc: Assam-Purba Border H = 00h 33m 18s (Shillong)<br>felt at Shillong, Imphal, Jorhat, Gauhati, Golaghat<br>and Karimganj in Assam. (Purba Report) |          |                             |                                                                                                                   |          |                                                                |
| 04        | Epc: 4°S, 102°E. Near South Coast of Sumatra.<br>H = 00h 29m 01s h = About 100 kms. (U.S.C.G.S) |       |                  |                                     |          |                                |           | SHILLONG                                                                                                                                            | Z, N.E   | iP<br>iS                    | 00 33 48<br>34 10                                                                                                 | 150      | Slight, Compression.<br>First movement N &<br>felt locally.    |
|           | COLOMBO                                                                                         |       | P<br>S<br>L<br>M | 08 34 21<br>38 21<br>41 59<br>43 53 | 2460     | Amp. = 0.4 mm                  |           | TOCKLAI                                                                                                                                             | E        | iP                          | 00 34 47                                                                                                          |          | Moderate. First<br>movement East.                              |
|           | SHILLONG                                                                                        | Z     | iP               | 08 35 14                            |          | Slight,<br>compression         |           | BOKARO                                                                                                                                              | N.E      | iP<br>P*<br>Pg<br>S*<br>Sg  | 00 34 57<br>35 06<br>35 18<br>36 02<br>36 15                                                                      | 500      | Slight, first<br>movement N & W.                               |
|           | POONA                                                                                           | Z     | iP               | 08 35 57                            |          | Tremor                         |           | DEHRA DUN                                                                                                                                           | N.E      | e<br>i<br>i<br>i            | 00 36 43<br>39 18<br>39 32<br>39 46                                                                               |          | Feeble, phases<br>not clear                                    |
|           | DEHRA DUN                                                                                       | N.E   | e                | 08 36 37                            |          | Feeble                         |           | POONA                                                                                                                                               | Z        | iP                          | 00 37 50                                                                                                          | 2000     | Slight                                                         |
| 04        | SHILLONG                                                                                        | Z     | iP               | 08 53 03                            |          | Slight,<br>compression         | 08        | SHILLONG                                                                                                                                            | Z        | eP                          | 01 05 13                                                                                                          |          | Slight                                                         |
| 04        | SHILLONG                                                                                        | Z     | eP               | 14 22 27                            |          | Slight, very<br>distant        | 08        | SHILLONG                                                                                                                                            | Z        | eP<br>iS                    | 02 23 26<br>23 49                                                                                                 | 190      | Slight                                                         |
| 04        | SHILLONG                                                                                        | Z     | eP               | 14 43 28                            |          | Slight, very<br>distant        | 09        | SHILLONG                                                                                                                                            | Z        | iP                          | 06 22 19                                                                                                          |          | Slight, Compression                                            |
| 04        | SHILLONG                                                                                        | Z     | eP               | 15 28 28                            |          | Slight, very<br>distant        | 09        | Epc: 6°S, 104°E. Near South Coast of Sumatra<br>H = 09h 58m 09s G.M.T. h = about 60 kms (U.S.C.G.S)                                                 |          |                             |                                                                                                                   |          |                                                                |
| 04        | SHILLONG                                                                                        | Z     | eP               | 20 03 16                            |          | Slight, distant                |           | HYDERABAD                                                                                                                                           | N        | eP<br>e<br>e<br>e<br>e<br>M | 10 04 03<br>05 57<br>10 14<br>13 09<br>13 30<br>14 15<br>15 36<br>18 15                                           |          | Moderate                                                       |
| 04        | SHILLONG                                                                                        | Z     | iP               | 02 56 22                            |          | Slight, very<br>distant        |           | COLOMBO                                                                                                                                             | E        | P<br>S<br>L<br>M            | 10 04 04<br>08 37<br>12 21<br>14 04                                                                               | 2950     | Amp. = 0.9 mm                                                  |
| 04        | SHILLONG                                                                                        | Z     | eP<br>iS         | 06 28 25<br>28 48                   | 200      | Slight                         |           | KODAIKANAL                                                                                                                                          | E        | eP                          | 10 04 24                                                                                                          |          | Tremor                                                         |
| 05        | SHILLONG                                                                                        | Z     | eP               | 20 42 57                            |          | Slight, very<br>distant        |           | SHILLONG                                                                                                                                            | Z        | iP                          | 01 05 13                                                                                                          |          | Slight, compression                                            |
| 06        | SHILLONG                                                                                        | Z     | eP               | 01 02 29                            |          | Slight, distant                |           | BOKARO                                                                                                                                              | N.E      | iP                          | 00 34 57                                                                                                          |          | Slight, phases not<br>discernible.                             |
| 06        | SHILLONG                                                                                        | Z     | iP               | 02 16 05                            |          | Slight,<br>compression         |           | DEHRA DUN                                                                                                                                           | Z        | eP                          | 00 36 43                                                                                                          |          | Tremor                                                         |
| 06        | SHILLONG                                                                                        | Z     | iP               | 02 41 10                            |          | Slight,<br>compression         |           | SHILLONG                                                                                                                                            | Z        | eP                          | 02 23 26                                                                                                          |          | Slight, distant                                                |
| 06        | SHILLONG                                                                                        | Z     | iP               | 02 56 22                            |          | Slight, very<br>distant        |           | DEHRA DUN                                                                                                                                           | N.E      | eP<br>iP<br>iS<br>PYS<br>Sg | 00 36 43<br>39 18<br>39 32<br>39 46<br>00 36 43<br>39 18<br>39 32<br>39 46<br>00 36 43<br>39 18<br>39 32<br>39 46 | 100      | Slight                                                         |
| 06        | SHILLONG                                                                                        | Z     | eP               | 00 21 05<br>21 37                   | 200      | Feeble                         |           | BOMBAY                                                                                                                                              | Z<br>N.E | e<br>e                      | 10 11 41<br>12 07                                                                                                 |          | Very slight. No<br>time mark in Spreng-<br>another Seismogram. |
| 07        | SHILLONG                                                                                        | Z     | iP               | 00 31 52                            |          | Slight, very<br>distant        | 09        | SHILLONG                                                                                                                                            | Z        | eP<br>iS                    | 10 40 20<br>50 00                                                                                                 | 200      | Slight                                                         |
| 07        | SHILLONG                                                                                        | Z     | eP               | 06 07 07                            |          | Slight, distant                | 10        | SHILLONG                                                                                                                                            | Z        | eP                          | 20 10 10                                                                                                          |          | Slight, near.                                                  |
| 07        | SHILLONG                                                                                        | Z     | ePg<br>Sg        | 12 31 00<br>31 16                   | 40       | Slight                         |           |                                                                                                                                                     |          |                             |                                                                                                                   |          |                                                                |

| DATE | STATION                                                                                                          | COMPT                                                               | PHASE | G. M. T. | Δ   | REMARKS                            |
|------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-------|----------|-----|------------------------------------|
|      |                                                                                                                  |                                                                     |       | h m s    | km  |                                    |
| 09   | SHILLONG                                                                                                         | Z                                                                   | eP    | 21 05 14 |     | Slight                             |
| 10   | TOCKLAI                                                                                                          | E                                                                   | e     | 03 53 28 |     | Near                               |
|      |                                                                                                                  |                                                                     | e     | 53 35    |     |                                    |
|      |                                                                                                                  |                                                                     | e     | 53 41    |     |                                    |
|      |                                                                                                                  |                                                                     | e     | 53 47    |     |                                    |
|      |                                                                                                                  |                                                                     | e     | 53 54    |     |                                    |
|      | SHILLONG                                                                                                         | Z,E                                                                 | iP    | 03 53 29 |     | Slight, near.                      |
| 10   | DEHRA DUN                                                                                                        | N,E                                                                 | e     | 07 25 17 |     | Tremor                             |
| 10   | Epc: 8°N, 82°W. Near Coast of Panama.<br>H = 09h 04m 08s (U.S.C.G.S)<br>Magnitude = 8½-6½ (Pas), 6½-7 (Berkeley) |                                                                     |       |          |     |                                    |
|      | POONA                                                                                                            | Z                                                                   | iPKP  | 09 23 46 |     | Tremor                             |
|      |                                                                                                                  |                                                                     | i     | 24 03    |     |                                    |
|      | SHILLONG                                                                                                         | Z                                                                   | ePKP  | 09 23 51 |     | Slight, distant<br>compression     |
|      | TOCKLAI                                                                                                          | E                                                                   | e     | 09 23 55 |     | Distant                            |
|      | BOKARO                                                                                                           | N,E                                                                 | iPKP  | 09 23 56 |     | Slight, Phases<br>not clear        |
|      | DEHRA DUN                                                                                                        | N,E                                                                 | e     | 09 27 21 |     | Feeble, phases<br>not clear.       |
|      | HYDERABAD                                                                                                        | E                                                                   | M     | 10 24 25 |     | Per. = 23 secs<br>μ = 4            |
|      |                                                                                                                  | N                                                                   | M     | 26 31    |     | Per. = 24 secs<br>μ = 10           |
|      | COLOMBO                                                                                                          | E                                                                   | L     | 10 31 -- |     | Trace overlapping<br>Amp. = 0.4 mm |
|      |                                                                                                                  |                                                                     | M     | 39 00    |     |                                    |
|      | BOMBAY                                                                                                           | Feeble surface waves around 10h 30m on<br>Milne-Shaw (E-W) recorded |       |          |     |                                    |
| 10   | SHILLONG                                                                                                         | Z                                                                   | eP    | 13 21 30 |     | Feeble, distant                    |
| 10   | SHILLONG                                                                                                         | Z                                                                   | eP    | 13 31 09 | 110 | Slight                             |
|      |                                                                                                                  |                                                                     | Sg    | 31 22    |     |                                    |
| 10   | SHILLONG                                                                                                         | Z                                                                   | eP    | 15 02 14 | 110 | Feeble.                            |
|      |                                                                                                                  |                                                                     | Sg    | 02 27    |     |                                    |
| 10   | SHILLONG                                                                                                         | Z                                                                   | iP    | 18 11 48 |     | Feeble, distant.                   |
| 10   | SHILLONG                                                                                                         | Z                                                                   | eP    | 19 25 17 |     | Slight                             |
| 11   | DEHRA DUN                                                                                                        | N,E                                                                 | e     | 00 00 53 |     | Tremor                             |
| 11   | SHILLONG                                                                                                         | Z                                                                   | eP    | 01 24 22 |     | Slight                             |
|      |                                                                                                                  |                                                                     | i     | 24 41    |     |                                    |
| 11   | DEHRA DUN                                                                                                        | N,E                                                                 | eP    | 17 16 33 | 850 | Slight, other<br>phases not clear  |
|      |                                                                                                                  |                                                                     | iS    | 18 01    |     |                                    |
|      |                                                                                                                  |                                                                     | SS    | 18 12    |     |                                    |
| 12   | SHILLONG                                                                                                         | Z                                                                   | iP    | 07 14 20 | 800 | Slight                             |
|      |                                                                                                                  |                                                                     | iS    | 15 43    |     |                                    |
| 12   | DEHRA DUN                                                                                                        | N,E                                                                 | e     | 09 12 59 |     | Tremor                             |
| 12   | SHILLONG                                                                                                         | Z                                                                   | iP    | 15 26 50 |     | Slight, compres-<br>sion, near.    |
| 12   | DEHRA DUN                                                                                                        | N,E                                                                 | e     | 16 27 04 |     | Tremor                             |
|      | SHILLONG                                                                                                         | Z                                                                   | eP    | 16 27 59 |     | Slight, distant                    |
| 12   | SHILLONG                                                                                                         | Z                                                                   | iP    | 17 46 35 |     | Feeble, local<br>compression.      |
| 12   | SHILLONG                                                                                                         | Z                                                                   | iP    | 20 30 31 |     | Slight, near<br>Compression        |
| 12   | SHILLONG                                                                                                         | Z                                                                   | iP    | 21 06 46 |     | Slight,<br>compression             |
| 12   | SHILLONG                                                                                                         | Z                                                                   | eP    | 22 09 10 |     | Feeble, distant                    |
| 12   | SHILLONG                                                                                                         | Z                                                                   | eP    | 22 18 47 |     | Slight,<br>compression             |
| 13   | SHILLONG                                                                                                         | Z                                                                   | eP    | 00 58 02 |     | Feeble, local.                     |
| 13   | SHILLONG                                                                                                         | Z                                                                   | iP    | 01 11 15 |     | Slight, distant<br>Compression.    |
| 13   | SHILLONG                                                                                                         | Z                                                                   | eP    | 09 01 19 |     | Slight, distant                    |

| DATE      | STATION                                                                                                                          | COMPT | PHASE | G. M. T. | Δ   | REMARKS                                                    |
|-----------|----------------------------------------------------------------------------------------------------------------------------------|-------|-------|----------|-----|------------------------------------------------------------|
|           |                                                                                                                                  |       |       | h m s    | km  |                                                            |
| JULY 1957 | 13 SHILLONG                                                                                                                      | Z     | iP    | 21 20 41 | 310 | Slight,<br>compression.                                    |
|           |                                                                                                                                  |       | iS    | 21 16    |     |                                                            |
|           | 14 SHILLONG                                                                                                                      | Z     | iP    | 02 36 01 |     | Slight,<br>compression.                                    |
|           | 14 KODAIKANAL                                                                                                                    | E     | eP    | 05 42 32 |     | Tremor                                                     |
|           | 14 Epc: 27°S, 177°W. Tonga Islands Region. about 200 km<br>H = 06h 23m 50s (U.S.C.G.S)<br>Magnitude = 7-7½ (Pas), 6½ (Berkeley). |       |       |          |     |                                                            |
|           | SHILLONG                                                                                                                         | Z,N,E | iP    | 06 37 30 |     | Slight, distant<br>rarefaction.                            |
|           |                                                                                                                                  | N,E   | i     | 41 42    |     |                                                            |
|           |                                                                                                                                  |       | i     | 48 53    |     |                                                            |
|           | TOCKLAI                                                                                                                          | E     | e     | 06 38 26 |     |                                                            |
|           | DEHRA DUN                                                                                                                        | N,E   | e     | 06 42 05 |     | Slight, Phases<br>not clear                                |
|           |                                                                                                                                  |       | e     | 50 45    |     |                                                            |
|           |                                                                                                                                  |       | i     | 58 33    |     |                                                            |
|           | BOMBAY                                                                                                                           | E     | e     | 06 43 10 |     | Slight.<br>Microseism<br>present.                          |
|           |                                                                                                                                  |       | e     | 47 01    |     |                                                            |
|           |                                                                                                                                  | N,E   | e     | 54 09    |     |                                                            |
|           |                                                                                                                                  | E     | i     | 55 25    |     |                                                            |
|           |                                                                                                                                  | N     | e     | 55 30    |     |                                                            |
|           | TOCKLAI                                                                                                                          | E     | e     | 06 47 45 |     |                                                            |
|           | BOKARO                                                                                                                           | N,E   | e     | 06 48 13 |     | Slight, phases<br>not clear.                               |
|           |                                                                                                                                  |       | i     | 49 45    |     |                                                            |
|           |                                                                                                                                  |       | i     | 52 43    |     |                                                            |
|           | HYDERABAD                                                                                                                        | N     | e     | 06 49 24 |     | Per. = 24 secs<br>μ = 13                                   |
|           |                                                                                                                                  | E     | e     | 49 27    |     |                                                            |
|           |                                                                                                                                  | N     | M     | 07 08 42 |     |                                                            |
|           | 14 SHILLONG                                                                                                                      | Z     | iP    | 07 04 57 |     | Slight, distant<br>Compression                             |
|           | 14 KODAIKANAL                                                                                                                    | E     | eP    | 08 01 05 |     | Tremor                                                     |
|           | 14 Epc: 30°S, 177°W. Kermadec Islands.<br>H = 08h 40m 45s G.M.T. (U.S.C.G.S)<br>Magnitude = 6½ (Pas), 7 (Berkeley).              |       |       |          |     |                                                            |
|           | SHILLONG                                                                                                                         | Z     | eP    | 08 24 47 |     | Slight, distant                                            |
|           | COLOMBO                                                                                                                          | E     | e(PP) | 08 29 36 |     |                                                            |
|           |                                                                                                                                  |       | e     | 44 26    |     |                                                            |
|           |                                                                                                                                  |       | L     | 09 04 21 |     |                                                            |
|           |                                                                                                                                  |       | M     | 09 36    |     | Amp. = 0.9 mm                                              |
|           | HYDERABAD                                                                                                                        | N,E   | e     | 08 39 51 |     | Per. = 22 secs<br>μ = 14                                   |
|           |                                                                                                                                  | N     | M     | 09 04 39 |     | Per. = 24 secs<br>μ = 10                                   |
|           |                                                                                                                                  | E     | M     | 05 45    |     |                                                            |
|           | BOMBAY                                                                                                                           | E     | e     | 08 40 24 |     | Slight, Phases<br>unidentifiable<br>due to<br>microseisms. |
|           |                                                                                                                                  |       | e     | 42 00    |     |                                                            |
|           |                                                                                                                                  |       | M     | 09 15 -- |     |                                                            |
|           |                                                                                                                                  | N     | M     | 17 --    |     |                                                            |
|           | DEHRA DUN                                                                                                                        | N,E   | e     | 08 40 26 |     | Feeble                                                     |
|           | 14 SHILLONG                                                                                                                      | Z     | eP    | 09 25 12 |     | Slight, distant                                            |
|           | 14 SHILLONG                                                                                                                      | Z     | eP    | 10 52 14 |     | Slight, near                                               |
|           | 14 SHILLONG                                                                                                                      | Z     | eP    | 12 41 45 |     | Slight, near                                               |
|           | 14 SHILLONG                                                                                                                      | Z     | eP    | 17 18 59 | 130 | Slight                                                     |
|           |                                                                                                                                  |       | S     | 19 16    |     |                                                            |
|           | 15 SHILLONG                                                                                                                      | Z     | eP    | 04 58 46 |     | Slight, near                                               |
|           | 15 SHILLONG                                                                                                                      | Z     | eP    | 08 49 01 | 280 | Slight                                                     |
|           |                                                                                                                                  |       | S     | 49 32    |     |                                                            |
|           | 15 SHILLONG                                                                                                                      | Z     | eP    | 09 25 15 |     | Slight, near<br>Compression                                |
|           | 15 SHILLONG                                                                                                                      | Z     | eP    | 10 24 07 |     | Slight, local.                                             |
|           | 15 Epc: 29°N, 70°E. West Pakistan H = 23h 08m 08s (USCGS)                                                                        |       |       |          |     |                                                            |
|           | DEHRA DUN                                                                                                                        | N,E   | eP    | 23 10 12 |     | Slight                                                     |
|           |                                                                                                                                  | N     | e     | 11 53    |     |                                                            |
|           |                                                                                                                                  |       | i     | 12 10    |     |                                                            |
|           |                                                                                                                                  |       | e     | 12 21    |     |                                                            |
|           |                                                                                                                                  |       | e     | 12 29    |     |                                                            |
|           |                                                                                                                                  |       | e     | 12 33    |     |                                                            |
|           |                                                                                                                                  |       | M     | 13 22    |     |                                                            |

| DATE                                                                                                                                                                                | STATION        | COMPT | PHASE | G. | M. | T. | $\Delta$ | REMARKS                                                     | DATE      | STATION                                                                                                                 | COMPT    | PHASE           | G. | M. | T. | $\Delta$ | REMARKS                                         |                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------|-------|----|----|----|----------|-------------------------------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------|----------|-----------------|----|----|----|----------|-------------------------------------------------|------------------|
|                                                                                                                                                                                     |                |       |       | h. | m. | s. | km       |                                                             |           |                                                                                                                         |          |                 | h. | m. | s. | km       |                                                 |                  |
| July 1957                                                                                                                                                                           | 15 VIZIANAGRAM | N     | eP    | 23 | 11 | 11 |          | Slight                                                      | July 1957 | 17 COLOMBO                                                                                                              | E        | P               | 11 | 23 | 03 | 9690     |                                                 |                  |
| Contd.                                                                                                                                                                              |                |       | e     |    | 15 | 55 |          |                                                             | Contd.    |                                                                                                                         |          | S               |    | 33 | 42 |          |                                                 |                  |
|                                                                                                                                                                                     |                |       | e     |    | 16 | 07 |          |                                                             |           |                                                                                                                         |          | L               |    | 56 | 35 |          |                                                 |                  |
|                                                                                                                                                                                     | SHILLONG       | Z,N,E | iP    | 23 | 12 | 45 |          | Slight, compression                                         |           | DEHRA DUN                                                                                                               | N,E      | e               | 11 | 23 | 32 |          | Amp. $\approx$ 0.4 mm                           |                  |
|                                                                                                                                                                                     |                | N,E   | i     |    | 19 | 08 |          |                                                             |           |                                                                                                                         |          | i               |    | 33 | 57 |          | Feeble. Phases not clear                        |                  |
|                                                                                                                                                                                     | CALCUTTA       | N,E   | e     | 23 | 13 | 19 |          | Moderate                                                    |           | POONA                                                                                                                   | Z        | iP              | 11 | 23 | 37 |          | Feeble                                          |                  |
|                                                                                                                                                                                     |                | N     | e     |    | 13 | 26 |          |                                                             |           | BOMBAY                                                                                                                  | E        | e               | 11 | 27 | 24 |          | Slight, deep. Microseisms present in the record |                  |
|                                                                                                                                                                                     |                | N,E   | iS    |    | 15 | 13 |          |                                                             |           |                                                                                                                         |          | i               |    | 27 | 47 |          |                                                 |                  |
|                                                                                                                                                                                     |                |       | i     |    | 15 | 27 |          |                                                             |           |                                                                                                                         |          | i               |    | 32 | 29 |          |                                                 |                  |
|                                                                                                                                                                                     | BOMBAY         | N,E   | e     | 23 | 13 | 31 |          | Slight, deep, phases unidentifiable due to microseisms.     |           |                                                                                                                         | N,E      | i               |    | 34 | 14 |          |                                                 |                  |
|                                                                                                                                                                                     |                | E     | e     |    | 15 | 30 |          |                                                             |           |                                                                                                                         |          | i               |    | 35 | 00 |          |                                                 |                  |
|                                                                                                                                                                                     |                |       | e     |    | 17 | 00 |          |                                                             |           | KODAIKANAL                                                                                                              | E        | eP              | 11 | 33 | 33 |          | Tremor                                          |                  |
|                                                                                                                                                                                     | HYDERABAD      | N     | e     | 23 | 13 | 58 |          | Slight                                                      |           | HYDERABAD                                                                                                               | E        | e               | 11 | 33 | 39 |          |                                                 |                  |
|                                                                                                                                                                                     |                |       | e     |    | 14 | 58 |          | Per. $\approx$ 9 secs                                       |           |                                                                                                                         | N        | e               |    | 34 | 33 |          |                                                 |                  |
|                                                                                                                                                                                     |                |       | e     |    | 15 | 34 |          | $\mu$ $\approx$ 9                                           |           |                                                                                                                         | E        | M               |    | 36 | 30 |          | Per. $\approx$ 9 secs                           |                  |
|                                                                                                                                                                                     | TOCKLAI        | E     | e     | 23 | 14 | 11 |          |                                                             |           |                                                                                                                         | N        | M               |    | 38 | 54 |          | $\mu$ $\approx$ 2                               |                  |
|                                                                                                                                                                                     | BOKARO         | N,E   | e     | 23 | 14 | 32 |          | Slight                                                      |           |                                                                                                                         |          |                 |    |    |    |          | Per. $\approx$ 10 secs                          |                  |
|                                                                                                                                                                                     |                |       | e     |    | 14 | 52 |          |                                                             |           |                                                                                                                         |          |                 |    |    |    |          | $\mu$ $\approx$ 3                               |                  |
|                                                                                                                                                                                     |                |       | e     |    | 15 | 11 |          |                                                             |           | 17 SHILLONG                                                                                                             | Z        | eP              | 12 | 35 | 18 |          | Slight, distant.                                |                  |
|                                                                                                                                                                                     |                |       | e     |    | 15 | 50 |          |                                                             |           | 18 SHILLONG                                                                                                             | Z        | eP              | 01 | 26 | 34 |          | Slight, distant.                                |                  |
|                                                                                                                                                                                     |                |       | i     |    | 16 | 03 |          |                                                             |           | 18 SHILLONG                                                                                                             | Z        | iP              | 01 | 31 | 34 |          | Slight, distant                                 |                  |
|                                                                                                                                                                                     |                |       | e     |    | 16 | 32 |          |                                                             |           |                                                                                                                         |          |                 |    |    |    |          | Compression.                                    |                  |
|                                                                                                                                                                                     |                |       | e     |    | 16 | 53 |          |                                                             |           | 18 SHILLONG                                                                                                             | Z        | eP              | 11 | 21 | 15 |          | Slight, distant.                                |                  |
|                                                                                                                                                                                     | MADRAS         | E     | e     | 23 | 17 | 32 |          | Moderate. Phases not identifiable due to strong microseism. |           | 18 Epc: $30^{\circ}$ N, $139^{\circ}$ E. South of Honshu, Japan, h.s. about 400 kms - H.s. 12h 06m 39s. (U.S.C.G.S).    |          |                 |    |    |    |          |                                                 |                  |
|                                                                                                                                                                                     |                |       | e     |    | 21 | 12 |          |                                                             |           |                                                                                                                         | SHILLONG | Z               | eP | 12 | 13 | 54       |                                                 | Slight, distant. |
|                                                                                                                                                                                     |                |       | e     |    | 22 | 04 |          |                                                             |           |                                                                                                                         | TOCKLAI  | E               | e  | 12 | 14 | 39       |                                                 |                  |
| 15 TOCKLAI                                                                                                                                                                          | E              | e     | 23    | 21 | 57 |    |          |                                                             |           |                                                                                                                         | DEHRADUN | N,E             | e  | 12 | 15 | 17       |                                                 | Tremor           |
| 15 DEHRA DUN                                                                                                                                                                        | N,E            | e     | 23    | 39 | 16 |    |          | Tremor                                                      |           | 18 SHILLONG                                                                                                             | Z        | iP              | 13 | 34 | 49 |          | Slight, distant. Compression                    |                  |
| 16 DEHRA DUN                                                                                                                                                                        | N,E            | e     | 02    | 15 | 32 |    |          |                                                             |           | 18 SHILLONG                                                                                                             | Z        | eP <sub>g</sub> | 17 | 26 | 59 | 110      | Feeble                                          |                  |
| 16 SHILLONG                                                                                                                                                                         | Z              | iP    | 06    | 11 | 55 |    |          | Slight, distant, rarefaction.                               |           |                                                                                                                         |          | eS <sub>g</sub> |    | 27 | 11 |          |                                                 |                  |
| 16 SHILLONG                                                                                                                                                                         | Z              | iP    | 11    | 40 | 21 |    |          | Slight, near, rarefaction.                                  |           | 18 SHILLONG                                                                                                             | Z        | eP              | 19 | 04 | 04 |          | Slight, distant.                                |                  |
| 16 SHILLONG                                                                                                                                                                         | Z              | iP    | 13    | 09 | 32 |    |          | Slight, near, compression.                                  |           | 18 SHILLONG                                                                                                             | Z        | eP              | 19 | 58 | 14 |          | Slight, distant. Compression.                   |                  |
| 16 SHILLONG                                                                                                                                                                         | Z              | iP    | 17    | 04 | 04 |    |          | Slight, distant Compression                                 |           | 19 DEHRA DUN                                                                                                            | N,E      | e               | 03 | 26 | 30 |          | Feeble. Phases not clear                        |                  |
| 16 SHILLONG                                                                                                                                                                         | Z              | iP    | 19    | 35 | 37 |    |          | Slight, distant Compression                                 |           |                                                                                                                         |          | i               |    | 28 | 09 |          |                                                 |                  |
| 16 DEHRA DUN                                                                                                                                                                        | N,E            | e     | 20    | 20 | 32 |    |          | Tremor                                                      |           |                                                                                                                         |          | i               |    | 29 | 08 |          |                                                 |                  |
| SHILLONG                                                                                                                                                                            | Z              | iP    | 20    | 25 | 01 |    |          | Slight, distant Compression                                 |           | SHILLONG                                                                                                                | Z        | iP              | 03 | 29 | 06 |          | Slight, distant, rarefaction.                   |                  |
| 16 SHILLONG                                                                                                                                                                         | Z              | eP    | 21    | 59 | 47 |    |          | Slight, distant.                                            |           | 19 SHILLONG                                                                                                             | Z        | eP              | 11 | 39 | 25 |          | Slight, distant.                                |                  |
| 17 DEHRA DUN                                                                                                                                                                        | N,E            | e     | 08    | 44 | 37 |    |          | Tremor                                                      |           | 19 SHILLONG                                                                                                             | Z        | eP              | 12 | 10 | 33 |          | Slight                                          |                  |
| 17 SHILLONG                                                                                                                                                                         | Z              | eP    | 09    | 05 | 55 |    |          | Feeble, distant.                                            |           | 19 TOCKLAI                                                                                                              | E        | e               | 12 | 56 | 28 |          |                                                 |                  |
| 17 Epc: $11^{\circ}$ S, $167^{\circ}$ E. Santa Cruz Islands. H.s. 11h 10m 10s. (U.S.C.G.S) Magnitude: $\approx$ 6 $\frac{1}{2}$ -6 $\frac{3}{4}$ (Pae), 6 $\frac{1}{2}$ (Baskeley). |                |       |       |    |    |    |          |                                                             |           | 19 Epc: $25^{\circ}$ N, $122^{\circ}$ E. Near North Coast of Formosa. Felt: Taipei. H.s. 13h 02m 05s G.M.T. (U.S.C.G.S) |          |                 |    |    |    |          |                                                 |                  |
|                                                                                                                                                                                     | TOCKLAI        | E     | iP    | 11 | 22 | 20 |          | Slight. First movement West.                                |           | SHILLONG                                                                                                                | Z,N,E    | iP              | 13 | 07 | 54 | 3000     | Slight, rarefaction.                            |                  |
|                                                                                                                                                                                     |                |       |       |    |    |    |          |                                                             |           |                                                                                                                         | N,E      | pP              |    | 08 | 20 |          |                                                 |                  |
|                                                                                                                                                                                     | SHILLONG       | Z,N,E | iP    | 11 | 22 | 29 | 9290     | Slight, Compression.                                        |           |                                                                                                                         |          | sP              |    | 08 | 30 |          |                                                 |                  |
|                                                                                                                                                                                     |                | N,E   | PcP   |    | 22 | 40 |          | First movement North and West                               |           |                                                                                                                         |          | PP              |    | 08 | 37 |          |                                                 |                  |
|                                                                                                                                                                                     |                |       | pP    |    | 23 | 17 |          | Probable depth about 200 Kms.                               |           |                                                                                                                         |          | PPP             |    | 08 | 53 |          |                                                 |                  |
|                                                                                                                                                                                     |                |       | eP    |    | 23 | 46 |          |                                                             |           |                                                                                                                         |          | iS              |    | 12 | 31 |          |                                                 |                  |
|                                                                                                                                                                                     |                |       | PP    |    | 25 | 30 |          |                                                             |           | DEHRA DUN                                                                                                               | N,E      | eP              | 13 | 09 | 43 | 4230     | Slight. Other phases not clear.                 |                  |
|                                                                                                                                                                                     |                |       | PPP   |    | 27 | 20 |          |                                                             |           |                                                                                                                         | N        | iS              |    | 15 | 37 |          |                                                 |                  |
|                                                                                                                                                                                     |                |       | iS    |    | 32 | 30 |          |                                                             |           |                                                                                                                         |          | SS              |    | 18 | 15 |          |                                                 |                  |
|                                                                                                                                                                                     |                |       | SKS   |    | 32 | 41 |          |                                                             |           |                                                                                                                         |          | SSS             |    | 18 | 41 |          |                                                 |                  |
|                                                                                                                                                                                     |                |       | PS    |    | 33 | 12 |          |                                                             |           | POONA                                                                                                                   | Z        | iP              | 13 | 10 | 30 |          | Very feeble.                                    |                  |
|                                                                                                                                                                                     |                |       | PPS   |    | 33 | 32 |          |                                                             |           | BOMBAY                                                                                                                  | E        | e               | 13 | 12 | 27 |          | Feeble. Strong microseism. present              |                  |
|                                                                                                                                                                                     |                |       | iS    |    | 34 | 03 |          |                                                             |           |                                                                                                                         |          | e               |    | 13 | 00 |          |                                                 |                  |
|                                                                                                                                                                                     |                |       | SS    |    | 37 | 37 |          |                                                             |           |                                                                                                                         |          | e               |    | 21 | 00 |          |                                                 |                  |
|                                                                                                                                                                                     |                |       | SSS   |    | 40 | 57 |          |                                                             |           | 19 DEHRADUN                                                                                                             | N,E      | e               | 14 | 11 | 18 |          | Feeble, phases not clear                        |                  |
|                                                                                                                                                                                     |                |       | Lq    |    | 43 | 37 |          |                                                             |           |                                                                                                                         |          | i               |    | 11 | 42 |          |                                                 |                  |
|                                                                                                                                                                                     |                |       | Lr    |    | 47 | 16 |          |                                                             |           | 19 SHILLONG                                                                                                             | Z        | eP              | 20 | 35 | 47 |          | Slight, distant.                                |                  |
|                                                                                                                                                                                     |                |       | M     |    | 52 | 44 |          |                                                             |           | 19 SHILLONG                                                                                                             | Z        | eP              | 21 | 46 | 28 |          | Slight, distant.                                |                  |
|                                                                                                                                                                                     | BOKARO         | N,E   | iP    | 11 | 22 | 53 | 9110     | Slight. Other phases doubtful                               |           |                                                                                                                         |          |                 |    |    |    |          |                                                 |                  |
|                                                                                                                                                                                     |                |       | iS    |    | 33 | 07 |          |                                                             |           |                                                                                                                         |          |                 |    |    |    |          |                                                 |                  |

| DATE      | STATION                                                                                                     | COMPT | PHASE             | G. M. T.<br>h. m. s. | Δ<br>km | REMARKS                                                 | DATE      | STATION                                                                                                  | COMPT  | PHASE            | G. M. T.<br>h. m. s. | Δ<br>km       | REMARKS                          |        |
|-----------|-------------------------------------------------------------------------------------------------------------|-------|-------------------|----------------------|---------|---------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------|--------|------------------|----------------------|---------------|----------------------------------|--------|
| July 1957 |                                                                                                             |       |                   |                      |         |                                                         | July 1957 |                                                                                                          |        |                  |                      |               |                                  |        |
| 20        | SHILLONG                                                                                                    | Z     | eP                | 08 46 38             | 120     | Slight, local                                           | 23        | SHILLONG                                                                                                 | Z      | eP               | 12 15 06             |               | Slight, distant,                 |        |
| 20        | SHILLONG                                                                                                    | Z     | eP                | 11 22 19             |         | Slight, distant                                         | 23        | DEHRA DUN                                                                                                | N, E   | e                | 19 36 22             |               | Feeble, phases not clear.        |        |
| 20        | DEHRA DUN                                                                                                   | N, E  | e                 | 13 17 40             |         | Tremor                                                  |           | DEHRA DUN                                                                                                | N, E   | i                | 38 23                |               |                                  |        |
| 20        | SHILLONG                                                                                                    | Z     | iP                | 14 16 42             |         | Slight, distant: Compression.                           |           | BOKARO                                                                                                   | N, R   | e                | 19 36 31             |               | Slight. Phases poorly developed. |        |
| 22        | SHILLONG                                                                                                    | Z     | eP                | 03 53 53             |         | Slight, distant.                                        |           |                                                                                                          | N      | i                | 38 38                |               |                                  |        |
| 22        | DEHRA DUN                                                                                                   | N, E  | e                 | 05 29 40             |         | Feeble, phases not clear                                |           | SHILLONG                                                                                                 | Z      | eP               | 19 36 54             |               | Slight, distant. Compression     |        |
|           | SHILLONG                                                                                                    | Z     | eP                | 05 30 43             |         | Slight, near.                                           |           | BOMBAY                                                                                                   | E      | e                | 19 43 16             |               | Feeble, near.                    |        |
| 22        | SHILLONG                                                                                                    | Z     | eP                | 10 23 31             |         | Slight, distant                                         |           |                                                                                                          | N      | e                | 43 39                |               |                                  |        |
| 22        | SHILLONG                                                                                                    | Z     | iP                | 14 09 32             |         | Slight, distant Compression.                            |           |                                                                                                          | E      | e                | 43 48                |               |                                  |        |
| 22        | SHILLONG                                                                                                    | Z     | eP                | 21 22 51             |         | Slight, distant                                         | 24        | DEHRA DUN                                                                                                | N, E   | e                | 01 17 45             |               | Feeble, phases not clear.        |        |
| 22        | SHILLONG                                                                                                    | Z     | eP                | 22 47 17             |         | Slight, near.                                           |           |                                                                                                          | N      | i                | 28 25                |               |                                  |        |
| 23        | Epc: 52°N, 177°W, Adzanof Islands, Aleutian Islands.<br>H = 00h 45m 12s (U.S.C.G.S). Magnitude: 6M-6M(Pae). |       |                   |                      |         |                                                         |           | 24                                                                                                       | BOMBAY | E                | e                    | 02 17 14      |                                  | Feeble |
|           | SHILLONG                                                                                                    | Z, E  | iP                | 00 56 31             | 7990    | Slight, distant. Compression.                           |           |                                                                                                          | N      | e                | 17 30                |               |                                  |        |
|           |                                                                                                             | N, E  | iS                | 01 05 51             |         |                                                         |           | POONA                                                                                                    | Z      | iP               | 02 17 14             |               | Slight, phases not clear.        |        |
|           |                                                                                                             |       | SES               | 06 04                |         |                                                         |           |                                                                                                          | i      | 17 27            |                      |               |                                  |        |
|           |                                                                                                             |       | SS                | 06 52                |         |                                                         | 24        | TOCKLAI                                                                                                  | E      | e                | 05 17 30             |               |                                  |        |
|           | DEHRA DUN                                                                                                   | N, E  | eP                | 00 56 55             | 8698    | Slight                                                  | 24        | SHILLONG                                                                                                 | Z      | eP               | 06 08 02             |               | Slight, local.                   |        |
|           |                                                                                                             | N     | iS                | 01 06 50             |         |                                                         | 24        | SHILLONG                                                                                                 | Z      | eP               | 06 22 35             |               | Slight, local.                   |        |
|           |                                                                                                             |       | PS                | 07 44                |         |                                                         | 24        | SHILLONG                                                                                                 | Z      | eP               | 10 49 55             |               | Slight, distant.                 |        |
|           |                                                                                                             |       | SS                | 12 08                |         |                                                         | 24        | DEHRA DUN                                                                                                | N, E   | e                | 11 07 18             |               | Feeble, phases not clear.        |        |
|           |                                                                                                             |       | SSS               | 15 54                |         |                                                         |           | SHILLONG                                                                                                 | Z      | iP               | 11 07 29             |               | Slight, distant, rarefaction.    |        |
|           |                                                                                                             |       | Lq                | 19 01                |         |                                                         | 24        | COLOMBO                                                                                                  | E      | eS               | 11 26 29             |               |                                  |        |
|           |                                                                                                             |       | M                 | 19 46                |         |                                                         |           |                                                                                                          | e      | 55 06            |                      | Amp. = 0.4 mm |                                  |        |
|           | BOKARO                                                                                                      | N, E  | iP                | 00 57 00             | 8730    | Moderate, First movement South and West. Probably deep. |           |                                                                                                          | M      | 59 06            |                      |               |                                  |        |
|           |                                                                                                             | N     | PcP               | 57 11                |         |                                                         |           | BOMBAY                                                                                                   | E      | e(S)             | 11 27 11             |               |                                  |        |
|           |                                                                                                             |       | i                 | 01 06 43             |         |                                                         |           |                                                                                                          | M      | 12 04 --         |                      |               |                                  |        |
|           |                                                                                                             |       | iS                | 06 57                |         |                                                         | 24        | SHILLONG                                                                                                 | Z      | eP               | 14 49 44             |               | Slight, distant.                 |        |
|           |                                                                                                             |       | SSP               | 09 48                |         |                                                         | 24        | SHILLONG                                                                                                 | Z      | eP               | 16 57 59             |               | Slight, distant                  |        |
|           | HYDERABAD                                                                                                   | E     | iP                | 00 57 52             | 9550    | Moderate, First movement East.                          | 24        | SHILLONG                                                                                                 | Z      | iP               | 17 04 12             | 270           | Slight, rarefaction.             |        |
|           |                                                                                                             |       | iS                | 01 08 26             |         |                                                         |           |                                                                                                          | S      | 04 43            |                      |               |                                  |        |
|           |                                                                                                             |       | PS                | 09 29                |         | Per. = 18 secs<br>λ = 9                                 | 24        | SHILLONG                                                                                                 | Z      | eP               | 19 46 51             |               | Slight, distant                  |        |
|           |                                                                                                             |       | PFS               | 09 59                |         |                                                         | 25        | SHILLONG                                                                                                 | Z      | eP               | 03 36 02             |               | Slight, distant.                 |        |
|           |                                                                                                             |       | SS                | 14 20                |         |                                                         | 25        | SHILLONG                                                                                                 | Z      | eP               | 05 17 11             | 230           | Slight                           |        |
|           |                                                                                                             |       | SSS               | 17 41                |         |                                                         |           |                                                                                                          | S      | 17 38            |                      |               |                                  |        |
|           |                                                                                                             |       | Lr                | 25 44                |         |                                                         | 25        | Epc: 51°N, 177°W, Adzanof Islands, Aleutian Islands.<br>H = 07h 42m 25s (U.S.C.G.S) Magnitude: 6M (Berk) |        |                  |                      |               |                                  |        |
|           |                                                                                                             |       | M                 | 33 05                |         |                                                         |           | SHILLONG                                                                                                 | Z, E   | iP               | 07 53 44             | 7930          | Slight, Compression.             |        |
|           | POONA                                                                                                       | Z     | iP                | 00 57 59             | 9960    | Moderate, First movement South and West.                |           |                                                                                                          | N, E   | iS               | 08 03 02             |               |                                  |        |
|           |                                                                                                             | N     | PP                | 01 01 24             |         |                                                         |           | TOCKLAI                                                                                                  | E      | e                | 07 53 57             |               |                                  |        |
|           |                                                                                                             |       | PPP               | 03 27                |         |                                                         |           | DEHRA DUN                                                                                                | N, E   | eP               | 07 54 14             | 8630          | Feeble, Phases not clear.        |        |
|           |                                                                                                             |       | SKS <sub>1</sub>  | 08 21                |         |                                                         |           |                                                                                                          | iS     | 08 04 06         |                      |               |                                  |        |
|           |                                                                                                             |       | SKS <sub>2</sub>  | 08 37                |         |                                                         |           | POONA                                                                                                    | Z      | iP               | 07 55 13             | 10060         | Slight                           |        |
|           |                                                                                                             | N, E  | iS                | 08 49                |         |                                                         |           |                                                                                                          | N      | PP               | 58 39                |               |                                  |        |
|           |                                                                                                             | N     | PS                | 09 56                |         |                                                         |           |                                                                                                          |        | SKS <sub>1</sub> | 08 05 33             |               |                                  |        |
|           |                                                                                                             |       | SS                | 14 30                |         |                                                         |           |                                                                                                          |        | iS               | 06 07                |               |                                  |        |
|           |                                                                                                             |       | SSS               | 18 06                |         |                                                         |           |                                                                                                          |        | SS               | 12 10                |               |                                  |        |
|           |                                                                                                             |       | PKKS <sub>1</sub> | 18 37                |         |                                                         |           |                                                                                                          |        | SSP              | 12 28                |               |                                  |        |
|           |                                                                                                             |       | Lq                | 21 23                |         |                                                         |           |                                                                                                          |        | Lq               | 20 12                |               |                                  |        |
|           |                                                                                                             |       | Lr                | 26 15                |         |                                                         |           |                                                                                                          |        | SKEKS            | 23 27                |               |                                  |        |
|           |                                                                                                             |       | M                 | 31 49                |         |                                                         |           |                                                                                                          |        | M                | 31 42                |               |                                  |        |
|           |                                                                                                             |       | Mn                | 38 --                |         |                                                         |           |                                                                                                          |        |                  |                      |               |                                  |        |
|           | TOCKLAI                                                                                                     | E     | e                 | 00 58 20             |         |                                                         |           | BOMBAY                                                                                                   | E      | eS               | 06 06 00             |               | Slight                           |        |
|           | BOMBAY                                                                                                      | N     | e                 | 01 02 04             |         |                                                         |           |                                                                                                          | N      | e                | 06 07                |               |                                  |        |
|           |                                                                                                             | N, E  | e                 | 08 39                |         |                                                         |           |                                                                                                          | E      | M                | 37 --                |               |                                  |        |
|           |                                                                                                             | N     | e                 | 08 57                |         | Per. = 19 secs<br>λ = 6                                 |           |                                                                                                          | E      | M                | 38 --                |               |                                  |        |
|           |                                                                                                             | E     | M                 | 40 20                |         | Per. = 17 secs<br>λ = 9                                 |           |                                                                                                          |        |                  |                      |               |                                  |        |
|           | KOBAIKANAI                                                                                                  | E     | e?                | 01 36 15             |         | Tremor                                                  |           | HYDERABAD                                                                                                | E      | M                | 08 30 24             |               | Per. = 17 secs<br>λ = 4          |        |
| 23        | COLOMBO                                                                                                     | E     | P                 | 02 09 13             |         |                                                         |           |                                                                                                          | N      | M                | 31 20                |               | Per. = 18 secs<br>λ = 8          |        |
|           |                                                                                                             |       | S                 | 19 31                |         |                                                         |           |                                                                                                          |        |                  |                      |               |                                  |        |
|           |                                                                                                             |       | L                 | 40 11                |         |                                                         |           |                                                                                                          |        |                  |                      |               |                                  |        |
|           |                                                                                                             |       | M                 | 47 06                |         | Amp. = 0.3 mm                                           |           |                                                                                                          |        |                  |                      |               |                                  |        |
| 23        | SHILLONG                                                                                                    | Z     | eP                | 07 20 02             | 250     | Slight, near.                                           |           |                                                                                                          |        |                  |                      |               |                                  |        |
|           |                                                                                                             |       | S                 | 20 30                |         |                                                         |           |                                                                                                          |        |                  |                      |               |                                  |        |
| 23        | SHILLONG                                                                                                    | Z     | iP                | 11 49 51             |         | Slight, near. Rarefaction.                              |           |                                                                                                          |        |                  |                      |               |                                  |        |

| DATE      | STATION                                                                                                                                                                                   | COMPT   | PHASE                                                                                                   | G. M. T.                                                                                                                         | Δ     | REMARKS                      | DATE      | STATION       | COMPT     | PHASE                                        | G. M. T.                                                                                     | Δ  | REMARKS                                              |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------|-----------|---------------|-----------|----------------------------------------------|----------------------------------------------------------------------------------------------|----|------------------------------------------------------|
| July 1957 |                                                                                                                                                                                           |         |                                                                                                         | h. m. s.                                                                                                                         | km    |                              | July 1957 |               |           |                                              | h. m. s.                                                                                     | km |                                                      |
| 25        | PORT BLAIR                                                                                                                                                                                | N       | IP <sub>g</sub><br>eS <sub>g</sub>                                                                      | 15 24 05<br>24 10                                                                                                                | 40    | Slight, felt locally         | 28        | BOMBAY Contd. | E         | eSS<br>SBP<br>1<br>SSS<br>M                  | 09 21 46<br>22 26<br>24 40<br>28 08<br>39 21                                                 |    |                                                      |
| 25        | SHILLONG                                                                                                                                                                                  | Z       | IP                                                                                                      | 16 39 48                                                                                                                         |       | Slight, distant compression  |           |               | N         | M                                            | 10 02 20                                                                                     |    | Per. 30' secs<br>μ = 163<br>Per. 30' secs<br>μ = 289 |
| 25        | SHILLONG                                                                                                                                                                                  | Z       | IP                                                                                                      | 21 06 42                                                                                                                         |       | Slight, near rarefaction.    |           |               |           |                                              |                                                                                              |    |                                                      |
| 25        | SHILLONG                                                                                                                                                                                  | Z       | IP                                                                                                      | 22 22 18                                                                                                                         |       | Slight, distant. Compression | 28        | BOMBAY Contd. | N, E<br>N | ePKP<br>e<br>e<br>e<br>e<br>e<br>e<br>e<br>M | 08 59 41<br>59 45<br>09 02 39<br>03 15<br>05 10<br>08 06<br>15 02<br>21 32<br>26 55<br>36 43 |    | Great                                                |
| 25        | SHILLONG                                                                                                                                                                                  | Z       | eP                                                                                                      | 23 06 53                                                                                                                         |       | Slight, near.                |           |               |           |                                              |                                                                                              |    |                                                      |
| 26        | SHILLONG                                                                                                                                                                                  | Z       | eP                                                                                                      | 00 02 03                                                                                                                         |       | Slight, near.                |           |               |           |                                              |                                                                                              |    |                                                      |
| 26        | SHILLONG                                                                                                                                                                                  | Z       | eP                                                                                                      | 00 51 39                                                                                                                         |       | Slight, distant.             |           |               |           |                                              |                                                                                              |    |                                                      |
| 26        | SHILLONG                                                                                                                                                                                  | Z       | IP                                                                                                      | 10 52 29                                                                                                                         |       | Slight                       |           |               |           |                                              |                                                                                              |    | Per. 30' secs<br>μ = 278                             |
| 26        | SHILLONG                                                                                                                                                                                  | Z       | eP                                                                                                      | 13 49 01                                                                                                                         |       | Slight                       |           |               |           |                                              |                                                                                              |    |                                                      |
|           | TOCKLAI                                                                                                                                                                                   | E       | e<br>1                                                                                                  | 13 49 53<br>50 21                                                                                                                |       | Slight, distant              |           |               |           |                                              |                                                                                              |    |                                                      |
|           | DEHRA DUN                                                                                                                                                                                 | N, E    | e                                                                                                       | 13 55 13                                                                                                                         |       | Feeble                       |           |               |           |                                              |                                                                                              |    |                                                      |
| 26        | SHILLONG                                                                                                                                                                                  | Z       | eP                                                                                                      | 13 59 43                                                                                                                         |       | Slight                       |           |               |           |                                              |                                                                                              |    |                                                      |
| 26        | SHILLONG                                                                                                                                                                                  | Z       | eP<br>eS                                                                                                | 17 06 58<br>07 23                                                                                                                | 260   | Slight                       |           |               |           |                                              |                                                                                              |    | Per. 27' secs<br>μ = 173                             |
| 26        | DEHRA DUN                                                                                                                                                                                 | N, E    | e                                                                                                       | 17 49 15                                                                                                                         |       | Tremor                       |           |               |           |                                              |                                                                                              |    |                                                      |
| 26        | DEHRA DUN                                                                                                                                                                                 | N, E    | e                                                                                                       | 18 38 07                                                                                                                         |       | Tremor                       |           |               |           |                                              |                                                                                              |    |                                                      |
| 26        | SHILLONG                                                                                                                                                                                  | Z       | IP                                                                                                      | 18 54 43                                                                                                                         |       | Slight, Distant Compression. |           |               |           |                                              |                                                                                              |    |                                                      |
| 27        | SHILLONG                                                                                                                                                                                  | Z       | IP                                                                                                      | 18 44 06                                                                                                                         |       | Slight, Compression.         |           |               |           |                                              |                                                                                              |    |                                                      |
| 27        | SHILLONG                                                                                                                                                                                  | Z       | IP                                                                                                      | 18 53 51                                                                                                                         |       | Slight, rarefaction.         |           |               |           |                                              |                                                                                              |    |                                                      |
|           | POONA                                                                                                                                                                                     | Z       | IP                                                                                                      | 18 55 16                                                                                                                         |       | Slight, Phases not clear     |           |               |           |                                              |                                                                                              |    |                                                      |
| 27        | SHILLONG                                                                                                                                                                                  | Z       | IP                                                                                                      | 21 10 29                                                                                                                         |       | Slight, Compression.         |           |               |           |                                              |                                                                                              |    |                                                      |
| 28        | SHILLONG                                                                                                                                                                                  | Z       | eP                                                                                                      | 01 43 23                                                                                                                         |       | Slight                       |           |               |           |                                              |                                                                                              |    | Per. 30' secs<br>μ = 231                             |
| 28        | SHILLONG                                                                                                                                                                                  | Z       | IP                                                                                                      | 03 10 59                                                                                                                         |       | Slight                       |           |               |           |                                              |                                                                                              |    |                                                      |
| 28        | Epi: 17°N, 99°W, Guerrero, Mexico. 66 dead, many injured, property damage in Mexico City and Acapulco. M = 0.8h 40m 04s (U.S.C.O.S) Magnitude = 7M-7M (Berk), 7M-7M (Shillong), 7M (Pac). |         |                                                                                                         |                                                                                                                                  |       |                              |           |               |           |                                              |                                                                                              |    |                                                      |
|           | SHILLONG                                                                                                                                                                                  | Z, N, E | ePKP<br>N, E<br>N<br>PKS<br>PPP<br>SKKS<br>PS<br>N, E<br>SS<br>SSP<br>N<br>SSS<br>1(?)<br>Lq<br>Lr<br>M | 08 59 18<br>09 02 21<br>03 36<br>05 43<br>08 59<br>11 59<br>15 52<br>20 22<br>21 15<br>25 00<br>29 53<br>37 53<br>43 38<br>54 08 | 15400 | Great                        |           |               |           |                                              |                                                                                              |    |                                                      |
|           | DEHRA DUN                                                                                                                                                                                 | N, E    | ePKP<br>1<br>1<br>1                                                                                     | 08 59 32<br>09 08 50<br>19 43<br>21 44                                                                                           |       | Great, distant               |           |               |           |                                              |                                                                                              |    |                                                      |
|           | BOMBAY                                                                                                                                                                                    | N, E    | ePKP<br>PKP<br>PP<br>PPP<br>SKS<br>SKKS<br>PKS<br>PPS<br>SKKS                                           | 08 59 40<br>59 48<br>09 03 31<br>06 35<br>07 04<br>09 46<br>12 42<br>15 02<br>17 36                                              | 16070 | Moderate                     |           |               |           |                                              |                                                                                              |    |                                                      |
|           |                                                                                                                                                                                           | E       | PKP<br>PKP<br>PP<br>PPP<br>SS<br>SSP<br>SSS<br>Lq<br>Lr<br>M                                            | 09 00 14<br>00 47<br>04 08<br>07 38<br>23 20<br>24 08<br>29 08<br>43 50<br>50 56<br>10 03 29                                     | 16510 | Great                        |           |               |           |                                              |                                                                                              |    | Per. 27' secs<br>μ = 114                             |
|           |                                                                                                                                                                                           | N, E    | ePKP<br>1<br>e                                                                                          | 08 59 50<br>09 02 59<br>03 33<br>05 58<br>12 52<br>17 18<br>21 21<br>25 59<br>44 37<br>51 05<br>10 04 57                         | 15850 | Great                        |           |               |           |                                              |                                                                                              |    | Per. 33' secs<br>μ = 246                             |
|           | PORT BLAIR                                                                                                                                                                                | N       | ePKP<br>1<br>e                                                                                          | 08 59 54<br>09 00 23<br>08 09                                                                                                    |       | Moderate                     |           |               |           |                                              |                                                                                              |    |                                                      |
|           | MADRAS                                                                                                                                                                                    | E       | PKP<br>e<br>e<br>e<br>e<br>e<br>e<br>e<br>e<br>e<br>e                                                   | 09 00 08<br>02 06<br>03 35<br>05 35<br>08 04<br>08 32<br>10 04<br>11 41<br>12 18<br>13 38<br>15 18<br>19 40                      |       | Great                        |           |               |           |                                              |                                                                                              |    |                                                      |
|           | KODAIKANAL                                                                                                                                                                                | E       | PKP<br>PKP<br>PP<br>PPP<br>SS<br>SSP<br>SSS<br>Lq<br>Lr<br>M                                            | 09 00 14<br>00 47<br>04 08<br>07 38<br>23 20<br>24 08<br>29 08<br>43 50<br>50 56<br>10 03 29                                     | 16510 | Great                        |           |               |           |                                              |                                                                                              |    | Per. 27' secs<br>μ = 114                             |

| DATE         | STATION                                       | COMPT | PHASE             | G. M. T.<br>h m s | $\Delta$<br>km | REMARKS                     | DATE         | STATION   | COMPT | PHASE | G. M. T.<br>h m s | $\Delta$<br>km | REMARKS                        |
|--------------|-----------------------------------------------|-------|-------------------|-------------------|----------------|-----------------------------|--------------|-----------|-------|-------|-------------------|----------------|--------------------------------|
| July<br>1957 |                                               |       |                   |                   |                |                             | July<br>1957 |           |       |       |                   |                |                                |
| 28           | COLOMBO                                       | E     | e                 | 09 00 25          |                |                             | 29           | BOKARO    | N,E   | i     | 17 35 20          |                | Slight,distant                 |
| Contd.       |                                               |       | e                 | 10 18             |                |                             | Contd.       |           | N     | i     | 35 40             |                |                                |
|              |                                               |       | e                 | 17 22             |                |                             |              |           |       | i     | 39 40             |                |                                |
|              |                                               |       | L                 | 50 54             |                |                             |              |           |       | e     | 44 31             |                |                                |
|              |                                               |       | M1                | 10 01 05          |                | Amp. = 6.0 mm               |              |           |       | i     | 49 56             |                |                                |
|              |                                               |       | M2                | 14 05             |                | Amp. = 5.5 mm               |              |           |       | E     |                   |                |                                |
|              | TOCKLAI                                       | E     | e                 | 09 00 35          |                | Tremor                      |              | SHILLONG  | Z,N,E | iPKP  | 17 35 24          |                | Slight,distant                 |
|              |                                               |       |                   |                   |                |                             |              |           | E     | i     | 36 20             |                | Compression.                   |
| 28           | DEHRA DUN                                     | N,E   | e                 | 21 40 38          |                | Feeble.Phases<br>not clear  |              |           |       | i     | 40 12             |                | Phases not<br>clear            |
|              |                                               |       | i                 | 41 01             |                |                             |              |           |       | i     | 50 46             |                |                                |
| 29           | DEHRA DUN                                     | N,E   | e                 | 11 14 30          |                | Tremor                      | 30           | SHILLONG  | Z     | iP    | 02 50 58          |                | Slight                         |
| 29           | SHILLONG                                      | Z     | iP                | 13 11 45          |                | Slight                      |              | TOCKLAI   | E     | e     | 02 51 17          |                | Slight,distant                 |
| 29           | SHILLONG                                      | Z     | eP                | 17 19 55          |                | Feeble,distant              |              |           | e?    | 51 21 |                   |                |                                |
| 29           | TOCKLAI                                       | E     | e                 | 17 32 55          |                | Tremor                      | 30           | BOMBAY    | N     | e     | 07 12 46          |                | Slight                         |
|              |                                               |       |                   |                   |                |                             |              |           | e     | 13 38 |                   |                |                                |
|              |                                               |       |                   |                   |                |                             |              |           | E     | e     | 13 43             |                |                                |
| 29           | Epc: 23°S, 71°W. Near Coast of Chile          |       |                   |                   |                |                             | 30           | SHILLONG  | Z     | ePg   | 08 10 28          | 80             | Slight                         |
|              | Felt: Antofagasta. H: 17h 15m 14s (U.S.C.G.S) |       |                   |                   |                |                             |              |           | Sg    | 10 37 |                   |                |                                |
|              | Magnitude: 7-7½ (Psa), 6½ (Berkeley)          |       |                   |                   |                |                             | 30           | SHILLONG  | Z     | ePg   | 08 11 50          | 80             | Slight                         |
|              |                                               |       |                   |                   |                |                             |              |           | Sg    | 11 59 |                   |                |                                |
|              | BOMBAY                                        | N,E   | ePKP <sub>1</sub> | 17 35 00          | 16210          | Slight                      | 30           | SHILLONG  | Z     | eP    | 09 17 23          |                | Slight                         |
|              |                                               | E     | PP                | 38 22             |                |                             |              |           |       |       |                   |                |                                |
|              |                                               |       | PS                | 48 38             |                |                             |              |           |       |       |                   |                |                                |
|              |                                               | N     | PS                | 48 46             |                |                             |              |           |       |       |                   |                |                                |
|              |                                               | N,E   | eSS               | 57 17             |                |                             |              |           |       |       |                   |                |                                |
|              |                                               | E     | M                 | 18 38 46          |                | Per. = 21 secs<br>$\mu = 6$ |              |           |       |       |                   |                |                                |
|              |                                               |       |                   |                   |                |                             |              |           |       |       |                   |                |                                |
|              | POONA                                         | Z     | iPKP <sub>1</sub> | 17 35 01          | 16780          | Slight                      | 30           | POONA     | Z     | iP    | 10 01 19          | 190            | Feeble                         |
|              |                                               | N     | PKP <sub>2</sub>  | 35 24             |                |                             |              |           |       | S     | 01 41             |                |                                |
|              |                                               | E     | PP                | 38 45             |                |                             |              |           |       | SS    | 01 52             |                |                                |
|              |                                               | N     | SKKS <sub>1</sub> | 45 57             |                |                             |              |           |       | SSS   | 02 03             |                |                                |
|              |                                               |       | SS                | 58 38             |                |                             |              |           |       |       |                   |                |                                |
|              |                                               |       | SSS               | 18 03 55          |                |                             |              |           |       |       |                   |                |                                |
|              |                                               |       | Lq                | 18 28             |                |                             |              |           |       |       |                   |                |                                |
|              |                                               |       |                   |                   |                |                             |              |           |       |       |                   |                |                                |
|              | COLOMBO                                       | E     | PKP               | 17 35 06          |                |                             |              | SHILLONG  | Z,N,E | iPg   | 16 53 03          | 140            | Slight. Felt.                  |
|              |                                               |       | L                 | 18 32 21          |                |                             |              |           | N,E   | Sg    | 53 19             |                |                                |
|              |                                               |       | M                 | 42 16             |                | Amp. = 0.8 mm               |              |           |       |       |                   |                |                                |
|              |                                               |       |                   |                   |                |                             |              |           |       |       |                   |                |                                |
|              | KODAIKANAL                                    | E     | ePKP?             | 17 35 06          |                | Tremor                      | 30           | SHILLONG  | Z     | eP    | 17 56 53          |                | Slight,distant.                |
|              |                                               |       |                   |                   |                |                             |              |           |       |       |                   |                |                                |
|              | HYDERABAD                                     | E     | ePKP <sub>1</sub> | 17 35 12          |                |                             | 31           | SHILLONG  | Z     | iP    | 07 28 34          |                | Slight,distant<br>Rarefaction. |
|              |                                               |       | PPP               | 49 12             |                |                             |              |           |       |       |                   |                |                                |
|              |                                               |       | M                 | 18 35 57          |                | Per. = 18 secs<br>$\mu = 7$ |              |           |       |       |                   |                |                                |
|              |                                               |       |                   |                   |                |                             |              |           |       |       |                   |                |                                |
|              | MADRAS                                        | E     | ePKP              | 17 35 12          |                | Slight                      |              | SHILLONG  | Z     | iP    | 07 39 21          |                | Slight,distant                 |
|              |                                               |       | e                 | 40 00             |                |                             |              |           |       |       |                   |                |                                |
|              |                                               |       | e                 | 42 14             |                |                             |              |           |       |       |                   |                |                                |
|              |                                               |       | e                 | 49 18             |                |                             |              |           |       |       |                   |                |                                |
|              |                                               |       |                   |                   |                |                             |              |           |       |       |                   |                |                                |
|              | DEHRA DUN                                     | N,E   | ePKP              | 17 35 13          |                | Feeble.Phases<br>not clear  |              | DEHRA DUN | N,E   | e(P)  | 07 40 52          | 4970           | Feeble. Phases<br>not clear    |
|              |                                               |       | i                 | 38 52             |                |                             |              |           |       | i(S)  | 47 29             |                |                                |
|              |                                               |       | i                 | 49 12             |                |                             |              |           |       |       |                   |                |                                |
|              |                                               |       | i                 | 53 16             |                |                             |              |           |       |       |                   |                |                                |
|              |                                               |       |                   |                   |                |                             |              |           |       |       |                   |                |                                |
|              | CALCUTTA                                      | E     | ePKP              | 17 35 19          |                | Slight,distant              | 31           | SHILLONG  | Z     | iP    | 16 30 22          | 360            | Slight.<br>Compression         |
|              |                                               |       | i                 | 39 55             |                |                             |              |           |       | S     | 31 01             |                |                                |
|              |                                               |       | i                 | 47 32             |                |                             |              |           |       |       |                   |                |                                |
|              |                                               |       | e                 | 49 14             |                |                             |              |           |       |       |                   |                |                                |

*Earthquake Reports*  
(Non Instrumental Reports)

The following table contains a list of earthquakes that were reported by Voluntary Observers from various stations during the months of July 1957.

| Place at<br>which felt | Date in<br>G. M. T | Time in<br>G. M.T.<br>h. m. | Duration<br>in secs. | Intensity<br>in R.F.<br>scale | No. of<br>shocks | Remarks |
|------------------------|--------------------|-----------------------------|----------------------|-------------------------------|------------------|---------|
| TEZPUR                 | 01                 | 19 31                       | 60                   | VI                            | 1                | -       |
| HAPLONG                | 01                 | 19 28                       | 50                   | VI                            | 3                | -       |
| GAUHATI                | 01                 | 19 30                       | 90                   | VI                            | 3                | -       |
| KAILASHAHAR            | 01                 | 19 30                       | 62                   | VI                            | 1                | -       |
| SILCHAR                | 01                 | 19 32                       | 40                   | VII                           | 2                | -       |
| NORTH LAKHIMPUR        | 01                 | 19 34                       | 3                    | V                             | 3                | -       |
| ROWRAH (JORHAT)        | 01                 | 19 34                       | 15                   | VII                           | 3                | -       |
| KUMBHIRGRAM            | 01                 | 19 29                       | 30                   | VI                            | 3                | -       |
| KOHIMA                 | 01                 | 19 33                       | 10                   | VI                            | 1                | -       |
| DHUBRI                 | 01                 | 19 40                       | 30                   | VII                           | 2                | -       |
| LUMDING                | 01                 | 19 30                       | 60                   | VIII                          | 1                | -       |
| PASIGHAT               | 01                 | 19 32                       | 45                   | VI                            | 3                | -       |
| IMPHAL                 | 01                 | 19 29                       | 50                   | VII                           | 3                | -       |
| BINDUKURI              | 01                 | 19 32                       | 50                   | VII                           | 1                | -       |
| UPPER SHILLONG         | 01                 | 19 34                       | 75                   | IV                            | 3                | -       |
| MAZBAT                 | 01                 | 19 33                       | 30                   | VI                            | 1                | -       |
| GOALPARA               | 01                 | 19 17                       | 20                   | VII                           | 1                | -       |
| BERHAMPORE             | 01                 | 19 31                       | 4                    | VI                            | 1                | -       |
| AGARTALA               | 01                 | 19 32                       | 30                   | VII                           | 3                | -       |
| CHAPARMUKH             | 01                 | 19 30                       | 120                  | -                             | 1                | -       |
| UPPER SHILLONG         | 08                 | 00 34                       | 30                   | V                             | 3                | -       |
| KUMBHIRGRAM            | 08                 | 00 30                       | 3                    | IV                            | 1                | -       |
| GAUHATI                | 08                 | 00 32                       | 20                   | V                             | 1                | -       |
| LUMDING                | 08                 | 00 35                       | 2                    | V                             | 1                | -       |
| IMPHAL                 | 08                 | 00 32                       | 25                   | VI                            | 2                | -       |
| ANGUL                  | 11                 | 22 00                       | 3                    | IV                            | 1                | -       |
| SURI                   | 16                 | 11 41                       | 20                   | III                           | 1                | -       |
| PORT BLAIR             | 25                 | 15 23                       | 3                    | III                           | 1                | -       |



11-11-11









Geophysical Laboratory  
Bengal Engineering College\*  
Howrah, India.

Analysis of Microseismic Movements.  
Station: Howrah. Lat. 22°33' N, Long. 88°19' E.  
Foundation: Alluvium      Months: July, 1957.

Component: N-S.      Component N-S.

| Component: N-S. |      |   |                         | Component N-S.   |      |      |     | Component: E-W.         |                  |      |      | Component N-S. |                         |                  |      |           |     |                         |                  |     |
|-----------------|------|---|-------------------------|------------------|------|------|-----|-------------------------|------------------|------|------|----------------|-------------------------|------------------|------|-----------|-----|-------------------------|------------------|-----|
| DATE            | HOUR | K | MEAN AMPLITUDE (MICRON) | MEAN PERIOD SECS | DATE | HOUR | K   | MEAN AMPLITUDE (MICRON) | MEAN PERIOD SECS | DATE | HOUR | K              | MEAN AMPLITUDE (MICRON) | MEAN PERIOD SECS | DATE | HOUR      | K   | MEAN AMPLITUDE (MICRON) | MEAN PERIOD SECS |     |
| 01              | 00   | - | 4.1                     | 3.4              | 15   | 00   | -   | 4.1                     | 3.3              | 28   | 00   | -              | -                       | -                | 11   | 12        | -   | 4.9                     | 4.1              |     |
|                 | 06   | - | 4.9                     | 3.3              |      | 06   | -   | 3.4                     | 3.4              |      | 06   | -              | -                       | -                |      | Contd. 18 | -   | 3.5                     | 4.0              |     |
|                 | 12   | - | 4.8                     | 3.7              |      | 12   | -   | 3.6                     | 3.9              |      | 12   | -              | -                       | -                |      | 12        | 00  | -                       | 3.6              | 3.8 |
|                 | 18   | 3 | 4.5                     | 2.8              |      | 18   | -   | 3.9                     | 2.9              |      | 18   | -              | 1.7                     | 4.0              |      | 06        | 2   | -                       | -                | -   |
| 02              | 00   | - | 5.6                     | 3.4              | 16   | 00   | -   | 2.9                     | 3.3              | 29   | 00   | -              | -                       | -                | 13   | 00        | 3   | 3.3                     | 2.9              |     |
|                 | 06   | - | 3.1                     | 4.2              |      | 06   | -   | 5.9                     | 4.4              |      | 06   | -              | -                       | -                |      | 12        | 2   | -                       | -                |     |
|                 | 12   | 1 | 6.7                     | 4.7              |      | 12   | -   | 4.3                     | 3.8              |      | 12   | -              | -                       | -                |      | 18        | -   | 3.1                     | 3.5              |     |
|                 | 18   | - | 4.1                     | 2.6              |      | 18   | -   | 3.7                     | 4.0              |      | 18   | -              | -                       | -                |      | 00        | 3   | 3.3                     | 2.9              |     |
| 03              | 00   | - | 5.3                     | 3.7              | 17   | 00   | -   | 3.6                     | 3.8              | 30   | 00   | -              | 2.4                     | 3.1              | 05   | 00        | -   | 4.6                     | 2.9              |     |
|                 | 06   | - | 5.7                     | 3.4              |      | 06   | -   | 4.1                     | 4.0              |      | 06   | -              | 2.7                     | 4.3              |      | 06        | 3   | 4.4                     | 3.5              |     |
|                 | 12   | - | 6.6                     | 3.3              |      | 12   | -   | 3.7                     | 3.7              |      | 12   | -              | 2.1                     | 3.9              |      | 12        | -   | 4.7                     | 3.6              |     |
|                 | 18   | - | 6.7                     | 3.4              |      | 18   | 3   | 3.1                     | 2.6              |      | 18   | -              | -                       | -                |      | 18        | 1   | 7.0                     | 3.4              |     |
| 04              | 00   | - | 4.2                     | 3.4              | 18   | 00   | -   | 4.0                     | 3.5              | 31   | 00   | -              | 1.1                     | 3.7              | 16   | 00        | -   | 3.0                     | 3.4              |     |
|                 | 06   | - | 4.5                     | 3.5              |      | 06   | -   | -                       | -                |      | 06   | -              | 2.0                     | 3.8              |      | 06        | -   | 3.8                     | 3.7              |     |
|                 | 12   | - | 4.9                     | 3.7              |      | 12   | -   | 6.1                     | 3.7              |      | 12   | -              | 2.1                     | 4.0              |      | 12        | -   | 3.1                     | 3.4              |     |
|                 | 18   | - | 4.1                     | 2.3              |      | 18   | -   | 6.8                     | 3.0              |      | 18   | -              | 2.1                     | 4.0              |      | 18        | -   | 4.9                     | 3.2              |     |
| 05              | 00   | - | 4.0                     | 3.3              | 19   | 00   | 3   | 5.0                     | 3.1              | 01   | 00   | -              | 4.4                     | 3.4              | 15   | 00        | -   | 5.9                     | 3.2              |     |
|                 | 06   | - | 4.5                     | 3.3              |      | 06   | -   | 5.6                     | 3.9              |      | 06   | -              | 5.4                     | 3.5              |      | 06        | -   | 3.9                     | 3.4              |     |
|                 | 12   | - | 3.8                     | 3.5              |      | 12   | -   | 6.3                     | 3.5              |      | 12   | -              | 5.3                     | 3.8              |      | 12        | -   | 5.2                     | 3.9              |     |
|                 | 18   | - | 3.0                     | 3.3              |      | 18   | 3   | 4.8                     | 2.8              |      | 18   | 3              | 3.4                     | 2.8              |      | 18        | -   | 5.7                     | 3.8              |     |
| 06              | 00   | - | 4.4                     | 3.7              | 20   | 00   | -   | 5.4                     | 3.3              | 02   | 00   | -              | 5.9                     | 3.4              | 17   | 00        | -   | 3.7                     | 3.8              |     |
|                 | 06   | - | 3.9                     | 3.9              |      | 06   | -   | 5.7                     | 3.5              |      | 06   | -              | 7.0                     | 4.2              |      | 06        | -   | 4.5                     | 3.7              |     |
|                 | 12   | - | 4.5                     | 3.9              |      | 12   | -   | 4.1                     | 3.4              |      | 12   | -              | 5.5                     | 4.2              |      | 12        | -   | 6.0                     | 3.7              |     |
|                 | 18   | - | 4.9                     | 4.2              |      | 18   | 3   | 3.1                     | 3.0              |      | 18   | 3              | 3.4                     | 2.8              |      | 18        | -   | 3.8                     | 3.9              |     |
| 07              | 00   | - | 4.4                     | 4.2              | 21   | 00   | 3   | 3.9                     | 3.3              | 03   | 00   | -              | 4.5                     | 3.3              | 19   | 00        | -   | 4.6                     | 3.0              |     |
|                 | 06   | - | 4.0                     | 4.0              |      | 06   | -   | 5.8                     | 3.8              |      | 06   | -              | 4.5                     | 3.4              |      | 06        | 0.. | -                       | -                |     |
|                 | 12   | - | 4.8                     | 4.0              |      | 12   | -   | 5.5                     | 3.5              |      | 12   | -              | 4.8                     | 3.4              |      | 12        | -   | 4.8                     | 3.7              |     |
|                 | 18   | - | 4.3                     | 4.1              |      | 18   | 3   | 3.1                     | 3.0              |      | 18   | 3              | 3.5                     | 3.5              |      | 18        | -   | 4.1                     | 3.3              |     |
| 08              | 00   | - | 2.8                     | 2.9              | 22   | 00   | -   | 5.6                     | 3.5              | 04   | 00   | -              | 4.4                     | 3.7              | 18   | 00        | -   | 4.5                     | 3.9              |     |
|                 | 06   | - | 4.1                     | 4.2              |      | 06   | -   | 3.9                     | 3.5              |      | 06   | -              | 4.4                     | 3.7              |      | 06        | -   | 5.8                     | 3.7              |     |
|                 | 12   | - | 3.5                     | 3.4              |      | 12   | -   | 3.4                     | 3.4              |      | 12   | -              | 3.5                     | 3.9              |      | 12        | -   | 7.6                     | 3.5              |     |
|                 | 18   | - | 4.5                     | 4.4              |      | 18   | 3   | 4.5                     | 3.5              |      | 18   | -              | 6.2                     | 3.8              |      | 18        | -   | 5.1                     | 2.9              |     |
| 09              | 00   | - | 3.4                     | 3.0              | 23   | 00   | 3   | 4.3                     | 3.5              | 05   | 00   | -              | 3.7                     | 3.5              | 19   | 00        | -   | 4.6                     | 3.0              |     |
|                 | 06   | - | 4.2                     | 3.7              |      | 06   | -   | 4.1                     | 3.5              |      | 06   | -              | 3.0                     | 3.7              |      | 06        | -   | 4.8                     | 3.9              |     |
|                 | 12   | - | 3.9                     | 3.4              |      | 12   | -   | 2.7                     | 3.4              |      | 12   | -              | 3.1                     | 3.9              |      | 12        | -   | 7.5                     | 3.5              |     |
|                 | 18   | - | 2.8                     | 3.2              |      | 18   | -   | 3.0                     | 4.0              |      | 18   | -              | 3.4                     | 3.3              |      | 18        | -   | 4.1                     | 2.9              |     |
| 10              | 00   | - | 3.1                     | 3.2              | 24   | 00   | -   | 2.9                     | 3.3              | 06   | 00   | -              | 3.1                     | 3.5              | 20   | 00        | -   | 3.0                     | 3.3              |     |
|                 | 06   | - | 3.6                     | 3.1              |      | 06   | -   | 2.5                     | 2.7              |      | 06   | -              | 3.1                     | 3.4              |      | 06        | -   | 6.2                     | 3.8              |     |
|                 | 12   | - | 4.1                     | 3.8              |      | 12   | 3   | 2.1                     | 2.7              |      | 12   | -              | 4.7                     | 3.8              |      | 12        | -   | 5.1                     | 3.8              |     |
|                 | 18   | - | 2.9                     | 3.4              |      | 18   | -   | 2.5                     | 3.2              |      | 18   | -              | 4.9                     | 4.0              |      | 18        | -   | 4.5                     | 3.5              |     |
| 11              | 00   | - | 3.2                     | 3.7              | 25   | 00   | -   | 3.5                     | 2.7              | 07   | 00   | -              | 3.0                     | 4.0              | 21   | 00        | 3   | 5.6                     | 3.7              |     |
|                 | 06   | - | 4.8                     | 4.0              |      | 06   | -   | 2.5                     | 3.7              |      | 06   | -              | 4.8                     | 4.0              |      | 06        | -   | 4.7                     | 3.9              |     |
|                 | 12   | - | 4.2                     | 4.0              |      | 12   | -   | 3.4                     | 3.4              |      | 12   | -              | 4.9                     | 4.1              |      | 12        | -   | 4.6                     | 3.5              |     |
|                 | 18   | - | 3.2                     | 3.9              |      | 18   | -   | 2.3                     | 2.6              |      | 18   | -              | 4.3                     | 4.1              |      | 18        | -   | 4.6                     | 3.5              |     |
| 12              | 00   | - | 2.8                     | 3.5              | 25   | 00   | -   | 3.0                     | 2.7              | 08   | 00   | -              | 5.1                     | 4.0              | 22   | 00        | -   | 3.7                     | 3.7              |     |
|                 | 06   | - | 3.5                     | 3.2              |      | 06   | -   | 2.9                     | 3.3              |      | 06   | -              | 5.0                     | 4.2              |      | 06        | -   | 3.9                     | 3.8              |     |
|                 | 12   | - | 2.5                     | 3.7              |      | 12   | -   | 2.9                     | 2.7              |      | 12   | -              | 3.4                     | 3.7              |      | 12        | -   | 5.3                     | 4.0              |     |
|                 | 18   | 3 | 2.2                     | 2.5              |      | 18   | -   | 3.0                     | 3.0              |      | 18   | -              | 3.9                     | 3.9              |      | 18        | -   | 5.5                     | 3.9              |     |
| 13              | 00   | - | 3.1                     | 2.7              | 26   | 00   | -   | 2.2                     | 2.8              | 09   | 00   | -              | 4.5                     | 3.8              | 23   | 00        | -   | 4.2                     | 3.5              |     |
|                 | 06   | - | 4.1                     | 3.2              |      | 06   | 0.. | -                       | -                |      | 06   | -              | 5.1                     | 3.7              |      | 06        | 2   | -                       | -                |     |
|                 | 12   | - | 6.3                     | 3.0              |      | 12   | 0.. | -                       | -                |      | 12   | -              | 4.2                     | 2.3              |      | 12        | -   | 3.5                     | 3.6              |     |
|                 | 18   | - | 5.5                     | 3.5              |      | 18   | -   | 2.7                     | 4.3              |      | 18   | -              | 2.5                     | 3.4              |      | 18        | -   | 3.7                     | 3.6              |     |
| 14              | 00   | - | 6.0                     | 3.4              | 27   | 00   | -   | -                       | -                | 10   | 00   | -              | 4.8                     | 3.5              | 24   | 00        | 2.3 | 2.3                     | 2.3              |     |
|                 | 06   | - | 6.6                     | 3.4              |      | 06   | -   | -                       | -                |      | 06   | -              | 4.0                     | 3.3              |      | 06        | 2   | -                       | -                |     |
|                 | 12   | - | 4.8                     | 3.4              |      | 12   | -   | -                       | -                |      | 12   | -              | 4.9                     | 3.7              |      | 12        | 0.. | -                       | -                |     |
|                 | 18   | - | 3.8                     | 3.4              |      | 18   | -   | -                       | -                |      | 18   | -              | 4.0                     | 3.4              |      | 18        | -   | 4.2                     | 3.3              |     |

| DATE                       | HOUR | K   | MEAN<br>AMPLI-<br>TUDE<br>(MICRON) | MEAN<br>PERIOD<br>SECS | DATE                       | HOUR | K | MEAN<br>AMPLI-<br>TUDE<br>(MICRON) | MEAN<br>PERIOD<br>SECS | DATE | HOUR | K | MEAN<br>AMPLI-<br>TUDE<br>(MICRON) | MEAN<br>PERIOD<br>SECS | DATE | HOUR | K | MEAN<br>AMPLI-<br>TUDE<br>(MICRON) | MEAN<br>PERIOD<br>SECS |
|----------------------------|------|-----|------------------------------------|------------------------|----------------------------|------|---|------------------------------------|------------------------|------|------|---|------------------------------------|------------------------|------|------|---|------------------------------------|------------------------|
| <b>Component: East</b>     |      |     |                                    |                        | <b>Component: Vertical</b> |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
| 24                         | 12   | -   | 2.9                                | 3.2                    | 22                         | 00   | - | 1.9                                | 3.6                    | 22   | 00   | - | 1.9                                | 3.6                    |      |      |   |                                    |                        |
| Contd.                     | 18   | -   | 2.9                                | 2.9                    |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
| 25                         | 00   | 0.. | 2.3                                | 2.7                    |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 06   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 12   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 18   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
| 26                         | 00   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 06   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 12   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 18   |     | 2.2                                | 4.1                    |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
| 27                         | 00   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 06   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 12   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 18   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
| 28                         | 00   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 06   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 12   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 18   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
| 29                         | 00   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 06   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 12   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 18   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
| 30                         | 00   | 3   | 1.9                                | 2.5                    |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            |      |     | 2.8                                | 4.1                    |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 06   |     |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 0..  |     |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 12   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 18   |     |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 0..  |     | 3.0                                | 4.0                    |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
| 31                         | 00   |     | 2.5                                | 3.9                    |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 06   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 12   | 0.. |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 18   |     | 2.4                                | 4.1                    |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
| <b>Component: Vertical</b> |      |     |                                    |                        |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
| 01                         | 00   | -   | 2.3                                | 3.3                    |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 06   | -   | 2.2                                | 3.5                    |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 12   | -   | 1.7                                | 3.4                    |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            | 18   | 3   | 1.1                                | 2.6                    |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |
|                            |      |     | 1.7                                | 3.5                    |                            |      |   |                                    |                        |      |      |   |                                    |                        |      |      |   |                                    |                        |

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SEISMOLOGICAL BULLETIN



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*Shri S. Basu, M.Sc., F.N.I.,*  
Director General of Observatories

FEB 14 1961

### Instruments and their Constants

| STATION   | INSTRUMENT    | COMPT. | PERIOD<br>IN<br>SECS | STATIC<br>MAGNIFI-<br>CATION | DAMPING<br>RATIO   | PAPER<br>SPEED<br>mm/min | STATION     | INSTRUMENT    | COMPT.                | PERIOD<br>IN<br>SECS | STATIC<br>MAGNIFI-<br>CATION | DAMPING<br>RATIO   | PAPER<br>SPEED<br>mm/min |    |
|-----------|---------------|--------|----------------------|------------------------------|--------------------|--------------------------|-------------|---------------|-----------------------|----------------------|------------------------------|--------------------|--------------------------|----|
| BOMBAY    | Milne-Shaw    | N      | 12                   | 350                          | 23:1               | 16                       | HYDERABAD   | Milne-Shaw    | E                     | 12                   | 250                          | 20:1               | 8                        |    |
|           | Milne-Shaw    | E      | 12                   | 350                          | 12:1               | 8                        |             | Milne-Shaw    | N                     | 12                   | 250                          | 20:1               | 8                        |    |
|           | Sprengnether  | E      | To: Tg=7             |                              | -                  | 30                       |             |               |                       |                      |                              |                    |                          |    |
| BOKARO    | Milne-Shaw    | N      | 12                   | 250                          | 20:1               | 16                       | KODAIKANAL  | Milne-Shaw    | E                     | 10                   | 250                          | 20:1               | 8                        |    |
|           | Milne-Shaw    | E      | 12                   | 250                          | 20:1               | 16                       |             | MADRAS        | Sprengnether          | E                    | To: Tg=7.4                   |                    | -                        | 30 |
|           | Wood-Anderson | E      | 0.8                  | 960                          | h <sub>a</sub> 0.8 | 60                       |             |               |                       |                      |                              |                    |                          |    |
|           | Wood-Anderson | N      | 0.8                  | 1000                         | h <sub>a</sub> 0.8 | 60                       |             |               |                       |                      |                              |                    |                          |    |
| COLOMBO   | Milne-Shaw    | E      | 11.9                 | 250                          | 20:1               | -                        | POONA       | Sprengnether  | Z                     | To: Tg=1.6           |                              | Critical           | 30                       |    |
| CALCUTTA  | Milne-Shaw    | E      | 12                   | 250                          | 20:1               | 8                        | PORT BLAIR  | Wood-Anderson | E                     | 4                    | 1000                         | 20:1               | 16                       |    |
|           | Wood-Anderson | N      | 2                    | 870                          | Critical           | 30                       |             | Milne-Shaw    | N                     | 12                   | 280                          | 20:1               | 8                        |    |
|           | Omori-Ewing   | N      | 16                   | 32                           | -                  | 25.4                     |             | Wood-Anderson | N                     | 2                    | 1000                         | 20:1               | 30                       |    |
|           | Omori-Ewing   | E      | 21                   | 30                           | -                  | 25.4                     | SHILLONG    | Wood-Anderson | N                     | 0.8                  | 1000                         | h <sub>a</sub> 0.8 | 30                       |    |
| CHATRA    | Milne-Shaw    | E      | 12                   | 250                          | 20:1               | 16                       |             | Wood-Anderson | E                     | 0.8                  | 1000                         | h <sub>a</sub> 0.8 | 30                       |    |
|           | Milne-Shaw    | N      | 10                   | 150                          | 20:1               | 16                       |             | Milne-Shaw    | N                     | 12                   | 250                          | 20:1               | 8                        |    |
|           | Wood-Anderson | E      | 1                    | 1000                         | 30:1               | 60                       | Benioff     | Z             | To = 1.0<br>Tg = 0.13 |                      | -                            | 60                 |                          |    |
|           | Wood-Anderson | N      | 1                    | 1000                         | 40:1               | 60                       |             |               |                       |                      |                              |                    |                          |    |
|           | Benioff Short | Z      | To: Tg=0.72          |                              | Critical           | 60                       |             | Sprengnether  | E                     | To: Tg=6.8           |                              | -                  | 30                       |    |
|           | Wenner        |        |                      |                              |                    |                          |             | Wenner        |                       |                      |                              |                    |                          |    |
|           | Accelerograph | ENZ    |                      |                              |                    |                          |             | Accelerograph | ENZ                   |                      |                              |                    |                          |    |
| DEHRA DUN | Wood-Anderson | N      | 0.8                  | 950                          | Critical           | 60                       | TOCKLAI     | Wood-Anderson | E                     | 0.8                  | 970                          | h <sub>a</sub> 0.8 | 60                       |    |
|           | Wood-Anderson | E      | 0.8                  | 850                          | Critical           | 60                       | VIZIANAGRAM | Wood-Anderson | E                     | 0.8                  | 1000                         | h <sub>a</sub> 0.8 | 30                       |    |
|           | Milne-Shaw    | N      | 12                   | 250                          | 20:1               | 8                        |             | Wood-Anderson | N                     | 2                    | 1000                         | 20:1               | 30                       |    |
|           | Milne-Shaw    | E      | 12                   | 250                          | 20:1               | 8                        |             |               |                       |                      |                              |                    |                          |    |

### List of Seismograph station

| Station     | Latitude | Longitude | Height<br>a.s.l<br>(Metres)             | Lithographic foundation                      |
|-------------|----------|-----------|-----------------------------------------|----------------------------------------------|
| BOMBAY      | 18°54'N  | 72°49'E   | 6                                       | Deccan Trap                                  |
| BOKARO      | 23°50'N  | 85°48'E   | -                                       | Rock                                         |
| COLOMBO     | 06°54'N  | 79°52'E   | 7                                       | Beach Sand                                   |
| CALCUTTA    | 22°32'N  | 88°22'E   | (1) 7(Milne-Shaw)<br>(2) 6(Omori-Ewing) | Alluvium                                     |
| CHATRA      | 26°50'N  | 87°10'E   | 161                                     | Sand Stone                                   |
| DEHRA DUN   | 30°19'N  | 78°02'E   | 682                                     | Gravel                                       |
| HYDERABAD   | 17°26'N  | 78°27'E   | 536                                     | Granite                                      |
| KODAIKANAL  | 10°14'N  | 77°28'E   | 2346                                    | Rock                                         |
| MADRAS      | 13°00'N  | 80°11'E   | 15                                      | .                                            |
| NEW DELHI   | 28°35'N  | 77°12'E   | 207                                     | Massive Quartzite                            |
| POONA       | 18°32'N  | 73°51'E   | 560                                     | Deccan Trap                                  |
| PORT BLAIR  | 11°40'N  | 92°43'E   | .                                       | .                                            |
| SHILLONG    | 25°34'N  | 91°53'E   | 1600                                    | Quartzite Sand Stone<br>(Shillong Quartzite) |
| TOCKLAI     | 26°45'N  | 94°46'E   | .                                       | Alluvium                                     |
| VIZIANAGRAM | 18°07'N  | 83°27'E   | .                                       | .                                            |

| DATE        | STATION                                                                           | COMPT | PHASE | G. | M. | T. | $\Delta$ | REMARKS                                                                      | DATE        | STATION                                                                        | COMPT    | PHASE | G. | M. | T. | $\Delta$ | REMARKS                                                           |                             |
|-------------|-----------------------------------------------------------------------------------|-------|-------|----|----|----|----------|------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------|----------|-------|----|----|----|----------|-------------------------------------------------------------------|-----------------------------|
| August 1957 |                                                                                   |       |       | h. | m. | s. | km       |                                                                              | August 1957 |                                                                                |          |       | h. | m. | s. | km       |                                                                   |                             |
| 01          | SHILLONG                                                                          | Z     | eP    | 02 | 25 | 29 |          | Feeble, local.                                                               | 04          | TOCKLAI                                                                        | E        | eP    | 01 | 03 | 13 |          | Slight                                                            |                             |
| 01          | DEHRA DUN                                                                         | N,E   | e     | 08 | 48 | 11 |          | Tremor                                                                       |             |                                                                                |          | i     | 03 | 45 |    |          |                                                                   |                             |
|             |                                                                                   |       |       |    |    |    |          |                                                                              |             |                                                                                |          | i     | 04 | 00 |    |          |                                                                   |                             |
| 01          | DEHRA DUN                                                                         | N,E   | e     | 11 | 01 | 37 |          | Feeble, phases not identifiable                                              |             | SHILLONG                                                                       | Z        | eP    | 01 | 03 | 42 |          | Slight, distant Compression                                       |                             |
|             |                                                                                   |       | i     | 03 | 08 |    |          |                                                                              |             |                                                                                |          |       |    |    |    |          |                                                                   |                             |
|             |                                                                                   |       | i     | 04 | 02 |    |          |                                                                              |             |                                                                                |          |       |    |    |    |          |                                                                   |                             |
|             | CHATRA                                                                            | Z     | iP    | 11 | 03 | 21 |          | Slight                                                                       | 04          | SHILLONG                                                                       | Z        | e     | 02 | 30 | 51 |          |                                                                   |                             |
|             |                                                                                   | E     | i     | 06 | 27 |    |          |                                                                              | 04          | CHATRA                                                                         | Z        | iPg   | 03 | 10 | 45 | 120      | Feeble                                                            |                             |
|             | SHILLONG                                                                          | Z     | iP    | 11 | 03 | 39 |          | Slight, distant, Rarefaction.                                                |             |                                                                                |          | iSg   | 11 | 01 |    |          |                                                                   |                             |
|             | POONA                                                                             | Z     | i     | 11 | 08 | 08 |          | Tremor                                                                       | 04          | SHILLONG                                                                       | Z        | eP    | 10 | 07 | 20 | 330      | Feeble, near Rarefaction                                          |                             |
| 01          | DEHRA DUN                                                                         | N,E   | e     | 11 | 19 | 42 |          | Feeble, phases not clear                                                     | 04          | DEHRA DUN                                                                      | N,E      | e     | 17 | 58 | 26 |          | Tremor                                                            |                             |
| 01          | SHILLONG                                                                          | Z     | iP    | 16 | 30 | 07 |          | Slight, distant Compression                                                  | 04          | SHILLONG                                                                       | Z        | eP    | 18 | 33 | 29 |          | Slight, local Compression                                         |                             |
| 01          | SHILLONG                                                                          | Z     | eP    | 17 | 44 | 17 |          | Slight, distant.                                                             |             | CHATRA                                                                         | Z        | i     | 18 | 34 | 29 |          | Feeble                                                            |                             |
| 01          | SHILLONG                                                                          | Z     | iP    | 18 | 00 | 03 |          | Slight, distant Rarefaction                                                  | 04          | Epc: 45°S, 35°E. Prince Edward Islands Region<br>- H = 21h 08m 51s (U.S.C.G.S) |          |       |    |    |    |          |                                                                   |                             |
| 02          | SHILLONG                                                                          | Z     | iP    | 09 | 25 | 32 |          | Slight, distant. Compression                                                 |             | COLOMBO                                                                        | E        | P     | 21 | 19 | 45 | 7340     |                                                                   |                             |
| 02          | SHILLONG                                                                          | Z     | iP    | 09 | 47 | 14 |          | Slight, distant Compression                                                  |             |                                                                                |          | S     | 26 | 52 |    |          |                                                                   |                             |
| 02          | SHILLONG                                                                          | Z     | eP    | 12 | 33 | 04 |          | Slight, distant Compression                                                  |             |                                                                                |          | L     | 36 | 30 |    |          |                                                                   |                             |
| 02          | CHATRA                                                                            | Z     | i     | 12 | 33 | 18 |          | Feeble.                                                                      |             |                                                                                |          | M     | 42 | 00 |    |          | Amp. $\pm$ 0.9 mm                                                 |                             |
| 02          | SHILLONG                                                                          | Z     | eP    | 13 | 36 | 16 |          | Feeble, local.                                                               |             | KODAIKANAL                                                                     | E        | iS    | 21 | 29 | 01 |          | Very slight. First movement West. Per. $\pm$ 22 secs. $\Delta$ 10 |                             |
| 03          | SHILLONG                                                                          | Z     | eP    | 04 | 41 | 00 |          | Feeble, near. Compression                                                    |             |                                                                                |          | e     | 33 | 16 |    |          |                                                                   |                             |
|             | CHATRA                                                                            | Z     | i     | 04 | 41 | 02 |          | Feeble, near                                                                 |             |                                                                                |          | e     | 37 | 42 |    |          |                                                                   |                             |
| 03          | Epc: 7°S, 103°E. Off South Coast of Sumatra<br>- H = 06h 43m 40s G.M.T. (USCGS)   |       |       |    |    |    |          |                                                                              |             | POONA                                                                          | Z        | eP    | 21 | 20 | 22 | 8180     | Slight                                                            |                             |
|             | SHILLONG                                                                          | Z     | iP    | 06 | 50 | 28 |          | Slight. Compression                                                          |             |                                                                                |          | eS    | 29 | 52 |    |          |                                                                   |                             |
|             | CHATRA                                                                            | Z     | i     | 06 | 50 | 55 |          | Feeble                                                                       |             |                                                                                |          | SS    | 34 | 33 |    |          |                                                                   |                             |
|             | DEHRA DUN                                                                         | N,E   | eP    | 06 | 51 | 52 | 5020     | Feeble                                                                       |             |                                                                                |          | SSS   | 37 | 58 |    |          |                                                                   |                             |
|             |                                                                                   |       | eS    | 58 | 32 |    |          |                                                                              |             |                                                                                |          | Lr    | 42 | 34 |    |          |                                                                   |                             |
|             | COLOMBO                                                                           | E     | P     | 06 | 53 | 52 |          |                                                                              |             | BOMBAY                                                                         | N,E      | eP    | 21 | 20 | 26 | 8110     | Slight                                                            |                             |
|             |                                                                                   |       | L     | 07 | 01 | 27 |          |                                                                              |             |                                                                                |          | eS    | 29 | 53 |    |          |                                                                   |                             |
|             |                                                                                   |       | M     | 02 | 42 |    |          | Amp. $\pm$ 0.6 mm                                                            |             |                                                                                |          | M     | 50 | 14 |    |          |                                                                   |                             |
| 03          | CHATRA                                                                            | Z     | iP    | 07 | 59 | 41 | 160      | Slight                                                                       |             |                                                                                |          | M     | 55 | 24 |    |          | Per. $\pm$ 14 secs. $\Delta$ 4                                    |                             |
| 03          | SHILLONG                                                                          | Z,N,E | iP    | 13 | 02 | 05 |          | Feeble, local First movement North and West                                  |             | HYDERABAD                                                                      | E        | eP    | 21 | 20 | 28 | 8350     | Moderate                                                          |                             |
| 04          | Epc: 34°S, 145°E. Near North Coast of New Guinea<br>- H = 00h 29m 12s (U.S.C.G.S) |       |       |    |    |    |          |                                                                              |             |                                                                                |          | PPP   | 24 | 40 |    |          |                                                                   |                             |
|             | SHILLONG                                                                          | Z,E   | eP    | 00 | 49 | 13 | 6690     | Slight                                                                       |             |                                                                                |          | IS    | 30 | 07 |    |          |                                                                   |                             |
|             |                                                                                   | N,E   | iS    | 57 | 26 |    |          |                                                                              |             |                                                                                |          | PPS   | 30 | 43 |    |          |                                                                   |                             |
|             | CALCUTTA                                                                          | E     | e(P)  | 00 | 49 | 56 |          | Slight                                                                       |             |                                                                                |          | SS    | 34 | 40 |    |          |                                                                   |                             |
|             |                                                                                   |       | i     | 51 | 06 |    |          |                                                                              |             |                                                                                |          | Lq    | 39 | 40 |    |          |                                                                   |                             |
|             |                                                                                   |       | i(S)  | 58 | 01 |    |          |                                                                              |             |                                                                                |          | Lr    | 40 | 58 |    |          |                                                                   |                             |
|             |                                                                                   |       | i     | 01 | 00 | 48 |          |                                                                              |             |                                                                                |          | M     | 47 | 37 |    |          |                                                                   |                             |
|             | BOMBAY                                                                            | E     | e     | 00 | 53 | 31 |          | Slight                                                                       |             | MADRAS                                                                         | E        | eP    | 21 | 20 | 31 | 7500     | Slight                                                            |                             |
|             |                                                                                   | N,E   | e     | 01 | 00 | 32 |          |                                                                              |             |                                                                                |          | PcP   | 21 | 01 |    |          |                                                                   |                             |
|             |                                                                                   | E     | e     | 05 | 20 |    |          |                                                                              |             |                                                                                |          | PP    | 22 | 51 |    |          |                                                                   |                             |
|             | MADRAS                                                                            | E     | e     | 00 | 55 | 42 |          | Slight, phases could not be identified due to presence of strong microseism. |             |                                                                                |          | e     | 28 | 56 |    |          |                                                                   |                             |
|             |                                                                                   |       | i     | 59 | 00 |    |          |                                                                              |             |                                                                                |          | S?    | 29 | 29 |    |          |                                                                   |                             |
|             |                                                                                   |       | i     | 59 | 14 |    |          |                                                                              |             |                                                                                |          | e     | 30 | 10 |    |          |                                                                   |                             |
|             |                                                                                   |       | i     | 59 | 33 |    |          |                                                                              |             |                                                                                |          | e     | 32 | 56 |    |          |                                                                   |                             |
|             |                                                                                   |       | i     | 01 | 01 | 17 |          |                                                                              |             |                                                                                |          | e     | 36 | 13 |    |          |                                                                   |                             |
|             | BOKARO                                                                            | N,E   | e(N)  | 00 | 58 | 25 |          |                                                                              |             |                                                                                |          | e     | 39 | 08 |    |          |                                                                   |                             |
|             |                                                                                   |       |       |    |    |    |          |                                                                              |             |                                                                                |          | M     | 44 | 14 |    |          |                                                                   |                             |
|             |                                                                                   |       |       |    |    |    |          |                                                                              |             | DEHRA DUN                                                                      | N,E      | eP    | 21 | 21 | 26 | 6580     | Slight, other phases not clear                                    |                             |
|             |                                                                                   |       |       |    |    |    |          |                                                                              |             |                                                                                |          | iS    | 32 | 01 |    |          |                                                                   |                             |
|             |                                                                                   |       |       |    |    |    |          |                                                                              |             |                                                                                |          | SS    | 37 | 34 |    |          |                                                                   |                             |
|             |                                                                                   |       |       |    |    |    |          |                                                                              |             | CHATRA                                                                         | Z        | iP    | 21 | 21 | 37 | 9750     | Slight                                                            |                             |
|             |                                                                                   |       |       |    |    |    |          |                                                                              |             |                                                                                |          | eP    | 32 | 20 |    |          |                                                                   |                             |
|             |                                                                                   |       |       |    |    |    |          |                                                                              |             |                                                                                |          | iS    |    |    |    |          |                                                                   |                             |
|             |                                                                                   |       |       |    |    |    |          |                                                                              |             | SHILLONG                                                                       | Z,N,E    | eP    | 21 | 21 | 39 | 9890     | Slight                                                            |                             |
|             |                                                                                   |       |       |    |    |    |          |                                                                              |             |                                                                                |          | iS    | 32 | 26 |    |          |                                                                   |                             |
|             |                                                                                   |       |       |    |    |    |          |                                                                              |             | CALCUTTA                                                                       | E        | e     | 21 | 22 | 14 |          | Slight                                                            |                             |
|             |                                                                                   |       |       |    |    |    |          |                                                                              |             |                                                                                |          | i(S)  | 31 | 50 |    |          |                                                                   |                             |
|             |                                                                                   |       |       |    |    |    |          |                                                                              |             | BOKARO                                                                         | N,E      | e     | 21 | 31 | 35 |          | Slight                                                            |                             |
|             |                                                                                   |       |       |    |    |    |          |                                                                              |             | 05                                                                             | SHILLONG | Z     | eP | 08 | 23 | 45       |                                                                   | Slight, distant Rarefaction |
|             |                                                                                   |       |       |    |    |    |          |                                                                              |             |                                                                                |          | ePg   | 09 | 04 | 46 | 200      | Feeble                                                            |                             |
|             |                                                                                   |       |       |    |    |    |          |                                                                              |             |                                                                                |          | iSg   | 05 | 01 |    |          |                                                                   |                             |
|             |                                                                                   |       |       |    |    |    |          |                                                                              |             | 05                                                                             | SHILLONG | Z     | eP | 12 | 15 | 36       |                                                                   | Feeble, near                |

| DATE        | STATION                                                              | COMPT        | PHASE                                        | G. M. T.                                                                | $\Delta$ | REMARKS                                   | DATE        | STATION                                                                                   | COMPT     | PHASE                                                       | G. M. T.                                                                                     | $\Delta$ | REMARKS                                                  |                 |
|-------------|----------------------------------------------------------------------|--------------|----------------------------------------------|-------------------------------------------------------------------------|----------|-------------------------------------------|-------------|-------------------------------------------------------------------------------------------|-----------|-------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------|----------------------------------------------------------|-----------------|
|             |                                                                      |              |                                              | h. m. s.                                                                | km       |                                           |             |                                                                                           |           |                                                             | h. m. s.                                                                                     | km       |                                                          |                 |
| August 1957 |                                                                      |              |                                              |                                                                         |          |                                           | August 1957 |                                                                                           |           |                                                             |                                                                                              |          |                                                          |                 |
| 05          | CHATRA                                                               | Z            | iPg<br>iSg                                   | 14 53 26<br>53 39                                                       | 100      | Feeble                                    | 09          | MADRAS                                                                                    | E         | i<br>e<br>iS<br>e<br>e<br>e<br>e                            | 02 43 19<br>43 35<br>47 16<br>48 05<br>48 18<br>48 54<br>50 14<br>50 53                      |          | Moderate<br>Contd.<br>02 47 49                           |                 |
| 05          | SHILLONG                                                             | Z            | e                                            | 21 13 02                                                                |          |                                           |             |                                                                                           |           |                                                             |                                                                                              |          |                                                          |                 |
|             | CHATRA                                                               | Z            | i                                            | 21 13 29                                                                |          | Feeble, near.                             |             |                                                                                           |           |                                                             |                                                                                              |          |                                                          |                 |
| 05          | SHILLONG                                                             | Z            | iPg<br>eSg                                   | 21 54 31<br>54 56                                                       | 210      | Feeble, rarefaction.                      |             |                                                                                           |           |                                                             |                                                                                              |          |                                                          |                 |
| 06          | SHILLONG                                                             | Z            | iP                                           | 03 41 21                                                                |          | Feeble, near Compression.                 |             | HYDERABAD                                                                                 | E         | iP<br>PPP<br>PcS<br>iS<br>PPS<br>SS<br>SSS<br>Lq<br>Lr<br>M | 02 39 36<br>43 06<br>44 42<br>47 45<br>48 26<br>51 36<br>53 54<br>54 33<br>57 36<br>03 00 42 | 6600     | Moderate. First movement East                            |                 |
| 06          | SHILLONG                                                             | Z            | iPg<br>iSg<br>SSS                            | 08 41 34<br>41 40<br>42 10                                              | 80       | Feeble, compression                       |             |                                                                                           |           |                                                             |                                                                                              |          |                                                          |                 |
| 06          | SHILLONG                                                             | Z            | eP                                           | 13 57 37                                                                |          | Feeble, distant                           |             |                                                                                           |           |                                                             |                                                                                              |          |                                                          |                 |
| 06          | DEHRA DUN                                                            | N, E         | e                                            | 17 08 57                                                                |          | Tremor                                    |             |                                                                                           |           |                                                             |                                                                                              |          | Per. = 24 secs<br>$\mu = 8$                              |                 |
| 06          | CHATRA                                                               | Z            | iPg<br>iSg                                   | 17 37 51<br>38 01                                                       | 70       | Feeble                                    |             |                                                                                           |           |                                                             |                                                                                              |          | Per. = 15 secs<br>$\mu = 4$                              |                 |
| 06          | SHILLONG                                                             | Z            | iP                                           | 23 58 54                                                                |          | Slight, distant Rarefaction               |             | DEHRA DUN                                                                                 | N, E<br>N | eP<br>iS<br>SS<br>Lq<br>M                                   | 02 40 03<br>48 42<br>53 00<br>56 51<br>03 05 08                                              | 7160     | Slight                                                   |                 |
| 07          | CHATRA                                                               | Z, E         | iP<br>iS                                     | 08 46 46<br>47 00                                                       | 100      | Slight                                    |             |                                                                                           |           |                                                             |                                                                                              |          |                                                          |                 |
|             | SHILLONG                                                             | Z            | eP<br>eP*<br>ePP<br>ePg<br>eSg<br>eSSS       | 08 47 31<br>47 34<br>47 38<br>47 41<br>48 10<br>48 24                   | 300      | Slight, rarefaction.                      |             | POONA                                                                                     | Z<br>N, E | iP<br>eS                                                    | 02 40 05<br>48 44                                                                            | 7170     | Slight                                                   |                 |
| 07          | DEHRA DUN                                                            | N, E         | e<br>i<br>i                                  | 15 30 37<br>31 59<br>32 10                                              |          | Feeble, phases not clear                  | 09          | SHILLONG                                                                                  | Z         | eP<br>e<br>eSg<br>e                                         | 05 45 49<br>45 49<br>40 18<br>40 21<br>40 51<br>41 02                                        | 290      | Slight, distant<br>Slight, distant Compression<br>Feeble |                 |
|             | CHATRA                                                               | Z            | iP                                           | 15 32 15                                                                | 1960     | Slight                                    | 09          | SHILLONG                                                                                  | Z         | iP                                                          | 11 08 41                                                                                     |          | Slight, distant Rarefaction                              |                 |
|             | SHILLONG                                                             | Z, E         | eP                                           | 15 33 03                                                                |          | Slight, distant Compression               | 09          | CHATRA                                                                                    | Z         | i                                                           | 11 08 56                                                                                     |          | Feeble, distant                                          |                 |
| 07          | SHILLONG                                                             | Z            | iPg<br>eSg                                   | 19 01 11<br>01 26                                                       | 130      | Feeble, rarefaction                       | 09          | SHILLONG                                                                                  | Z         | iP                                                          | 15 56 33                                                                                     |          | Feeble, local                                            |                 |
| 08          | SHILLONG                                                             | Z            | e                                            | 11 58 33                                                                |          |                                           | 09          | SHILLONG                                                                                  | Z         | eP                                                          | 23 06 41                                                                                     |          | Slight, distant                                          |                 |
| 08          | SHILLONG                                                             | Z            | eP                                           | 18 07 05                                                                |          |                                           | 09          | SHILLONG                                                                                  | Z         | iP                                                          | 23 38 59                                                                                     |          |                                                          |                 |
| 08          | TOCKLAI                                                              | E            | eP                                           | 19 44 47                                                                |          | Slight, distant                           | 10          | SHILLONG                                                                                  | Z         | iP                                                          | 00 00 39                                                                                     |          | Slight, distant Compression                              |                 |
|             | SHILLONG                                                             | Z, E         | iP<br>PP<br>eS<br>Lq<br>SS<br>SSS<br>Lr<br>M | 19 45 16<br>45 38<br>48 36<br>48 49<br>49 09<br>49 29<br>49 40<br>51 00 | 2010     | Slight, rarefaction                       | 10          | SHILLONG                                                                                  | Z         | iP                                                          | 00 10 31                                                                                     |          | Slight, distant Compression                              |                 |
| 08          | Epc: Sinkiang Province, China.<br>H = 19h 42m 39s G.M.T. (U.S.C.G.S) |              |                                              |                                                                         |          |                                           |             |                                                                                           | CHATRA    | Z                                                           | i                                                                                            | 00 10 48 |                                                          | Feeble, distant |
|             | CHATRA                                                               | Z<br>E<br>E  | iP<br>eP<br>iS                               | 19 46 02<br>50 15                                                       | 2640     | Slight                                    | 10          | SHILLONG                                                                                  | Z         | eP<br>i                                                     | 12 12 26<br>12 56 08<br>56 42                                                                |          | Tremor<br>Slight, distant<br>Slight, distant Compression |                 |
|             | DEHRA DUN                                                            | N, E         | e<br>i                                       | 19 47 43<br>51 33                                                       |          | Feeble                                    | 10          | SHILLONG                                                                                  | Z         | eP                                                          | 17 48 26                                                                                     |          | Slight, distant                                          |                 |
| 09          | Epc: 2°S, 137°E. New Guinea. H = 02h 29m 20s (USCGS)                 |              |                                              |                                                                         |          |                                           |             |                                                                                           | 10        | SHILLONG                                                    | Z                                                                                            | iP       | 18 22 20                                                 | Tremor          |
|             | CALCUTTA                                                             | E            | e(?)<br>iS<br>i                              | 02 38 11<br>46 20<br>50 26                                              |          | Slight                                    | 10          | PORT BLAIR                                                                                | E         | iP<br>eSg                                                   | 18 45 19<br>45 34                                                                            | 130      | Slight                                                   |                 |
|             | SHILLONG                                                             | Z, E<br>N, E | iP<br>iS                                     | 02 38 29<br>45 47                                                       | 5690     | Slight, rarefaction. First movement East. | 10          | Epc: 3½°N, 124½°E. Celebes Sea. H = about 300 kms<br>- H = 19h 12m 47s G.M.T. (U.S.C.G.S) |           |                                                             |                                                                                              |          |                                                          |                 |
|             | CHATRA                                                               | Z<br>E       | iP<br>iS                                     | 02 38 58<br>46 45                                                       | 6200     | Slight                                    |             | TOCKLAI                                                                                   | E         | iP                                                          | 19 19 39                                                                                     |          | Slight. First movement West                              |                 |
|             | BOKARO                                                               | N, E         | eP<br>iS                                     | 02 39 02<br>46 47                                                       | 6180     | Slight                                    |             | SHILLONG                                                                                  | Z, E      | iP                                                          | 19 19 45                                                                                     |          | Slight. Compression. First movement East.                |                 |
|             | COLOMBO                                                              | E            | e<br>S<br>L<br>M                             | 02 41 25<br>46 50<br>50 55<br>52 05                                     |          | Amp. = 0.5 mm                             |             | CHATRA                                                                                    | Z<br>E    | iP<br>iS                                                    | 19 20 18<br>26 16                                                                            | 4300     | Slight                                                   |                 |
|             |                                                                      |              |                                              |                                                                         |          |                                           |             | MADRAS                                                                                    | E         | iP<br>e<br>e                                                | 19 20 37<br>20 44<br>21 43                                                                   |          | Slight. First movement East                              |                 |



| DATE        | STATION                                                       | COMPT | PHASE | G. M. T. | $\Delta$ | REMARKS                      | DATE        | STATION                                                                                                    | COMPT | PHASE | G. M. T. | $\Delta$ | REMARKS                   |
|-------------|---------------------------------------------------------------|-------|-------|----------|----------|------------------------------|-------------|------------------------------------------------------------------------------------------------------------|-------|-------|----------|----------|---------------------------|
| August 1957 |                                                               |       |       | h. m. s. | km       |                              | August 1957 |                                                                                                            |       |       | h. m. s. | km       |                           |
| 10          | MADRAS                                                        | E     | e     | 19 21 53 |          |                              | 13          | SHILLONG                                                                                                   | Z     | eP    | 15 56 45 |          | Slight, distant           |
| Contd.      | Contd.                                                        |       | e     | 22 05    |          |                              | 13          | SHILLONG                                                                                                   | Z     | eP    | 21 26 51 |          | Slight, distant           |
|             |                                                               |       | e     | 22 15    |          |                              | 13          | SHILLONG                                                                                                   | Z     | iP    | 21 46 30 |          | Slight, distant           |
|             |                                                               |       | e     | 22 33    |          |                              |             |                                                                                                            |       |       |          |          | Rarefaction               |
|             | DEHRA DUN                                                     | N, E  | eP    | 19 21 29 |          | Feeble, phases not clear     | 14          | SHILLONG                                                                                                   | Z     | eP    | 17 32 44 |          | Tremor                    |
|             |                                                               |       | iS    | 28 19    |          |                              | 14          | SHILLONG                                                                                                   | Z     | eP    | 19 39 40 |          | Tremor                    |
| 10          | POONA                                                         | Z     | iP    | 19 21 30 |          | Feeble                       | 15          | SHILLONG                                                                                                   | Z     | iP    | 07 45 33 |          | Slight, distant           |
| 10          | TOCKLAI                                                       | E     | eP    | 19 24 55 |          | Slight, distant              |             | TOCKLAI                                                                                                    | E     | e     | 07 45 50 |          | Slight, distant           |
|             | SHILLONG                                                      | Z     | i     | 19 25 06 |          |                              |             | TOCKLAI                                                                                                    | E     | eP    | 11 52 30 |          | Slight, distant           |
| 10          | SHILLONG                                                      | Z     | iP    | 19 59 49 |          | Tremor                       |             |                                                                                                            |       | i     | 52 34    |          |                           |
| 10          | SHILLONG                                                      | Z     | eP    | 22 25 11 |          |                              |             | SHILLONG                                                                                                   | Z     | eP    | 11 52 33 |          | Slight, distant           |
| 11          | SHILLONG                                                      | Z     | eP    | 01 36 38 |          | Feeble, local                | 15          | SHILLONG                                                                                                   | Z     | iP    | 14 21 23 |          | Tremor                    |
| 11          | TOCKLAI                                                       | E     | eP    | 11 01 54 |          | Slight, distant              | 15          | TOCKLAI                                                                                                    | E     | eP    | 15 26 14 |          | Slight, near.             |
|             |                                                               |       | i     | 03 58    |          |                              |             | SHILLONG                                                                                                   | Z     | iP    | 15 26 31 |          | Slight, near              |
| 11          | SHILLONG                                                      | Z     | eP    | 11 02 32 |          | Slight, distant              |             |                                                                                                            |       |       |          |          | Rarefaction               |
|             | CHATRA                                                        | Z     | iP    | 11 03 56 | 1610     | Slight                       | 15          | DEHRA DUN                                                                                                  | N, E  | e     | 15 39 37 |          | Tremor                    |
|             |                                                               | E     | iS    | 06 39    |          |                              | 15          | SHILLONG                                                                                                   | Z     | eP    | 20 31 50 |          | Slight, near.             |
| 11          | TOCKLAI                                                       | E     | eP    | 19 41 44 |          | Slight, distant              | 15          | Epc: 4 $^{\circ}$ S, 155 $^{\circ}$ E. Solomon Islands Region.                                             |       |       |          |          |                           |
|             |                                                               |       | i     | 42 38    |          |                              |             | h. $\approx$ about 500 kms. - H $\approx$ 20h 45m 20s G.M.T. (USCGS)                                       |       |       |          |          |                           |
|             | SHILLONG                                                      | Z     | iP    | 19 42 06 |          | Slight, distant. Rarefaction |             | TOCKLAI                                                                                                    | E     | eP    | 20 55 26 | 6660     | Slight                    |
|             | Chatra                                                        | Z     | iP    | 19 42 48 | 1630     | Slight                       |             |                                                                                                            |       | iS    | 21 03 36 |          |                           |
|             |                                                               | E     | iS    | 45 32    |          |                              | 15          | SHILLONG                                                                                                   | Z, E  | iP    | 20 55 35 | 7060     | Slight.                   |
| 11          | Epc: 17 $^{\circ}$ S, 169 $^{\circ}$ E. New Hebrides Islands. |       |       |          |          |                              |             |                                                                                                            |       | iS    | 21 03 58 |          | Rarefaction               |
|             | - H $\approx$ 21h 38m 05s G.M.T. (U.S.C.G.S)                  |       |       |          |          |                              |             | CHATRA                                                                                                     | Z     | iP    | 20 55 56 | 7310     | Slight                    |
|             | Magnitude $\approx$ 6 $\frac{1}{2}$ (Pasadena).               |       |       |          |          |                              |             |                                                                                                            | E     | iS    | 21 04 42 |          |                           |
|             | SHILLONG                                                      | Z, E  | eP    | 21 50 52 |          | Moderate                     |             | BOKARO                                                                                                     | E     | eP    | 20 56 04 | 7370     | Moderate                  |
| 11          | COLOMBO                                                       | E     | e(S)  | 22 01 49 |          |                              |             |                                                                                                            | N, E  | iS    | 21 04 53 |          |                           |
|             |                                                               |       | L     | 30 31    |          | Amps 0.4 mm                  |             | POONA                                                                                                      | Z     | iP    | 20 56 58 | 8350     | Slight                    |
|             |                                                               |       | M     | 34 36    |          |                              |             |                                                                                                            | E     | eS    | 21 06 37 |          |                           |
|             | DEHRA DUN                                                     | N, E  | e     | 22 02 35 |          | Feeble, Phases not clear     |             | DEHRA DUN                                                                                                  | N, E  | e     | 21 17 41 |          | Feeble. Phases not clear  |
|             | BOMBAY                                                        | E     | e     | 22 02 41 |          | Very slight                  |             |                                                                                                            |       | i     | 18 41    |          |                           |
|             |                                                               | N     | e     | 03 44    |          |                              | 15          | SHILLONG                                                                                                   | Z     | eP    | 21 19 53 |          |                           |
| 12          | SHILLONG                                                      | Z     | iP    | 05 40 05 |          | Slight, local                | 16          | DEHRA DUN                                                                                                  | N, E  | e     | 02 29 22 |          | Feeble. Phases not clear. |
| 12          | DEHRA DUN                                                     | N, E  | e     | 05 49 04 |          | Tremor                       | 16          | SHILLONG                                                                                                   | Z, E  | iP    | 03 37 06 |          | Slight, distant           |
| 12          | SHILLONG                                                      | Z     | iP    | 07 15 49 |          | Slight, distant              | 16          | SHILLONG                                                                                                   | Z     | eP    | 04 31 22 |          | Feeble, Compression.      |
|             |                                                               |       |       |          |          | Compression                  |             |                                                                                                            |       |       |          |          | Feet.                     |
| 12          | SHILLONG                                                      | Z     | eP    | 08 07 53 |          | Tremor                       | 16          | CHATRA                                                                                                     | Z     | iP    | 05 18 41 | 120      | Slight                    |
| 12          | SHILLONG                                                      | Z     | iP    | 08 41 38 |          | Slight, distant              |             |                                                                                                            | E     | iS    | 18 57    |          |                           |
|             |                                                               |       |       |          |          | Compression                  |             | SHILLONG                                                                                                   | Z, E  | eP    | 05 19 29 | 530      | Slight                    |
| 12          | SHILLONG                                                      | Z     | eP    | 14 09 48 |          | Slight, distant              |             |                                                                                                            | Z     | PP    | 19 35    |          |                           |
| 12          | SHILLONG                                                      | Z     | eP    | 17 34 24 |          | Slight, distant              |             |                                                                                                            |       | PPP   | 19 42    |          |                           |
|             |                                                               |       |       |          |          |                              |             |                                                                                                            |       | Pg    | 19 50    |          |                           |
|             |                                                               |       |       |          |          |                              |             |                                                                                                            |       | eS    | 20 26    |          |                           |
| 12          | DEHRA DUN                                                     | N, E  | e     | 21 45 04 |          | Tremor                       | 16          | SHILLONG                                                                                                   | Z     | iP    | 11 36 55 |          | Feeble, local             |
| 12          | SHILLONG                                                      | Z     | iP    | 21 46 29 |          | Slight, distant              | 16          | Epc: 5 $^{\circ}$ S, 155 $^{\circ}$ E. New Britain Region. Felt Rabaul, Namatanai, Loudolovit and Karoola. |       |       |          |          |                           |
|             |                                                               |       |       |          |          | Rarefaction                  |             | - H $\approx$ 11h 57m 16s. (U.S.C.G.S)                                                                     |       |       |          |          |                           |
| 13          | TOCKLAI                                                       | E     | iP    | 10 24 58 |          | Slight. First movement West. |             | SHILLONG                                                                                                   | Z, E  | iP    | 12 08 15 |          | Slight                    |
|             |                                                               |       | i     | 26 01    |          |                              |             |                                                                                                            |       |       |          |          | Compression.              |
|             | SHILLONG                                                      | Z, E  | iP    | 10 25 25 | 830      | Slight.                      |             | CHATRA                                                                                                     | Z     | i     | 12 08 37 |          | Feeble                    |
|             |                                                               | E     | Lq    | 26 35    |          | Compression                  |             | DEHRA DUN                                                                                                  | N, E  | e(P)  | 12 09 43 |          | Feeble, phases not clear. |
|             |                                                               |       | iS    | 26 45    |          |                              |             |                                                                                                            |       | i(S)  | 20 17    |          |                           |
|             |                                                               |       | Lr    | 26 55    |          |                              | 16          | SHILLONG                                                                                                   | Z     | iP    | 14 59 17 |          | Tremor                    |
|             |                                                               |       | SS    | 26 58    |          |                              | 16          | SHILLONG                                                                                                   | Z     | eP    | 16 36 24 |          | Feeble, near              |
|             |                                                               |       | SSS   | 27 11    |          |                              | 16          | SHILLONG                                                                                                   | Z     | iP    | 21 02 45 |          | Slight, distant           |
|             |                                                               |       | M     | 27 31    |          |                              |             |                                                                                                            |       |       |          |          | Rarefaction               |
|             | CHATRA                                                        | Z     | i     | 10 26 18 |          | Slight, distant.             |             | Epc: 10 $^{\circ}$ N, 104 $^{\circ}$ W. Pacific Ocean                                                      |       |       |          |          |                           |
| 13          | SHILLONG                                                      | Z     | eP    | 12 42 23 |          | Slight, distant              |             | - H $\approx$ 23h 31m 55s. (U.S.C.G.S)                                                                     |       |       |          |          |                           |
| 13          | SHILLONG                                                      | Z     | eP    | 12 12 22 |          | Slight, distant              |             | Magnitude $\approx$ 6 $\frac{1}{2}$ -6 $\frac{3}{4}$ (Pasadena), (Berkeley).                               |       |       |          |          |                           |
| 13          | SHILLONG                                                      | Z     | eP    | 14 05 55 |          | Slight, distant.             |             |                                                                                                            |       |       |          |          |                           |

| DATE   | STATION                                                              | COMPT | PHASE             | G. M. T. | $\Delta$ | REMARKS                                     |
|--------|----------------------------------------------------------------------|-------|-------------------|----------|----------|---------------------------------------------|
| August |                                                                      |       |                   | h. m. s. | km       |                                             |
| 1957   |                                                                      |       |                   |          |          |                                             |
| 16     | SHILLONG                                                             | Z, N  | iPKP              | 23 51 28 |          |                                             |
| Contd. | BOHARO                                                               | N, E  | ePKP              | 23 51 36 |          |                                             |
|        | POONA                                                                | Z     | PKP <sub>1</sub>  | 23 51 43 | 16560    | Slight                                      |
|        |                                                                      |       | PP                | 55 13    |          |                                             |
|        |                                                                      | N     | PPP               | 58 55    |          |                                             |
|        |                                                                      |       | SKKS <sub>1</sub> | 00 02 18 |          |                                             |
|        |                                                                      |       | SS                | 14 02    |          |                                             |
|        |                                                                      |       | SSS               | 28 49    |          |                                             |
|        | CALCUTTA                                                             | E     | e                 | 23 53 04 |          | Slight                                      |
|        |                                                                      |       | i                 | 00 05 46 |          |                                             |
|        |                                                                      |       | i                 | 15 05    |          |                                             |
|        | BOMBAY                                                               | E     | e                 | 23 53 46 |          | Slight, phases not clear due to microseisms |
|        |                                                                      | N     | e                 | 54 54    |          |                                             |
|        |                                                                      | N, E  | e                 | 00 14 50 |          |                                             |
|        |                                                                      | E     | e                 | 20 30    |          |                                             |
|        |                                                                      |       | M                 | 58 38    |          | Per. $\approx$ 23 secs<br>$\mu = 10$        |
|        | COLOMBO                                                              | E     | e                 | 23 54 09 |          |                                             |
|        |                                                                      |       | e                 | 00 06 31 |          |                                             |
|        |                                                                      |       | M                 | 01 02 36 |          | Amp. $\approx$ 1.0 mm                       |
|        | DEHRA DUN                                                            | N, E  | e                 | 23 54 54 |          | Slight, phases not clear                    |
|        | KODAIKANAL                                                           | E     | e(?)              | 00 52 25 |          | Tremor                                      |
| 17     | SHILLONG                                                             | Z     | iP                | 02 32 28 |          | Slight, distant Compression                 |
| 17     | SHILLONG                                                             | Z     | iP                | 03 06 04 |          |                                             |
| 17     | CHATRA                                                               | Z     | e                 | 08 25 56 |          | Feeble, distant                             |
| 17     | DEHRA DUN                                                            | N, E  | e                 | 08 31 48 |          | Tremor                                      |
| 17     | SHILLONG                                                             | Z     | eP                | 09 25 26 |          | Slight, distant                             |
| 17     | SHILLONG                                                             | Z     | iP                | 13 18 03 |          | Slight, distant Compression                 |
| 17     | SHILLONG                                                             | Z     | iP                | 13 30 47 |          | Feeble, near Rarefaction                    |
| 17     | SHILLONG                                                             | Z     | eP                | 13 47 31 |          | Slight, distant                             |
| 17     | SHILLONG                                                             | Z     | i                 | 13 53 01 |          |                                             |
| 17     | SHILLONG                                                             | Z     | eP                | 16 54 29 |          | Slight, distant                             |
| 17     | SHILLONG                                                             | Z     | iP                | 21 04 37 |          | Slight, distant Rarefaction                 |
| 17     | SHILLONG                                                             | Z     | iP                | 21 32 27 |          | Feeble, local                               |
| 17     | SHILLONG                                                             | Z     | eP                | 23 04 52 |          | Feeble, near.                               |
| 18     | Epc: 12°N, 124°E, Philippine Islands.<br>H: 08h: 36m 57s (U.S.C.G.S) |       |                   |          |          |                                             |
|        | TOCKLAI                                                              | E     | eP                | 08 43 27 |          | Slight                                      |
|        | SHILLONG                                                             | Z, E  | iP                | 08 43 33 | 3630     | Moderate. Rarefaction.                      |
|        |                                                                      | E     | PP                | 44 45    |          |                                             |
|        |                                                                      |       | PPP               | 44 56    |          |                                             |
|        |                                                                      |       | PcP               | 46 14    |          |                                             |
|        |                                                                      | N, E  | iS                | 48 49    |          |                                             |
|        |                                                                      | E     | Lq                | 49 43    |          |                                             |
|        |                                                                      |       | SS                | 49 47    |          |                                             |
|        |                                                                      |       | SSS               | 49 56    |          |                                             |
|        |                                                                      |       | ScS               | 52 50    |          |                                             |
|        |                                                                      |       | N                 | 55 02    |          |                                             |
|        | CHATRA                                                               | Z     | iP                | 08 44 12 |          | Slight                                      |
|        |                                                                      | E     | i                 | 55 15    |          |                                             |
|        | BOHARO                                                               | N, E  | iP                | 08 44 23 | 4190     | Moderate                                    |
|        |                                                                      | N     | PP                | 45 51    |          |                                             |
|        |                                                                      |       | iS                | 50 14    |          |                                             |
|        |                                                                      |       | Lq                | 52 57    |          |                                             |
|        |                                                                      |       | Lr                | 55 12    |          |                                             |
|        |                                                                      |       | M                 | 58 15    |          | Per. $\approx$ 23 secs<br>$\mu = 22$        |

| DATE   | STATION                                                                                                                         | COMPT | PHASE | G. M. T. | $\Delta$ | REMARKS                              |
|--------|---------------------------------------------------------------------------------------------------------------------------------|-------|-------|----------|----------|--------------------------------------|
| August |                                                                                                                                 |       |       | h. m. s. | km       |                                      |
| 1957   |                                                                                                                                 |       |       |          |          |                                      |
| 18     | MADRAS                                                                                                                          | E     | iP    | 08 45 00 | 5080     | Moderate. First movement West        |
| Contd. |                                                                                                                                 |       | PcP   | 46 18    |          |                                      |
|        |                                                                                                                                 |       | PP    | 46 46    |          |                                      |
|        |                                                                                                                                 |       | PPP   | 47 36    |          |                                      |
|        |                                                                                                                                 |       | ScP   | 50 00    |          |                                      |
|        |                                                                                                                                 |       | eS    | 51 43    |          |                                      |
|        |                                                                                                                                 |       | PS    | 51 48    |          |                                      |
|        |                                                                                                                                 |       | PPS   | 51 58    |          |                                      |
|        |                                                                                                                                 |       | ScS   | 54 22    |          |                                      |
|        |                                                                                                                                 |       | SS    | 55 04    |          |                                      |
|        |                                                                                                                                 |       | Lq    | 56 19    |          |                                      |
|        |                                                                                                                                 |       | SSS   | 56 30    |          |                                      |
|        |                                                                                                                                 |       | Lr    | 58 26    |          |                                      |
|        |                                                                                                                                 |       | M     | 09 02 14 |          |                                      |
|        | COLOMBO                                                                                                                         | E     | P     | 08 45 06 | 4750     |                                      |
|        |                                                                                                                                 |       | S     | 51 31    |          |                                      |
|        |                                                                                                                                 |       | L     | 58 51    |          |                                      |
|        |                                                                                                                                 |       | M     | 09 08 06 |          | Amp. $\approx$ 1.8 mm                |
|        | HYDERABAD                                                                                                                       | N     | PPP   | 08 47 27 |          |                                      |
|        |                                                                                                                                 |       | S     | 51 53    |          |                                      |
|        |                                                                                                                                 |       | PPS   | 52 20    |          |                                      |
|        |                                                                                                                                 |       | ScS   | 53 12    |          |                                      |
|        |                                                                                                                                 |       | SS    | 55 49    |          |                                      |
|        |                                                                                                                                 |       | SSS   | 58 38    |          |                                      |
|        |                                                                                                                                 |       | Lq    | 59 20    |          |                                      |
|        |                                                                                                                                 |       | Lr    | 09 01 46 |          |                                      |
|        |                                                                                                                                 |       | M     | 07 12    |          | Per. $\approx$ 18 secs<br>$\mu = 19$ |
|        | KODAIKANAL                                                                                                                      | E     | eP    | 08 45 25 | 5170     | Slight                               |
|        |                                                                                                                                 |       | PP    | 46 10    |          |                                      |
|        |                                                                                                                                 |       | PcS   | 50 42    |          |                                      |
|        |                                                                                                                                 |       | iS    | 52 13    |          |                                      |
|        |                                                                                                                                 |       | PPS   | 52 34    |          |                                      |
|        |                                                                                                                                 |       | SS    | 55 16    |          |                                      |
|        |                                                                                                                                 |       | Lq    | 56 10    |          |                                      |
|        |                                                                                                                                 |       | Lr    | 58 25    |          |                                      |
|        |                                                                                                                                 |       | M     | 09 02 20 |          | Per. $\approx$ 20 secs<br>$\mu = 16$ |
|        | DEHRA DUN                                                                                                                       | N, E  | eP    | 08 45 27 | 5030     | Moderate                             |
|        |                                                                                                                                 | N     | iS    | 52 08    |          |                                      |
|        |                                                                                                                                 |       | SS    | 55 36    |          |                                      |
|        |                                                                                                                                 |       | Lr    | 58 27    |          |                                      |
|        |                                                                                                                                 |       | M     | 09 02 16 |          |                                      |
|        | POONA                                                                                                                           | Z     | iP    | 08 45 44 | 5510     | Moderate                             |
|        |                                                                                                                                 | N     | PP    | 47 39    |          |                                      |
|        |                                                                                                                                 |       | PcS   | 50 57    |          |                                      |
|        |                                                                                                                                 | N, E  | eS    | 52 52    |          |                                      |
|        |                                                                                                                                 | N     | PPS   | 53 16    |          |                                      |
|        |                                                                                                                                 |       | ScS   | 55 44    |          | SSS 08 57 44                         |
|        |                                                                                                                                 |       | Lr    | 59 42    |          |                                      |
|        |                                                                                                                                 |       | M     | 09 05 01 |          |                                      |
|        |                                                                                                                                 |       | Mn    | 10 --    |          | Per. $\approx$ 19 secs<br>$\mu = 12$ |
|        | BOMBAY                                                                                                                          | E     | eP    | 08 45 55 | 5520     | Slight                               |
|        |                                                                                                                                 | N, E  | PP    | 47 51    |          |                                      |
|        |                                                                                                                                 | E     | PPP   | 48 39    |          |                                      |
|        |                                                                                                                                 |       | PcS   | 51 18    |          |                                      |
|        |                                                                                                                                 | N, E  | eS    | 53 04    |          |                                      |
|        |                                                                                                                                 |       | e     | 53 42    |          |                                      |
|        |                                                                                                                                 | E     | i     | 54 05    |          |                                      |
|        |                                                                                                                                 | N     | e     | 54 29    |          |                                      |
|        |                                                                                                                                 | E     | i     | 54 37    |          |                                      |
|        |                                                                                                                                 |       | SS    | 56 40    |          |                                      |
|        |                                                                                                                                 |       | SSS   | 57 39    |          |                                      |
|        |                                                                                                                                 |       | Lr    | 09 00 40 |          |                                      |
|        |                                                                                                                                 |       | M     | 12 43    |          | Per. $\approx$ 17 secs<br>$\mu = 8$  |
|        |                                                                                                                                 | N     | M     | 14 28    |          | Per. $\approx$ 13 secs<br>$\mu = 3$  |
|        | SHILLONG                                                                                                                        | Z     | eP    | 16 11 17 |          | Tremor                               |
|        | SHILLONG                                                                                                                        | Z     | eP    | 19 30 06 |          | Feeble, near.                        |
|        | SHILLONG                                                                                                                        | Z     | eP    | 21 31 05 |          | Slight, distant                      |
|        | POONA                                                                                                                           | Z     | iP    | 21 31 12 |          | Tremor                               |
|        | Epc: 50°N, 157°E, Northern Kurile Islands.<br>H: 21h 42m 30s G.M.T. (U.S.C.G.S)<br>Magnitude: $\approx$ 6% (Paa), 6% (Berkeley) |       |       |          |          |                                      |
|        | TOCKLAI                                                                                                                         | E     | e     | 21 51 48 |          | Slight                               |

| DATE        | STATION   | COMPT | PHASE | G. M. T.<br>h. m. s. | $\Delta$<br>km | REMARKS                                 | DATE        | STATION                                                                                         | COMPT                                                                 | PHASE | G. M. T.<br>h. m. s. | $\Delta$<br>km | REMARKS                           |                   |
|-------------|-----------|-------|-------|----------------------|----------------|-----------------------------------------|-------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-------|----------------------|----------------|-----------------------------------|-------------------|
| August 1957 |           |       |       |                      |                |                                         | August 1957 |                                                                                                 |                                                                       |       |                      |                |                                   |                   |
| 18          | SHILLONG  | Z,E   | iP    | 21 52 01             | 5960           | Slight                                  | 20          | COLOMBO                                                                                         | E                                                                     | e     | 06 49 50             |                |                                   |                   |
| Contd.      |           | N,E   | eS    | 59 33                |                | Compression                             | Contd.      | DEHRA DUN                                                                                       | N,E                                                                   | e     | 06 50 50             |                | Feeble, phases not clear          |                   |
|             |           |       | M     | 22 12 43             |                | Per. 20 secs $\mu = 17$                 |             |                                                                                                 |                                                                       |       |                      |                |                                   |                   |
|             | CHATRA    | Z     | iP    | 21 52 16             |                | Slight                                  | 20          | SHILLONG                                                                                        | Z                                                                     | eP    | 12 08 08             |                |                                   |                   |
|             |           | E     | i     | 22 02 00             |                |                                         |             | COLOMBO                                                                                         | E                                                                     | e     | 12 16 02             |                |                                   |                   |
|             | CALCUTTA  | E     | iP    | 21 52 33             | 6450           | Slight, First movement West             |             |                                                                                                 |                                                                       |       | 24 40                |                |                                   |                   |
|             |           |       | iS    | 22 00 33             |                |                                         |             | BOMBAY                                                                                          | E                                                                     | e     | 12 25 37             |                | Feeble, phases lost in Microseism |                   |
|             |           |       | SSS   | 07 34                |                |                                         |             |                                                                                                 | N                                                                     | e     | 25 57                |                |                                   |                   |
|             | BOHARO    | N,E   | iP    | 21 52 39             | 6400           | Moderate, First movement South and West |             | DEHRA DUN                                                                                       | N,E                                                                   | e     | 12 25 38             |                | Feeble, phases not clear          |                   |
|             |           | N     | PP    | 54 54                |                |                                         |             |                                                                                                 |                                                                       |       |                      |                |                                   |                   |
|             |           |       | eS    | 22 00 43             |                |                                         |             |                                                                                                 |                                                                       |       |                      |                |                                   |                   |
|             |           |       | i     | 02 22                |                |                                         |             |                                                                                                 |                                                                       |       |                      |                |                                   |                   |
|             |           |       | M     | 15 15                |                | Per. 26 secs $\mu = 19$                 |             |                                                                                                 |                                                                       |       |                      |                |                                   |                   |
|             | DEHRA DUN | N,E   | eP    | 21 52 40             | 6470           | Slight                                  | 20          | Epc: 37°N, 71°E, Hindukush. Felt: Peswar<br>H. 15h 21m 06s G.M.T. (U.S.C.G.S)<br>Felt: Srinagar |                                                                       |       |                      |                |                                   |                   |
|             |           | N     | iS    | 22 00 41             |                |                                         |             | DEHRA DUN                                                                                       | N,E                                                                   | eP    | 15 23 09             | 900            | Slight                            |                   |
|             |           |       | PPS   | 01 15                |                |                                         |             |                                                                                                 | N                                                                     | iS    | 24 42                |                |                                   |                   |
|             |           |       | M     | 14 36                |                |                                         |             |                                                                                                 |                                                                       | SS    | 24 52                |                |                                   |                   |
|             | POONA     | Z     | iP    | 21 53 51             | 7750           | Moderate                                |             |                                                                                                 |                                                                       | Lr    | 24 55                |                |                                   |                   |
|             |           | N     | PcP   | 54 21                |                |                                         |             |                                                                                                 |                                                                       | SSS   | 25 05                |                |                                   |                   |
|             |           |       | eS    | 22 03 00             |                |                                         |             |                                                                                                 |                                                                       | Sg/M  | 25 30                |                |                                   |                   |
|             |           |       | PS    | 03 19                |                |                                         |             | CHATRA                                                                                          | Z                                                                     | iP    | 15 24 51             | 1850           | Slight                            |                   |
|             |           |       | SKS   | 03 51                |                |                                         |             |                                                                                                 | N,E                                                                   | iS    | 27 56                |                |                                   |                   |
|             |           |       | SS    | 07 32                |                |                                         |             | POONA                                                                                           | Z                                                                     | iP    | 15 25 07             | 2030           | Slight                            |                   |
|             |           |       | Lr    | 11 35                |                | Per. 19 secs $\mu = 32$                 |             |                                                                                                 | E                                                                     | iS    | 28 29                |                |                                   |                   |
|             |           |       | Mn    | 28 --                |                |                                         |             |                                                                                                 |                                                                       | SS    | 28 45                |                |                                   |                   |
|             | BOMBAY    | N,E   | eP    | 21 53 53             | 8670           | Slight                                  |             |                                                                                                 |                                                                       | SSS   | 28 58                |                |                                   |                   |
|             |           | N     | e     | 22 03 09             |                |                                         |             |                                                                                                 |                                                                       | Lr    | 29 12                |                |                                   |                   |
|             |           | E     | eS    | 03 47                |                |                                         |             |                                                                                                 |                                                                       | M     | 30 42                |                |                                   |                   |
|             |           |       | PS    | 04 15                |                |                                         |             | SHILLONG                                                                                        | Z,N,E                                                                 | iP    | 15 25 35             | 2430           | Moderate                          |                   |
|             |           |       | SS    | 08 25                |                |                                         |             |                                                                                                 |                                                                       | PP    | 25 57                |                | Rarefaction                       |                   |
|             |           | N     | M     | 22 29                |                | Per. 21 secs $\mu = 15$                 |             |                                                                                                 |                                                                       | PPP   | 26 06                |                | First movement                    |                   |
|             |           | E     | M     | 28 05                |                | Per. 19 secs $\mu = 12$                 |             |                                                                                                 |                                                                       | eP    | 26 41                |                | West. Probable                    |                   |
|             |           |       |       |                      |                |                                         |             |                                                                                                 | N,E                                                                   | iS    | 29 15                |                | depth 200 km                      |                   |
|             |           |       |       |                      |                |                                         |             |                                                                                                 |                                                                       | SS    | 30 07                |                |                                   |                   |
|             |           |       |       |                      |                |                                         |             |                                                                                                 |                                                                       | sS    | 30 26                |                |                                   |                   |
|             | COLOMBO   | E     | P     | 21 54 21             | 8380           |                                         |             | TOCKLAI                                                                                         | E                                                                     | eP    | 15 25 47             |                | Slight                            |                   |
|             |           |       | S     | 22 04 01             |                | Amp. $\approx 0.7$ mm                   |             | 20                                                                                              | CHATRA                                                                | Z     | i                    | 22 37 31       |                                   | Feeble, distant   |
|             |           |       | L     | 21 06                |                |                                         |             | 21                                                                                              | SHILLONG                                                              | Z     | iP                   | 08 20 32       |                                   | Slight, distant   |
|             |           |       | M     | 33 01                |                |                                         |             |                                                                                                 |                                                                       |       |                      |                | Compression                       |                   |
| 19          | DEHRA DUN | N,E   | e     | 07 27 52             |                | Feeble                                  |             | 21                                                                                              | SHILLONG                                                              | Z     | iP                   | 12 02 58       |                                   | Tremor            |
|             |           |       | i     | 32 50                |                |                                         |             |                                                                                                 |                                                                       |       |                      |                | Slight, distant                   |                   |
|             | CHATRA    | Z     | iP    | 07 29 05             |                | Slight                                  |             | 21                                                                                              | SHILLONG                                                              | Z     | iP                   | 15 42 34       |                                   | Rarefaction       |
|             |           |       | i     | 29 20                |                |                                         |             |                                                                                                 |                                                                       |       |                      |                |                                   |                   |
|             | SHILLONG  | Z     | iP    | 07 29 43             |                | Slight, distant                         |             | 21                                                                                              | CHATRA                                                                | Z     | i                    | 15 42 59       |                                   | Feeble            |
|             |           |       |       |                      |                | Rarefaction                             |             |                                                                                                 |                                                                       |       |                      |                |                                   |                   |
| 19          | SHILLONG  | Z     | eP    | 10 39 13             |                | Slight, distant                         |             | 21                                                                                              | SHILLONG                                                              | Z     | iP                   | 16 58 41       |                                   | Feeble, local     |
| 19          | COLOMBO   | E     | P     | 11 45 51             |                |                                         |             | 21                                                                                              | SHILLONG                                                              | Z     | iP                   | 19 18 24       |                                   | Slight, near      |
|             |           |       | e     | 57 21                |                |                                         |             |                                                                                                 |                                                                       |       |                      |                | Tremor                            |                   |
|             | SHILLONG  | Z     | eP    | 11 46 25             |                | Tremor                                  |             | 21                                                                                              | SHILLONG                                                              | Z     | iP                   | 19 42 46       |                                   |                   |
| 19          | DEHRA DUN | N,E   | e     | 11 58 22             |                | Feeble                                  |             | 22                                                                                              | SHILLONG                                                              | Z     | iP                   | 03 46 05       |                                   | Slight, distant   |
| 19          | SHILLONG  | Z     | e     | 15 14 25             |                |                                         |             |                                                                                                 |                                                                       |       |                      |                | Compression                       |                   |
| 19          | SHILLONG  | Z     | iP    | 21 43 39             |                | Slight, distant                         |             | 22                                                                                              | SHILLONG                                                              | Z,N,E | iPg                  | 03 54 33       | 90                                | Slight.           |
|             |           |       |       |                      |                | Rarefaction                             |             |                                                                                                 |                                                                       | N,E   | iSg                  | 54 44          |                                   | Rarefaction       |
|             |           |       |       |                      |                | Feeble, near.                           |             |                                                                                                 |                                                                       |       |                      |                |                                   | Felt at: Shillong |
| 20          | CHATRA    | Z,E   | iP    | 00 45 06             | 70             | Slight                                  |             |                                                                                                 |                                                                       |       |                      |                |                                   | Gauhati and       |
|             |           | E     | iS    | 45 15                |                |                                         |             |                                                                                                 |                                                                       |       |                      |                |                                   | Mangaldai. (Press |
|             | SHILLONG  | Z     | e     | 00 46 28             |                |                                         |             |                                                                                                 |                                                                       |       |                      |                |                                   | Report)           |
| 20          | DEHRA DUN | N,E   | e     | 01 52 07             |                | Feeble, phases not clear                |             | CHATRA                                                                                          | Z                                                                     | iP    | 03 55 34             | 590            | Slight                            |                   |
|             |           |       | i     | 53 35                |                |                                         |             |                                                                                                 |                                                                       | iS    | 56 36                |                |                                   |                   |
| 20          | SHILLONG  | Z     | iP    | 03 57 33             |                | Slight, distant                         |             | 22                                                                                              | Epc: 1°N, 126°E, Molucca Passage<br>H. 07h 55m 06s G.M.T. (U.S.C.G.S) |       |                      |                |                                   |                   |
|             |           |       |       |                      |                | Compression                             |             |                                                                                                 | SHILLONG                                                              | Z,E   | iP                   | 08 02 55       |                                   | Slight            |
| 20          | SHILLONG  | Z     | iP    | 04 06 31             |                | Slight, distant                         |             |                                                                                                 |                                                                       |       |                      |                |                                   | Compression       |
|             |           |       |       |                      |                | Compression                             |             | CHATRA                                                                                          | Z                                                                     | eP    | 08 03 29             |                | Feeble                            |                   |
| 20          | BOMBAY    | E     | e     | 06 45 34             |                | Feeble, phases lost in                  |             | DEHRA DUN                                                                                       | N,E                                                                   | eP    | 08 04 37             |                | Feeble                            |                   |
|             |           | N     | e     | 50 15                |                | Microseisms                             |             |                                                                                                 |                                                                       | i     | 14 19                |                |                                   |                   |
|             |           | E     | e     | 50 51                |                |                                         |             | 22                                                                                              | SHILLONG                                                              | Z,E   | iP                   | 15 34 49       |                                   | Slight, distant   |
|             |           | N,E   | e     | 51 17                |                |                                         |             |                                                                                                 |                                                                       |       |                      |                |                                   | Rarefaction       |

| DATE        | STATION                                                                                                                                                                       | COMPT | PHASE | G. M. T.<br>h. m. s. | $\Delta$<br>km | REMARKS                                     | DATE        | STATION                                                                                                                                                     | COMPT    | PHASE    | G. M. T.<br>h. m. s. | $\Delta$<br>km | REMARKS                    |                             |              |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|----------------------|----------------|---------------------------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------------------|----------------|----------------------------|-----------------------------|--------------|
| August 1957 |                                                                                                                                                                               |       |       |                      |                |                                             | August 1957 |                                                                                                                                                             |          |          |                      |                |                            |                             |              |
| 22          | SHILLONG                                                                                                                                                                      | Z     | iP    | 16 56 09             |                | Slight, compression                         | 23          | CHATRA                                                                                                                                                      | Z        | iP       | 22 58 46             |                | Feeble                     |                             |              |
|             |                                                                                                                                                                               | N,E   | i     | 17 06 26             |                |                                             | Contd.      | DEHRA DUN                                                                                                                                                   | N,E      | eP       | 22 59 59             |                | Feeble                     |                             |              |
| 22          | SHILLONG                                                                                                                                                                      | Z     | eP    | 18 30 18             |                | Tremor                                      |             |                                                                                                                                                             | e        | 23 10 37 |                      |                |                            |                             |              |
|             | DEHRA DUN                                                                                                                                                                     | N,E   | e     | 18 33 19             |                | Tremor                                      |             | COLOMBO                                                                                                                                                     | E        | e        | 23 07 20             |                | Strong microseism. present |                             |              |
| 22          | CHATRA                                                                                                                                                                        | Z     | iPg   | 21 47 47             | 90             | Feeble                                      |             |                                                                                                                                                             | e        | 22 30    |                      |                | Amp. $\approx$ 0.5 mm      |                             |              |
|             |                                                                                                                                                                               |       | iSg   | 47 59                |                |                                             | 24          | SHILLONG                                                                                                                                                    | Z        | eP       | 00 12 37             |                |                            | Feeble, near.               |              |
| 22          | CHATRA                                                                                                                                                                        | Z     | iPg   | 22 18 46             | 70             | Feeble                                      | 24          | CHATRA                                                                                                                                                      | Z        | iP       | 04 29 03             | 120            |                            | Slight                      |              |
|             |                                                                                                                                                                               |       | iSg   | 18 56                |                |                                             |             |                                                                                                                                                             | N,E,Z    | iS       | 29 19                |                |                            |                             |              |
| 23          | Epc: 6°S, 154°E. New Britain after shock. Felt: Rabaul, Kokopo, Namatani, Sohano, Londloovit and Arepa. H = 02h 00m 05s G.M.T. (U.S.C.G.S) Magnitude $\approx$ 6% (Pasadena). |       |       |                      |                |                                             |             | 24                                                                                                                                                          | SHILLONG | Z        | ePg                  | 04 29 41       |                            |                             | Feeble, near |
|             | SHILLONG                                                                                                                                                                      | Z,E   | iP    | 02 11 06             | 7370           | Slight, first movement West                 |             |                                                                                                                                                             | E        | e        | 15 45 43             |                |                            | Slight, distant             |              |
|             |                                                                                                                                                                               | E     | eS    | 19 55                |                |                                             |             | SHILLONG                                                                                                                                                    | Z        | eP       | 15 45 59             |                |                            | Slight, distant Compression |              |
|             | CHATRA                                                                                                                                                                        | Z     | eP    | 02 11 36             | 8000           | Slight                                      |             | CHATRA                                                                                                                                                      | Z        | eP       | 15 46 35             |                |                            | Slight                      |              |
|             |                                                                                                                                                                               | E     | iS    | 20 57                |                |                                             |             |                                                                                                                                                             | i        | 48 13    |                      |                |                            |                             |              |
|             | COLOMBO                                                                                                                                                                       | E     | P     | 02 11 52             |                |                                             | 24          | SHILLONG                                                                                                                                                    | Z        | ePg      | 18 31 05             |                |                            | Feeble, near                |              |
|             |                                                                                                                                                                               |       | e     | 22 02                |                |                                             |             | DEHRA DUN                                                                                                                                                   | N,E      | e        | 23 18 20             |                |                            | Tremor                      |              |
|             |                                                                                                                                                                               |       | e     | 34 --                |                |                                             | 25          | SHILLONG                                                                                                                                                    | Z,E      | iPg      | 03 32 46             | 120            |                            | Feeble                      |              |
|             | POONA                                                                                                                                                                         | Z     | eP    | 02 12 31             | 8910           | Slight                                      |             |                                                                                                                                                             | eSg      | 33 00    |                      |                |                            |                             |              |
|             |                                                                                                                                                                               | N     | eS    | 22 36                |                |                                             | 25          | SHILLONG                                                                                                                                                    | Z        | iP       | 11 32 01             |                |                            | Slight, near Compression.   |              |
|             |                                                                                                                                                                               |       | PS    | 23 16                |                |                                             |             |                                                                                                                                                             |          |          |                      |                |                            |                             |              |
|             |                                                                                                                                                                               |       | M     | 43 27                |                |                                             | 25          | SHILLONG                                                                                                                                                    | Z        | iPg      | 13 03 07             | 110            |                            | Feeble                      |              |
| 23          | HYDERABAD                                                                                                                                                                     | N     | eP    | 02 13 33             |                |                                             |             |                                                                                                                                                             | Z,E      | eSg      | 03 20                |                |                            |                             |              |
|             |                                                                                                                                                                               |       | e     | 17 03                |                |                                             | 25          | SHILLONG                                                                                                                                                    | Z        | iP       | 13 55 25             |                |                            | Feeble, local               |              |
|             |                                                                                                                                                                               |       | e     | 18 24                |                |                                             | 25          | SHILLONG                                                                                                                                                    | Z        | iP       | 17 48 50             |                |                            | Slight, distant Compression |              |
|             |                                                                                                                                                                               |       | i     | 21 51                |                |                                             | 25          | TOCKLAI                                                                                                                                                     | E        | e        | 19 14 47(?)          |                |                            | Slight, distant             |              |
|             |                                                                                                                                                                               |       | e     | 22 36                |                |                                             | 25          | CHATRA                                                                                                                                                      | Z        | iP       | 20 15 07             | 190            |                            | Slight                      |              |
|             |                                                                                                                                                                               |       | e     | 23 25                |                |                                             |             | SHILLONG                                                                                                                                                    | Z        | ePg      | 20 15 20             | 330            |                            | Feeble.                     |              |
|             |                                                                                                                                                                               |       | e     | 26 33                |                |                                             |             |                                                                                                                                                             | ePPP     | 15 23    |                      |                |                            |                             |              |
|             |                                                                                                                                                                               |       | e     | 29 09                |                |                                             |             |                                                                                                                                                             | Lq       | 15 35    |                      |                |                            |                             |              |
|             |                                                                                                                                                                               |       | e     | 32 48                |                |                                             |             |                                                                                                                                                             | Lr       | 15 43    |                      |                |                            |                             |              |
|             |                                                                                                                                                                               |       | M     | 38 00                |                | Per. $\approx$ 12 secs<br>$\mu$ $\approx$ 3 |             |                                                                                                                                                             | eS       | 15 46    |                      |                |                            |                             |              |
|             | BOMBAY                                                                                                                                                                        | E     | eP    | 02 12 33             | 9130           | Slight                                      |             |                                                                                                                                                             | Z,E      | Sg       | 15 58                |                |                            |                             |              |
|             |                                                                                                                                                                               |       | PP    | 16 13                |                |                                             | 25          | Epc: 22°N, 80°E. Satpura Mountains. H = 21h 04m 50s G.M.T. (Shillong) Felt: Nagpur, Mandia, Gondia, Umaria and Jabalpur. Magnitude $\approx$ 5% (Shillong). |          |          |                      |                |                            |                             |              |
|             |                                                                                                                                                                               |       | PPP   | 17 47                |                |                                             |             | POONA                                                                                                                                                       | Z        | eP       | 21 06 34             | 740            |                            | Slight                      |              |
|             |                                                                                                                                                                               | N,E   | eS    | 22 48                |                |                                             |             |                                                                                                                                                             | E        | eS       | 07 51                |                |                            |                             |              |
|             |                                                                                                                                                                               |       | PS    | 23 26                |                |                                             |             |                                                                                                                                                             | Z        | M        | 08 20                |                |                            |                             |              |
|             |                                                                                                                                                                               | E     | PPS   | 23 43                |                |                                             |             | BOKARO                                                                                                                                                      | N,E      | eP       | 21 06 38             |                |                            | Slight                      |              |
|             |                                                                                                                                                                               |       | SS    | 27 32                |                |                                             |             |                                                                                                                                                             | E        | e        | 06 42                |                |                            |                             |              |
|             | DEHRA DUN                                                                                                                                                                     | N,E   | eP    | 02 12 33             | 9490           | Slight                                      |             |                                                                                                                                                             |          | e        | 07 22                |                |                            |                             |              |
|             |                                                                                                                                                                               | N     | iS    | 23 04                |                |                                             |             |                                                                                                                                                             |          | e        | 07 33                |                |                            |                             |              |
|             |                                                                                                                                                                               |       | PS    | 23 53                |                |                                             |             |                                                                                                                                                             |          | e        | 07 44                |                |                            |                             |              |
| 23          | SHILLONG                                                                                                                                                                      | Z     | iP    | 02 43 16             |                | Slight, distant Compression                 |             |                                                                                                                                                             |          | e        | 07 47                |                |                            |                             |              |
| 23          | SHILLONG                                                                                                                                                                      | Z     | eP    | 04 28 52             |                | Feeble, local                               |             |                                                                                                                                                             |          | e        | 07 52                |                |                            |                             |              |
| 23          | CHATRA                                                                                                                                                                        | Z     | iP    | 04 32 25             | 60             | Slight                                      |             |                                                                                                                                                             |          | S        | 08 00                |                |                            |                             |              |
|             |                                                                                                                                                                               | N,E,Z | iS    | 32 33                |                |                                             |             | VIZIANAGRAM                                                                                                                                                 | N        | eP       | 21 06 39             |                |                            | Slight                      |              |
| 23          | CHATRA                                                                                                                                                                        | Z     | iP    | 08 46 09             | 100            | Slight                                      |             |                                                                                                                                                             | i        | 07 49    |                      |                |                            |                             |              |
|             |                                                                                                                                                                               |       | iS    | 46 22                |                |                                             |             | CHATRA                                                                                                                                                      | Z        | iP       | 21 06 49             | 780            |                            | Slight                      |              |
| 23          | Epc: 24°N, 122°E. Off the Coast of Formosa. Felt: Moderate damage in Taipei. H = 11h 42m 34s (U.S.C.G.S).                                                                     |       |       |                      |                |                                             |             |                                                                                                                                                             | E        | iS       | 08 10                |                |                            |                             |              |
|             | SHILLONG                                                                                                                                                                      | Z,E   | iP    | 11 48 31             | S              | Slight, rarefaction                         |             | DEHRA DUN                                                                                                                                                   | N,E      | eP       | 21 06 51             | 780            |                            | Slight                      |              |
|             | CHATRA                                                                                                                                                                        | Z     | eP    | 11 48 54             |                | Slight                                      |             |                                                                                                                                                             | N        | iS       | 08 12                |                |                            |                             |              |
|             | TOCKLAI                                                                                                                                                                       | E     | eP    | 11 49 01             |                | Slight                                      |             |                                                                                                                                                             |          | SS       | 08 26                |                |                            |                             |              |
|             | DEHRA DUN                                                                                                                                                                     | N,E   | e     | 11 50 08             |                | Tremor                                      |             |                                                                                                                                                             |          | SSS      | 08 38                |                |                            |                             |              |
|             |                                                                                                                                                                               |       | e     | 56 01                |                |                                             |             |                                                                                                                                                             |          | Sg/M     | 09 00                |                |                            |                             |              |
|             |                                                                                                                                                                               |       | e     | 12 06 38             |                |                                             |             | BOMBAY                                                                                                                                                      | E        | e        | 21 07 05             |                |                            | Very slight.                |              |
|             |                                                                                                                                                                               |       | i     | 07 01                |                |                                             |             |                                                                                                                                                             |          | eSg      | 08 00                |                |                            | Strong Microseisms present  |              |
| 23          | SHILLONG                                                                                                                                                                      | Z     | eP    | 13 43 58             |                | Slight, distant                             |             |                                                                                                                                                             | M        |          |                      |                |                            |                             |              |
| 23          | SHILLONG                                                                                                                                                                      | Z     | eP    | 16 22 39             |                |                                             |             | SHILLONG                                                                                                                                                    | Z        | eP       | 21 07 35             | 1220           |                            | Slight                      |              |
| 23          | Epc: 7°S, 112°E. Java. H = 22h 51m 10s (U.S.C.G.S).                                                                                                                           |       |       |                      |                |                                             |             |                                                                                                                                                             |          | ePP      | 07 43                |                |                            |                             |              |
|             | SHILLONG                                                                                                                                                                      | Z,E   | iP    | 22 58 35             | 4220           | Slight, Compression. First movement West.   |             |                                                                                                                                                             | ePPP     | 07 52    |                      |                |                            |                             |              |
|             |                                                                                                                                                                               | E     | eS    | 23 04 26             |                |                                             |             |                                                                                                                                                             | Z,N,E    | iS       | 09 40                |                |                            |                             |              |

| DATE        | STATION                                                                                                               | COMPT | PHASE | G. M. T. | Δ     | REMARKS                                                     |
|-------------|-----------------------------------------------------------------------------------------------------------------------|-------|-------|----------|-------|-------------------------------------------------------------|
|             |                                                                                                                       |       |       | h. m. s. | km    |                                                             |
| August 1957 |                                                                                                                       |       |       |          |       |                                                             |
| 25          | MADRAS                                                                                                                | E     | e     | 21 07 47 |       | Slight                                                      |
|             |                                                                                                                       |       | e     | 08 52    |       |                                                             |
|             |                                                                                                                       |       | e     | 09 50    |       |                                                             |
|             |                                                                                                                       |       | i(Sg) | 09 58    |       |                                                             |
|             |                                                                                                                       |       | e     | 10 09    |       |                                                             |
|             |                                                                                                                       |       | e     | 10 24    |       |                                                             |
|             |                                                                                                                       |       | e     | 11 19    |       |                                                             |
| 25          | SHILLONG                                                                                                              | Z,E   | iP    | 21 19 24 |       | Slight,distant                                              |
|             |                                                                                                                       | E     | eS    | 22 04    |       | Rarefaction.<br>First movement East.                        |
|             | POONA                                                                                                                 | Z     | e     | 21 20 11 |       | Tremor                                                      |
| 26          | DEHRA DUN                                                                                                             | N,E   | e     | 03 36 27 |       | Tremor                                                      |
| 26          | SHILLONG                                                                                                              | Z,E   | iP    | 07 05 04 |       | Slight,distant<br>Rarefaction                               |
| 26          | Epc: 19°S, 63°W. Southern Bolivia.<br>M = 11h 28m 50s (U.S.C.G.S)<br>Magnitude: ± 6M-6M (Paa), 6M (Berk).             |       |       |          |       |                                                             |
|             | POONA                                                                                                                 | Z     | ePKP1 | 11 48 15 | 16970 | Slight                                                      |
|             |                                                                                                                       | E     | PP    | 52 06    |       |                                                             |
|             |                                                                                                                       |       | SKKS2 | 12 00 18 |       |                                                             |
|             |                                                                                                                       |       | SS    | 12 10    |       |                                                             |
|             |                                                                                                                       |       | SSP   | 13 02    |       |                                                             |
|             | DEHRA DUN                                                                                                             | N,E   | ePKP  | 11 48 30 |       | Slight,phases<br>not clear.                                 |
|             |                                                                                                                       |       | i     | 51 48    |       |                                                             |
|             |                                                                                                                       |       | e     | 58 33    |       |                                                             |
|             | MADRAS                                                                                                                | E     | ePKP  | 11 48 31 |       |                                                             |
|             |                                                                                                                       |       | e     | 12 48 19 |       |                                                             |
|             | HYDERABAD                                                                                                             | E     | ePKP  | 11 48 31 |       |                                                             |
|             |                                                                                                                       | N     | M     | 12 49 11 |       | Per. ± 18 secs<br>Δ ± 20                                    |
|             |                                                                                                                       | E     | M     | 49 17    |       | Per. ± 18 secs<br>Δ ± 13                                    |
|             | CHATRA                                                                                                                | Z     | iPKP  | 11 48 42 |       | Slight                                                      |
|             |                                                                                                                       | E     | ePKP  |          |       |                                                             |
|             | SHILLONG                                                                                                              | Z,E   | iPKP  | 11 48 51 |       | Moderate.<br>Compression                                    |
|             | BOMBAY                                                                                                                | E     | e     | 11 52 01 |       | Slight,earlier<br>phases lost in<br>microseism.             |
|             |                                                                                                                       | N     | M     | 12 47 22 |       | Per. ± 19 secs<br>Δ ± 2                                     |
|             |                                                                                                                       | E     | M     | 47 52    |       | Per. ± 21 secs<br>Δ ± 11                                    |
|             | COLOMBO                                                                                                               | E     | e     | 11 52 10 |       |                                                             |
|             |                                                                                                                       |       | M     | 12 51 00 |       | Amp. ± 2.4 mm                                               |
|             | KODAIKANAL                                                                                                            | E     | e     | 12 39 20 |       | Tremor                                                      |
| 26          | SHILLONG                                                                                                              | E     | i     | 11 53 06 |       |                                                             |
| 26          | Epc: 12°S, 81°W. Near Coast of Ecuador<br>Felt: Western Ecuador. H = 13h 58m 48s (U.S.C.G.S)<br>Magnitude: ± 6 (Pab). |       |       |          |       |                                                             |
|             | DEHRA DUN                                                                                                             | N,E   | ePKP  | 14 18 29 |       | Slight                                                      |
|             |                                                                                                                       |       | e     | 32 01    |       |                                                             |
|             |                                                                                                                       |       | e     | 40 45    |       |                                                             |
|             | CHATRA                                                                                                                | Z     | ePKP  | 14 18 37 |       | Slight                                                      |
|             | POONA                                                                                                                 | Z     | ePKP1 | 14 18 37 | 16970 | Slight                                                      |
|             |                                                                                                                       | E     | PP    | 22 28    |       |                                                             |
|             |                                                                                                                       |       | SKS2  | 24 22    |       |                                                             |
|             |                                                                                                                       |       | PP2   | 33 57    |       |                                                             |
|             | SHILLONG                                                                                                              | Z     | ePKP  | 14 18 43 |       | Moderate                                                    |
|             | BOMBAY                                                                                                                | E     | e     | 14 19 27 |       | Slight.Phases<br>unidentifiable<br>due to microse-<br>isms. |
|             |                                                                                                                       |       | e     | 35 37    |       |                                                             |
|             |                                                                                                                       | N     | M     | 15 32 32 |       | Per. ± 19 secs<br>Δ ± 2                                     |
|             |                                                                                                                       | E     | M     | 32 44    |       | Per. ± 19 secs<br>Δ ± 8                                     |
|             | COLOMBO                                                                                                               | E     | e     | 14 23 05 |       |                                                             |
|             |                                                                                                                       |       | L     | 15 16 50 |       |                                                             |
|             |                                                                                                                       |       | M     | 29 02    |       | Amp. ± 1.4 mm                                               |

| DATE        | STATION                                                          | COMPT | PHASE | G. M. T. | Δ  | REMARKS                       |
|-------------|------------------------------------------------------------------|-------|-------|----------|----|-------------------------------|
|             |                                                                  |       |       | h. m. s. | km |                               |
| August 1957 |                                                                  |       |       |          |    |                               |
| 26          | HYDERABAD                                                        | E     | M     | 15 21 28 |    | Per. ± 19 secs<br>Δ ± 16      |
|             | Cont.                                                            | N     | M     | 22 21    |    | Per. ± 18 secs<br>Δ ± 10      |
|             | KODAIKANAL                                                       | E     | e     | 15 21 51 |    | Tremor                        |
| 26          | MADRAS                                                           | E     | e     | 15 28 59 |    |                               |
|             |                                                                  |       | e     | 36 00    |    |                               |
| 26          | SHILLONG                                                         | Z     | iP    | 15 43 37 |    | Tremor                        |
| 26          | SHILLONG                                                         | Z     | iP    | 17 46 34 |    | Tremor                        |
| 26          | SHILLONG                                                         | Z     | eP    | 19 07 33 |    | Feeble, near                  |
| 26          | SHILLONG                                                         | Z,E   | iP    | 20 04 27 |    | Slight,distant<br>Compression |
| 26          | SHILLONG                                                         | E     | i     | 20 13 21 |    |                               |
|             | DEHRA DUN                                                        | N,E   | e     | 20 15 43 |    | Tremor                        |
| 27          | CHATRA                                                           | Z     | iP    | 13 41 57 |    | 70 Slight                     |
|             |                                                                  | E     | iS    | 42 07    |    |                               |
| 27          | TOCKLAI                                                          | E     | e     | 19 06 19 |    | Slight                        |
|             | SHILLONG                                                         | Z     | iP    | 19 06 44 |    | 640 Slight,<br>Rarefaction    |
|             |                                                                  |       | PP    | 06 51    |    |                               |
|             |                                                                  |       | P*    | 06 57    |    |                               |
|             |                                                                  |       | i     | 07 07    |    |                               |
|             |                                                                  |       | i     | 07 18    |    |                               |
|             |                                                                  |       | Lq    | 07 38    |    |                               |
|             |                                                                  | E     | S     | 07 52    |    |                               |
|             |                                                                  | Z,E   | S     | 07 52    |    |                               |
|             |                                                                  | Z     | SS    | 08 01    |    |                               |
|             |                                                                  |       | S*    | 08 12    |    |                               |
|             |                                                                  |       | Sg    | 08 22    |    |                               |
|             | CHATRA                                                           | Z     | iP    | 19 07 25 |    | 1070 Slight                   |
|             |                                                                  | E     | iS    | 09 15    |    |                               |
| 27          | SHILLONG                                                         | Z     | e     | 21 12 44 |    | Tremor                        |
| 27          | SHILLONG                                                         | Z     | i     | 21 13 06 |    | Tremor                        |
| 28          | SHILLONG                                                         | Z     | iPg   | 00 29 36 |    | 130 Feeble.<br>Compression    |
|             |                                                                  |       | iSg   | 29 54    |    |                               |
| 28          | SHILLONG                                                         | Z     | eP    | 09 46 39 |    | Tremor                        |
| 28          | SHILLONG                                                         | Z     | eP    | 12 00 31 |    | Tremor                        |
| 28          | SHILLONG                                                         | Z,E   | iPg   | 12 03 35 |    | 110 Slight,<br>rarefaction    |
|             |                                                                  | E     | iSg   | 03 49    |    |                               |
|             | TOCKLAI                                                          | E     | e     | 13 03 59 |    | Slight                        |
|             |                                                                  |       | i     | 04 04    |    |                               |
|             | CHATRA                                                           | Z     | iP    | 13 04 38 |    | 600 Slight                    |
|             |                                                                  |       | iS    | 05 39    |    |                               |
| 28          | SHILLONG                                                         | Z     | iP    | 14 16 21 |    | 180 Feeble                    |
|             |                                                                  |       | iS    | 16 52    |    |                               |
| 28          | SHILLONG                                                         | Z,N,E | iP    | 17 18 00 |    | Feeble,local                  |
| 28          | SHILLONG                                                         | Z     | e     | 21 18 18 |    |                               |
| 28          | SHILLONG                                                         | Z     | iP    | 22 21 09 |    | Slight,distant<br>Rarefaction |
| 28          | SHILLONG                                                         | Z     | eP    | 22 26 00 |    | Tremor                        |
| 28          | CHATRA                                                           | Z     | i     | 23 21 40 |    | Feeble,very near              |
| 28          | Epc: 21°N, 145°E. Mariana Islands<br>H = 23h 22m 21s (U.S.C.G.S) |       |       |          |    |                               |
|             | SHILLONG                                                         | Z     | eP    | 23 31 11 |    | Slight                        |
|             |                                                                  | E     | i     | 33 06    |    |                               |
|             | CHATRA                                                           | Z     | iP    | 23 31 40 |    | Feeble                        |
|             | BOMBAY                                                           | E     | e     | 23 33 26 |    | Very slight                   |
|             |                                                                  |       | e     | 42 37    |    |                               |
|             | DEHRA DUN                                                        | N,E   | e     | 23 41 18 |    | Feeble,Phases<br>not clear    |
| 28          | SHILLONG                                                         | Z,E   | e     | 23 59 02 |    | Slight,distant                |
|             | CHATRA                                                           | Z     | e     | 23 59 34 |    | Feeble,distant                |
| 29          | SHILLONG                                                         | Z     | eP    | 01 06 34 |    | Tremor                        |

| DATE        | STATION                                                        | COMPT | PHASE | G. M. T. | $\Delta$ | REMARKS                      | DATE        | STATION                                                                                | COMPT                                                                       | PHASE    | G. M. T. | $\Delta$ | REMARKS                        |                             |
|-------------|----------------------------------------------------------------|-------|-------|----------|----------|------------------------------|-------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|----------|----------|----------|--------------------------------|-----------------------------|
| August 1957 |                                                                |       |       |          |          |                              | August 1957 |                                                                                        |                                                                             |          |          |          |                                |                             |
|             |                                                                |       |       | h. m. s. | km       |                              |             |                                                                                        |                                                                             |          | h. m. s. | km       |                                |                             |
| 29          | SHILLONG                                                       | Z     | i     | 13 06 54 |          | Tremor                       | 30          | BOMBAY                                                                                 | N,E                                                                         | eP       | 16 22 44 | 2300     | Slight                         |                             |
| 29          | SHILLONG                                                       | Z     | iP    | 13 12 09 | 280      | Feeble Compression           | Contd.      | E                                                                                      | PP                                                                          | 22 50    |          |          |                                |                             |
|             |                                                                |       | P*    | 12 11    |          |                              |             | N,E                                                                                    | PPP                                                                         | 23 05    |          |          |                                |                             |
|             |                                                                |       | PP    | 12 15    |          |                              |             | E                                                                                      | eS                                                                          | 26 31    |          |          |                                |                             |
|             |                                                                |       | Pg    | 12 17    |          |                              |             |                                                                                        | Lq                                                                          | 26 38    |          |          |                                |                             |
|             |                                                                |       | PPP   | 12 22    |          |                              |             |                                                                                        | SS                                                                          | 27 02    |          |          |                                |                             |
|             |                                                                |       | iS    | 13 11    |          |                              |             |                                                                                        | SSS                                                                         | 27 20    |          |          |                                |                             |
|             |                                                                |       | S*    | 13 15    |          |                              |             |                                                                                        | e                                                                           | 28 11    |          |          |                                |                             |
|             |                                                                | Z,E   | Sg    | 13 18    |          |                              |             |                                                                                        | i                                                                           | 28 38    |          |          | Per. $\approx$ 10 secs         |                             |
|             |                                                                |       |       |          |          |                              |             |                                                                                        | M                                                                           | 30 43    |          |          | $\mu = 3$                      |                             |
| 29          | CHATRA                                                         | Z     | i     | 13 13 04 |          | Feeble, near                 |             | N                                                                                      | M                                                                           | 30 44    |          |          | Per. $\approx$ 10 secs         |                             |
| 29          | CHATRA                                                         | Z     | iP    | 13 14 05 | 360      | Feeble                       |             |                                                                                        |                                                                             |          |          |          | $\mu = 9$                      |                             |
|             |                                                                |       | iS    | 14 45    |          |                              |             |                                                                                        |                                                                             |          |          |          |                                |                             |
| 29          | SHILLONG                                                       | Z,N,E | eP    | 13 29 31 | 190      | Slight Rarefaction           | TOCKLAI     | E                                                                                      | eP                                                                          | 16 22 51 |          |          | Slight                         |                             |
|             |                                                                | Z,E   | iP    | 29 33    |          |                              | CALCUTTA    | E                                                                                      | iP                                                                          | 16 22 56 | 2380     |          | Slight. First movement East    |                             |
|             |                                                                | N,E   | PP    | 29 40    |          | Mag: 3.4                     |             |                                                                                        | PP                                                                          | 23 20    |          |          |                                |                             |
|             |                                                                |       | PPP   | 29 47    |          |                              |             |                                                                                        | iS                                                                          | 26 50    |          |          |                                |                             |
|             |                                                                |       | Lr    | 29 52    |          |                              |             |                                                                                        | SS                                                                          | 27 27    |          |          |                                |                             |
|             |                                                                |       | iS    | 29 56    |          |                              |             |                                                                                        | Lr                                                                          | 28 07    |          |          |                                |                             |
|             |                                                                |       | SS    | 30 07    |          |                              |             |                                                                                        | M                                                                           | 29 52    |          |          |                                |                             |
|             |                                                                |       | SSS   | 30 15    |          |                              |             | HYDERABAD                                                                              | N                                                                           | iP       | 16 22 56 | 2620     | Moderate. First movement South |                             |
| 29          | TOCKLAI                                                        | E     | eP    | 13 29 45 |          | Slight, near                 |             |                                                                                        | PP                                                                          | 23 38    |          |          |                                |                             |
|             | CHATRA                                                         | Z     | eP    | 13 30 30 | 660      | Slight                       |             |                                                                                        | i                                                                           | 27 08    |          |          |                                |                             |
|             |                                                                |       | iS    | 31 39    |          |                              |             |                                                                                        | e                                                                           | 27 49    |          |          |                                |                             |
| 29          | SHILLONG                                                       | Z     | i     | 15 25 26 |          | Tremor                       |             | N                                                                                      | M                                                                           | 31 27    |          |          | Per. $\approx$ 12 secs         |                             |
| 29          | SHILLONG                                                       | Z     | e     | 15 53 25 |          | Tremor                       |             | E                                                                                      | M                                                                           | 31 28    |          |          | $\mu = 19$                     |                             |
| 29          | SHILLONG                                                       | Z     | i     | 15 55 06 |          | Tremor                       |             |                                                                                        |                                                                             |          |          |          | Per. $\approx$ 10 secs         |                             |
| 30          | SHILLONG                                                       | Z     | iP    | 00 03 15 |          | Slight, distant rarefaction  | VIZIANAGRAM | N                                                                                      | i                                                                           | 16 24 04 |          |          | Slight                         |                             |
| 30          | SHILLONG                                                       | Z     | iP    | 04 52 09 | 220      | Slight, rarefaction          |             |                                                                                        | i                                                                           | 30 30    |          |          |                                |                             |
|             |                                                                |       | P*    | 52 10    |          |                              | KALPAS      | E                                                                                      | e(S)                                                                        | 16 27 41 |          |          |                                |                             |
|             |                                                                |       | Pg    | 52 12    |          |                              |             |                                                                                        | e                                                                           | 32 14    |          |          |                                |                             |
|             |                                                                |       | PP    | 52 17    |          |                              |             |                                                                                        | e                                                                           | 34 30    |          |          |                                |                             |
|             |                                                                |       | PPP   | 52 27    |          |                              |             |                                                                                        | e                                                                           | 36 44    |          |          |                                |                             |
|             |                                                                |       | iS    | 52 32    |          |                              |             | KODAIKANAL                                                                             | E                                                                           | e(S)     | 16 29 51 |          |                                | Slight                      |
|             |                                                                |       | S*    | 52 34    |          |                              |             |                                                                                        | e                                                                           | 32 15    |          |          |                                |                             |
|             |                                                                |       | Sg    | 52 36    |          |                              |             |                                                                                        | e                                                                           | 33 30    |          |          |                                |                             |
|             |                                                                |       | SS    | 52 42    |          |                              |             |                                                                                        | e                                                                           | 33 44    |          |          |                                |                             |
|             |                                                                |       | SSS   | 52 53    |          |                              |             |                                                                                        | e                                                                           | 34 09    |          |          |                                |                             |
|             |                                                                |       |       |          |          |                              |             |                                                                                        | e                                                                           | 35 30    |          |          |                                |                             |
| 30          | SHILLONG                                                       | Z     | i     | 12 20 24 |          | Tremor.                      | COLOMBO     | E                                                                                      | e                                                                           | 16 31 05 |          |          |                                |                             |
| 30          | Epc: 39°N, 73°E. Tadshik S.S.R.<br>H = 16h 17m 56s (U.S.C.G.S) |       |       |          |          |                              |             |                                                                                        |                                                                             | e        | 35 15    |          |                                |                             |
|             |                                                                |       |       |          |          |                              |             |                                                                                        | e                                                                           | 38 10    |          |          |                                |                             |
|             | DEHRA DUN                                                      | N,E   | eP    | 16 20 23 | 1050     | Slight                       |             |                                                                                        | e                                                                           | 40 25    |          |          | Amp. $\approx$ 0.7 mm          |                             |
|             |                                                                | N     | PP    | 20 34    |          |                              |             |                                                                                        |                                                                             |          |          |          |                                |                             |
|             |                                                                |       | iS    | 22 11    |          |                              |             |                                                                                        |                                                                             |          |          |          |                                |                             |
|             |                                                                |       | SS    | 22 23    |          |                              | 30          | SHILLONG                                                                               | Z                                                                           | iP       | 17 01 46 |          |                                | Slight, distant Rarefaction |
|             |                                                                |       | Lr    | 22 27    |          |                              |             |                                                                                        |                                                                             |          |          |          |                                |                             |
|             |                                                                |       | SSS   | 22 35    |          |                              |             |                                                                                        |                                                                             |          |          |          |                                |                             |
|             |                                                                |       | Sg/M  | 23 16    |          |                              |             | 30                                                                                     | Epc: 20°N, 121°E. Batan Islands Region<br>H = 20h 04m 91s G.M.T (U.S.C.G.S) |          |          |          |                                |                             |
|             | CHATRA                                                         | Z     | iP    | 16 21 58 |          | Slight                       |             | SHILLONG                                                                               | Z,E                                                                         | eP       | 20 09 51 | 3100     | Slight                         |                             |
|             |                                                                | E     | eP    | 28 26    |          |                              |             |                                                                                        | E                                                                           | PP       | 10 40    |          |                                |                             |
|             |                                                                |       | i     |          |          |                              |             |                                                                                        |                                                                             | PPP      | 10 55    |          |                                |                             |
|             |                                                                |       |       |          |          |                              |             |                                                                                        |                                                                             | eS       | 14 34    |          |                                |                             |
|             | BOKARO                                                         | N,E   | eP    | 16 22 20 | 2120     | Slight                       |             | CALCUTTA                                                                               | E                                                                           | e        | 20 16 02 |          |                                | Slight                      |
|             |                                                                | N     | PP    | 22 35    |          |                              |             |                                                                                        |                                                                             | e        | 17 51    |          |                                |                             |
|             |                                                                |       | PPP   | 22 50    |          |                              |             |                                                                                        |                                                                             | i        | 24 39    |          |                                |                             |
|             |                                                                | E     | eS    | 25 50    |          |                              |             | BOMBAY                                                                                 | E                                                                           | e        | 20 18 59 |          |                                | Very slight                 |
|             |                                                                |       | Lq    | 25 57    |          |                              |             |                                                                                        |                                                                             |          |          |          |                                |                             |
|             |                                                                | N     | SS    | 26 11    |          |                              |             | HYDERABAD                                                                              | N                                                                           | M        | 20 23 35 |          |                                | Per. $\approx$ 15 secs      |
|             |                                                                |       | SSS   | 26 29    |          |                              |             |                                                                                        |                                                                             | M        | 23 38    |          |                                | $\mu = 4$                   |
|             |                                                                |       | Lr    | 26 48    |          |                              |             |                                                                                        |                                                                             |          |          |          | Per. $\approx$ 15 secs         |                             |
|             |                                                                |       | M     | 28 31    |          |                              |             |                                                                                        |                                                                             |          |          |          | $\mu = 4$                      |                             |
|             | POONA                                                          | Z     | iP    | 16 22 40 | 2010     | Slight                       | 30          | Epc: 26°N, 94°E. H = 20h 23m 05s G.M.T (Shillong)<br>Magnitude $\approx$ 4% (Shillong) |                                                                             |          |          |          |                                |                             |
|             |                                                                | E     | PP    | 22 50    |          |                              |             | TOCKLAI                                                                                | E                                                                           | eP       | 20 23 45 |          |                                | Slight                      |
|             |                                                                |       | PPP   | 23 01    |          |                              |             |                                                                                        |                                                                             | e        | 24 07    |          |                                |                             |
|             |                                                                |       | eS    | 26 00    |          |                              |             |                                                                                        |                                                                             |          |          |          |                                |                             |
|             |                                                                |       | SSS   | 26 27    |          |                              |             | SHILLONG                                                                               | Z,E                                                                         | iP       | 20 23 47 | 230      | Slight Compression             |                             |
|             |                                                                |       | Lr    | 26 50    |          |                              |             |                                                                                        | E                                                                           | P*       | 23 49    |          |                                |                             |
|             |                                                                |       | PcP   | 27 05    |          |                              |             |                                                                                        | N,E                                                                         | Pg       | 23 51    |          |                                |                             |
|             |                                                                |       | M     | 28 38    |          |                              |             |                                                                                        | E                                                                           | PP       | 23 53    |          |                                |                             |
|             |                                                                |       | PcS   | 30 40    |          |                              |             |                                                                                        | N,E                                                                         | PPP      | 23 59    |          |                                |                             |
|             | SHILLONG                                                       | Z,N,E | iP    | 16 22 42 | 2330     | Slight Compression           |             |                                                                                        | N,E                                                                         | eS       | 24 17    |          |                                |                             |
|             |                                                                | E     | PP    | 23 04    |          | First movement               |             |                                                                                        | E                                                                           | S*       | 24 18    |          |                                |                             |
|             |                                                                |       | PPP   | 23 17    |          | South and East               |             |                                                                                        | N,E                                                                         | Sg       | 24 20    |          |                                |                             |
|             |                                                                | N,E   | eS    | 26 36    |          | Probably followed by another |             |                                                                                        | E                                                                           | SS       | 24 27    |          |                                |                             |
|             |                                                                | E     | Lq    | 26 48    |          | shock after 4 seconds        |             |                                                                                        | N,E                                                                         | SSS      | 24 35    |          |                                |                             |
|             |                                                                |       | SSS   | 27 05    |          |                              |             |                                                                                        |                                                                             |          |          |          |                                |                             |
|             |                                                                |       | Lr    | 27 17    |          |                              |             |                                                                                        |                                                                             |          |          |          |                                |                             |
|             |                                                                |       | M     | 27 31    |          |                              |             |                                                                                        |                                                                             |          |          |          |                                |                             |
|             |                                                                |       |       | 29 26    |          |                              |             |                                                                                        |                                                                             |          |          |          |                                |                             |

| DATE        | STATION                                                         | COMPT | PHASE | G. | N. | T. | Δ    | REMARKS                          |
|-------------|-----------------------------------------------------------------|-------|-------|----|----|----|------|----------------------------------|
|             |                                                                 |       |       | h. | m. | s. | km   |                                  |
| August 1957 |                                                                 |       |       |    |    |    |      |                                  |
| 30          | CHATRA                                                          | Z     | iP    | 20 | 24 | 46 | 750  | Slight                           |
| Contd.      |                                                                 | E     | eS    |    | 26 | 04 |      |                                  |
|             | DEHRA DUN                                                       | N,E   | eS    | 20 | 29 | 28 |      | Tremor                           |
| 30          | SHILLONG                                                        | Z     | iP    | 21 | 04 | 08 |      | Tremor                           |
| 31          | SHILLONG                                                        | Z     | e     | 00 | 09 | 00 |      |                                  |
| 31          | SHILLONG                                                        | Z     | i     | 00 | 09 | 07 |      |                                  |
| 31          | SHILLONG                                                        | Z     | e     | 01 | 09 | 47 |      | Tremor                           |
| 31          | DEHRA DUN                                                       | N,E   | e     | 02 | 51 | 21 |      | Tremor                           |
| 31          | Epc: 49°N, 100°E, Outer Mongolia<br>H = 12h 01m 06s (U.S.C.C.S) |       |       |    |    |    |      |                                  |
|             | SHILLONG                                                        | Z,N,E | eP    | 12 | 06 | 23 | 2790 | Slight                           |
|             |                                                                 | E     | iS    |    | 19 | 46 |      |                                  |
|             |                                                                 |       | i     |    | 14 | 38 |      |                                  |
|             | DEHRA DUN                                                       | N,E   | eP    | 12 | 06 | 32 | 2830 | Slight                           |
|             |                                                                 |       | iS    |    | 10 | 57 |      |                                  |
|             |                                                                 |       | i     |    | 14 | 55 |      |                                  |
|             | BOMBAY                                                          | E     | e     | 12 | 19 | 11 |      | Feeble                           |
|             |                                                                 | N,E   | e     |    | 22 | 49 |      |                                  |
|             | SHILLONG                                                        | Z     | eP    | 13 | 01 | 04 |      | Slight                           |
|             | DEHRA DUN                                                       | N,E   | e     | 13 | 04 | 06 |      | Tremor                           |
|             | BOKARO                                                          | N,E   | e     | 13 | 11 | 33 |      | Slight                           |
|             | TOCKLAI                                                         | E     | eP    | 13 | 46 | 13 |      | Moderate, near.                  |
|             | SHILLONG                                                        | Z,N,E | eP    | 13 | 46 | 13 | 150  | Moderate, felt<br>Magnitudes 4.5 |
|             | CHATRA                                                          | Z     | iP    | 13 | 46 | 57 |      | Slight                           |
|             |                                                                 | E     | i     |    | 48 | 25 |      |                                  |
| 31          | DEHRA DUN                                                       | N,E   | e     | 14 | 51 | 00 |      | Tremor                           |

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*Earthquake Reports*

*(Non Instrumental Reports)*

The following table contains a list of earthquake that were reported by Voluntary Observers from various stations

| PLACE AT WHICH FELT | DATE     | IN TIME  | IN DURATION | INTENSITY     | NO. OF SHOCKS | REMARKS        |
|---------------------|----------|----------|-------------|---------------|---------------|----------------|
|                     | G. M. T. | C. M. T. | IN SECS.    | IN R.F. SCALE |               |                |
| August 1957         |          |          |             |               |               |                |
| SRINAGAR            | 20       | 20 52    | 30          | IV            | 2             |                |
| CONDIA              | 25       | 21 24    | 15          | V             | 3             | Direction S-W. |
| MANLA               | 25       | 21 10    | 2           | V             | 1             |                |
| JABALPUR            | 25       | 21 00    | 3           | V             | 1             |                |
| UMARIA              | 25       | 20 50    | 2           | V             | 1             |                |
| TEJPUR              | 31       | 13 46    | 5           | IV            | 1             |                |

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Geophysical Laboratory  
Bengal Engineering College  
Howrah, India.

Analysis of Microseismic Movements.  
Station: Howrah. Lat. 22°33'N, Long. 88°19'E.  
Foundation - Alluvium. Month: August, 1957.

## Component - N.S.

## Component - E.W.

Component - N.S.				Component - E.W.				Component - E.W.						
DATE	HOUR	K	MEAN PERIOD SECS.	MEAN AMPLITUDE MICRON	DATE	HOUR	K	MEAN PERIOD SECS.	MEAN AMPLITUDE MICRON	DATE	HOUR	K	MEAN PERIOD SECS.	MEAN AMPLITUDE MICRON
01	00		3.6	1.9	16	12		3.3	1.9	01	00	0..	-	-
	06		3.2	2.1	Contd.	18		3.3	2.0		06	0..	-	-
	12	0..	-	-							12	0..	-	-
	18	3	3.5	2.3	17	00		-	-		18		3.1	2.3
			2.7	1.9		06		2.9	2.3		18		3.4	2.5
02	00		3.1	3.3		12		3.6	2.4	02	00		3.3	2.7
	06		3.2	2.7		18		3.5	2.3		06	0..	-	-
	12		3.3	2.7	18	00		3.6	2.4		12		3.3	3.3
	18		3.3	2.7		06		3.6	2.6		18		3.4	2.9
03	00		3.2	2.6		12		3.7	2.6	03	00		3.6	3.4
	06		3.7	3.5		18		3.5	1.9		06		3.5	3.0
	12		3.3	3.5	19	00		3.8	2.6		12	0..	-	-
	18		3.3	2.0		06	0..	-	-		18		4.8	6.5
04	00		3.0	2.2		12		4.1	4.6	04	00		2.9	2.7
	06		3.4	2.6		18		4.5	3.6		06	0..	-	-
	12		3.4	2.2	20	00		4.5	4.2		12		3.7	3.1
	18		3.0	2.0		06		3.4	6.3		18		3.2	3.0
05	00	3	2.6	2.8		12		3.6	5.5	05	00	3	2.7	2.2
			3.2	3.0		18		3.8	8.2				3.4	3.0
	06		3.1	3.5	21	00		3.8	10.4		06	0..	-	-
	12		2.8	2.8		06		4.0	12.5		12		3.2	4.1
	18		3.5	3.9		12		3.8	10.5		18	3	2.9	2.4
06	00		2.7	2.6		18		3.6	11.1				3.6	3.0
	06		3.8	3.4	22	00		3.3	8.2	06	00		3.0	2.7
	12		3.6	2.5		06		3.3	8.3		06	0..	-	-
	18		3.5	2.6		12	3	3.4	8.6		12	0..	-	-
07	00		3.6	2.7		18		3.4	7.4		18		3.5	3.1
	06		3.6	2.9	23	00		3.4	5.6	07	00		3.7	3.5
	12		4.0	3.3		06		3.1	5.0		06		3.7	3.2
	18		3.9	3.1		12		3.7	4.3		12		3.8	3.3
08	00		3.8	3.2		18		3.8	3.4		18		3.9	3.4
	06		4.3	4.8	24	00		3.7	3.3	08	00		3.8	3.6
	12	3	3.1	3.0		06		4.2	4.2		06	0..	-	-
			4.2	4.0		12		4.0	3.2		12	0..	-	-
	18	3	2.8	2.9		18		4.0	2.5		18	3	3.2	3.2
			3.7	2.2				4.0	2.5				4.1	4.4
09	00		3.4	3.9	25	00		4.0	2.7	09	00		4.4	5.0
	06		3.2	3.7		06		3.4	2.8		06		4.0	5.3
	12		3.3	4.0		12		3.4	2.1		12		3.2	3.2
	18		3.3	4.1		18		4.6	2.8		18		3.3	3.3
10	00		3.2	3.9	26	00		3.6	2.1	10	00		3.2	3.9
	06		3.1	3.7		06		3.5	2.9		06		3.2	3.6
	12		3.1	3.4		12		3.6	3.4		12	0..	-	-
	18		3.3	2.8		18		3.1	2.4		18		3.1	2.7
11	00		3.2	2.3	27	00	3	2.6	2.4	11	00	0..	-	-
	06		3.1	2.3				3.6	3.0		06	0..	-	-
	12	0..	-	-		06		2.9	3.7		12	0..	-	-
	18		3.3	1.6		12		3.2	3.2		18	0..	-	-
						18		2.7	2.7					
12	00	0..	-	-	28	00		3.2	2.8	12	00	0..	-	-
	06	0..	-	-		06		3.5	3.5		06	0..	-	-
	12	0..	-	-		12		3.4	2.7		12	0..	-	-
	18	0..	-	-		18		3.2	2.4		18	0..	-	-
13	00	0..	-	-	29	00		3.3	2.2	13	00	0..	-	-
	06	0..	-	-		06		2.8	1.7		06	0..	-	-
	12	0..	-	-		12	0..	-	-		12	0..	-	-
	18	0..	-	-		18		3.2	2.3		18	0..	-	-
14	00	0..	-	-	30	00		3.9	1.8	14	00	0..	-	-
	06	0..	-	-		06		2.8	2.6		06	0..	-	-
	12		3.0	3.3		12	0..	-	-		12	0..	-	-
	18		2.9	2.5		18		3.1	1.8		18		3.1	2.5
15	00		3.1	2.8	31	00		3.2	2.3	15	00		3.0	3.2
	06		3.2	2.6		06	0..	-	-		06		3.2	2.5
	12		3.1	2.2		12		2.8	2.3		12		3.3	2.5
	18		3.1	2.3		18		2.5	2.0		18		3.0	2.2
16	00		3.1	1.9						16	00		3.1	2.3
	06		3.2	2.1							06	0..	-	-
											12		3.2	2.3
											18		3.0	2.2

DATE	HOUR	K	MEAN PERIOD SECS.	MEAN AMPLI-MICRON	DATE	HOUR	K	MEAN PERIOD SECS.	MEAN AMPLI-MICRON	DATE	HOUR	K	MEAN PERIOD SECS.	MEAN AMPLI-MICRON	DATE	HOUR	K	MEAN PERIOD SECS.	MEAN AMPLI-MICRON
------	------	---	-------------------	-------------------	------	------	---	-------------------	-------------------	------	------	---	-------------------	-------------------	------	------	---	-------------------	-------------------

Component: - Vertical

Component - E.W

01	00	0..	-	-	13	00	0..	-	-	25	00		3.5	0.5	20	03		-	-	
	06	0..	-	-		06	0..	-	-		06	0..	-	-		09		-	-	
	12	0..	-	-		12	0..	-	-		12	0..	-	-		15		3.9	7.8	
	18	0..	-	-		18	0..	-	-		18	0..	-	-		21		4.0	8.2	
02	00		3.3	0.8	14	00	0..	-	-	26	00	0..	-	-	21	03		3.7	9.0	
	06	0..	-	-		06	0..	-	-		06	0..	-	-		09		4.2	12.5	
	12		3.1	0.5		12		3.0	0.5		12	0..	-	-		15		3.8	11.4	
	18		3.2	0.6		18		3.0	0.5		18	0..	-	-		21		3.5	10.6	
03	00		3.3	1.0	15	00		3.0	0.7	27	00		2.9	0.5	22	03		3.5	7.0	
	06	0..	-	-		06		3.3	0.5		06		2.9	0.7		09		3.4	8.1	
	12	0..	-	-		12	0..	-	-		12		3.1	0.6		15		3.2	6.1	
	18	0..	-	-		18		3.4	0.5		18		3.0	0.8		21		3.3	4.9	
04	00		3.0	0.6	16	00		3.2	0.5	28	00		3.2	0.6	Component - Vertical					
	06	0..	-	-		06	0..	-	-		06		3.3	0.5	20	03		-	-	
	12	0..	-	-		12	0..	-	-		12		3.5	0.8		09		-	-	
	18		3.2	0.4		18	0..	-	-		18		3.2	0.6		15		-	-	
05	00		3.2	0.6	17	00	0..	-	-	29	00		3.4	0.8		18		3.7	1.5	
	06	0..	-	-		06	0..	-	-		06		3.1	0.6		21	03		3.7	2.8
	12		3.6	0.7		12	0..	-	-		12	0..	-	-		09		3.7	3.0	
	18		3.4	0.6		18	0..	-	-		18		3.3	0.7		15		3.8	2.7	
06	00		3.0	0.6	18	00	0..	-	-	30	00	0..	-	-		18		3.5	7.1	
	06		3.8	0.7		06	0..	-	-		06		3.5	0.8		22	03		3.3	4.7
	12		3.7	0.6		12	0..	-	-		12	0..	-	-		09		3.5	3.1	
	18		3.5	0.6		18	0..	-	-		18		3.2	0.7		15		3.4	4.3	
07	00		3.3	0.6	19	00		3.6	0.6	31	00		3.4	0.5	Station: PORT BLAIR					
	06		3.7	0.7		06	0..	-	-		06	0..	-	-	Component - E.W					
	12		3.4	0.6		12	0..	-	-		12		3.0	0.6	30	00	...	-	-	
	18		3.4	0.6		18	0..	-	-		18		2.8	0.7		06	...	-	-	
08	00		3.6	0.7	20	00		3.3	0.4	Additional reading for										
	06	0..	-	-		06		3.3	0.6	microseismic storm:										
	12	3	2.5	0.4		12		3.6	0.9	Component - N.S										
	18		3.7	1.0		18		3.6	1.5	20	03		-	-	30	12	3	7.0	1.3	
09	00		3.3	1.2	21	00		3.7	2.5		09		-	-		18	3	7.0	1.3	
	06		3.4	0.8		06		3.1	1.2		15		3.8	7.6	31	00	...	-	-	
	12		3.4	0.9		12		3.8	3.1		21	03		3.8	10.6		06	3	7.0	1.3
	18		3.2	1.0		18		3.5	3.1		09		4.1	10.2		12	3	7.0	1.0	
10	00		3.4	1.6	22	00		3.6	6.1		15		3.9	8.7		18	3	7.0	1.2	
	06		3.1	0.8		06		3.1	4.2		21	03		3.8	10.6	*****				
	12		3.3	0.7		12		3.3	3.1		09		4.1	10.2		06	3	7.0	1.3	
	18		3.2	0.7		18		3.3	2.7		15		3.9	11.2		12	3	7.0	1.0	
11	00		3.3	0.5	23	00		3.5	1.8		21		3.5	9.4		18	3	7.0	1.2	
	06	0..	-	-		06		3.3	0.9		22	03		3.1	7.6	*****				
	12	0..	-	-		12		3.4	0.8		09		3.6	9.7		06	3	7.0	1.3	
	18	0..	-	-		18		3.8	0.7		15		3.3	7.0		12	3	7.0	1.0	
12	00	0..	-	-	24	00		3.4	0.7		21		3.5	5.1		18	3	7.0	1.2	
	06	0..	-	-		06		3.3	0.7				-	-				-	-	
	12	0..	-	-		12	0..	-	-				-	-				-	-	
	18	0..	-	-		18	0..	-	-				-	-				-	-	

*Star*

GOVERNMENT OF INDIA  
METEOROLOGICAL DEPARTMENT

SEISMOLOGICAL BULLETIN



Published under the direction of  
Shri S. Basu, M.Sc., F.N.I.,  
Director General of Observatories

### Instruments and their Constants

STATION	INSTRUMENT	COMPT.	PERIOD IN SECS	STATIC MAGNIFI- CATION	DAMPING RATIO	PAPER SPEED mm/min	STATION	INSTRUMENT	COMPT.	PERIOD IN SECS	STATIC MAGNIFI- CATION	DAMPING RATIO	PAPER SPEED mm/min
BOMBAY	Milne-Shaw	N	12	350	23:1	16	HYDERABAD	Milne-Shaw	E	12	250	20:1	8
	Milne-Shaw	E	12	350	12:1	8		Milne-Shaw	N	12	250	20:1	8
	Sprengnether	E	To: Tg: 7		-	30							
BOKARO	Milne-Shaw	N	12	250	20:1	16	KODAIKANAL	Milne-Shaw	E	10	250	20:1	8
	Milne-Shaw	E	12	250	20:1	16		MADRAS	Sprengnether	E	To: Tg: 7.4		-
	Wood-Anderson	E	0.8	960	h: 0.8	60							
	Wood-Anderson	N	0.8	1000	h: 0.8	60							
COLOMBO	Milne-Shaw	E	11.9	250	20:1	--	POONA	Sprengnether	Z	To: Tg: 1.6		Critical	30
CALCUTTA	Milne-Shaw	E	12	250	20:1	8		Wood-Anderson	E	4	1000	20:1	16
	Wood-Anderson	N	2	870	Critical	30		Milne-Shaw	N	12	280	20:1	8
	Omori-Ewing	N	16	32	-	25.4	PORT BLAIR	Wood-Anderson	N	2	1000	20:1	30
Omori-Ewing	E	21	30	-	25.4	SHILLONG		Wood-Anderson	N	0.8	1000	h: 0.8	30
CHATRA	Milne-Shaw	E	12	250	20:1		16	Wood-Anderson	E	0.8	1000	h: 0.8	30
	Milne-Shaw	N	10	150	20:1	16	Milne-Shaw	N	12	250	20:1	8	
	Wood-Anderson	E	1	1000	30:1	60	Benioff	Z	To: 1.0		-	60	
	Wood-Anderson	N	1	1000	40:1	60							
	Benioff Short	Z	To: .72		Critical	60	Sprengnether	E	To: Tg: 6.8		-	30	
	Wenner						Wenner						
	Accelerograph	ENZ	-	-	-	--		Accelerograph	ENZ	-	-	-	--
DEHRA DUN	Wood-Anderson	N	0.8	950	Critical	60	TOCKLAI	Wood-Anderson	E	0.8	970	h: 0.8	6
	Wood-Anderson	E	0.8	850	Critical	60		VIZIANAGRAM	Wood-Anderson	E	0.8	1000	h: 0.8
	Milne-Shaw	N	12	250	20:1	8	Wood-Anderson		N	2	1000	20:1	30
	Milne-Shaw	E	12	250	20:1	8							

### List of Seismograph station

Station	Latitude	Longitude	Height a.s.l (Metres)	Lithographic foundation
BOMBAY	18°54'N	72°49'E	6	Deccan Trap
BOKARO	23°50'N	85°48'E	-	Rock
COLOMBO	06°54'N	79°52'E	7	Beach Sand
CALCUTTA	22°32'N	88°22'E	(1) 7(Milne-Shaw) (2) 6(Omori-Ewing)	Alluvium
CHATRA	26°50'N	87°10'E	161	Sand Stone
DEHRA DUN	30°19'N	78°02'E	682	Gravel
HYDERABAD	17°26'N	78°27'E	536	Granite
KODAIKANAL	10°14'N	77°28'E	2346	Rock
MADRAS	13°00'N	80°11'E	15	-
NEW DELHI	28°35'N	77°12'E	207	Massive Quartzite
POONA	18°32'N	73°51'E	560	Deccan Trap
PORT BLAIR	11°40'N	92°43'E	-	-
SHILLONG	25°34'N	91°53'E	1600	Quartzite Sand Stone (Shillong Quartzite)
TOCKLAI	26°45'N	94°46'E	-	Alluvium
VIZIANAGRAM	18°07'N	83°27'E	-	-



DATE	STATION	COMPT	PHASE	G. M. T.	△	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T.	△	REMARKS		
				h. m. s.	km						h. m. s.	km			
September 1957							September 1957								
01	DEHRA-DUN	N, E	e	02 55 09		Tremor	02	CHATRA	Z	iP	00 09 35		6120 Slight		
							Contd.		E	iS	17 17				
01	Epc: 39°N, 75°E. Sinkiang Province, China H: 12h 49m 57s G.M.T. (Shillong) 39°N, 75°E. Western Sinkiang Province, China H: 12h 49m 55s G.M.T. (U.S.C.G.S)							DEHRA-DUN	N, E	eP	00 10 30		7020 Feeble		
										eS	19 01				
										e	20 51				
	DEHRA-DUN	N, E	eP	12 52 13	1010	Slight		POONA	Z	eP	00 11 04				
		N	PP	52 21				BOMBAY	E	eS	00 20 17		Very slight		
			Lq	53 44						e	25 00				
			iS	53 57				02	TOCKLAI	E	eP	03 36 35		Moderate, near	
			SS	54 07						e	36 39				
			SSS	54 17						i	38 20				
			Sg, M	54 54											
	CHATRA	Z	iP	12 53 40	1860	Slight		SHILLONG	Z, N, E	iP	03 37 04		450 Moderate, near		
		E	iS	56 46					E	P*	37 11		Compression		
	BOKARO	N, E	eP	12 54 05	1950	Slight				Pg	37 21		First movement		
		E	eS	57 19						iS	37 52		West.		
			SS	57 43						S*	38 03		Magnitude ± 5.2		
			M	59 53						Sg	38 09				
										SSS	38 15				
	SHILLONG	Z	iP	12 54 24	2170	Slight		CHATRA	Z	iP	03 37 59		Slight		
		N, E	eP					02	BOMBAY	N, E	e	03 48 15		Very slight	
		E	i	54 43					E	e	48 30				
			i	54 52											
			iS	57 58											
			Lq	58 03											
			SS	58 23											
			SSS	58 40											
	BOMBAY	N	eP	12 54 34	2350	Slight		02	DEHRA-DUN	N, E	e	10 01 37		Tremor	
		E	PP	54 49					BOMBAY	E	e	10 12 08		Very slight	
		N	e	55 05					02	SHILLONG	Z	iP	13 29 26		Slight, distant
			e	56 19										Rarefaction	
		N, E	eS	58 26											
		E	SS	59 19											
			SSS	59 40											
			Lr	13 00 29											
		N	e	00 45											
	CALCUTTA	E	eP	12 54 36	2220	Slight		DEHRA-DUN	N, E	e	14 32 24		Tremor		
			iS	58 16											
	TOCKLAI	E	eP	12 54 37		Slight		02	SHILLONG	Z	e	14 41 51		Tremor	
	POONA	Z	eP	12 54 40	2290	Slight									
		E	PP	54 57											
			PPP	55 08											
			eS	58 27											
			Lq	58 40											
			SS	58 52											
			SSS	59 02											
			Lr	59 36											
			M	13 01 21											
			PcS	02 23											
	VIZIANAGRAM	N	eP	12 54 55		Slight		02	SHILLONG	Z	e	14 57 11		Slight	
			e	59 08										Compression	
	HYDERABAD	N	eP	12 54 55	2450			02	SHILLONG	Z	eP	17 26 16		Slight, distant	
			PPP	55 37											
			iS	58 55											
			Lq	59 21											
			Lr	13 00 04											
			M	01 19		Per. ± 8 secs									
						μ ± 3									
		E	M	01 25		Per. ± 8 secs									
						μ ± 5									
	MADRAS	E	eP	12 55 31	2850	Slight		DEHRA-DUN	N, E	eP	21 29 36		870 Slight		
			PPP	56 24											
			eS	59 57											
			Lq	13 00 49											
			SS	01 06											
			SSS	01 25											
			Lr	02 06											
			ScP	02 19											
			M	04 11											
01	KODAIKANAL	E	e	13 05 14		Tremor		CHATRA	Z	iP	21 31 13		Slight		
01	SHILLONG	Z	i	23 11 53		Tremor			E	i	34 23				
01/02	Epc: 18°N, 147°E. Mariana Islands H: 23h 59m 54s G.M.T. (U.S.C.G.S)														
02	SHILLONG	Z	iP	00 09 04	5720	Slight		BOMBAY	N, E	eP	21 31 33		1890 Slight		
		E	eP							e	32 23				
		E	iS	16 24		Rarefaction				e	32 34				
			i	19 01						e	32 46				
										e	34 42				
										e	34 46				
										e	34 53				
										e	35 41				
										e	38 44				
	BOKARO	N, E	iP	21 31 33	1930	Slight, First									
		E	eS	34 46		movement, N									
			SS	35 12		and W.									
			Lr	35 37											

DATE	STATION	COMPT	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km	
September 1957	02 POONA	Z	iP	21 31 34	2130	Moderate
Contd.	E	PP		31 45		
	N	PPP		32 03		
		iS		34 53		
		SS		35 10		
		SSS		35 27		
		M		37 04		
	E	PcS		39 20		
		ScS		42 53		
	HYDERABAD	N	iP	21 31 57	2260	First movement North.
		PP		32 20		
		PPP		32 33		
		e		32 59		
		iS		35 27		
		SS		35 44		
		Lr		36 11		
		M		37 53		Per.: 9 secs μ = 7 Per.: 6 secs μ = 11
	E	M		37 59		
	SHELLONG	Z, N, E	iP	21 32 04	2400	Moderate. First movement East
	E	pP		32 38		
		aP		33 05		
	E, N	iS		35 43		
	E	i		36 05		
		i		36 35		
		eS		36 43		
	VIZIANAGRAM	N	iP	21 32 07		Moderate
		i		33 13		
		i		36 41		
		i		37 59		
	TOCKLAI	E	eP	21 37 16		Moderate
	MADRAS	E	eP	21 33 00	3110	Moderate
		PP		33 48		
		PPP		34 00		
		PcP		36 10		
		eS		37 27		
		Lq		38 31		
		SS		38 49		
		SSS		39 07		
		ScP		39 44		
		Lr		39 50		
		M		41 57		
	PORT BLAIR	N	eP	21 33 36	3620	Slight
		PP		34 40		
		iS		38 34		
		ScP		39 56		
		Lq		40 12		
	COLOMBO	E	e	21 34 21		
		e		39 56		
		e		44 09		Amp. = 0.5 mm
	KODAIKANAL	E	i	21 38 27	1800	
		e		38 36		
		e		38 48		
		i		41 27		
03	TOCKLAI	E	iP	05 25 29		Slight, near First movement West
		e		25 58		
		i		26 17		
		i		26 28		
	SHELLONG	Z, N, E	iP	05 25 52		Slight, near Compression
	CHATRA	Z, E	iP	05 26 51	1520	Slight
		iS		29 25		
03	SHELLONG	Z	iP	06 19 05		Slight, distant Compression.
03	SHELLONG	Z	iP	08 01 35		Slight, distant Rarefaction
03	SHELLONG	Z	eP	16 08 40		Feeble, local
03	CHATRA	Z	eP	19 54 14	160	Feeble
		iS		54 34		
03	SHELLONG	Z	iP	20 52 56		Slight, distant Compression
03	SHELLONG	Z	eP	23 31 51		Slight, distant
04	SHELLONG	Z	eP	01 43 48		Slight, near.

DATE	STATION	COMPT	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km	
September 1957	04	Epc.		South Indian Ocean, about 1000 miles north east of Kerguelen Islands. - H <sub>2</sub> 04h 33m 51s (U.S.C.G.S)		
	COLOMBO	E	e	04 49 50		Trace overlapping.
		e		59 50		
	POONA	Z	eP	04 44 13		Feeble
	SHELLONG	Z	iP	04 44 50	7450	Compression. microseisms present
		E	iS	53 43		
		N	M	05 06 50		
	DEHRA DUN	N, E	e(S)	04 54 52		Feeble
		e		59 53		
	HYDERABAD	N	M	05 05 33		Per.: 18 secs μ = 9
		E	M	05 42		Per.: 18 secs μ = 6
	PORT BLAIR	E	e	05 39 59		
	04	Epc.		27°N, 67°E: West Pakistan - H <sub>2</sub> 08h 07m 39s (Shillong) 26°N, 65°E: H <sub>2</sub> 08h 07m 45s (U.S.C.G.S)		
	DEHRA DUN	N, E	eP	08 10 00	1130	Slight
		N	PP	10 07		
		iS		11 56		
		SS		12 09		
		SSS		12 21		
		Sk, M		13 03		
	POONA	Z	eP	08 10 13		Slight
	CHATRA	Z	iP	08 11 43		Slight
		E	i	15 23		
	MADRAS	E	eP	08 12 02	2170	Slight
		PP		12 22		
		PPP		12 33		
		iS		15 37		
		Lq		15 47		
		SS		16 11		
		SSS		16 22		
		Lr		16 44		
		M		18 20		
	SHELLONG	Z, E	iP	08 12 09	2460	Slight Compression. First movement East.
		N	eP	12 48		
		E	i	12 48		
		E, N	eS	15 29		
04	SHELLONG	Z, N	eP(?)	08 16 48		Slight, distant
	TOCKLAI	E	e	08 16 53		Slight, distant
04	SHELLONG	Z, E	eP	08 40 07		Local, feeble
	CHATRA	Z	iP	08 40 42	530	Slight
		iS		41 38		
04	SHELLONG	Z	eP	12 37 24		Slight, distant
04	SHELLONG	Z	iP	20 15 09		Compression
04	SHELLONG	Z	eP	20 31 07		Feeble, near
04	SHELLONG	Z	iP	22 47 32		Slight, distant Compression
05	SHELLONG	Z	eP	00 33 57		Feeble, near
05	SHELLONG	Z	eP	01 07 02		Local, feeble
05	SHELLONG	Z	eP	02 24 01		Slight, distant
05	SHELLONG	Z	eP	03 24 20		Slight, distant
05	SHELLONG	Z	iP	04 13 58		Slight, distant Compression
05	SHELLONG	Z	e	07 33 49		Slight, distant
05	SHELLONG	Z	iP	07 35 09		Feeble, local. Compression.
05	SHELLONG	Z	iP	08 13 47		Slight, distant Rarefaction
05	SHELLONG	Z	eP	09 25 29		Slight, distant
05	SHELLONG	Z	eP	09 38 47		Slight, distant

DATE	STATION	COMPT	PHASE	G.	M.	T.	Δ	REMARKS
				h.	m.	s.	km	
September 1957								
05	Epc: 29°N, 53°E. Iran. -H <sub>z</sub> 11h 36m 00s (Shillong) -H <sub>z</sub> 11h 36m 07s (U.S.C.G.S) Southern Iran. 1 killed, many injured in Jahrom Moderate Property damage in Jahrom and Kerman.							
	BOMBAY	E	eP	11	40	46	2310	Slight
			eS		44	34		
	POONA	Z	iP	11	40	53		Slight
	DEHRA DUN	N,E	e	11	41	03		Slight
			i		45	09		
			i		45	55		
			i		49	12		
			i		49	50		
			i		50	55		
	CHATRA	Z	eP	11	42	13		Feeble
	SHILLONG	Z,N	eP	11	42	52		Slight
	BOKARO	N,E	e	11	47	55		Tremor
05	SHILLONG	Z	iP	12	24	55		Slight, near Compression.
	CHATRA	Z	i	12	25	09		Feeble
06	SHILLONG	Z	i	00	37	48		Slight, distant
	POONA	Z	iP	00	37	53		
06	SHILLONG	Z	eP	01	23	47		Slight, near.
06	DEHRA DUN	N,E	e	01	56	16		Tremor
06	SHILLONG	Z	iP	05	05	57		Slight, distant Rarefaction
06	SHILLONG	Z	eP	18	46	36		Slight, distant.
06	CHATRA	Z	i	20	31	50		Feeble, near
06	SHILLONG	Z	eP	20	32	15		Slight, distant
06	CHATRA	Z	i	20	33	46		Feeble, near
06	SHILLONG	Z	iP(?)	20	34	14		Slight, distant Compression
06	CHATRA	Z	i	23	13	51		Feeble, near
07	SHILLONG	Z	eP	01	30	03		Slight, near.
07	TOCKLAI	E	eP	02	21	43		Slight, near
			i		22	17		
	SHILLONG	Z,E	eP	02	22	01		Slight, near
	CHATRA	Z	i	02	23	03		Slight
07	CHATRA	Z	iP	03	36	11	100	Slight
			iS		36	25		
07	SHILLONG	Z,N	eP	04	23	49	210	Feeble, first movement East
		E	iP		24	11		
			S		24	13		
			Sg/S*		24	23		
			SS		24	23		
			SSS		24	33		
	TOCKLAI	E	eP	04	23	52		Slight, near
			i		24	17		
	CHATRA	Z	iP	04	24	50		Slight
		E	i		26	27		
07	Epc: 50°N, 156°E. Northern Kurile Islands H <sub>z</sub> 06h 48m 36s (U.S.C.G.S)							
	SHILLONG	Z	iP	06	58	02		Slight Compression
	CHATRA	Z	i	06	58	23		Slight
	DEHRA DUN	N,E	eP	06	58	59	7000	Feeble
			eS		07	07	29	
	POONA	Z	iP	06	59	58		Slight

DATE	STATION	COMPT	PHASE	G.	M.	T.	Δ	REMARKS
				h.	m.	s.	km	
September 1957								
07	BOMBAY	N,E	eP	07	00	00		Slight
		N	e		00	26		
		E	e		09	44		
			e		10	07		
		N	e		10	51		
07	CALCUTTA	E	i	09	27	56		Slight, distant
07	Epc: 51°N, 178°W. Adrenof Islands, Aleutian Islands. H <sub>z</sub> 10h 06m 47s (U.S.C.G.S)							
	SHILLONG	Z,E	iP	10	17	57	7730	Slight
		N	eP		19	10		Compression
		E	i		27	04		First move- ment East.
		E,N	iS		27	40		
			i		29	08		
			i		31	33		
			i		33	59		
		N	Mn		45	01		Per.: 15 secs μ = 7
	TOCKLAI	E	e	10	18	19		Slight
	DEHRA DUN	N,E	e(P)	10	18	30	8200	Slight. Phases not clear.
			i(S)		28	01		
	BOKARO	N,E	iP	10	18	31		Moderate. Phases poorly deve- loped. First movement South and West.
		N	i		27	41		
			e		28	36		
	BOMBAY	N,E	eP	10	19	29	9610	
			SKS1		29	54		
		N	eS		30	05		
		E	iS		30	20		
			e		31	00		
			M		59	39		Per.: 19 secs μ = 2
		N	M		59	--		
	POONA	Z	iP	10	19	30	9270	Slight
		N	iS		29	51		
			SKS		30	05		
			PS		30	47		
			PPS		31	06		
			M		52	56		
	HYDERABAD	E	e	10	29	36		
		N	e		29	39		
			M		51	32		Per.: 18 secs μ = 9 Per.: 19 secs μ = 7
		E	M		53	17		
	COLOMBO	E	e	10	30	52		Trace over- lapping. Amp.: 0.3 mm
			L		54	--		
			M		11	04		
07	SHILLONG	Z	eP	10	44	49		Slight, distant
07	SHILLONG	Z	eP	11	29	27		Very slight, distant.
07	CHATRA	E,Z	iP	18	18	12		Slight
		E	i		27	29		
07	SHILLONG	Z	iP	18	44	14		Slight, distant Compression.
07	SHILLONG	Z	eP	19	41	18		
07	SHILLONG	Z	iP	19	57	36		Slight, distant Compression
08	DEHRA DUN	N,E	e	02	10	01		Tremor
08	SHILLONG	Z	iP	03	28	22		Slight, distant Compression
08	SHILLONG	Z	eP	05	45	38		Slight, distant
08	SHILLONG	Z	iP	10	31	29		Slight, distant Compression
	CHATRA	Z	i	10	31	41		Feeble, distant
08	SHILLONG	Z	eP	10	45	54		Slight, near.

DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	Δ km	REMARKS
September 1957						
08	SHELLONG	Z	eP	13 29 39		Slight, distant
08	SHELLONG	Z	eP	13 49 48		Slight, near
08	SHELLONG	Z	eP	23 04 17		Slight, near
08	TOCKLAI	E	eP	23 43 57		Slight, near
			i	44 28		
			i	44 45		
	SHILLONG	Z, E	eP	23 44 25		Slight, near
	CHATRA	Z	i	23 45 07		Slight
09	Epc: 48°S, 100°E, South Indian Ocean H: 80h 13m 30s (U.S.C.G.S)					
	COLOMBO	E	e	00 25 19		
			S	30 54		
			L	39 49		
			M	44 04		
	MADRAS	E	e	00 30 25		Phases not identifiable.
			e	30 47		
			e	34 43		
	PORT BLAIR	E	eP	00 23 58	6340	
			iS	31 52		Per: 18 secs μ = 45
			M			
	HYDERABAD	N	eP	00 24 28	7600	
			PPP	28 32		
			PcS	29 06		
			iS	33 30		
			PS	33 49		
		E	SS	38 03		
			Lq	41 33		
			Lr	44 13		
		N	M	48 21		Per: 20 secs μ = 23
		E	M	49 51		Per: 17 secs μ = 10
	VIZIANAGRAM	N	e	00 24 34		Slight
	POONA	Z	eP	00 24 37	8010	Nodulate
		N	PcP	24 53		
			PP	27 28		
			PPP	29 08		
			eS	34 00		
			PPS	34 45		
			SS	38 39		
			SSS	41 55		
			Lq	43 51		
			Lr	47 18		
	SHILLONG	Z	iP)	00 25 04	8170	Compression
		N, E	eP			
		N, E	iS	34 33		Per: 15 secs μ = 11
		N	Mn	53 03		
	BOKARO	N	eP	00 25 12	7930	Slight
			e	25 43		
			e	26 01		
			e	29 33		
			e(S)	34 30		
	CHATRA	Z	e	00 25 15		Slight
	BOMBAY	N	e	00 25 26		
		E	e	34 07		
		N	eS	34 32		
		E	e	38 37		
		N	M	53 41		Per: 17 secs μ = 7
		E	M	58 49		Per: 13 secs μ = 5
	DEHRADUN	N, E	eP	00 25 51	8850	Slight
			iS	35 53		
			i	41 15		
09	CHATRA	E	eP	09 14 22		Slight, distant.
09	DEHRADUN	N, E	e	09 10 30		Foible; phases not clear
			e	30 27		
	COLOMBO	E	e	09 27 19		Tracer overlapping
			e	10 04 47		Amp: 0.3 mm
09	SHILLONG	Z	eP	15 14 33		Slight, distant

DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	Δ km	REMARKS
September 1957						
10	SHILLONG	Z	eP	00 01 57		Slight, near
10	SHILLONG	Z	iP	01 29 26		Slight, distant
						Rasafaction
10	Epc: 27°N, 96°E, India Burma Border H: 06h 13m 40s (U.S.C.G.S)					
	TOCKLAI	E	iP	06 14 16		Nodulate; first movement West
	SHILLONG	N	e	06 14 49		Slight
			e	15 26		
	CALCUTTA	E	e	06 14 57		Slight
	CHATRA	Z	iP	06 15 49		Slight
		E	i	18 11		
	DEHRADUN	N, E	eP	06 17 38	1880	Slight
			iS	20 46		
			i	22 56		
	POONA	Z	eP	06 18 37		
	BOMBAY	N, E	eP	06 18 43	3150	Slight, surface waves not well developed.
			e	23 00		
			e	23 30		
		E	e	24 15		
		N, E	e	24 59		
			e	25 16		
		E	e	25 30		
		N	e	26 02		
			e	26 25		
	HYDERABAD	N	M	06 24 07		Per: 9 secs μ = 3
10	SHILLONG	Z	iP	15 35 08		Slight, distant
						Compression
10	SHILLONG	Z	eP	15 40 57		Slight, distant
10	SHILLONG	Z	eP	16 26 41		Slight, distant
11	SHILLONG	Z	eP	04 20 19		Slight, near
11	SHILLONG	Z	eP	06 21 50		Slight, local
11	SHILLONG	Z, N, E	ePg/P*	12 24 47	160	Slight; Felt at Shillong, Tezpur and Masbat
		E	PP	24 55		
			PPP	25 01		
			Sg/S*	25 05		
	TOCKLAI	E	ePg	12 24 53	140	Slight
			iSg	25 10		
	CHATRA	Z	iP	12 26 05	630	Slight
		Z, E	iS	27 12		
11	SHILLONG	Z	eP	12 31 23		Slight, near
11	SHILLONG	Z	e	21 58 55		Slight, distant
12	SHILLONG	Z	eP	00 47 31		Slight, distant
	DEHRADUN	N, E	e	00 50 41		Foible; phases not clear
12	DEHRADUN	N, E	e	17 28 31		Foible
			e	31 34		
	SHILLONG	Z	e	17 30 48		Slight, distant
13	DEHRADUN	N, E	e	22 36 36		Tremor
14	SHILLONG	Z	eP	00 50 24		Slight, near
14	SHILLONG	Z	i	00 51 36		Slight, distant
						Compression
14	SHILLONG	Z	eP	06 21 51		Slight, distant
	CHATRA	Z	i	06 22 51		Foible, distant
14	SHILLONG	Z	eP	21 33 00		Slight, distant

DATE	STATION	COMPT	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km	
September 1957						
15	SHILLONG	Z	iP	00 32 35		Slight, near Rarefaction
15 Epc: 5½°S, 108°E. Near North Coast of Java, about 300 kms. H=04h 22m 34s (U.S.C.G.S)						
	PORT BLAIR	N	eP eS	04 27 16 31 03	2300	Slight
	COLOMBO	E	P S	04 28 20 33 08	3180	Trace overlapping.
	MADRAS	E	eP(?) PcP eS(?) SSS ScP Lr M	04 28 47 31 55 33 27 35 06 35 30 35 54 38 03	3050?	Slight
	TOCKLAI	E	eP	04 29 04		Slight
	SHILLONG	Z, E N E	iP eP i PPP i iS Lq SS i Mn	04 29 04 30 02 30 31 31 31 34 14 35 56 35 06 37 09 40 15	3510	Slight, first movement East
	CHATRA	Z E	iP i	04 29 28 36 49		Slight
	DEHRA DUN	N, E	e(P) i(S) i	04 30 32 36 52 38 44		Slight. Phases not clear
15	BOMBAY	N	e	04 32 45 33 11 39 30 41 40		Very slight
15	SHILLONG	Z	e	05 42 55		Tremor
15	SHILLONG	Z	eP	09 30 26		Slight, near
15	PORT BLAIR	N	Pg iSg	09 50 13 50 20	70	Slight
15	SHILLONG	Z	iP	16 31 58		Slight, distant Compression
15 Epc: 6°S, 153½°E. Solomon Islands. Felt: Rabaul and Karoala. about 150 km. H= 18h 42m 20s (U.S.C.G.S)						
	SHILLONG	Z, E E	iP iS	18 53 10 19 02 00	7390	Slight Compression First movement West.
	CHATRA	Z E	iP i	18 53 37 54 21		Slight
	MADRAS	E	eP e e	18 53 56 54 19 19 04 10		Slight
	COLOMBO	E	e(P) S	18 54 21 19 03 51	8180?	
	DEHRA DUN	N, E	eP i i	18 54 41 19 04 22 05 07		Feeble
	BOMBAY	N	eS e	19 04 49 05 35		Very slight
15	SHILLONG	Z	e	20 14 03		Tremor
15	SHILLONG	Z	iP	22 15 44		Slight, distant Compression
15	SHILLONG	Z	iP	22 18 57		Slight, distant Compression
	CHATRA	Z	i	22 19 08		Feeble, distant
15	SHILLONG	Z	e	23 34 48		Tremor

DATE	STATION	COMPT	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km	
September 1957						
15	SHILLONG	Z	eP	23 38 38		Slight, near
	CHATRA	Z	iP iS	23 39 26 40 20	510	Feeble
16	SHILLONG	Z	iP	00 15 30		Slight, distant Rarefaction
16	SHILLONG	Z	eP	00 30 30		Slight, distant
16	SHILLONG	Z	iP	01 44 24		Slight, distant Rarefaction
16	SHILLONG	Z	e	05 54 24		Slight, distant
16	DEHRA DUN	N, E	e	05 28 05		Tremor
16	PORT BLAIR	E	eP Lq iS M	11 14 15 14 52 15 02 -- --	450	Per. = 8 secs D = 13
	SHILLONG	Z	eP	11 16 16		Slight, distant
	CHATRA	Z E	i e	11 17 08 23 27		Slight, distant
	CALCUTTA	E	e	11 19 46		Slight
	DEHRA DUN	N, E	e	11 23 43		Feeble
16	SHILLONG	Z	eP	14 08 35		Slight, near
16	COLOMBO	E	e e	14 55 34 15 06 02		Amp. = 0.3 mm
	SHILLONG	Z	iP	14 57 21		Slight, distant Compression
	CALCUTTA	E	eP i	14 57 42 15 02 17		Slight
	TOCKLAI	E	e	14 58 12		Slight, distant
	CHATRA	Z	i	14 58 13		Slight, distant
	POONA	Z	eP	14 59 36		Feeble
	DEHRA DUN	N, E	e e	14 59 45 15 03 52		Slight. Phases not clear
	BOKARO	N	e	15 00 21		Tremor
	BOMBAY	N	e	15 03 37		
16	PORT BLAIR	E	eP Lq iS M	15 55 19 55 56 56 07 -- --	450	Per. = 8 secs D = 26
16	SHILLONG	Z	iP	20 04 09		Slight, distant Compression
16	SHILLONG	Z	iP	21 57 49		Slight, near. Compression
16	SHILLONG	Z	iP	23 37 23		Slight, distant Compression
17	SHILLONG	Z	eP e	12 15 36 15 50		Feeble, near
17	SHILLONG	Z	i	13 41 35		Moderate, distant Compression
17 Epc: 36°S, 55°E. Indian Ocean. H= 14h 24m 05s (U.S.C.G.S)						
	COLOMBO	E	M	14 51 30		Amp. = 0.3 mm
	POONA	Z	eP	14 34 01		Feeble
	SHILLONG	Z	eP	14 35 25		Feeble
17	SHILLONG	Z	iP	18 51 57		Slight, near Rarefaction.
17	TOCKLAI	E	eP i	20 27 22 27 29		Slight, near
	SHILLONG	Z	eP e e	20 27 26 28 17 28 43		Slight, near

DATE	STATION	COMPT	PHASE	G. M. T.	$\Delta$	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T.	$\Delta$	REMARKS	
				h. m. s.	km						h. m. s.	km		
September 1957							September 1957							
18	SHILLONG	Z	eP	01 09 08		Tremor	20	POONA	Z	eP	23 20 24		Feeble	
18	POONA	Z	eP	01 10 54		Feeble	21	CHATRA	Z	i	03 19 48		Feeble, distant	
18	SHILLONG	Z	eP	10 39 36		Slight, near	21	CHATRA	Z	iP	07 54 41	310	Slight	
18	SHILLONG	Z	eP	10 55 36		Slight, near				iS	55 15			
			e	56 01				SHILLONG	Z	iP	07 54 42		Slight, local Compression	
18	SHILLONG	Z	e	11 15 48		Slight, distant	21	SHILLONG	Z	eP	12 01 32		Slight, near	
			e	16 53						e	01 43			
18	SHILLONG	Z	iP	18 26 58		Moderate, distant. Compression.	21	Epc: 40°N, 34°E. Northern Turkey H = 20h 15m 53s (U.S.C.G.S)						
18	SHILLONG	Z	e	18 55 25		Tremor	DEHRA DUN	N, E	e	20 26 35			Feeble. Phases not clear	
18	CHATRA	Z	iP	21 22 32	160	Feeble			e	32 59				
			iS	22 52			POONA	Z	eP	20 24 37			Tremor	
	SHILLONG	Z	eP	21 23 12		Slight, near	CHATRA	Z	i	20 25 15			Feeble	
			e	24 01			SHILLONG	Z	iP	20 25 47			Slight Compression	
18	SHILLONG	Z	eP	21 37 52		Slight, near	21	SHILLONG	Z	iP	20 41 34			Slight, near Rarefaction
18	SHILLONG	Z	iP	23 13 43		Slight, distant Compression	CHATRA	Z	i	20 41 48			Feeble, near	
18	SHILLONG	Z	iP	23 29 53		Slight, near	22	SHILLONG	Z, E	eP	03 27 06			Slight, locally felt
19	SHILLONG	Z	eP	16 55 04		Slight, near	22	SHILLONG	Z	eP	05 22 15			Slight, near
19	CHATRA	Z	i	17 39 33		Feeble, distant	22	SHILLONG	Z	e	08 40 33			Tremor
	SHILLONG	Z	iP	17 39 43		Slight, distant Compression	22	SHILLONG	Z	i	09 40 44			Slight, near
19	SHILLONG	Z	eP	19 12 18		Slight, distant	22	SHILLONG	Z	iP	09 25 27			Slight, distant Compression
20	SHILLONG	Z	e	00 52 36		Slight, near	22	SHILLONG	Z	eP	10 36 42			Slight, distant
20	SHILLONG	Z	eP	06 39 29		Slight, distant	22	SHILLONG	Z	iP	03 16 20			Slight, distant Compression
20	SHILLONG	Z	iP	07 11 04		Slight, distant Rarefaction	23	SHILLONG	Z	i	17 28			
20	SHILLONG	Z	eP	08 05 30		Slight, distant	23	Epc: Western Tibet. H = 05h 03m 40s (Shillong)						
20	SHILLONG	Z	e	08 34 35		Slight, near	DEHRA DUN	N, E	eP	05 04 45			Tremor	
20	Epc: 36°N, 71°E. Hindukush. Destructive in Kandahar, Afghanistan. h about 200 kms. H = 10h 01m 58s (U.S.C.G.S)							CHATRA	Z	iP	05 05 05	620		Slight
	DEHRA DUN	N, E	eP	10 04 04	870	Slight		E, Z	iS	06 10				
		N	iS	05 34			SHILLONG	Z	iP	05 06 01	1040		Slight Compression	
			SS	05 44					iS	07 49				
			Lq	05 48			BOMBAY	E	e(S)	05 09 53			Feeble	
			SSS	05 54				N, E	e	10 06				
	CHATRA	Z	iP	10 05 45	1870	Slight		E	e	10 13				
		E, Z	iS	08 52				N	e	10 21				
	SHILLONG	Z	iP	10 06 29		Slight Rarefaction		N, E	e	10 35				
								E	e	10 47				
								E	e	11 12				
20	SHILLONG	Z	iP	10 10 24		Slight, distant Rarefaction	POONA	Z	e	05 09 57			Tremor	
20	SHILLONG	Z	e	15 04 45		Slight, near	23	SHILLONG	Z	iP	07 15 01			Slight, near Compression
20	SHILLONG	Z	e	15 05 41		Slight			e	16 06				
	POONA	Z	eP	15 05 59		Feeble	23	SHILLONG	Z	iP	09 19 47			Slight, distant Compression
20	SHILLONG	Z	eP	16 34 10		Slight, near	23	SHILLONG	Z	iP	09 20 13			Slight, distant Compression
			e	34 21			23	SHILLONG	Z	iP	09 23 57			Slight, distant Rarefaction
20	CHATRA	Z	i	17 30 38		Feeble, near	23	Epc: 52°N, 177°W. Rat Islands, Aleutian Islands H = 09h 12m 55s (U.S.C.G.S)						
20	SHILLONG	Z	iP	17 52 00		Slight, distant Rarefaction	SHILLONG	Z	iP	09 31 32			Moderate, compression	
20	Epc: 52°N, 170°W. Fox Islands, Aleutian Islands. H = 23h 07m 22s (U.S.C.G.S)							CHATRA	Z	iP	09 32 01			Feeble
	SHILLONG	Z	iP	23 19 01		Slight Compression	POONA	Z	eP	09 32 55			Tremor	
	CHATRA	Z	e	23 19 32		Feeble	23	SHILLONG	Z	iP	14 28 54			Slight, near Compression
									i	29 06				

DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	Δ km	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	Δ km	REMARKS
September 1957							September 1957						
23	SHILLONG	Z	iP	20 02 29		Slight, distant Compression	24	DEHRA DUN	N, E N	eP PP PPP	08 30 23 32 25 33 14	5640	
23	SHILLONG	Z	iP i	21 33 01 33 26		Slight, near Compression				iS SS SSS	37 39 40 41 42 46		
24	SHILLONG	Z	i	02 24 09		Slight, near				Lr M	45 14 49 15		Per. = 27 secs Δ = 158
24	SHILLONG	Z	eP i	03 50 54 51 08		Slight, near							
24 Epc: 5°N, 126°E. Off the South Coast of Mindanao Island. H. = 08h 21m 18s (Shillong) 5 1/2°N, 127°E. Near South Coast of Mindanao, Philippine Islands. Felt: Koror. H. = 08h 21m 05s (U.S.C.G.S) Magnitude = 7 1/4 (Shillong), 7 1/2 (Pasadena).							POONA	Z	iP	08 30 28	5800		
	PORT BLAIR	E	iP iS e i e	08 28 14 33 26 36 06 38 14 40 38	3560	Moderate		E	PcP PP PPP PcS iS PS PPS SS	31 31 32 23 33 14 35 34 37 52 37 57 38 03 41 19	40 10		
	TOCKLAI	E	eP iS	08 28 31 34 15	4080	Moderate		E	Lq Lr M Mn	43 56 45 52 49 49 50 --		Per. = 19 secs Δ = 175	
	SHILLONG	Z	iP N, E N Z, N, E N	08 28 39 30 32 30 55 34 32 36 32	4220	Great	BOMBAY	N, E E N, E E N, E E N	eP PcP PP PPP eS PS PPS ScS i i i SS SSS Lq Lr M	08 30 40 31 21 32 46 33 45 38 08 38 18 38 27 39 57 40 21 40 27 40 54 41 40 43 13 43 33 44 34 51 30	5870		
	CHATRA	Z	iP eP iS	08 29 13 35 53	5020	Moderate							Per. = 29 secs Δ = 105
	BOKARO	N, E N	eP PP PPP iS M	08 29 16 30 19 30 45 35 39 44 45	4720								Per. = 23 secs Δ = 94
	COLOMBO	E	P S L M	08 29 41 36 26 44 06 46 21	5110		24 SHILLONG	Z	eP		09 17 59		Slight, distant
	VIZIANAGRAM	N	eP iS	08 29 42 36 51	5520	Great	24 SHILLONG	Z	eP		12 42 09		Slight, near.
	MADRAS	E	eP PcP PP PPP PcP iS PS ScS SS Lq SSS Lr	08 29 44 31 10 31 28 32 17 34 53 36 24 36 32 39 13 39 40 40 43 40 47 42 47	5020	Great	24 SHILLONG	Z	iP		13 10 34		Slight, distant Rarefaction
	HYDERABAD	E	iP PP PPP PcS iS ScS Lr N	08 29 55 31 35 32 30 35 23 37 01 39 53 44 11 46 56	5470	First movement "East"	24 SHILLONG	Z	eP		13 56 57		Slight, near Rarefaction
	KODAIKANAL	E	iP PP PPP iS SS SSS Lr M	08 30 03 32 03 32 48 37 00 40 12 41 21 43 27 47 27	5310	First movement "East"	24 SHILLONG	Z	eP		15 00 59		Slight, near
							24 SHILLONG	Z	iP		17 19 58		Slight, distant Rarefaction
							24 SHILLONG	Z	eP		20 58 43		Slight, near
							24 SHILLONG	Z	e		21 20 57		Slight, distant
							25 SHILLONG	Z	iP		00 34 23		Slight, distant Rarefaction
							25 SHILLONG	Z	e		02 13 03 13 32		Slight, near
							25 SHILLONG	Z	iP		02 15 36 16 04		Slight, near Compression
							25 SHILLONG	Z	iP		04 14 51		Slight, distant Compression
							COLOMBO	E	e		05 22 32		Trace over- lapping
							25 KODAIKANAL	E	e		05 24 39		Tremor
							MADRAS	E	e		05 25 23 28 05		
							HYDERABAD	E	M		05 29 18		Per. = 9 secs Δ = 2
								N	M		29 42		Per. = 9 secs Δ = 2

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				h. m. s.	km						h. m. s.	km		
September 1957							September 1957							
25	DEHRA-DUN	N, E	e	06 14 55		Feeble. Phases not clear.	25	BOMBAY	N, E	eP	16 46 07	6210	Very slight	
25	SHILLONG	Z	iP	07 46 04		Slight, distant Compression	Contd.		E	e	47 15			
25	SHILLONG	Z	iP	08 20 25		Slight, distant Rarefaction			N, E	PP	48 12			
25	SHILLONG	Z	e	09 28 45		Slight, near			N	e	49 40			
			e	28 59					E	eS	53 40			
			e	29 45					N	e	53 54			
25	SHILLONG	Z	iP	12 45 18		Slight, distant Compression	25	Epc: 6°N, 127°E. Mindanao aftershock						
25	SHILLONG	Z	iP	14 00 06		Slight, distant Rarefaction		- H = 22h 17m 00s (U.S.C.G.S)						
25	SHILLONG	Z	iP	14 17 22		Slight, distant Compression	TOCKLAI	E	eP	22 24 24			Slight	
25	SHILLONG	Z	iP	15 17 04		Slight, distant Rarefaction	SHILLONG	Z	eP	22 24 33	4510		Slight. First movement West	
25	SHILLONG	Z	iP	15 34 56		Slight, distant Compression		E	iP	30 43				
25	SHILLONG	Z	iP	16 33 02		Slight, distant Rarefaction	CHATRA	Z	iP	22 25 10			Feeble	
25	SHILLONG	Z	eP	16 37 26		Slight, distant Compression	COLOMBO	E	P	22 25 39	5370			
25	Epc: Mindanao aftershock.							S	32 39					
	- H = 16h 36m 37s (U.S.C.G.S)							L	44 51				Amp. $\approx$ 0.2 mm	
								M	48 01					
TOCKLAI	E	eP	16 43 55			Slight	MADRAS	E	e	22 25 53			Feeble	
SHILLONG	Z, E	iP	16 44 05	4510		Slight Compression		eS	32 36					
	E	i	44 30			First movement West	DEHRA-DUN	N, E	eP	22 26 17	5980		Feeble	
		i	44 40					eS	33 51					
		i	45 54				25	BOKARO	N, E	eS	22 31 49			Tremor
		i	46 07				25	Epc: 5°N, 127°E. Mindanao After shock						
		i	46 20					- H = 23h 33m 30s (U.S.C.G.S)						
		iS	30 15				SHILLONG	Z	eP	23 41 07			Tremor	
CHATRA	E, Z	eP	16 44 41			Slight	CHATRA	Z	iP	23 41 39			Feeble	
	E	e	17 01 12				DEHRA-DUN	N, E	eP	23 42 45			Tremor	
COLOMBO	E	P	16 44 43					e	51 40					
		e	52 13				26	SHILLONG	Z	iP	02 39 35			Slight, distant Compression
		L	17 02 21				26	SHILLONG	Z	e	03 04 37			Slight, distant
		M	04 41			Amp. $\approx$ 0.4 mm		e	05 51					
BOKARO	N, E	eP	16 44 46	4810		Slight. Phases very poorly developed.	26	SHILLONG	Z	e	06 08 22			Slight, distant
		iS	51 14				26	SHILLONG	Z	eP	10 15 13			Slight, distant
MADRAS	E	iP	16 45 09	5370		Slight. First movement West	26	SHILLONG	Z	iP	10 29 11			Slight, distant Compression
		PcP	46 18				26	SHILLONG	Z	iP	12 17 25			Slight, distant Compression
		PP	47 03				26	SHILLONG	Z	e	13 43 26			Slight, near
		PPP	47 56					e	43 37					
		eS	52 09				26	SHILLONG	Z	iP	14 28 19			Slight, distant Compression
		PS	52 14				26	SHILLONG	Z	iP	16 53 09			Slight, distant Rarefaction
		PPS	52 28				26	SHILLONG	Z	iP	17 17 48			Slight, distant Rarefaction
		ScS	54 39				26	Epc: 6°N, 126°E. Mindanao Aftershock						
		SS	55 34					- H = 18h 46m 41s (U.S.C.G.S)						
HYDERABAD	E	iP	16 45 25	5630		First movement West	TOCKLAI	E	iP	18 54 00			Slight. First movement East	
		PP	47 32				SHILLONG	Z, E	iP	18 54 11	4180		Slight	
		PPP	48 25					N	eP	19 00 01			Compression	
		PcS	50 42					Z	e	00 06			First movement West	
		iS	52 40					E	i	00 29				
		ScS	55 14					i	04 13					
		SS	56 26											
		Lq	57 34											
		Er	59 29											
		M	17 02 26			Per. $\approx$ 18 secs								
		M	03 53			$\mu = 6$								
						Per. $\approx$ 18 secs								
						$\mu = 5$								
DEHRA-DUN	N, E	eP	16 45 50	5870		Slight. Phases not clear	CALCUTTA	E	eP	19 54 29	4250		Slight	
		i	48 54					iS	19 00 24					
		eS	53 18					i	00 51					
		e	57 54											
		e	58 49											
POONA	Z	iP	16 45 58			Very slight								



DATE STATION COMPT PHASE G. M. T. Δ REMARKS  
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26 CHATRA Z eP 18 54 46 Slight  
Contd. E i 19 04 41  
COLOMBO E P 18 55 11 5050  
S 19 01 53  
MADRAS E eP 18 55 15 5090 Slight  
PPP 57 49  
eS 19 01 59  
PS 02 07  
PPS 02 12  
SS 04 47  
SS 05 18

DEHRA DUN N,E eP 18 55 56 5610 Feeble  
IS 19 03 10  
i 03 39  
l 05 37

POONA Z iP 18 56 03 Feeble  
i 57 12

BOMBAY E eP 18 56 10 Very slight  
N,E eS 19 03 44  
E i 04 15

26 SHILLONG Z,E iP) 19 52 51 260 Moderate Compression  
N eP) 19 52 51 First movement West.  
E,N iSg 53 27

TOCKLAI E eP 19 53 00 260 Moderate  
iSg 53 36

CHATRA Z iP) 19 53 54 Slight  
E eP) 19 53 54  
i 35 16

DEHRA DUN N,E e 19 58 34 Tremor

26 POONA Z e 20 01 01 Feeble

26 CHATRA Z iP 23 12 55 810 Slight  
E IS 14 19

SHILLONG Z iP 23 12 58 Slight, near  
Compression

27 SHILLONG Z eP 00 35 10 Slight, distant

27 SHILLONG Z e 03 16 20 Slight, distant

27 Epc: 1°S, 127°E. Spice Islands.  
H = 04h 06m 23s (U.S.C.G.S)

PORT BLAIR M eP 04 15 29 4220  
eS 21 10  
Lr 25 44  
M -- --  
Per. 15 sec  
μ = 11

TOCKLAI E iP 04 16 21 Slight, First  
movement East

SHILLONG Z iP) 04 16 31 4880 Slight  
N eP) 04 16 31 Compression  
E i 18 16 First movement  
e 22 41 West.  
i 23 34  
IS 23 02  
i 23 51  
i 24 27

CALCUTTA N iP 04 16 36 4910 Slight  
IS 23 12

BOKARO N,E iP 04 16 59 5190 Slight, First  
eS 23 49 movement West

CHATRA Z iP) 04 17 03 5200 Slight  
E eP) 04 17 03  
IS 23 54

COLOMBO E P 04 17 06 5240  
S 23 59  
M 41 30  
Amp. ≈ 0.2 mm

MADRAS E eS 04 24 08 Moderate  
e 27 36 Initial phases  
e 34 32 lost

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27 HYDERABAD E IP 04 17 34 5640 First movement  
Contd. PF 19 33 West.  
PPP 20 55  
PeS 22 43  
IS 24 50  
SS 28 20  
SSS 29 49

N Lr 31 47  
E Lr 31 55  
N M 35 16  
E M 35 58  
Per. 16 sec  
μ = 5  
Per. 18 sec  
μ = 4

KODAKANAL E IP 04 17 40 5310 First movement  
PP 19 37 East  
IS 24 37  
SS 27 55  
SSS 29 10

M 35 28  
Per. 6 sec  
μ = 4

POONA Z IP 04 18 04 6140 Slight

E PeP 18 49  
N,E eS 25 47 → 20 10  
E PS 26 03  
SSS 32 55

DEHRA DUN N,E eP 04 18 12 6140 Slight  
N PPP 21 28  
IS 25 55  
SSS 31 40  
Lr 34 16  
M 38 49

BOMBAY N,E eP 04 18 13 6300 Slight  
E PP 20 35  
PPP 21 45  
N,E eS 26 05  
E PS 26 13  
e 26 19  
PPS 26 25  
N,E e 28 34  
e 36 30  
N e 38 47

27 SHILLONG Z IP 04 26 51 Moderate, distant  
Compression

27 SHILLONG Z eP 05 09 37 Slight, distant

27 CHATRA Z i 05 09 44 Feeble, distant

27 SHILLONG Z e 05 31 38 Slight, distant

27 SHILLONG Z iP 06 00 01 Slight, distant  
Compression

27 Epc: 1°S, 127°E. Spice Islands aftershock  
H = 05h 56m 50s (U.S.C.G.S)

TOCKLAI E eP 06 04 50 Slight

SHILLONG Z iP) 06 04 55 4810 Slight  
E eP) 06 04 55 Compression  
E IS 11 23

BOKARO N,E eP 06 05 29 5220 Slight  
eS 12 21

CHATRA Z iP) 06 05 29 5220 Slight  
E eP) 06 05 29  
IS 12 21

MADRAS E IP 06 05 41 5420 Slight, First  
PP 07 37 movement West  
PPP 08 33  
IS 12 44  
PS 12 52  
PPS 12 58  
SS 16 08

27 POONA Z iP 06 06 24 6280 Slight  
E PPP 10 07  
eS 14 15

DEHRA DUN N,E e(P) 06 06 40 6140 Slight  
i(S) 14 23

DATE	STATION	COMPT	PHASE	G.	M.	T.	△	REMARKS	DATE	STATION	COMPT	PHASE	G.	M.	T.	△	REMARKS	
September 1957									September 1957									
h. m. s. km									h. m. s. km									
27	BOMBAY	E	eP	06	06	41	6300	Very Slight	28	MADRAS	E	IP	00	36	25	5590	Moderate. First movement East	
	Contd.		PP		08	55				Contd.		PcP		37	33			
			PPP		10	17						PP		38	23			
			e		14	21						PPP		39	23			
		N,E	eS		14	33						IS		43	38			
		E	PS		14	45						PPS		43	51			
			e		17	21						ScS		45	45			
												SS		47	07			
												Lq		48	51			
27	SHILLONG	Z	eP	06	08	14		Slight, distant		COLOMBO	E	P	00	36	26			
27	SHILLONG	Z	iP	06	35	09		Slight, distant Rarefaction				e		43	57			
27	SHILLONG	Z	eP	07	08	21		Slight, near				e		51	51		Amp. ≈ 0.1 mm	
			e		08	54						e		55	53			
27	CHATRA	Z	i	07	27	26		Slight, distant		POONA	Z	iP	00	36	45	5910	Slight	
27	SHILLONG	Z	iP	09	37	57		Slight, distant Rarefaction			E	PP		38	47			
27	SHILLONG	Z	iP	11	28	35		Slight, distant Compression.				PcP		41	20			
	CHATRA	Z	e	11	28	47		Feeble, distant				IS		44	15			
27	CHATRA	Z	iP	11	54	39		Slight				PS		44	52			
		E,Z	i		55	09						PPS		45	33			
	SHILLONG	Z	eP	11	55	33		Slight, distant				ScS		45	46			
27	SHILLONG	Z	eP	12	51	28		Slight, distant		BOMBAY	E	iP	00	36	51	5980	Slight	
27	SHILLONG	Z	iP	13	52	10		Slight, distant Compression				PcP		37	54			
27	SHILLONG	Z	e	14	27	14		Slight, distant				pP		38	25			
			e		27	36						PP		39	09			
	CHATRA	Z	e	14	27	51		Feeble, distant				PPP		40	17			
27	SHILLONG	Z	iP	15	18	44		Slight, distant Rarefaction				IS		44	25			
27	SHILLONG	Z	iP	18	54	04		Slight, distant Rarefaction		KODAIKANAL	E	iP	00	36	57	6220	Slight. First movement East	
27	SHILLONG	Z	eP	18	59	18		Slight, distant				PP		38	57			
27	SHILLONG	Z	eP	20	53	06		Slight, distant				iS		44	45			
28	Epc: 30°N, 137°E. Off South Coast of Honshu, Japan about 500 Kms. H <sub>2</sub> 00h: 27m: 31s (U.S.C.G.S) Magnitude: 6 <sup>M</sup> (Pasadena).								28	SHILLONG	Z	e	00	39	27		Slight, distant	
	TOCKLAI	E	iP	00	34	12		Moderate. First movement East				e		43	43			
	SHILLONG	Z,E	iP	00	34	32	4060	Moderate. First movement East Rarefaction		28	SHILLONG	Z	eP	02	31	59		Slight, distant
			pP		35	11						iP	03	34	36		Moderate, distant Rarefaction	
			i		36	16						i		06	28	53		Slight, distant Rarefaction
			S		40	02						e		02	40			
			sS		41	18						iP	04	20	26		Slight, distant Compression	
			i		43	34						i		04	22	04		Tremor
	CHATRA	E,Z	iP	00	35	00	4300	Slight		28	SHILLONG	Z	iP	05	01	11		Slight, distant Compression
		E	iS		40	58						i		02	40			
	PORT BLAIR	E	iP	00	35	11	4530	Slight		28	SHILLONG	Z	iP	06	08	17		Slight, distant Rarefaction
			iS		41	22						i		06	28	53		Slight, distant Rarefaction
	DEHRA DUN	N,E	eP	00	35	51	5000	Slight		28	SHILLONG	Z	eP	13	06	39		Slight, near
		N	iS		42	30						i		06	52			
			PPS		42	47						iP	13	46	07		Slight, distant Rarefaction	
			SS		44	48						e		42	35			
			SSS		46	15						iP	14	32	32		Moderate	
28	HYDERABAD	E	iP	00	36	21	5540	First movement East		TOCKLAI	E	eP	14	32	32		Moderate	
			PP		37	50						i		27	42			
			PPP		39	21						iS		42	10			
			PcS		41	53						e		42	35			
			iS		43	31						iP	14	32	38	10670	Moderate. First movement East and South Rarefaction.	
			e		45	21						pP		35	04			
			ScS		46	12						eP		35	57			
			SS		46	44						PP		36	47			
			Lr		50	20						PPP		39	19			
		N	Lr		50	25						E,N	iSKS		42	18		
		E	M		54	02		Per. ≈ 15 secs				E	iS		42	51		
		N	M		55	27		Per. ≈ 18 secs					PS		45	58		
								Per. ≈ 2 secs					PPS		46	23		
								Per. ≈ 2 secs					eSKS		46	48		
													sS		47	08		
													i		47	36		
													i		48	19		
													SS		50	18		
													SSS		54	17		

DATE	STATION	COMPT	PHASE	G. M. T.	$\Delta$	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T.	$\Delta$	REMARKS
				h. m. s.	km						h. m. s.	km	
September 1957							September 1957						
28	CALCUTTA Contd.	E	iP e i	14 32 49 36 00 37 09		Moderate	28	SHILLONG	Z	eP i	18 34 51 35 08		Slight, near
	COLOMBO	E	P e e e e	14 33 01 37 26 42 47 46 21 51 41		Amp. = 5.5 mm	28	SHILLONG	Z	iP	18 53 44		Slight, distant Rarefaction
	CHATRA	E, Z E	eP iS	14 33 01 42 41		Slight	28	SHILLONG	Z	eP	21 11 52		Slight, distant
	MADRAS	E	iP e e e e e e e e	14 33 10 33 31 35 45 37 22 42 01 42 34 42 46 43 43 44 48 46 11 49 09		Moderate First movement East		CHATRA	Z	i	21 12 26		Feeble
	KODAIKANAL	E	iP e e iS e e e e	14 33 21 36 12 37 57 43 03 44 03 48 03 51 12 53 45 57 33 15 04 06		First movement East	29	SHILLONG	Z	eP e	00 28 28 28 41 28 57		Slight, near
	HYDERABAD	N	PKP1 e e e e e e e e	14 33 34 37 53 43 03 44 37 47 14 51 00 52 21 58 01 15 11 50 20 08		Per. = 15 secs $\mu = 14$	29	SHILLONG	Z	iP i	06 44 52 46 56		Slight Compression
	POONA	Z	eP i	14 33 43 37 33		Slight Distant		CHATRA	Z	iP	06 45 07		Feeble
	DEHRA DUN	N, E N	eP i e e e e	14 33 54 38 11 38 45 39 29 40 46 43 19		Per. = 21 secs $\mu = 16$		DEHRA DUN	N, E	eP	06 46 34		Tremor
	BOKARO	N, E N	eP iS e e e e	14 35 04 42 46 43 27 44 00 53 32 57 19		Moderate	29	CHATRA	Z	i	06 47 09		Feeble, near
	BOMBAY	E N N, E E N, E N E N N, E E	eP pP e PP PPP e e SKS2 e iS eS PS PPS SS e	14 36 09 38 29 38 42 40 25 43 26 44 37 45 28 47 42 48 13 48 23 48 27 50 08 51 04 53 47 58 08	12060	Moderate		PORT BLAIR	E	iP iS	08 25 32 35 10		Slight
28	DEHRA DUN	N, E	e	16 00 13		Tremor		SHILLONG	Z	iP N Z	08 26 00 29 43 30 03 35 43		Slight Rarefaction
28	SHILLONG	Z	eP	16 01 09		Slight, distant		CHATRA	Z	iP E iS	08 26 22 36 03		Slight
28	CHATRA	Z	eP iS	16 27 14 28 46	890	Slight		TOCKLAI	E	e i	08 29 59 35 34		Slight
28	SHILLONG	Z	iP	17 26 20		Moderate Distant Rarefaction		POONA	Z	ePKP e e e e e e e e	08 30 10 31 39 32 27 36 41 36 47 36 51 40 15		Slight
								COLOMBO	E	e e e e	08 36 26 36 01 43 01 45 01		Amp = 0.1 mm
								MADRAS	E	iPKP e e e e e e e	08 30 37 32 01 32 21 33 10 36 11 36 51 38 24 40 10 40 37 42 53		Slight, First movement East
								KODAIKANAL	E	e	08 31 02		Tremor
								HYDERABAD	E, N	i i e e	08 31 07 36 27 37 16 40 42		Per. = 9 secs $\mu = 7$
								DEHRA DUN	N, E	e i i	08 31 36 36 42 37 45		Feeble
								BOMBAY	N, E	e e e	08 31 41 36 49 41 39		Slight
							29	SHILLONG	Z	eP	13 40 28		Slight, distant

DATE	STATION	COMPT	PHASE	G. M. T.	△	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T.	REMARKS
				h. m. s.	km						h. m. s.	km
September 1957							September 1957					
29	SHILLONG	Z	e	14 22 07		Slight, near	30	SHILLONG	Z	iP	11 12 01	Tremor Rarefaction
Contd.			i	22 45								
	DEHRA DUN	N, E	e	14 23 40		Tremor	30	SHILLONG	Z	iP	12 14 46	Slight, distant Compression
29	SHILLONG	Z	eP	17 27 03		Slight, distant		CHATRA	Z	i	12 15 20	Feeble, distant
			e	30 17								
29	SHILLONG	Z	iP	17 41 25		Slight, distant Rarefaction	30	SHILLONG	Z	i	12 28 34	Slight, distant
			i	41 49								
	CHATRA	Z	i	17 42 26		Feeble, distant	30	SHILLONG	Z	eP	14 23 13	160 Local, feeble.
	DEHRA DUN	N, E	e	17 43 35		Feeble				iP	23 15	
			e	50 52						iSg	23 33	
29	SHILLONG	Z	eP	17 46 56		Slight, distant		CHATRA	Z	iP	14 23 36	500 Feeble
										iS	24 29	
29	COLOMBO	E	L	18 01 53		Amp. = 0.1 mm	30	Epc: 24°N, 143°E. Volcano Islands H. = 20h 21m 30s (U.S.C.G.S)				
			M	05 01				SHILLONG	Z	iP	20 29 54	Slight Compression
29	SHILLONG	Z	eP	19 54 48		Slight, near		CHATRA	Z	iP	20 30 24	Slight
			i	55 07					E	eP		
30	SHILLONG	Z	iP	03 09 00	120	Local, feeble Rarefaction		DEHRA DUN	N, E	eP	20 31 17	6470 Feeble
			iSg	09 14						iS	39 18	
30	SHILLONG	Z	iP	07 47 49	90	Local, feeble Rarefaction		POONA	Z	iP	20 32 02	Very feeble.
		Z, E	iSg	48 00								
30	SHILLONG	Z	iP	08 36 51	360	Local, feeble Compression						
			iP	37 01								
		Z, E	iSg	37 45								

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### Earthquake Reports (Non Instrumental Reports)

The following is the list of earthquake reports that were received from Voluntary Observers from different places during the month of September 1957.

Places of Observation	Date in G.M.T.	Time in G.M.T. h. m.	Duration in secs	Intensity in R. F. scale	No. of shocks	Remarks
UPPER SHILLONG	02	21 02	12	IV	1	
SRINAGAR	02	21 28	30	VI	1	
TEZPUR	11	12 24	2	IV	1	
UPPER SHILLONG	22	03 30	3	IV	1	

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STATION: PORT BLAIR (Contd.)

Component: E-W.

Milne Shaw Seismograph

| DATE | HOUR | K   | GROUND MOTION (MICRON) | MEAN PERIOD SECS | DATE   | HOUR | K | GROUND MOTION (MICRON) | MEAN PERIOD SECS | DATE   | HOUR | K | GROUND MOTION (MICRON) | MEAN PERIOD SECS | DATE   | HOUR | K | GROUND MOTION (MICRON) | MEAN PERIOD SECS |
|------|------|-----|------------------------|------------------|--------|------|---|------------------------|------------------|--------|------|---|------------------------|------------------|--------|------|---|------------------------|------------------|
| 18   | 00   | 0   | -                      | -                | 23     | 08   | 3 | 2.0                    | 4.5              | 26     | 06   | 3 | 2.6                    | 7.5              | 29     | 06   | - | -                      | -                |
|      | 06   | 0   | -                      | -                | Contd. | 09   | 3 | 2.0                    | 4.5              | Contd. | 07   | 3 | 2.6                    | 7.5              | Contd. | 07   | - | -                      | -                |
|      | 12   | 0   | -                      | -                |        | 10   | 3 | 2.0                    | 4.5              |        | 08   | 3 | 2.6                    | 7.5              |        | 08   | - | -                      | -                |
|      | 18   | 1   | 1.2                    | 4.0              |        | 11   | 3 | 2.0                    | 4.5              |        | 09   | 3 | 1.8                    | 7.5              |        | 09   | - | -                      | -                |
| 19   | 00   | 1   | 1.2                    | 4.0              |        | 12   | 3 | 2.0                    | 4.5              |        | 10   | 3 | 1.8                    | 7.5              |        | 10   | - | -                      | -                |
|      | 06   | 1   | 1.2                    | 3.8              |        | 13   | 3 | 2.0                    | 4.5              |        | 11   | 3 | 1.8                    | 7.5              |        | 11   | - | -                      | -                |
|      | 12   | 1   | 0.8                    | 3.9              |        | 14   | 3 | 2.0                    | 4.5              |        | 12   | 3 | 1.8                    | 7.5              |        | 12   | - | -                      | -                |
|      | 18   | 1   | 0.8                    | 3.9              |        | 15   | 3 | 2.0                    | 4.5              |        | 13   | 3 | 1.8                    | 7.5              |        | 13   | - | -                      | -                |
| 20   | 00   | 1   | 2.0                    | 7.2              |        | 16   | 3 | 2.0                    | 4.5              |        | 14   | 3 | 1.8                    | 7.5              |        | 14   | - | -                      | -                |
|      |      |     |                        | 4.5              |        | 17   | 3 | 2.0                    | 4.5              |        | 15   | 3 | 1.8                    | 7.5              |        | 15   | - | -                      | -                |
|      | 06   | 1   | 2.8                    | 4.2              |        | 18   | 3 | 2.0                    | 4.5              |        | 16   | 3 | 1.8                    | 7.5              |        | 16   | - | -                      | -                |
|      | 12   | 1   | 2.8                    | 4.2              |        | 19   | 3 | 1.6                    | 4.1              |        | 17   | 3 | 1.8                    | 7.5              |        | 17   | - | -                      | -                |
|      | 18   | 1   | 2.8                    | 4.2              |        | 20   | 3 | 1.6                    | 4.1              |        | 18   | 3 | 1.8                    | 7.5              |        | 18   | - | -                      | -                |
| 21   | 00   | 1   | 2.8                    | 4.2              |        | 21   | 3 | 1.6                    | 4.1              |        | 19   | 3 | 1.8                    | 7.5              |        | 19   | - | -                      | -                |
|      | 01   | 1   | 2.8                    | 4.2              |        | 22   | 3 | 1.6                    | 4.1              |        | 20   | 3 | 1.8                    | 7.5              |        | 20   | - | -                      | -                |
|      | 02   | 1   | 2.8                    | 4.2              |        | 23   | 5 | 1.6                    | 4.1              |        | 21   | 3 | 1.2                    | 7.5              |        | 21   | - | -                      | -                |
|      | 03   | 1   | 2.8                    | 4.2              | 24     | 00   | 3 | 1.2                    | 3.6              |        | 22   | 3 | 1.3                    | 7.5              |        | 22   | - | -                      | -                |
|      | 04   | 1   | 2.8                    | 4.2              |        | 01   | 3 | 1.2                    | 3.6              |        | 23   | 3 | 1.3                    | 7.5              |        | 23   | - | -                      | -                |
|      | 05   | 1   | 2.8                    | 4.2              |        | 02   | 3 | 1.2                    | 3.6              | 27     | 00   | 3 | 1.2                    | 7.5              |        | 24   | - | -                      | -                |
|      | 06   | 1   | 2.4                    | 4.8              |        | 03   | - | -                      | -                |        | 01   | 3 | 1.3                    | 7.5              | 30     | 00   | - | -                      | -                |
|      | 07   | 1   | 2.8                    | 5.0              |        | 04   | - | -                      | -                |        | 02   | 3 | 1.3                    | 7.5              |        | 01   | - | -                      | -                |
|      | 08   | 1   | 2.8                    | 5.0              |        | 05   | - | -                      | -                |        | 03   | 3 | 1.3                    | 7.5              |        | 02   | - | -                      | -                |
|      | 09   | 1   | 2.4                    | 4.2              |        | 06   | - | -                      | -                |        | 04   | 3 | 1.3                    | 7.5              |        | 03   | - | -                      | -                |
|      | 10   | 1   | 2.4                    | 4.2              |        | 07   | - | -                      | -                |        | 05   | 3 | 1.3                    | 7.5              |        | 04   | - | -                      | -                |
|      | 11   | 1   | 2.4                    | 4.2              |        | 08   | - | -                      | -                |        | 06   | 3 | 1.3                    | 7.5              |        | 05   | - | -                      | -                |
|      | 12   | 1   | 2.4                    | 4.2              |        | 09   | - | -                      | -                |        | 07   | 3 | 1.2                    | 7.4              |        | 06   | - | -                      | -                |
|      | 13   | 3   | 1.6                    | 4.2              |        | 10   | - | -                      | -                |        | 08   | 3 | 1.2                    | 7.5              |        | 07   | - | -                      | -                |
|      | 14   | 3   | 1.6                    | 4.2              |        | 11   | - | -                      | -                |        | 09   | 3 | 1.2                    | 7.5              |        | 08   | - | -                      | -                |
|      | 15   | 3   | 1.6                    | 4.2              |        | 12   | - | -                      | -                |        | 10   | 3 | 1.2                    | 7.5              |        | 09   | - | -                      | -                |
|      | 16   | 3   | 1.6                    | 4.2              |        | 13   | - | -                      | -                |        | 11   | 3 | 1.2                    | 7.5              |        | 10   | - | -                      | -                |
|      | 17   | 3   | 1.6                    | 4.2              |        | 14   | - | -                      | -                |        | 12   | 3 | 1.2                    | 7.5              |        | 11   | - | -                      | -                |
|      | 18   | 3   | 1.6                    | 4.2              |        | 15   | - | -                      | -                |        | 13   | 3 | 1.2                    | 7.5              |        | 12   | - | -                      | -                |
|      | 19   | 3   | 1.6                    | 4.2              |        | 16   | - | -                      | -                |        | 14   | 3 | 1.2                    | 7.5              |        | 13   | - | -                      | -                |
|      | 20   | 3   | 1.6                    | 4.2              |        | 17   | - | -                      | -                |        | 15   | 3 | 1.2                    | 7.5              |        | 14   | - | -                      | -                |
|      | 21   | 3   | 1.6                    | 4.2              |        | 18   | - | -                      | -                |        | 16   | 3 | 1.2                    | 7.5              |        | 15   | - | -                      | -                |
|      | 22   | 3   | 1.6                    | 4.2              |        | 19   | - | -                      | -                |        | 17   | 3 | 1.2                    | 7.5              |        | 16   | - | -                      | -                |
|      | 23   | 3   | 1.6                    | 4.2              |        | 20   | - | -                      | -                |        | 18   | - | -                      | -                |        | 17   | - | -                      | -                |
|      | 24   | 3   | 1.6                    | 4.2              |        | 21   | - | -                      | -                |        | 19   | - | -                      | -                |        | 18   | - | -                      | -                |
| 22   | 00   | 3   | 2.4                    | 4.2              |        | 22   | - | -                      | -                |        | 20   | - | -                      | -                |        | 19   | - | -                      | -                |
|      | 01   | ... | -                      | -                |        | 23   | - | -                      | -                |        | 21   | - | -                      | -                |        | 20   | - | -                      | -                |
|      | 02   | ... | -                      | -                | 25     | 00   | - | -                      | -                |        | 22   | - | -                      | -                |        | 21   | - | -                      | -                |
|      | 03   | ... | -                      | -                |        | 01   | - | -                      | -                |        | 23   | - | -                      | -                |        | 22   | - | -                      | -                |
|      | 04   | ... | -                      | -                |        | 02   | - | -                      | -                | 28     | 00   | - | -                      | -                |        | 23   | - | -                      | -                |
|      | 05   | ... | -                      | -                |        | 03   | - | -                      | -                |        | 01   | - | -                      | -                |        | 24   | - | -                      | -                |
|      | 06   | 3   | 2.4                    | 4.5              |        | 04   | - | -                      | -                |        | 02   | - | -                      | -                |        | 15   | - | -                      | -                |
|      | 07   | 3   | 2.4                    | 4.5              |        | 05   | - | -                      | -                |        | 03   | - | -                      | -                |        | 16   | - | -                      | -                |
|      | 08   | 3   | 2.4                    | 4.5              |        | 06   | - | -                      | -                |        | 04   | - | -                      | -                |        | 17   | - | -                      | -                |
|      | 09   | 3   | 2.4                    | 4.5              |        | 07   | - | -                      | -                |        | 05   | - | -                      | -                |        | 18   | - | -                      | -                |
|      | 10   | 3   | 1.6                    | 4.5              |        | 08   | - | -                      | -                |        | 06   | - | -                      | -                |        | 19   | - | -                      | -                |
|      | 11   | 3   | 1.6                    | 4.5              |        | 09   | - | -                      | -                |        | 07   | - | -                      | -                |        | 20   | - | -                      | -                |
|      | 12   | 3   | 1.6                    | 4.5              |        | 10   | - | -                      | -                |        | 08   | - | -                      | -                |        | 21   | - | -                      | -                |
|      | 13   | 3   | 1.6                    | 4.5              |        | 11   | - | -                      | -                |        | 09   | - | -                      | -                |        | 22   | - | -                      | -                |
|      | 14   | 3   | 1.6                    | 4.5              |        | 12   | - | -                      | -                |        | 10   | - | -                      | -                |        | 23   | - | -                      | -                |
|      | 15   | 3   | 1.6                    | 4.5              |        | 13   | - | -                      | -                |        | 11   | - | -                      | -                |        | 24   | - | -                      | -                |
|      | 16   | 3   | 1.6                    | 4.5              |        | 14   | - | -                      | -                |        | 12   | - | -                      | -                |        |      |   |                        |                  |
|      | 17   | 3   | 1.6                    | 4.5              |        | 15   | - | -                      | -                |        | 13   | - | -                      | -                |        |      |   |                        |                  |
|      | 18   | 3   | 1.6                    | 4.2              |        | 16   | - | -                      | -                |        | 14   | - | -                      | -                |        |      |   |                        |                  |
|      | 19   | 3   | 1.6                    | 4.2              |        | 17   | - | -                      | -                |        | 15   | - | -                      | -                |        |      |   |                        |                  |
|      | 20   | 3   | 1.6                    | 4.2              |        | 18   | - | -                      | -                |        | 16   | - | -                      | -                |        |      |   |                        |                  |
|      | 21   | 3   | 1.6                    | 4.7              |        | 19   | - | -                      | -                |        | 17   | - | -                      | -                |        |      |   |                        |                  |
|      | 22   | 3   | 1.6                    | 4.2              |        | 20   | - | -                      | -                |        | 18   | - | -                      | -                |        |      |   |                        |                  |
|      | 23   | 3   | 1.6                    | 4.2              |        | 21   | - | -                      | -                |        | 19   | - | -                      | -                |        |      |   |                        |                  |
|      | 24   | 3   | 1.6                    | 4.2              |        | 22   | - | -                      | -                |        | 20   | - | -                      | -                |        |      |   |                        |                  |
| 23   | 00   | 3   | 1.6                    | 4.4              |        | 23   | - | -                      | -                |        | 21   | - | -                      | -                |        |      |   |                        |                  |
|      | 01   | 3   | 1.6                    | 4.4              |        | 24   | - | -                      | -                |        | 22   | - | -                      | -                |        |      |   |                        |                  |
|      | 02   | 3   | 2.4                    | 4.5              | 26     | 00   | - | -                      | -                |        | 23   | - | -                      | -                |        |      |   |                        |                  |
|      | 03   | 3   | 2.4                    | 4.5              |        | 01   | - | -                      | -                |        | 24   | - | -                      | -                |        |      |   |                        |                  |
|      | 04   | 3   | 2.4                    | 4.5              |        | 02   | - | -                      | -                | 29     | 00   | - | -                      | -                |        |      |   |                        |                  |
|      | 05   | 3   | 2.4                    | 4.5              |        | 03   | - | -                      | -                |        | 01   | - | -                      | -                |        |      |   |                        |                  |
|      | 06   | 3   | 2.0                    | 4.5              |        | 04   | 3 | 2.6                    | 7.5              |        | 02   | - | -                      | -                |        |      |   |                        |                  |
|      | 07   | 3   | 2.0                    | 4.5              |        | 05   | 3 | 2.6                    | 7.5              |        | 03   | - | -                      | -                |        |      |   |                        |                  |

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GEOPHYSICAL LABORATORY  
Bengal Engineering College  
Howrah, India\*

Analysis of Microseismic Movements. Station: HOWRAH.

Lat. 22°33' N, Long. 88°19' E.

Foundation: Alluvium. Month: September 1957.

| DATE                        | HOUR  | K   | MEAN                       | MEAN                 | DATE                   | HOUR  | K   | MEAN                       | MEAN                 | DATE | HOUR  | K   | MEAN                       | MEAN                 | DATE | HOUR  | K   | MEAN                       | MEAN                 |
|-----------------------------|-------|-----|----------------------------|----------------------|------------------------|-------|-----|----------------------------|----------------------|------|-------|-----|----------------------------|----------------------|------|-------|-----|----------------------------|----------------------|
|                             | G.M.T |     | AMPLI-<br>TUDE<br>(Micron) | PERIOD<br>IN<br>SECS |                        | G.M.T |     | AMPLI-<br>TUDE<br>(Micron) | PERIOD<br>IN<br>SECS |      | G.M.T |     | AMPLI-<br>TUDE<br>(Micron) | PERIOD<br>IN<br>SECS |      | G.M.T |     | AMPLI-<br>TUDE<br>(Micron) | PERIOD<br>IN<br>SECS |
| <b>COMPONENT: VERTICAL.</b> |       |     |                            |                      | <b>COMPONENT: E-W</b>  |       |     |                            |                      |      |       |     |                            |                      |      |       |     |                            |                      |
| 01                          | 00    |     | 1.0                        | 3.0                  | 17                     | 00    | 0.. | -                          | -                    | 02   | 00    |     | 2.2                        | 2.9                  | 17   | 00    | 0.. | -                          | -                    |
|                             | 06    |     | 1.6                        | 3.1                  |                        | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |
|                             | 12    |     | 1.2                        | 3.3                  |                        | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |
|                             | 18    |     | 1.1                        | 3.6                  |                        | 18    | 0.. | -                          | -                    |      | 18    |     | 2.0                        | 3.2                  |      | 18    | 0.. | -                          | -                    |
| 02                          | 00    |     | 0.9                        | 3.1                  | 18                     | 00    | 0.. | -                          | -                    | 03   | 00    |     | 2.1                        | 3.0                  | 18   | 00    | 0.. | -                          | -                    |
|                             | 06    |     | 0.6                        | 3.4                  |                        | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |
|                             | 12    |     | 0.7                        | 3.3                  |                        | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |
|                             | 18    |     | 0.5                        | 3.4                  |                        | 18    | 0.. | -                          | -                    |      | 18    | 0.. | -                          | -                    |      | 18    | 0.. | -                          | -                    |
| 03                          | 00    |     | 0.8                        | 3.5                  | 19                     | 00    | 0.. | -                          | -                    | 04   | 00    | 0.. | -                          | -                    | 19   | 00    | 0.. | -                          | -                    |
|                             | 06    | 0.. | -                          | -                    |                        | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |      | 05    | 0.. | -                          | -                    |
|                             | 12    | 0.. | -                          | -                    |                        | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |
|                             | 18    | 0.. | -                          | -                    |                        | 18    | 0.. | -                          | -                    |      | 18    | 0.. | -                          | -                    |      | 18    | 0.. | -                          | -                    |
| 04                          | 00    | 0.. | -                          | -                    | 20                     | 00    | 0.. | -                          | -                    | 05   | 00    | 0.. | -                          | -                    | 20   | 00    | 0.. | -                          | -                    |
|                             | 06    | 0.. | -                          | -                    |                        | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |
|                             | 12    | 0.. | -                          | -                    |                        | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |
|                             | 18    | 0.. | -                          | -                    |                        | 18    | 0.. | -                          | -                    |      | 18    | 0.. | -                          | -                    |      | 18    | 0.. | -                          | -                    |
| 05                          | 00    | 0.. | -                          | -                    | 21                     | 00    | 0.. | -                          | -                    | 06   | 00    | 0.. | -                          | -                    | 21   | 00    | 0.. | -                          | -                    |
|                             | 06    | 0.. | -                          | -                    |                        | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |
|                             | 12    | 0.. | -                          | -                    |                        | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |
|                             | 18    | 0.. | -                          | -                    |                        | 18    | 0.. | -                          | -                    |      | 18    | 0.. | -                          | -                    |      | 18    | 0.. | -                          | -                    |
| 06                          | 00    | 0.. | -                          | -                    | 22                     | 00    | 0.. | -                          | -                    | 07   | 00    | 0.. | -                          | -                    | 22   | 00    | 0.. | -                          | -                    |
|                             | 06    | 0.. | -                          | -                    |                        | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |
|                             | 12    | 0.. | -                          | -                    |                        | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |
|                             | 18    | 0.. | -                          | -                    |                        | 18    | 0.. | -                          | -                    |      | 18    | 0.. | -                          | -                    |      | 18    |     | 2.8                        | 3.2                  |
| 07                          | 00    | 0.. | -                          | -                    | 23                     | 00    | 0.. | -                          | -                    | 08   | 00    | 0.. | -                          | -                    | 23   | 00    | 0.. | -                          | -                    |
|                             | 06    | 0.. | -                          | -                    |                        | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |
|                             | 12    | 0.. | -                          | -                    |                        | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |
|                             | 18    | 0.. | -                          | -                    |                        | 18    | 0.. | -                          | -                    |      | 18    | 0.. | -                          | -                    |      | 18    |     | 2.1                        | 2.8                  |
| 08                          | 00    | 0.. | -                          | -                    | 24                     | 00    | 0.. | -                          | -                    | 09   | 00    | 0.. | -                          | -                    | 24   | 00    |     | 2.8                        | 2.6                  |
|                             | 06    | 0.. | -                          | -                    |                        | 06    |     | 2.6                        | 3.1                  |      | 06    | 0.. | -                          | -                    |      | 06    |     | 4.4                        | 3.1                  |
|                             | 12    | 0.. | -                          | -                    |                        | 12    |     | 2.9                        | 3.2                  |      | 12    | 0.. | -                          | -                    |      | 12    |     | 2.9                        | 2.9                  |
|                             | 18    | 0.. | -                          | -                    |                        | 18    |     | 1.8                        | 3.1                  |      | 18    | 0.. | -                          | -                    |      | 18    |     | 3.2                        | 3.0                  |
| 09                          | 00    | 0.. | -                          | -                    | 25                     | 00    |     | 1.9                        | 3.0                  | 10   | 00    | 0.. | -                          | -                    | 25   | 00    |     | 3.0                        | 3.0                  |
|                             | 06    | 0.. | -                          | -                    |                        | 06    |     | 1.7                        | 3.0                  |      | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |
|                             | 12    | 0.. | -                          | -                    |                        | 12    |     | 1.6                        | 3.0                  |      | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |
|                             | 18    |     | 0.4                        | 3.3                  |                        | 18    |     | 1.9                        | 2.9                  |      | 18    |     | 3.2                        | 3.0                  |      | 18    | 0.. | -                          | -                    |
| 10                          | 00    |     | 0.5                        | 3.6                  | 26                     | 00    |     | 1.2                        | 2.8                  | 11   | 00    |     | 4.4                        | 3.2                  | 26   | 00    | 0.. | -                          | -                    |
|                             | 06    |     | 0.4                        | 3.3                  |                        | 06    |     | 2.3                        | 3.1                  |      | 06    |     | 4.6                        | 2.8                  |      | 06    | 0.. | -                          | -                    |
|                             | 12    | 0.. | -                          | -                    |                        | 12    |     | 2.0                        | 3.1                  |      | 12    |     | 3.6                        | 3.1                  |      | 12    | 0.. | -                          | -                    |
|                             | 18    |     | 0.7                        | 3.2                  |                        | 18    |     | 1.3                        | 3.1                  |      | 18    |     | 3.4                        | 3.2                  |      | 18    | 0.. | -                          | -                    |
| 11                          | 00    |     | 0.8                        | 3.4                  | 27                     | 00    |     | 1.3                        | 3.1                  | 12   | 00    |     | 3.4                        | 3.2                  | 27   | 00    | 0.. | -                          | -                    |
|                             | 06    |     | 1.1                        | 3.3                  |                        | 06    |     | 1.8                        | 3.3                  |      | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |
|                             | 12    |     | -                          | -                    |                        | 12    |     | 1.3                        | 3.0                  |      | 12    |     | 3.8                        | 3.2                  |      | 12    | 0.. | -                          | -                    |
|                             | 18    |     | -                          | -                    |                        | 18    |     | 1.3                        | 2.8                  |      | 18    |     | 2.8                        | 3.4                  |      | 18    | 0.. | -                          | -                    |
| 12                          | 00    | 0.. | -                          | -                    | 28                     | 00    |     | 1.0                        | 3.1                  | 13   | 00    | 0.. | -                          | -                    | 28   | 00    | 0.. | -                          | -                    |
|                             | 06    | 0.. | -                          | -                    |                        | 06    |     | 1.6                        | 2.3                  |      | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |
|                             | 12    | 0.. | -                          | -                    |                        | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |
|                             | 18    | 0.. | -                          | -                    |                        | 18    |     | 1.1                        | 2.7                  |      | 18    |     | 3.0                        | 3.5                  |      | 18    | 0.. | -                          | -                    |
| 13                          | 00    | 0.. | -                          | -                    | 29                     | 00    | 0.. | -                          | -                    | 14   | 00    | 0.. | -                          | -                    | 29   | 00    | 0.. | -                          | -                    |
|                             | 06    | 0.. | -                          | -                    |                        | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |
|                             | 12    | 0.. | -                          | -                    |                        | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |
|                             | 18    | 0.. | -                          | -                    |                        | 18    | 0.. | -                          | -                    |      | 18    | 0.. | -                          | -                    |      | 18    | 0.. | -                          | -                    |
| 14                          | 00    | 0.. | -                          | -                    | 30                     | 00    | 0.. | -                          | -                    | 15   | 00    | 0.. | -                          | -                    | 30   | 00    | 0.. | -                          | -                    |
|                             | 06    | 0.. | -                          | -                    |                        | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |      | 05    | 0.. | -                          | -                    |
|                             | 12    | 0.. | -                          | -                    |                        | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |
|                             | 18    | 0.. | -                          | -                    |                        | 18    | 0.. | -                          | -                    |      | 18    | 0.. | -                          | -                    |      | 18    | 0.. | -                          | -                    |
| 15                          | 00    | 0.. | -                          | -                    | <b>COMPONENT: E-W.</b> |       |     |                            |                      | 16   | 00    | 0.. | -                          | -                    |      | 00    | 0.. | -                          | -                    |
|                             | 06    | 0.. | -                          | -                    |                        | 00    |     | 3.0                        | 2.8                  |      | 06    | 0.. | -                          | -                    |      | 06    | 0.. | -                          | -                    |
|                             | 12    | 0.. | -                          | -                    |                        | 06    |     | 3.0                        | 3.1                  |      | 12    | 0.. | -                          | -                    |      | 12    | 0.. | -                          | -                    |
|                             | 18    | 0.. | -                          | -                    |                        | 12    |     | 3.3                        | 3.3                  |      | 18    | 0.. | -                          | -                    |      | 18    | 0.. | -                          | -                    |
| 16                          | 00    | 0.. | -                          | -                    |                        | 18    |     | 2.1                        | 3.0                  |      |       |     |                            |                      |      |       |     |                            |                      |
|                             | 06    | 0.. | -                          | -                    |                        |       |     |                            |                      |      |       |     |                            |                      |      |       |     |                            |                      |
|                             | 12    | 0.. | -                          | -                    |                        |       |     |                            |                      |      |       |     |                            |                      |      |       |     |                            |                      |
|                             | 18    | 0.. | -                          | -                    |                        |       |     |                            |                      |      |       |     |                            |                      |      |       |     |                            |                      |

| DATE            | HOUR | K   | MEAN<br>AMPLI-<br>TUDE<br>(MICRON) | MEAN<br>PERIOD<br>IN<br>SECS | DATE | HOUR | K   | MEAN<br>AMPLI-<br>TUDE<br>(MICRON) | MEAN<br>PERIOD<br>IN<br>SECS | DATE | HOUR | K   | MEAN<br>AMPLI-<br>TUDE<br>(MICRON) | MEAN<br>PERIOD<br>IN<br>SECS | DATE | HOUR | K   | MEAN<br>AMPLI-<br>TUDE<br>(MICRON) | MEAN<br>PERIOD<br>IN<br>SECS |
|-----------------|------|-----|------------------------------------|------------------------------|------|------|-----|------------------------------------|------------------------------|------|------|-----|------------------------------------|------------------------------|------|------|-----|------------------------------------|------------------------------|
| COMPONENT: N-S. |      |     |                                    |                              |      |      |     |                                    |                              |      |      |     |                                    |                              |      |      |     |                                    |                              |
| 01              | 00   |     | 2.6                                | 2.8                          | 09   | 00   |     | 2.4                                | 4.1                          | 16   | 00   | 0.. | -                                  | -                            | 24   | 00   |     | 2.4                                | 3.0                          |
|                 | 06   |     | 3.3                                | 3.1                          |      | 06   | 0.. | -                                  | -                            |      | 06   | 0.. | -                                  | -                            |      | 06   |     | 3.2                                | 3.1                          |
|                 | 12   |     | 4.7                                | 3.4                          |      | 12   | 0.. | -                                  | -                            |      | 12   | 0.. | -                                  | -                            |      | 12   |     | 3.6                                | 3.0                          |
|                 | 18   |     | 1.9                                | 3.0                          |      | 18   | 3   | 1.7                                | 3.0                          |      | 18   | 0.. | -                                  | -                            |      | 18   |     | 3.0                                | 3.0                          |
|                 |      |     |                                    |                              |      |      |     | 1.7                                | 3.9                          |      |      |     |                                    |                              |      |      |     |                                    |                              |
| 02              | 00   |     | 2.0                                | 2.9                          | 10   | 00   |     | 2.0                                | 3.4                          | 17   | 00   | 0.. | -                                  | -                            | 25   | 00   |     | 2.5                                | 2.9                          |
|                 | 06   |     | 1.8                                | 2.8                          |      | 06   | 0.. | -                                  | -                            |      | 06   | 0.. | -                                  | -                            |      | 06   |     | 2.7                                | 3.0                          |
|                 | 12   |     | 2.2                                | 3.4                          |      | 12   | 0.. | -                                  | -                            |      | 12   | 0.. | -                                  | -                            |      | 12   |     | 1.6                                | 3.0                          |
|                 | 18   |     | 1.7                                | 3.2                          |      | 18   |     | 3.2                                | 3.2                          |      | 18   | 0.. | -                                  | -                            |      | 18   |     | 1.8                                | 3.0                          |
| 03              | 00   |     | 1.9                                | 3.3                          | 11   | 00   |     | 3.1                                | 3.0                          | 18   | 00   | 0.. | -                                  | -                            | 26   | 09   |     | 2.1                                | 3.2                          |
|                 | 06   | 0.. | -                                  | -                            |      | 06   |     | 4.6                                | 2.9                          |      | 06   | 0.. | -                                  | -                            |      | 06   | 0.. | -                                  | -                            |
|                 | 12   | 0.. | -                                  | -                            |      | 12   |     | 3.3                                | 3.1                          |      | 12   | 0.. | -                                  | -                            |      | 12   | 0.. | -                                  | -                            |
|                 | 18   |     | 1.4                                | 3.1                          |      | 18   |     | 2.6                                | 3.3                          |      | 18   | 0.. | -                                  | -                            |      | 18   |     | 2.0                                | 3.2                          |
| 04              | 00   |     | 1.9                                | 3.8                          | 12   | 00   |     | 3.5                                | 3.1                          | 19   | 00   | 0.. | -                                  | -                            | 27   | 00   |     | 1.8                                | 3.3                          |
|                 | 06   | 0.. | -                                  | -                            |      | 06   |     | 3.3                                | 3.1                          |      | 06   | 0.. | -                                  | -                            |      | 06   | 0.. | -                                  | -                            |
|                 | 12   | 0.. | -                                  | -                            |      | 12   |     | 3.2                                | 3.2                          |      | 12   | 0.. | -                                  | -                            |      | 12   | 0.. | -                                  | -                            |
|                 | 18   |     | 1.7                                | 4.1                          |      | 18   |     | 3.1                                | 3.3                          |      | 18   | 0.. | -                                  | -                            |      | 18   |     | 1.5                                | 3.3                          |
| 05              | 00   | 0.. | -                                  | -                            | 13   | 00   |     | 2.6                                | 3.0                          | 20   | 00   | 0.. | -                                  | -                            | 28   | 00   | 0.. | -                                  | -                            |
|                 | 06   | 0.. | -                                  | -                            |      | 06   |     | 2.4                                | 3.1                          |      | 06   | 0.. | -                                  | -                            |      | 06   | 0.. | 2.4                                | 2.5                          |
|                 | 12   | 0.. | -                                  | -                            |      | 12   | 0.. | -                                  | -                            |      | 12   | 0.. | -                                  | -                            |      | 12   | 0.. | -                                  | -                            |
|                 | 18   | 0.. | -                                  | -                            |      | 18   | 0.. | 2.0                                | 3.3                          |      | 18   | 0.. | -                                  | -                            |      | 18   |     | 1.4                                | 3.4                          |
| 06              | 00   | 0.. | -                                  | -                            | 14   | 00   |     | 1.9                                | 3.8                          | 21   | 00   | 0.. | -                                  | -                            | 29   | 00   | 0.. | -                                  | -                            |
|                 | 06   | 0.. | -                                  | -                            |      | 06   | 0.. | -                                  | -                            |      | 06   | 0.. | -                                  | -                            |      | 06   | 0.. | -                                  | -                            |
|                 | 12   | 0.. | -                                  | -                            |      | 12   |     | 1.7                                | 3.5                          |      | 12   | 0.. | -                                  | -                            |      | 12   | 0.. | -                                  | -                            |
|                 | 18   | 00. | -                                  | -                            |      | 18   | 0.. | -                                  | -                            |      | 18   |     | 1.6                                | 3.5                          |      | 18   |     | 1.5                                | 3.6                          |
| 07              | 00   | 0.. | -                                  | -                            | 15   | 00   | 0.. | -                                  | -                            | 22   | 00   | 0.. | -                                  | -                            | 30   | 00   | 0.. | -                                  | -                            |
|                 | 06   | 0.. | -                                  | -                            |      | 06   | 0.. | -                                  | -                            |      | 06   |     | 1.8                                | 3.3                          |      | 06   | 0.. | -                                  | -                            |
|                 | 12   | 0.. | -                                  | -                            |      | 12   | 0.. | -                                  | -                            |      | 12   |     | 2.0                                | 3.1                          |      | 12   | 0.. | -                                  | -                            |
|                 | 18   |     | 1.6                                | 4.0                          |      | 18   | 0.. | -                                  | -                            |      | 18   |     | 1.7                                | 3.0                          |      | 18   | 0.. | -                                  | -                            |
| 08              | 00   |     | 1.8                                | 3.5                          |      |      |     | 1.4                                | 3.4                          | 23   | 00   |     | 1.8                                | 2.7                          |      |      |     |                                    |                              |
|                 | 06   |     | 2.0                                | 3.9                          |      |      |     |                                    |                              |      | 06   |     | 2.3                                | 2.9                          |      |      |     |                                    |                              |
|                 | 12   |     | 2.0                                | 4.0                          |      |      |     |                                    |                              |      | 12   | 0.. | -                                  | -                            |      |      |     |                                    |                              |
|                 | 18   |     | 1.8                                | 3.9                          |      |      |     |                                    |                              |      | 18   |     | 2.4                                | 3.1                          |      |      |     |                                    |                              |

\* For IGY period only.



GOVERNMENT OF INDIA  
METEOROLOGICAL DEPARTMENT

SEISMOLOGICAL BULLETIN



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*Shri S. Basu, M.Sc., F.N.I.,*  
Director General of Observatories

### Instruments and their Constants

| STATION    | INSTRUMENT    | COMPT. | PERIOD<br>IN<br>SECS                           | STATIC<br>MAGNIFI-<br>CATION | DAMPING<br>RATIO   | PAPER<br>SPEED<br>mm/min | STATION       | INSTRUMENT    | COMPT.                              | PERIOD<br>IN<br>SECS                            | STATIC<br>MAGNIFI-<br>CATION        | DAMPING<br>RATIO   | PAPER<br>SPEED<br>mm/min |
|------------|---------------|--------|------------------------------------------------|------------------------------|--------------------|--------------------------|---------------|---------------|-------------------------------------|-------------------------------------------------|-------------------------------------|--------------------|--------------------------|
| BOMBAY     | Milne-Shaw    | N      | 12                                             | 350                          | 23:1               | 16                       | HYDERABAD     | Milne-Shaw    | E                                   | 12                                              | 250                                 | 20:1               | 8                        |
|            | Milne-Shaw    | E      | 12                                             | 350                          | 12:1               | 8                        |               | Milne-Shaw    | N                                   | 12                                              | 250                                 | 20:1               | 8                        |
|            | Sprengnether  | E      | To <sub>2</sub> Tg <sub>2</sub> 7              | -                            | -                  | 30                       |               |               |                                     |                                                 |                                     |                    |                          |
| BOKARO     | Milne-Shaw    | N      | 12                                             | 250                          | 20:1               | 16                       | KODAIKANAL    | Milne-Shaw    | E                                   | 10                                              | 250                                 | 20:1               | 8                        |
|            | Milne-Shaw    | E      | 12                                             | 250                          | 20:1               | 16                       |               | MADRAS        | Sprengnether                        | E                                               | To <sub>2</sub> Tg <sub>2</sub> 7.4 | -                  | -                        |
|            | Wood-Anderson | E      | 0.8                                            | 960                          | h <sub>2</sub> 0.8 | 60                       |               |               |                                     |                                                 |                                     |                    |                          |
|            | Wood-Anderson | N      | 0.8                                            | 1000                         | h <sub>2</sub> 0.8 | 60                       |               |               |                                     |                                                 |                                     |                    |                          |
| CALCUTTA   | Milne-Shaw    | E      | 11.9                                           | 250                          | 20:1               | -                        | POONA         | Sprengnether  | Z                                   | To <sub>2</sub> Tg <sub>2</sub> 1.6             | -                                   | Critical           | 30                       |
|            | Wood-Anderson | E      | 4                                              | 1000                         | 20:1               | 16                       |               | Wood-Anderson | E                                   | 4                                               | 1000                                | 20:1               | 16                       |
| DEHRA DUN  | Milne-Shaw    | E      | 12                                             | 250                          | 20:1               | 8                        | PORT BLAIR    | Milne-Shaw    | N                                   | 12                                              | 280                                 | 20:1               | 8                        |
|            | Wood-Anderson | N      | 2                                              | 870                          | Critical           | 30                       |               | Wood-Anderson | N                                   | 2                                               | 1000                                | 20:1               | 30                       |
|            | Omori-Ewing   | N      | 16                                             | 32                           | -                  | 25.4                     |               |               |                                     |                                                 |                                     |                    |                          |
|            | Omori-Ewing   | E      | 21                                             | 30                           | -                  | 25.4                     |               |               |                                     |                                                 |                                     |                    |                          |
| MADRAS     | Milne-Shaw    | E      | 12                                             | 250                          | 20:1               | 16                       | SHILLONG      | Wood-Anderson | N                                   | 0.8                                             | 1000                                | h <sub>2</sub> 0.8 | 30                       |
|            | Milne-Shaw    | N      | 10                                             | 150                          | 20:1               | 16                       |               | Wood-Anderson | E                                   | 0.8                                             | 1000                                | h <sub>2</sub> 0.8 | 30                       |
|            | Wood-Anderson | E      | 1                                              | 1000                         | 30:1               | 60                       |               | Milne-Shaw    | N                                   | 12                                              | 250                                 | 20:1               | 8                        |
|            | Wood-Anderson | N      | 1                                              | 1000                         | 40:1               | 60                       |               | Benioff       | Z                                   | To <sub>2</sub> = 1.0<br>Tg <sub>2</sub> = 0.18 | -                                   | -                  | 60                       |
|            | Benioff Short | Z      | To <sub>2</sub> = .72<br>Tg <sub>2</sub> = .45 | -                            | Critical           | 60                       | Sprengnether  | E             | To <sub>2</sub> Tg <sub>2</sub> 6.8 | -                                               | -                                   | 30                 |                          |
|            | Wenner        |        |                                                |                              |                    |                          | Wenner        |               |                                     |                                                 |                                     |                    |                          |
|            | Accelerograph | ENZ    |                                                |                              |                    |                          | Accelerograph | ENZ           |                                     |                                                 |                                     |                    |                          |
|            |               |        |                                                |                              |                    |                          |               |               |                                     |                                                 |                                     |                    |                          |
| MADRAS DUN | Wood-Anderson | N      | 0.8                                            | 950                          | Critical           | 60                       | TOCKLAI       | Wood-Anderson | E                                   | 0.8                                             | 970                                 | h <sub>2</sub> 0.8 |                          |
|            | Wood-Anderson | E      | 0.8                                            | 850                          | Critical           | 60                       | VIZIANAGRAM   | Wood-Anderson | E                                   | 0.8                                             | 1000                                | h <sub>2</sub> 0.8 | 30                       |
|            | Milne-Shaw    | N      | 12                                             | 250                          | 20:1               | 8                        |               | Wood-Anderson | N                                   | 2                                               | 1000                                | 20:1               | 30                       |
|            | Milne-Shaw    | E      | 12                                             | 250                          | 20:1               | 8                        |               |               |                                     |                                                 |                                     |                    |                          |

### List of Seismograph station

| Station     | Latitude | Longitude | Height<br>a.s.l<br>(Metres)             | Lithographic foundation                      |
|-------------|----------|-----------|-----------------------------------------|----------------------------------------------|
| BOMBAY      | 18°54'N  | 72°49'E   | 6                                       | Deccan Trap                                  |
| BOKARO      | 23°50'N  | 85°48'E   | -                                       | Rock                                         |
| COLOMBO     | 06°54'N  | 79°52'E   | 7                                       | Beach Sand                                   |
| CALCUTTA    | 22°32'N  | 88°22'E   | (1) 7(Milne-Shaw)<br>(2) 6(Omori-Ewing) | Alluvium                                     |
| CHATRA      | 26°50'N  | 87°10'E   | 161                                     | Sand Stone                                   |
| DEHRA DUN   | 30°19'N  | 78°02'E   | 682                                     | Gravel                                       |
| HYDERABAD   | 17°26'N  | 78°27'E   | 536                                     | Granite                                      |
| KODAIKANAL  | 10°14'N  | 77°28'E   | 2346                                    | Rock                                         |
| MADRAS      | 13°00'N  | 80°11'E   | 15                                      | -                                            |
| NEW DELHI   | 28°35'N  | 77°12'E   | 207                                     | Massive Quartzite                            |
| PONA        | 18°32'N  | 73°51'E   | 560                                     | Deccan Trap                                  |
| PORT BLAIR  | 11°40'N  | 92°43'E   | -                                       | -                                            |
| SHILLONG    | 25°34'N  | 91°53'E   | 1200                                    | Quartzite Sand Stone<br>(Shillong Quartzite) |
| TOCKLAI     | 26°45'N  | 94°46'E   | -                                       | Alluvium                                     |
| VIZIANAGRAM | 18°07'N  | 83°27'E   | -                                       | -                                            |

| DATE         | STATION                                                                           | COMPT | PHASE | G. M. T. | $\Delta$ | REMARKS                     | DATE         | STATION                                                                                                                                        | COMPT | PHASE    | G. M. T. | $\Delta$ | REMARKS               |                          |
|--------------|-----------------------------------------------------------------------------------|-------|-------|----------|----------|-----------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------|----------|----------|-----------------------|--------------------------|
|              |                                                                                   |       |       | h. m. s. | km       |                             |              |                                                                                                                                                |       |          | h. m. s. | km       |                       |                          |
| October 1957 |                                                                                   |       |       |          |          |                             | October 1957 |                                                                                                                                                |       |          |          |          |                       |                          |
| 01           | SHILLONG                                                                          | Z     | eP    | 00 37 16 |          |                             | 02           | POONA                                                                                                                                          | N     | Lr       | 21 10 29 |          |                       |                          |
| 01           | SHILLONG                                                                          | Z     | iP    | 07 23 23 |          | Distant Compression         |              |                                                                                                                                                |       | PcS      | 11 25    |          |                       |                          |
| 01           | DEHRA DUN                                                                         | N,E   | e     | 08 10 34 |          | Feeble                      |              |                                                                                                                                                |       | M        | 12 29    |          |                       |                          |
| 01           | CHATRA                                                                            | Z     | iP    | 08 12 12 | 1600     | Feeble                      |              |                                                                                                                                                |       | ScS      | 15 29    |          |                       |                          |
|              |                                                                                   |       | iS    | 14 53    |          |                             | BOMBAY       | N,E                                                                                                                                            | eP    | 21 04 10 | 2850     |          |                       |                          |
| 01           | CHATRA                                                                            | Z     | iP    | 08 27 54 | 150      | Slight                      |              |                                                                                                                                                | N     | PP       | 04 42    |          |                       |                          |
|              |                                                                                   |       | iS    | 28 13    |          |                             |              |                                                                                                                                                | E     | PP       | 04 48    |          |                       |                          |
| 01           | SHILLONG                                                                          | Z     | i     | 17 10 15 |          |                             |              |                                                                                                                                                | N     | PPP      | 04 59    |          |                       |                          |
| 01           | SHILLONG                                                                          | Z     | iP    | 18 36 52 |          |                             |              |                                                                                                                                                | E     | eS       | 08 36    |          | Per: 11 secs<br>M = 3 |                          |
| 02           | SHILLONG                                                                          | Z     | iPg   | 01 24 21 |          | Feeble, local               |              |                                                                                                                                                | N     | M        | 18 25    |          | Per: 10 secs<br>M = 5 |                          |
| 02           | CHATRA                                                                            | Z     | i     | 01 57 19 |          | Feeble, near                | VIZIANAGRAM  | N                                                                                                                                              | eP    | 21 04 36 |          |          | Slight                |                          |
| 02           | SHILLONG                                                                          | Z     | iP    | 04 15 17 |          | Slight, distant Compression | BOKARO       | N                                                                                                                                              | eP    | 21 05 18 | 3790     |          | Slight                |                          |
| 02           | SHILLONG                                                                          | Z     | iPg   | 08 18 14 |          | Feeble                      |              |                                                                                                                                                | PP    | 06 41    |          |          |                       |                          |
|              |                                                                                   | Z,E   | iSg   | 18 26    |          |                             |              |                                                                                                                                                | PPP   | 07 60    |          |          |                       |                          |
| 02           | Ept: 54°N, 127°E. Mindanao aftershock<br>H <sub>2</sub> : 11h 25m 02s (U.S.C.G.S) |       |       |          |          |                             |              |                                                                                                                                                | eS    | 10 44    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | Lq/SS | 14 07    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | SSS   | 14 37    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | M     | 18 59    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             | PORT BLAIR   | E                                                                                                                                              | e     | 21 05 58 |          |          | Slight                |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | e     | 09 39    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | e     | 10 09    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             | CHATRA       | Z                                                                                                                                              | iP    | 21 05 53 |          |          | Slight                |                          |
|              |                                                                                   |       |       |          |          |                             |              | N                                                                                                                                              | i     | 12 12    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             | DEHRA DUN    | N,E                                                                                                                                            | eP    | 21 06 00 | 4100     |          | Slight                |                          |
|              |                                                                                   |       |       |          |          |                             |              | N                                                                                                                                              | PP    | 07 21    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | iS    | 11 45    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | SS    | 14 13    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | SSS   | 14 41    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | Lr    | 15 56    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | M     | 18 32    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             | SHILLONG     | Z,N,E                                                                                                                                          | iP    | 21 06 04 | 4250     |          | Slight                |                          |
|              |                                                                                   |       |       |          |          |                             |              | E                                                                                                                                              | PPP   | 07 36    |          |          | Compression           |                          |
|              |                                                                                   |       |       |          |          |                             |              | N,E                                                                                                                                            | iS    | 11 59    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | Lq    | 14 37    |          |          |                       |                          |
| 02           | SHILLONG                                                                          | Z     | e     | 12 18 44 |          | Tremor                      | 03           | SHILLONG                                                                                                                                       | Z     | eP       | 03 34 17 |          | Slight, distant       |                          |
| 02           | CHATRA                                                                            | Z     | e     | 12 47 14 |          | Feeble, distant             | 03           | CHATRA                                                                                                                                         | Z     | iPg      | 05 46 25 | 30       |                       | Feeble                   |
|              | SHILLONG                                                                          | Z     | e     | 12 47 15 |          | Tremor                      |              |                                                                                                                                                |       | iSg      | 46 29    |          |                       |                          |
| 02           | DEHRA DUN                                                                         | N,E   | e     | 13 54 58 |          | Feeble                      | 03           | Ept: 4°S, 134°E. New Guinea<br>H <sub>2</sub> : 05h 58m 12s (U.S.C.G.S)                                                                        |       |          |          |          |                       |                          |
| 02           | Ept: 64°S, 694°E. Chagos Islands<br>H <sub>2</sub> : 20h 58m 39s (U.S.C.G.S)      |       |       |          |          |                             | SHILLONG     | Z                                                                                                                                              | iP    | 06 07 09 |          |          | Compression           |                          |
|              |                                                                                   |       |       |          |          |                             | CHATRA       | Z                                                                                                                                              | i     | 06 07 37 | 5920     |          | Slight                |                          |
|              |                                                                                   |       |       |          |          |                             |              | E                                                                                                                                              | eS    | 15 08    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             | MADRAS       | E                                                                                                                                              | eP    | 06 07 58 | 6190     |          | Feeble                |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | PP    | 10 05    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | PPP   | 11 23    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | ScP   | 12 37    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | eS    | 15 44    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | PPS   | 16 03    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | ScS   | 17 24    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             | POONA        | Z                                                                                                                                              | eP    | 06 08 43 |          |          | Very feeble           |                          |
|              |                                                                                   |       |       |          |          |                             | 03           | SHILLONG                                                                                                                                       | Z     | iP       | 13 17 25 |          |                       | Slight, near Compression |
|              |                                                                                   |       |       |          |          |                             | 03           | SHILLONG                                                                                                                                       | Z     | eP       | 13 32 12 |          |                       | Distant                  |
|              |                                                                                   |       |       |          |          |                             | 03           | CHATRA                                                                                                                                         | Z     | iPg      | 23 10 21 | 20       |                       | Feeble                   |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | iSg   | 10 24    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             | DEHRA DUN    | N,E                                                                                                                                            | e     | 23 48 51 |          |          | Tremor                |                          |
|              |                                                                                   |       |       |          |          |                             | 04           | Ept: 11°N, 63°W. Near Coast of Venezuela.<br>h about 60 Kms. H <sub>2</sub> : 05h 26m 09s (Shillong)<br>Magnitude: 6 (Pasadena), 7 (Berkeley). |       |          |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             | POONA        | Z                                                                                                                                              | iPKP  | 05 45 13 |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | i     | 47 12    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             | CHATRA       | Z                                                                                                                                              | iPKP  | 05 45 18 |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             |              | E                                                                                                                                              | i     | 49 30    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             | SHILLONG     | Z                                                                                                                                              | iPKP  | 05 45 26 |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             |              | N,E                                                                                                                                            | PP    | 48 12    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             | BOKARO       | N                                                                                                                                              | e     | 05 46 02 |          |          | Phases not clear      |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | e     | 48 02    |          |          |                       |                          |
|              |                                                                                   |       |       |          |          |                             |              |                                                                                                                                                | i     | 49 00    |          |          |                       |                          |

| DATE         | STATION                                                                    | COMPT | PHASE | G. M. T. | △    | REMARKS                                              | DATE         | STATION     | COMPT    | PHASE | G. M. T. | △        | REMARKS                     |                          |
|--------------|----------------------------------------------------------------------------|-------|-------|----------|------|------------------------------------------------------|--------------|-------------|----------|-------|----------|----------|-----------------------------|--------------------------|
|              |                                                                            |       |       | h. m. s. | km   |                                                      |              |             |          |       | h. m. s. | km       |                             |                          |
| October 1957 |                                                                            |       |       |          |      |                                                      | October 1957 |             |          |       |          |          |                             |                          |
| 04           | DEHRA DUN                                                                  | N, E  | e     | 05 46 42 |      | Phases not clear                                     | 05           | DEHRA DUN   | N, E     | e     | 22 43 14 |          | Slight                      |                          |
| Contd.       |                                                                            |       | e     | 53 17    |      |                                                      | Contd.       |             | N        | iS    | 44 59    |          |                             |                          |
|              |                                                                            |       | i     | 58 24    |      |                                                      |              |             |          | SS    | 45 13    |          |                             |                          |
|              |                                                                            |       | i     | 59 55    |      |                                                      |              |             |          | SSS   | 45 23    |          |                             |                          |
|              | BOMBAY                                                                     | N, E  | e     | 05 47 21 |      |                                                      |              |             |          | S*    | 45 33    |          |                             |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             | Sg/M     |       | 45 59    |          |                             |                          |
|              | MADRAS                                                                     | E     | e     | 05 48 11 |      |                                                      |              | CHATRA      | Z        | iP    | 22 45 06 | 2090     | Slight                      |                          |
|              |                                                                            |       | e     | 58 18    |      |                                                      |              |             | E        | iS    | 48 27    |          |                             |                          |
|              |                                                                            |       | e     | 58 43    |      |                                                      |              |             |          |       |          |          |                             |                          |
|              |                                                                            |       | e     | 59 07    |      |                                                      |              | BOMBAY      | N        | e     | 22 45 05 |          | Slight, deep                |                          |
|              |                                                                            |       | e     | 06 01 29 |      |                                                      |              |             | E        | e     | 45 15    |          |                             |                          |
|              |                                                                            |       | e     | 05 42    |      |                                                      |              |             | N, E     | e     | 45 35    |          |                             |                          |
|              | KODAIKANAL                                                                 | E     | e     | 05 48 11 |      | Tremor                                               |              |             |          | e     | 48 40    |          |                             |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             |          | e     | 49 05    |          |                             |                          |
|              | HYDERABAD                                                                  | E, N  | e     | 05 48 49 |      | Per. 18 secs                                         |              |             | E        | e     | 50 55    |          |                             |                          |
|              |                                                                            | N     | M     | 06 38 41 |      | U = 9                                                |              |             |          | i     | 51 23    |          |                             |                          |
|              |                                                                            | E     | M     | 38 45    |      | Per. 21 secs                                         |              |             |          |       |          |          |                             |                          |
|              |                                                                            |       |       |          |      | U = 10                                               |              |             |          |       |          |          |                             |                          |
|              | CALCUTTA                                                                   | E     | i     | 05 49 00 |      |                                                      |              | POONA       | Z        | iP    | 22 45 13 | 2160     | Slight                      |                          |
|              |                                                                            |       | e     | 06 00 22 |      |                                                      |              |             | N, E     | iS    | 48 46    |          |                             |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             |          | Lq    | 48 54    |          |                             |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             | N        | M     | 51 39    |          |                             |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             |          | PcS   | 52 55    |          |                             |                          |
| 04           | MADRAS                                                                     | E     | eP    | 07 13 34 | 280  | Slight. Felt at Salem in Madras State (Press Report) |              | HYDERABAD   | N        | iP    | 22 45 34 | 2440     | Slight First movement North |                          |
|              |                                                                            |       | eS    | 14 06    |      |                                                      |              |             |          | PP    | 46 04    |          |                             |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             |          | iS    | 49 33    |          |                             |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             |          | SS    | 49 54    |          |                             |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             |          | Lr    | 51 00    |          |                             |                          |
|              | POONA                                                                      | Z     | iP    | 07 16 56 |      | Very feeble                                          |              |             | E        | M     | 52 06    |          | Per. 5 secs                 |                          |
|              |                                                                            |       | i     | 17 04    |      |                                                      |              |             |          |       |          |          | U = 3                       |                          |
|              |                                                                            |       | i     | 17 13    |      |                                                      |              |             | N        | M     | 52 06    |          | Per. 9 secs                 |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             |          |       |          |          | U = 5                       |                          |
|              | SHILLONG                                                                   | Z     | e     | 07 32 58 |      | Tremor                                               |              | SHILLONG    | Z, N, E  | iP    | 22 45 44 | 2670     | Moderate Rarefaction        |                          |
| 04           | SHILLONG                                                                   | Z     | iP    | 19 45 45 |      | Slight, distant R <sup>2</sup> refraction            |              |             | E        | pP    | 46 03    |          |                             |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             | N, E     | iS    | 49 47    |          |                             |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             | E        | sS    | 50 27    |          |                             |                          |
| 04           | SHILLONG                                                                   | Z     | e     | 13 22 14 |      | Tremor                                               |              | TOCKLAI     | E        | e     | 22 45 47 |          | Slight                      |                          |
| 04           | SHILLONG                                                                   | Z     | iP    | 13 46 26 |      | Slight, distant Rarefaction                          |              | VIZIANAGRAM | E        | e     | 22 45 54 |          | Slight                      |                          |
| 04           | SHILLONG                                                                   | Z     | e     | 16 35 08 |      |                                                      |              | CALCUTTA    | N        | e     | 22 45 58 |          | Moderate                    |                          |
|              |                                                                            |       | i     | 35 38    |      |                                                      |              |             |          | iS    | 49 42    |          |                             |                          |
| 04           | SHILLONG                                                                   | Z     | iP    | 22 31 24 |      | Slight, distant Compression                          |              |             |          | SS    | 50 19    |          |                             |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             |          | SSS   | 50 35    |          |                             |                          |
| 05           | SHILLONG                                                                   | Z     | iP    | 00 06 43 |      | Distant Rarefaction                                  |              | MADRAS      | E        | e(S)  | 22 51 03 |          | Moderate                    |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             |          | e     | 51 23    |          |                             |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             |          | e     | 51 30    |          |                             |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             |          | i     | 54 30    |          |                             |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             |          | e     | 54 37    |          |                             |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             |          | e     | 55 00    |          |                             |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             |          | e     | 55 13    |          |                             |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             |          | e     | 55 28    |          |                             |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             |          | e     | 57 08    |          |                             |                          |
|              | CHATRA                                                                     | Z     | iP    | 00 06 53 |      | Slight                                               |              | 06          | SHILLONG | Z, E  | iP       | 01 47 51 | 370                         | Feeble                   |
|              |                                                                            | E     | i     | 07 23    |      |                                                      |              |             | Z        | iSg   | 48 46    |          |                             |                          |
| 05           | SHILLONG                                                                   | Z     | iP    | 03 52 53 | 210  | Feeble                                               |              | 06          | SHILLONG | Z, E  | iPg      | 01 52 22 | 90                          | Feeble                   |
|              |                                                                            |       | iSg   | 53 22    |      |                                                      |              |             | E        | iSg   | 52 38    |          |                             |                          |
| 05           | SHILLONG                                                                   | Z     | iP    | 10 10 13 | 180  | Feeble                                               |              | 06          | SHILLONG | Z     | e        | 04 32 22 |                             |                          |
|              |                                                                            | Z, E  | iSg   | 10 37    |      |                                                      |              |             |          |       | e        | 04 45 16 |                             | Feeble, local.           |
|              |                                                                            |       |       |          |      |                                                      |              |             |          |       | e        | 45 18    |                             |                          |
| 05           | Epc: 34°N, 26°E. Near Isle of Crete                                        |       |       |          |      |                                                      |              | 06          | SHILLONG | Z     | iP       | 06 30 53 |                             | Slight, near Compression |
|              | H <sub>0</sub> = 11h 36m 46s. (U.S.C.G.S)                                  |       |       |          |      |                                                      |              |             |          |       | eP       | 06 33 11 |                             | Feeble, near             |
|              |                                                                            |       |       |          |      |                                                      |              |             |          |       | e        | 33 51    |                             |                          |
|              | CHATRA                                                                     | Z     | iP    | 11 45 56 |      | Feeble                                               |              | 06          | SHILLONG | Z     | eP       | 08 06 17 |                             | Slight, distant          |
|              | SHILLONG                                                                   | Z     | iP    | 11 46 29 |      | Slight Compression                                   |              | 06          | SHILLONG | Z     | e        | 08 40 59 |                             |                          |
|              |                                                                            |       |       |          |      |                                                      |              |             |          |       | e        | 08 41 35 |                             |                          |
| 05           | SHILLONG                                                                   | Z     | iP    | 12 07 27 |      | Slight, distant Rarefaction                          |              | 06          | SHILLONG | Z     | iP       | 09 51 15 |                             | Feeble, local            |
| 05           | SHILLONG                                                                   | Z     | eP    | 13 09 49 |      |                                                      |              | 06          | SHILLONG | Z     | e        | 11 21 24 |                             |                          |
| 05           | SHILLONG                                                                   | Z     | eP    | 16 01 30 |      |                                                      |              |             |          |       | e        | 22 41    |                             |                          |
| 05           | Epc: 10°S, 122°E. Timor Island Region                                      |       |       |          |      |                                                      |              | 06          | SHILLONG | Z     | eP       | 12 07 08 |                             | Slight, distant          |
|              | H <sub>0</sub> = 16h 05m 38s. (U.S.C.G.S)                                  |       |       |          |      |                                                      |              |             |          |       | e        | 07 52    |                             |                          |
|              | SHILLONG                                                                   | Z, E  | iP    | 16 14 09 | 5030 | Compression                                          |              | 06          | CHATRA   | Z     | iPg      | 14 44 44 | 110                         | Feeble                   |
|              |                                                                            | E     | iS    | 20 50    |      |                                                      |              |             |          |       | iSg      | 44 59    |                             |                          |
|              | CHATRA                                                                     | Z     | eP    | 16 14 40 |      | Feeble                                               |              |             |          |       |          |          |                             |                          |
| 05           | SHILLONG                                                                   | Z     | iP    | 21 06 26 |      | Slight, distant Rarefaction.                         |              |             |          |       |          |          |                             |                          |
| 05           | SHILLONG                                                                   | Z     | e     | 21 06 52 |      |                                                      |              |             |          |       |          |          |                             |                          |
| 05           | Epc: 38°N, 69°E. Afghanistan-Tadzhik border.                               |       |       |          |      |                                                      |              |             |          |       |          |          |                             |                          |
|              | H <sub>0</sub> about 100 kms. ca. H <sub>0</sub> = 22h 40m 40s. (Shillong) |       |       |          |      |                                                      |              |             |          |       |          |          |                             |                          |
|              | H <sub>0</sub> = 22h 40m 44s. (U.S.C.G.S)                                  |       |       |          |      |                                                      |              |             |          |       |          |          |                             |                          |



| DATE         | STATION                                                                                                                          | COMPT | PHASE | G. M. T. | $\Delta$ | REMARKS                        | DATE         | STATION                                                                                                                     | COMPT    | PHASE | G. M. T. | $\Delta$ | REMARKS                        |                                |
|--------------|----------------------------------------------------------------------------------------------------------------------------------|-------|-------|----------|----------|--------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------|----------|-------|----------|----------|--------------------------------|--------------------------------|
|              |                                                                                                                                  |       |       | h. m. s. | km       |                                |              |                                                                                                                             |          |       | h. m. s. | km       |                                |                                |
| October 1957 |                                                                                                                                  |       |       |          |          |                                | October 1957 |                                                                                                                             |          |       |          |          |                                |                                |
| 06           | SHILLONG                                                                                                                         | Z     | e     | 16 06 52 |          | Slight distant                 | 07           | DEHRA DUN                                                                                                                   | N, E     | e     | 21 26 19 |          | Feeble                         |                                |
|              |                                                                                                                                  |       | e     | 07 23    |          |                                |              | CHATRA                                                                                                                      | Z        | i     | 26 37    |          | Feeble                         |                                |
| 06           | Epc: 49 $\frac{1}{2}$ <sup>o</sup> N, 155 <sup>o</sup> E. Northern Kurile Islands.<br>h about 60 km. H = 21h 27m 51s (U.S.C.G.S) |       |       |          |          |                                |              |                                                                                                                             |          |       | i        | 21 27 42 |                                | Feeble                         |
|              | SHILLONG                                                                                                                         | Z     | iP    | 21 37 15 |          | Rarefaction                    |              | SHILLONG                                                                                                                    | Z        | eP    | 21 29 15 |          | Tremor                         |                                |
|              | CHATRA                                                                                                                           | Z     | iP    | 21 37 32 |          | Feeble                         | 07           | SHILLONG                                                                                                                    | Z        | iPg   | 22 47 08 |          | Feeble, local                  |                                |
|              | POONA                                                                                                                            | Z     | iP    | 21 39 08 |          |                                | 07           | SHILLONG                                                                                                                    | Z        | iP    | 23 48 18 |          | Slight, distant<br>Rarefaction |                                |
| 06           | Epc: 52 <sup>o</sup> N, 174 <sup>o</sup> W. Adreanof Islands, Aleutian Islands<br>H = 23h 27m 00s (U.S.C.G.S)                    |       |       |          |          |                                |              | 08                                                                                                                          | SHILLONG | Z     | iP       | 01 34 55 |                                | Slight, distant<br>Compression |
|              | SHILLONG                                                                                                                         | Z     | eP    | 23 38 32 |          | Slight                         |              | CHATRA                                                                                                                      | Z        | i     | 01 35 31 |          | Feeble                         |                                |
|              | CHATRA                                                                                                                           | Z     | i     | 23 38 42 |          | Feeble                         | 08           | CHATRA                                                                                                                      | Z        | e     | 03 46 23 |          | Feeble, distant                |                                |
| 07           | SHILLONG                                                                                                                         | Z     | iP    | 00 44 00 |          |                                | 08           | SHILLONG                                                                                                                    | Z        | eP    | 03 50 52 |          |                                |                                |
| 07           | SHILLONG                                                                                                                         | Z     | e     | 00 46 32 |          |                                | 08           | CHATRA                                                                                                                      | Z        | iP    | 05 38 22 |          | Slight                         |                                |
| 07           | CHATRA                                                                                                                           | Z     | iP    | 02 41 16 | 820      | Slight                         |              | E, Z                                                                                                                        | i        | 38 51 |          |          |                                |                                |
|              |                                                                                                                                  | E     | iS    | 42 41    |          |                                | 08           | SHILLONG                                                                                                                    | Z        | iP    | 06 23 07 |          | Compression                    |                                |
|              | SHILLONG                                                                                                                         | Z     | e     | 02 41 57 |          |                                | 08           | CHATRA                                                                                                                      | Z        | iP    | 06 54 14 |          | Feeble                         |                                |
| 07           | SHILLONG                                                                                                                         | Z     | iP    | 02 43 29 |          | Slight, distant                |              | i                                                                                                                           | 54 43    |       |          |          |                                |                                |
| 07           | SHILLONG                                                                                                                         | Z     | iPg   | 02 43 55 |          | Feeble, local                  | 08           | CHATRA                                                                                                                      | Z        | e     | 07 13 14 |          | Feeble, distant                |                                |
| 07           | SHILLONG                                                                                                                         | Z     | eP    | 05 22 15 |          | Distant                        |              | SHILLONG                                                                                                                    | Z        | eP    | 07 13 19 |          |                                |                                |
|              | CHATRA                                                                                                                           | Z     | e     | 05 22 24 |          | Feeble, distant                | 08           | SHILLONG                                                                                                                    | Z        | eP    | 17 23 05 |          | Slight, distant                |                                |
| 07           | SHILLONG                                                                                                                         | Z     | iP    | 07 42 13 |          | Slight, distant<br>Compression |              | TOCKLAI                                                                                                                     | E        | e     | 17 23 45 |          | Slight, distant                |                                |
| 07           | SHILLONG                                                                                                                         | Z     | e     | 07 47 03 |          | Tremor                         | 08           | SHILLONG                                                                                                                    | Z        | i     | 17 23 59 |          |                                |                                |
| 07           | SHILLONG                                                                                                                         | Z     | eP    | 08 02 39 |          | Slight, distant                | 08           | DEHRA DUN                                                                                                                   | N, E     | e     | 23 01 46 |          | Tremor                         |                                |
| 07           | SHILLONG                                                                                                                         | Z     | eP    | 09 50 26 |          | Tremor                         | 09           | SHILLONG                                                                                                                    | Z        | iP    | 04 38 22 |          | Rarefaction                    |                                |
| 07           | SHILLONG                                                                                                                         | Z     | iP    | 10 05 39 |          |                                | 09           | SHILLONG                                                                                                                    | Z        | iP    | 16 45 05 |          | Slight, distant<br>Rarefaction |                                |
| 07           | SHILLONG                                                                                                                         | Z     | iP    | 12 31 36 |          | Slight, distant<br>Compression | 09           | SHILLONG                                                                                                                    | Z        | eP    | 17 05 50 |          | Tremor                         |                                |
|              | CHATRA                                                                                                                           | Z     | i     | 12 32 09 |          | Feeble                         | 09           | TOCKLAI                                                                                                                     | E        | e     | 17 37 45 |          | Slight, distant                |                                |
| 07           | Epc: 51 <sup>o</sup> N, 159 <sup>o</sup> E. Off South east Coast of Kamchatka.<br>H = 13h 19m 45s (U.S.C.G.S)                    |       |       |          |          |                                |              | SHILLONG                                                                                                                    | Z        | iP    | 17 38 17 |          | Slight, distant<br>Compression |                                |
|              | SHILLONG                                                                                                                         | Z, E  | iP    | 13 29 32 |          | Compression                    | 09           | SHILLONG                                                                                                                    | Z        | eP    | 17 53 13 |          |                                |                                |
|              | CHATRA                                                                                                                           | Z     | iP    | 13 29 46 |          | Slight                         | 09           | SHILLONG                                                                                                                    | Z        | iP    | 18 13 32 |          |                                |                                |
|              |                                                                                                                                  | E     | eP    | 54 37    |          | Surface Waves                  | 09           | SHILLONG                                                                                                                    | Z        | iP    | 21 31 35 |          |                                |                                |
|              | CALCUTTA                                                                                                                         | E     | iP    | 13 30 06 |          | Slight                         | 09           | SHILLONG                                                                                                                    | Z        | iPg   | 21 54 13 | 100      | Feeble                         |                                |
|              |                                                                                                                                  |       | e     | 34 01    |          |                                |              | iSg                                                                                                                         | 54 25    |       |          |          |                                |                                |
|              |                                                                                                                                  |       | e(S)  | 38 36    |          |                                | 09           | SHILLONG                                                                                                                    | Z        | iPg   | 22 24 04 | 80       | Feeble                         |                                |
|              | DEHRA DUN                                                                                                                        | N, E  | eP    | 13 30 16 | 7030     | Feeble                         |              | iSg                                                                                                                         | 24 13    |       |          |          |                                |                                |
|              |                                                                                                                                  |       | eS    | 38 48    |          |                                | 09           | SHILLONG                                                                                                                    | Z        | iP    | 22 33 48 |          | Rarefaction                    |                                |
|              | HYDERABAD                                                                                                                        | E     | iP    | 13 31 03 | 7920     | First movement                 | 09           | SHILLONG                                                                                                                    | Z        | iP    | 23 03 35 |          | Slight, distant<br>Rarefaction |                                |
|              |                                                                                                                                  |       | iS    | 40 21    |          | 'West'                         | 09           | CHATRA                                                                                                                      | Z        | i     | 23 04 07 |          | Feeble                         |                                |
|              |                                                                                                                                  |       | M     | 58 51    |          | Per. = 15 secs                 | 10           | POONA                                                                                                                       | Z        | eP    | 01 56 06 |          |                                |                                |
|              |                                                                                                                                  |       |       |          |          | $\mu = 4$                      | 10           | DEHRA DUN                                                                                                                   | N, E     | e     | 02 19 28 |          | Feeble                         |                                |
|              |                                                                                                                                  | N     | M     | 59 03    |          | Per. = 12 secs                 |              | i                                                                                                                           | 19 47    |       |          |          |                                |                                |
|              |                                                                                                                                  |       |       |          |          | $\mu = 4$                      | 10           | SHILLONG                                                                                                                    | Z        | eP    | 03 51 01 |          | Tremor                         |                                |
|              | POONA                                                                                                                            | Z     | iP    | 13 31 20 | 8300     | Slight                         | 10           | Epc: 52 <sup>o</sup> N, 174 $\frac{1}{2}$ <sup>o</sup> W. Adreanof Islands, Aleutian Islands<br>H = 05h 44m 32s (U.S.C.G.S) |          |       |          |          |                                |                                |
|              |                                                                                                                                  | E, N  | eS    | 40 56    |          |                                |              | SHILLONG                                                                                                                    | Z        | iP    | 05 56 01 |          | Rarefaction                    |                                |
|              | MADRAS                                                                                                                           | E     | e     | 13 31 20 |          | Feeble                         |              | CHATRA                                                                                                                      | Z        | i     | 05 56 13 |          | Feeble                         |                                |
|              |                                                                                                                                  |       | e     | 41 02    |          |                                |              | POONA                                                                                                                       | Z        | iP    | 05 57 26 |          |                                |                                |
|              |                                                                                                                                  |       | e     | 14 06 51 |          |                                |              | i                                                                                                                           | 57 39    |       |          |          |                                |                                |
|              | BOMBAY                                                                                                                           | E     | M     | 14 07 -- |          |                                | 10           | CHATRA                                                                                                                      | Z        | i     | 07 03 18 |          | Feeble                         |                                |
| 07           | SHILLONG                                                                                                                         | Z     | iP    | 14 37 32 | 190      | Feeble                         |              | SHILLONG                                                                                                                    | Z        | iP    | 07 03 35 |          | Slight, distant<br>Rarefaction |                                |
|              |                                                                                                                                  |       | iSg   | 38 02    |          |                                |              |                                                                                                                             |          |       |          |          |                                |                                |
| 07           | SHILLONG                                                                                                                         | Z     | eP    | 16 28 17 |          | Feeble, near                   |              |                                                                                                                             |          |       |          |          |                                |                                |
| 07           | CHATRA                                                                                                                           | Z     | iPg   | 20 49 04 | 110      | Feeble                         |              |                                                                                                                             |          |       |          |          |                                |                                |
|              |                                                                                                                                  |       | iSg   | 49 19    |          |                                |              |                                                                                                                             |          |       |          |          |                                |                                |



| DATE         | STATION                                                                                                     | COMPT               | PHASE                                    | G. M. T.<br>h. m. s.                                                       | $\Delta$<br>km | REMARKS                     | DATE         | STATION                                                                                | COMPT    | PHASE      | G. M. T.<br>h. m. s. | $\Delta$<br>km    | REMARKS                        |                 |
|--------------|-------------------------------------------------------------------------------------------------------------|---------------------|------------------------------------------|----------------------------------------------------------------------------|----------------|-----------------------------|--------------|----------------------------------------------------------------------------------------|----------|------------|----------------------|-------------------|--------------------------------|-----------------|
| October 1957 |                                                                                                             |                     |                                          |                                                                            |                |                             | October 1957 |                                                                                        |          |            |                      |                   |                                |                 |
| 13           | DEHRA DUN                                                                                                   | N, E                | e                                        | 01 10 50                                                                   |                | Tremor                      | 14           | CHATRA                                                                                 | Z        | iP<br>i    | 01 03 32<br>04 51    |                   | Slight                         |                 |
| 13           | DEHRA DUN                                                                                                   | N, E                | e                                        | 01 17 34                                                                   |                | Tremor                      | 14           | SHILLONG                                                                               | Z        | e          | 10 18 34             |                   | Tremor                         |                 |
| 13           | CHATRA                                                                                                      | Z                   | iPg<br>iSg                               | 01 30 30<br>30 42                                                          | 90             | Feeble                      | 14           | SHILLONG                                                                               | Z        | eP         | 13 22 19             |                   | Slight, near                   |                 |
| 13           | Epc: 52°N, 160°E. Off Southeast Coast of Kamchatka<br>H <sub>z</sub> 04h 19m 17s (U.S.C.G.S)                |                     |                                          |                                                                            |                |                             |              | 14                                                                                     | SHILLONG | Z          | e                    | 13 38 57          |                                | Tremor          |
|              | SHILLONG                                                                                                    | N, E<br>E           | iP<br>iS                                 | 04 29 05<br>36 54                                                          | 6230           | Slight                      | 14           | SHILLONG                                                                               | Z        | iP         | 13 43 58             |                   | Slight, distant<br>Compression |                 |
|              | CHATRA                                                                                                      | E, Z<br>E           | eP<br>i                                  | 04 29 17<br>39 22                                                          |                | Slight                      | 14           | SHILLONG                                                                               | Z        | e          | 16 46 24             |                   | Tremor                         |                 |
| 13           | CALCUTTA                                                                                                    | E                   | e<br>Mn                                  | 04 29 47<br>05 00 03                                                       |                |                             | 15           | SHILLONG                                                                               | Z        | eP<br>i    | 03 21 11<br>21 42    |                   | Feeble, near                   |                 |
|              | HYDERABAD                                                                                                   | N                   | eP<br>iS<br>PS<br>Lr<br>M                | 04 30 49<br>39 51<br>40 10<br>52 28<br>57 32                               | 7600           | Per.: 17 secs<br>$\mu$ = 10 | 15           | SHILLONG                                                                               | Z        | iP         | 04 21 49             |                   | Distant<br>Rarefaction         |                 |
|              | POONA                                                                                                       | Z<br>N<br>N, E<br>N | iP<br>PcP<br>iS<br>PS<br>PPS<br>Lr       | 04 30 51<br>31 06<br>40 19<br>40 35<br>41 11<br>53 59                      | 8130           | Slight                      | 15           | SHILLONG                                                                               | Z        | iP         | 05 29 38             |                   | Slight, distant<br>Compression |                 |
|              | MADRAS                                                                                                      | E                   | eP<br>e<br>e                             | 04 30 52<br>39 37<br>41 23                                                 |                | Slight                      | 15           | SHILLONG                                                                               | Z        | i          | 08 40 45             |                   | Feeble                         |                 |
|              | BOMBAY                                                                                                      | N, E                | eP<br>eS<br>SKS <sub>1</sub><br>PPS<br>M | 04 30 54<br>40 26<br>40 40<br>41 14<br>05 06 --                            | 8220           | Slight                      | 15           | CHATRA                                                                                 | Z        | iP<br>i    | 11 42 32<br>42 57    |                   | Feeble                         |                 |
| 13           | SHILLONG                                                                                                    | Z                   | e<br>i                                   | 10 32 38<br>33 01                                                          |                | Slight, near                |              | SHILLONG                                                                               | Z        | eP<br>i    | 11 42 59<br>43 39    |                   | Slight, distant                |                 |
| 13           | SHILLONG                                                                                                    | Z                   | eP                                       | 12 18 24                                                                   |                |                             | 15           | SHILLONG                                                                               | Z        | eP         | 21 45 30             |                   |                                |                 |
| 13           | SHILLONG                                                                                                    | Z                   | eP                                       | 17 35 19                                                                   |                | Slight, distant             | 15           | SHILLONG                                                                               | Z        | eP         | 22 05 01             |                   |                                |                 |
| 13           | DEHRA DUN                                                                                                   | N, E                | e<br>i                                   | 17 36 58<br>38 10                                                          |                | Feeble                      | 15           | SHILLONG                                                                               | Z        | i          | 22 45 38             |                   |                                |                 |
| 13           | SHILLONG                                                                                                    | Z                   | eP                                       | 17 37 30                                                                   |                |                             | 15           | SHILLONG                                                                               | Z        | e          | 23 12 11             |                   | Tremor                         |                 |
| 13           | SHILLONG                                                                                                    | Z                   | iP                                       | 18 23 49                                                                   |                | Feeble, near<br>Compression | 16           | KODAIKANAL                                                                             | E        | e          | 03 00 34             |                   | Tremor                         |                 |
| 13           | Epc: 60°S, 151°E. Antarctic Ocean, Southwest of<br>Macquarie Island. H <sub>z</sub> 20h 33m 01s (U.S.C.G.S) |                     |                                          |                                                                            |                |                             |              | 16                                                                                     | SHILLONG | Z          | eP<br>i              | 07 15 31<br>15 58 |                                | Slight, distant |
|              | KODAIKANAL                                                                                                  | E                   | e                                        | 20 57 06                                                                   |                | Tremor                      | 16           | SHILLONG                                                                               | Z        | iP         | 07 59 08             |                   | Slight, distant<br>Compression |                 |
|              | MADRAS                                                                                                      | E                   | e<br>e<br>e<br>e<br>e<br>e<br>e          | 20 56 13<br>57 50<br>58 29<br>21 01 28<br>02 32<br>02 38<br>02 44<br>05 32 |                | Slight                      | 16           | CHATRA                                                                                 | Z        | eP<br>iS   | 08 10 02<br>10 26    | 200               | Feeble                         |                 |
|              | CALCUTTA                                                                                                    | E                   | e<br>i                                   | 20 58 58<br>21 04 51                                                       |                | Slight                      | 16           | SHILLONG                                                                               | Z        | iP         | 10 38 02             |                   | Slight, distant<br>Compression |                 |
|              | BOKARO                                                                                                      | N                   | e<br>i                                   | 20 50 45<br>57 26                                                          |                | Slight                      |              | TOCKLAI                                                                                | E        | e          | 10 39 47             |                   | Slight, distant                |                 |
|              | HYDERABAD                                                                                                   | E                   | M                                        | 21 22 06                                                                   |                | Per.: 15 secs<br>$\mu$ = 3  |              | CHATRA                                                                                 | Z        | i          | 10 39 58             |                   | Slight, distant                |                 |
|              | DEHRA DUN                                                                                                   | N, E                | e                                        | 20 58 10                                                                   |                | Feeble                      | 16           | SHILLONG                                                                               | Z        | eP         | 11 28 26             |                   |                                |                 |
| 13           | SHILLONG                                                                                                    | Z                   | eP<br>i                                  | 21 34 54<br>35 28                                                          |                | Slight, near                | 16           | SHILLONG                                                                               | Z        | e<br>i     | 15 15 22<br>15 31    |                   |                                |                 |
| 14           | SHILLONG                                                                                                    | Z                   | eP                                       | 00 41 14                                                                   |                |                             | 16           | SHILLONG                                                                               | Z        | iP         | 19 26 45<br>27 13    |                   | Slight, distant<br>Rarefaction |                 |
| 14           | SHILLONG                                                                                                    | Z                   | iPg                                      | 00 47 38                                                                   |                | Feeble, local               |              | CHATRA                                                                                 | Z        | iP         | 19 26 51<br>27 27    |                   | Feeble                         |                 |
|              |                                                                                                             |                     |                                          |                                                                            |                |                             | 16           | SHILLONG                                                                               | Z        | iPg        | 20 38 35             |                   | Feeble, local                  |                 |
|              |                                                                                                             |                     |                                          |                                                                            |                |                             | 16           | SHILLONG                                                                               | Z        | iP         | 21 19 32             |                   | Rarefaction                    |                 |
|              |                                                                                                             |                     |                                          |                                                                            |                |                             | 16           | SHILLONG                                                                               | Z        | iP         | 21 48 37             |                   | Rarefaction                    |                 |
|              |                                                                                                             |                     |                                          |                                                                            |                |                             | 16           | DEHRA DUN                                                                              | N, E     | e          | 22 41 26             |                   | Tremor                         |                 |
|              |                                                                                                             |                     |                                          |                                                                            |                |                             | 17           | SHILLONG                                                                               | Z        | eP         | 01 57 14             |                   |                                |                 |
|              |                                                                                                             |                     |                                          |                                                                            |                |                             | 17           | CHATRA                                                                                 | Z        | iPg<br>iSg | 04 27 03<br>27 04    | 10                | Feeble                         |                 |
|              |                                                                                                             |                     |                                          |                                                                            |                |                             | 17           | CHATRA                                                                                 | Z        | iPg<br>iSg | 04 43 34<br>43 37    | 20                | Feeble                         |                 |
|              |                                                                                                             |                     |                                          |                                                                            |                |                             | 17           | Epc: 21½°N, 79°E. Central India. Felt: Nagpur<br>H <sub>z</sub> 05h 10m 05s (Shillong) |          |            |                      |                   |                                |                 |

| DATE            | STATION         | COMPT    | PHASE                             | G. M. T.<br>h. m. s.                                           | $\Delta$<br>km | REMARKS                            | DATE            | STATION                                                                                                                                                                                                 | COMPT                                                                   | PHASE                                                                                                       | G. M. T.<br>h. m. s. | $\Delta$<br>km                           | REMARKS                              |
|-----------------|-----------------|----------|-----------------------------------|----------------------------------------------------------------|----------------|------------------------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------|------------------------------------------|--------------------------------------|
| October<br>1957 |                 |          |                                   |                                                                |                |                                    | October<br>1957 |                                                                                                                                                                                                         |                                                                         |                                                                                                             |                      |                                          |                                      |
| 17              | POONA<br>Contd. | Z        | eP<br>i<br>i<br>iS<br>e<br>e<br>i | 05 11 31<br>11 49<br>11 54<br>12 33<br>12 44<br>12 46<br>12 58 | 590            | Slight                             | 19              | SHILLONG                                                                                                                                                                                                | Z                                                                       | eP                                                                                                          | 06 40 15             |                                          |                                      |
|                 | BOMBAY          | N,E<br>E | e<br>e<br>e                       | 05 13 17<br>13 23<br>14 10                                     |                | Per. $\approx$ 4 secs<br>$\mu = 2$ | 19              | SHILLONG                                                                                                                                                                                                | Z                                                                       | iP                                                                                                          | 13 43 17             |                                          | Slight, distant<br>Rarefaction       |
|                 | DEHRA DUN       | N,E      | e(S)                              | 05 13 55                                                       |                |                                    | 19              | SHILLONG                                                                                                                                                                                                | Z                                                                       | iP                                                                                                          | 15 49 39             |                                          | Slight, distant<br>Rarefaction       |
|                 | CHATRA          | Z<br>E,Z | iP<br>iSg                         | 05 12 12<br>15 15                                              |                | Slight                             | 19              | DEHRA DUN                                                                                                                                                                                               | N,E                                                                     | e                                                                                                           | 16 13 32             |                                          |                                      |
|                 | SHILLONG        | Z        | eP<br>eS                          | 05 13 03<br>15 24                                              | 2020           | Slight                             | 19              | SHILLONG                                                                                                                                                                                                | Z                                                                       | eP                                                                                                          | 16 16 20             |                                          |                                      |
|                 | KODAIKANAL      | E        | e                                 | 05 16 --                                                       |                | Tremor                             | 19              | Epc: 23°N, 122°E, Near East Coast of Formosa.<br>Several killed at Hotsi and slight damage at Taipei.<br>H. $\approx$ 18h. 28m 50s (U.S.C.G.S)<br>Magnitude: $\approx$ 6½-6¾ (Pasadena), 6¾ (Shillong). |                                                                         |                                                                                                             |                      |                                          |                                      |
| 17              | SHILLONG        | Z        | iP                                | 10 33 01                                                       |                | Slight<br>Compression              | TOCKLAI         | E                                                                                                                                                                                                       | eP<br>i                                                                 | 18 34 23<br>38 33                                                                                           |                      |                                          |                                      |
| 17              | SHILLONG        | Z        | eP                                | 12 47 26                                                       |                |                                    | SHILLONG        | Z,N,E<br>N,E                                                                                                                                                                                            | iP<br>PP<br>PPP<br>iS<br>Lq<br>SSS<br>M                                 | 18 34 47<br>35 23<br>35 39<br>39 15<br>40 15<br>40 53<br>43 37                                              | 3010                 | Compression                              |                                      |
| 17              | SHILLONG        | Z        | iP                                | 14 29 53                                                       |                | Slight, distant<br>Rarefaction     | CALCUTTA        | E                                                                                                                                                                                                       | iP<br>PP<br>iS<br>PcS?<br>Lr<br>M                                       | 18 35 11<br>36 24<br>40 31<br>41 43<br>44 09<br>47 29                                                       | 3700                 | First movement<br>'West'                 |                                      |
| 17              | SHILLONG        | Z        | eP                                | 15 27 27                                                       |                | Slight, distant                    | CHATRA          | Z,E<br>E                                                                                                                                                                                                | iP<br>iS                                                                | 18 35 15<br>40 42                                                                                           | 3810                 |                                          |                                      |
|                 | DEHRA DUN       | N,E      | e<br>i                            | 15 41 11<br>42 38                                              |                | Feeble                             | BOKARO          | N,E                                                                                                                                                                                                     | iP<br>eS                                                                | 18 35 26<br>40 39                                                                                           | 3570                 |                                          |                                      |
|                 | CHATRA          | Z<br>E   | eP<br>i                           | 15 42 56<br>46 12                                              |                | Slight                             | VIZIANAGRAM     | N                                                                                                                                                                                                       | iP                                                                      | 18 35 58                                                                                                    |                      |                                          | First movement<br>'South'            |
|                 | SHILLONG        | Z        | iP                                | 15 43 47                                                       |                | Distant                            | DEHRA DUN       | N,E<br>N                                                                                                                                                                                                | eP<br>PP<br>PPP<br>iS<br>SS<br>SSS<br>Lr<br>M                           | 18 36 23<br>37 26<br>38 10<br>42 19<br>44 57<br>45 22<br>46 49<br>50 41                                     | 4280                 |                                          |                                      |
| 17              | SHILLONG        | Z        | e                                 | 16 41 05                                                       |                |                                    |                 |                                                                                                                                                                                                         |                                                                         |                                                                                                             |                      |                                          |                                      |
| 17              | DEHRA DUN       | N,E      | e                                 | 19 19 43                                                       |                | Tremor                             |                 |                                                                                                                                                                                                         |                                                                         |                                                                                                             |                      |                                          |                                      |
| 17              | SHILLONG        | Z        | e                                 | 19 21 09                                                       |                |                                    |                 |                                                                                                                                                                                                         |                                                                         |                                                                                                             |                      |                                          |                                      |
| 17              | SHILLONG        | Z        | e                                 | 20 56 28                                                       |                |                                    |                 |                                                                                                                                                                                                         |                                                                         |                                                                                                             |                      |                                          |                                      |
| 18              | SHILLONG        | Z        | iP<br>iSg                         | 01 12 44<br>13 01                                              | 140            | Feeble                             |                 |                                                                                                                                                                                                         |                                                                         |                                                                                                             |                      |                                          |                                      |
| 18              | SHILLONG        | Z        | iP<br>i                           | 06 45 24<br>45 27                                              |                | Feeble, local                      |                 |                                                                                                                                                                                                         |                                                                         |                                                                                                             |                      |                                          | Per. $\approx$ 16 secs<br>$\mu = 78$ |
| 18              | SHILLONG        | Z        | Z eP                              | 07 51 46                                                       |                |                                    | MADRAS          | E                                                                                                                                                                                                       | iP<br>PcP<br>PP<br>PPP<br>iS<br>PS<br>PPS<br>SS<br>Lq<br>SSS<br>Lr<br>M | 18 36 36<br>38 10<br>38 18<br>38 58<br>43 04<br>43 09<br>43 15<br>46 05<br>46 55<br>47 11<br>49 04<br>52 40 | 4810                 | First movement<br>'West'                 |                                      |
| 18              | SHILLONG        | Z        | eP                                | 07 57 40                                                       |                |                                    |                 |                                                                                                                                                                                                         |                                                                         |                                                                                                             |                      |                                          |                                      |
| 18              | SHILLONG        | Z        | eP                                | 08 04 50                                                       |                |                                    |                 |                                                                                                                                                                                                         |                                                                         |                                                                                                             |                      |                                          |                                      |
| 18              | SHILLONG        | Z        | i<br>i                            | 09 22 22<br>22 30                                              |                |                                    |                 |                                                                                                                                                                                                         |                                                                         |                                                                                                             |                      |                                          |                                      |
| 18              | SHILLONG        | Z        | iP                                | 10 27 28                                                       |                | Feeble, near<br>Compression        |                 |                                                                                                                                                                                                         |                                                                         |                                                                                                             |                      |                                          |                                      |
| 18              | SHILLONG        | Z        | eP                                | 17 26 43                                                       |                |                                    | HYDERABAD       | E                                                                                                                                                                                                       | iP<br>PP<br>PcS<br>iS<br>PPS<br>SS<br>Lq<br>SSS<br>Lr<br>M              | 18 36 38<br>38 11<br>42 01<br>43 08<br>43 24<br>45 50<br>46 55<br>47 11<br>49 04<br>52 40                   | 4840                 | First movement<br>'West'                 |                                      |
|                 | CHATRA          | Z        | e                                 | 17 27 23                                                       |                | Slight                             |                 |                                                                                                                                                                                                         |                                                                         |                                                                                                             |                      |                                          |                                      |
|                 | DEHRA DUN       | N,E      | e<br>i                            | 17 37 29<br>44 38                                              |                | Feeble. Phases<br>not clear        |                 |                                                                                                                                                                                                         |                                                                         |                                                                                                             |                      |                                          |                                      |
| 18              | SHILLONG        | Z        | iP                                | 18 01 07                                                       |                | Distant<br>Compression             |                 |                                                                                                                                                                                                         |                                                                         |                                                                                                             |                      |                                          | Per. $\approx$ 16 secs<br>$\mu = 21$ |
|                 | TOCKLAI         | E        | eP                                | 18 01 22                                                       |                | Slight, distant                    |                 |                                                                                                                                                                                                         |                                                                         |                                                                                                             |                      |                                          |                                      |
|                 | CALCUTTA        | E        | e<br>i                            | 18 01 46<br>02 45                                              |                | Slight                             | KODAIKANAL      | E                                                                                                                                                                                                       | iP<br>PP<br>PPP<br>iS<br>SS<br>SSS<br>Lr<br>M                           | 18 37 08<br>38 56<br>39 47<br>44 02<br>47 17<br>48 38<br>50 49<br>54 48                                     | 5270                 |                                          |                                      |
|                 | CHATRA          | Z<br>E   | eP<br>i                           | 18 01 56<br>05 27                                              |                | Slight                             |                 |                                                                                                                                                                                                         |                                                                         |                                                                                                             |                      |                                          |                                      |
|                 | PORT BLAIR      | E        | e                                 | 18 02 31                                                       |                | Slight                             |                 |                                                                                                                                                                                                         |                                                                         |                                                                                                             |                      |                                          | Per. $\approx$ 20 secs<br>$\mu = 16$ |
|                 | BOKARO          | N,E      | e                                 | 18 06 18                                                       |                | Slight                             | POONA           | Z,N,E<br>E<br>N,E<br>N<br>N,E                                                                                                                                                                           | iP<br>PcP<br>PP<br>PPP<br>iS                                            | 18 37 08<br>38 23<br>38 52<br>39 32<br>43 57                                                                | 5150                 | First movement<br>South: West and<br>up. |                                      |
| 18              | SHILLONG        | Z        | iP                                | 23 19 46                                                       |                | Slight, distant<br>Rarefaction     |                 |                                                                                                                                                                                                         |                                                                         |                                                                                                             |                      |                                          |                                      |
| 19              | SHILLONG        | Z        | eP                                | 05 04 19                                                       |                |                                    |                 |                                                                                                                                                                                                         |                                                                         |                                                                                                             |                      |                                          |                                      |

| DATE         | STATION                                                                                                                                     | COMPT   | PHASE | G. M. T. | $\Delta$ | REMARKS                      | DATE         | STATION                                                                                                                    | COMPT    | PHASE | G. M. T. | $\Delta$ | REMARKS               |         |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------|-------|----------|----------|------------------------------|--------------|----------------------------------------------------------------------------------------------------------------------------|----------|-------|----------|----------|-----------------------|---------|
|              |                                                                                                                                             |         |       | h. m. s. | km       |                              |              |                                                                                                                            |          |       | h. m. s. | km       |                       |         |
| October 1957 |                                                                                                                                             |         |       |          |          |                              | October 1957 |                                                                                                                            |          |       |          |          |                       |         |
| 19           | POONA                                                                                                                                       | N, E    | PPS   | 18 44 12 |          |                              | 20           | SHILLONG                                                                                                                   | Z        | iP    | 15 32 57 |          | Tremor                |         |
| Contd.       |                                                                                                                                             | E       | ScS   | 46 34    |          |                              |              |                                                                                                                            |          |       |          |          | Rarefaction           |         |
|              |                                                                                                                                             | N       | SS    | 47 02    |          |                              | 20           | SHILLONG                                                                                                                   | Z        | iP    | 16 04 07 |          | Rarefaction           |         |
|              |                                                                                                                                             | E       | SSS   | 48 21    |          |                              | 20           | SHILLONG                                                                                                                   | Z        | eP    | 16 16 16 |          |                       |         |
|              |                                                                                                                                             | N, E    | Lr    | 50 06    |          |                              | 20           | SHILLONG                                                                                                                   | Z        | eP    | 21 00 07 |          |                       |         |
|              |                                                                                                                                             |         | M     | 54 14    |          | Per. = 17 secs<br>$\mu = 40$ | 20           | SHILLONG                                                                                                                   | Z        | iP    | 21 38 26 |          | Slight, near          |         |
|              | BOMBAY                                                                                                                                      | N, E    | eP    | 18 37 16 | 5210     |                              |              |                                                                                                                            |          |       |          |          | Rarefaction           |         |
|              |                                                                                                                                             |         | PP    | 39 04    |          |                              | 20           | SHILLONG                                                                                                                   | Z        | iP    | 21 48 38 |          |                       |         |
|              |                                                                                                                                             | N       | PPP   | 40 02    |          |                              | 21           | SHILLONG                                                                                                                   | Z        | eP    | 06 58 11 |          |                       |         |
|              |                                                                                                                                             | N, E    | eS    | 44 07    |          |                              | 21           | SHILLONG                                                                                                                   | Z        | i     | 09 49 01 |          |                       |         |
|              |                                                                                                                                             |         | PPS   | 44 27    |          |                              |              |                                                                                                                            |          |       |          |          |                       |         |
|              |                                                                                                                                             | N       | SS    | 47 32    |          |                              |              |                                                                                                                            |          |       |          |          |                       |         |
|              |                                                                                                                                             | N, E    | e     | 48 04    |          |                              |              |                                                                                                                            |          |       |          |          |                       |         |
|              |                                                                                                                                             | N       | SSS   | 48 43    |          | Per. = 16 secs<br>$\mu = 18$ |              |                                                                                                                            |          |       |          |          |                       |         |
|              |                                                                                                                                             |         | M     | 55 41    |          | Per. = 13 secs<br>$\mu = 4$  |              |                                                                                                                            |          |       |          |          |                       |         |
|              |                                                                                                                                             | E       | M     | 57 11    |          |                              |              |                                                                                                                            |          |       |          |          |                       |         |
| 19           | Epc: 44°N, 146°E. Off North east Coast of Hokkaido Japan. h about 150 Kms.<br>H. = 21h 41m 59s. (U.S.C.G.S)<br>Magnitude: 6½-6¾ (Pasadena). |         |       |          |          |                              |              | 21                                                                                                                         | SHILLONG | Z     | i        | 10 04 44 |                       |         |
|              | TOCKLAI                                                                                                                                     | E       | iP    | 21 50 03 |          | First movement: East         | 21           | SHILLONG                                                                                                                   | Z        | iP    | 10 10 45 |          | Compression           |         |
|              | SHILLONG                                                                                                                                    | Z, N, E | iP    | 21 50 31 | 5310     | Rarefaction                  | 21           | SHILLONG                                                                                                                   | Z        | e     | 11 04 13 |          |                       |         |
|              |                                                                                                                                             | E       | pP    | 51 03    |          |                              | 21           | SHILLONG                                                                                                                   | Z        | iP    | 14 50 06 | 380      | Slight                |         |
|              |                                                                                                                                             |         | eP    | 51 37    |          |                              |              |                                                                                                                            |          |       |          |          | Compression           |         |
|              |                                                                                                                                             | N, E    | PP    | 52 32    |          |                              |              |                                                                                                                            |          |       |          |          |                       |         |
|              |                                                                                                                                             |         | iS    | 57 00    |          |                              |              |                                                                                                                            |          |       |          |          |                       |         |
|              |                                                                                                                                             | E       | eS    | 58 09    |          |                              |              |                                                                                                                            |          |       |          |          |                       |         |
|              | CHATRA                                                                                                                                      | Z, E    | iP    | 21 50 41 | 5570     |                              |              | CHATRA                                                                                                                     | Z        | iP    | 14 50 54 |          | Slight                |         |
|              |                                                                                                                                             | E       | iS    | 57 39    |          |                              |              |                                                                                                                            |          |       |          |          |                       |         |
|              | CALCUTTA                                                                                                                                    | E       | eP    | 21 50 58 | 5610     |                              |              | CALCUTTA                                                                                                                   | E        | i     | 14 50 56 |          | Slight, near          |         |
|              |                                                                                                                                             |         | iS    | 58 04    |          |                              |              |                                                                                                                            |          |       |          |          |                       |         |
|              | DEHRA DUN                                                                                                                                   | N, E    | e(P)  | 21 51 14 | 6040     | Phases not clear             | 21           | SHILLONG                                                                                                                   | Z        | ePg   | 20 31 49 | 270      | Feeble                |         |
|              |                                                                                                                                             |         | i(S)  | 58 38    |          |                              |              |                                                                                                                            |          |       |          |          |                       |         |
|              | MADRAS                                                                                                                                      | E       | eP    | 21 52 16 | 7220     |                              | 22           | SHILLONG                                                                                                                   | Z        | iP    | 07 31 30 |          | Feeble, near          |         |
|              |                                                                                                                                             |         | PcP   | 52 53    |          |                              |              |                                                                                                                            |          |       |          |          | Rarefaction           |         |
|              |                                                                                                                                             |         | PP    | 54 40    |          |                              | 22           | SHILLONG                                                                                                                   | Z, N, E  | iPg   | 09 02 15 | 40       | Slight. Felt locally. |         |
|              |                                                                                                                                             |         | iS    | 22 00 43 |          |                              |              |                                                                                                                            |          |       |          |          |                       |         |
|              |                                                                                                                                             |         | PPS   | 01 13    |          |                              |              |                                                                                                                            |          |       |          |          |                       |         |
|              |                                                                                                                                             |         | ScS   | 01 56    |          |                              | 22           | SHILLONG                                                                                                                   | Z        | iP    | 09 50 29 |          | Slight, distant       |         |
|              |                                                                                                                                             |         | SS    | 04 48    |          |                              |              |                                                                                                                            |          |       |          |          | Rarefaction           |         |
|              | POONA                                                                                                                                       | Z, E    | iP    | 21 52 23 | 7200     |                              | 22           | SHILLONG                                                                                                                   | Z        | iPg   | 11 14 18 | 440      | Feeble, near          |         |
|              |                                                                                                                                             | N, E    | iS    | 22 00 49 |          |                              |              |                                                                                                                            |          |       |          |          |                       |         |
|              | BOMBAY                                                                                                                                      | N       | eP    | 21 52 29 | 7250     |                              |              | CHATRA                                                                                                                     | Z        | iP    | 11 15 19 | 810      | Feeble                |         |
|              |                                                                                                                                             | N, E    | eS    | 22 00 58 |          |                              |              |                                                                                                                            |          |       |          |          |                       |         |
| 19           | SHILLONG                                                                                                                                    | Z       | iP    | 23 30 01 |          | Slight, distant              | 22           | SHILLONG                                                                                                                   | Z        | i     | 12 21 04 |          |                       |         |
|              |                                                                                                                                             |         |       |          |          | Compression                  | 22           | DEHRA DUN                                                                                                                  | N, E     | e     | 14 50 23 |          | Tremor                |         |
| 20           | SHILLONG                                                                                                                                    | Z       | iP    | 06 06 45 |          | Local, feeble                | 22           | SHILLONG                                                                                                                   | Z        | eP    | 17 06 16 |          |                       |         |
| 20           | SHILLONG                                                                                                                                    | Z       | iP    | 06 44 34 |          | Rarefaction                  | 22           | SHILLONG                                                                                                                   | Z        | iP    | 18 19 54 | 330      | Feeble                |         |
| 20           | SHILLONG                                                                                                                                    | Z       | iP    | 09 40 04 | 160      | Feeble                       |              |                                                                                                                            |          |       |          |          |                       |         |
|              |                                                                                                                                             |         | iPg   | 40 10    |          |                              |              |                                                                                                                            |          |       |          |          |                       |         |
|              |                                                                                                                                             |         | iSg   | 40 24    |          |                              |              |                                                                                                                            |          |       |          |          |                       |         |
| 20           | SHILLONG                                                                                                                                    | Z       | iP    | 10 42 42 |          | Slight, distant              |              | CHATRA                                                                                                                     | Z        | iP    | 18 20 15 |          | Slight                |         |
|              |                                                                                                                                             |         |       |          |          | Rarefaction                  |              |                                                                                                                            |          |       |          |          |                       |         |
| 20           | Epc: 11½°N, 42°W. Atlantic Ocean<br>H. = 12h 04m 22s (U.S.C.G.S)                                                                            |         |       |          |          |                              |              | 22                                                                                                                         | SHILLONG | Z     | eP       | 20 49 53 |                       | Distant |
|              | BOMBAY                                                                                                                                      | E       | M     | 13 12 00 |          |                              |              | CHATRA                                                                                                                     | Z        | i     | 20 53 36 |          | Slight, distant       |         |
|              | DEHRA DUN                                                                                                                                   | N, E    | e     | 12 23 36 |          | Feeble                       | 23           | Epc: 52½°N, 169½°W. Fox Islands, Aleutian Islands<br>H. = 05h 56m 52s (U.S.C.G.S)<br>Magnitude: 6¾ (Pasadena), (Berkeley). |          |       |          |          |                       |         |
|              |                                                                                                                                             |         | i     | 29 36    |          |                              |              | SHILLONG                                                                                                                   | Z, N, E  | iP    | 06 08 35 | 8380     | Compression           |         |
|              |                                                                                                                                             |         | i     | 32 52    |          |                              |              |                                                                                                                            | E        | PcP   | 08 49    |          |                       |         |
|              | HYDERABAD                                                                                                                                   | E       | M     | 13 04 55 |          | Per. = 18 secs<br>$\mu = 6$  |              |                                                                                                                            | N, E     | iS    | 18 15    |          |                       |         |
|              | KODAIKANAL                                                                                                                                  | E       | e     | 12 30 11 |          |                              |              |                                                                                                                            | E        | SKS   | 18 27    |          |                       |         |
|              | MADRAS                                                                                                                                      | E       | e     | 12 30 24 |          | Feeble                       |              |                                                                                                                            |          | ScS   | 18 46    |          |                       |         |
|              |                                                                                                                                             |         | e     | 31 58    |          |                              |              |                                                                                                                            |          | PS    | 18 52    |          |                       |         |
|              |                                                                                                                                             |         | e     | 33 58    |          |                              |              |                                                                                                                            |          | SS    | 22 51    |          |                       |         |
|              | CALCUTTA                                                                                                                                    | E       | e     | 12 30 25 |          |                              |              | CHATRA                                                                                                                     | Z        | iPg   | 06 08 45 |          |                       |         |
|              | SHILLONG                                                                                                                                    | Z       | ePKP  | 12 23 20 |          |                              |              |                                                                                                                            | E        | ePg   |          |          |                       |         |
|              |                                                                                                                                             |         |       |          |          |                              |              | DEHRA DUN                                                                                                                  | N, E     | eP    | 06 08 56 |          |                       |         |

| DATE         | STATION                                                                                                                                | COMPT   | PHASE     | G. M. T. | $\Delta$ | REMARKS                        | DATE         | STATION                                                                                                          | COMPT     | PHASE     | G. M. T. | $\Delta$ | REMARKS                                |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------|---------|-----------|----------|----------|--------------------------------|--------------|------------------------------------------------------------------------------------------------------------------|-----------|-----------|----------|----------|----------------------------------------|
|              |                                                                                                                                        |         |           | h. m. s. | km       |                                |              |                                                                                                                  |           |           | h. m. s. | km       |                                        |
| October 1957 |                                                                                                                                        |         |           |          |          |                                | October 1957 |                                                                                                                  |           |           |          |          |                                        |
| 23           | DEHRA DUN                                                                                                                              | N       | eP        | 06 09 47 | 9460     |                                | 25           | CHATRA                                                                                                           | Z         | i         | 04 49 30 |          | Feeble, near                           |
| Contd.       |                                                                                                                                        |         | PF        | 13 11    |          |                                | 25           | CHATRA                                                                                                           | Z         | iP $\phi$ | 06 25 29 |          | Slight                                 |
|              |                                                                                                                                        |         | SKS1      | 20 05    |          |                                |              | E                                                                                                                | eP $\phi$ |           | 30 54    |          |                                        |
|              |                                                                                                                                        |         | eS        | 20 17    |          |                                | 25           | SHILLONG                                                                                                         | Z, N, E   | iP        | 07 58 09 | 190      | Feeble                                 |
|              |                                                                                                                                        |         | PPS       | 21 50    |          | Per: 18 secs                   |              |                                                                                                                  |           | iSg       | 58 34    |          |                                        |
|              |                                                                                                                                        | E       | Lr        | 37 17    |          | $\mu$ = 7                      |              | CHATRA                                                                                                           | Z         | eP        | 07 58 46 |          | Slight                                 |
|              |                                                                                                                                        | N       | Lr        | 38 27    |          | Per: 21 secs                   |              |                                                                                                                  |           | i         | 08 06 05 |          |                                        |
|              |                                                                                                                                        | E       | M         | 41 59    |          | $\mu$ = 13                     | 25           | DEHRA DUN                                                                                                        | N, E      | e         | 09 20 39 |          | Tremor                                 |
|              |                                                                                                                                        | N       | M         | 45 02    |          |                                | 25           | Epc: 50°N, 156°E. Near South Coast of Kamchatka<br>H: 10h 03m 32s (U.S.C.G.S)<br>Magnitude: 6% (Pas), 6% (Berk). |           |           |          |          |                                        |
|              | BOMBAY                                                                                                                                 | N, E    | eP        | 06 09 56 |          |                                | SHILLONG     | Z, N, E                                                                                                          | iP        | 10 13 04  | 5980     |          | Compression                            |
|              |                                                                                                                                        | E       | e         | 20 49    |          |                                |              | E                                                                                                                | PcP       | 14 16     |          |          |                                        |
|              |                                                                                                                                        | E       | e         | 21 26    |          |                                |              |                                                                                                                  | PP        | 14 58     |          |          |                                        |
|              | POONA                                                                                                                                  | Z       | iP        | 06 09 57 |          |                                |              |                                                                                                                  | PcS       | 18 02     |          |          |                                        |
|              |                                                                                                                                        | E       | e         | 20 40    |          |                                |              | N, E                                                                                                             | iS        | 20 38     |          |          |                                        |
|              |                                                                                                                                        |         | i         | 21 17    |          |                                |              | E                                                                                                                | ScS       | 23 00     |          |          |                                        |
|              |                                                                                                                                        | N       | M         | 49 --    |          |                                |              |                                                                                                                  | SSS       | 24 12     |          |          |                                        |
|              | KODAIKANAL                                                                                                                             | E       | e         | 06 43 22 |          | Tremor                         | CALCUTTA     | E                                                                                                                | eP        | 10 13 02  |          |          |                                        |
| 23           | SHILLONG                                                                                                                               | Z       | iP        | 11 51 21 |          | Feeble, near.<br>Rarefaction   |              |                                                                                                                  | e         | 21 02     |          |          |                                        |
| 24           | POONA                                                                                                                                  | Z       | iP        | 00 11 15 |          | Feeble                         |              |                                                                                                                  | e         | 25 10     |          |          |                                        |
| 24           | SHILLONG                                                                                                                               | Z       | eP        | 00 11 42 |          |                                | CHATRA       | Z                                                                                                                | iP $\phi$ | 10 13 17  |          |          |                                        |
| 24           | Epc: 14°S, 167°E. New Hebrides Islands.<br>H: 00h 17m 37s (U.S.C.G.S)<br>Magnitude: 6% (Pasadena)                                      |         |           |          |          |                                |              | E                                                                                                                | eP $\phi$ |           | 21 34    |          |                                        |
|              | SHILLONG                                                                                                                               | Z, E    | iP        | 00 30 13 |          | Compression                    |              |                                                                                                                  | e         |           |          |          |                                        |
|              |                                                                                                                                        | E       | i         | 40 38    |          |                                | BOKARO       | N, E                                                                                                             | iP        | 10 13 43  | 6610     |          |                                        |
|              | CALCUTTA                                                                                                                               | E       | eP        | 00 30 31 |          |                                |              | N                                                                                                                | eS        | 21 52     |          |          | Per: 20 secs                           |
|              |                                                                                                                                        |         | i         | 42 09    |          |                                |              |                                                                                                                  | M         | 35 30     |          |          | $\mu$ = 33                             |
|              | MADRAS                                                                                                                                 | E       | e         | 00 34 12 |          |                                | DEHRA DUN    | N, E                                                                                                             | eP        | 10 13 43  | 6530     |          |                                        |
|              |                                                                                                                                        |         | e         | 42 07    |          |                                |              | N                                                                                                                | iS        | 21 48     |          |          |                                        |
|              | KODAIKANAL                                                                                                                             | E       | e         | 00 35 48 |          | Tremor                         |              |                                                                                                                  | PPS       | 22 31     |          |          |                                        |
| 24           | SHILLONG                                                                                                                               | Z       | eP        | 00 58 25 |          | Feeble, near                   |              |                                                                                                                  | SS        | 25 31     |          |          |                                        |
| 24           | SHILLONG                                                                                                                               | Z       | iP        | 02 32 09 |          | Compression                    |              |                                                                                                                  | Lr        | 30 48     |          |          |                                        |
| 24           | SHILLONG                                                                                                                               | Z       | iP        | 04 15 13 |          | Slight, distant<br>Compression |              |                                                                                                                  | M         | 55 59     |          |          |                                        |
| 24           | DEHRA DUN                                                                                                                              | N, E    | e         | 05 18 49 |          | Tremor                         | HYDERABAD    | N, E                                                                                                             | iP        | 10 14 42  | 7570     |          | First movement<br>South and West       |
| 24           | SHILLONG                                                                                                                               | Z       | iP        | 06 51 12 |          | Slight, distant<br>Compression |              | N                                                                                                                | PcP       | 15 12     |          |          |                                        |
|              | CHATRA                                                                                                                                 | Z       | eP        | 06 52 06 |          | Feeble                         |              |                                                                                                                  | PP        | 17 24     |          |          |                                        |
|              |                                                                                                                                        |         | i         | 53 26    |          |                                |              | N, E                                                                                                             | iS        | 23 42     |          |          |                                        |
| 24           | SHILLONG                                                                                                                               | Z       | eP        | 09 20 16 |          |                                |              | N                                                                                                                | PS        | 24 12     |          |          |                                        |
| 24           | CHATRA                                                                                                                                 | Z       | eP        | 09 24 35 |          | Slight                         |              |                                                                                                                  | PPS       | 24 30     |          |          |                                        |
|              |                                                                                                                                        | E       | i         | 30 28    |          |                                |              |                                                                                                                  | SKS1      | 24 43     |          |          |                                        |
| 24           | SHILLONG                                                                                                                               | Z       | iP        | 17 01 50 |          | Rarefaction                    |              |                                                                                                                  | SS        | 27 55     |          |          |                                        |
| 24           | Epc: 29°S, 69°W. La Rioja Province, Argentina.<br>Moderate damage at Villa Castelli, Vinchina and<br>Jague. H: 20h 07m 17s (U.S.C.G.S) |         |           |          |          |                                |              |                                                                                                                  | Lq        | 35 38     |          |          |                                        |
|              | DEHRA DUN                                                                                                                              | N, E    | ePKP      | 20 27 11 |          | Feeble                         |              |                                                                                                                  | Lr        | 36 15     |          |          | Per: 21 secs                           |
|              | CHATRA                                                                                                                                 | Z       | ePKP      | 20 27 15 |          | Feeble                         |              |                                                                                                                  | M         | 41 15     |          |          | $\mu$ = 16                             |
|              | SHILLONG                                                                                                                               | Z       | iPKP      | 20 27 19 |          | Rarefaction                    |              |                                                                                                                  | N         | 41 20     |          |          | Per: 18 secs                           |
| 24           | DEHRA DUN                                                                                                                              | N, E    | e         | 22 35 32 |          | Feeble                         | MADRAS       | E                                                                                                                | eP        | 10 14 54  | 7840     |          |                                        |
|              |                                                                                                                                        |         | e         | 43 47    |          |                                |              |                                                                                                                  | PcP       | 15 05     |          |          |                                        |
| 25           | SHILLONG                                                                                                                               | Z       | iP $\phi$ | 00 21 27 | 130      | Feeble                         |              |                                                                                                                  | PP        | 17 37     |          |          |                                        |
|              |                                                                                                                                        |         | iSg       | 21 42    |          |                                |              |                                                                                                                  | eS        | 24 07     |          |          |                                        |
| 25           | SHILLONG                                                                                                                               | Z, N, E | iP $\phi$ | 00 58 10 |          | Slight.<br>Felt locally        | POONA        | Z                                                                                                                | iP        | 10 14 54  | 7830     |          | First movement<br>Southeast and<br>up. |
|              | CHATRA                                                                                                                                 | Z       | iP        | 00 59 10 |          | Feeble                         |              | N                                                                                                                | PP        | 17 28     |          |          |                                        |
|              |                                                                                                                                        |         | i         | 01 00 26 |          |                                |              | E                                                                                                                | PPP       | 19 14     |          |          |                                        |
|              | DEHRA DUN                                                                                                                              | N, E    | e         | 02 08 16 |          | Feeble                         |              | N, E                                                                                                             | iS        | 24 07     |          |          |                                        |
|              |                                                                                                                                        |         |           |          |          |                                |              |                                                                                                                  | PS        | 24 34     |          |          |                                        |
|              |                                                                                                                                        |         |           |          |          |                                |              | N, E                                                                                                             | PPS       | 24 52     |          |          |                                        |
|              |                                                                                                                                        |         |           |          |          |                                |              | N                                                                                                                | SS        | 28 35     |          |          |                                        |
|              |                                                                                                                                        |         |           |          |          |                                |              |                                                                                                                  | Lr        | 36 57     |          |          |                                        |
|              |                                                                                                                                        |         |           |          |          |                                |              |                                                                                                                  | M         | 40 46     |          |          | Per: 16 secs                           |
|              |                                                                                                                                        |         |           |          |          |                                |              |                                                                                                                  | Mn        | 49 --     |          |          | $\mu$ = 20                             |
|              |                                                                                                                                        |         |           |          |          |                                | BOMBAY       | N, E                                                                                                             | eP        | 10 15 00  | 7800     |          |                                        |
|              |                                                                                                                                        |         |           |          |          |                                |              | N                                                                                                                | eS        | 24 11     |          |          |                                        |
|              |                                                                                                                                        |         |           |          |          |                                |              | E                                                                                                                | e         | 24 34     |          |          |                                        |
|              |                                                                                                                                        |         |           |          |          |                                |              | N                                                                                                                | PPS       | 24 58     |          |          |                                        |
|              |                                                                                                                                        |         |           |          |          |                                |              | E                                                                                                                | M         | 49 37     |          |          | Per: 15 secs                           |
|              |                                                                                                                                        |         |           |          |          |                                |              | N                                                                                                                | M         | 49 55     |          |          | $\mu$ = 3                              |
|              |                                                                                                                                        |         |           |          |          |                                |              |                                                                                                                  |           |           |          |          | Per: 16 secs                           |
|              |                                                                                                                                        |         |           |          |          |                                |              |                                                                                                                  |           |           |          |          | $\mu$ = 9                              |



| DATE         | STATION                                                                       | COMPT    | PHASE    | G. M. T. | $\Delta$ | REMARKS                     | DATE               | STATION                                                                                                                                                                        | COMPT    | PHASE | G. M. T. | $\Delta$ | REMARKS                     |                             |
|--------------|-------------------------------------------------------------------------------|----------|----------|----------|----------|-----------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------|----------|----------|-----------------------------|-----------------------------|
|              |                                                                               |          |          | h. m. s. | km       |                             |                    |                                                                                                                                                                                |          |       | h. m. s. | km       |                             |                             |
| October 1957 |                                                                               |          |          |          |          |                             |                    |                                                                                                                                                                                |          |       |          |          |                             |                             |
| 27           | BOMBAY                                                                        | N, E     | eP       | 22 43 58 | 7930     |                             | 29                 | CHATRA                                                                                                                                                                         | Z        | iPg   | 10 11 32 | 90       | Feeble                      |                             |
|              | Contd.                                                                        | N        | PP       | 46 42    |          |                             |                    |                                                                                                                                                                                |          | iSg   | 11 44    |          |                             |                             |
|              |                                                                               |          | PPP      | 48 29    |          |                             | 29                 | SHILLONG                                                                                                                                                                       | Z        | eP    | 15 06 34 |          | Feeble, near                |                             |
|              |                                                                               | N, E     | eS       | 53 16    |          |                             | 29                 | SHILLONG                                                                                                                                                                       | Z        | ePg   | 16 06 57 | 110      | Feeble                      |                             |
|              |                                                                               |          | PPS(ScS) | 54 23    |          |                             |                    |                                                                                                                                                                                |          | iSg   | 07 10    |          |                             |                             |
|              | MADRAS                                                                        | E        | iP       | 22 44 03 | 7980     | First movement 'West'       | 29                 | SHILLONG                                                                                                                                                                       | Z        | e     | 17 17 27 |          |                             |                             |
|              |                                                                               |          | PcP      | 44 12    |          |                             | 30                 | PORT BLAIR                                                                                                                                                                     | N        | eP    | 00 00 09 | 130      | Slight                      |                             |
|              |                                                                               |          | PP       | 46 49    |          |                             |                    |                                                                                                                                                                                |          | iSg   | 00 27    |          |                             |                             |
|              |                                                                               |          | PPP      | 48 34    |          |                             | 30                 | SHILLONG                                                                                                                                                                       | Z        | iP    | 00 02 57 |          | Slight, distant Rarefaction |                             |
|              |                                                                               |          | iS       | 53 23    |          |                             | 30                 | CHATRA                                                                                                                                                                         | Z        | e     | 00 03 27 |          | Feeble, distant             |                             |
|              |                                                                               |          | SKS      | 53 48    |          |                             | 30                 | CHATRA                                                                                                                                                                         | Z        | iP    | 01 52 07 |          | Slight, distant             |                             |
|              |                                                                               |          | PPS      | 54 07    |          |                             |                    | SHILLONG                                                                                                                                                                       | Z        | iP    | 01 52 38 |          | Slight, distant Rarefaction |                             |
| 27           | SHILLONG                                                                      | Z        | i        | 23 09 17 |          |                             |                    | KODAIKANAL                                                                                                                                                                     | E        | e     | 02 15 14 |          | Tremor                      |                             |
| 27           | SHILLONG                                                                      | Z        | iP       | 23 57 50 |          | Slight, distant Compression | 30                 | SHILLONG                                                                                                                                                                       | Z        | eP    | 02 24 59 |          |                             |                             |
| 28           | SHILLONG                                                                      | Z        | iPg      | 00 50 09 | 90       | Feeble                      | 30                 | POONA                                                                                                                                                                          | Z        | iP    | 02 26 19 |          |                             |                             |
|              |                                                                               |          | iSg      | 50 20    |          |                             | 30                 | SHILLONG                                                                                                                                                                       | Z        | iP    | 03 01 43 |          | Slight, distant Rarefaction |                             |
| 28           | PORT BLAIR                                                                    | E        | eP       | 02 26 22 |          | Slight                      | 30                 | SHILLONG                                                                                                                                                                       | Z        | iP    | 04 03 47 |          | Slight, distant Rarefaction |                             |
|              |                                                                               |          | e        | 30 52    |          |                             | 30                 | SHILLONG                                                                                                                                                                       | Z        | e     | 06 17 47 |          |                             |                             |
| 28           | SHILLONG                                                                      | Z        | iP       | 03 04 32 |          | Feeble, near Compression.   | 30                 | SHILLONG                                                                                                                                                                       | Z        | i     | 07 15 29 |          |                             |                             |
| 28           | SHILLONG                                                                      | Z, E     | iPg      | 04 00 19 | 210      | Feeble                      | 30                 | Epc: 36°N, 274°E. Dodecanese Islands. Felt: Isle of Karpathos. H <sub>0</sub> = 07h 30m 20s (U.S.C.G.S)                                                                        |          |       |          |          |                             |                             |
|              |                                                                               |          | iSg      | 00 53    |          |                             |                    | DEHRA DUN                                                                                                                                                                      | N, E     | e     | 07 38 56 |          | Feeble                      |                             |
|              | CHATRA                                                                        | Z        | iP       | 04 01 18 |          | Feeble                      |                    |                                                                                                                                                                                |          | iS    | 44 41    |          |                             |                             |
|              |                                                                               |          | i        | 02 45    |          |                             |                    | CHATRA                                                                                                                                                                         | Z        | iPg   | 07 39 23 | 5630     | Slight                      |                             |
| 28           | SHILLONG                                                                      | Z        | eP       | 10 06 25 |          |                             |                    |                                                                                                                                                                                | E        | eP    | 46 38    |          |                             |                             |
| 28           | SHILLONG                                                                      | Z        | iP       | 16 28 34 |          | Slight, distant Compression |                    | SHILLONG                                                                                                                                                                       | Z        | eP    | 07 39 53 |          |                             |                             |
| 28           | SHILLONG                                                                      | Z        | iPg      | 17 35 51 |          | Feeble, local               |                    | KODAIKANAL                                                                                                                                                                     | E        | e     | 08 01 16 |          | Tremor                      |                             |
| 29           | SHILLONG                                                                      | Z        | iP       | 00 18 51 |          | Slight, distant Compression | 30                 | SHILLONG                                                                                                                                                                       | Z        | e     | 08 52 45 |          |                             |                             |
| 29           | SHILLONG                                                                      | Z        | iPg      | 00 53 35 | 40       | Feeble                      | 30                 | CHATRA                                                                                                                                                                         | Z        | iPg   | 14 45 21 | 100      | Feeble                      |                             |
|              |                                                                               |          | iSg      | 53 39    |          |                             |                    |                                                                                                                                                                                |          | iSg   | 45 35    |          |                             |                             |
| 29           | Epc: 2°S, 116°E. Bornso aftershock. H <sub>0</sub> = 02h 21m 30s (U.S.C.G.S). |          |          |          |          |                             | 30                 | SHILLONG                                                                                                                                                                       | Z        | eP    | 18 46 44 |          | Slight, near                |                             |
|              |                                                                               | SHILLONG | Z, N, E  | iP       | 02 28 37 | 4000                        | Slight Compression |                                                                                                                                                                                |          | i     | 47 32    |          |                             |                             |
|              |                                                                               |          | N, E     | iS       | 34 16    |                             |                    | 30                                                                                                                                                                             | SHILLONG | Z     | iP       | 19 57 44 |                             | Slight, distant Compression |
|              | CALCUTTA                                                                      | E        | eP       | 02 28 48 | 3950?    | Slight                      | 30                 | SHILLONG                                                                                                                                                                       | Z        | eP    | 21 21 57 |          |                             |                             |
|              |                                                                               |          | e        | 30 05    |          |                             | 30                 | SHILLONG                                                                                                                                                                       | Z        | iP    | 23 44 04 |          | Slight, distant Compression |                             |
|              |                                                                               |          | e(S)     | 34 25    |          |                             | 31                 | Epc: 39°N, 140°E. Honshu, Japan. Felt: Tokyo. H <sub>0</sub> = 02h 35m 56s (U.S.C.G.S)                                                                                         |          |       |          |          |                             |                             |
|              | MADRAS                                                                        | E        | iP       | 02 28 58 | 4300     |                             |                    | SHILLONG                                                                                                                                                                       | Z        | iP    | 02 44 51 |          | Slight Rarefaction          |                             |
|              |                                                                               |          | i        | 30 32    |          |                             |                    |                                                                                                                                                                                |          | eS    | 51 57    |          |                             |                             |
|              |                                                                               |          | iS       | 34 56    |          |                             |                    | CHATRA                                                                                                                                                                         | Z        | iP    | 02 45 16 | 5030     | Slight                      |                             |
|              |                                                                               |          | e        | 44 47    |          |                             |                    |                                                                                                                                                                                | E        | eS    | 51 57    |          |                             |                             |
|              | CHATRA                                                                        | Z        | iPg      | 02 29 10 |          | Slight                      | 31                 | SHILLONG                                                                                                                                                                       | Z        | iP    | 04 35 49 |          | Slight, distant Rarefaction |                             |
|              |                                                                               | E        | eP       | 02 29 59 | 5060     | Feeble                      | 31                 | Epc: 6°N, 83°W. Off the Coast of Panama. Felt: Balboa Heights and onboard S.S. Hai Huang. H <sub>0</sub> = 10h 07m 54s (U.S.C.G.S) Magnitude: 5½-6½ (Pasadena), 6½ (Berkeley). |          |       |          |          |                             |                             |
|              | POONA                                                                         | Z        | iP       | 02 29 59 | 5060     | Feeble                      |                    |                                                                                                                                                                                |          | ePKP  | 10 27 34 |          |                             |                             |
|              |                                                                               | E        | eS       | 36 41    |          |                             |                    | TOCKLAI                                                                                                                                                                        | E        | ePKP  | 10 27 34 |          |                             |                             |
|              | BOMBAY                                                                        | E        | eP       | 02 30 10 | 5220     | Very slight                 |                    |                                                                                                                                                                                |          |       |          |          |                             |                             |
|              |                                                                               | N        | e        | 30 15    |          |                             |                    |                                                                                                                                                                                |          |       |          |          |                             |                             |
|              |                                                                               | E        | e        | 32 08    |          |                             |                    |                                                                                                                                                                                |          |       |          |          |                             |                             |
|              |                                                                               | N, E     | eS       | 37 02    |          |                             |                    |                                                                                                                                                                                |          |       |          |          |                             |                             |
|              | DEHRA DUN                                                                     | N, E     | eP       | 02 30 19 |          | Feeble,                     |                    |                                                                                                                                                                                |          |       |          |          |                             |                             |
|              |                                                                               |          | i        | 41 21    |          |                             |                    |                                                                                                                                                                                |          |       |          |          |                             |                             |
| 29           | SHILLONG                                                                      | Z        | iPg      | 03 33 32 |          | Feeble, local.              |                    |                                                                                                                                                                                |          |       |          |          |                             |                             |
|              |                                                                               |          | e        | 33 54    |          |                             |                    |                                                                                                                                                                                |          |       |          |          |                             |                             |
| 29           | SHILLONG                                                                      | Z        | eP       | 04 03 55 |          | Tremor                      |                    |                                                                                                                                                                                |          |       |          |          |                             |                             |
| 29           | SHILLONG                                                                      | Z        | iP       | 05 55 06 |          | Slight, distant Compression |                    |                                                                                                                                                                                |          |       |          |          |                             |                             |
|              | CHATRA                                                                        | Z        | i        | 05 55 44 |          | Feeble, distant             |                    |                                                                                                                                                                                |          |       |          |          |                             |                             |
| 29           | CHATRA                                                                        | Z        | iP       | 06 45 29 | 750      | Slight                      |                    |                                                                                                                                                                                |          |       |          |          |                             |                             |
|              |                                                                               | E        | iS       | 46 47    |          |                             |                    |                                                                                                                                                                                |          |       |          |          |                             |                             |
| 29           | SHILLONG                                                                      | Z        | iP       | 08 13 22 |          | Slight, distant Rarefaction |                    |                                                                                                                                                                                |          |       |          |          |                             |                             |



| DATE            | STATION          | COMPT | PHASE        | G. M. T.<br>h. m. s. | $\Delta$<br>km | REMARKS                         | DATE            | STATION  | COMPT | PHASE | G. M. T.<br>h. m. s. | $\Delta$<br>km | REMARKS                        |
|-----------------|------------------|-------|--------------|----------------------|----------------|---------------------------------|-----------------|----------|-------|-------|----------------------|----------------|--------------------------------|
| October<br>1957 |                  |       |              |                      |                |                                 | October<br>1957 |          |       |       |                      |                |                                |
| 31              | CHATRA<br>Contd. | Z     | iPKP<br>ePKP | 10 27 35             |                |                                 | 31              | SHILLONG | Z     | e     | 15 41 45             |                | Tremor                         |
|                 | BOMBAY           | N     | ePKP<br>e    | 10 27 37<br>45 11    |                |                                 | 31              | CHATRA   | Z     | e     | 16 44 09             |                | Feeble, distant                |
|                 | POONA            | Z     | iPKP<br>i    | 10 27 39<br>27 50    |                |                                 |                 | SHILLONG | Z     | e     | 16 44 11             |                | Tremor                         |
|                 | SHILLONG         | Z, N  | iPKP         | 10 27 42             |                |                                 | 31              | SHILLONG | Z     | e     | 17 29 58             |                | Slight, distant<br>Compression |
|                 | BOKARO           | N, E  | ePKP         | 10 27 47             |                |                                 | 31              | SHILLONG | Z     | e     | 20 06 44             |                | Tremor                         |
|                 | MADRAS           | E     | e            | 10 28 15<br>11 23 51 |                |                                 | 31              | SHILLONG | Z     | i     | 21 21 53             |                | Feeble, local<br>Rarefaction   |
|                 | CALCUTTA         | E     | e            | 10 28 33<br>56 07    |                |                                 | 31              | SHILLONG | Z     | iPg   | 23 06 08             |                | Feeble, local                  |
|                 | DEHRA DUN        | N, E  | e            | 10 31 25             |                |                                 | 31              | SHILLONG | Z     | iP    | 23 51 20             |                | Slight, distant<br>Rarefaction |
|                 | HYDERABAD        | N     | N            | 11 30 40             |                | Per. 21 secs<br>H. cell         |                 |          |       |       |                      |                |                                |
| 31              | BOMBAY           | E     | M            | 14 30 --             |                |                                 |                 |          |       |       |                      |                |                                |
| 31              | SHILLONG         | Z     | iP           | 15 15 07             |                | Slight, distant<br>Compression. |                 |          |       |       |                      |                |                                |

*Earthquake Reports*  
(Non Instrumental Reports)

The following table contains a list of earthquakes that were reported by Voluntary Observers from various stations during the month of October 1957.

| PLACE AT WHICH FELT | DATE IN G.M.T. | TIME IN G.M.T. h. m. | DURATION IN SECS. | INTENSITY IN R.F. SCALE | NO. OF SHOCKS | REMARKS |
|---------------------|----------------|----------------------|-------------------|-------------------------|---------------|---------|
| SALEM               | 04             | 07 15                | 6                 | IV                      | 1             |         |
| NAGPUR              | 17             | 05 12                | -                 | IV                      | 1             |         |
| UPPER SHILLONG      | 25             | 00 58                | 5                 | IV                      | 1             |         |

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DATE HOUR K MEAN MEAN DATE HOUR K MEAN MEAN DATE HOUR K MEAN MEAN DATE HOUR K MEAN MEAN  
G.M.T AMPLI- PERIOD G.M.T AMPLI- PERIOD G.M.T AMPLI- PERIOD G.M.T AMPLI- PERIOD G.M.T AMPLI- PERIOD  
in mm. in mm.

STATION: COCHIN (Contd) Component: N.S.

Component: VERTICAL

Table with columns: DATE, HOUR, K, MEAN AMPLITUDE (in mm), MEAN PERIOD (in SEC). Contains multiple rows of data for dates 23 through 31, with 'Contd.' entries and various amplitude and period values.

DATE HOUR K GROUND MEAN DATE HOUR K GROUND MEAN DATE HOUR K GROUND MEAN DATE HOUR K GROUND MEAN  
G.M.T MOTION PERIOD G.M.T MOTION PERIOD G.M.T MOTION PERIOD G.M.T MOTION PERIOD G.M.T MOTION PERIOD  
MICRON IN SEC MICRON IN SEC MICRON IN SEC MICRON IN SEC MICRON IN SEC

STATION: PORT BLAIR Component: E.W.

Table with columns: DATE, HOUR, K, GROUND MOTION MICRON, MEAN PERIOD IN SEC. Contains multiple rows of data for dates 01 through 14. A note at the bottom right states: '16th to 31st. no measure either due absence of record or no regular microseismic movement.'

DATE	HOUR	K	MEAN	MEAN	DATE	HOUR	K	MEAN	MEAN	DATE	HOUR	K	MEAN	MEAN	DATE	HOUR	K	MEAN	MEAN
	G.M.T		AMPLI-	PERIOD		G.M.T		AMPLI-	PERIOD		G.M.T		AMPLI-	PERIOD		G.M.T		AMPLI-	PERIOD
			TUDE	IN SEC				TUDE	IN SEC				TUDE	IN SEC				TUDE	IN SEC
			(Micron)					(Micron)					(Micron)					(Micron)	

STATION: HOWRAH  
Component: E. W.

Component: N. S.

Component: N. S.

Component: N. S.

01	00	0..	-	-	07	00	0..	-	-	19	00	-	0.7	4.4	31	00	0..	-	-
	06	0..	-	-		06	0..	-	-		06	0..	-	-		06	0..	-	-
	12	0..	-	-		12	-	1.0	3.3		12	0..	-	-		12	0..	-	-
	18	0..	-	-		18	-	1.1	3.4		18	0..	-	-		18	0..	-	-
02	00	0..	-	-	08	00	-	1.4	3.5	20	00	0..	-	-	-----				
	06	0..	-	-		06	0..	-	-		06	0..	-	-	Component: Vertical.				
	12	0..	-	-		12	0..	-	-		12	0..	-	-	01	00	0..	-	-
	18	0..	-	-		18	-	1.0	3.8		18	-	0.9	4.5		06	0..	-	-
03	00	0..	-	-	09	00	0..	-	-	21	00	0..	-	-		12	0..	-	-
	06	0..	-	-		06	0..	-	-		06	0..	-	-		18	0..	-	-
	12	0..	-	-		12	-	1.7	4.9		12	0..	-	-	02	00	0..	-	-
	18	-	1.7	3.0		18	-	1.2	4.0		18	-	0.6	4.1		06	0..	-	-
04	00	-	2.4	3.3	10	00	-	1.5	4.3	22	00	0.0	-	4.3		12	0..	-	-
	06	-	3.6	3.2		06	0..	-	-		06	0..	-	-		18	0..	-	-
	12	0..	-	-		12	0.0	-	4.4		12	0..	-	-		00	0..	-	-
	18	-	2.9	2.9		18	-	0.8	3.3		18	-	0.6	3.4		06	0..	-	-
05	00	-	2.5	2.7	11	00	0..	-	-	23	00	-	0.7	4.0	03	00	0..	-	-
	06	0..	-	-		06	0..	-	-		06	0..	-	-		06	0..	-	-
	12	0..	-	-		12	0..	-	-		12	0..	-	-		12	-	1.2	2.0
	18	0..	-	-		18	-	1.2	4.2		18	-	0.7	4.2		18	-	1.3	2.4
From 6.10.57 to 31.10.57 no regular microseisms recorded. Only short period oscillations during 00h to about 13 h G.M.T.					12	00	-	1.0	4.5	24	00	0..	-	-	04	00	-	1.2	2.2
-----						06	0..	-	-		06	0..	-	-		06	-	1.9	2.7
Component: N. S.						12	0..	-	-		12	0..	-	-		12	-	2.1	2.6
01	00	0..	-	-		18	-	1.0	4.7		18	-	0.8	4.0		18	-	2.9	2.7
	06	0..	-	-	13	00	-	0.7	3.4	25	00	-	1.0	3.8	05	00	-	1.7	2.7
	12	0..	-	-		06	0..	-	-		06	0..	-	-		06	-	2.4	2.7
	18	0..	-	-		12	0..	-	-		12	0..	-	-		12	-	1.6	2.7
02	00	0..	-	-		18	-	0.8	2.8		18	-	0.6	4.1		18	-	1.0	2.6
	06	0..	-	-	14	00	0.0	-	3.0	26	00	0..	-	-	06	00	-	1.2	2.9
	12	0..	-	-		06	0..	-	-		06	0..	-	-		06	0..	-	-
	18	0..	-	-		12	0..	-	4.7		12	0..	-	-		12	-	1.0	2.6
03	00	0..	-	-		18	0.0	-	4.7		18	-	0.8	4.5		18	-	1.1	2.8
	06	0..	-	-	15	00	0.0	-	5.2	27	00	-	0.8	4.8	07	00	-	1.5	3.3
	12	0..	-	-		06	0..	-	-		06	0..	-	-		06	0..	-	-
	18	0..	-	-		12	0..	-	-		12	0..	-	-		12	0..	-	-
04	00	-	2.1	3.0		18	-	1.0	4.2		18	-	0.7	4.8		18	0..	-	-
	06	-	2.1	2.9	16	00	0..	-	-	28	00	0..	-	-	08	00	0..	-	-
	12	-	2.3	3.0		06	0..	-	-		06	0..	-	-		06	0..	-	-
	18	-	2.1	2.9		12	0..	-	3.6		12	0..	-	-		12	0..	-	-
05	00	-	1.9	2.8	17	00	0..	-	-		18	-	0.4	4.6		18	0..	-	-
	06	-	2.6	2.9		06	0..	-	-		00	0..	-	-	No regular microseisms from 8.10.57 to 31.10.57.				
	12	-	1.9	2.8		12	0..	-	-		06	0..	-	-	-----				
	18	-	1.3	3.0		18	-	0.8	4.4	29	00	-	0.7	4.4		06	0..	-	-
06	00	-	1.4	2.8	18	00	-	0.7	4.4		12	0..	-	-		12	0..	-	-
	06	0..	-	-		06	0..	-	-		18	0..	-	-		18	0..	-	-
	12	-	1.5	3.4		12	0..	-	-	30	00	0.0	-	4.7		00	0.0	-	-
	18	-	0.9	3.8		18	0.0	-	4.4		06	0.0	-	-		06	0.0	-	-
											12	0.0	-	-		12	0.0	-	-
											18	0.0	-	4.8		18	0.0	-	-

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GOVERNMENT OF INDIA  
METEOROLOGICAL DEPARTMENT

11-57

SEISMOLOGICAL BULLETIN



Published under the direction of  
Shri S. Basu, M.Sc., F.N.I.,  
Director General of Observatories

Instruments and their Constants

STATE	INSTRUMENT	COMPT.	PERIOD IN SECS	STATIC MAGNIFICATION	DAMPING RATIO	PAPER SPEED mm/min	STATION	INSTRUMENT	COMPT.	PERIOD IN SECS	STATIC MAGNIFICATION	DAMPING RATIO	
BOMBAY	Milne-Shaw	N	12	350	23:1	16	HYDERABAD	Milne-Shaw	E	12	250	20:1	
	Milne-Shaw	E	12	350	12:1	8		Milne-Shaw	N	12	250	20:1	
	Sprengnether	E	ToaTgs7	-	-	30		-	-	-	-	-	
BOKARO	Milne-Shaw	M	12	250	20:1	16	KODAIKANAL	Milne-Shaw	E	10	250	20:1	
	Milne-Shaw	E	12	250	20:1	16		MADRAS	Sprengnether	E	ToaTg 7.4	-	-
	Wood-Anderson	E	0.8	960	hs 0.8	60			-	-	-	-	
	Wood-Anderson	N	0.8	1000	hs 0.8	60							
COLOMBO	Milne-Shaw	E	11.9	250	20:1	-	POONA	Sprengnether	Z	ToaTg 1.6	-	Critical	
CALCUTTA	Milne-Shaw	E	12	350	20:1	2	PORT BLAIR	Wood-Anderson	E	4	1000	20:1	
	Wood-Anderson	N	2	870	Critical	30		Milne-Shaw	N	12	280	20:1	
	Omori-Ewing	N	16	32	-	25.4		Wood-Anderson	N	2	1000	20:1	
	Omori-Ewing	E	21	30	-	25.4	SHILLONG	Wood-Anderson	N	0.8	1000	hs 0.8	30
CENTRA	Milne-Shaw	E	12	250	20:1	16		Wood-Anderson	E	0.8	1000	hs 0.8	30
	Milne-Shaw	N	10	150	20:1	16		Milne-Shaw	N	12	250	20:1	30
	Wood-Anderson	E	1	1000	30:1	60		Bentoff	Z	To = 1.0 Tg = 0.18	-	-	60
	Wood-Anderson	N	1	1000	40:1	60	Sprengnether	E	ToaTgs 0.8	-	-	30	
	Bentoff Short Period	Z	Toa 0.72 Tgs 0.45	-	Critical	60	Wenner Accelerograph	BNZ	-	-	-	-	
DEHKA DUN	Wood-Anderson	N	0.8	950	Critical	60	TOCRLAI	Wood-Anderson	E	0.8	970	hs 0.8	30
	Wood-Anderson	E	0.8	850	Critical	60	VIZIANAGRAM	Wood-Anderson	E	0.8	1000	hs 0.8	30
	Milne-Shaw	N	12	250	20:1	8		Wood-Anderson	N	2	1000	20:1	30
	Milne-Shaw	E	12	250	20:1	8							

List of Seismograph station

Station	Latitude	Longitude	Height a.s.l (Metres)	Lithographic foundation
BOMBAY	18°54'N	72°49'E	6	Deccan Trap
BOKARO	23°50'N	85°48'E	-	Rock
COLOMBO	06°54'N	79°52'E	7	Beach Sand
CALCUTTA	22°32'N	88°22'E	(1) 7 (Milne-Shaw) (2) 6 (Omori Ewing)	Alluvium
CENTRA	25°53'N	87°10'E	161	Sand Stone
DEHKA DUN	36°19'N	78°08'E	682	Gravel
HYDERABAD	17°26'N	78°27'E	536	Granite
KODAIKANAL	10°14'N	77°30'E	346	Rock
MADRAS	13°09'N	80°11'E	15	-
NEW DELHI	28°35'N	77°13'E	207	Massive Quartzite
POONA	18°32'N	73°51'E	560	Deccan Trap
PORT BLAIR	11°40'N	32°35'E	-	-
SHILLONG	25°34'N	91°58'E	1600	Quartzite Sand Stone (Chillong Quartzite)
TOCRLAI	25°45'N	91°43'E	-	Alluvium
VIZIANAGRAM	18°00'N	85°27'E	-	-



DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	$\Delta$ km	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	$\Delta$ km	REMARKS	
November 1957							November 1957							
01	SHILLONG	Z	iP	00 06 33		Slight, distant Rarefaction	03	SHILLONG	Z	iPg i	02 08 01 08 03	110	Slight Compression	
01	SHILLONG	Z	iP	01 32 57		Slight, distant Rarefaction				iSg i	08 11 08 15			
01	DEHRA DUN	N, E	e i	14 23 50 26 16		Feeble	03	SHILLONG	Z	e	03 00 02			
	CHATRA	Z	e	14 25 29		Feeble, distant	03	SHILLONG	Z	e	03 00 56			
	SHILLONG	Z	e	14 26 18		Feeble, distant	03	SHILLONG	Z	i	03 01 13			
	POONA	Z	eP	14 30 05		Feeble	03	SHILLONG	Z	i	04 36 45		Tremor	
02	SHILLONG	Z	e	00 21 17		Tremor	03	SHILLONG	Z	iP N, E i	05 11 41 11 49 12 03		Slight, near Compression	
02	SHILLONG	Z, E	iP	01 30 06		Slight, distant Compression	03	CHATRA	Z E	iP i	05 12 42 14 39		Slight	
	CHATRA	Z	iP	01 30 15		Feeble, distant	03	Epc: 5°S, 147°E. Near-Northeast Coast of New Guinea Felt: Lac. H <sub>2</sub> 10h 24m 51s (U. S. C. G. S).						
02	SHILLONG	Z	iP i	04 53 54 54 00		Feeble, near Compression		SHILLONG	Z, E	iP	10 35 18			
02	SHILLONG	Z	iP i iS	05 12 55 13 01 13 19	220	Slight Compression		CHATRA	Z E	eP e	10 35 45 44 49		Slight	
02	SHILLONG	Z	e	07 40 11		Tremor		POONA	Z	eP i	10 36 34 36 54			
02	SHILLONG	Z	e	16 12 56		Tremor	03	SHILLONG	Z	e	10 42 11		Tremor	
02	SHILLONG	Z	iP	16 24 20		Slight, distant Rarefaction	03	SHILLONG	N, E	i	10 43 48			
	CHATRA	Z	e	16 24 58		Feeble, distant	03	POONA	Z	eP i	11 16 18 16 35		Near Phases not clear	
02	SHILLONG	Z	i	16 26 27			03	SHILLONG	Z E	e e	11 24 57 24 59		Tremor	
02	SHILLONG	E	i	16 30 13			03	SHILLONG	Z	e	13 12 01		Tremor	
02	SHILLONG	Z	i	16 30 19		Tremor	03	SHILLONG	Z	e i	16 59 02 59 21		Feeble, near	
02	Epc: 13°S, 166°E. New Hebrides Islands H <sub>2</sub> 18h 30m 24s (U. S. C. G. S).							03	DEHRA DUN	N, E	e	18 38 10		
	PORT ELAIR	E	eP PcP PP iS	18 42 24 42 34 45 24 52 17	8630	Moderate		CHATRA	Z	e	18 39 12		Slight, distant	
	TOCKLAI	E	iP	18 42 44		Slight. First Movement West		SHILLONG	Z	iP	18 39 59		Slight, distant Compression.	
	SHILLONG	Z, N, E Z, E E e i N	iP i i e i i	18 42 53 43 05 43 42 44 07 53 07 53 25		Moderate Compression Probably deep.	03	DEHRA DUN	N, E	e i	10 13 28 15 12		Feeble	
	CALCUTTA	E	iP iS	18 43 05 53 34	9450	Slight. First movement West		CHATRA	Z E	eP i	19 15 06 20 07		Slight	
	CHATRA	Z E	iP eP	18 43 14		Slight		SHILLONG	Z	e	19 16 01		Tremor	
	BOKARO	N, E	i	18 43 16		Slight		POONA	Z	eP i i i	19 16 42 17 21 17 46 17 55		Near Phases not clear	
	COLOMBO	E	P S L M1 M2	18 43 22 54 08 19 17 20 22 05 31 00	9980	Amp. 10.2 mm		BOMBAY	N, E E	e e	19 17 40 17 51		Near Very slight	
	KODAIKANAL	E	e	18 43 42				BOKARO	N, E	e	19 17 57		Tremor	
	POONA	Z E	iP e e e e e e	18 44 00 44 28 44 42 47 21 48 01 48 33 49 41 54 34		Slight	03	SHILLONG	Z	e	20 15 25		Tremor	
	DEHRA DUN	N, E	e i i	18 44 10 47 45 54 47		Feeble Phases not clear	03	SHILLONG	Z	e	20 27 06		Tremor	
							03	SHILLONG	Z	iPg i iSg	22 02 50 02 53 03 01	30	Feeble Rarefaction	
							04	SHILLONG	Z	e	02 16 29			
							04	SHILLONG	Z	i	02 17 32			
							04	SHILLONG	Z	iP	02 41 56		Slight, distant Compression	
							04	SHILLONG	Z	iP	06 45 50		Slight, distant Compression	
							04	SHILLONG	Z	iP	11 07 22		Slight, distant Compression.	

DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	$\Delta$ km	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	$\Delta$ km	REMARKS
November 1957							November 1957						
04	SHILLONG	bZ	vi	12 05 32		Tremor	07	SHILLONG	bZ	iP	04 26 25		Slight, near Rarefaction.
04	SHILLONG	bZ	eP	14 52 32		Slight, distant	07	BOMBAY	bN	ie	06 44 44		Very slight
04	SHILLONG	bZ	ie	16 17 54		Tremor		POONA	bZ	ieP	06 47 05		Feeble
04	SHILLONG	bZ, E	iP	18 38 30		Slight, near Compression	07	SHILLONG	bZ	ie	08 15 52		Feeble, distant Compression
			ie	39 05			07	SHILLONG	bZ	iP	11 35 15		Tremor
			vi	39 52			07	SHILLONG	bZ	ie	15 34 04		Feeble, distant Rarefaction
			ie	40 17			07	SHILLONG	bZ	iPg	15 47 11	110	Tremor
	TOCKLAI	bE	eP	18 38 38		Slight, near.				iSg	17 23		Feeble, near Compression
			vi	39 04			07	SHILLONG	bZ	ie	16 58 25		Tremor
04	CHATRA	bZ	eP	18 39 48		Feeble	07	SHILLONG	bZ	ie	20 43 27		Tremor
			vi	41 15			07	SHILLONG	bZ	ie	23 32 23		Tremor
04	SHILLONG	bZ	iP	20 28 37		Slight, distant Compression	07	SHILLONG	bZ	ie	23 32 23		Tremor
04	SHILLONG	bZ	eP	22 24 31		Slight, local.	08	SHILLONG	bZ	ePg	01 53 34	160	Feeble
			vi	25 03						eSg	53 54		Feeble, near Compression
04	CHATRA	bZ	iE	23 11 58	140	Feeble	08	SHILLONG	bZ	iP	02 56 23		Feeble, distant
			iS	12 16			08	SHILLONG	bZ	ie	06 24 57		Tremor
05	SHILLONG	bZ	iP	01 40 43		Slight, distant Compression				vi	25 04		Feeble, near Compression
05	SHILLONG	bZ	ie	04 12 02		Slight, near	08	SHILLONG	bZ	ie	07 37 22		Tremor
			vi	13 04						vi	37 47		Feeble, near Compression
05	CHATRA	bZ	vi	04 41 20		Feeble, distant	08	SHILLONG	bZ	ie	08 27 31		Tremor
05	SHILLONG	bZ	iP	10 06 01		Slight, distant Rarefaction				ie	28 22		Feeble, near Compression
05	SHILLONG	bZ	ie	10 13 27		Slight, near.	08	SHILLONG	bZ	ie	09 12 02		Tremor
05	SHILLONG	bZ	ie	15 12 38		Tremor	08	TOCKLAI	bE	eP	15 46 22		Slight, near
05	SHILLONG	bZ	ie	19 00 52		Tremor				ie	46 24		Feeble, distant
05	SHILLONG	bZ	iP	20 02 30		Slight, distant Rarefaction				ie	46 38		Tremor
										ie	46 40		Feeble, near Compression
05	SHILLONG	bZ	ie	23 05 50		Tremor		SHILLONG	bZ, E	iP	15 46 53	340	Slight Compression
05	SHILLONG	bZ	eP	23 35 10		Slight, distant				iPg	47 04		Felt at Dibrugarh.
			vi	36 48						iSg	47 47		
	TOCKLAI	bE	ie	23 35 52		Slight, distant	08	SHILLONG	bZ	ie	19 35 00		Tremor
06	SHILLONG	bZ	iP	00 08 20		Slight, distant Compression	08	SHILLONG	bZ	ie	19 48 22		Tremor
	TOCKLAI	bE	eP	00 08 28		Slight, distant	08	SHILLONG	bZ	ie	20 00 18		Tremor
06	SHILLONG	bZ, N, F	eP	00 09 21		Slight, near	08	SHILLONG	bZ	ie	20 31 32		Tremor
06	SHILLONG	bZ	ie	00 12 51		Slight, near	08	SHILLONG	bZ	ie	20 31 36		Tremor
			vi	12 57			08	SHILLONG	bZ	ie	21 12 57		Tremor
06	SHILLONG	bZ	ie	00 52 41		Feeble, local	08	SHILLONG	bZ	ie	21 17 57		Tremor
06	SHILLONG	bZ	eP	01 24 51		Slight, distant	08	SHILLONG	bZ	ie	22 24 03		Tremor
			vi	25 59			08	SHILLONG	bZ	ie	22 39 16		Tremor
06	SHILLONG	bZ	iP	03 10 31		Slight, distant Rarefaction	09	DEHRA DUN	bN, E	ie	01 35 21		Tremor
06	Epd: 45°N, 149°E. Kurile Islands H = 13h 12m 53s (U.S.C.G.S)							SHILLONG	bZ	ie	01 36 18		Tremor
	SHILLONG	bZ, E	iP	13 21 49		Slight	09	SHILLONG	bZ	ePg	03 34 18	90	Slight
	CHATRA	bZ	iP	13 22 09		Slight				iP	34 19		
	DEHRA DUN	bN, E	eP	13 22 40	5280	Feeble				eSg	34 29		140 Slight First movement South and East Compression
	POONA	bZ	iP	13 23 52		Feeble				iS	30 33		Mag 4
06	SHILLONG	bZ	ie	16 27 53		Tremor				E	30 45		
06	SHILLONG	bZ	ie	20 07 18		Tremor		CHATRA	bZ	iP	04 30 43		Slight
06	SHILLONG	bZ	ie	21 23 49		Tremor				ie	31 38		
07	TOCKLAI	bE	eP	01 57 42		Slight, distant	09	SHILLONG	bZ	ie	08 06 36		Tremor
							09	SHILLONG	bZ	ie	09 44 15		Tremor



DATE	STATION	COMPT	PHASE	G. M. T.	$\Delta$	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T.	$\Delta$	REMARKS
				h. m. s.	km						h. m. s.	km	
November 1957							November 1957						
10	CHATRA	Z, E	eP	19 28 24		Slight	12	SHILLONG	Z	e	06 10 35		Tremor
Contd.	CALCUTTA	E	eP eS SS Lr M Mn	19 28 36 35 24 38 53 41 58 46 36 48 22	5160		12	SHILLONG	Z	i	06 17 09		Tremor
							12	SHILLONG	Z	i	06 29 16		Tremor
	BOKARO	N, E	e	19 30 37		Slight	12	CHATKA	Z	iPg iSg	08 50 40 50 53	100	Feeble
	DEHRA DUN	N, E N	eP PP iS SSS Lr M	19 29 13 31 11 36 50 42 26 44 34 48 39	6040	Slight	12	SHILLONG	Z	iP	09 42 37		Slight, distant Rarefaction
10	HYDERABAD	E	eS M	19 37 55 50 49		Per 23 secs 11 sec 7	12	SHILLONG	Z	e	11 26 45		Tremor
10	SHILLONG	Z	e	19 35 43		Tremor	12	SHILLONG	Z	e	11 27 57		Tremor
10	SHILLONG	Z	e	22 12 26		Tremor	12	SHILLONG	Z	e	14 02 24		Tremor
10	SHILLONG	Z	iP	22 26 23		Slight, distant Rarefaction	12	SHILLONG	Z	e	14 02 27		Tremor
10	SHILLONG	Z	e	23 48 21 49 40		Feeble, near	12	SHILLONG	Z	i	15 56 39		Tremor
11	SHILLONG	Z	i	00 15 48		Tremor	12	SHILLONG	Z	ePg/P* P PP Sg/S* S	19 46 43 46 44 46 51 47 01 47 03	150	Slight
11	CHATRA	Z	iPg iSg	01 29 13 29 30	130	Feeble	12	SHILLONG	Z	iP eSg	20 05 01 05 17	150	Slight
11	SHILLONG	Z	iP	01 45 59		Feeble, local Rarefaction	12	SHILLONG	Z	i	20 38 49		Tremor
11	SHILLONG	Z	eP e	02 14 53 15 30		Feeble, near	12	SHILLONG	Z	i	20 40 04		Tremor
11	SHILLONG	Z	e	03 17 17 17 29		Slight, near	12	SHILLONG	Z	e	22 05 48		Tremor
11	SHILLONG	Z	e	03 56 41		Tremor	12	SHILLONG	Z	i	22 06 09		Tremor
11	SHILLONG	Z	e	05 03 09		Tremor	13	SHILLONG	Z	e	00 56 02		
11	SHILLONG	Z	e	05 03 50 03 58		Feeble, near	13	SHILLONG	Z, N, E Z, E E Z, N, E	iP i i i	00 57 29 57 38 57 53 58 01 58 20		Slight, near Compression Mags 4
11	SHILLONG	Z	e	05 03 58		Feeble, near		TOCKLAI	E	e	00 57 35		Slight, near
11	SHILLONG	Z	e	10 11 14		Feeble, near		CALCUTTA	N	eP iS Sg	00 57 41 58 12 58 20	250	Slight
11	SHILLONG	Z	eP e	11 51 20 51 22		Slight, distant		CHATRA	Z	iP iS	00 58 05 59 01	530	Slight
11	SHILLONG	Z	i	12 07 34		Tremor	13	SHILLONG	Z	e	03 12 52		Tremor
11	SHILLONG	Z	eP	14 23 43		Slight, distant	13	POONA	Z	iP	03 39 44		Feeble
11	SHILLONG	Z	i	17 21 09		Tremor	13	SHILLONG	Z	e	03 44 04		Tremor
11	SHILLONG	Z	e	17 54 45		Tremor	13	SHILLONG	Z	eP eS	04 05 10 05 22	90	Feeble
11	SHILLONG	Z	e	18 40 07		Tremor	13	SHILLONG	Z	e	05 08 30		Tremor
11	SHILLONG	Z	e	21 38 39		Tremor	13	DEHRA DUN	N, E	e	05 17 32		Tremor
11	SHILLONG	Z	e	21 39 45		Tremor	13	SHILLONG	Z	eP P* Pg PP i eS S* Sg SS	08 22 32 22 35 22 39 22 45 22 51 23 00 23 02 23 08 23 12	240	Slight
11	SHILLONG	Z	e	23 17 38		Tremor	13	SHILLONG	Z	iP	08 52 50		Slight, distant Compression
11	SHILLONG	Z	eP	23 18 18		Feeble, near	13	SHILLONG	Z	e	10 05 11		Tremor
12	SHILLONG	Z	e	00 54 56		Tremor	13	SHILLONG	Z	eP PP eS S* SS	16 17 34 17 42 18 09 18 14 18 21	310	Feeble
12	SHILLONG	Z	eP	01 42 04		Slight, distant							
12	PORT BLAIR	E	iPg	02 25 52		Slight							
12	SHILLONG	Z	e	04 13 47		Tremor							
12	SHILLONG	Z	eP Pg eS SS Sg i i	04 34 12 34 18 34 59 35 11 35 21 35 23 35 30	430	Slight							
12	SHILLONG	Z	e	05 41 58		Tremor							

DATE	STATION	COMP	PHASE	G. M. T.	REMARKS	DATE	STATION	COMP	PHASE	G. M. T.	REMARKS
November 1957						November 1957					
13	135°E, 175°W, Kermadec Islands Region (17h 22m 41s (U.S.C.G.S) Magnitude SH-5X ( Pasadena ), 1.75 ( Berkeley ).					13	SHILLONG	Z	1P	01 03 00	150 Slight Refraction
	POST BLAIR	E	eP	17 36 06			CHATRA	Z	1P	01 10 00	Slight
			IS	46 06						03 50	
			PS	46 47		13	CHATRA	Z	1P	00 54 51	150 Feeble
			M	---						59 14	
					Period 0.9 sec	15	SHILLONG	Z	1P	00 18 36	Slight, distant Compression
	SHILLONG	Z	e	17 39 41	Phases not clear		CHATRA	Z		06 18 46	Feeble
		E	e	40 54		15	SHILLONG	Z	1P	06 02 00	Slight, distant Compression
		N	e	45 26							
		E	e	45 31							
			i	47 33							
		N	i	47 43							
		E	e	48 14							
		N	i	49 51							
		E	i	50 16							
		N	i	50 21							
		E	i	51 28							
		N	i	56 00							
			i	56 20							
			M	18 05 31	Period 0.9 sec p=0.14	15	POST BLAIR	E	1P	07 38 45	150
										08 44	
										08 00 14	
										07 20	
										09 40	Period 0.9 sec p=0.14
	KODAIKAWAL	E	e	17 40 20	Tremor						
	COLOMBO	E	e	17 40 22			SHILLONG	Z	1P	07 59 17	150
			e	50 10						00 58	Slight, distant Compression
			e	18 12 20						59 14	
			e	17 42	Approx. 0.9 sec					59 53	
										00 07	
	CALCUTTA	E	PP	17 41 00						00 02	
			e	47 44						01 54	
			e	50 45						04 37	
			e	51 31						07 11	
			e	18 00 41						07 20	
			e	07 10						07 51	
										12 49	
										15 00	Period 0.9 sec p=0.14
	HYDERABAD	E	ePP	17 41 48	12300		CHATRA	Z	eP	07 39 53	Slight
			PPP	44 04			ROZARIC	N,E	1P	07 59 57	150
			iPS	51 22				N	1S	08 05 53	Slight, distant Compression
			FPS	52 00							
			SS	58 09							
			Er	18 15 39							
			M	23 30	Period 0.9 sec p=0.14		COLOMBO	E	e	08 00 20	
										06 51	
										15 36	
										18 40	Approx. 0.9 sec
	BOMBAY	N	e (PP)	17 42 30			MADIAS	E	1P	08 00 28	150
		N,E	e	52 16						02 04	
		E	M	18 25 18						02 41	
										06 22	
										07 07	
										10 00	
										10 40	
	DEHPADUM	N,E	e (PP)	17 42 33			HYDRABAD	N	1P	08 00 48	150
		N	i	52 19						07 01	
			e	53 32						07 11	
			e	18 01 39						18 00	
			e	03 16						15 42	
			e	17 02						08 00	
13	SHILLONG	Z	eP	10 25 50	Slight, distant						
			i	08 15							
14	SHILLONG	Z	eP	03 04 01	Tremor						
14	SHILLONG	Z		04 14 17	Tremor						
14	SHILLONG	Z		04 51 00	Tremor						
14	SHILLONG	Z	1P	05 44 02	Slight, distant Refraction		MAHARAJA	E		04 10 20	Feeble
14	SHILLONG	Z	1P	05 31 50	Slight, distant Compression		MAHARAJA	N,E	1P	04 10 20	Slight
14	SHILLONG	Z		06 51 56	Tremor					02 30	
14	SHILLONG	Z	e	09 38 58	Tremor					02 43	
14	SHILLONG	Z	1P	11 35 31	Slight Refraction		MOONA	Z	1P	10 01 40	5570 Moderate
			IS	59 36						03 20	
15	CHATRA	Z	eP	01 24 22	Feeble					04 16	
			i	17 22						08 20	
										08 32	
										11 06	
	SHILLONG	Z	eP	01 25 10	Slight, distant		BOMBAY	N,E	eP	05 01 25	5050 Slight
	POONA	Z	eP	01 25 25	Feeble					03 11	
										05 41	

DATE	STATION	COMPT	PHASE	G. M. T.	$\Delta$	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T.	$\Delta$	REMARKS	
November 1957						November 1957								
h. m. s. km						h. m. s. km								
15	BOMBAY	N, E	eS	08 08 36			15	SHILLONG	Z	iP	03 36 30		Slight, distant Compression	
Contd.	Contd.	N	SS	12 13			16	DEHRA DUN	N, E	e	10 30 01		Tremor	
		E	M	25 --			16	SHILLONG	Z	i	11 06 56		Tremor	
		N	M	27 --			16	SHILLONG	Z	iP	13 07 08		Slight, distant Compression	
15	CHATRA	Z	iP	13 01 56	110	Slight	16	SHILLONG	Z	e	17 27 20		Tremor	
		E, Z	iS	02 11			16	SHILLONG	Z	eP	17 55 19		Slight, distant	
15	SHILLONG	Z	e	13 02 38		Tremor		TOCKLAI	E	eP	17 56 31		Slight, distant	
15	SHILLONG	Z	i	13 03 45		Tremor	16	SHILLONG	Z	eP	18 06 51		Slight, distant	
15	SHILLONG	Z	i	13 36 37		Slight, distant Compression	16	SHILLONG	Z	e	19 03 02		Tremor	
15	SHILLONG	Z, F	iP	13 36 39	220	Slight Compression	16	TOCKLAI	E	e	19 15 09		Slight, distant	
			P*	36 41				SHILLONG	Z	eP	19 15 17		Slight, distant	
			Pg	36 44			16	TOCKLAI	E	eP	20 29 40		Slight, distant	
			PP	36 45				SHILLONG	Z	eP	20 29 49		Slight, distant	
		Z	eS	37 05				SHILLONG	Z	i	30 23			
			Sg	37 08			16	SHILLONG	Z	e	22 59 28		Tremor	
	CHATRA	Z	iP	13 36 43		Slight	16	TOCKLAI	E	eP	23 07 54		Slight, near	
		E, Z	i	37 30				SHILLONG	Z	iP	23 08 01	110	Feeble Rarefaction	
15	SHILLONG	Z	eP	14 38 35		Slight, distant Compression				PP	08 07			
15	CHATRA	Z	i	14 39 13		Feeble, distant				eS	08 16			
15	SHILLONG	E	i	14 41 04						i	08 20			
15	Epe: 51°N, 158°E. Near East Coast of Kamchatka. H: 16h 30m 29s (U.S.C.G.S)										SS	08 26		
										Z, N	08 36			
	CHATRA	Z	iP	16 40 05		Slight	17	CHATRA	Z	iP	05 06 24		Slight	
	SHILLONG	Z	iP	16 40 05	6080	Compression			E	i	13 16			
		N, E	iP	40 07			17	SHILLONG	Z	eP	05 16 10	220	Feeble	
		E	iS	47 44						P*	16 11			
		N	e	48 08		Per: 21 secs				Pg	16 16			
		N	Mn	17 02 --		12				i	16 24			
	CALCUTTA	E	eP	16 40 19		Slight				iS	16 35			
			e	49 04						i	16 39			
	DEHRA DUN	N, E	eP	16 40 40	6640	Slight				i	16 45			
			iS	48 50						i	16 52			
	PORT BLAIR	E	iP	16 41 15	7570	Slight								
			PcP	41 39										
			iS	50 15										
	BOMBAY	N, E	eP	16 41 55	7980	Slight	17	Epe: 49°N, 149°E. Sea of Okhotsk. h about 350 Kms H: 05h 57m 48s (U.S.C.G.S).						
		N	PcP	42 23				SHILLONG	Z, E	iP	06 06 05	5000	Slight, deep Rarefaction	
		N, E	eS	51 15						i	06 11		First movement	
		N	PPS	52 13						i	06 33		East.	
		N, E	M	17 17 --					E	iS	12 44			
	POONA	Z	iP	16 41 56	7840	Slight	17	POONA	Z	iP	06 08 02		Feeble	
		N	iS	51 09						i	09 35			
			PPS	51 52										
			SS	55 56										
			SSS	59 11										
			Lr	17 04 58										
15	SHILLONG	Z	e	17 32 30		Tremor		DEHRA DUN	N, E	e	06 14 06		Tremor	
15	COLOMBO	E	e	17 42 22				PORT BLAIR	E	i	06 14 51		Slight	
			e	52 05										
			e	18 10 20		Amplitude 0.1 mm		BOMBAY	N, E	e	06 15 28		Very slight	
			e	14 15					E	e	20 28			
15	SHILLONG	Z	e	19 16 29		Tremor	17	SHILLONG	Z	e	08 13 02		Slight, near	
15	SHILLONG	Z	iP	20 09 37		Slight, distant Rarefaction				i	13 54			
										i	13 50			
										i	14 04			
15	SHILLONG	Z	iP	22 54 57	110	Feeble Rarefaction	17	POST BLAIR	E	e	09 02 07		Slight	
			i	55 00										
			iS	55 12										
15	SHILLONG	Z, F	iP	02 00 09		Slight, distant Compression	17	SHILLONG	Z	i	11 23 48		Tremor	
								BOMBAY	N, E	e	11 42 46		Very slight	
									N	e	46 43			
	CHATRA	Z	i	02 06 19		Slight, distant	17	COLOMBO	E	L	11 45 20		Amplitude 0.2 mm	
									M	47 25				
	POONA	Z	iP	02 01 36		Feeble	17	SHILLONG	Z	iP	12 59 22		Slight, distant Compression.	
			i	01 54										

DATE	STATION	COMPT	PHASE	G.M.T.	Δ	REMARKS	DATE	STATION	COMPT	PHASE	G.M.T.	Δ	REMARKS
				h. m. s.	km						h. m. s.	km	
November 1957							November 1957						
17	POONA	Z	iP	16 01 05		Feeble	19	SHILLONG	Z, E	iP	16 22 33		Slight
			i	01 17			Contd.			i	24 28		Compression
17	SHILLONG	Z	eP	16 43 08	500	Slight			Z	i	21 38		
			PP	43 15				CHATRA	Z	iP	16 22 50		Feeble
			Pg	43 16				POONA	Z	iP	16 24 29		Feeble
			eS	44 02						i	25 16		
			SS	44 13						i	25 23		
			Sg	44 29									
17	SHILLONG	Z	iP	18 02 11		Slight, distant	19	SHILLONG	Z	e	17 47 34		Tremor
			i	03 02		Rarefaction		SHILLONG	Z	e	18 48 16		Tremor
			i	06 08				SHILLONG	Z	iP	19 15 05		Slight, distant
	POONA	Z	iP	18 04 26		Feeble		SHILLONG	Z	e	19 30 23		Tremor
			i	04 52				SHILLONG	Z	e	19 30 50		Tremor
17	SHILLONG	Z	iPg	22 04 21	60	Feeble	19	SHILLONG	Z	iP	19 33 50		Slight, distant
			eSg	04 27				SHILLONG	Z	i	35 57		Rarefaction
		N, E	e	04 38				SHILLONG	Z	i	19 55 33		Slight, near
		E	e	04 41				SHILLONG	Z	i	56 03		
17	SHILLONG	Z	eP	22 09 19	560	Slight	19	SHILLONG	Z	iP	20 14 08		Slight, distant
			PPP	10 02				CHATRA	Z	i	20 14 33		Feeble
			Pg	10 06				SHILLONG	Z	eP	22 00 58		Slight, distant
			Lq	10 36				SHILLONG	Z	eP	23 22 45		Slight, distant
			eS	10 49				SHILLONG	Z	iP	02 39 31		Slight, distant
			SS	10 58				SHILLONG	Z	i	39 59		Compression
			S*	11 02				SHILLONG	Z	iP	02 44 02		Slight, distant
		Z, E	SSS	11 11				CHATRA	Z	i	02 44 32		Feeble, distant
		E	Sg	11 16				SHILLONG	Z	e	10 50 10		Tremor
			i	11 20				SHILLONG	Z	eP	10 52 32	340	Slight
	TOCKLAI	E	eP	22 09 56		Slight				Pg	52 44		
18	SHILLONG	Z	iPg/P*	04 52 41	90	Feeble				eS	53 10		
			iSg	52 50		Compression				Sg	53 22		
			S*	52 52									
			S	52 55									
18	SHILLONG	Z	iP	08 23 13		Slight, distant	20	SHILLONG	Z	iP	02 44 02		Slight, distant
						Compression		CHATRA	Z	i	02 44 32		Feeble, distant
18	SHILLONG	Z	iPg	09 07 35	70	Feeble	20	SHILLONG	Z	e	10 50 10		Tremor
			P	07 38		Compression		SHILLONG	Z	eP	10 52 32	340	Slight
			Sg	07 43						Pg	52 44		
			S	07 50						eS	53 10		
18	POONA	Z	iP	10 24 41		Tremor				Sg	53 22		
18	SHILLONG	Z	eP	10 29 59		Slight, distant		CHATRA	Z	iP	10 53 19		Feeble
18	SHILLONG	Z	eP	15 05 11		Slight, distant				i	54 45		
18	SHILLONG	Z	iP	15 21 41		Slight, distant	20	CHATRA	Z	i	12 48 28		Slight, distant
						Compression		20 Epe: 54°N, 165°W. Unimek Island H: 12h 40m 23s (U.S.C.G.S) Mag: 6¼-6½ (Berk).					
18	SHILLONG	Z	i	15 57 37		Feeble, near		SHILLONG	Z	eP	12 52 18	8470	
			i	57 47						i	52 48		
18	SHILLONG	Z	iP	20 03 48		Feeble, local			N	e	53 24		
18	SHILLONG	Z	e	20 04 24					E	i	53 28		
18	SHILLONG	Z	e	20 17 32		Tremor			N	i	13 02 09		
18	SHILLONG	Z	e	20 38 53		Tremor			E	iS	02 12		
			i	39 48					N	i	07 24		
18	PORT BLAIR	E	i	20 41 26		Slight				i	11 47		
										Mn	27 --		Per: 19 secs Δ: 24
18	SHILLONG	Z	eP	20 42 58		Slight, distant		CALCUTTA	E	eP	12 52 33	9040	
18	SHILLONG	Z	e	21 54 17		Tremor				eS	13 02 42		
18	SHILLONG	Z	e	22 51 03		Tremor		DEHRA DUN	N, E	eP	12 52 39	8910	
18	SHILLONG	Z	e	22 54 54		Tremor			N	PP	55 41		
18	PORT BLAIR	E	e	23 08 34		Slight				iS	13 02 44		
18	SHILLONG	Z	eP	23 12 00		Slight, distant				PMS	04 03		
19	SHILLONG	Z	e	10 44 04		Tremor				SSS	12 39		
19	SHILLONG	Z	iPg	11 23 42	60	Feeble		PORT BLAIR	E	iP	12 53 22	9450	
			i	23 45		Rarefaction				iS	13 03 59		
			iSg	23 52						M	25 41		Per: 22 secs Δ: 28
19	Epe: 47°N, 152°E. Kurile Islands. h about 100 Km H: 16h 13m 29s (U.S.C.G.S).							POONA	Z	iP	12 53 38		Phases not clear
										i	53 58		
										e	57 03		
										i	13 04 10		

DATE	STATION	COMPT	PHASE	G.	M.	T.	Δ	REMARKS	DATE	STATION	COMPT	PHASE	G.	M.	T.	Δ	REMARKS	
				h.	m.	s.	km						h.	m.	s.	km		
November 1957									November 1957									
20	BOMBAY	N,E	eP	12	53	38	10410		22	SHILLONG	Z	e	04	02	12		Tremor	
Contd.		N	PP		57	24			22	SHILLONG	Z	e	04	48	56		Tremor	
		N,E	SKS1	13	04	21			22	SHILLONG	Z,N,E	eP	13	00	13	250	Feeble	
			eS		04	46						PG		00	20			
		N	SKS2	05	01			Per. = 21 secs				E	e	00	25			
			PS	05	10			" = 17				Z	i	00	34			
		E	M	40	12			Per. = 19 secs				Z,N	iS	00	40			
								" = 13		22	SHILLONG	Z	iP	16	18	47		Slight, distant Compression
MADRAS		E	eP	12	53	45	10500		22	SHILLONG	Z	e	16	54	25		Tremor	
			SKKS	13	01	33			22	SHILLONG	Z	e	16	54	25		Tremor	
			iS		04	56			22	CHATRA	Z	iP	18	09	52		Slight	
			PS	06	34						E	i		11	03			
			PPS	07	15						Z,E	iP	18	10	23		Slight, distant Rarefaction	
20	SHILLONG	Z	eP	14	47	40		Slight, distant		SHILLONG	Z	e	18	12	04		Slight, near	
20	SHILLONG	Z	e	16	19	38		Tremor	22	SHILLONG	Z	eP	18	12	04		Slight, near	
20	SHILLONG	Z	e	20	11	58		Tremor	22	SHILLONG	Z	i	18	14	52		Tremor	
20	DEHRA DUN	N,E	e	22	22	17		Tremor	22	SHILLONG	Z	i	18	15	07		Tremor	
20	SHILLONG	Z	e	23	42	03		Tremor	22	DEHRA DUN	N,E	e	18	24	23		Tremor	
21	SHILLONG	Z	ePg	01	14	52	90	Feeble		SHILLONG	Z	iP	18	25	17		Slight, distant Compression	
			eSg		15	04			22	DEHRA DUN	N,E	e	21	04	01		Tremor	
21	SHILLONG	Z	e	03	52	38		Tremor		SHILLONG	Z	eP	21	04	32		Slight, distant	
21	SHILLONG	Z	e	04	09	36		Feeble, near		SHILLONG	Z	iP	21	59	09		Slight, distant Rarefaction	
			i		10	04			22	SHILLONG	N,E	e		59	13			
									22	SHILLONG	N,E	e	22	04	07			
21	Epo: 4° S, 127° E. Malakshera Island Region									23	Epo: 52° N, 168° W. Fox Islands, Aleutian Islands							
	- H <sub>0</sub> 05h 11m 30s (U.S.C.G.S)										- H <sub>0</sub> 00h 55m 33s (U.S.C.G.S)							
	SHILLONG	Z,E	iP	05	19	40	4790	Slight Compression		POONA	Z	eP	22	00	47		Feeble	
		N	e		19	43				TOCKLAI	E	eP	01	10	15		Slight	
		N,E	iS		26	07			23	SHILLONG	Z,E	iP	01	10	25		Slight Rarefaction	
	CHATRA	Z	iP	05	20	14		Slight		CHATRA	Z	iP	01	10	35		Slight	
		E	eP							POONA	Z	iP	01	11	45			
	POONA	Z	iP	05	21	18		Tremor	23	SHILLONG	Z	e	03	46	18		Tremor	
	BOMBAY	E	e(P)	05	21	25		Slight	23	SHILLONG	Z	iP	08	33	59		Slight, distant Compression	
		N	e(S)		29	15				SHILLONG	Z	e	13	15	29		Feeble, near	
	DEHRA DUN	N,E	e	05	21	34		Feeble				i		15	36			
			i(E)		29	05			23	SHILLONG	Z	eP	13	30	08		Slight, distant	
21	SHILLONG	Z	iP	06	35	04		Slight, distant Rarefaction	23	SHILLONG	Z	e	15	58	03		Feeble, near	
21	SHILLONG	Z	e	07	22	27		Tremor				i		58	05			
21	SHILLONG	Z	iP	12	34	54	160	Feeble Rarefaction	23	SHILLONG	Z	eP	19	51	44		Slight, distant	
			i		35	05			23	SHILLONG	Z	e	22	17	27		Tremor	
			PPP		35	08				SHILLONG	Z	iP*	22	41	06	110	Feeble	
			S/Sg		35	13						P/PG		41	07			
			SS		35	25						i		41	12			
			SsS		35	35						iS*/Sg		41	21			
21	CHATRA	Z	iPg	15	22	05	180	Feeble		23	SHILLONG	Z	eP	22	54	30	110	Feeble
			iSg		22	17						PP		54	31			
21	SHILLONG	Z	eP	16	05	54		Slight, distant				i		54	35			
21	SHILLONG	Z	eP	18	53	07	250	Slight		23	SHILLONG	Z	iP	22	41	06		
			i		53	19						PP		54	39			
			i		53	25						Sg		54	43			
			eS		53	35						S*		54	44			
			i		53	47						S		54	48			
			i		53	51												
21	SHILLONG	Z	iP	19	05	50		Feeble, local.		24	SHILLONG	Z,E	iP	01	36	55		Slight, distant Compression
		E	i		05	51												
		N,E	e		05	52												
			e		05	53												
21	SHILLONG	Z	e	19	11	50		Tremor	24	SHILLONG	Z	eP	03	42	56	220	Slight	
21	SHILLONG	Z	e	19	33	07		Tremor			iPg		13	02				
21	SHILLONG	Z	iP	21	29	57		Slight, distant Compression			iS		13	21				
21	SHILLONG	Z	iP	21	29	57		Slight, distant Compression			Z,E	iSg		13	28			
21	SHILLONG	Z	e	21	58	07		Tremor			Z	SS		13	41			
21	SHILLONG	Z	iP	22	14	07		Slight, distant Compression										



DATE	STATION	COMPT	PHASE	G. M. T.	Δ	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km						h. m. s.	km	
November 1957							November 1957						
17	POONA	Z	iP	16 01 05		Feeble	19	SHILLONG	Z, E	iP	16 22 33		Slight
			i	01 17			Contd.			i	24 28		Compression
17	SHILLONG	Z	eP	16 43 08	500	Slight			Z	i	24 38		
			PP	43 15				CHATRA	Z	iP	16 22 50		Feeble
			Pg	43 18				POONA	Z	iP	16 24 29		Feeble
			eS	44 02						i	25 16		
			SS	44 13						i	26 23		
			Sg	44 29									
17	SHILLONG	Z	iP	18 02 11		Slight, distant	19	SHILLONG	Z	e	17 47 34		Tremor
			i	03 02		Rarefaction	19	SHILLONG	Z	e	18 48 16		Tremor
			i	06 08			19	SHILLONG	Z	iP	19 15 05		Slight, distant
	POONA	Z	iP	18 04 26		Feeble							Rarefaction
			i	04 52			19	SHILLONG	Z	e	19 30 23		Tremor
17	SHILLONG	Z	iP	22 04 21	60	Feeble	19	SHILLONG	Z	e	19 30 50		Tremor
			eSg	04 27			19	SHILLONG	Z	iP	19 33 50		Slight, distant
		N, E	e	04 38						i	35 57		Rarefaction
		E	e	04 41			19	SHILLONG	Z	i	19 55 33		Slight, near
17	SHILLONG	Z	eP	22 09 19	560	Slight				i	56 03		
			PPP	10 02			19	SHILLONG	Z	iP	20 14 08		Slight, distant
			Pg	10 06						i	20 14 33		Feeble
			Lq	10 36			19	SHILLONG	Z	eP	22 00 58		Slight, distant
			eS	10 49			19	SHILLONG	Z	eP	23 22 45		Slight, distant
			SS	10 58			20	SHILLONG	Z	iP	02 39 31		Slight, distant
		Z, E	S*	11 02						i	39 59		Compression
			SSS	11 11			20	SHILLONG	Z	iP	02 44 02		Slight, distant
		E	Sg	11 15						i	02 44 32		Compression
			i	11 20				CHATRA	Z	i	02 44 32		Feeble, distant
	TOCKLAI	E	eP	22 09 56		Slight	20	SHILLONG	Z	e	10 50 10		Tremor
18	SHILLONG	Z	iP	04 52 41	90	Feeble	20	SHILLONG	Z	eP	10 52 32	340	Slight
			iSg	52 50		Compression				Pg	52 44		
			S*	52 52						eS	53 10		
			S	52 55						Sg	53 22		
18	SHILLONG	Z	iP	08 23 13		Slight, distant							
						Compression							
18	SHILLONG	Z	iP	09 07 35	70	Feeble		CHATRA	Z	i	02 44 32		Feeble, distant
			P	07 38		Compression	20	SHILLONG	Z	e	10 50 10		Tremor
			Sg	07 43			20	SHILLONG	Z	eP	10 52 32		Slight
			S	07 50						Pg	52 44		
18	POONA	Z	iP	10 24 41		Tremor				eS	53 10		
18	SHILLONG	Z	eP	10 29 59		Slight, distant				Sg	53 22		
18	SHILLONG	Z	eP	15 05 11		Slight, distant		CHATRA	Z	iP	10 53 19		Feeble
18	SHILLONG	Z	iP	15 21 41		Slight, distant				i	54 45		
						Compression	20	CHATRA	Z	i	12 48 28		Slight, distant
18	SHILLONG	Z	i	15 57 37		Feeble, near	20	Epo: 54°N, 155°W. Unimak Island					
			i	57 47				H: 12h 40m 23s (U.S.C.G.S)					
								Mag: 6 1/4 (Berk).					
18	SHILLONG	Z	iP	20 03 48		Feeble, local		SHILLONG	Z	eP	12 52 18	8670	
										i	52 48		
18	SHILLONG	Z	e	20 04 24						N	e	53 24	
18	SHILLONG	Z	e	20 17 22		Tremor				E	i	53 28	
18	SHILLONG	Z	e	20 38 53		Tremor				N	i	13 02 09	
			i	39 48						E	iS	02 12	
18	PORT BLAIR	E	i	20 41 26		Slight				N	i	07 24	
											i	11 47	
18	SHILLONG	Z	eP	20 42 58		Slight, distant				Mn	27 --		Per: 19 secs
													Δ: 24
18	SHILLONG	Z	e	21 54 17		Tremor		CALCUTTA	E	eP	12 52 33	9040	
18	SHILLONG	Z	e	22 51 03		Tremor				eS	13 02 42		
18	SHILLONG	Z	e	22 54 54		Tremor		DEHRA DUN	N, E	eP	12 52 39	8910	
										PP	55 41		
18	PORT BLAIR	E	e	23 08 34		Slight				iS	13 02 44		
18	SHILLONG	Z	eP	23 12 00		Slight, distant				PPS	04 03		
19	SHILLONG	Z	e	10 44 04		Tremor				SSS	12 39		
										Lq	14 31		
19	SHILLONG	Z	iP	11 23 42	60	Feeble		PORT BLAIR	E	iP	12 53 22	9450	
			i	23 45		Rarefaction				iS	13 03 59		Per: 22 secs
			iSg	23 52						S	25 41		Δ: 28
19	Epo: 47°N, 152°E. Kurile Islands, about 100 Km							POONA	Z	iP	12 53 38		Phases not
	H: 16h 13m 29s (U.S.C.G.S).									i	53 58		clear
										e	57 03		
										i	13 04 10		

DATE	STATION	COMPT	PHASE	G. M. T.	Δ	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T.	Δ	REMARKS	
				h. m. s.	km						h. m. s.	km		
November 1957							November 1957							
20	BOMBAY	N, E	eP	12 53 38	10410		22	SHILLONG	Z	e	04 02 12		Tremor	
Contd.		N	PP	57 24			22	SHILLONG	Z	e	04 48 56		Tremor	
		N, E	SKS1	13 04 21			22	SHILLONG	Z, N, E	eP	13 00 13	250	Feeble	
			eS	04 46					Z	Pg	00 20			
		N	SKS2	05 01					E	e	00 25			
			PS	05 10					Z	i	00 34			
			M	40 06		Para-20 secs -17 Para-19 secs -13			Z, N	iS	00 40			
		E	M	40 12					Z	Sg	00 47			
	MADRAS	E	eP	12 53 45	10500		22	SHILLONG	Z	iP	16 18 47		Slight, distant Compression	
			SKKS	13 01 33			22	SHILLONG	Z	e	16 54 25		Tremor	
			iS	04 56			22	CHATRA	Z	iP	18 09 52		Slight	
			PS	06 34					E	i	11 03			
			PPS	07 15					Z, E	iP	18 10 22		Slight, distant Rarefaction	
20	SHILLONG	Z	eP	14 47 40		Slight, distant			Z	eP	18 12 04		Slight, near	
20	SHILLONG	Z	e	16 19 38		Tremor	22	SHILLONG	Z	i	18 14 52		Tremor	
20	SHILLONG	Z	e	20 11 58		Tremor	22	SHILLONG	Z	i	18 15 07		Tremor	
20	DEHRA DUN	N, E	e	22 22 17		Tremor	22	DEHRA DUN	N, E	e	18 24 23		Tremor	
20	SHILLONG	Z	e	23 42 03		Tremor	22	SHILLONG	Z	iP	18 25 17		Slight, distant Compression	
21	SHILLONG	Z	ePg	01 14 52	90	Feeble			N, E	e	21 04 01		Tremor	
			eSg	15 04					Z	eP	21 04 32		Slight, distant	
21	SHILLONG	Z	e	03 52 38		Tremor	22	SHILLONG	Z	iP	21 59 09		Slight, distant Rarefaction	
21	SHILLONG	Z	e	04 09 36		Feeble, near			E	e	59 13			
			i	10 04					N, E	e	22 04 07			
21	Epo: 4°S, 127°E. Helmskara Island Region H <sub>0</sub> 05h 11m 30s (U.S.C.G.S)							22	SHILLONG	Z	eP	22 00 47		Feeble
	SHILLONG	Z, E	iP	05 19 40	4790	Slight Compression	23	Epo: 52°N, 158°W. Fox Islands, Aleutian Islands H <sub>0</sub> 00h 58m 33s (U.S.C.G.S)						
		N	e	19 43						E	eP	01 10 15		Slight
		N, E	iS	26 07						Z, E	iP	01 10 25		Slight Rarefaction
	CHATRA	Z	iP	05 20 14		Slight				Z	iP	01 10 35		Slight
		E	eP							Z	iP	01 11 45		
	POONA	Z	iP	05 21 18		Tremor	23	SHILLONG	Z	e	03 46 18		Tremor	
	BOMBAY	E	e(P)	05 21 25		Slight	23	SHILLONG	Z	iP	08 38 59		Slight, distant Compression	
		N	e(S)	29 15						Z	e	13 15 29		Feeble, near
	DEHRA DUN	N, E	e	05 21 34		Feeble				Z	i	15 36		
			i(S)	29 05						Z	eP	13 30 08		Slight, distant
21	SHILLONG	Z	iP	06 35 04		Slight, distant Rarefaction	23	SHILLONG	Z	e	15 58 03		Feeble, near	
21	SHILLONG	Z	e	07 22 27		Tremor				i	58 05			
21	SHILLONG	Z	iP	12 34 54	160	Feeble Rarefaction	23	SHILLONG	Z	eP	19 51 44		Slight, distant	
			i	35 05						Z	e	22 17 27		Tremor
			PPP	35 08						Z	iP*	22 41 06	110	Feeble
			S/Sg	35 13							P/Pg	41 07		
			SS	35 25							i	41 12		
			SSS	35 36							iS*/Sg	41 21		
21	CHATRA	Z	iPg	15 22 05	80	Feeble					eS	41 22		
			iSg	22 17							iPg	22 54 30	110	Feeble
21	SHILLONG	Z	eP	18 05 54		Slight, distant	23	SHILLONG	Z	iP	22 54 31			
21	SHILLONG	Z	eP	18 53 07	250	Slight					i	54 36		
			i	53 19							PP	54 39		
			i	53 29							Sg	54 43		
			eS	53 35							S*	54 44		
			i	53 47							S	54 48		
			i	53 51										
21	SHILLONG	Z	iP	19 05 50		Feeble, local.	23	SHILLONG	Z	iPg	22 54 30	110	Feeble	
		E	i	05 51							iP	54 31		
		N, E	e	05 52							i	54 36		
			e	05 53							PP	54 39		
21	SHILLONG	Z	e	19 11 50		Tremor					Sg	54 43		
21	SHILLONG	Z	e	19 38 07		Tremor					S*	54 44		
21	SHILLONG	Z	iP	21 29 57		Slight, distant Compression	24	SHILLONG	Z, E	iP	01 36 55		Slight, distant Compression	
21	SHILLONG	Z	e	21 58 07		Tremor	24	SHILLONG	Z	eP	03 12 56	220	Slight	
21	SHILLONG	Z	iP	22 14 07		Slight, distant Compression.					iPg	13 02		
											iS	13 21		
											iSg	13 28		
											Z	SS	13 41	

DATE	STATION	COMP. PHASE	G. M. T.	$\Delta$	REMARKS	DATE	STATION	COMP. PHASE	G. M. T.	$\Delta$	REMARKS
			h. m. s.	km					h. m. s.	km	
November 1957											
24	CHATRA	Z	iP	03 12 56	Slight	25	RODAIKANAL	E	iP	22 42 41	4600 First movement West
	Contd.	L, Z	i	13 34			Contd.	PP	44 23		
24	SHILLONG	Z	e	03 46 13	Bubble, near			PP	48 58		First 15 sec
			i	47 25				M	58 05		4.10
24	SHILLONG	Z	e	18 34 41	Tremor		HYDRABAD	E	iP	22 42 54	4580 Moderate First movement West
24	SHILLONG	Z	e	19 03 29	Tremor			PP	44 42		
24	SHILLONG	Z	e	22 10 01	Tremor			PcS	48 42		
25	SHILLONG	Z, E	iP	00 34 25	Slight, distant Rarefaction			iS	40 49		
								Lq	52 43		
25	SHILLONG	Z, N	eP	00 54 03	Slight, near.			Lr	54 43		Detail 13 sec
		Z	i	54 34				M	57 51		4.14
25	SHILLONG	Z	iP	04 23 01	Slight, distant Compression		PURNA	E	iP	22 42 18	5060 Moderate
25	SHILLONG	Z	iP	04 33 33	Slight, distant Compression			PcP	40 40		
25	SHILLONG	Z	e	05 57 22	Tremor			PP	48 00		
25	SHILLONG	Z	iP	07 47 36	Slight, distant Rarefaction			PP	47 03		
25	SHILLONG	Z	e	13 07 17	Tremor			iP	46 40		
25	SHILLONG	Z	e	15 32 09	Tremor			iS	50 42		
25	SHILLONG	Z	eP	15 54 23	Slight, distant			SSS	53 05		
25	SHILLONG	Z	iP	18 02 36	Slight, distant Compression		BOMBAY	N	eP	22 43 37	5000
25	Epoc: 14° S, 115° E. Near East Coast of Borneo - H = 22h 35m 00s (L.S.C.G.S.)							E	iP		
								N, E	PP	46 40	
								N	eS	50 43	
								N, E	iS	50 47	
								N	e	53 03	
									ScS	53 26	
									SS	57 11	
									M	23 04 12	Detail 15 sec
											4.14
25	TUCKLAI	F	iP	22 42 02	Slight, First movement East		DEHRA DUN	N, E	eP	22 43 51	5420 Moderate
25	SHILLONG	Z, N, E	iP	22 42 05	4150 Moderate, First movement-North and West.. Probable depth 100 kms. Compression			N	PP	45 15	
			pP	42 27				PP	47 40		
			sP	42 40				iS	50 38		
			PP	43 32				SS	50 42		
			PPP	43 57				SSS	55 42		
		N, E	iS	47 42				Lr	57 45		
			sS	48 20					23 02 51		
			i	49 58							
			SS	50 18							
			SSS	50 52							
25	CALCUTTA	F	iP	22 42 08	4070 Moderate, First movement West	25	SHILLONG	Z	e	00 46 00	Slight, distant
		N	iP	42 10		26	SHILLONG	Z	-P	01 11 03	Slight, near
		E	PP	43 30		26	MADRAS	E	e	01 48 18	Slight
			iS	47 51					e	48 42	
		N	iS	47 52					e	50 03	
			SSS	50 30					e	53 45	
		E	ScS	52 28							
25	COLOMBO	E	P	22 42 10	4210		SHILLONG	Z	iP	01 05 00	Slight
			PP	43 45			N, E	eP	01 05 00	Slight	
			S	48 02			E	i	52 41	Detail 15 sec	
			L	54 05							
			M	57 15							
					Ampal. 2 mm		CHATRA	Z	e	01 46 00	Slight, distant
25	VIZIANAGRAM	N, E	iP	22 42 21	Slight, First movement-North and West.	25	Epoc: 2° S, 116° E. Near East Coast of Borneo - H = 15h 10m 00s (L.S.C.G.S.)				
25	MADRAS	E	iP	22 42 27	4530 Moderate, first movement West.		SHILLONG	Z, N, E	iP	01 05 00	Slight
			e	43 15				PP	47 40	Detail 15 sec	
			i	43 43				sP	47 47	First movement North and West.	
			PP	44 02				PP	48 00	Detail 15 sec	
			PcP	44 22				PP	48 50	Detail 15 sec	
			SeP	48 00				iP	01 05 00	Slight	
			iS	48 23			N, E	iS	50 42		
			SS	51 11				iS	50 46		
			Lq	51 31				SS	50 47		
			SSS	51 53				SSS	55 42		
			ScS	52 09							
			Lr	53 16							
			M	56 48							
25	BOHARC	N, E	iP	22 42 31	4350 Moderate, First movement-North and West.		CALCUTTA	N	iP	22 42 36	4070 Moderate
		N	e	42 59			E	eP	01 11 03		
			eS	43 32					e	23 26	
25	CHATRA	L, Z	iP	22 42 38	4600 Slight				iS	51 31	
		E	iS	48 54					iS	53 45	



DATE	STATION	COMPT	PHASE	G. M. T.	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T.	REMARKS
				h. m. s. km						h. m. s. km	
November 1957						November 1957					
28	SHILLONG	Z	iP	05 16 47	Slight, distant Compression	29	Epc: 21°S, 66°W. Southern Bolivia. Slight damage in Northern Chile. -h about 200 Km. - H <sub>0</sub> = 22h 10m 38s (U.S.C.G.S) Magnitude = 7.4-8 (Pas), 7.5 (Berk).				
28	SHILLONG	Z	e	05 41 31	Tremor	POONA	Z	e(PKP)	22 38 53		
28	SHILLONG	Z	e	07 41 15		POONA	Z	e(PKP)	22 38 56		
28	SHILLONG	Z	i	41 11		POONA	Z	i(PKP)	22 38 56		
28	SHILLONG	Z	eP	16 00 49	Slight, distant	POONA	Z	e	39 55		
28	DEHRA DUN	N, E	e	17 07 35	Tremor	POONA	Z	e	41 41		
28	SHILLONG	Z	iP	17 09 27	Slight, distant Rarefaction	POONA	Z	e	42 37		
28	SHILLONG	Z	e	19 17 13	Tremor	POONA	Z	e	42 57		
28	SHILLONG	Z	iPg	20 50 25	Feeble, local	POONA	Z	e	43 39		
				i 50 26		POONA	Z	e	44 09		
28	Epc: 15°S, 168°E. New Hebrides Islands - H <sub>0</sub> = 20h 50m 10s (U.S.C.G.S).					POONA	Z	e	45 02		
SHILLONG	Z	iPg	21 02 45	9830 Moderate Compression		POONA	Z	e	48 32		
	N, E	eP	13 09			POONA	Z	e	49 07		
	N, E	iS				POONA	Z	e	54 17		
CHATRA	Z	iPg	21 03 06	9890 Slight		POONA	Z	e	20 00 39		Per: 20 secs
	P	eP	13 53			POONA	Z	e	01 51		Per: 19 secs
		iS				POONA	Z	e	36 26		Per: 5
COLOMBO	E	P	21 03 19			POONA	Z	e	39 28		Per: 5
		e	13 46								
		e	35 59								
		e	42 36	Amps: 0.2 mm							
MADRAS	E	eP	21 03 20	Slight							
		e	04 48								
		e	09 10								
		e	12 07								
		e	13 52								
28	BOMBAY	E	e	21 15 17	Feeble						
		N	e	15 36							
			e	16 22							
28	SHILLONG	Z	iP	21 43 58	Slight, distant Compression						
28	SHILLONG	Z	e	22 59 54							
29	SHILLONG	Z, E	iP	00 04 55	Slight very near						
		Z	i	05 03							
		Z, E	i	05 07							
TOCKLAI	E	eP	00 05 05	Slight, near							
		i	05 11								
CHATRA	Z	iP	00 05 49	Slight							
	E, Z	i	07 22								
29	SHILLONG	Z	i	00 36 52	Tremor						
29	SHILLONG	Z	e	01 00 47	Tremor						
29	POONA	Z	eP	01 55 51	Tremor						
29	SHILLONG	Z	e	15 07 16	Tremor						
29	SHILLONG	Z	iP	17 55 48	Slight, distant Rarefaction						
29	SHILLONG	Z	iPg	19 38 21	30 Feeble						
	Z, E	iSg	38 24								
29	SHILLONG	Z, N, E	iPg	21 34 38	110 Slight, First movement East Compression. Felt at Shillong						
	N, E	iSg	34 51								
TOCKLAI	E	eP	21 35 01	Slight, near							
		e	35 28								
		e	35 38								
CHATRA	Z	iP	21 35 38	Slight							
	E, Z	i	37 14								
CALCUTTA	N	e	21 36 00	Slight, near							
		i	36 16								
29	TOCKLAI	E	e	22 15 43	Slight, distant						

DATE	STATION	COMP	PHASE	G. M. T.	Δ	REMARKS	DATE	STATION	COMP	PHASE	G. M. T.	Δ	REMARKS	
				h. m. s.	km						h. m. s.	km		
November 1957							November 1957							
29	CALCUTTA	N	ePKP	22 39 27			30	Epc: 47°N, 154°E. Kurile Islands						
Contd.			i	40 25				H <sub>0</sub> : 21h 54m 10s (U.S.C.G.S.)						
			i	41 05										
	TOCKLAI	E	ePKP	22 39 29				SHILLONG	Z, N, E	iP	22 03 31		Slight Compression	
									N, E	i	11 21			
30	COLOMBO	E	L	02 14 30				CHATRA	Z	iP	22 03 50		Slight	
			M	17 10		Amplitude 0.1 mm			E	eP	22 03 50			
30	TOCKLAI	E	eP	11 37 12		Slight		CALCUTTA	N, E	eP	22 04 06	7310	Slight	
	SHILLONG	Z, E	iP	11 37 13	400	Slight Compression			eS	11 59				
			Pg	37 26				DEBRA DUN	N, E	eP	22 04 20		Feeble	
			iS	37 56					e(E)	12 18				
			Sg	38 13				POONA	Z	iP	22 05 25	7950	Slight	
30	SHILLONG	Z, E	iP	16 58 34	300	Slight Compression			eE	08 11				
			Pg	58 44					PP	09 50				
			eS	59 07					N, E	eS	14 44			
			Sg	59 16					E	PS	15 19			
30	SHILLONG	Z	eP	17 51 15		Feeble			PPS	16 44				
30	TOCKLAI	E	eP	19 20 22		Slight		ECMBAY	N, E	eP	22 05 31	7840	Slight	
	SHILLONG	Z, E	iP	19 20 48	610	Slight Rerefraction			eS	14 14				
			PP	20 54					e	15 46				
			PPP	21 02					N	e	15 08			
			i	21 13				COLOMBO	E	e	22 07 08			
		Z, N, E	iS	21 53					S	15 22				
		Z, E	SS	22 05					L	40 55				
			SSS	22 13					M	44 55			Amplitude 0.1 mm	
30	SHILLONG	Z	iP	20 37 39		Slight, distant Rerefraction		30	SHILLONG	Z	eP	22 20 47		Feeble, near
30	Epc: 47°N, 154°E. Kurile Islands							30	SHILLONG	Z	iP	23 08 30		Slight, distant Rerefraction
	H <sub>0</sub> : 21h 37m 11s (U.S.C.G.S.)							30	SHILLONG	Z	eP	23 13 14		Tremor
	SHILLONG	Z	iP	21 46 34		Slight Compression								
	CHATRA	Z	iP	21 46 53		Feeble								
	DEBRA DUN	N, E	eP	21 47 19										

Earthquake Reports  
(Non Instrumental Reports)

The following table contains a list of Earthquakes that were reported by Voluntary Observers from various stations during the month of November 1957.

PLACE AT WHICH FELT	DATE IN G.M.T.	TIME IN G.M.T.	DURATION OF SHOCKS IN SECS.	INTENSITY IN R.F. SCALE	NO. OF SHOCKS	REMARKS
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DIBRUGARH	08	15:45	5	V	2	
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DATE	HOUR	K	MEAN	MEAN	DATE	HOUR	K	MEAN	MEAN	DATE	HOUR	K	MEAN	MEAN
G.M.T			AMPLI-	PERIOD	G.M.T			AMPLI-	PERIOD	G.M.T			AMPLI-	PERIOD
			TUDE	IN				TUDE	IN				TUDE	IN
			in.m.m.	secs.				in.m.m.	secs.				in.m.m.	secs.
Station: BOMBAY (Contd.) Component: E-W.														
21	23	3	0.5	4.6	29	12	2	0.5	3.4	13	06	-	-	-
Contd.			0.1	2.2	Contd.	18	2	0.5	3.4	Contd.	12	-	-	-
22	00	-	-	-	30	00	-	-	-	18	-	-	-	-
	01	-	-	-		06	2	0.5	3.8	14	00	-	-	-
	02	3	0.5	5.0		12	2	0.5	3.2		01	-	-	-
			0.2	2.1		18	2	0.4	3.4		02	-	-	-
	03	3	0.3	4.9				.....			03	3	0.4	3.9
			0.1	2.5							04	3	0.4	3.9
	04	-	-	-							05	3	0.4	4.0
	05	3	0.4	5.0							06	3	0.4	4.1
			0.1	2.0							07	3	0.4	3.9
	06	3	0.4	4.5							08	3	0.4	3.9
			0.1	2.2							09	3	0.4	3.9
	07	3	0.5	4.6							10	3	0.5	4.1
			0.1	2.0							11	3	0.5	3.9
	08	3	0.5	5.2							12	3	0.5	4.1
			0.1	2.1							13	3	0.5	4.1
	09	3	0.5	4.5							14	3	0.5	4.1
			0.1	2.3							15	3	0.4	3.9
	10	3	0.3	4.8							16	3	0.5	4.1
			0.1	2.2							17	3	0.5	4.1
	11	3	0.3	4.6							18	3	0.5	4.2
			0.1	1.0							19	3	0.5	4.0
	12	3	0.3	5.3							20	3	0.4	3.9
			0.1	2.0							21	3	0.4	3.8
	13	3	0.4	4.5							22	3	0.4	3.9
			0.1	2.1							23	3	0.4	4.0
	14	3	0.4	4.7										
			0.1	2.2										
	15	3	0.3	4.8										
			0.1	2.2										
	16	3	0.4	5.0										
			0.1	2.1										
	17	3	0.3	4.7										
			0.1	2.0										
	18	3	0.3	4.7										
			0.2	2.0										
	19	3	0.3	4.7										
			0.1	2.0										
	20	3	0.4	5.0										
			0.1	2.1										
	21	3	0.3	4.3										
			0.1	2.1										
	22	3	0.5	4.8										
			0.1	2.0										
	23	3	0.3	5.1										
			0.1	2.0										
23	00	3	0.3	4.8										
			0.1	2.1										
	06	3	0.3	4.8										
			0.1	2.0										
	12	3	0.3	4.9										
			0.1	2.3										
	18	3	0.3	4.5										
			0.1	2.4										
24	00	3	0.3	4.5										
			0.1	2.6										
	06	3	0.3	4.3										
			0.1	2.2										
	12	3	0.3	4.2										
			0.1	2.8										
	18	3	0.3	4.2										
			0.1	2.6										
25	00	-	-	-										
	06	2	0.3	3.2										
	12	2	0.2	3.3										
	18	2	0.3	3.1										
26	00	-	-	-										
	06	-	-	-										
	12	-	-	-										
	18	2	0.4	2.6										
27	00	2	0.5	3.5										
	06	2	0.3	3.4										
	12	2	0.3	3.4										
	18	2	0.3	3.1										
28	00	2	0.3	3.3										
	06	2	0.3	3.7										
	12	2	0.3	3.8										
	18	2	0.3	3.4										
29	00	2	0.3	3.3										
	06	2	0.3	3.2										

Station: MADRAS (Contd.)

Station: MADRAS

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10-10-10

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GOVERNMENT OF INDIA  
METEOROLOGICAL DEPARTMENT

SEISMOLOGICAL BULLETIN



Published under the direction of  
*Shri S. Basu, M.Sc., F.N.I.*  
Director General of Observatories

## Instruments and their Constants

STATION	INSTRUMENT	COMPT	PERIOD IN SECS	STATIC MAGNIFI- CATION	DAMPING RATIO	PAPER SPEED mm/min.	STATION	INSTRUMENT	COMPT	PERIOD IN SECS	STATIC MAGNIFI- CATION	DAMPING RATIO	PAPER SPEED mm/min.
AGRA	Columbia Long Period Seismograph	E	To: 15 Tg: 100	-	-	15	KODAIKANAL	Milneshaw	E	10	250	20:1	8
	"	N	To: 15 Tg: 85	-	-	15	MADRAS	Sprengnether	E	To: Tg: 7.2	-	-	30
	"	Z	To: 15 Tg: 70	-	-	15	POONA	Sprengnether	Z	To: Tg: 1.6	-	Critical	30
BOKARO	Milneshaw	N	12	250	20:1	16	Wood Anderson	E	4	1000	20:1	16	
	Milneshaw	E	12	250	20:1	16	Milneshaw	N	12	300	20:1	8	
	Wood Anderson	E	To: 0.8	960	h: 0.8	60	PORT BLAIR	Wood Anderson	E	0.8	1000	h: 0.8	30
	Wood Anderson	N	To: 0.8	1000	h: 0.8	60	Wood Anderson	N	2.0	1000	20:1	30	
BOMBAY	Milneshaw	N	12	350	30:1	16	Milneshaw	E	12.0	250	20:1	8	
	Milneshaw	E	12	350	15:1	8	SHILLONG	Wood Anderson	N	0.8	1000	h: 0.8	30
	Sprengnether	E	To: Tg: 7	-	-	30	Wood Anderson	E	0.8	1000	h: 0.8	30	
							Milneshaw	N	12	350	20:1	8	
CALCUTTA	Milneshaw	E	12	250	20:1	8	Benioff	Z	To: 1.0 Tg: 0.18	-	-	60	
	Wood Anderson	N	2	870	Critical	30	Sprengnether	E	To: Tg: 6.6 To: Tg: 6.5	-	Critical	30	
	Omeri Ewing	N	16	32	-	25.4	from		29.1.58				
	Omeri Ewing	E	21	30	-	25.4	Wenner Acce- lerograph						
DEHRA DUN	Wood Anderson	N	0.8	950	Critical	60	TOCKLAI	Wood Anderson	E	0.8	1000	h: 0.8	60
	Wood Anderson	E	0.8	850	Critical	60	VIZIANAGRAM	Wood Anderson	E	0.8	1000	h: 0.8	30
	Milneshaw	N	12	250	20:1	8	Wood Anderson		2.0	1000	20:1	30	
	Milneshaw	E	12	250	20:1	8							
HYDERABAD	Milneshaw	E	12	254	20:1	8							
	Milneshaw	N	12	249	20:1	8							

STATION	LATITUDE	LONGITUDE	HEIGHT a. s. l. (Metres)	LITHOLOGIC FOUNDATION	STATION	LATITUDE	LONGITUDE	HEIGHT a. s. l. (Metres)	LITHOLOGIC FOUNDATION
AGRA	27° 10' N	78° 02' E	169	Indo-gange- tic Alluvium Rock	MADRAS	13° 00' N	80° 11' E	15	-
BOKARO	23° 50' N	85° 48' E	-	-	POONA	18° 32' N	73° 51' E	560	Deccan Trap
BOMBAY	18° 54' N	72° 49' E	6	Deccan Trap	PORT BLAIR	11° 40' N	72° 43' E	-	-
CALCUTTA	22° 32' N	88° 22' E	7	Alluvium	SHILLONG	25° 34' N	91° 53' E	1600	Quartzite Sand Stone (Shillong Quartzite)
DEHRA DUN	30° 19' N	78° 02' E	682	Gravel	TOCKLAI	26° 45' N	94° 46' E	-	Alluvium
HYDERABAD	17° 26' N	78° 27' E	536	Granite	VIZIANAGRAM	18° 07' N	83° 27' E	-	-
KODAIKANAL	10° 14' N	77° 28' E	2346	Rock					

DATE	STATION	COMPT	PHASE	G. M. T.	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T.	REMARKS		
				h. m. s. km						h. m. s. km			
December 1957						December 1957							
01	TOCKLAI	E	eP	01 06 23	Slight, distant	04	Epc: 47°N, 100°E. Outer Mongolia						
	CHATRA	Z	iP	01 06 48	Slight		Time: 03h 37m 30s (Shillong)						
		E, Z	i	08 32			Epc: 45°N, 99°E. Outer Mongolia						
	DEHRA DUN	N, E	e	01 09 42			Time: 03h 37m 45s (U. S. C. G. S.)						
01	POONA	Z	iP	01 11 40	Slight		Magnitude: 7.9 (Fee), 7.4 (BerK), 8.1 (Shillong).						
		E	e	14 40		TOCKLAI	E	eP	03 42 12				
		N, E	e	20 16		SHILLONG	Z, N, E	iP	03 42 23	2390	First movement East.		
		E	e	21 00			N, E	PP	42 52				
01	POONA	Z	iP	01 14 40				PPP	43 05				
								IS	46 18				
01	SHILLONG	Z	iP	01 16 17	Slight			i	46 28				
01	SHILLONG	Z	iP	01 18 20	Slight			M	49 20				
	CHATRA	Z	i	01 18 37	Slight	CHATRA	E, Z	iP	03 42 28				
01	BOMBAY	N, E	e	01 20 19	Very slight		E	i	46 46				
01	CHATRA	Z	i	01 28 57	Feeble, distant	DEHRA DUN	N, E	eP	03 42 47				
01	SHILLONG	Z	iP	01 45 14	Slight			e	43 18				
01	SHILLONG	Z	iP	05 19 56	Slight			e	43 36				
01	SHILLONG	Z	iP	08 55 15	Slight			i	47 02				
01	CHATRA	Z	iP	10 09 43	Feeble			e	47 39				
			i	10 10				e	47 54				
01	SHILLONG	Z	iP	14 33 04	Slight			e	48 12				
	CHATRA	Z	i	14 33 41	Feeble			e	48 42				
01	SHILLONG	Z	iP	19 17 16	Slight			e	50 42				
01	SHILLONG	Z	e	21 37 52	Slight	01	BOKARO	N, E	iP	03 43 03	2780	First movement North and East	
02	SHILLONG	Z	e	09 17 36	Slight		CALCUTTA	E	iP	03 43 06	2670	First movement East.	
02	SHILLONG	Z	iP	09 18 23	Slight			IS	47 21				
02	SHILLONG	Z	iP	09 23 12	Slight		VIZIANAGRAM	N, E	eP	03 44 01	3530		
02	SHILLONG	Z	iP	11 46 59	Slight			N	IS	49 11			
	TOCKLAI	E	eP	11 47 06	Slight		HYDERABAD	N	iP	03 44 19	3810	First movement East. Time approximate due to overlapping of record.	
02	SHILLONG	Z	iP	13 00 38	Slight			IS	49 46				
02	SHILLONG	Z	iP	15 27 28	Slight			PS	51 02				
03	SHILLONG	Z	iP	00 09 51	Slight			Lr	54 34				
03	SHILLONG	Z	iP	01 56 21	Slight			M	57 00		Period: 15 sec 196		
03	CHATRA	Z	iP	02 41 09	Feeble		POONA	Z	iP	03 44 33	3810		
			i	41 35				N, E	PP	45 39			
03	SHILLONG	Z	iP	15 20 48	Slight				PPP	46 05			
03	SHILLONG	Z	iP	15 25 39	Slight			N	PcP	47 03			
03	SHILLONG	Z	iP	21 53 57	Slight			N, E	IS	50 00			
03	SHILLONG	Z	iP	21 58 00	Slight			N	PcS	50 09			
	POONA	Z	iP	21 59 24					SS	51 56			
			i	59 36					SSS	52 18			
03	SHILLONG	Z	iP	23 42 30	Slight				Lr	53 45			
04	SHILLONG	Z	iP	00 34 46	Slight				SeS	54 46			
	POONA	Z	iP	00 36 25	Feeble				M	57 15			
			i	36 32			03	BOMBAY	N, E	eP	03 44 37	4080	
			i	36 55					PP	45 58			
									PPP	46 22			
									PcP	47 00			
									I	49 32			
									IS	50 21			
									PcS	50 46			
									SS	52 26			
									SSS	53 19			
									M	04 05 --			
									M	10 --			
							03	PORT BLAIR	E	iP	03 44 37	4220	
									PPP	46 27			
									IS	50 30			
									PcS	50 40			
									i	52 12			
									SS	53 05			
									Lr	53 18			
									Lr	55 07			
									M	58 49			
							03	MADRAS	E	iP	03 44 54	4370	First movement East.
									PP	46 00			
									ScP	50 30			
									eS	50 56			
									SS	53 48			
									SSS	54 32			
									Lr	56 09			





DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	$\Delta$ km	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	$\Delta$ km	REMARKS		
December 1957							December 1957								
05	SHILLONG	Z	ePg iSg	14 57 47 57 59	100	Slight	06	CHATRA Contd.	Z	iP iS	12 15 08 15 54	430	Slight		
05	SHILLONG	Z	iP	16 06 31		Slight, distant Compression		TOCKLAI	E	e	12 15 55		Slight		
05	SHILLONG	Z	eP	16 16 12		Slight, distant	06	SHILLONG	Z	iP	15 31 40		Slight Rarefaction		
05	Eps: 45°N, 100°E. Outer Mongolia; aftershock. H <sub>12</sub> : 18h 09m 32s (U.S.C.G.S)							05	SHILLONG	Z	iP iSg	15 40 34 41 02	230	Slight Rarefaction	
	SHILLONG	Z	iP iS	18 14 15 18 15	2460	Slight	06	SHILLONG	Z	iP	17 47 13			Slight, distant Compression	
	DEHRA DUN	N, E	eP iS	18 14 41 18 54	2640	Feeble	06	CHATRA	Z	iPg iSg	18 31 12 31 29	120	Feeble		
	CALCUTTA	E	e	18 18 17		Slight	06	SHILLONG	Z	iP	18 59 21			Slight, distant Rarefaction	
	HYDERABAD	E	M	18 27 51		Per: 18 secs H <sub>12</sub> : 4	06	SHILLONG	Z	eP	21 47 12			Feeble, distant	
		N	M	28 03		Per: 18 secs H <sub>12</sub> : 5	06	SHILLONG	Z	eP	23 00 13			Slight, distant	
05	SHILLONG	Z	eP	18 58 39		Slight, distant		CHATRA	Z	i	23 00 51			Slight, distant	
05	SHILLONG	Z	eP	19 22 03		Slight, distant	07	SHILLONG	Z	iP	03 24 12			Slight Rarefaction	
05	SHILLONG	Z	iPg iSg	19 45 44 45 53	80	Slight	07	TOCKLAI	E	e	03 29 51			Slight, distant	
05	SHILLONG	Z	eP	20 07 40		Slight, distant	07	AGRA	N, E	iP	03 32 22				
05	SHILLONG	Z	iP	21 51 48		Slight, distant Compression	07	SHILLONG	Z	iP	05 31 32			Slight Compression	
05	SHILLONG	Z	eP	22 01 53		Slight, distant	07	CHATRA	Z	iP iS	05 59 54 06 00 04	70	Slight		
05	CHATRA	Z	iPg iSg	22 48 06 48 23	130	Feeble	07	SHILLONG	Z	iP	06 07 25			Slight Compression	
05	SHILLONG	Z	iP iSg	23 04 17 04 44	200	Slight		CHATRA	Z	i	06 07 49			Feeble	
06	SHILLONG	Z	eP	00 54 59		Slight, distant		DEHRA DUN	N, E	e i i	06 16 19 20 17 23 23			Feeble. Phases not clear.	
06	SHILLONG	Z	iP	02 27 57		Slight, distant Compression	07	SHILLONG	Z	eP P* Pg PPP Lr S Sg	07 43 47 43 49 43 55 43 59 44 14 44 19 44 27	290	Slight		
06	SHILLONG	Z	iP	02 40 37		Slight, distant Compression	07	SHILLONG	Z	iP	13 17 59			Slight Rarefaction	
06	Eps: 45°N, 150°E. Kurile Islands. H <sub>12</sub> about 60 km. H <sub>12</sub> : 08h 49m 23s (U.S.C.G.S)							07	Eps: 43°N, 100°E. Outer Mongolia; aftershock. H <sub>12</sub> : 14h 11m 15s (U.S.C.G.S).						
	SHILLONG	Z	iP	03 58 30		Slight Compression		TOCKLAI	E	eP	14 15 18			Slight	
	CHATRA	Z	i	03 58 49				SHILLONG	Z	eP iS Lq M	14 15 33 19 05 19 43 21 42	2140	Slight Rarefaction		
	POONA	Z	iP	04 00 29				CHATRA	Z	iPg eP eS	14 15 40 19 23	3090	Slight		
06	SHILLONG	Z	eP Sg	05 19 34 20 03	210	Slight		AGRA	N, E	iP	14 16 42			First movement North and East.	
06	SHILLONG	Z	eP	06 39 32		Slight, distant		CALCUTTA	E	e	14 20 35			Slight	
06	CHATRA	Z E, Z	iP iS	07 06 56 07 20	200	Slight		HYDERABAD	E	M	14 28 57			Per: 15 secs H <sub>12</sub> : 4 Per: 10 secs H <sub>12</sub> : 3	
06	SHILLONG	Z	eP	07 07 54		Slight		POONA	N	M	29 02				
06	SHILLONG	Z	eP	07 29 12		Slight, distant		POONA	N	e i	14 29 45 33 07			Feeble	
06	Eps: 44°N, 150°E. Kurile Islands. H <sub>12</sub> : 08h 36m 21s (U.S.C.G.S)							07	SHILLONG	Z	iP	17 51 27			Slight Compression
	SHILLONG	Z	iP	08 45 23		Slight Compression									
	CHATRA	Z	iP	08 45 40											
	POONA	Z	iP	08 47 20											
06	SHILLONG	Z	iPg iSg	12 14 35 14 50	130	Slight Compression									

DATE	STATION	COMPT	PHASE	G. M. T.	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T.	REMARKS
				h. m. s.	km					h. m. s.	km
December 1957						December 1957					
07	SHILLONG	Z	iP	18 30 08	Slight Rarefaction	09	SHILLONG	Z	eP	00 43 16	390 Slight
										43 26	
										43 28	
07	CHATRA	Z	iP	19 34 51	260 Slight					43 32	
		E	iS	35 21						43 34	
										43 58	
07	TOCKLAI	E	e	23 22 06	Slight; distant					44 02	
										44 05	
										44 08	
08	Epc: 45°N, 100°E. Outer Mongolia; aftershock. Htz: 06h 13m 02s (U.S.C.G.S).						CHATRA	Z	eP	00 43 43	Slight
	CHATRA	Z	iP	06 17 47	2540 Slight					45 03	
		E	iS	21 53							
	DEHRA DUN	N,E	e	06 18 18	Tremor	09	SHILLONG	Z	eP	02 32 07	190 Slight
										32 08	
										32 18	
	HYDERABAD	N	M	06 31 11	Per: 15 secs					32 29	
					Per: 4					32 31	
		E	M	31 23	Per: 15 secs	09	SHILLONG	Z	iPg	05 15 23	70 Slight
					Per: 2					15 25	
										15 31	
08	SHILLONG	Z	iP	07 17 42	Slight Compression	09	SHILLONG	Z	iP	06 02 02	Slight Compression
08	SHILLONG	Z	iP	13 24 41	Slight Rarefaction	09	SHILLONG	Z	e	14 42 57	Tremor
08	SHILLONG	Z	iP	13 39 41	Slight Rarefaction	09	SHILLONG	Z	eP	16 55 33	Tremor, near.
08	SHILLONG	Z	eP	14 49 48	Slight	09	SHILLONG	Z	iP	17 02 29	Tremor
08	Epc: 45°N, 90°E. Outer Mongolia; aftershock. Htz: 15h 29m 15s (U.S.C.G.S).					09	DEHRA DUN	N,E	e	21 18 01	Feeble, near. Phases not clear
	SHILLONG	Z	eP	15 33 52	Slight Rarefaction					18 20	
	CHATRA	Z	iP	15 33 55	Slight		AGRA	N,E	eP	21 18 32	
	DEHRA DUN	N,E	e	15 34 17	Tremor	09	CHATRA	Z	iP	21 19 11	Slight
										20 42	
	AGRA	N,E	iP	15 34 41		09	TOCKLAI	E	eP	21 32 39	Slight, near.
	HYDERABAD	E	M	15 49 20	Per: 9 secs	09	CHATRA	Z	i	22 20 07	Slight, distant
					Per: 2	09	SHILLONG	Z	eP	22 32 47	440 Slight Rarefaction
		N	M	49 27	Per: 14 secs					32 56	
					Per: 5					33 05	
										33 34	
										33 48	
08	Epc: Outer Mongolia; aftershock. Htz: 16h 26m 33s (U.S.C.G.S).									33 55	
	SHILLONG	Z	iP	16 31 20	Slight Rarefaction	09	SHILLONG	Z	iP	23 20 10	Slight Rarefaction
	CHATRA	Z	iP	16 31 27	26100 Slight	10	SHILLONG	Z	iP	02 38 47	Slight Compression
			iS	35 37							
	DEHRA DUN	N,E	e(P)	16 32 02	2850? Feeble. Phases not clear.	10	SHILLONG	Z	e	04 47 57	Tremor
			i(S)	36 28		10	SHILLONG	Z	Pg	08 54 41	130 Slight
			i	40 28						54 54	
	AGRA	N,E	iP	16 32 23						54 56	
	POONA	E	e	16 46 12	Feeble	10	CHATRA	Z	iPg	11 07 05	100 Feeble
			i	49 47						07 19	
	HYDERABAD	E	M	16 46 18	Per: 12 secs	10	Epc: 6°S, 154°E. Solomon Islands. Htz: 14h 35m 57s (U.S.C.G.S). Magnitude: 6.4(Pas), 6.4-6.5(Berk).				
					Per: 3		PORT BLAIR	E	iP	14 46 40	5900
		N	M	47 12	Per: 11 secs					47 18	
					Per: 5					48 33	
08	SHILLONG	Z	e	20 32 27	Tremor					54 10	
08	Epc: 44°N, 100°E. Outer Mongolia; aftershock. Htz: 21h 28m 45s G.M.T.									54 25	
	SHILLONG	Z	iP	21 33 23	Slight Compression					55 18	
	CHATRA	Z	i	21 33 28	Slight					55 40	
	DEHRA DUN	N,E	eP	21 33 52						15 04 32	
										08 02	
							TOCKLAI	E	iP	14 46 57	First movement West.



DATE	STATION	COMPT	PHASE	G. M. T.	Δ	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T.	Δ	REMARKS	
				h. m. s.	km						h. m. s.	km		
December 1957							December 1957							
11	Epc: 44½°N, 101°E. Outer Mongolia. H = 21h 55m 10s (U.S.C.G.S)						12	BOMBAY	N,E	e	20 13 13		Very slight	
								Contd.	E	e	15 26			
									N,E	e	16 01			
	CHATRA	Z	iP	21 59 57		Slight		MADRAS	E	i	20 18 55		Feeble. First movement East	
		E	e	22 07 08						e	19 11			
	DEHRA DUN	N,E	eP	22 00 24	2570	Feeble				e	19 18			
			iS	04 32										
	POONA	Z	iP	22 02 03			13	Epc: 34°N, 48°E. Iran. - H. 01h 45m 00s (Shillong)						
	BOMBAY	E	e	22 03 33		Slight		Epc: 34½°N, 48°E. Iran. Major damage Farsinaj destroyed. 1062 killed, many injured						
			e	10 26				- H = 01h 44m 59s (U.S.C.G.S). Mag: 7¼ (Pas).						
		N	M	14 --										
			M	15 --				DEHRA DUN	N,E	eP	01 50 35	2910		
12	SHILLONG	Z	ePg	00 21 27	110	Slight			N	PPP	51 40			
			eSg	21 39						iS	55 05			
12	SHILLONG	Z	eP	09 59 34		Slight				Lq	56 06			
12	TOCKLAI	E	iP	18 50 38		Slight, distant First movement West.				SSS	56 34			
										Lr	57 08			
										M	59 28		Per. 12 secs Δ = 94	
	SHILLONG	Z	iP	18 50 47		Slight Compression		BOMBAY	N,E	eP	01 50 44	3100		
									E	i	51 10			
	CHATRA	Z	iP	18 51 07		Slight, distant				PP	51 34			
		E	eP	18 51 22		Slight				PPP	51 45			
			e	51 41						PcP	53 44			
	MADRAS	E	e	54 55						i	54 46			
			e	55 08						e	55 04			
			e	55 08						iS	55 27			
	POONA	Z	iP	18 51 54		Feeble				Lq	56 34			
			i	52 07						SS	56 53			
										i	57 27			
	BOMBAY	E	e	18 52 18		Very slight				Lr	58 09			
			e	58 04						M	02 02 27		Per. 19 secs Δ = 86	
			e	19 03 48						N	M	05 28		Per. 13 secs Δ = 17
12	SHILLONG	Z	eP	19 16 01		Feeble		AGRA	N,E	iP	01 50 45	2990	First movement South and West	
12	COLOMBO	E	L	19 36 20		Amp. 0.1 mm				iPP	51 39			
			M	40 35						iS	55 21			
										SS	56 55			
										Lr	57 33			
										M	02 00 17		Per. 16 secs Amp. 120.0 mm	
12	Epc: 26°N, 93°E. Manipur-Burma border. H = 20h 05m 10s (Shillong) Felt: Silchar, Lumding, Mazbat, Haflong, Karimganj, Diphu and Shillong in Assam.							POONA	Z	iP	01 50 55	3180		
									N	PPP	51 57			
									N,E	iS	55 43			
									N	SS	57 09			
										SSS	57 36			
										ScS	58 02			
										Lr	58 21			
	SHILLONG	Z,N,E	iPg	20 05 25	90	Slight. First movement North and West, Compression.		CHATRA	E,Z	eP	01 51 22			
		N,E	iSg	05 36					N	i	57 23			
	TOCKLAI	E	iP	20 05 38	240	Slight		HYDERABAD	N,E	iP	01 51 27	3540	First movement North and West	
			P*	05 40					N	PP	52 28			
			Pg	05 43					E,N	iS	56 38			
			PP	05 45					N	PcS	57 49			
			PPP	05 51						SS	58 28			
			i	06 02						SSS	58 46			
			Sg	06 12						Lr	59 25			
	CALCUTTA	N,E	eP	20 06 16	470	Slight				M	02 01 38		Per. 20 secs Δ = 98	
			iS	07 06						E	M	02 05		Per. 15 secs Δ = 64
		N	Sg	07 26										
	CHATRA	E,Z	iP	20 06 24	630?	Slight		MADRAS	E	PPP	01 53 48	3900	First phase lost while changing record.	
		E	i(Sg)	08 05						PcP	54 09			
	BOKAKO	N,E	eP	20 06 36	490	Slight				iS	57 46			
			P*	06 48						ScP	57 58			
			Lq	07 18						SS	02 00 02			
			Sg	07 51						Lq	00 20			
	AGRA	N,E	eP	20 08 03	1360					SSS	00 29			
			iS	10 31						Lr	02 07			
										M	05 08			
	DEHRA DUN	N,E	e	20 08 25		Feeble. Phases not clear		SHILLONG	Z,N,E	iP	01 51 32	4920	Compression	
			i	10 49					N,E	i	52 25			
	POONA	Z	iP	20 09 21		Slight. Phases not clear				PP	53 18			
			i	13 21						PPP	54 00			
			i	14 21						iS	58 07			
										PS	58 16			

DATE	STATION	COMPT	PHASE	G. M. T.	$\Delta$	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T.	$\Delta$	REMARKS		
				h. m. s.	km						h. m. s.	km			
December 1957							December 1957								
13	SHILLONG	N,E	PPS	01 58 24			13	Epc: 52 $\frac{1}{2}$ <sup>o</sup> N, 170 <sup>o</sup> W. Fox Islands, Aleutian Islands.							
	Contd.		SS	02 01 32				- H = 20h 26m 22s (U.S.C.G.S)							
			SSS	02 32											
			M	09 02		Per. = 20 secs $\mu$ = 124									
	TOCKLAI	E	eP	01 51 33				SHILLONG	Z,N,E	iP	20 38 06	9000	Slight Rarefaction		
	BOKARO	N,E	i	01 51 34		First movement				iS	47 48				
		E	i	51 58		South and East		DEHRA DUN	N,E	eP	20 38 30	9000	Feeble		
		N	e	53 19						eS	48 39				
		N,E	iS	57 32				BOKARO	N,E	e(P)	20 38 33	9150?	Slight		
		N	e	02 00 06						iS	48 49				
			i	02 17				CALCUTTA	E	eP	20 38 37	9020?	Slight		
			i	07 43						iS	48 47				
	VIZIANAGRAM	N	iS	01 57 45				AGRA	N	eP	20 38 39	9220			
	VODAIKANAL	E	eP	01 52 09	4050					i	48 58				
			PP	53 36				HYDERABAD	N	iP	20 39 16	9430	First movement		
			iS	57 52						iS	49 45		South.		
			Lq	02 00 18						Lr	21 06 22		Per. = 17 secs		
			SS	00 48							13 17		$\mu$ = 6		
			Lr	02 01		Per. = 20 secs $\mu$ = 48			E	M	15 08		Per. = 21 secs $\mu$ = 6		
			M	05 21											
	CALCUTTA	E	eP	01 52 16	4110			POONA	Z	iP	20 39 27	10500	Slight		
			PP	53 08					N	SKS	49 57				
			iS	58 02						iS	50 38				
			M	02 04 38		Per. = 14 secs $\mu$ = 140				PS	52 06				
			Mn	09 18						SS	57 13				
										SSS	21 00 51				
	COLOMBO	E	P	01 52 40	4210			BOMBAY	N,E	eP	20 39 28				
			S	58 32					E	M	21 23 25		Per. = 19 secs $\mu$ = 3		
			L	02 07 52		Amp. = 4.5 mm		14	DEHRA DUN	N,E	e	01 36 59		Tremor	
			M	10 05				14	SHILLONG	Z	iP	16 15 30		Slight, distant	
13	SHILLONG	Z	iP	06 49 48		Slight, distant		14	SHILLONG	Z	iP	17 06 30		Compression	
						Compression		14	SHILLONG	Z	iP	21 34 57		Slight, distant	
13	Epc: Probably Pamir Mountains Region. H = 09h 07m 55s (SHILLONG).								14	SHILLONG	Z	eP	22 03 32		Slight, distant
	DEHRA DUN	N,E	eP	09 10 02	980	Feeble		14	SHILLONG	Z	eP	22 35 47		Slight, distant	
			i	11 33				15	SHILLONG	Z	eP	01 47 30		Slight, local	
			iS	11 43				15	CHATRA	E	i	01 57 29		Slight, near	
	AGRA	N,E	iP	09 10 34	1090	First movement		15	CHATRA	E	i	06 26 04		Slight, near	
			iS	12 26		North and West		SHILLONG	Z	iP	06 26 32		Slight, near		
	CHATRA	Z	iP	09 11 45	1880	Slight									
		E	iS	14 53				DEHRA DUN	N,E	e	06 28 41		Tremor		
	SHILLONG	Z,N,E	iP	09 12 30	2200	Slight		15	SHILLONG	Z	iP	16 59 59		Slight, distant	
		N,E	iS	16 08		Compression		15	SHILLONG	Z	e	17 40 38		Compression	
	POONA	Z	iP	09 12 48		Feeble		15	SHILLONG	Z	e	17 40 38		Tremor	
13	CHATRA	Z	iP	10 50 45	220	Feeble		15	SHILLONG	Z	iP	18 48 34		Slight, near	
			iS	51 11				16	SHILLONG	Z	eP	00 08 11		Rarefaction	
13	SHILLONG	Z	eP	10 52 09		Slight, near							Slight, near		
13	SHILLONG	Z	iP	11 33 45		Slight, distant		16	TOCKLAI	E	ePg	06 38 43	120	Slight. Felt	
						Compression					eSg	38 57		at Dibrugarh.	
13	SHILLONG	Z	iP	16 17 50		Slight, near		16	CHATRA	E	i	06 42 03		Slight	
13	SHILLONG	Z	e	17 00 03		Tremor, distant		16	TOCKLAI	E	eP	07 05 06		Slight, near	
13	SHILLONG	Z	iP	17 08 46		Feeble, local		SHILLONG	Z	eP	07 05 42		Slight, near		
13	SHILLONG	Z	iP	18 59 27		Slight, distant		16	SHILLONG	Z	eP	07 19 44		Slight, near.	
						Rarefaction									
13	Epc: 6 $\frac{1}{4}$ <sup>o</sup> S, 155 $\frac{1}{2}$ <sup>o</sup> E. Solomon Islands aftershock. H = 20h 03m 58s (U.S.C.G.S)														
	SHILLONG	Z,E	iP	20 15 09		Slight									
						Compression									
	CHAERA	Z	i	20 15 33		Feeble									
	BOMBAY	N,E	e	20 27 03		Slight									





DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	$\Delta$ km	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	$\Delta$ km	REMARKS	
December 1957							December 1957							
21	CHATRA	Z E	iP iS	03 03 05 03 17	90	Slight	26	CHATRA	Z	iPg iSg	03 29 25 29 38	100	Feeble	
	SHILLONG	Z	eP	03 03 51		Slight	26	SHILLONG	Z	iP iS	05 56 01 56 37	330	Slight, rarefaction	
21	SHILLONG	Z	eP iS	08 44 20 45 15	520	Slight		CHATRA	Z E, Z	iP i	05 56 56 58 31		Slight	
	CHATRA	Z	i	08 44 27		Feeble, distant	26	SHILLONG	Z	eP	12 26 38		Slight, distant	
21	SHILLONG	Z	eP	19 05 15		Slight, distant	26	SHILLONG	Z	eP iS	17 23 43 24 19	330	Slight	
21	SHILLONG	Z	eP	19 44 24		Slight, distant	26	SHILLONG	Z	eP	19 39 07		Slight, local.	
21	SHILLONG	Z	eP	20 31 27		Slight, distant	26	SHILLONG	Z	eP	23 24 57		Slight, distant	
21	SHILLONG	Z	eP	22 08 20		Slight, distant	27	SHILLONG	Z	eP	01 24 02		Slight	
22	SHILLONG	Z	eP	12 05 52		Slight, distant	27	SHILLONG	Z	iP	08 35 36		Slight, distant Rarefaction	
22	SHILLONG	Z	iP	14 33 18		Slight, distant Rarefaction	27	CHATRA	Z	i	15 10 55		Feeble, near	
22	SHILLONG	Z	eP	17 05 59		Slight, distant	27	SHILLONG	Z	iP	22 23 46		Slight, distant Rarefaction	
22	SHILLONG	Z	eP Sg	21 18 30 18 57	200	Slight	28	SHILLONG	Z	iPg Sg	05 06 48 06 53	40	Slight	
22	CHATRA	Z	eP iS	22 44 35 44 55	160	Feeble	28	CHATRA	Z	i	05 40 45		Feeble, distant	
22	SHILLONG	Z	iP	23 33 48		Slight, distant Compression	28	Epc: 18°S, 64½°W, Bolivia. H = 14h 36m 40s (U. S. C. G. S.)						
23	SHILLONG	Z	eP	00 44 41		Slight, distant	POONA	Z	eFKP	14 56 15				
23	SHILLONG	Z	eP	03 44 11		Slight, distant	DEHRA DUN	N, E	eKP	14 56 19				
23	DEHRA DUN	N, E	e	11 57 42		Feeble. Phases not clear.	MADRAS	E	eKP	14 56 26			Strong micro- seisms present	
23	PORT BLAIR	N	iPg iSg	13 19 52 20 03	100	Slight	CHATRA	Z	eKP	14 56 33			Slight	
23	CHATRA	Z	iP iS	15 31 30 31 56	220	Feeble	SHILLONG	Z	eKP	14 56 39			Slight	
23	SHILLONG	Z	iP e	18 38 05 38 21		Slight, near Rarefaction	HYDERABAD	E	M	16 02 33			Per. 18 secs μ = 5 Per. 15 secs μ = 5	
23	SHILLONG	Z	iP	19 35 24		Slight, distant Compression	N	M	02 42					
	CHATRA	Z	i	19 35 50		Feeble, distant	28	SHILLONG	Z	iP	16 33 16			Slight Compression
23	SHILLONG	Z	iP	21 11 41		Slight, distant Compression	CHATRA	Z	eP i	16 34 16 35 19			Feeble	
23	SHILLONG	Z	iP	21 38 01		Slight, distant Rarefaction	28	SHILLONG	Z	eP	18 17 35			Slight, local
23	SHILLONG	Z	eP i	23 32 52 33 05		Slight, near	28	SHILLONG	Z	iPg Sg	19 32 16 32 31	130	Slight Compression	
23	SHILLONG	Z	iP	23 47 57		Slight, distant Compression	CHATRA	Z	iP iS	19 32 57 33 44	430		Feeble	
23	SHILLONG	Z	eP	23 51 54		Slight, near	29	SHILLONG	Z	eP iS	05 12 51 13 35	410		Slight
23	SHILLONG	Z	eP e	23 52 27 52 37		Slight, near	CHATRA	Z	iP iS	05 12 51 13 40	460		Slight	
24	SHILLONG	Z	eP	01 10 15		Slight, distant	E, Z							
24	SHILLONG	Z	iP	18 06 13		Slight, distant Rarefaction	29	SHILLONG	Z	eP	07 49 01			Slight, distant
24	SHILLONG	Z	eP	20 48 09		Slight, distant	29	SHILLONG	Z	iP iS	12 23 45 24 29	410		Slight
25	SHILLONG	Z	eP	06 05 57		Slight, distant	CHATRA	Z	iP i	12 24 44 26 16			Feeble	
25	SHILLONG	Z	ePg Sg	06 41 52 42 02	90	Slight	29	POONA	Z	iP i	15 31 49 32 03			Feeble
25	SHILLONG	Z	eP	06 55 44		Slight, local	29	DEHRA DUN	N, E	e	17 40 59			Tremor
25	DEHRA DUN	N, E	e	11 52 27		Tremor	29	CHATRA	Z	iP iS	20 44 14 44 42	240		Feeble
25	CHATRA	Z	ePKP i	16 45 18 48 49		Slight								
	SHILLONG	Z	ePKP	16 45 25		Slight								



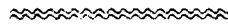
DATE	STATION	COMPT	PHASE	G. M. T.	$\Delta$	REMARKS	DATE	STATION	COMPT	PHASE	G. M. T.	$\Delta$	REMARKS
				h. m. s.	km						h. m. s.	km	
December 1957							December 1957						
29	SHILLONG	Z	eP Sg	21 35 43 36 00	140	Slight	31	SHILLONG Contd.	Z	iP	14 41 51		Slight Compression
30	SHILLONG	Z	iP	04 35 58		Distant Compression		MADRAS	E	e(?) PP PPP SKS SKKS eS PS PPS	14 42 06 45 47 47 42 52 19 52 30 52 44 54 02 54 31		Slight
30	SHILLONG	Z	iP	07 39 58		Slight		CALCUTTA	E	e i	14 44 52 52 29		Slight
30	SHILLONG	Z	iP	10 04 38		Slight Compression		BOMBAY	E	e e N E N	14 45 42 49 18 53 06 53 46 54 22		Slight
	TOCKLAI	E	eP	10 04 53		Slight		DEHRA DUN	N, E	e i	14 47 48 56 40		Feeble
	CHATRA	Z	iP i	10 05 39 07 03		Feeble		HYDERABAD	N, E E	e M	14 52 44 15 19 04		Per. $\approx$ 17 secs $\Delta$ $\approx$ 5 Per. $\approx$ 20 secs $\Delta$ $\approx$ 7
30	SHILLONG	Z	eP	11 24 53		Slight			N	M	19 31		
	TOCKLAI	E	eP	11 24 58		Slight	31	SHILLONG	Z	iP	14 58 29		Slight, distant Compression
	CHATRA	Z	iP E	11 25 18 27 53		Slight	31	SHILLONG	Z	eP	17 38 54		Slight, distant
30	SHILLONG	Z	iP	12 57 56		Slight Compression		CHATRA	Z	i	17 39 04		Feeble, near.
	CHATRA	Z	i	12 58 09		Feeble, near	31	SHILLONG	Z	e	20 57 00		Tremor
30	Epc: Near North Coast of Luzon, Philippine Islands. - H = 13h 58m 26s (U.S.C.G.S).							31	Epc: 45°S, 96½°E. South Indian Ocean. - H 21h 16m 03s (U.S.C.G.S).				
	SHILLONG	Z, N, E N, E	iP iS	14 04 13 09 07	3280	Slight Rarefaction		COLOMBO	E	L M	21 39 05 42 05		Amp. $\approx$ 0.3 mm
	CHATRA	Z	iP	14 04 54		Slight		CALCUTTA	E	i	21 36 10		Tremor
	CALCUTTA	E	e(P)	14 04 57		Slight		SHILLONG	Z	iP	21 27 17		Slight, distant Compression
	DEHRA DUN	N, E	e? i(S)	14 05 18 12 24		Slight, Phases not clear		DEHRA DUN	N, E	e	21 30 --		Feeble
	POONA	Z	iP i	14 06 37 06 47		Feeble	31	CHATRA	Z E, Z	iP e	22 36 17 36 40		Slight
	BOMBAY	E N, E E	e e e	14 07 03 13 31 16 59		Very slight		SHILLONG	Z	eP	22 36 50		Slight, distant.
30	SHILLONG	Z	iP	18 50 05		Slight, distant Compression							
30	SHILLONG	Z	iP eSg	22 55 28 55 59	270	Slight Rarefaction							
	CHATRA	Z	eP iS	22 56 10 57 11	580	Feeble							
30	SHILLONG	Z	eP	23 10 51		Slight							
31	SHILLONG	Z	iP	06 57 45		Slight, distant Rarefaction							
31	SHILLONG	Z	e	10 34 09		Tremor							
31	SHILLONG	Z	eP	11 33 50		Slight, distant							
31	SHILLONG	Z	i	11 34 40		Slight							
31	SHILLONG	Z	i	11 35 00		Slight							
31	SHILLONG	Z	i	14 21 20		Compression							
31	Epc: 45°S, 165½°E. Off Coast of South Island, New Zealand. - H = 14h 28m 15s (U.S.C.G.S).												
	PORT BLAIR	E	iP iS	14 41 00 51 25	9340	Slight							
	COLOMBO	E	P S L M	14 41 22 52 00 15 12 20 19 35	9670								Amp. $\approx$ 0.3 mm

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*Earthquake Reports*  
(Non Instrumental Reports).

*Following is the list of earthquakes that were reported  
by Voluntary Observers from various stations during the  
month of December 1957.*

PLACE AT WHICH FELT	DATE IN G.M.T.	TIME IN G.M.T. h. m.	NO. OF SHOCKS	DURATION OF SHOCKS IN secs.	INTENSITY IN R.F. SCALE	REMARKS
KUMBHIRGRAM (Silchar)	12	20 05	4	1-2	VI	At intervals 2.5 secs.
HAFLONG	12	20 05	2	30	V	
TEZPUR (P. B. O.)	12	20 03	1	30	V	
GAUHATI	12	20 05	1	10	VI	
UPPER SHILLONG	12	20 05	1	20	IV	
MOHANBARI	16	06 38	2	5-6	IV	
DIBRUGARH	16	06 40	1	5	V	
MOHANBARI	16	13 15	2	5	V	
DIBRUGARH	16	13 12	1	3	V	
UPPER SHILLONG	17	15 30	1	3	IV	





II

Table with columns: DATE, HOUR, K, MEAN AMPLITUDE (TUDE), MEAN PERIOD (IN), DATE, HOUR, K, MEAN AMPLITUDE (TUDE), MEAN PERIOD (IN), DATE, HOUR, K, MEAN AMPLITUDE (TUDE), MEAN PERIOD (IN), DATE, HOUR, K, MEAN AMPLITUDE (TUDE), MEAN PERIOD (IN). It is organized into four main sections for stations BOMBAY and MADRAS, each spanning dates from 16 to 26. The table contains detailed seismic data including amplitude and period measurements.











VII

DATE	HOUR	K	MEAN	MEAN	DATE	HOUR	X	MEAN	MEAN
	G.M.T		AMPLI-	PERIOD		G.M.T		AMPLI-	PERIOD
			TUDE	IN				TUDE	IN
			(Micron)	secs				(Micron)	secs
Component: N. S.					Station: HOWRAH (Contd.).				
21	17		1.1	4.1	25	00		1.2	3.5
Contd.	18		1.3	4.2		06		-	-
	19		1.2	3.9		12		1.0	3.3
	20		1.1	3.7		18		1.4	3.5
	21		0.7	3.5				-	-
	22		1.0	3.5	26	00		0.8	3.0
	23		0.8	3.5		06		-	-
			-	-		12		-	-
22	00		1.2	3.4		18		1.2	4.1
	01		0.6	2.3				-	-
	02		0.8	3.4	27	00		0.9	3.3
	06		-	-		06		-	-
	12		-	-		12		-	-
	13		0.7	3.3		18		1.6	4.9
	14		0.7	3.1				-	-
	15		0.7	3.3	28	00	3	1.8	5.0
	15		0.8	3.1				1.0	3.4
	17		1.0	3.5		06		-	-
	18		1.4	3.5		12		0.7	4.0
	19		1.4	3.5		18		1.2	3.5
	20		1.4	3.6				-	-
	21		1.4	3.8	29	00		0.9	3.4
	22		1.1	3.7		06		-	-
	23		0.9	3.4		12		-	-
			-	-		18		1.5	4.9
23	00		1.4	3.8				-	-
	06		-	-	30	00	3	2.0	5.1
	12		-	-				0.8	3.3
	17		1.2	3.8		06		-	-
	18		1.1	3.5		12		-	-
	19		1.2	3.6		18		1.5	4.9
	20		1.5	3.8				-	-
	21		1.2	3.6				-	-
	22		0.9	3.4	31	00		1.2	4.6
	23		1.1	3.7		06		-	-
			-	-		12		-	-
24	00		1.1	3.7		18		0.9	3.3
	06		-	-				-	-
	12		1.2	4.1				-	-
	14		1.6	3.7				-	-
	15		1.8	3.7				-	-
	16		1.6	3.2				-	-
	17		1.0	3.4				-	-
	18		1.1	3.5				-	-
	19		1.3	3.5				-	-
	20		1.3	3.4				-	-
	21		1.2	3.4				-	-
	22		1.2	3.5				-	-
	23		1.2	3.5				-	-

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