GOVERNMENT OF INDIA

METEOROLOGICAL DEPARTMENT

S E I S M O L O G I C A L B U L L E T I N

July, 1953.

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Published under the direction of

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Director General of Observatories.

Instruments and their Constants.

Station	Instrument	Compt.	Period in secs	Static Magni-fication	Damping ratio	Paper Speed mm/min.
Bombay	Milne-Shaw	N-S	12	350	17:1	16
	Milne-Shaw	E-W	12	350	9:1	8
	Sprengnether	E-W	7	-	-	30.0
Calcutta	Milne-Shaw	E	12	250	20:1	8.0
	Wood-Anderson	N	2	870	Critical	30.0
	Omori-Ewing	N	18	32	-	25.4
	Omori-Ewing	E	19	30	-	25.4
Chatra	Milne-Shaw	E-W	12.0	250	20:1	16.0
	Wood-Anderson	N-S	1.0	1000	30:1	60.0
	Benioff	Z	To = .72 Tg = .45	-	Es=2.3:1 Eg=Critical	60.0
Colombo	Milne-Shaw	E	12	250	24:1	8.0
Dehra Dun	Wood-Anderson	E	1.0	1000	30:1	60
	Wood-Anderson	N	1.0	1000	30:1	60
	Milne-Shaw	E	12.0	250	20:1	16
	Milne-Shaw	N	12.0	250	20:1	16
Hyderabad	Milne-Shaw	E	12	253	20:1	8
	Milne-Shaw	N	12	251	20:1	8
Kodaikanal	Milne-Shaw	E-W	10.0	250	20:1	8
Madras	Sprengnether Microseismo-graph	E-W	To = 7.2 Tg = -	-	-	30
New Delhi	Milne-Shaw	N	12.0	288	20:1	8.0
	Wood-Anderson	N	4.0	1070	20:1	16.0
	Wood-Anderson	E	2.0	1841	30:1	60.0
	Omori-Ewing	E	28.0	30	1	12.0
Poona	Sprengnether Microseismo-graph	Z	To=Tg=1.5	-	-	30
	Wood-Anderson	E-W	4.0	1100	20:1	16
	Milne-Shaw	N-S	12.0	250	20:1	8
Shillong	Wood-Anderson	N-S	1.0	1000		30
	Wood-Anderson	E-W	1.0	1000		30
	Milne-Shaw	N-S	12.0	250		8

SEISMOLOGICAL BULLETIN

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

July 1953

1 Epc: 50½° N., 157° E. Near South Coast of Kamchatka.
0 = 02h. 59m. 35s. (U.S.C.G.S.) h = 60 km ±.
Mag. = 6¾ (Pasadena).
51¾°N., 157°0 E. h = 60 km ±; 0 = 02h. 59m. 34s. (B.C.I.S.)
Mag. - 68 (Roma), 6½ (Praha), 6¼ (Uppsala), 6 - 6¼ (Kiruna).

Shillong	N	iP	03 09 06	5910	Moderate.
		PP	11 07		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
July 1953						
1 (Contd)	Shillong (Contd)	N	PPP	03 12 23		
			iS	16 36		
			PPS	17 04		
			SS	20 03		
			LQ	23 00		
			LR	25 25		
			M	30 14		
1	Chatra	N	eP	03 09 22	6180	Moderate. O.T. = 02h 59m 42s G.M.T.
		E	PcS	14 09		
			eS ..	17 07		
			PS	17 18		
			PPS	17 32		
			ScS	19 08		
			SS	21 29		
			LQ	23 33		
			LR	26 18		
			M	30 36		Per. =21.0 secs μ = 4.0 Amp = 51.
	Calcutta	E	iP	03 09 41	6520	Moderate.
			S	17 45		
	New Delhi	NE	iP	03 09 57	6390	Moderate.
			PcP	10 39		
		N	PPP	13 18		
			eS	17 54		
			PPS	18 54		
			ScS	19 41		
			M	31 28		
1	Hyderabad	EN	iP	03 10 41	7630	
			iS	19 44		
			PS ..	20 21		
			SS	24 08		
			L	32 48		
			M	37 16		Per. = 15 secs μ = 12.
			M	37 26		Per. = 16 secs μ = 14.
1	Bombay	NE	iP	03 10 58	7880	Slight.
		E	PP	13 49		
		NE	PPP	15 26		
			eS	20 13		
		E	SKS	20 44		
			PS	20 56		
		N	e	21 03		
		E	PPS	21 18		
		N	SS	24 43		
		E	M	45 50		
		N	M	46 32		Per. = 16 secs μ = 15.
	Poona	NS	iP	03 10 59	7890	Moderate. $\Delta = 71^{\circ}.0$ O time= 02h 59m 37s G.M.T.(Poona) Shillong=02h 59m 38.5s G.M.T. $\varphi = 5^{\circ}$ N, $\lambda = 146^{\circ}$E
			PcP	11 09		
			PP	13 41		
			PPP	15 41		
			iS	20 15		
			PPS ..	21 07		
			SS	24 59		
			SSS	28 11		
			LQ(PKKP$_1$)	30 18		
			LR(PKKS)	33 18		
			SKKS$_2$	36 03		
			M	37 15		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
July 1953						
1	Kodaikanal	E	e	03 19 55		Slight, distant shock.
1	Shillong	E	ePg	19 36 35	20	Felt locally.
			eSg	36 37		
2	Epc: 18½° S., 169°.0 E. New Hebrides Island. h = 200 km ± . 0 = 06h. 56m. 51s. U.S.C.G.S. 19°.0 S., 168½° E. ; h = 200 km. ± ; 0 = 06h. 56m. 55s. (B.C.I.S.) Mag. 7¾ (Pasadena), 6¾ to 7 (Wellington).					
	Shillong	EN	eP	07 09 21	8850	Moderate.
			PcP	09 31		
			PP	12 14		
		N	PPP	13 58		
		EN	eS	19 23		
			SKS	19 32		
			ScS	19 48		
			PS	20 13		
			PPS	20 40		
		N	SS	24 39		
			SSS	26 25		
			LQ	29 11		
	Calcutta	E	iP	07 09 31	9450	Moderate. Focal depth = ± 245 km.
			PP	10 29		
			iS	19 38		
			SS	21 18		
	Chatra	Z	iP)	07 09 44	8980	Moderate.
		NE	eP)			
		E	PcP	09 53		
			i(pP)?	10 43		
			PP	12 49		
			PPP	14 41		
			iS	19 52		
			ScS	20 09		
			PS	20 39		
			PPS	21 05		
			i(sS)?	21 17		
			SS	24 40		
			SSS	27 54		
			LQ	30 47		
			$PKKS_1$	31 39		
			LR	34 39		
			$SKKS_2$	35 20		
			M	42 10		
2	New Delhi	NE	eP	07 10 23		
		N	P	11 23		
			PPP	15 24		
			i	16 52		
			iS	20 34		
			iPPS	21 35		
			iSS	22 24		
			i	23 15		
			i	23 22		
			i	24 34		
			SS	25 37		
			LQ	32 00		
			LR	36 04		
			M	43 34		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
July 1953						
2	Bombay	NE	e	07 10 31		
		N	i	11 25		
		E	i	11 29		
			i	14 27		
			i	14 50		
			i	15 56		
		N	e	16 30		
		E	i	16 51		
		NE	i	20 45		
		N	i	21 50		
		E	i	21 55		
			i	22 36		
			i	23 38		
			i	23 50		
			i	27 00		
	Colombo	E	P	07 10 39		
	Madras	E	iP	07 10 48	7800	Moderate.
			PcP	10 58		
			PP	13 30		
			iS	19 59		
			SKS	20 39		
			PPS	21 56		
			SS	22 48		
			SSS	27 59		
			LQ	29 54		
			LR	33 19		
2	Kodaikanal	E	iP	07 10 54	7940	Moderate.
			PP	13 39		
			PPP	15 21		
			iS	20 12		
			LQ	29 54		
			LR	33 15		
			M	39 14		
2	Poona	N	iP	07 11 18	7940	Moderate. Δ = 71°.0
			PcP	11 39		O.time (Poona)
			PP	14 02		06h. 59m. 54s. G.M.T.
			PPP	15 40		
			iS	20 36		
			ScS	21 02		
			SS	25 14		
			SSS	28 17		
			LQ	30 02		
			$PKKP_1$	30 29		
			LR	33 17		
			$PKKS_1$	33 45		
			$SKKS_2$	37 17		
			M	39 08		
2	Colombo	E	iPP	07 19 52		
			S	22 01		
			L	25 31		
			M	27 03		Amp. = 3.0 mm.
2	Shillong	E	eP/P*	16 50 05	160	Felt.
			Pg	50 07		
			PP	50 14		
		EN	eS*/Sg	50 24		
			SS	50 36		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
July 1953						
2	Calcutta	N	iP	16 51 01	400	Slight.
			iS	51 44		
3	Epc: 30° N., 137¼° E. ; 0 = 05h. 31m. 00s. (B.C.I.S.).					
	Shillong	N	e	05 42 39		Tremor.
			e	45 23		
			e	47 19		
3	Shillong	EN	iP	06 00 05	240	Felt.
			P*	00 07		
			Pg/PP	00 10		
			PPP	00 19		
			eS	00 32		
			S*	00 37		
			Sg	00 46		
3	Chatra	N	eP	06 00 15	350	Slight.
			P*	00 20		
			PP	00 22		
			Pg	00 28		
			PPP	00 30		
			LQ	00 42		
			LR	00 52		
			iS	00 54		
			S*	01 01		
			Sg	01 08		
			SSS	01 15		
	New Delhi	NE	eP	06 02 09	1300	Slight.
		E	PPP	02 24		
		NE	LQ	04 13		
			iS	04 22		
			SS	04 36		
		N	M	05 44		
3	Bombay	N	e	06 06 40		Near tremor.
			i	08 20		
		NE	e	08 40		
			M	09 --		
	Poona	Z	iP(?)	06 06 57		
3	Hyderabad	E	i	06 07 09		
4	Chatra	Z	i	03 59 42		Slight, distant.
4	Madras	E	e?	12 09 41		Tremor.
5	Madras	EL	e?	10 38 32		Tremor.
6	New Delhi	NE	eP	16 20 45	380	Slight.
			PP	20 52		
		E	Pg	20 56		
		NE	iS	21 26		
			S*	21 33		
			Sg	21 41		
6	Epc: South-eastern New Guinea. 6°.4 S., 147°.3 E. ; Mag. About 6¼ (Wellington).			0 = 21h. 55m. 30s. (U.S.C.G.S.) 0 = 21h. 55m. 37s. (B.C.I.S.)		
	Chatra	Z	i	22 06 34		Slight, distant.
		E	i	15 26		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
July 1953						
6	New Delhi	NE	eP	22 07 26	8420	Slight.
			PcP	07 37		
		N	iS	17 08		
			SKS	17 35		
			SS	21 59		
6	Shillong	N	i	22 14 29		
			i	15 22		
			e	17 13		
7	Epc: 1° N., 100° E. (Sumatra); 0 = 04h. 07m. 23s.					
	1° N., 100° E. h = 250 km. c.a. 0 = 04h. 07m. 48s. (B.C.I.S.)					
	3° N., 99° E. 0 = 04h. 07m. 55s. (Shillong).					
	Mag. 6½ - 6¾ (Wellington).					
	Colombo	E	P	04 12 21		
			S	16 07		
			L	20 08		
			M	21 48		Amp. = 0.4mm.
7	Madras	E	iP	04 12 42.5	2380	Moderate.
			PP	13 09.4		
			PPP	13 20.0		
			iS	16 36.5		
			LQ	16 58.0		
			SS	17 11.0		
			SSS	17 30.8		
			LR	17 58.5		
7	Calcutta	E	iP	04 12 52	2480	Moderate. First movement West.
		N	iP	12 52		
		E	iS	16 54		
			SS	17 34		
			SSS	17 49		
7	Shillong	N	P	04 13 03	2500	Moderate.
			PP	13 22		
			PPP	13 45		
			S	17 06		
			LQ	17 22		
			SS	17 44		
			LR	18 22		
			PcS	21 10		
7	Hyderabad	EN	iP	04 13 14	2740	
		N	PP	13 52		
		EN	iS	17 34		
			SS	18 48		
		E	L	20 19		Per. = 12 secs. μ = 4.
		N	M	22 34		Per. = 14 secs. μ = 6.
7	Chatra	Z	iP	04 13 29	2900	O.T. = 04h. 07m. 52s.GMT. Moderate.
		E	eP			
			PP	14 11		
			PPP	14 26		
			i?	15 46		
			PcP	15 52		
			iS	17 59		
			LQ	18 48		
			SS	19 18		
			SSS	49 37		
			LR	20 11		
			M	22 14		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
July 1953						
7	Kodaikanal	E	iP	04 13 33	2040	Slight.
			iS	16 55		
			LQ	17 03		
			LR	17 54		
			M	19 29		
7	Poona	E	iP	04 13 53	3180	Slight. Δ = 28°.6
			iPPP	14 51		O.Time: Poona = 04h. 07m. 53s.GMT
			iS	18 41		Shillong = 04h. 07m. 55s. G.M.T.
			LR	21 24		
			M	23 58		φ = 3° S. λ = 99° E.
7	Bombay	NE	eP	04 14 01	3340	Feeble.
		E	PP	14 55		
		NE	PPP	15 17		
			iS	18 59		
			LQ	20 19		
		N	SS	20 26		
		E	SS	20 29		
			i	21 46		
		N	LR	22 02		
7	New Delhi	NE	iP	04 14 25	3590	Moderate. Direction of first motion North.
		N	PP	15 37		
		NE	PPP	15 54		
		N	PcP	17 07		
			iS	19 39		
			PcS	20 55		
			SS	21 23		
			SSS	21 48		
			i	22 11		
			LR	23 02		
7	Epc: 31° N., 141½° E. O = 17h. 28m. 25s. (U.S.C.G.S.) Mag. 6.2 (Roma), 6 (Kiruna), 5¾ (Uppsala). Epc: 31°.2 N., 142°.1 E. h = 60 km. O = 17h. 28m. 30s. (C.M.O., Japan).					
	Chatra	Z	i	17 37 01		Slight, distant. Surface waves.
		E	e	57 31		
7	Shillong	N	e	17 42 24		Slight.
			e	47 15		
			e	53 50		
9	O = 09h. 19m. 24s. (Quetta).					
	Shillong	NE	P	09 20 54	170	Felt locally.
		N	P*	20 56		
		E	Pg	21 02		
		N	PPP	21 06		
			LQ	21 16		
			S	21 25		
		NE	S*	21 30		
		N	Sg	21 31		
		E	SSS	21 52		
9	Chatra	Z	iP X	09 21 48	790	Slight.
		N	eP X			
			PP	21 57		
			PPP	22 03		
			P*	22 07		
			Pg	22 22		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
July 1953						
9 (Contd)	Chatra (Contd)	N	LQ	09 22 58		
			iS	23 10		
			LR	23 21		
			SS	23 23		
			SSS	23 32		
			S*	23 35		
			Sg	23 55		
	Calcutta	N	i	09 22 18		Slight, near.
	New Delhi	NE	P	09 23 49	1630	Slight.
		N	PPP	24 11		
			eS	26 34		
			SS	26 53		
9	Epc: West of Sinkiang, China. 40½° N., 78½° E. 0 = 19h. 02m. 06s. (B.C.I.S.)					
	41° N., 77° E. 0 = 19h. 02m. 03s. (U.S.C.G.S.)					
	Mag. 6 (Kiruna, Uppsala, Praha), 5.8 (Roma).					
	Epc: 40° N., 78½° E. 0 = 19h. 02m. 03s. (Shillong).					
	New Delhi	NE	P	19 04 52	1240	Slight.
			PP	04 59		
		N	PPP	05 07		
		NE	P*	05 20		
			iS	06 59		
			SS	07 12		
			LR	07 23		
		N	SSS	07 27		
		NE	M	08 30		
9	Chatra	Z	eP	19 05 43	770	O.T. = 18h. 01m. 56s. G.M.T.
		E	eP			
			PP	06 00		Moderate.
			PPP	06 10		
			LQ	08 32		
			iS	08 40		
			SS	08 53		
			i?	09 00		
			LR	09 19		
			M	10 38		Per. = 11.0 secs μ = 51. Amp. = 10.0 mm.
	Shillong	N	P	19 06 27	2120	
			PP	06 44		
			PPP	06 56		
			S	09 57		
			SS	10 29		
			SSS	10 34		
			LR/PcP	11 02		
			M	12 27		
			ScS	18 21		
9	Calcutta	E	iP	19 06 43	2220	Moderate. First movement East.
			?	07 39		
			iS	10 23		
			LQ	10 33		
			LR	11 24		
			M	13 07		
9	Madras	E	eP?	19 07 08.9	4180	Moderate.
			PcP?	11 00.0		
			iS	12 59		
			LQ	14 24		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
July 1953						
9 (Contd)	Madras (Contd)	E	LR	19 15 56		
			M	18 20		
9	Poona	N	eP	19 07 09	2440	Moderate. Δ = 21°.9 O.T. = Poona = 19h. 02m. 12s.GMT Shillong = 19h. 02m.03s. Q = 41° N., λ = 77° E.
			eS	11 07		
			Mn	16 12		
9	Bombay	N	iPX	19 07 10	2480(E-W) 2555(N-S)	Slight.
		E	ePX			
		N	PP	07 31		
			PPP	07 50		
		E	iS	11 12		
		N	iS	11 17		
		NE	LQ	11 41		
		E(SPr)	SS	11 53		
		N	M	16 09		Per. = 11 secs μ= 30.
		E	M	17 46		Per. = 8 secs μ = 13.
	Hyderabad	N	iP	19 07 14	2660	
			PP	07 38		
			PcP	11 19		
			iS	11 29		
		E	SS	12 08		
			L	14 17		
			M	15 32		Per. = 15 secs μ= 32.
		N	M	16 19		Per. = 15 secs μ = 57.
9	Kodaikanal	E	iP	19 14 13	1990	Slight.
			iS	17 31		
			LQ	17 33		
			LR	18 22		
			M	19 46		
9	Colombo	E	L	19 20 54		
			M	25 33		Amp. = 0.3mm.
9	Epc: Western Sinkiang Province, China. O = 20h. 43m. 28s. (USCGS) O = 20h. 43m. 31s. (B.C.I.S.):, O = 20h. 43m. 25s. (Shillong) Aftershock of the earthquake at 19h. 02m. 03s.					
	New Delhi	NE	eP	20 46 19	1250	Slight.
		N	PPP	46 36		
		NE	iS	48 27		
			SS	48 40		
			LR	48 50		
			M	49 57		
9	Chatra	EZ	eP	20 47 09	1710	Slight. O.T.=20h. 43m. 29s. G.M.T.
			LQ	49 50		
			iS	50 01		
			SS	50 12		
			SSS	50 27		
			LR	50 42		
			M	51 59		Per. = 7.5 secs μ = 9. Amp. = 2.0mm.
	Shillong	N	P	20 47 49	2130	
			PP	48 07		
			PPP	48 17		
			S	51 20		
			LQ	51 32		
			SS	51 52		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
July 1953						
9 (Contd)	Shillong (Contd)	N	SSS	20 52 03		
			PcP	52 19		
			LR	52 33		
			M	53 50		
			PcS	55 26		
			ScS	59 41		
9	Calcutta	E	eP	20 48 05	2240	Slight.
			iS	51 46		
9	Poona	NSZ	eP	20 48 29	2400	Slight. Δ = 21°.6
			eS	52 24		O. time = Poona - 20h. 43m. 35s. GMT
			Mn	57 31		Shillong = 20h. 43m. 25s. GMT.
9	Bombay	N	eP	20 48 30	2565	Feeble.
			iS	52 38		
			LQ	53 10		
			LR	54 16		
			M	57 28		Per. = 11 secs μ = 9.
	Hyderabad	N	iP	20 48 34	2640	
			PcP	52 39		
			iS	52 47		
		E	L	55 47		
			M	57 23		Per. = 12 secs μ = 5.
		N	M	57 43		Per. = 14 secs μ = 14.
9	Madras	E	iS	20 54 17		Moderate.
9	Kodaikanal	E	e	20 55 49		Tremor.
9	Epc: 30° N., 42½° W. O = 21h. 23m. 48s. (U.S.C.G.S.).					
	Bombay	N	e	21 37 45		
			e	49 31		
9	Poona	N	e?	22 15 24		Feeble, phases not clear.
9	Kodaikanal	E	e	22 18 49		Tremor.
9	Hyderabad	E	M	22 27 46		Per. = 18 secs μ = 6.
		N	M	28 23		Per. = 18 secs μ = 8.
10	Epc: 6°.5 S., 113°.5 E., Java Sea. h = 580 km ± (Shillong) 6°.5 S., 113°.5 E. h = 600 km ± ; O = 15h. 06m. 41s. (BCIS).					
	Shillong	N	iP	15 17 09		Moderate.
			PP	18 11		
			PPP	18 45		
			PcP	20 05		
			iS	22 17		
			LQ	23 31		
			LR	25 07		
			M	28 00		
10	Madras	E	iP	15 17 12.2	4140	
			iS	22 20.2		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
July 1953						
10	Hyderabad	E	eP	15 17 38	3900	
			PP	19 17		
			iS	23 11		
			SS	26 08		
		N	M	30 29		
		E	M	30 35		Per. = 12 secs μ = 5. Per. = 12 secs μ = 3.
10	Chatra	Z	iP	15 17 40	3790	O.T.= 15h. 18m. 51s.GMT Slight.
		E	eP			
			PPP	19 18		
			PcP	20 02		
			iS	23 06		
			PcS	23 52		
			SSS	26 09		
			LR	27 09		
			ScS	27 59		
			M	30 02		
10	Poona	Z	iP	15 18 13	4320	Slight. Δ = 38°.9 O.Time = 15h. 10m. 44s. G.M.T. (Poona)
			PP	19 46		
			iS	24 12		
			SS	26 54		
10	New Delhi	NE	P(?)	15 18 35	4540	Moderate.
			pP	20 18		
			PP	20 31		
		N	PPP	21 16		
		NE	iS	24 47		
		N	i	27 22		
			sS	27 56		
			SS	28 33		
10	Dehra Dun	N	eP	15 18 39	4640	Moderate.
			PcP	20 08		
			PPP	20 55		
			iS	24 58		
			PS	25 06		
			PPS	25 10		
			i	27 29		
			SS	27 58		
10	Kodaikanal	E	e	15 19 49		Tremor.
10	Bombay	NE	e	15 20 06		
			i	24 28		
		N	i	27 16		
		E	i	27 20		
	Chatra	E	e	15 22 25		Slight, distant.
			i	26 45		
10	Dehra Dun	N	iP	15 40 51		Slight.
			i	41 06		
			i	42 17		
			LR?	43 14		
			M	44 04		
11	Epc: Celebes Is. Region. O = 10h. 34.4m. (B.C.I.S.)					
	Shillong	N	i	10 42 06		Slight, distant.
11	Chatra	Z	i	10 42 42		Slight, distant.
11	Poona	Z	i	10 43 36		Tremor.

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
July 1953						
12	New Delhi	N	iP	00 05 17	970	Slight, Direction of first motion South.
			PPP	55 32		
			iS	56 57		
			SS	57 09		
			SSS	57 22		
12	Epc: Hindukush. 0 = 00h. 52m. 55s. (U.S.C.G.S.).					
	Dehra Dun	NE	iP	00 55 09	810	Slight.
		E	PP	55 16		
			PPP	55 22		
			P*	55 26		
			LQ	56 22		
			iS	56 33		
			LR	56 42		
			S*	56 57		
			Sg,M	57 19		
12	Bombay	NE	e	00 56 06		Feeble.
		N	e	57 10		
			i	57 40		
		N	e	01 00 26		
		E	i			
		NE	i	01 07		
	Chatra	Z	iP	00 56 53	1750	Slight. O.T. = 00h. 53m. 09s. G.M.T.
			LQ	59 42		
			iS	59 48		
		E	M	01 02 06		
	Poona	NSZ	eP	00 57 12	2010	Slight.; Δ = 18°.1. O time = 00h. 52m. 58s. G.M.T.(Poona).
		NS/EW	eS	01 00 32		
		EW	SS	00 51		
			M	02 42		
12	Hyderabad	N	iP	00 57 37	2250	
			S	01 01 20		
12	Shillong	NS	i	00 57 42		Feeble. Other phases not identifiable.
12	Madras	EW	iP	00 58 46	2610	Moderate.
			iS	01 02 49		
			LQ	03 19		
			M	06 30		
12	Epc: 2° S., 139½° E. near North Coast of New Guinea. Mag. 6½ (Pasadena) (U.S.C.G.S.) 2° S., 140°.5 E.; 0 = 06h. 43m. 07s. (Shillong) Mag. 6½ (Pasadena), 6.3 (Roma), 6¼ (Praha).					
	Shillong	NS	iP	06 52 27		Moderate.
			PcP	53 38		
			PP	54 32		
			PPP	55 45		
			PcS	57 36		
			S	59 55		
			ScS	07 02 16		
			SS	03 48		
			SSS/LQ	05 27		
			LR	08 04		
			M	13 09		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
July 1953 12	Calcutta	E	iP	06 52 42	6110	Slight. First movement East.
			iS	07 00 23		
	Kodaikanal	EW	e	06 52 47.5		Distant shock.
12	Chatra	EZ	iP	06 53 01	6420	O.T. = 06h. 43m. 05s. G.M.T. Slight.
		E	PcP	54 00		
			PP	55 07		
			PPP	56 11		
			PcS	57 55		
			iS	07 01 00		
			PS	01 12		
			PPS	01 22		
			ScS	02 47		
			SS	04 58		
			SSS	06 49		
			LQ	07 20		
			LR	09 15		
			M	14 49		
	Madras	EW	iP	06 53 19.6	6710	Moderate.
			PP	55 29.6		
			PPP	57 00.8		
			iS	07 01 47.6		
			PS	02 02.0		
			SS	05 28.0		
	Hyderabad	EN	iP	06 53 34	6940	
		E	PP	55 47		
		N	iS	07 02 01		
		E	SS	05 57		
			L	12 56		Per.=15 secs μ = 4.
			M	19 38		
12	New Delhi	NE	eP	06 53 57	7350	Moderate.
			PcP	54 33		
		N	iS	07 02 45		
			SKS	03 41		
12	Dehra Dun	N	eP	06 53 59	7390	Moderate.
			PcP	54 35		
			iS	07 02 49		
			PS	03 18		
			PPS	03 26		
			ScS	03 34		
12	Poona	EWZ	iP	06 54 03	7480	Slight; Δ = 67.3 . O. time = Poona = 06h.43m.04s.GMT Shillong = 06h.43m.07s."
		EW	eS	07 02 58		
			SS	07 22		
			M	21 32		φ = 2°S. λ = 140½° E.
12	Bombay	NE	eP	06 54 15	7550	Slight.
			PP	56 45		
			PPP	58 26		
			eS	07 03 12		
			PS	03 32		
			SS	07 34		
			SSS	10 37		
			LQ	12 04		
13	New Delhi	NE	iP	18 06 19	930	Slight.
			PP	06 26		
			PPP	06 31		
		E	eS	07 55		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
July 1953						
13 (Contd)	New Delhi (Contd)	NE	SS	18 08 07		
			SSS	08 17		
			S*	08 27		
13	Chatra	Z	e(P)?	18 07 26	1620	O.T. = 18h. 03m. 56s.GMT
			i(S)?	10 09		Feeble.
13	Epc: 18° S., 169½° E., New Hebrider Island. O = 21h. 28m. 35s. (U.S.C.G.S.)					
	Shillong	NS	i	21 51 22		Very feeble. Phases not
			i	51 41		identifiable.
14	New Delhi	NE	eP	17 23 58	1030	Slight.
		E	PP	24 07		
			PPP	24 16		
		NE	iS	25 44		
		E	SS	25 56		
		NE	LR	26 02		
		N	SSS	26 07		
14	Chatra	Z	i	17 25 35		Slight, distant.
15	Poona	EW	iP	00 56 08	2170	Slight; Δ = 19°.5. O.time
			iPP	56 26		(Poona) = 00h. 51m. 36s.
			iPPP	56 45		G.M.T.
			iS	59 43		
			LQ	01 00 09		
			PcP(SS)	00 24		
			LR	01 11		
			M	02 41		
			PcS	03 53		
			ScS	07 38		
15	Shillong	NS	iPg	22 23 30		Slight, shock locally
			iSg	23 39		felt in Shillong. Other phases not clear.
16	Madras	EW	iS?	00 30 39.2		Moderate, phases not clear.
16	Bombay	N	e	00 56 14		
		E	e	58 02		
		N	eX	59 52		
		E	iX			
	Hyderabad	N	eP	00 56 22	2300	
		EN	iS	01 00 09		
			L	01 29		
		N	M	02 52		Per. = 14 secs μ = 9.
16	Chatra	Z	e	00 58 18		Slight, distant. Surface
		E	e	01 07 -		waves.
	Colombo	E	M	01 01 34		Amp. = 0.6mm.
20	Epc: 21° S., 177° W. Tonga Island Region. h = 100 km ± (U.S.C.G.S.) Mag.6½ (Pasadena, Wellington, Christchurch), 6¼ (Kiruna, Uppsala) O = 08h. 08m. 20s.					
	Shillong	NS	eP	08 25 14		Moderate, distant.
			PcP	26 46		
			S	32 19		
			PS	32 25		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
July 1953						
20 (Contd)	Shillong (Contd)	NS	ScS	08 35 11		
			SS	35 47		
			LQ	36 38		
			LR	39 08		
			M	43 09		
20	Chatra	EZ	e(P)?	08 26 06	4830	Slight, distant.
		E	e(S)?	32 35		
			i(ScS)?	33 27		
20	Bombay	NE	e	08 26 20		Distant.
			e	27 42		
		E	i	28 13		
			i	30 35		
		N	e	33 26		
		E	i	33 31		
			i	34 19		
	Hyderabad	E	eP	08 26 35	4740	
			S	32 59		
			M	44 02		Per. = 12 secs μ = 2.
20	Kodaikanal	EW	e	08 26 41.5		Slight, tremor.
20	Poona	EW	i	08 28 15		Distant shock. Phases uncertain.
20	Shillong	NS	Pg	20 27 29		Slight, near; Other phases not identifiable.
			Sg	27 42		
20	Chatra	Z	iP	20 28 06	380	O.T.= 20h. 20m. 00s.GMT Slight.
			P*	28 13		
			PP	28 15		
			Pg	28 19		
		EZ	LQ	28 37		
			LR	28 45		
			iS	28 47		
			S*	28 54		
			Sg	29 02		
21	Calcutta	E	i	17 29 38		Slight, distant.
			i	35 18		
			i	39 30		
21	Epc: 27½° N., 128° E., Ryukyu Island; 0 = 17h. 22m. 39s. (USCGS) 26¾° N., 128° E.; 0 = 17h. 22m. 35s. (B.C.I.S.) Mag. 6 (Praha).					
	Chatra	Z	i	17 29 41		Slight, distant.
			i	32 07		
	Shillong	NS	eP	17 29 47		Moderate.
			PcP	30 26		
			PPP	32 14		
			S(?)	36 08		
			PPS	36 58		
			ScS	38 57		
			SS	40 13		
			SSS/LQ	41 30		
			LR	43 12		
			M	48 16		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	△ km.	REMARKS
July 1953						
21	New Delhi	NE	iP	17 30 50	4790	Slight. Direction of first motion South and East.
			PP	32 32		
		N	PcS	36 25		
			eS	37 17		
			LQ	40 44		
21	Poona	EW/Z	iP	17 31 35		Slight; Δ = 51°.2
		EW	eS	38 53		O.Time = 17h. 22m.28s. G.M.T. (Poona)
21	Bombay	NE	iP	17 31 41	5670	Feeble.
		E	PP	33 41		
		N	eS	38 58		
		E	PS	39 04		
			PPS	39 13		
			i	41 47		
			SS	42 27		
			LQ	45 58		
22	Epc: 51° N., 157° E. Near South Coast of Kamchatka. O = 05h. 11m. 15s. h = 60 km. ±. Mag. 6¾ - 7 (Pasadena), 6¾ (Berkeley, Praha), 6½ - 6¾ (Roma), 6½ (Strasbourg), 6¼ - 6½ (Kiruna, Uppsala).					
	Shillong	NS	iP	05 20 45		
			PcP	21 42		
			PP	22 43		
			PPP	24 07		
			PcP	25 45		
			S	28 16		
			PS	28 47		
			PPS	29 08		
			ScS	30 25		
			SSS	33 08		
			LQ	34 45		
			LR	36 40		
			M	41 05		
22	Chatra	Z	iPX	05 21 02	6410	Moderate. O. T. = 05h. 11m. 07s. G.M.T.
		E	ePX			
			PcP	21 43		
			PP	23 14		
			PPP	24 35		
			PcS	25 35		
			eS	29 00		
			PS	29 16		
			PPS	29 32		
			ScS	30 28		
			SS	32 57		
			SSS	35 27		
			LQ	36 07		
			LR	38 53		
			$PKKP_1$	41 31		
			M	45 05		Per. = 15 secs. Amp=3.5 μ = 25.
	Calcutta	E	eP	05 21 13	6390	Slight.
			S?	29 10		
			PPS?	29 31		
	New Delhi	NE	iP	05 21 34	6740	Moderate.
		N	PPP	25 25		
			PcS	26 10		
			iS	29 50		
			PPS	30 16		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
July 1953						
22 (Contd)	New Delhi (Contd)	N	ScS	05 31 14		
			i	31 42		
			LQ	36 36		
			M	44 00		
22	Hyderabad	EN	iP	05 22 22	7570	
			PP	24 57		
			iS	31 22		
		E	PS	31 39		
			SS	35 47		
			L	44 14		
			M	48 46		Per. = 18 secs μ = 13.
		N	M	48 54		Per. = 15 secs μ = 13.
22	Poona	EWZ	iP	05 22 34	7520	Slight; Δ = 67°.67
			eS	31 31		O Time = Poona = 05h.
		EW	PS	31 54		11m. 33s. G.M.T.
			PPS	32 05		Shillong = 05h. 11m. 22s.
			ScS	32 10		G.M.T.
			SS	35 43		Q = 46° N. λ = 157°E.
			SSS	38 40		
			LQ	40 00		
			LR	43 07		
			M	48 55		
22	Bombay	N	iP	05 22 37	7820	
		NE	PcP(PP)	23 02		
		N	e	24 14		
			PPP	27 23		
			e	28 04		
			eS	31 49		
			PS	32 24		
			PPS	32 38		
			i	33 04		
			SS	36 25		
	Madras	EW	iP	05 22 39.1	7890	Moderate.
			iS	31 56.1		
			SKS	32 18.0		
			ScS	32 22.0		
			PS	32 29.0		
			PPS	32 44.0		

22 Epc: 42½° N., 143° E. near South Coast of Hokkaido, Japan; 0 = 12h. 52m. 12s. (U.S.C.G.S.)
41°.6 N., 144°.0 E. h = 50 km ±, 0 = 12h. 52m. 11s. Felt (C.M.O.Japan).
42°.0 N., 143½°E. h = 60 km ±, 0 = 12h. 52m. 12s. (B.C.I.S.)
Mag. 5½ (Kiruna, Praha).

	Shillong	NS	e	12 58 03		Slight. Other phases not clear.
			e	13 07 04		
			M	19 10		
22	Poona	Z	i	13 02 38		Tremor.
23	Shillong	NS	e	00 10 58		Slight. Other phases not clear.
			i	15 20		
			i	18 12		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
July 1953						
23	Ecp: Southern Pakistan; 0 = 01h. 05m. 45s. (U.S.C.G.S.) 26¼° N., 65°.0 E.; 0 = 0h. 05m. 44s. (B.C.I.S.) Mag. 5½ (Kiruna).					
	Bombay	NE	eP	01 08 13	1060	Very feeble.
		N	PP	08 18		
			PPP	08 27		
		NE	LQ	09 48		
			iS	10 02		
			SS	10 17		
			SSS	10 28		
	New Delhi	NE	eP	01 08 22	1120	Slight.
			PP	08 30		
		N	PPP	08 36		
			iS	10 17		
			SS	10 34		
		NE	S*	10 53		
23	Poona	ZEW	iP	01 08 25	1180	Slight, Δ = 10°6
			iS	10 25		0 time = 01h. 05m. 49s.
		EW	M	11 33		G.M.T. (Poona)
			PcP	14 15		
			PcS	17 41		
			ScS	21 07		
23	Hyderabad	N	P	01 09 31	1990	
			S	12 49		
			L	14 25		
			M	16 25		Per. = 12 secs μ = 5.
23	Chatra	EZ	i	01 10 17		Slight.
		Z	i	13 49		
23	Calcutta	E	eP	01 10 36	3460	Slight.
			iS	15 42		
			SSS?	17 39		
23	Madras	EW	e	01 14 57.0		Tremor.
23	Poona	Z	i	02 38 34		Tremor.
23	Shillong	N	e	12 28 54		Very feeble.
			i	30 01		
23	Epc: Off South Coast of Kamchatka; 0 = 18h. 24m. 14s. (U.S.C.G.S.)					
	Shillong	NS	i	18 42 01		Slight.
23	Poona	NS	e?	18 45 -		Feeble.
25	Shillong	NS	e	15 45 15		Slight, other phases
			i	46 14		not clear.
25	Chatra	Z	i	15 46 01		Slight.
			i	47 45		
26	Shillong	NS	i	12 35 34		Slight, other phases not identifiable.

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
July 1953 26	Epc: 17½° N., 145° E.; h = 200 km ±. 0 = 16h. 53m. 16s (USCGS) (Mariana Island). 17°.8 N., 145°.2 E. h = 200 km ±. 0 = 16h. 53m. 18s. (BCIS). Mag. 7 (Pasadena, Roma).					
	Shillong	NS	eP	17 01 55		Moderate
			i	02 40		
			i	02 58		
			PPP	04 35		
			S	08 58		
			PS	09 03		
			PPS	09 10		
			ScS	11 41		
			SS	12 19		
			LQ	13 20		
			SSS	13 34		
			LR	15 35		
			M	19 56		
	Calcutta	E	iP	17 02 20	6110	Moderate. First movement West. Focal depth about 225 kms.
			iS	09 44		
			SS	11 08		
26	Chatra	EZ	iP	17 02 30	5940	O.T. 16h. 53m. 18s. GMT. Slight.
		E	Pp?	02 53		
			PcP	03 34		
			PP	04 08		
			PPP	05 08		
			PcS	07 30		
			iS	09 53		
			PS	10 03		
			PPS	10 12		
			Ss?	10 34		
			ScS	11 56		
			SS	13 19		
			LQ	15 02		
			LR	18 08		
			M	23 00		
	New Delhi	NE	eP	17 03 27	6670	Moderate.
			iS	11 39		
		N	sS	12 55		
			SS	15 35		
			LQ	18 35		
26	Madras	EW	iP	17 03 29.6	6720	Moderate.
			iS	11 44.6		
			PS	12 06		
			PPS	12 14		
			ScS	12 59		
			SS	15 32		
			LQ	18 59.8		
			Lr	21 40.8		
26	Hyderabad	E	iP	17 03 32	6850	
			PP	05 57		
			iS	11 54		
			PS	12 42		
			ScS	13 27		
			SS	15 54		
			L	22 30		
			M	27 42		Per. = 12 secs μ = 3.

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
July 1953						
26	Kodaikanal	EW	iP	17 03 51.5	6880	Slight.
			PP	06 10		
			PPP	07 36.5		
			iS	12 14		
			SS	16 12.5		
			LQ	19 18.5		
			LR	22 11		
			M	27 18.5		
26	Poona	EWZ	iP	17 04 01	7200	Slight; Δ = 64.83°
		EW	PP	06 27		O. time:-
			PcS	08 15		Poona = 16h.53m.18s.GMT
			iS	12 42		Shillong=16h.53m.10s."
			iPcS	13 35		Q = 16°N. λ = 147°E.
			SS	16 53		
			LQ	20 54		
			LR	23 53		
			M	29 23		
26	Bombay	NE	eP	17 04 06	7320	Moderate.
		E	PcP	04 21		
		N	e	04 24		
		NE	PP	06 43		
		E	PPP	08 05		
		NE	iS	12 52		
			PS	13 14		
			PPS	13 23		
		N	i	13 49		
			i	14 10		
		E	ScS	14 40		
		N	i	15 13		
			SS	16 53		
		E	SS	17 15		
		N	SSS	19 50		
26	Shillong	NS	e	23 57 41		
27	Shillong	NS	e	04 32 58		Tremor.
27	New Delhi	NE	eP	17 51 27	990	Slight.
			iS	53 09		
29	Epc: 16° S., 173° W. Fiji Island Region. Felt Apia. O = 23h. 18m. 02s. Mag: 6½ (Pasadena) (U.S.C.G.S.)					
	Shillong	NS	e	23 42 35		Tremor.
30	Shillong	NS	i	01 40 42		Tremor.
30	Shillong	NS	i	08 44 24		Tremor.
30	Epc: 19° N., 145° E. Mariana Island. h = 200 km ±; O = 23h. 44m.44s. (U.S.C.G.S.) 18½° N., 146.0° E. h = 200 km ± . O = 23h. 44m. 45s. (C.M.O. Japan). Mag. 5¾ to 6 (Roma).					
	Chatra	Z	i	23 53 56		Feeble, distant.
30	Poona	EW	iP	23 55 24		
			PcP	55 48		
			PP	57 46		
			PPP	59 14		
			PcS	59 45		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
July 1953 31	Shillong	NS	i	00 00 07		Slight. Phases not clearly identifiable.
			i	01 34		
			i	10 13		
31	Chatra	EZ	i	00 01 12		Feeble, distant.
31	Bombay	E	i	00 02 53		
			e	03 14		
		N	i	03 19		
			e	04 10		
			i	05 45		
			e	06 26		
	Poona	EW	iS	00 03 59.	7090	Slight, Δ = 63°.8 O. time = 23h. 44m. 47s. G.M.T. (Poona)
			PS	04 24		
			PPS	04 27		
			ScS	05 04		
			SS	08 12		
			SSS	10 58		
			LQ	11 50		
			LR	14 44		
			M	20 00		

= VOLUNTARY OBSERVER'S REPORT =

Following table contains a list of earthquakes reported by Voluntary Observers from various stations during the month of July, 1953.

Station at which felt	Date	Time in G.M.T.	Duration in secs	Intensity R.F. scale	No. of shocks
Shillong	2.7.53	16-50-00	3	II	1
Shillong	2.7.53	19-37-00	2	II	1
Gauhati	2.7.53	16-52-00	5	IV	1
Gauhati	3.7.53	06-10-00	5	IV	1
Darjeeling	3.7.53	06-10-00	4	VI	4
Tezpur	6.7.53	19-30-00	5	IV	1
Gauhati	16.7.53	10-33-54	2	IV	1
Shillong	16.7.53	22-25-00	6	IV	1
Shillong	21.7.53	20-27-00	10	IV	1
Gauhati	21.7.53	20-20-00	8	V	1
Gauhati	23.7.53	17-41-00	2	II	1

SM:19.9.

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GOVERNMENT OF INDIA

METEOROLOGICAL DEPARTMENT

S E I S M O L O G I C A L B U L L E T I N

August, 1953.

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Published under the direction of
Dr. S.C. Roy, D.Sc.(Lond), F.N.I.,
Director General of Observatories.

Instruments and their constants.

Station	Instrument	Compt.	Period in secs	Static Magni-fication	Damping ratio	Paper Speed mm/min
Bombay	Milne-Shaw	N-S	12	350	15:1	16
	Milne-Shaw	E-W	12	350	15:1	8
	Sprengnether	E-W	7	-	-	30
Calcutta	Milne-Shaw	E-W	10.0	150	20:1	8.0
	Wood-Anderson	N-S	2.0	870	Critical	30.0
	Omori-Ewing	N-S	18.0	32	-	25.4
	Omori-Ewing	E-W				
Chatra	Milne-Shaw	E-W	12.0	250	20:1	16.0
	Wood-Anderson	N-S	1.0	1000	30:1	60.0
	Benioff Vertical	Z	To =0.72 Tg =0.45	-	Es=2.3:1 Eg=Critical	60.0
Colombo	Milne-Shaw	E	12	250	20:1	8.0
Dehra Dun	Wood-Anderson	E-W	1.0	1000	30:1	60.0
	Wood-Anderson	N-S	1.0	1000	30:1	60.0
	Milne-Shaw	N-S	12.0	250	20:1	16.0
Hyderabad	Milne-Shaw	E-W	12.0	253	20:1	8.0
	Milne-Shaw	N-S	12.0	251	20:1	8.0
Kodaikanal	Milne-Shaw	E-W	10.0	250	20:1	8.0
Madras	Sprengnether Mcroseismo-graph	W-W	To=Tg= 7.2 secs	-	-	30.0
New Delhi	Milne-Shaw	N-S	12.0	288	20:1	8.0
	Wood-Anderson	N-S	4.0	1070	20:1	16.0
	Wood-Anderson	E-W	2.0	1841	30:1	60.0
	Omori-Ewing	E-W	28.0	30	1	12.0
Poona	Sprengnether Vertical	Z	To=Tg= 1.5	-	-	30.0
	Milne-Shaw	N-S	12.0	250	20:1	8.0
	Wood-Anderson	E-W	4.0	1100	20:1	16.0
Shillong	Wood-Anderson	N-S (from 16-8-53)	4.0	1000	20:1	60.0
	Milne-Shaw	N-S	12.0	250	20:1	8.0

SEISMOLOGICAL BULLETIN

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
August 1953 02	Chatra	Z	i	17 25 34		Feeble.
02	Chatra	Z	i	18 19 49		Feeble.
02	Chatra	Z	i	21 18 17		Feeble, distant.
04	Chatra	Z	e	14 05 55		Slight.
		E	i	16 07		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
August 1953						
04 (Contd)	Shillong	N	i	14 15 37		Tremor.
			e	15 50		
05	Shillong	N	e	00 48 49		Slight, near.
			e	49 23		
			e	50 05		
	Chatra	Z	i	00 49 07		Slight, near.
			i	50 38		
05	Chatra	Z	i	12 55 24		Slight, near.
			i	56 47		
06	Epc: $52\frac{1}{2}^{\circ}$ N., $159\frac{1}{2}^{\circ}$ E.; 0 = 09h. 00m. 49s. (U.S.C.G.S.)					
	Chatra	Z	iP	09 10 54		Slight.
	Bombay	N	e	09 12 21		
			i	12 58		
			i	19 50		
	Shillong	N	e	09 31 20		Tremor.
			e	36 12		
06	Epc: 45° N., 86° E., Sinkiang Province; 0 = 18h. 55m. 42s. (U.S.C.G.S.)					
	Chatra	Z	iP	18 59 35		Slight, near.
	Shillong	N	iP	18 59 55	2130	Slight.
			pP	19 00 13		
			eS	03 26		
			LQ	03 38		
			LR	04 37		
			M	05 56		
			Mn	07 40		
	Calcutta	EN	i(P)	19 00 21		Slight, distant.
		N	i	00 26		
		E	i(S)	04 31		
		N	i	04 33		
		E	i	09 50		
	Hyderabad	E	e(P)	19 01 12	3400	
		EN	S	06 14		
		N	SS	07 19		
		E	M	13 08		Per. = 10 secs μ =4.
		N	M	13 20		Per.=12 secs μ = 9.
	Bombay	N	e(P)	19 01 20		Feeble.
		E	e	01 32		
			i	02 03		
		N	e	02 18		
			e	04 32		
			e(S)	06 17		
			i	06 26		
		E	i	06 30		
		N	i	08 42		
			M	13 -		
	Poona	N	eS(?)	19 06 16		Slight, phases not clear.
	Madras	E	e	19 12 20		Tremor.

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
August 1953						
6	Epc: Off the South East Coast of Kamchatka. 0 = 20h. 42m. 49s. ; h = about 60 km (U.S.C.G.S.).					
	Shillong	N	M	21 13 22		
	Hyderabad	N	M	21 28 26		Per. = 15 secs μ = 4.
	Poona	N	e?	21 50 -		Tremor.
7	Dehra Dun	E	e	05 57 50		Tremor.
			i	58 21		
7	Dehra Dun	N	e	06 45 50		Tremor.
			i	46 20		
7	Hyderabad	N	M	13 09 08		Per. = 15secs μ = 4.
9	Epc: 38°.3 N., 20°.6 E. 0 = 07h. 41.1m (B.C.I.S.) 38°.5 N., 21° E. 0 = 07h. 41m. 05s. (U.S.C.G.S.) 39°.3 N., 21°.3 E. 0 = 07h. 41m. 07s. (Shillong). Heavy damage to buildings in the island of Ithaca in Ionian Sea and some casualties (Press).					
	New Delhi	N	eP	07 49 40	5300	Moderate.
			eS	56 36		
			PPS	56 50		
			LR	08 02 48		
	Bombay	N	eP	07 49 57	5435	Feeble.
			PP	51 52		
			PcS	55 18		
		NE	eS	57 00		
		N	PPS	57 14		
			e	59 01		
			i	08 01 22		
			SSS	01 52		
			LR	02 52		
	Poona	Z	iP	07 50 06	5490	Slight.
		N	PP	51 55		
			PPP	52 52		
			eS	57 13		
			PS	57 20		
			PPS	57 41		
			M	08 08 53		
	Hyderabad	E	eP	07 50 33	6120	
		NE	iS	58 18		
		E	L	08 10 05		
		N	M	12 49		Per. = 15 secs μ = 8.
		E	M	12 54		Per. = 15 secs μ = 5.
	Chatra	EZ	eP	07 50 46	6220	Slight.
		E	PcP	51 43		
			PP	52 53		
			PcS	55 43		
			eS	58 34		
			PS	58 43		
			PPS	59 00		
			ScS	08 00 38		
			LQ	03 15		
			LR	07 30		
			M	12 --		

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
August 1953						
9 (Contd)	Calcutta	E	eP	07 51 02		Slight.
			PS	59 18		
	Shillong	N	eP	07 51 19	6630	Slight.
			PP	53 23		
			iS	59 29		
			PPS	59 52		
			LR	08 08 47		
			M	13 19		
	Kodaikanal	E	eS	07 59 10		Tremor.
9	Chatra	Z	i	16 20 21		Slight, distant.

11 Epc: 38° N., 21° E. Off the Coast of Greece; 0 = 03h 32m 23s (Shillong)

38°.3 N., 20°.6 E. 0 = 03h 32.8m (B.C.I.S.)
38°.5 N., 21° E. 0 = 03h 32m 24s (U.S.C.G.S.)
Mag. - 6.8 (Roma), 6¾ - 7 (Strasbourg, Uppsala), 6¾ (Pasadena, Kiruna), 6.7 (Prague).
About 100 people were killed and 250 injured in the Greak Island of Cephalonia with considerable damage (Press).

	New Delhi	N	e(P)	03 40 57	5300	Moderate.
			i	41 06		
			PP	42 50		
		NE	iS	47 53		
		N	SS	51 03		
	Dehra Dun	NE	i	03 41 05		Moderate.
		N	e	42 56		
			e	43 38		
			i	47 53		
			e	48 02		
			e	50 55		
			e	51 14		
	Bombay	NE	iP	03 41 14	5500	Moderate.
			PP	43 16		
		N	PPP	44 19		
		NE	iS	48 22		
			PPS	48 42		
		E	i	49 00		
			i	51 09		
		N	SS	51 16		
		E	SS	51 47		
			i	52 09		
		N	LQ	53 38		
	Poona	E	iP	03 41 17	5460	Moderate.
		N	PPP	44 07		
		NE	iS	48 22		
		N	ScS	51 08		
			M	59 04		
	Chatra	Z	iPX	03 42 05	6280	Moderate.
		E	ePX			
			PcP	43 05		
			PP	44 15		
			PPP	45 30		
			PcS	47 11		
			iS	49 56		
			PS	50 10		
			PPS	50 21		
			ScS	52 00		

DATE	STATION	COMPT	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
August 1953						
11 (Contd)	Chatra (Contd)	E	SS	03 53 42		
			LQ	55 19		
			LR	58 42		
			M	04 03 20		
	Kodaikanal	E	iP	03 42 17	6410	Moderate.
			PPP	44 26		
			iS	50 15		
			SS	54 03		
			LQ	56 45		
			LR	59 24		
			M	04 04 15		Per. = 16 secs μ = 21.5.
	Calcutta	E	P	03 42 24	6520	Moderate.
			PcS	47 13		
			iS	50 28		
			ScS	52 20		
			LR	04 00 04		
			M	04 57		
	Shillong	N	iP	03 42 32	6800	Moderate.
			PP	44 51		
			PPP	46 14		
			iS	50 51		
			PS	51 04		
			PPS	51 10		
			e	52 08		
			LQ	57 39		
			LR	04 01 27		
			M	04 10		
	Colombo	E	P	03 42 48		Amp. 0.3mm.
			iS	51 08		
			L	04 03 50		
			M	10 02		

12 Epc: 39°.8 N., 21° E. 0 = 09h 23m 53s (Shillong)
38°.3 N., 20°.6 E. 0 = 09h 23m 50s (B.C.I.S.)
38°.5 N., 21° E. 0 = 09h 23m 55s (U.S.C.G.S.)
Mag - 7.1 (Prague), 7.2 (Roma), 7¼ (Strasbourg), 7¼ (Pasadena, Berkeley), 7¼ - 7½ (Uppsala).

About 90% of the towns and villages on the island of Cephalonia, Ithaca and Zante were completely destroyed and more than 20,000 houses were in ruins. Vathy the capital of Ithaca was swept all day by tidal waves. Damages were also reported along the Peloponesian West Coast. There was also considerable loss of lives (Press).

	New Delhi	NE	eP	09 32 26	5190	Moderate.
		N	PP	34 16		
			iS	39 16		
			PS	39 24		
			PPS	39 33		
			LR	45 27		
	Dehra Dun	E	e	09 32 27	5700	Moderate.
		N	i	32 30		
			i	39 46		
			i	41 19		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
August 1953 12 (Contd)	Bombay	E	iP	09 32 44	5370	Moderate.
			PP	34 37		
			PPP	35 31		
			PcS	38 00		
			iS	39 44		
			PPS	40 01		
			ScS	42 34		
			SS	43 09		
			LQ	44 24		
			LR	46 --		
	Poona	N	iP	09 32 49	5460	Moderate.
			iS	39 54		
			LQ	44 23		
			SSS	44 36		
			LR	46 52		
			M	50 43		
	Chatra	Z	iPY	09 33 32	6210	Moderate.
		E	ePY			
			i	34 05		
			PcP	34 35		
			PPP	36 54		
			PcS	38 34		
			iS	41 19		
			PS	41 27		
			PPS	41 35		
			ScS	43 20		
			SS	45 05		
			LQ	47 10		
			LR	50 05		
			M	54 35		
	Kodaikanal	E	iP	09 33 44		
			PP	35 52		
			e(S)	41 44		
			SS	45 32		
			LQ	48 14		
			LR	50 56		
			M	55 47		Per. = 16 secs μ = 20.4.
	Madras	E	iP	09 33 45	6400	Moderate. Phases not clear due to presence of microseisms.
			iS	41 43		
	Calcutta	E	iP	09 34 01	6660	Moderate.
			iS	42 13		
	Shillong	N	iP	09 34 04	6660	
			iS	42 16		
			PPS	42 38		
			ScS	44 02		
			SS	46 13		
			LR	52 07		
			M	59 55		
	Colombo	E	P	09 34 13		
			S	42 28		
			L	56 21		
			M	10 05 21		Amp = 0.6mm.
12	Bombay	E	i	12 14 12		
			i	16 02		
			i	21 14		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
August 1953						
12 (Contd)	Poona	N	iP	12 14 19	5460	Slight.
			iS	21 24		
			ScS	24 06		
			LR	28 29		
			M	32 32		
	Chatra	E	eP	12 15 02	6176	Slight, probably after-shock of the shock at 0933 hrs.
			PP	17 10		
			PPP	18 21		
			iS	22 46		
			PS	22 58		
			PPS	23 09		
			SS	26 31		
			LQ	28 39		
			LR	31 36		
			M	36 --		
	Shillong	N	i	12 23 37		Slight.
12	Chatra	Z	i	13 49 02		Slight, distant.
12	Bombay	N	iP	14 17 31	5550	Feeble.
			PP	19 28		
			PPP	20 28		
			eS	24 41		
			PPS	24 47		
			SS	28 06		
			SSS	29 --		
	Poona	N	e?	14 17 33		Feeble. Phases not clear.
	Chatra	Z	i	14 18 20		Slight, distant.
12	Chatra	Z	i	16 18 11		Slight, distant.
12	Bombay	NE	e	17 12 39		Feeble.
		E	e	19 17		
		N	e	19 27		
			e	20 35		
			e	23 05		
			e	24 09		
			e	26 21		
			e	28 58		
	Shillong	N	i	17 18 22		Slight.
	Poona	N	e?	17 21 39		Slight, distant. Phases not clear.
12	Chatra	Z	i	22 33 03		Slight, distant.
	Shillong	N	e	22 39 01		Slight.
13	Bombay	N	e	03 31 14		Feeble.
			e	38 28		
13	Epc: 21°.5 S., 170° E.; Loyalty Islands. h = 150 km ±. O = 09h 23m 23s GMT (USCGS) Mag. - 6¾ - 7 (Pasadena); 6¾ - 7¼ (Berkeley).					
	Shillong	N	eP	09 36 17	9690	Slight, distant.
			iS	46 33		
			e	46 56		
				56 16		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
August 1953						
13 (Contd)	Chatra	EZ	e(P)	09 36 30		Slight.
		E	i(S)	47 00		
			M	10 09 --		Per. = 38 secs μ = 0.25mm.
	Bombay	N	e	09 36 35		Slight, distant.
		E	i	37 00		
		NE	i	47 51		
			i	48 30		
		E	i(S)	49 04		
		N	i	49 07		
		NE	i	49 53		
		N	i	51 50		
			e	56 09		
	Hyderabad	N	i	09 47 13		Slight.
			(S)	48 05		
			i	54 57		
			e	10 04 22		
			M	11 28		Per. = 20 secs μ = 7.
	Poona	NE	i	09 47 42		Slight.
		E	i	56 10		
			M	10 11 30		
15	Madras	E	e	13 19 01		Tremor.
15	Shillong	N	iP	23 08 12	430	Very slight.
			LQ	08 53		
			S	08 59		
			M	09 19		
	Chatra	Z	i	23 09 19		Slight, near.
			i	10 43		
16	Dehra Dun	E	e	03 29 17		Tremor.
16	Dehra Dun	E	eP	03 45 55	980	Slight.
			PP	45 57		
			PPP	46 11		
			P*	46 18		
			LQ	47 26		
			iS	47 36		
			SS	47 47		
			LR	47 55		
			Sg/M	48 37		
	New Delhi	NE	eP	03 46 09	980	Slight.
			PP	46 18		
		E	PPP	46 26		
		NE	LQ	47 38		
			iS	47 50		
			SS	48 02		
			SSS	48 12		
			Sg	48 53		
16	Dehra Dun	E	iP	06 42 59	520	Slight.
			PP	43 05		
			PPP	43 09		
			Pg	43 21		
			LQ	43 45		
			iS	43 55		
			LR	43 59		
			SS	44 08		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
August 1953						
16	Dehra Dun	E	e[illegible]	15 10 56	800	Feeble.
			[illegible]	11 10		
			PP	11 28		
			[illegible]	12 19		
			[illegible]	12 28		
			R			
	New Delhi	NE	[illegible]	11 07	920	
		E	P	12 32		
		NE	[illegible]	12 42		
		N	[illegible]	12 52		
			[illegible]	13 12		
			S*			
17	Epc: 7½° S., 115° E., Java Sea; 0 = 03h. 14m. 33s. G.M.T.(USCGS).					
	Shillong	N	(P)	03 21 45		Slight.
			[illegible]	23 22		
			[illegible]	28 09		
			[illegible]	28 51		
			Sg	30 49		
			M	37 15		
	Chatra	E	e(P)	03 22 41		Slight.
			i(S)	29 15		
	Poona	Z	eP	03 23 18	5490	Slight.
		E	eS	30 25		
			M	42 11		
	Bombay	N	e(P)	03 23 21		Slight.
		E	i	29 23		
		N	i	29 37		
		E	i	30 32		
		N	e	34 39		
	New Delhi	NE	P	03 23 39	5610	Moderate.
		N	PP	25 39		
			eS	30 53		
			M	42 11		
	Calcutta	E	i	03 28 18		Slight, distant.
			i	40 43		
	Hyderabad	N	M	03 38 45		Per. = 15 secs μ = 5.
17	New Delhi	NE	eP	04 02 39	780	Slight.
		E	P*	02 56		
		N	LQ	03 47		
		NE	iS	04 00		
			S*	04 28		
			Sg	04 49		
17	New Delhi	NE	eP	20 05 27	960	Slight.
		E	PP	05 35		
			eS	07 06		
		N	i	07 12		
		E	SS	07 18		
18	Dehra Dun	N	i	20 06 47		Tremor.
18	Dehra Dun	N	i	20 44 30		Tremor.
18	Dehra Dun	N	iP	21 53 16	830	Slight.
			PP	53 21		
			iS	54 42		
			LR/SS	54 53		
			Sg,M	55 32		

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
August 1953						
21	New Delhi	NE	eP	00 32 53	220	Slight.
		E	eS	33 19		
		NE	SS	33 30		
21	Shillong	NE	eP	00 40 53	270	Feeble.
		E	P*	40 56		
			PP	41 00		
			PPP	41 07		
			S	41 24		
			Sg	41 31		
			SS	41 35		
			SSS	41 47		
	Chatra	Z	e	00 41 26		Slight, near.
			i	42 39		
21	Shillong	E	eP	10 43 28	255	Slight.
			P*	43 31		
			PP	43 35		
			S	43 57		
			S*	43 01		
			Sg	43 04		
			SSS	43 18		
	Chatra	Z	e	10 43 58		Slight, near.
			i	45 19		
21	Madras	EW	e	12 16 58.8		Tremor.
21	Madras	EW	e	13 15 04.5		Tremor.
21	Chatra	Z	i	19 58 50		Slight.
21	Chatra	Z	eP	22 16 29	465	Feeble.
			iS	17 19		
21	Chatra	Z	eP	22 20 50	455	Feeble.
			iS	21 39		
22	Epc: 6° S., 147° E. Near Coast of New Guinea; 0 = 00h 21m 06s GMT (U.S.C.G.S.)					
	Shillong	N	e(P)	00 31 34		Slight.
		NE	i	31 57		
			eS	39 46		
	Chatra	Z	i(P)	00 32 00		Slight, distant.
	Poona	Z	iP	00 32 59		Feeble shock; phases
			i	33 23		not clear.
	Bombay	N	e(S)	00 42 28		Feeble.
			e	43 16		
		E	i	43 56		
22	Chatra	Z	eP	02 39 26	465	Slight.
			iS	40 16		
22	Chatra	Z	eP	17 21 47	465	Feeble.
			iS	22 37		
23	Shillong	N	e	00 30 44		Feeble, surface waves.

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
August 1953						
23	Shillong	N	iP	07 30 03	160	Slight.
			i	30 09		
			iSg	30 24		
			SS	30 35		
23	Shillong	N	i	08 34 29		Slight, local.
	Chatra	Z	iP	08 34 53	758	Slight.
			PP	34 59		
			P*	35 08		
			Pg	35 34		
			LQ	35 59		
			iS	36 12		
			LR	36 21		
			S*	36 35		
			Sg	36 50		
24	Shillong	N	iP	05 48 41	130	Slight.
			i	48 43		
			iSg	48 56		
			i	49 06		
	Chatra	Z	i	05 49 39		Feeble, near.
			i	51 00		
24	New Delhi	NE	eP	15 34 06		
25	Epc: 5° S., 152° E. New Britain; 0 = 02h 04m 13s G.M.T.(USCGS) Mag. - 7 (Berkeley), 6½ - 6¾ (Pasadena), 6½ - 6¾ (Roma), 6½ (Kiruna).					
	Calcutta	E	e	02 14 27		Slight, distant.
			i	25 21		
	Shillong	N	e	02 15 12		Slight.
			i	23 52		
	Chatra	Z	e(P)	02 15 32		Slight, distant.
		E	e	40 15		Surface waves.
	Poona	Z	i(P)	02 16 25		Tremor.
	Dehra Dun	N	e	02 16 33		Tremor.
	Bombay	N	eP	02 16 38	9130	Slight.
		E	iP			
		N	PP	19 35		
			PPP	21 44		
			eS	26 53		
		E	iS			
		N	PS	27 40		
		NE	PPS	28 08		
	Hyderabad	N	e(S)	02 25 48		
			M	44 26		Per. = 18 secs μ = 6.
	Kodaikanal	E	e?	02 25 57		Tremor.
25	Chatra	Z	i	14 01 37		Slight, distant.
25	Calcutta	E	e	21 44 41		Slight.
			i	50 51		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
August 1953						
25 (Contd)	Chatra	Z	i	21 47 39		Slight.
			i	49 14		
	New Delhi	E	eP	21 49 32	1830	Slight.
		N	PP	49 45		
		NE	PPP	49 54		
			eS	52 35		
			SS	52 54		
			SSS	53 10		
		N	M	54 49		
25	Dehra Dun	N	eP	21 49 36	1700	Feeble.
			PP	49 49		
		NE	iS	52 27		
		N	M?	56 36		
25	Shillong	N	eP	22 46 47	1040	Slight.
			iS	48 34		
			i	48 39		
			SS	48 45		
			iSg	48 56		
27	Chatra	Z	i	09 41 58		Slight, distant.
	Colombo	E	L	09 46 19		Amp = 0.2mm.
			M	49 49		
27	Dehra Dun	E	e	16 28 45		Tremor.
			i	29 22		
27	Epc: 02°.8 N., 97°.5 E.; 0 = 20h 46m 06s G.M.T. (Shillong).					
	Colombo	E	P	20 50 19		Amp = 0.9mm. End merges in the following shock.
			S	53 41		
			L	55 39		
			M	57 39		
	Kodaikanal	E	eP	20 50 58	2450	Slight.
			iS	54 58		
	Shillong	N	iP	20 51 25		Slight.
			PP	51 50		
			eS	54 44		
			LR	56 40		
			M	58 10		
	Hyderabad	N	iP	20 51 27	2670	
			iS	55 43		
			SS	56 34		
			L	58 17		
			M	21 00 21		Per. = 15 secs μ = 6.
	Chatra	Z	iP	20 51 50	3010	Slight.
		E	eP			
			PP	52 38		
			PPP	52 56		
			iS	56 28		
			LQ	57 22		
			SS	57 41		
			SSS	57 58		
			LR	58 41		
			M	21 00 59		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
August 1953						
27	Poona	EZ	iP	20 52 04	3126	Slight.
(Contd)		EW	eS	56 49		
			M	21 02 01		
	New Delhi	NE	iP	20 52 41	3590	Slight.
		N	PP	53 46		
		NE	PPP	54 01		
		N	eS	57 55		
			LQ	59 53		
			LR	21 01 06		
	Dehra Dun	E	e	20 52 55		Feeble.
			e	58 13		
	Bombay	E	e	20 55 09		
			e	56 15		
			i	57 09		
			i	59 15		
			i	59 48		
			e	21 03 24		
27	Colombo	E	P	21 28 04		Amp = 0.6mm.
			L	33 49		
			M	35 11		
	Shillong	N	e	21 29 04		Slight.
			e	33 21		
	Chatra	Z	iP	21 29 28	3010	Slight.
		E	eP			
			iS	34 06		
	Dehra Dun	E	e	21 21 41		Tremor.
	New Delhi	NE	eP	21 30 18	3580	Slight.
		N	eS	35 31		
			LR	38 42		
	Hyderabad	N	M	21 39 07		Per. = 15 secs μ = 4.
27	Epc: 44° N., 142½° E. Hokkaido Japan, h = 100 km ± O = 22h 16m 30s G.M.T. (U.S.C.G.S.) Mag - 6 (Pasadena). Felt - Hokkaido and northern Honshu.					
	Chatra	Z	iP	22 24 58		Slight, distant.
	Dehra Dun	E	eP	22 25 33		Tremor.
			eS	32 42		
	New Delhi	NE	iP	22 25 43	5700	Moderate.
		N	iS	33 02		
			PS	33 13		
	Poona	Z	iP	22 26 46		Tremor.
27	Shillong	N	eS	22 31 02		Slight.
28	Dehra Dun	E	e	00 26 15		Feeble.
			i	27 32		
	New Delhi	NE	eP	00 26 22	870	Slight.
			eS	27 52		
			SS	28 04		
			S*	28 21		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
August 1953						
28 (Contd)	Shillong	N	e	00 31 38		Slight, surface waves.

29 Epc: 27°.3 N., 82°.2 E.; 0 = 01h 58m 30s (Shillong)
28° N., 82° E., near India Nepal border, 0 = 01h 58m 24s (U.S.C.G.S.)

Shock was felt at Banaras, Baraich, Chapra, Motihari Patna, Gwalior, Gorakhpur, Lakhipur (Kheri), Dhanwar, Barathshetra, New Delhi, Kathmandu, Kanpur, Allahabad and Raxual. No loss of life has been reported. The tiled roofs of some houses in Banaras were damaged and ceilings and walls of some buildings in Kanpur cracked. (Press).

Chatra	NEZ	iP	01 59 38	465	Moderate.
		iS	02 00 28		
	E	(Sg)M	01 08		Amp = 70.0mm.
New Delhi	NE	iP	01 59 41	420	Moderate.
		Pg	59 56		
		i(S)	02 00 27		
Dehra Dun	E	P	01 59 52		Moderate.
		PP	59 59		
		P*	02 00 08		
		Pg	00 28		
		S	01 14		
Calcutta	E	iP	02 00 23	790	Moderate.
		Pg	01 00		
		iS	01 45		
		Sg	02 30		
Shillong	N	iP	02 00 36	890	Moderate.
		PP	00 44		
		PPP	00 51		
		P*	00 56		
		Pg	01 17		
		i	01 38		
		LQ	01 55		
		iS	02 08		
		SS	02 19		
		SSS	02 30		
		S*	02 36		
		Sg	03 06		
Hyderabad	N	iP	02 01 09	1280	Moderate.
		iS	03 19		
Poona	E	iP	02 01 22	1220	Moderate.
		iPP	01 36		
		i(S)	03 27		
		Mn	05 16		
Madras	E	iP	02 01 58	1700	Moderate.
		PP	02 18		
		i	04 34.5		
		S	04 51		
		SS	05 04		
		LR	05 12		
		M	06 27		
		PcP	07 14		
		PcS	10 44		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
August 1953						
29 (Contd)	Colombo	E	e	02 02 18		Amp = 1.5 mm.
			e	04 19		
			M	07 34		
	Kodaikanal	E	iP	02 02 42	2110	Phases not clear.
			(S)	06 14		
29	Dehra Dun	E	i	08 03 21		Tremor.
29	Shillong	N	ePg	10 33 49	22	Slight.
			eSg	33 51		
			e	33 53		
29	Poona	Z	i	13 12 31		Feeble, phases not clear.
29	Dehra Dun	E	eP	13 37 20	380	Slight, near.
			PP	37 27		
			PPP	37 32		
			LQ	37 50		
			LR	37 58		
			iS	38 01		
			Sg	38 19		
			SSS	38 25		
	New Delhi	NE	eP	13 37 54	450	Slight.
		E	P*	38 02		
			Pg	38 11		
		NE	eS	38 43		
			S*	38 57		
29	Chatra	Z	i	13 40 31		Feeble, distant. surface waves.
		E	e	56 00		Per. = 11 secs μ =0.25.
	Shillong	N	e	13 42 36		Slight, distant.
			e	46 39		
			e	49 31		
			e	52 58		
29	Hyderabad	N	M	16 56 33		Per. = 14 secs μ = 2.
31	Chatra	Z	e	04 15 11		Slight, distant. Surface waves.
		E	e	43 --		
	Poona	Z	i	04 16 44		Tremor.
31	Chatra	Z	iX	08 02 46		Slight, distant.
		E	eX			
			e	10 41		
			e	28 --		Surface waves.
	Poona	Z	iP	08 04 17	8940	Slight.
		NS	eS	14 23		
	Bombay	NE	eP	08 04 18	8080	Slight.
		N	PP	07 11		
			PPP	08 19		
			e	10 26		
		E	eS	13 43		
		N	PS	14 27		
			PPS	14 35		
		E	SS	18 32		
		N	SS	18 42		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
August 1953						
31 (Contd)	Hyderabad	E	M	08 35 24		Per. = 12 secs μ = 3.
	Shillong	N	M	08 44 37		Distant.
31	Shillong	N	eP	12 09 16	350	Slight.
			PP	09 23		
			iS	09 54		
			S*	09 59		
			SS	10 04		
			SSS	10 14		
	Chatra	Z	i	12 10 20		Slight, near.
			i	11 41		
31	Poona	Z	e?	17 21 42		Tremor.
31	Chatra	E	e	17 46 --		Feeble, surface waves.

Earthquake Reports
(Non-Instrumental Reports)

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

Place at which felt	Date	Time at which felt in G.M.T.		Duration in secs	Intensity in R.F.scale	No. of shocks	Remarks
		h.	m.				
Srinagar	Aug.18	06	41	3	V	2	-
Babatpur Aerodrome (Banaras)	Aug.29	01	59	6	IV	3	-
Baraich (Uttar Pradesh)	Aug.29	01	56	10	V	1	-
Chapra (Behar)	Aug.29	02	04	10	IV	-	-
Motihari	Aug.29	02	15	2	IV	1	-
Patna	Aug.29	02	05	1	V	1	-
Gwalior	Aug.29	02	10	15	V	3	-
Gorakhpur	Aug.29	01	53	7	-	3	-
Lakhipur,Khe-ri	Aug.29	02	00	60	-	-	-
Dhanwar, Giridhi	Aug.29	01	45	90	III	-	-
Borakhshetra	Aug.29	02	11	20	V	-	-

SM:7.10.55

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I-9-151

GOVERNMENT OF INDIA

METEOROLOGICAL DEPARTMENT

S E I S M O L O G I C A L B U L L E T I N

September, 1953.

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Published under the direction of
Dr. S.C. Roy, D.Sc.(Lond), F.N.I.,
Director General of Observatories.

Instruments and their Constants.

Station	Instruments	Compt.	Period in secs	Static Magni-fication	Damping ratio	Paper speed mm/min
Bombay	Milne-Shaw	E-W	12	350	9:1	8
	Milne-Shaw	N-S	12	350	18:1	16
	Sprengnether	E-W	7	-	-	30
Calcutta	Milne-Shaw	E-W	10	150	20:1	8
	Wood-Anderson	N-S	2	870	Critical	30
	Omori-Ewing	N-S	18	32	-	25.4
	Omori-Ewing	E-W	19	30	-	25.4
Chatra	Milne-Shaw	E-W	12	250	20:1	16
	Wood-Anderson	N-S	1.0	1000	30:1	60
	Wood-Anderson	E-W	1.0	1000	30:1	60
	Benioff Vertical	Z	To= .72sec Tg=.45sec	-	Es=2.3:1 Eg=Critical	60
Colombo	Milne-Shaw	E-W	12	250	20:1	8
Dehra Dun	Wood-Anderson	N-S	1	1000	30:1	60
	Wood-Anderson	E-W	1	1000	30:1	60
	Milne-Shaw	N-S	12	250	20:1	16
Hyderabad	Milne-Shaw	E-W	12	250	20:1	8
	Milne-Shaw	N-S	12	250	20:1	8
Kodaikanal	Milne-Shaw	E-W	10	250	20:1	8
Madras	Sprengnether Microseismogram	E-W	7.2	-	-	30
New Delhi	Milne-Shaw	N-S	12	288	20:1	8
	Wood-Anderson	N-S	4	1070	20:1	16
	Wood-Anderson	E-W	2	1841	30:1	60
	Omori-Ewing	E-W	28	30	1	12
Poona	Milne-Shaw	S-N	12	250	20:1	8
	Wood-Anderson	E-W	4	1100	20:1	16
	Sprengnether Vertical	Z	1.5	-	-	30
Shillong	Milne-Shaw	N-S	12	250	20:1	8
	Wood-Anderson	N-S	4	1000	20:1	60

SEISMOLOGICAL BULLETIN

STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Sept. 1953					
01 Poona	Z	eP	12 05 03		Tremor.
01 Dehra Dun	N	eP	13 10 17	880	Slight.
		iS	11 48		
		SS and LR	11 59		
		S*	12 19		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Sept. 1953						
01	Shillong	N	i	19 00 18		Local
01	New Delhi	NE	eP	19 59 48	250	Slight.
			eS	20 00 17		
		E	S*	00 20		
			SS	00 27		
02	Epc: Caucasus USSR. 0 = 00h 36m 00s (U.S.C.G.S.) 41¼° N., 47¼° E. 0 = 00h 35m 58s (B.C.I.S.) Magnification = 5¼ (Kiruna).					
	Chatra	Z	iP	00 43 02		Slight, distant.
		E	e(S)	48 39		
	Hyderabad	E	e	00 57 11		
02	Chatra	Z	e	05 38 52		Slight, distant.
02	Poona	Z	eP	07 43 43		Tremor.
	Shillong	N	e	07 43 53		Slight, distant.
			e	49 52		
			M	59 21		
	Chatra	Z	i	07 44 20		Slight, distant.
	Bombay	N	e	07 46 30		Feeble, tremor.
		E	i	50 21		
		N	e	51 35		
			e	54 45		
04	Epc: 51° N., 157.5° E. 0 = 07h 23m 12s (Shillong) 51.0° N., 156¼° E., h = 60 km. 0 = 07h 23m 05s (B.C.I.S.) 50° N., 156½° E. Kurile Islands, h = 60 km. 0 = 07h 23m 05s (U.S.C.G.S.) Mag. 6¾ - 7 (Pasadena), 6½ - 6¾ (Kiruna), 7.2 (Hurbanovo), 7.1 (Praha), 7 (Skalnate Pleso, De Bilt).					
	Shillong	N	iP	07 32 36	5890	Moderate.
			PcP	33 31		
			PP	34 48		
			e	36 00		
			PcS	37 38		
			iS	40 05		
			PPS	40 32		
			ScS	42 10		
			SS	43 32		
			LQ	46 02		
			LR	48 01		
			M	52 49		
	Chatra	EZ	iP	07 32 51	6160	Moderate.
		E	PcP	33 49		
			PP	34 59		
			PPP	36 15		
			PcS	37 37		
			eS	40 35		
			PS	40 49		
			ScS	42 33		
			LQ	46 41		
			LR	49 15		
			M	53 00		Per. = 20.5secs/μ = 149

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Sept. 1953 04 (Contd)	Calcutta	E	iP	07 33 02	6280	Moderate.
			PPP	36 21		
			PcS	37 54		
			iS	40 53		
			ScS	42 46		
			LR	46 53		
	Dehra Dun	N	iP	07 33 12	6630	Moderate.
			PcP	33 54		
			PcS	37 51		
			iS	41 22		
			PS	41 32		
			PPS	41 47		
			ScS	42 56		
			SS	44 59		
			Mn	08 03 57		
	New Delhi	NE	iP	07 33 24	6760	Moderate.
		N	PPP	37 25		
			iS	41 41		
			PS	42 15		
			PPS	42 24		
			i	43 36		
			SS	45 23		
			LQ	48 50		
			M	56 54		
	Hyderabad	EN	iP	07 34 08	7630	Moderate.
		E	PcP	34 42		
			PP	36 43		
		EN	iS	43 11		
			ScS	44 02		
		E	SS	47 11		
		N	L	55 00		
		E	L	55 17		
		N	M	08 00 35		Per. = 17 secs μ = 286.
		E	M	01 52		Per. = 21 secs μ = 550.
	Poona	Z	iP	07 34 24	7630	Moderate.
		N	iS	43 27		
			PS	43 56		
			PPS	44 07		
			ScS	44 19		
			LQ	52 18		
			LR	55 54		
			M	08 01 54		Per. = 18.7 secs μ = 432.
	Madras	E	iP	07 34 26	7830	Moderate.
			PcP	34 38		
			PP	37 12		
			PPP	38 49		
			iS	43 39		
			SKS	43 59		
			PS	44 11		
			PPS	44 25		
			LQ	52 33		
			LR	56 22		
	Bombay	NE	iP	07 34 27	7860	Moderate.
			PP	37 03		
			PPP	38 43		
			iS	43 41		
		E	i	44 08		

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Sept. 1953						
04 (Contd)	Bombay (Contd)	NE	PS	07 44 16		
		E	PPS	44 27		
		NE	SS	48 20		
		N	SSS	51 30		
		E	M	08 09 19		Per. = 17 secs μ = 36.
		N	M	09 25		Per. = 16 secs μ = 77.
	Colombo	E	P	07 34 51	8500	
			S	44 36		
			L	58 36		
			M	08 05 31		Amp = 0.7mm.
	Kodaikanal	E	iP	07 34 53	8180	Moderate.
			iS	44 23		
			M	08 04 44		Per. = 21 secs μ = 736.

04 Epc: 32° S., 71° W., Near Coast of Central Chile; 0 = 14h 07m 13s (U.S.C.G.S.)
Several injured, minor property damage.
Mag. 6¾ - 7 (Pasadena), 6¼ (Kiruna, Praha), 6 (Rome).

	Bombay	NE	PKP_1	14 26 53	16720	Moderate.
			PKP_2	27 09		
		E	i	29 27		
		NE	PP	30 34		
			PPP	33 43		
		N	e	33 51		
		NE	e	34 47		
		N	$SKKS_1$	37 25		
			SKKS	37 51		
		NE	PS	40 50		
			i	42 11		
		N	i	48 25		
		NE	i	49 50		
	Madras	E	e	14 26 59		Tremor.
	New Delhi	N	ePKP	14 27 03		
			PP	31 03		
			i	31 28		
	Hyderabad	E	i	14 27 04		
			M	15 26 43		Per. = 24 secs μ = 154.
	Shillong	N	ePKP	14 27 11		Slight, distant.
			e	31 56		
			e	38 55		
	Chatra	Z	i	14 27 14		Slight, distant.
	Colombo	E	L	15 19 21		
			M	25 13		Amp = 0.2mm.
04	Madras	E	i	20 08 02		Slight.
			i	13 11		
	Chatra	Z	e	20 09 06		Slight, distant.

05 Epc: 38° N., 23° E. 0 = 14h 18m 14s (U.S.C.G.S.)
Eastern Greece. Several casualties and moderate property damage. Felt in Athens.
Mag. 5 (Athenes, Uppsala), 5¾ - 6 (Harbanovo), 5¾ (Kiruna), 5 - 6 (Praha), 5½ (De Bilt, Skalnate Pleso).

Bombay	NE	e(P)	14 27 17	5240	Slight.	

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Sept. 1953						
05 (Contd)	Bombay (Contd)	E	PcP	14 28 37		
		N	PP	29 05		
		E	PPP	30 07		
		NE	iS	34 12		
		N	SS	37 36		
			e	38 26		
	Chatra	EZ	e	14 28 09		Slight, distant.
			e	35 55		
0	Madras	E	e	18 45 02		Tremor.
05	Epc: 51° N., 157° E. Near South Coast of Kamchatka. O = 18h 58m 09s (U.S.C.G.S.) Mag. 6½ (Pasadena), 6¼ - 6½ (Rome), 6¼ (Praha), 5¾ - 6 (Uppsala), 5¾ (Kiruna).					
	Shillong	N	iP	19 07 47	5840	Slight.
			PPP	11 05		
			PcS	13 09		
			eS	15 13		
			LR	23 52		
			M	27 22		
	Calcutta	E	eP	19 08 26	6650	Slight.
			iS	16 37		
			e	18 28		
	Dehra Dun	NE	eP	19 08 27	6640	Slight.
		N	eS	16 38		
			PS	16 54		
			Mn	39 21		
	Chatra	EZ	eP	19 08 05	6330	Slight.
		E	PPP	11 33		
			PcS	12 56		
			eS	15 59		
			ScS	17 50		
			SS	19 35		
			LQ	21 12		
			M	29 19		
	New Delhi	NE	eP	19 08 35	6890	Moderate.
		N	iS	16 59		
			PS	17 16		
			SKS	18 27		
			i	18 42		
			SS	21 10		
			LQ	24 29		
	Poona	Z	iP	19 09 38	7869	Slight.
		NE	eS	18 52		
	Bombay	NE	iP	19 09 41	8380	Slight.
		N	i	10 02		
			i	10 29		
			PP	12 41		
		E	PPP	14 25		
		N	e	18 57		
		N	eS	19 21		
		E	iS			
		N	SKS	19 36		
		E	ScS	19 41		
		N	PS	20 04		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Sept. 1953						
05 (Contd)	Bombay (Contd)	NE	e	19 24 15		
		N	e	27 41		
		E	LQ	29 52		
	Colombo	E	P	19 19 50		
			L	41 --		
			M	50 05		Amp = 0.2mm.
05	Epc: 39¾° N., 71¼° E., Pamir; 0 = 22h 52m 53s G.M.T. (B.C.I.S.)					
	Dehra Dun	E	eP	22 55 36	1120	Slight.
		N	LQ	57 17		
		NE	iS	57 31		
			LR,SS	57 38		
		N	M	58 23		
	New Delhi	NE	eP	22 55 50	1280	Slight.
		E	PP	55 59		
		NE	PPP	56 07		
			iS	58 01		
			SS	58 15		
			M	59 23		
	Chatra	Z	e	22 57 12		Slight.
	Shillong	N	e	23 02 01		Slight, distant.
			e	05 11		
	Calcutta	E	e	23 02 02		Tremor.
			i	05 21		
	Poona	E	e?	23 03 40		Slight, other phases not clear.
06	Shillong	N	e	00 37 52		Tremor.
			i	38 30		
06	Epc: 50½° N., 90° E., outer Mongolia; 0 = 01h 32m 24s (U.S.C.G.S.)					
	Dehra Dun	E	eP	01 37 25		Slight.
		N	PPP	38 05		
			iS	41 28		
			LQ	42 02		
	Shillong	N	eP	01 37 48		Slight.
			eS	42 08		
			e	46 13		
	Bombay	N	e	01 39 25		Feeble.
		E	e	39 31		
		N	e	44 53		
	Poona	E	e?	01 46 57		Other phases not clear.
	Hyderabad	N	M	01 54 42		Per. = 10 secs μ = 2.
06	New Delhi	NE	eP	20 17 14	500	Slight.
		E	P*	17 23		
		NE	LQ	17 59		
		E	iS	18 08		
		NE	LR	18 11		
		E	S*	18 21		
		NE	Sg	18 33		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Sept. 1953 07	Epc: 41½° N., 32¾° E., 0 = 03h 58m 57s (B.C.I.S.) 41° N., 33° E., 0 = 03h 58m 56s (U.S.C.G.S.) Near 43° N., 33° E. Off North Coast of Turkey. 0 = 03h 58m 58s (Shillong. Mag. 7 (Athenes), 6½ (Pasadena, Uppsala, Kiruna), 6 (Harbanovo), 5¾ - 6 (De Bilt, Praha, Strasbourg), 5¾ (Skalnate Pleso).					
	New Delhi	N	eP	04 06 16	4240	Moderate.
			PP	07 49		
			PcP	08 33		
			iS	12 10		
			PcS	12 21		
			i	14 24		
			SS	14 55		
			LR	17 25		
			M	20 29		
	Dehra Dun	N	eP	04 06 19		Moderate.
			PPP	08 01		
			iS	11 54		
			PcS	12 07		
			SSS	14 52		
			LR	16 28		
			M	19 34		
	Bombay	NE	eP	04 06 38	4490	Slight.
		N	i	07 43		
		NE	PP	08 13		
			PPP	08 43		
		NE	i	09 32		
		N	i	09 50		
			i	11 07		
		NE	eS	12 47		
			PS	12 50		
		N	i	13 41		
		E	SS	15 40		
			SSS	16 29		
			i	16 51		
			LR	18 05		
	Poona	Z	iP	04 06 44	4620	Slight.
		E	eS	13 01		
			LQ	16 13		
			M	21 50		
	Hyderabad	EN	eP	04 07 13	5080	
			iS	13 57		
		E	SS	17 22		
			L	21 09		
			M	24 28		Per. = 20 secs μ = 370.
		N	M	24 53		Per. = 17 secs μ = 165.
	Chatra	Z	iPχ	04 07 25	5120	Slight.
		E	ePχ			
			PcP	09 03		
			PP	09 13		
			PPP	10 06		
			PcS	12 55		
			eS	14 11		
			PS	14 21		
			PPS	14 31		
			SS	17 28		
			LQ	18 28		
			LR	21 13		
			M	25 --		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Sept. 1953						
07 (Contd)	Madras	E	eP	04 07 49	5490	Moderate.
			PP	09 47		
			PPP	10 54		
			iS	14 56		
			PS	15 05		
			PPS	15 17		
			SS	18 30		
			LQ	20 11		
			LR	22 46		
			M	26 17		
	Calcutta	E	eP	04 07 55	5460	Moderate.
			i	10 04		
			iS	15 00		
			LQ	19 34		
	Shillong	N	eP	04 07 57		Moderate.
			eS	15 01		
			SS	18 28		
			i	20 22		
			M	25 00		
			Mn	34 00		Per. = 15 secs, μ = 129.
	Colombo	E	e	04 09 --		
			(S)	15 51		
			L	29 19		
			M	35 04		Amp = 0.9 mm.
	Kodaikanal	E	e?	04 14 59		Phases not clear.
08	Shillong	N	eP	03 25 22	280	Slight.
			i	25 50		
			iSg	25 02		
09	Epc: 2° N., 100°.5 E. Sumatra.			0 = 15h 51m 14s (Shillong) 0 = 15h 51m 17s (U.S.C.G.S.) 0 = 15h 51m 10s (B.C.I.S.).		
	Colombo	E	P	15 55 50		
			S	59 45		
			L	16 03 50		
			M	06 18		Amp = 0.4 mm.
	Madras	E	iP	15 56 08	2460	Moderate.
			PP	56 37		
			PPP	56 44		
			PcP	59 50		
			iS	16 00 08		
			LQ	00 32		
			M	03 10		
	Kodaikanal	E	iP	15 56 26	2540	Slight.
			iS	16 00 32		
			M	04 47		
	Shillong	N	eP	15 56 29		Slight.
			e	57 10		
			e(S)	16 01 12		
			e	01 42		

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Sept. 1955 09 (Contd)	Hyderabad	E	eP	15 56 48	2850	
			iS	16 01 15		
			SS	02 21		
			L	06 07		
			M	08 06		Per. = 15 secs μ = 2.
	Chatra	Z	e	15 56 58		Slight, distant.
	Poona	EZ	eP	15 57 22	3270	Slight.
		N	eS	16 02 16		
	Bombay	N	eP	15 57 25	3210	Very feeble.
			PP	58 49		
		NE	i	16 00 26		
		E	i	01 20		
		N	eS	02 15		
		NE	i	02 38		
		N	e	03 29		
		NE	LQ	04 12		
		N	SS	04 19		
			SSS	04 36		
			LR	05 45		
	New Delhi	NE	eP	15 57 54	3720	Slight.
		N	eS	16 03 16		
			LR	07 03		
	Dehra Dun	N	eP	15 58 05	3740	Slight.
			PP	59 13		
			iS	16 03 28		
			PcS	04 07		
			LQ	05 24		
			SS	05 41		
			LR	07 07		
			M	16 11 14		
09	New Delhi	E	eP	17 22 12	950	Slight.
			PP	22 20		
			P*	22 30		
			eS	23 50		
			SS	24 02		
			S*	24 24		
10	New Delhi	NE	eP	00 33 31	1370	Slight.
		E	PP	33 41		
			PPP	33 49		
			eS	35 50		
			SS	36 05		

10 Epc: 35°.0 N., 32½°E., O = 04h 06m 03s (B.C.I.S.).
37°.5 N., 31°.5 E. in Asia Minor; O = 04h 05m 57s (Shillong)
35° N., 32° E. Near West Coast of Cyprus. Heavy casualties and extensive property damage. O = 04h 06m 00s (USCGS).
Mag. 6½ (Pasadena), 6¼ - 6½ (De Bilt), 6 (Strasbourg), 6¼ (Hurbanovo, Athens, Kiruna, Uppsala), 5¾ - 6 (Praha, Skalnate, Pleso).

New Delhi	NE	iP	04 13 22	
	N	PP	14 53	
		PPP	15 25	
		PcP	15 59	
		iS	19 16	
		PcS	19 28	
		LQ	22 11	
		LR	23 29	
		M	26 26	

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Sept. 1953 10 Contd.	Dehra Dun	N	iP	04 13 24	4220	Moderate.
			PP	15 07		
			iS	19 17		
			PS	19 27		
			PPS	19 34		
			SSS	22 43		
			ScS	23 23		
	Bombay	N	eP	04 13 30	4440	Slight to Moderate.
			PP	15 00		
		E	PP	15 11		
		N	PPP	15 22		
			eS	19 36		
			PPS	19 45		
			SS	22 18		
		E	SS	22 25		
		N	LQ	22 32		
		E	LQ	22 36		
		N	M	33 45		
		E	M	33 52		Per. = 17 secs/μ = 11.
	Poona	Z	iP	04 13 40		Slight.
		N	e	15 17		
			e	15 44		
		NE	e	19 42		
		N	e	19 49		
			(S)	19 56		
			LQ	22 42		
			LR	24 24		
			M	27 52		
	Kodaikanal	E	iP	04 14 34	5310	Slight, phases not clear.
			i(S)	21 31		
			LQ	26 16		
			LR	28 51		
	Chatra	ZE	iP	04 14 36	5232	Slight.
		E	PcP	16 16		
			PP	16 36		
			PPP	17 22		
			PcS	20 09		
			iS	21 29		
			PS	21 42		
			PPS	21 54		
			ScS	24 28		
			SS	24 53		
			LQ	25 35		
			SSS	26 01		
			LR	28 05		
			M	32 05		Per. = 16 secs/μ = 35.
	Madras	E	iP	04 14 45		Moderate.
			PcP	16 01		
			PP	16 35		
			PPP	17 31		
			ScP	19 50		
			i(S)	21 43		
			PS	21 52		
			ScS	24 05		
			SS	25 02		
			LQ	26 20		
			SSS	26 35		
			LR	28 46		
			M	33 08		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Sept. 1953 10 Contd.	Shillong	N	eP	04 15 06	5720	Moderate.
			e	16 59		
			iS	22 26		
			i	24 06		
			e	24 51		
			e	25 48		
			LR	29 39		
			M	33 04		
			Mn	35 58		Per. = 21 secs μ = 371.
	Colombo	E	(S)	04 22 02		
			L	34 50		
			M	37 12		Amp = 1.5 mm.
	Hyderabad	N	M	04 58 30		Per. = 14 secs μ = 3.
12	Dehra Dun	NE	e	08 17 25		Tremor.
			i	17 44		
13	Shillong	N	e	08 39 23		Local, Tremor.
			e	40 04		
			i	40 08		
13	Poona	Z	i	09 40 28		Tremor.
	New Delhi	E	eP	09 40 48	510	Slight.
			P*	40 57		
			Pg	41 08		
			LQ	41 30		
			iS	41 43		
			LR	41 46		
			S*	41 56		
			SSS	42 04		
			Sg	42 11		
13	Dehra Dun	NE	i	10 09 23		Tremor.
13	Shillong	N	iP	21 34 32	260	Slight.
			P*	34 35		
			Pg	34 39		
			iS	35 02		
			S*	35 05		
			Sg	35 09		
			SS	35 11		

14 Epc: 18½° S., 178½° E., Fiji Islands; h = 60km ±, O = 00h 26m 36s (U.S.C.G.S.)

Several killed and extensive property damage (U.S.C.G.S.)

Mag. - 6¾ (Pasadena), 6¼ - 6½ (Kiruna, Uppsala), 6½ (Hurbanovo, Strasbourg, Skalnate Pleso, Praha).

	Shillong	N	eP	00 39 49		Slight, distant.
			e	44 34		
			e	50 09		
			e	54 10		
	Chatra	ZE	eP	00 40 11		Slight, distant.
		E	i	50 56		
	Colombo	E	e	00 42 11		
			S	51 01		
			L	01 12 19		
			M	17 09		Amp = 0.2 mm.

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Sept. 1953 14 Contd.	Madras	E	i	00 43 31		Moderate.
			e	45 33		
			e	51 09		
			e	52 58		
			e	54 59		
			e	57 21		
			e	59 18		
	Poona	N	e?	00 44 --		Probably very long distant.
	Bombay	E	e	00 44 32		Moderate.
		N	e	44 41		
		E	PP	45 20		
			PPP	47 32		
		N	PPP	48 16		
		E	SKS	51 55		
		N	PS	55 29		
			PPS	56 24		
		NE	eSS	01 01 12		
		N	SSS	05 17		
14	Epc: 52° N., 161½° E. Off South East Coast of Kamchatka; O = 08h 58m 12s (U.S.C.G.S.).					
	Poona	Z	eP	09 09 49		Tremor.
14	Colombo	E	P	10 25 01		
			M	50 47		Amp = 0.2 mm.
	Bombay	E	iX	10 26 18		Distant shock.
		N	eX			
			i	36 39		
			e	38 03		
	Poona	Z	iP	10 26 19	9150	Slight.
		NE	eS	36 35		
	Hyderabad	N	e	10 36 44		
			M	55 06		Per. = 14 secs, μ = 20.
14	Epc: 52½° S., 26° E., Indian Ocean, Off the South Coast of Africa. O = 11h 12m 06s (U.S.C.G.S.).					
	Colombo	E	P	11 23 49		
			S	33 29		
			L	42 49		
			M	49 04		Amp = 0.4 mm.
	Poona	Z	iP	11 24 26	9130	Slight.
		NE	iS	34 41		
		N	SS	39 09		
			M	56 10		
	Bombay	E	iPX	11 24 28	9130	Slight.
		N	ePX			
		E	i	24 39		
			i	29 09		
		NE	PPP	29 40		
		E	eSX	34 43		
		N	iSX			
		N	PS	35 02		
			PPS	35 27		
		NE	PPS	36 08		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Sept. 1953 14 Contd.	Hyderabad	N	eP	11 24 32	9240	
			e	26 08		
			S	34 52		
			L	47 19		
			M	53 07		Per. = 15 secs μ = 33.
	New Delhi	NE	eP	11 25 15	10310	Moderate.
		N	i	26 29		
			e	28 56		
			i	35 47		
			iS	36 19		
	Chatra	ZE	eP	11 25 26		Slight, distant.
		E	e	36 07		
	Kodaikanal	E	eS	11 33 44		Tremor.
14	Shillong	N	e	13 58 22		Slight, local.
			e	59 20		
			e	59 32		
14	Bombay	N	e	14 27 05		Feeble.
			e	27 23		
	Poona	Z	eP?	14 27 25		Tremor.
14	Epc: 38° N., 20½° E. Near West Coast of Greece; Felt. 0 = 14h 56m 15s (U.S.C.G.S.) 38°.3 N., 21° E. 0 = 14h 56m 10s (B.C.I.S.) Mag. = 5¾ - 6 (Uppsala), 5¼ (Athenes), 5½ (Praha).					
	New Delhi	NE	eP	15 04 50	5190	Slight.
		N	eS	11 40		
	Bombay	N	e	15 05 09		Very feeble.
			e	06 28		
			e	12 05		
	Poona	Z	iP?	15 05 11		Tremor.
	Chatra	Z	i	15 05 55		Slight, distant.
		E	e	13 42		
14	Poona	Z	eP?	17 02 54		Tremor.
15	Bombay	E	e	11 14 46		Feeble.
		NE	e	25 17		
15	Poona	Z	eP?	12 46 49		Tremor.
16	Chatra	Z	i	13 38 38		Slight, distant.
	Bombay	E	e	13 43 31		
		NE	e	49 27		
	Dehra Dun	N	M	13 44 57		Slight, distant.
16	Chatra	Z	i	21 51 03		Feeble, distant.
16	Poona	Z	eP?	22 52 40		Tremor.

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Sept. 1953						
17	Epc: 20½° S., 174° W. Tonga Islands; h = 100 km ca. 0 = 21h 11s 49s (U.S.C.G.S.)					
	Mag. 6¾ - 7 (Pasadena), 6 (Christ Church).					
	Shillong	N	e	21 29 39		Slight, distant.
			e	36 18		
			e	38 45		
			e	43 55		
	Bombay	E	ePKP1	21 30 16		Distant, probably deep focus (h = 100 km).
		N	PP	31 30		
		E	PP	31 36		
			PKS	33 52		
		NE	PPP	34 05		
		N	e	37 27		
		E	PS	41 17		
			PPS	42 22		
			SS	47 14		
		N	SSP	48 04		
	Poona	Z	eP	21 30 32		Tremor.
	Hyderabad	E	e	21 37 03		
			M	22 25 01		Per. = 16 secs μ = 16.
	Kodaikanal	E	e?	22 15 05		Tremor.
18	Madras	E	e?	09 51 24		Tremor.
19	Epc: 6° S., 131° E., Banda Sea, h = 100 km ca. 0 = 03h 43m 15s (B.C.I.S.)					
	Poona	Z	iP	03 53 26		Slight, other phases not clear.
	New Delhi	NE	eP	03 53 32	6610	Slight.
		N	eS	04 01 41		
	Dehra Dun	N	e	03 53 39		Tremor.
20	Chatra	Z	i	14 17 07		Feeble, near.
				18 28		
20	Epc: 35¾° S., 1½° E., South Atlantic:, 0 = 18h 55m 26s (B.C.I.S.)					
	Colombo	E	P	19 08 29		
			(S)	20 21		
			M	40 06		Amp = 0.2 mm.
	Poona	N	e	19 20 28		Slight, phases doubtful.
	Hyderabad	N	M	19 43 42		Per. = 15 secs μ = 20.
		E	M	43 50		Per. = 19 secs μ = 28.
23	Epc: Near 49° N., 158° E. Off Kurile Islands; 0 = 02h 14m 32s (Shillong)					
	50½° N., 156° E. Northern Kurile Islands. 0 = 02h 14m 36s (U.S.C.G.S.)					
	Mag. 7.2 (Praha); 7 (Pasadena, Skalnate Pleso, Uppsala), 6¾ - 7 (Hurbanovo), 6¾ (Berkeley, Kiruna, Strasbourg).					
	Shillong	N	eP	02 24 02		Moderate. P lost while changing chart.
			iS	31 32		
			PPS	31 55		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Sept. 1953 23 Contd.	Shillong Contd.	N	SS	02 35 20		
			LR	38 59		
			M	43 06		Per. = 18 secs μ = 37.
	Chatra	Z	iP	02 24 17	6740	Moderate.
		E	eP			
			PcP	24 58		
			PP	26 30		
			PPP	27 52		
			PcS	28 43		
			iS	32 33		
			PS	32 47		
			PPS	33 03		
			ScS	33 57		
			SS	36 47		
			SSS	38 51		
			LQ	39 21		
			LR	42 40		
			M	47 47		Per. = 23 secs μ = 134.
	Calcutta	E	iP	02 24 34	6445	Moderate. First movement East.
			iS	32 34		
			e	34 34		
	Dehra Dun	NE	iP	02 24 42	6580	Moderate. Some phases lost while changing the chart.
		N	PcP	25 12		
			PPP	28 28		
			iS	32 49		
			PS	33 06		
			PPS	33 20		
			SS	37 05		
	New Delhi	N	eP	02 24 52	6840	Moderate.
			PcP	25 35		
			PP	27 18		
			PcS	29 15		
			eS	33 13		
			PPS	33 41		
			i	35 01		
			LQ	40 29		
			LR	43 22		
			M	48 35		
	Hyderabad	NE	iP	02 25 40	7530	
			PP	28 21		
			iS	34 38		
		N	PPS	35 06		
		E	ScS	35 29		
		NE	L	48 02		Per. = 20 secs μ = 29.
		E	M	53 08		Per. = 27 secs μ = 27.
		N	M	54 05		
	Poona	N	eP	02 25 49	7810	Moderate.
			PcP	26 12		
			PP	28 18		
			S	35 01		
			PPS	35 31		
			SS	39 42		
			LR	43 48		
			M	53 22		

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Sept. 1953						
23	Bombay	NE	eP	02 25 53	7910	Moderate.
Contd.		N	i	26 35		
			e	27 05		
			PP	28 31		
		N	iS	35 10		
		E	eS			
		N	PS	35 44		
		E	PS	35 51		
		N	PPS	36 02		
		E	PPS	36 09		
		NE	SS	39 54		
		N	SSS	43 03		
			LQ	44 --		
			LR	48 03		
			M	53 57		Per. = 25secs μ = 9.
		E	M	57 17		Per. = 20 secs μ = 16.
	Colombo	E	P	02 26 04		
			S	35 59		
			L	50 19		
			M_1	56 37		Amp = 0.4 mm.
			M_2	03 03 14		Amp = 0.4 mm.
	Madras	E	i	02 35 03		Moderate.
24	Shillong	Z	i	02 27 00		Slight, local.
		N	i(?)	27 17		
	New Delhi	E	eP	02 29 34	1260	Slight.
			eS	31 42		
			SSS	32 08		
			M	33 05		
	Dehra Dun	NE	e	02 31 25		Tremor.
24	Shillong	Z	i	18 30 40		Slight.
25	Poona	Z	i	00 55 31		Tremor.
25	Dehra Dun	NE	eP	06 21 22	860	Slight.
			PPP	21 35		
			iS	22 51		
			SS	23 03		
			SSS	23 14		
	New Delhi	N	eP	06 21 35	1050	Slight.
		E	eP	21 37		
			PPP	21 52		
		N	eS	23 22		
		E	iS	23 24		
		NE	SS	23 36		
		E	LR	23 39		
		NE	SSS	23 47		
25	Dehra Dun	N	M	11 29 58		Tremor.
25	Epc: 28° N., 141° E. (C.M.O., Japan).					
	28° N., 140° E. Bonin Islands; 0 = 13h 41m 08s (U.S.C.G.S.)					
	28½° N., 140½° E. 0 = 13h 41m 07s (B.C.I.S.)					
	Mag. 6 (Praha), 5¾ - 6 (Kiruna).					
	Shillong	N	eP	13 49 15	4780	Slight.
			eS	55 41		
			e	59 15		
			LR	14 05 03		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Sept. 1953 25 Contd.	Chatra	ZE	iP	13 49 44	5230	Slight.
		E	PP	51 35		
			PPP	52 33		
			iS	56 37		
			SS	14 00 07		
			LQ	01 07		
			LR	03 25		
			M	07 33		
	Calcutta	E	i	13 49 52		Slight, distant.
			i	56 40		
	Dehra Dun	N	iP	13 50 39	6140	Slight.
			iS	58 22		
			PS	58 30		
			PPS	58 36		
	[illegible]	[illegible]	[illegible]	[illegible]		
	New Delhi	NE	eP	13 50 43	6160	Moderate.
		N	iS	58 27		
			PS	58 38		
			LR	14 06 58		
			M	12 13		
	Hyderabad	NE	iP	13 51 04	6460	
		E	PP	53 15		
		NE	iS	59 05		
			SS	14 02 51		
		E	M	14 14		Per. = 13 secs μ = 4.
	Madras	E	iP	13 51 05	6530	Slight.
			PcP	51 50		
			PPP	54 40		
			iS	59 10		
			PS	59 19		
			PPS	59 32		
	Poona	Z	iP	13 51 25	6930	Slight.
		NE	eS	59 51		
	Bombay	NE	iP	13 51 33	7080	Slight.
		N	PcP	52 17		
		E	PcP	52 16		
			PPP	55 28		
			PcS	56 08		
		E	iS	14 00 07		
		N	eS			
		NE	PS	00 17		
		N	PPS	00 26		
			ScS	01 21		
		E	ScS	01 28		
		N	SS	04 08		
		NE	LQ	07 38		
25	Epc: 13° N., 50°.5 E. Gulf of Aden; 0 = 23h 03m 00s (B.C.I.S.)					
	Poona	Z	e	23 09 10		Tremor.

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Sept. 1953						
26	Epc: 51¼° N., 156¾°E., h = 60 km ca, 0 = 01h 02m 30s (B.C.I.S.) 50° N., 157½° E. Near South Coast of Kamchatka; h = 10 km ca. 0 = 01h 02m 30s (U.S.C.G.S.)					
	Ma . 6 - 6¼ (Praha, Hurbanovo), 5¾ (Kiruna, Uppsala).					
	Shillong	Z	i	01 12 03		Slight.
	[illegible]ra	ZE	e	01 12 19		Slight, distant.
		E	e	22 04		
			e	36 --		
	Hyderabad	NE	P	01 13 37	7680	
			S	22 43		
		N	PS	23 01		
		E	M	41 07		Per. = 13 secs μ = 5.
	[illegible]a	Z	iP	01 13 53	7840	Slight.
		N	eS	23 06		
	Bombay	NE	eP	01 13 54	7960	Feeble.
			eS	23 13		
		N	PS	23 45		
			SS	28 04		
	Dehra Dun	E	e	12 30 22		Tremor.
	[illegible]a Dun	E	i	12 49 49		Tremor.
	Epc: 3° S., 148½° E., Region near New Britain; 0 = 19h 35m 00s (U.S.C.G.S.) 3°.5 S., 150°.0 E. 0 = 19h 35m 04s (B.C.I.S.)					
	[illegible]tra	Z	i	19 47 02		Slight, distant.
	[illegible]	Z	iP	19 47 03		Tremor.
	[illegible]a Dun	E	i	21 00 58		Tremor.
27	Shillong	ZN	eP	03 41 12	480	Slight.
		N	PP	41 16		
			LQ	41 42		
			iS	42 03		
			SSandS*	42 11		
			Sg	42 21		
			SSS	42 24		
27	Bombay	N	e	06 42 15		Feeble.
27	Shillong	N	e(M)	07 20 18		Slight, distant.
	Hyderabad	N	M	07 12 55		Per. = 16 secs μ = 3.
27	Poona	Z	eP?	07 43 39		Tremor.
28	Epc: 22½° S., 65° W., Bolivia Argentina Frontier. h = 250 km ca. 0 = 05h 50m 21s (U.S.C.G.S.).					
	Poona	Z	e	06 09 29		Tremor.
	New Delhi	NE	e	06 09 39		Slight.
		N	e	19 25		
			e	24 42		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Sept. 1953						
28 Contd.	Dehra Dun	N	i	06 09 44		Tremor.
	Chatra	Z	e	06 09 54		Slight, distant.
28	Epc: 52½° N., 160° E., Off the East Coast of Kamchatka. O = 13h 13m 50s (U.S.C.G.S.).					
	Poona	Z	eP	13 25 27		Tremor.
	Bombay	N	e	13 51 19		Feeble.
			e	54 33		
29	Epc: 36½° S., 177° E. Off North Coast of North Island, New Zealand. h = 300 km ± ; O = 01h 36m 45s (U.S.C.G.S.) Felt Wellington. Mag. 7¼ (Pasadena), 7 (Berkeley).					
	Calcutta	E	eP	01 49 43		Moderate, probably deep focus.
			e	51 25		
			e	55 24		
			i	56 07		
			e	59 07		
			e	02 01 41		
	***					
	Shillong	ZN	eP	01 50 05		Moderate, distant.
		N	e	50 33		
			e	53 21		
			e	54 35		
			e	59 35		
			i	59 35		
			i	02 02 24		
			i	05 21		
***	Colombo	E	P	01 50 00		
			e	02 02 19		
			M	34 02		Amp = 0.5 mm.
	Chatra	E	eP	01 50 22		Moderate.
			e	54 08		
			PP	54 42		
			e	57 11		
			SKS_1	02 00 41		
			eS	01 40		
			e	02 22		
			e	10 07		
			e	10 22		
			e	14 11		
	Kodaikanal	E	i	01 51 24		Other phases lost in record.
	Madras	E	e	01 51 26		Moderate.
			PP	54 36		
			PPP	56 27		
			S	02 01 23		
			i	01 30		
			e	02 22		
			e	02 38		
			e	07 05		
			e	10 26		
	Poona	Z	e	01 52 41		Slight, other phases doubtful.

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Sept. 1953 29 Contd.	Hyderabad	E	e	01 53 41		
			e	56 04		
			e	02 02 01		
			e	03 44		
		N	e	05 50		
		E	M	17 38		Per. = 21 secs μ = 25.
	Bombay	N	e	01 54 19		
		E	ePKP$_1$	54 38		
			PP	55 47		
		N	i	57 00		
			SKS	02 01 04		
			i	02 07		
		E	i	02 50		
		NE	i	04 17		
			PS	05 05		
			i	06 49		
			i	08 00		
			i	12 42		
	New Delhi	N	eP	01 54 52		Moderate.
			PP	55 45		
			sPP	56 57		
			i	57 28		
			e	59 46		
			eS	02 03 10		
			e	03 24		
			e	04 32		
			iPS	05 10		
			i	06 29		
			e	07 04		
			LR	13 08		
			M	17 20		
29	Shillong	ZN	e	15 35 32		Tremor.
		N	e	37 14		

30 Epc: 4°.0 S., 102½° E. , S.W. Coast of Sumatra; 0 = 04h 54m 21s (B.C.I.S.)
6° S., 100½° , 0 = 04h 54m 15s (U.S.C.G.S.)
3° S., 102° E., 0 = 04h 54m 37s (Shillong)
5° S., 102½° E., 0 = 04h 54m 37s (Djakarta).

	Madras	E	iP	04 59 16	3000	Moderate.
			PP	05 01 04		
			iS	04 53		
			LQ	05 56		
			SS	06 15		
			SSS	06 32		
			ScP	06 55		
			ScS	10 56		
	Colombo	E	P	04 59 49		
			S	05 04 11		
			M	19 --		Amp = 0.1 mm.
	Calcutta	E	eP	05 00 32	3230	Slight.
			iS	05 24		
			SSS	07 06		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Sept. 1953 30 Contd.	Shillong	ZN	eP	05 00 46	3270	Slight.
			iS	05 42		
			LQ	06 49		
			LR	08 25		
			M	10 52		
	Hyderabad	E	eP	05 01 05	3150	
			S	05 52		
			SS	07 02		
			M	11 50		Per. = 8 secs μ = 3.
	Chatra	Z	iP}	05 01 11		Slight, distant; other phases not clear.
			eP}			
			i(S)	06 31		
	Poona	E	eP	05 01 25	3920	Slight.
		N	PP	02 40		
			eS	06 59		
			LQ	09 10		
			LR	11 13		
			M	14 44		
	Bombay	NE	eP	05 01 36	3970	Feeble.
			PP	03 04		
		E	PPP	03 23		
			e	06 54		
		NE	iS	07 13		
			i	07 50		
			SS/LQ	09 56		
		E	SSS	10 30		
		NE	LR	11 35		
	New Delhi	NE	eP	05 02 06	4350	Moderate.
		N	i	02 24		
			PPP	04 15		
			iS	08 07		
			i	08 36		
			SSS	11 28		
			LR	13 02		
			M	16 53		
	Dehra Dun	NE	eP	05 02 14	4370	Slight.
			iS	08 16		
		N	PS	08 24		
			PPS	08 35		
			SSS	11 41		
30	Shillong	Z	i	06 56 31		Slight.
30	Dehra Dun	NE	i	07 11 18		Tremor.
30	Poona	Z	eP	19 26 34		Slight, appears to be long distant, other phases doubtful.
30	New Delhi	NE	eP	21 59 50	990	Slight.
		E	PPP	22 00 03		
		NE	eS	01 32		
			SS	01 43		
	Dehra Dun	NE	i	22 01 05		Tremor.

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Sept. 1953 30	Epc: 22° N., 107½° W. Off Coast of Sinaloa, Mexico. 0 = 23h 04m 08s (U.S.C.G.S.) 22°21' N., 108°20' W., 0 = 23h 04m 03s (Tacubaya). Mag. - 6¾ - 7 (Pasadena), 6¾ (Praha), 6½ - 6¾ (Kiruna), 6.5 (Tacubaya, Berkeley).					
	Madras	E	e	23 23 19		
	Shillong	N	PKP?	23 23 22	14220	Moderate.
			PP	25 25		
			PKS	26 57		
			PPP	28 26		
			PS	35 30		
			PPS	37 00		
			SS	42 38		
			SSS	47 38		
			LR	00 02 08		
			M	15 22		
	New Delhi	NE	e	23 23 26		Moderate, very distant.
		N	i	25 37		
	Chatra	Z	e	23 23 27		Slight, distant.
	Bombay	E	ePKP1	23 23 41		Distant, phases not clear.
		NE	PP	26 29		
		E	e	26 51		
			SKS	30 03		
		N	SKS	30 10		
		NE	SS	45 40		
	Colombo	E	P	23 24 21		Amp = 0.4 mm.
			L	00 11 21		
			M	24 36		
	Hyderabad	N	e	23 27 20		Slight.
		E	L	00 05 53		
		N	L	07 14		
			M	14 05		Per. = 20 secs μ = 16.
		E	M	16 16		Per. = 21 secs μ = 11.
	Calcutta	E	i	23 27 07		Slight, distant.
			i	35 30		

SM:9.12.1955 *@*@*@*@*@*@*@*@*@*@*

GOVERNMENT OF INDIA

METEOROLOGICAL DEPARTMENT

S E I S M O L O G I C A L B U L L E T I N

October, 1953.

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Published under the direction of
Dr. S.C. Roy, D.Sc.(Lond), F.N.I.,
Director General of Observatories.

Instruments and their constants.

Station	Instrument	Compt.	Period in secs	Static Magni-fication	Damping ratio	Paper Speed mm/min
Bombay	Milne-Shaw	N-S	12	350	11:1	16
	Milne-Shaw	E-W	12	350	10:1	8
	Sprengnether	E-W	7	-	-	30
Calcutta	Milne-Shaw	E-W	10	150	20:1	8.0
	Wood-Anderson	N-S	2	870	Critical	30.0
	Omori-Ewing	N-S	18	32	-	25.4
	Omori-Ewing	E-W	19	30	-	25.4
Chatra	Wood-Anderson	N-S	1.0	1000	30:1	60.0
	Wood-Anderson	E-W	1.0	1000	30:1	60.0
	Milne-Shaw	N-S	10.0	150	20:1	16.0
	Milne-Shaw	E-W	12.0	250	20:1	16.0
	Benioff	Z	To = 0.72		Es = 2.3:1	60.0
			Tg = 0.45		Eg = Critical	
Colombo	Milne-Shaw	E-W	12.0	250	20:1 22:1 from 25th Oct.	
Hyderabad	Milne-Shaw	N-S	12	251	20:1	8
	Milne-Shaw	E-W	12	253	20:1	8
Kodaikanal	Milne-Shaw	E-W	10	250	20:1	8
Madras	Sprengnether	E-W	7.2			30
New Delhi	Milne-Shaw	N-S	12	288	20:1	8
	Wood-Anderson	N-S	4	1070	20:1	16
	Wood-Anderson	E-W	2	1841	30:1	60
	Omori-Ewing	E-W	28	30	1	12
Poona	Milne-Shaw	N-S	12			8
	Wood-Anderson	E-W	4			16
	Sprengnether	Z	To = Tg = 1.5			30
Shillong	Milne-Shaw	N-S	12	250	20:1	8.0
	Wood-Anderson	N-S	4	1000	20:1	60.0
	Benioff	Z	To = 1.0	-	-	60.0
			Tg = 0.18			
	Sprengnether	E	To=Tg=6.4	-	Critical	30.0

SEISMOLOGICAL BULLETIN

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Oct. 1953						
01	Chatra	Z	i	00 04 40		Feeble, near.
		NE	e	07 37		
		Z	i	07 40		
01	Poona	Z	eP	01 07 03		Tremor.

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Oct. 1953						
01	New Delhi	NE	ePg	03 42 08	17	Slight.
			e	42 09		
			iSg	42 10		
01	Dehra Dun	NE	iP	07 02 58	870	Slight.
			PP	03 06		
			PPP	03 12		
			iS	04 28		
			LR/SS	04 39		
		E	SSS	04 39		
			Sg/M	05 17		
	New Delhi	NE	iP	07 03 09	940	Slight.
		N	PP	03 17		
			i	03 35		
		NE	LQ	04 35		
			iS	04 46		
			SS	04 58		
			LR	05 03		
			S*	05 15		
			i	05 34		
	Bombay	E	e	07 05 28		Feeble.
			i	08 08		
		N	e	08 15		
		E	i	09 38		
02	Bombay	N	e	01 28 02		Long distant shock feebly recorded.
		NE	e	30 31		
		N	e	34 05		
			e	40 35		
02	Shillong	N	e	09 10 44		Slight, distant.
			M	24 34		
02	Shillong	N	e	19 25 33		Slight, local.
			e	26 52		
			e	27 29		
	Chatra	Z	e	19 25 35		Slight, near.
		E	i	27 09		
03	New Delhi	NE	eP	01 31 48	210	Slight.
			Pg	31 53		
			PP	31 56		
		E	PPP	32 04		
		NE	eS	32 13		
			S*	32 15		
			Sg	32 18		
			SS	32 24		
			SSS	32 36		
03	Bombay	N	e	08 56 24		
		E	e	58 40		
			e	09 02 10		
		N	e	08 11		
03	Bombay	NE	e	19 33 06		
			e	35 07		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Oct. 1953						
05	Shillong	N	i	02 25 23		Slight.
05	Epc: Birmani Central; 23½° N., 95½° E. 27° N., 96° E.			0 = 02h 45m 54s (U.S.C.G.S.) 0 = 02h 45m 56s (B.C.I.S.) 0 = 02h 46m 00s (Shillong).		
	Shillong	N	iP	02 47 13	370	Slight.
			LQ	47 41		
			S?	47 56		
			iSg	48 08		
	Chatra	NE	eP)	02 48 04	919	Slight.
		Z	iP)			
		NE	PP	48 12		
			PPP	48 19		
			P*	48 24		
			Pg	48 46		
			LQ	49 29		
			iS	49 39		
			SS	49 50		
			LR	49 55		
			SSS	49 59		
			S*	50 10		
			Sg	50 32		
	New Delhi	E	eP	02 49 53	1820	Slight.
		NE	PP	50 05		
		N	i	50 27		
			iS	52 55		
			SS	53 14		
			SSS	53 30		
	Madras	E	e	02 50 38		Tremor.
	Bombay	N	eP)	02 50 33	2220	Feeble.
		E	iP)			
		NE	PP	50 52		
			eS	54 13		
			LQ	54 29		
			SS	54 05		
		E	SSS	55 01		
			i	55 10		
		NE	LR	55 21		
		E	i	55 50		
			i	56 00		
	Poona	Z	iP	02 50 53		Tremor.
			i	53 51		
	Dehra Dun	NE	S	02 52 59		Slight, near. P lost while changing the chart
05	Epc: 53½° N., 160½° E., Off the East Coast of Kamchatka; 0 = 04h 31m 40s (USCGS) 54° N., 161° E. (C.M.O., Japan). Mag. - 7 (Uppsala), 6¾ - 7 (Pasadena), 6½ - 6¾ (Kiruna), 6½ (Berkley 6¼ - 6½ (Hurbanovo), 6 - 6¼ (Skalnate Pleso), 6 (Praha).					
	Shillong	N	eP	04 41 35	6390	Moderate.
			PPP	45 07		
			eS	49 32		
			M	05 00 50		
			Mn	08 34		Per. = 18 secs μ = 154.

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Oct. 1953 5 Contd.	Dehra Dun	N	eP	04 41 41		Slight.
			ScS	51 48		
			e	51 58		
			i	52 12		
			e	05 01 38		
			e	05 52		
			e	09 42		
	Chatra	Z	iPχ	04 41 48	6470	Slight.
		E	ePχ			
			PcP	42 36		
			PP	44 02		
			PPP	45 20		
			PcS	46 38		
			eS	49 49		
			PS	50 02		
			PPS	50 16		
			ScS	51 31		
			SS	53 38		
			SSS	55 39		
			LQ	56 09		
			LR	58 59		
			M	05 04 00		
	Calcutta	E	eP?	04 42 09		Moderate.
			e	46 59		
			e	51 54		
			e	53 14		
			e	54 35		
			M	05 05 29		
	New Delhi	N	eP	04 42 11	6810	Slight.
			eS	50 31		
			PPS	50 57		
			ScS	52 04		
			M	05 06 26		
	Hyderabad	NE	eP	04 43 08	7750	
		E	PP	45 39		
		NE	iS	52 17		
			PS	52 36		
		E	L	05 05 48		
		N	M	10 15		Per. = 15 secs μ = 36.
		E	M	10 42		Per. = 18 secs μ = 95.
	Bombay	N	iP	04 43 18	8000	Slight.
		E	iP	43 24		
		N	PP	46 09		
		NE	PPP	47 40		
			eS	52 45		
		E	i	52 51		
		N	PS	53 09		
			PPS	53 24		
		E	SS	56 45		
			SSS	05 00 32		
		N	LQ	02 24		
		E	LQ	02 30		
	Madras	E	iP	04 43 22	8110	Moderate.
			PcP	43 30		
			PP	46 03		
			PPP	47 48		
			iS	52 49		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Oct. 1953						
5 Contd.	Madras Contd.	E	SKS	04 53 09		
			PPS	53 40		
			SS	57 45		
			SSS	05 00 54		
	Poona	Z	iP	04 43 23	7960	Slight.
		N	iS	52 42		
			PS	53 07		
			PPS	53 23		
			LQ	05 02 06		
			M	12 37		
	Kodaikanal	E	eP	04 43 28	8550	Slight.
			iS	53 16		
	Colombo	E	P	04 43 50		
			S	53 45		
			M	05 21 02		Amp = .1 mm.
05	Epc: $53\frac{1}{2}^{\circ}$ N., 162° E. Off the East Coast of Kamchatka; 0 = 09h 56m 40s (U.S.C.G.S.) Mag. - $5\frac{3}{4}$ (Praha).					
	Poona	Z	eP	10 08 19		Tremor.
	Shillong	N	M	10 28 27		Slight.
	Bombay	N	e	10 08 30		Feeble shock.
		E	e	17 56		
		N	e	18 10		
	Hyderabad	E	M	10 37 41		Per. = 15 secs μ = 28.
		N	M	37 43		Per. = 15 secs μ = 21.
05	Epc: $12\frac{1}{2}^{\circ}$ N., $125\frac{1}{2}^{\circ}$ E., Philippines; 0 = 12h 49m 28s (B.C.I.S.)					
	Chatra	Z	i	12 56 53		Slight, distant.
	Poona	Z	iP	12 58 26		Tremor.
05	Poona	Z	eP	14 32 20		Tremor.
05	Poona	Z	eP	16 00 56		Tremor.
05	Epc: 9° S., $152\frac{1}{2}^{\circ}$ E., Off the Coast of New Guinea; 0 = 23h 16m 22s (U.S.C.G.S.) 9° S., $152^{\circ}.5$ E., 0 = 23h 16m 25s (B.C.I.S.).					
	Shillong	N	eP	23 27 33		Slight, distant.
			e	36 33		
	Chatra	Z	eP	23 27 56		Slight, distant.
	Kodaikanal	E	iP	23 28 07	8610	Slight.
			iS	37 58		
	Madras	E	e	23 28 10		Tremor.
	Hyderabad	E	e	23 28 22		
			e	38 18		
			M	00 00 45		Per. = 21 secs μ = 66.

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Oct. 1953 05 Contd.	Poona	Z	iP	23 28 50		Slight.
		N	PS	39 16		
			e	40 06		
			e	40 26		
			LR	51 23		
			M	00 02 32		
	Bombay	NE	eP	23 28 56	9310	Feeble.
		E	e	31 25		
		NE	eS	39 19		
		E	e	40 00		
	Colombo	E	(S)	23 37 40		M approximate. Amplitude very small.
			M	59 00		
6	Bombay	NE	e	04 46 09		
		E	e	46 19		
			e	47 22		

06 Epc: $3\frac{1}{2}^{\circ}$ S., 151° E., New Britain region; 0 = 21h 38m 16s G.M.T. (U.S.C.G.S.)
Mag. $6\frac{3}{4}$ - 7 (Pasadena, Praha, Skalnate Pleso), $6\frac{3}{4}$ (Hurbanovo), $6\frac{1}{2}$ (Kiruna, Rome).

	Shillong	N	eP	21 48 58	7000	Moderate.
			PP	51 38		
			PPP	52 52		
			eS	57 28		
			LQ	22 04 45		
			LR	07 20		
	Chatra	NEZ	eP	21 49 21	7630	Slight.
		E	PcP	49 26		
			PP	52 01		
			PPP	53 36		
			PcS	53 52		
			iS	58 24		
			PS	58 39		
			PPS	58 52		
			SS	22 02 38		
			SSS	05 38		
			LQ	07 08		
			LR	10 27		
			M	16 28		
	Colombo	E	P	21 49 49		
			(S)	59 24		
			L	22 12 19		
			M	18 09		Amp = 0.1 mm.
	Madras	E	iP	21 49 51	8200	Moderate.
			iS	59 22		
	Kodaikanal	E	iP	21 49 58	8550	Slight.
			iS	59 46		
	Hyderabad	E	ePcP	21 50 03		
			PP	52 51		
			iS	59 30		
			PPS	59 47		
			L	22 15 30		
			M	19 21		Per. = 18 secs μ = 73.

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Oct. 1953 06 Contd.	New Delhi	NE	eP	21 50 17	8570	Moderate.
		N	PP	53 02		
			eS	22 00 06		
			PS	00 39		
			PPS	01 04		
			i	01 48		
			LR	15 08		
			M	21 39		
	Poona	Z	eP	21 50 23	8754	Moderate.
		E	PcP	50 27		
			PP	53 27		
			S	22 00 21		
			ScS	00 35		
			PPS	01 23		
			SS	05 27		
			LQ	11 28		
			M	21 37		
	Bombay	NE	eP	21 50 36	9132	Numerous unidentifiable phases recorded.
		E	i	50 53		
		N	i	51 16		
			i	52 34		
			PP	53 36		
		E	i	53 50		
		NE	iS	22 00 35		
			i	00 51		
			PS	01 45		
		E	PPS	02 12		
		N	PPS	02 15		
		E	i	02 54		
		N	i	03 48		
			i	04 34		
			i	05 46		
			i	09 16		
		E	LQ	13 --		
08	Shillong	Z	e	03 23 52		Slight, tremor.
08	Shillong	Z	i	03 32 36		Slight, tremor.
08	Shillong	Z	i	04 23 41		
08	Shillong	ZN	e	04 30 27		
08	Epc: 30°.5 N., 97°.5 E. , 0 = 16h 20m 04s (Shillong). 30° N., 97½° E., Sikiang Province, China; 0 = 16h 20m 05s (U.S.C.G.S. and B.C.I.S.)					
	Shillong	N	eP	16 21 43	690	Moderate.
			PP	21 52		
			P*/PPP	21 57		
			Pg	22 09		
			LQ	22 45		
			iS	22 55		
			LR	23 01		
			SS	23 06		
			S*	23 16		
			Sg	23 33		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Oct. 1953 08 Contd.	Chatra	Z	iPY	16 22 23	1030	Slight.
		NE	ePY			
			PP	22 28		
			PPP	22 36		
			P*	22 44		
			Pg	23 10		
			LQ	23 59		
			iS	24 09		
			SS	24 19		
			LR	24 25		
			SSS	24 32		
			S*	24 45		
			Sg(M)	25 14		
	Calcutta	E	eP	16 22 45	1170	Slight.
			iS	24 45		
			?	25 23		
			M	25 57		
	Dehra Dun	NE	eP	16 24 00		Tremor.
	New Delhi	NE	eP	16 24 10	1910	Slight.
			PP	24 22		
			PPP	24 30		
			eS	27 21		
			SS	27 40		
		N	SSS	27 54		
			LR	28 07		
			M	29 33		
	Hyderabad	NE	iP	16 24 56	2420	
		E	iS	28 53		
			L	30 57		
		N	L	31 07		
		E	M	32 51		Per. = 12 secs μ = 22.
		N	M	33 03		Per. = 10 secs μ = 14.
	Madras	E	iP	16 25 17	2600	Moderate.
			PP	25 45		
			PPP	26 01		
			iS	29 27		
			SS	30 16		
			SSS	30 28		
			LR	31 00		
			ScP	32 18		
			M	32 49		
			ScS	35 48		
	Poona	Z	iP	16 25 28	2730	Slight.
		N	eS	29 57		
			SSS	31 49		
			LR	32 27		
			M	34 41		
	Bombay	NE	iP	16 25 33	2850	Feeble.
			PP	26 16		
		E	i	27 50		
		NE	iS	30 00		
		E	i	30 05		
			LQ	30 51		
		N	LQ	30 59		
			SS	31 18		
		NE	SSS	31 27		
			LR	32 09		
		E	i	32 19		

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Oct. 1953 08	Epc: 32° N., 82½° E. in Tibet, 0 = 19h 11m 00s (U.S.C.G.S. and I.C.I.S.)					
	31°.5 N., 84° E. 0 = 19h 11m 11s (Shillong.)					
	Mag. 5¾ (Kiruna), 6¼ (Praha).					
	Dehra Dun	NE	eP	19 12 18		Moderate.
		N	PPP	12 30		
			Pg	12 37		
			e	12 55		
			S*	13 37		
		NE	iSg	13 48		
	New Delhi	NE	iP	19 12 36	690	Moderate. Direction of first motion North.
			P*	12 49		
			Pg	13 04		
			LQ	13 33		
			iS	13 48		
			S*	14 09		
			Sg	14 23		
	Chatra	Z	iP	19 12 43	727	Moderate.
		E	PP	12 50		
			PPP	12 54		
			P*	12 57		
			Pg	13 14		
			LQ	13 45		
			iS	13 59		
			LR	14 06		
			SS	14 10		
			S*	14 20		
			Sg(M)Y	14 40		Per. = 5 secs/μ = 266.
		E	Sg(M)Y			
	Shillong	N	eP	19 13 33		Moderate.
			iS	15 23		
			LR	15 43		
			SS	15 49		
			SSS	15 59		
			M	16 25		
	Calcutta	E	eP	19 13 45	1090	Moderate.
			iS	15 36		
			SSS	16 08		
			M	16 44		
	Hyderabad	N	iP	19 14 37		
		E	iS	17 16		
		EN	L	18 25		
		E	M	19 17		Per. = 10 secs/μ = 171.
		N	M	19 21		Per. = 9 secs/μ = 86.
	Poona	Z	iP	19 14 45	1650	Moderate.
		N	PPP	15 21		
			eS	17 32		
			SS	17 50		
			SSS	18 09		
			M	19 26		Per. = 13 secs/μ = 64.
	Bombay	NE	iP	19 14 47	1710	Feeble, possibly deep focus, and followed by after shocks.
		E	i	14 56		
		N	PP	15 03		
			PPP	15 08		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Oct. 1953						
08	Bombay	E	i	19 16 02		
Contd.	Contd.	N	i	16 18		
		E	i	16 38		
		NE	LQ	17 37		
			iS	17 39		
		E	SS	18 00		
		NE	SSS	18 13		
		N	LR	18 23		
	Madras	E	eP	19 15 31	2030	Moderate.
			PP	15 48		
			PPP	15 57		
			iS	18 53		
			LQ	18 55		
			SS	19 18		
			SSS	19 35		
			LR	19 58		
			M	21 12		
			PcP	23 20		
			ScS	26 49		
	Colombo	E	S	19 21 02		
			e	24 15		
			L	27 30		L approximate.
			M	28 00		Amp = .5 mm.
08	New Delhi	NE	eP	19 55 03	710	Slight.
			P*	55 16		
			i	55 27		
		E	Pg	55 33		
		NE	eS	56 17		
		E	S*	56 39		
		N	Sg	56 53		
08	Hyderabad	E	iP	19 59 41	1190	
			eS	20 01 43		
			M	03 07		Per. = 8 secs/μ = 4.
09	Dehra Dun	NE	e	04 35 50		Tremor.
			i	37 19		
	New Delhi	NE	eP	04 36 04	990	Slight.
		E	PP	36 11		
			PPP	36 18		
		NE	eS	37 45		
		N	SS	37 55		
			Sg	38 25		
	Chatra	Z	i	04 37 33		Slight, distant.
		E	e	49 40		
	Shillong	Z	i	04 38 17		Slight.
09	Dehra Dun	N	e	04 47 35		Tremor.
09	Shillong	ZN	e(P)	05 21 34		Slight.
		N	e	23 35		
09	Shillong	Z	iPX	06 39 30	140	Slight.
		N	ePX			
		N	i	39 44		
				39 47		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Oct. 1953						
10	Shillong	Z	e	00 23 34		Slight.
		N	e	31 34		
10	Dehra Dun	N	e	00 45 49		Tremor.
10	Bombay	N	e	21 38 25		Feeble.
		E	e	40 09		
		NE	e	45 08		
		N	e	22 19 06		
11	Epc: 50° N., 155½° E., Region Kuriles; h = 60 km ±. 0 = 13h 08m 34s (U.S.C.G.S.) Mag. - 7 (Praha), 6¾ - 7 (Rome, Skalnate Pleso), 6¾ (Pasadena, Uppsala), 6½ (Kiruna).					
	Shillong	ZN	iP	13 17 58	6030	Slight.
		N	PcP	19 12		
			eS	25 35		
			PS	25 46		
			ScS	28 05		
			SS	29 11		
			LR	34 47		
			M	37 37		
	Chatra	NEZ	eP	13 18 14	6140	Slight.
		E	PP	19 16		
			PPP	21 37		
			PcS	23 15		
			eS	25 57		
			PS	26 09		
			PPS	26 22		
			ScS	28 02		
			SS	29 49		
			LQ	30 45		
			LR	33 30		
		NE	M	39 00		
	Calcutta	E	iP	13 18 32	6445	Moderate. First movement West.
			iS	26 32		
	Dehra Dun	NE	eP	13 18 44		Tremor.
	New Delhi	NE	eP	13 18 51		Moderate.
		N	e	19 19		
			e	23 16		
			e	28 15		
			e	28 39		
			e	29 01		
			e	32 46		
	Hyderabad	E	iP	13 19 38	7550	
			iS	28 37		
			PS	29 21		
			SS	33 33		
			L	40 42		
		N	M	46 43		Per. = 16 secs μ = 100.
		E	M	46 48		Per. = 18 secs μ = 280.
	Poona	Z	eP	13 19 50	7960	Moderate.
		N	PcP	20 05		
			PP	22 27		
			PPP	24 16		
			eS	29 05		
			PS	29 27		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Oct. 1953						
11 Contd.	Poona Contd.	N	PPS	13 29 57		
			SS	33 48		
			LQ	38 19		
			LR	41 49		
			M	47 48		
	Madras	E	iP	13 19 53	7810	Moderate.
			PcP	20 06		
			PP	22 36		
			PPP	24 19		
			iS	29 05		
			PS	29 39		
	Bombay	NE	iP	13 19 58	7760	Slight.
			PcP	20 21		
		N	PP	22 36		
			PPP	24 19		
		NE	eS	29 07		
			PS	29 29		
		E	PPS	29 44		
		NE	ScS	29 58		
		E	i	30 29		
			SS	33 28		
			SSS	36 23		
		NE	LQ	37 34		
		E	LR	40 24		
		N	M	48 00		Per. = 23 secs μ = 86.
		E	M	54 22		Per. = 17 secs μ = 36.
	Kodaikanal	E	iP	13 20 14	8660	Slight. First movement west.
			iS	30 08		
			M	51 05		Per. = 21secs μ = 17.8.
	Colombo	E	P	13 20 20		
			S	29 57		
			L	46 30		
			M	58 52		Amp = 0.3 mm.
11	Epc: 32° N., 83° E., 0 = 17 h 08m 10s (Shillong). 31½° N., 83° E. in Tibet, 0 = 17h 08m 00s (U.S.C.G.S. and B.C.I.S.)					
	Mag. 6¾ (Praha), 6½ (Roma, Strasbourg), 6¼ - 6½ (Uppsala), 6¼ (Kiruna), 6 - 6¼ (Hurbanovo).					
	Dehra Dun	NE	iP	17 09 22		Great.
			P*	09 29		
			e	09 37		
		E	e	09 54		
		NE	iSg	10 42		
	New Delhi	NE	iP	17 09 39	410	Moderate. Direction of first motion North and East.
			PP	09 47		
			P*	10 02		
			Pg	10 22		
			S	11 00		
			iS*	11 13		
			Sg	11 26		
	Chatra	NEZ	eP	17 09 46	420	Moderate.
		NE	PP	09 53		
			P*	10 00		
			PPP	10 03		
			Pg	10 20		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Oct. 1953 14 Contd.	Madras	E	iP	14 57 36	6780	Moderate.
			PP	59 55		
			iS	15 05 54		
			PS	06 16		
			PPS	06 27		
	Poona	E	eP	14 57 45	6633	Slight.
			PP	15 00 02		
			S	06 05		
			SS	10 09		
			e	13 39		
			M	21 06		
	Bombay	E	iP	14 57 48	7130	Slight.
			PcP	58 10		
			i	58 28		
			PP	15 00 15		
			i	01 01		
			PcS	02 00		
			iS	06 13		
			PS	06 41		
			SKS	07 26		
			i	08 15		
			SS	10 37		
			SSS	13 24		
16	Shillong	N	e	02 21 12		Local tremor.
16	Poona	Z	eP	09 12 51		Tremor.
16	Bombay	E	eP	21 53 30	5490	Feeble.
			PcP	54 47		
			PP	55 25		
			e	55 45		
			e	57 58		
			eS	22 00 37		
			PS	00 45		
			ScS	03 00		
			SS	04 00		
			LQ	05 33		
			SS	05 37		
			LR	08 00		

17 Epc: 52° N., 159° E., Off the SE Coast of Kamchatka; O = 21h 07m 22s (U.S.C.G.S. and B.C.I.S.)
Mag. 6¾ (Uppsala), 6½ - 6¾ (Kiruna), 6¼ - 6½ (Praha, Skalnate Pleso) 6¼ (Hurbanovo).

Shillong	Z	iPX	21 17 09	6200	Slight.
	N	ePX			
		eS	24 56		
Chatra	Z	iPX	21 17 23	6440	Slight, distant.
	E	ePX			
		eS	25 23		
		e	27 08		
		e(M)	40 30		
Calcutta	E	e	21 17 38		Slight, distant.
		i	26 00		
		M	43 23		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Oct. 1953 17 Contd.	New Delhi	NE	eP	21 17 50	7050	Moderate.
		N	PcP	18 25		
			eS	26 23		
			PPS	26 53		
			ScS	27 40		
			M	42 06		
	Hyderabad	E	iP	21 18 40	2800	
			iS	27 52		
			L	41 26		
		N	M	46 07		Per. = 16 secs μ = 10.
		E	M	46 38		Per. = 16 secs μ = 6.
	Poona	Z	iP	21 18 54	8090	Slight.
		E	PP	21 43		
			eS	28 20		
			ScS	28 40		
			PS	28 57		
			SS	33 23		
			SSS	36 41		
			M	49 14		
	Bombay	NE	iP	21 18 56	7980	Slight.
		N	PcP	19 09		
		E	i	20 14		
			PP	21 50		
			i	21 58		
			e	28 05		
		NE	iS	28 26		
		E	SKS	28 46		
		NE	PS	28 57		
		E	PPS	29 21		
			SSS	36 30		
			M	54 58		Per. = 16 secs μ = 34.
		N	M	54 58		Per. = 16 secs μ = 103.
	Madras	E	iP	21 18 56		Moderate; phases not
			iS	28 18		clear.
	Kodikanal	E	e	21 19 16		Tremor.
	Colombo	E	e(P)	21 19 27		
			(S)	29 30		
			L	51 20		
			M	59 02		Amp = 0.1 mm.
17	Bombay	E	eP	23 54 56	7980	Very feeble.
			iS	00 04 16		
			SKS	04 33		
			PS	05 00		
18	Shillong	Z	e	00 21 01		Slight.
19	Shillong	Z	iP	00 28 47		Slight.
		N	eP	28 47		
			e	29 56		
			e	30 09		
	Chatra	Z	e	00 29 47		Feeble, near.

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Oct. 1953 19	Shillong	N	e	13 49 43		Slight.
			e	51 11		
			e	52 17		
19	Dehra Dun	NE	eP	20 36 21		Feeble, near.
			i	36 48		
	New Delhi	E	eP	20 36 29	410	Slight.
			PP	36 36		
		NE	PPP	36 42		
			eS	37 13		
			S*	37 22		
			SS	37 24		
			Sg	37 30		
19	New Delhi	NE	eP	22 01 12	630	Slight.
		E	PP	01 19		
			P*	01 24		
		EN	iS	02 19		
			S*	02 37		
			Sg	02 56		
19	Dehra Dun	NE	e	23 01 41		Tremor.
	Chatra	Z	e	23 03 13		Feeble, distant.
	Poona	Z	e?	23 06 --		Phases not clear.
21	Dehra Dun	NE	i	00 56 22		Tremor.
21	Bombay	N	e	04 06 23		Feeble.
			e	12 44		
			e	13 21		
			M	29 --		
21	Shillong	Z	iP	08 10 33		Very feeble.
			i	10 17		
			i	10 20		
21	Shillong	Z	iP	09 55 34		
21	Shillong	Z	iP	16 39 52		
21	Epc: 38°.3 N., 20°.8 E., Ionian Island; 0 = 18h 39m 51s (B.C.I.S.) 38° N., 20½° E. 0 = 18h 39m 50s (U.S.C.G.S.) Mag. 6½ (Pasadena, Praha, Uppsala); 6¼ - 6½ (Kiruna), 6 - 6¼ (Hurbanovo, Skalnate Pleso), 5¾ - 6 (Athenes).					
	New Delhi	NE	eP	18 48 31	5160	Slight.
			eS	55 19		
			PS	55 27		
		N	SS	58 29		
			M	19 05 39		
	Bombay	N	eP	18 48 44	5450	Slight.
			PcP	50 01		
			PP	50 46		
			PPP	51 26		
		N	PcS	53 50		
		NE	eS	55 49		
		N	i	55 52		
			PS	55 58		
			PPS	56 13		
			i	58 49		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Oct. 1953 21 Contd.	Poona	Z	eP	18 48 51		Slight. Rest of the record lost due to failure of time mark.
	Hyderabad	E	eP	18 49 24	5900	
			iS	56 54		
			ScS	59 07		
			SS	19 00 20		
		N	L	06 41		
			M	08 59		Per. = 24 secs μ = 19.
		E	M	09 44		Per. = 26 secs μ = 15.
	Chatra	NEZ	eP	18 49 34	6140	Slight.
		NE	PP	51 38		
			PPP	52 59		
			PcS	54 42		
			eS	57 17		
			PS	57 27		
			PPS	57 38		
			ScS	59 16		
			SS	19 01 06		
			LQ	01 57		
			LR	05 41		
			M	11 19		
	Shillong	Z	iP	18 50 04	7550	Moderate.
		N	iS	58 19		
			PPS	58 37		
			ScS	19 00 00		
			SS	02 16		
			LQ	05 22		
			LR	08 50		
			M	14 11		
	Colombo	E	P	18 50 06		
			S	58 42		
			M	19 19 03		Amp = 0.1 mm.
	Calcutta	E	e	18 50 08		Slight.
			i(S)	58 31		
	Madras	E	e	18 50 19		Moderate shock. Phases not clear.
			iS	57 47		
	Kodaikanal	E	e(S)	18 57 47		Tremor.
21	Shillong	Z	eP	19 19 35		Very feeble.
			i	20 00		
			eSg(?)	51 11		
21	Shillong	Z	eP	23 39 12		Tremor.
22	Shillong	Z	eP	00 15 57		Tremor.
			e	16 52		
22	Shillong	Z	eP	04 10 53		
22	Shillong	Z	iP	04 20 37		
22	Shillong	Z	iPg	09 11 17		Very feeble.
			Sg	11 27		
22	Shillong	Z	ePg	09 36 42		Tremor.

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Oct. 1953						
22	Shillong	Z	ePg	10 18 54		Very feeble.
			Sg	19 26		
22	Shillong	Z	eP	13 11 58		Tremor.
	Poona	Z	e?	13 13 49		Tremor.
	Bombay	N	e	13 14 14		
		E	e	23 22		
		N	e	19 28		
			e	24 20		
22	Shillong	Z	eP	13 43 16		Tremor.
22	Shillong	Z	eP	13 59 23		Tremor.
22	Shillong	Z	iPg	16 04 38		Very feeble.
			iSg	05 04		
22	Shillong	Z	iPg	16 08 57		Very feeble.
			Sg	09 02		
22	Shillong	Z	iP	17 47 56		Tremor.
22	Shillong	Z	iP	17 51 47		Tremor.
22	Shillong	Z	iP	19 43 36		Tremor.
22	Shillong	Z	iP	21 36 14		Tremor.
22	Shillong	Z	ePg	22 12 35		Very feeble.
			i	12 40		
			Sg	12 46		
22	Shillong	Z	eP	22 53 33		Tremor.
22	Shillong	Z	eP	22 59 33		Tremor.
23	New Delhi	NE	eP	02 29 05	890	Slight.
		E	Pg	29 47		
			eS	30 37		
			SS	30 48		
			S*	31 09		
		NE	Sg	31 29		
	Dehra Dun	N	e	02 29 58		Tremor.
		NE	i	31 21		
	Shillong	Z	eP	02 32 04		Tremor.
23	Shillong	Z	iPg	02 51 33		Tremor.
23	Shillong	Z	iPg	02 52 50		Tremor.
23	Shillong	Z	eP	15 44 11		Tremor.
23	Shillong	Z	iP?	15 45 15		Tremor.
			i	45 43		
23	Shillong	Z	eP	17 28 21		Tremor.
			i	28 56		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Oct. 1953						
23	Shillong	Z	eP	17 41 29		Tremor.
23	Shillong	Z	iPg	17 44 10		Very feeble.
			iSg	44 41		
23	Shillong	Z	eP	18 26 00		Tremor.
23	Shillong	Z	iP	19 08 49		Tremor.
23	Shillong?	Z	iP	20 39 57		Tremor.
23	Shillong	Z	eP	20 57 52		Tremor.
			i	58 37		
23	Shillong	Z	iPg	22 43 38		Very feeble.
			iSg	43 50		
24	Shillong	Z	eP	00 35 08		Tremor.
24	Shillong	Z	iP?	00 37 43		Tremor.
24	Shillong	Z	iP	01 12 50		Tremor.
24	Shillong	Z	eP	01 43 52		Tremor.
24	Shillong	Z	eP	01 58 52		Tremor.
24	Shillong	Z	eP	04 32 11		Tremor.
24	Shillong	N	M	04 51 18		Slight, distant.
24	Shillong	Z	iPg	09 28 25		Tremor.
24	Bombay	E	e	23 40 17		Long distance shock.
			e	49 27		
26	Hyderabad	N	M	00 18 25		Per. = 18 secs, μ = 5.
26	Bombay	E	i	11 12 00		Feeble, distant.
			i	21 41		
27	Poona	Z	eP	02 51 22		Slight, other phases not doubtful.
27	Epc: 43° N., 145° E., Off the East Coast of Hokkaido, Japan; 0 = 03h 40m 45s (U.S.C.G.S. and B.C.I.S.) 42°.7 N., 145°.6 E., h = 60 km; 0= 03h 40m 50s; Felt (C.M.O. Japan).					
	Shillong	N	e	03 49 20		Slight, distant.
			e	51 05		
			e	55 54		
			e	58 21		
			M	04 09 36		
	Dehra Dun	NE	e	03 50 14		Tremor.
	New Delhi	NE	iP	03 50 25	6080	Moderate.
		N	iS	58 04		
			PPS	58 21		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Oct. 1953 27 Contd.	Bombay	E	eP[illegible]	03 51 26		Feeble.
		N	iP[illegible]			
			PcP	51 49		
		NE	PP	53 59		
		E	i(S)	04 00 11		
		E	i	00 23		
		N	PS	00 27		
			PPS	00 41		
		E	PPS	00 47		
			ScS	01 06		
		N	ScS	01 11		
			e	04 13		
27	Epc: 19° S., 66° W., South Bolivia; h = 300 km ±; 0 = 18h 20m 48s (U.S.C.G.S.) Damage at Calama (Chili). Mag. 6¾ (Pasadena, Berkeley).					
	Bombay	E	e	18 39 19		Distant and deep focus (d = 300 kms)
			i	40 02		
			e	41 05		
		N	e	42 31		
		NE	PP	42 48		
		E	i	43 18		
		N	PKS	43 26		
			PPP	46 00		
		E	PPP	46 26		
		N	SKS_2	46 30		
		NE	$SKKS_1$	46 19		
		N	SKSP	52 45		
		E	PS	53 06		
			i	55 15		
		N	SS	19 01 06		
			SSP	01 58		
	Poona	Z	PKP	18 39 46		Slight.
		E	PP	42 57		
	Colombo	E	PKP	18 39 51		
	New Delhi	NE	PKP	18 39 54		Moderate.
		N	SKKS	49 39		
			e	50 12		
			e	50 28		
			i	53 28		
	Dehra Dun	NE	PKP	18 39 56		Tremor.
	Madras	E	i	18 40 03		Moderate, phases not clear.
	Chatra	Z	i	18 40 10		Slight, distant, probably deep focus.
		NE	e	50 32		
	Shillong	N	e	18 46 49		Slight, distant.
			e	56 53		
27	Poona	Z	e?	18 51 17		Tremor.

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Oct. 1953 28	Epc: 32½° N., 128.0° E., Off the SW Coast of Kiou-Siou, Japan. 31.8° N., 129.5° E. O = 02h 08m 35s (B.C.I.S.) h = 20km (C.M.O., Japan).					
	Chatra	Z	e	02 15 44		Slight, distant. Surfa
		NE	e	30 00		waves.
	New Delhi	NE	eP	02 16 50	5020	Slight.
		N	eS	23 30		
			M	33 10		
	Poona	Z	eP	02 17 39		Slight.
	Calcutta	E	i	02 19 43		Slight, distant.
			i	30 45		
	Bombay	E	e	02 22 29		Feeble.
		N	e	25 14		
		E	e	25 31		
		N	e	37 31		
	Shillong	N	e	02 25 24		Distant, surface waves.
	Hyderabad	N	M	02 35 33		Per. = 15 secs μ = 5.
28	Dehra Dun	NE	e	05 50 28		Tremor.
			i	51 51		
	New Delhi	NE	eP	05 51 03	890	Slight.
		N	PP	51 11		
		E	PPP	51 17		
			eS	52 35		
			SS	52 47		
28	Shillong	N	e	09 46 19		Slight, near.
			i	46 21		
28	Epc: 49° N., 156° E., Isles Kuriles; O = 12h 09m 36s (U.S.C.G.S.) 50½° N., 155° E., O = 12h 09m 38s (B.C.I.S.)					
	Bombay	N	e	12 20 07		Feeble, phase uncertain.
			e	21 04		
			e	29 30		
			e	29 42		
	Poona	Z	e	12 21 00		Slight, other phases not clear.
	Chatra	NE	e	12 40 00		Feeble, surface waves.
28	Bombay	N	e	14 00 41		Faintly recorded. Long distance shock.
			e	02 03		
			e	04 19		
			SKS_1	07 38		
28	Bombay	N	e	14 29 50		
			e	34 18		
			e	39 13		
			e	40 15		
			e	41 03		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Oct. 1953 28 Contd.	Hyderabad	N	eP	14 38 33	6360	
			eS	46 29		
			M	58 28		Per. = 18 secs μ = 8.
	Poona	Z	iP	14 38 45	6633	Slight.
		N	PP	41 01		
			PPP	42 22		
			S	46 52		
			ScS	48 03		
			SS	50 56		
			SSS	53 22		
			LQ	53 58		
			LR	56 54		
			M	15 01 58		
	Madras	E	e	14 45 32		Tremor.
29	Poona	Z	eP	17 23 25		Tremor.
31	Dehra Dun	NE	iP	14 07 26	1060	Slight.
		N	PP	07 33		
			PPP	07 40		
			LQ	09 06		
		NE	iS	09 14		
		N	SS	09 32		
			LR	09 39		
			SSS	09 44		
	Poona	Z	eP	14 09 55	2510	Slight.
		N	PP	10 23		
			S	14 00		
			LR	15 35		
			M	17 23		
	Bombay	NE	e	14 09 59		
		N	e	10 24		
		NE	e	10 35		
		E	e	13 58		
		N	e	14 01		
		E	i	15 26		
			i	16 33		
	New Delhi	NE	iP	14 07 46	1240	Slight. Direction of first motion South and East.
			PP	07 54		
			PPP	08 00		
			P*	08 19		
			iS	09 53		
			SS	10 06		
			SSS	10 17		
	Hyderabad	N	P	14 10 04	2600	
		NE	S	14 14		
		N	M	19 01		Per. = 9 secs μ = 4.
	Calcutta	E	e	14 13 14		Slight, distant.
			i	15 55		
			Mn	19 39		
	Madras	E	e?	14 15 55		Tremor.
	Kodaikanal	E	e	14 16 18		Tremor.
31	Shillong	N	e	22 30 22		Tremor.

SM:21.12.55

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GOVERNMENT OF INDIA

METEOROLOGICAL DEPARTMENT

S E I S M O L O G I C A L B U L L E T I N

November, 1953.

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Published under the direction of

Dr. S.C. Roy, D.Sc.(Lond.), F.N.I.,

Director General of Observatories.

Instruments and their constants.

Station	Instruments	Compt.	Period in secs	Static Magnification	Damping ratio	Paper Speed mm/min
Bombay	Milne-Shaw	N-S	12	350	15:1	16
	Milne-Shaw	E-W	12	350	9:1	8
	Sprengnether	E-W	7	-	-	30
Calcutta	Milne-Shaw	E-W	10	150	20:1	8.0
	Wood-Anderson	N-S	2	870	Critical	30.0
	Omori-Ewing	N-S	18	32	-	25.4
	Omori-Ewing	E-W	19	30	-	25.4
Chatra	Milne-Shaw	N-S	10.0	150	20:1	16.0
	Milne-Shaw	E-W	12.0	250	20:1	16.0
	Wood-Anderson	N-S	1.0	1000	30:1	60.0
	Wood-Anderson	E-W	1.0	1000	30:1	60.0
	Benioff	Z	To=0.72 Tg=0.45	-	Es=2.3:1 Eg=Critical	60.0
Colombo	Milne-Shaw	E-W	12	250	20:1 22:1 from 25 Nov.	-
Dehra Dun	Milne-Shaw	N-S	12	250	20:1	16
	Wood-Anderson	E-W	1	1000	30:1	60
	Wood-Anderson	N-S	1	1000	30:1	60
Hyderabad	Milne-Shaw	E-W	12	253	20:1	8.0
	Milne-Shaw	N-S	12	251	20:1	8.0
Kodaikanal	Milne-Shaw	E-W	10	250	20:1	8.0
Madras	Sprengnether	E-W	7.2	5		30
New Delhi	Milne-Shaw	N-S	12	288	20:1	8
	Wood-Anderson	N-S	4	1070	20:1	16
	Wood-Anderson	E-W	2	1841	30:1	60
	Omori-Ewing	E-W	28	30	1	12
Poona	Milne-Shaw	N-S	12	250	20:1	8
	Wood-Anderson	E-W	4	1100	20:1	16
	Sprengnether	Z	To=Tg=1.5			30
Shillong	Milne-Shaw	N-S	12	250	20:1	8.0
	Wood-Anderson	N-S	4	1000	20:1	60.0
	Wood-Anderson	N-S	1	1000	20:1	30.0
	Wood-Anderson	E-W	1	1000	20:1	30.0
	Sprengnether	E	To=Tg=6.4	-	-	24.0
	Benioff	Z	To = 1.0 Tg =0.18	-	-	60.0

SEISMOLOGICAL BULLETIN

DATES	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1953 01	Poona	Z	eP	00 28 00		Tremor.

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Nov. 1953 01	Epc: 36½° N., 70° E. in Hindukush, h = 200 km ca; 0 = 17h 24m 40s (U.S.C.G.S.)					
	Felt at Kabul and Peshwar (Quetta).					
	Dehra Dun	NE	eP	17 26 45	970	Slight.
			PP	26 58		
			iS	28 21		
	New Delhi	NE	iP	17 26 55	980	Slight. Direction of first motion South.
			PP	27 04		
			PPP	27 10		
			P*	27 14		
			iS	28 36		
			S*	29 08		
			Sg	29 35		
	Chatra	Z	iP	17 28 30	1890	Slight.
			PP	28 44		
			pP	28 52		
			S	31 30		
			i	31 34		
			SS	31 54		
			SS	32 05		
			LR	32 18		
			M	33 42		Suppressed.
	Bombay	N	iP	17 28 38		Feeble.
			e	29 16		
		NE	e	31 49		
		N	e	32 00		
			i	32 02		
	Poona	Z	iP	17 28 43	1900	Slight.
		EW	PP	28 54		
			eS	32 01		
			SSS	32 35		
			M	34 25		
	Hyderabad	N	P	17 30 04	1530	P uncertain by 1 minute
		NE	iS	32 39		
		N	M	35 17		Per. = 8 secs μ = 2.
		E	M	35 18		Per. = 8 secs μ = 2.
	Madras	E	e	17 30 09		Tremor.
	Shillong	N	eS	17 32 57		Slight.
01	Epc: 22° N., 122° E. Off the East Coast of Formosa; 0 = 18h 16m 50s (U.S.C.G.S.)					
	23¼° N., 122¼° E., 0 = 18h 16m 52s (B.C.I.S.).					
	Shillong	N	e(P)	18 22 48		Slight.
			e	27 26		
	Chatra	NEZ	eP	18 23 21		Slight, distant.
		NE	e	28 32		
	Madras	E	eP	18 24 41	4502	Moderate.
			PP	26 20		
			PcP	26 33		
			PPP	26 48		
			iS	30 50		
			SS	33 53		
			LQ	33 42		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1953 01 Contd.	Hyderabad	E	e	18 24 51		
			iS	30 54		
			SSS	34 03		
			M	40 51		Per. = 15 secs μ = 4.
		N	M	41 10		Per. = 15 secs μ = 5.
	Calcutta	E	e	18 24 55		Slight, distant.
			i	29 54		
			i	31 46		
			i	37 33		
	Poona	Z	eP	18 25 13	5022	Moderate, Time uncertain
		E	PP	26 58		
			PPP	28 42		
			eS	31 53		
			PS	31 57		
			SSS	36 07		
			M	41 38		
	Bombay	E	e	18 25 27		Very feeble.
			e	27 14		
			e	30 55		
			e	31 58		
01	Epc: Kurile Island; 0 = 20h 55m 32s (U.S.C.G.S.) 48¼° N., 153¾° E., 0 = 20h 55m 39s (B.C.I.S.) Mag. - 6 (Hurbanovo), 5¾ - 6 (Praha), 5¾ (Kiruna).					
	Chatra	NEZ	eP	21 05 14	6110	Slight.
		NE	PcP	06 06		
			PP	07 20		
			PPP	08 31		
			PcS	10 05		
			eS	12 55		
			ScS	14 59		
			LQ	18 59		
			LR	21 27		
			M	26 12		Per. = 15 secs μ = 5.
	New Delhi	NE	eP	21 05 51		Slight.
	Poona	Z	eP	21 06 52	8640	Moderate.
		E	eS	16 02		
			PS	16 37		
			SSS	23 42		
			LQ	25 18		
			M	34 38		
	Bombay	NE	eP	21 06 56	7800	Feeble.
		N	PcP	07 07		
		NE	PP	09 38		
		N	PPP	11 14		
		E	eS	16 01		
			PPS	16 48		
	Hyderabad	E	M	21 36 17		Per. = 12 secs μ = 2.
02	Shillong	ZE	e(P)	09 04 10	180	Slight.
			e(Sg)	04 34		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Nov. 1953						
03	New Delhi	NE	eP	07 02 03	950	Slight.
			eS	03 41		
			SS	03 53		
		N	S*	04 11		
	Dehra Dun	NE	i	07 03 35		Tremor.
04	Epc: 12½° S., 166½° E., New Hebrides Island; 0 = 03h 49m 04s G.M.T (U.S.C.G.S.)					
	Mag. - 8 (Skalnate Pleso); 7¾ (De Bilt, Rome, Uppsala, Praha, Hurbanovo); 7½ (Kiruna, Strasbourg); 7.3 (Pasadena).					
	Calcutta	E	i	04 01 05		Moderate. First movement West. Times are approximate due to failure of eclipse clock.
			i	11 34		
	Shillong	NE	iP	04 01 33	9090	Moderate.
		N	PcP	01 43		
			iS	11 46		
			SKS_1	12 04		
			PPS	12 45		
			SS	16 55		
			LQ	22 37		
			M	32 34		Per. = 22 secs μ = 53.
	Chatra	Z	iP	04 01 52	9420	Moderate.
		NE	eP			
			PP	05 05		
			PPP	07 01		
			eS	12 20		
			ScS	12 30		
			PS	12 59		
			PPS	13 25		
			SS	17 46		
			$PKKP_1$	19 34		
			SSS	21 28		
			$PKKS_1$	23 09		
			PKP_2	24 50		
			LQ	25 20		
			$SKKS_2$	26 57		
			LR	28 42		
			SKKKS	31 31		
			M	37 20		
	Kodaikanal	E	iP	04 02 16	1	Moderate, phases doubtful
			PP	05 49		
			PPP	07 49		
			S	13 10		
			PS	14 22		
			PPS	14 52		
			SS	19 16		
			SSS	22 52		
			LQ	27 16		
			LR	31 23		
			M	38 58		Per. = 17 secs μ = 60.
	Hyderabad	E	iP	04 02 18	10100	
			PP	06 19		
			SKS	12 40		
			iS	13 14		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1953						
04 Contd.	Hyderabad Contd.	E	PS	04 14 53		
			SS	20 42		
			L	33 22		
			M	40 54		Per. = 21 secs μ = 24.
	New Delhi	NE	eP	04 02 32	9830	Moderate.
			PP	06 02		
		N	PPP	08 01		
			SKS	13 01		
			iS	13 17		
			ScS	13 36		
			SS	19 07		
			SSS	23 05		
			LQ	27 42		
			LR	32 36		
	Poona	Z	eP	04 02 39	10370	Moderate.
		E	PP	06 37		
			PPP	08 43		
			eS	13 45		
			PS	15 12		
			PPS	15 57		
			SS	20 15		
			LQ	29 12		
			LR	33 27		
			M	40 27		
	Bombay	N	e(P)	04 02 44		Moderate. Possibly
		E	iP			followed by aftershock.
			i	13 22		
			i	13 35		
		NE	S	13 50		
			i	14 07		
		E	PPS	15 40		
			SS	20 00		
			SSS	24 10		
		N	SSS	24 35		
			LQ	30 09		
	Dehra Dun	N	i	04 03 37		Moderate. Distant,
			S	13 34		phases doubtful.
			PS	14 41		
			LQ	32 44		

04 Epc: 39° N., 129° E., Off the East Coast of Korea; h = 650 km +; 0 = 06h 05m 15s (U.S.C.G.S. and B.C.I.S.)
39°.5 N., 129° E., h = 650 - 700 km; 0 = 06h 05m 07s (C.M.O., Japan).

	Chatra	Z	iP	06 11 41		Slight, distant.
		NE	eS	16 46		
			e	20 23		
	Dehra Dun	N	eP	06 12 26	4010	Slight.
			iS	18 06		
	New Delhi	NE	iP	06 12 33	4180	Slight.
			iS	18 23		
		N	SS	21 20		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1955						
04	Hyderabad	E	PS	04 14 53		
	contd. Contd.		SS	20 42		
			L	33 22		
			M	40 34		Per. = 21 secs M = 24.
	New Delhi	MZ	eP	04 02 32	9830	Moderate.
			PP	06 02		
		N	PPP	08 01		
			SKS	13 01		
			LS	13 17		
			pcS	13 36		
			SS	19 07		
			SSS	23 05		
			LQ	27 42		
			LH	32 36		
	Poona	Z	eP	04 02 30	10370	Moderate.
		E	PP	06 37		
			PPP	08 43		
			eS	13 46		
			PS	13 12		
			PPS	13 57		
			SS	20 15		
			LQ	26 12		
			LH	33 27		
			M	40 27		
	Bombay	N	e(P)	04 02 44		Moderate. Possibly followed by aftershock.
		E	iP			
			i	17 38		
			i	13 35		
		MZ	S	13 30		
			i	14 07		
		E	PPS	15 40		
			SS	20 00		
			SSS	24 10		
		N	SSS	24 30		
			LQ	30 09		
	Dehra Dun	N	i	04 03 37		Moderate. Distant. phases doubtful.
			S	13 34		
			PS	14 41		
			LQ	32 44		

04 Epic: 39° N., 129° E., off the East Coast of Korea; h = 650 km +; 0 = 08h 0m 16s (U.S.C.G.S. and B.C.I.S.)?
39.5° N., 129° E., h = 650 - 700 km; 0 = 08h 05m 07s (G.M.O., Japan).

	Chetra	Z	iP	06 11 41		Slight, distant.
		NE		16 46		
			e	20 23		
	Dehra Dun	N	eP	06 12 26	4010	Slight.
			LS	18 08		
	New Delhi	MZ	iP	06 12 33	4180	Slight.
			LS	18 23		
		N	SS	21 20		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Nov. 1953 04	Epc: 12° S., 166½° E., New Herbrides, 0 = 12h 27m 41s (U.S.C.G.S.) 12½° S., 166½° E., 0 = 12h 27m 41s (B.C.I.S.) Mag. - 6¾ (Berkeley , Praha), 6½ (Pasadena, Roma, Kiruna).					
	Shillong	N	e	12 40 24		Slight.
			i	50 41		
	Chatra	Z	iPY	12 40 26	9330	Slight.
		NE	ePY			
			PP	43 35		
			PPP	45 32		
			eS	50 50		
			ScS	51 00		
			PS	51 46		
			PPS	52 12		
			SSS	13 00 08		
			LQ	03 36		
			LR	07 31		
			M	15 --		
	Hyderabad	E	iP	12 40 49	9550	
			PP	44 32		
			iS	51 23		
			L	13 07 01		
			M	15 11		Per. =21 secs μ = 8.
	Kodaikanal	E	iP	12 40 55	10050	
			iS	51 49		
	Bombay	E	eP	12 41 14	10945	Slight.
			e	44 18		
			PPP	47 30		
		*	SKS	51 54		
		N	eS	52 21		
		NE	e	52 40		
			i	53 06		
		E	PS	53 57		
			PPS	54 45		
			i	59 54		
		*	SKKS	52 18		
05	Epc: 36½° N., 70° E., in Hindu Kush, h = 200 km; 0 = 08h 21m 35s (USCGS). 36½° N., 70° E., h = 220 km ; 0 = 08h 21m 39s (B.C.I.S.) 37° N., 70° E., h = 230 km; 0 = 08h 21m 31s (Shillong). Felt over NW Pakistan (Press report from Quetta).					
	Dehra Dun	NE	iP	08 23 41	890	Moderate.
			PP	23 47		
			e	23 53		
			e	24 18		
			LQ	25 13		
			S	25 24		
			Sgand M	26 03		
	New Delhi	NE	iP	08 23 48	960	Slight. Direction of first motion South and East.
			PP	23 57		
			PPP	24 04		
			P*	24 11		
		N	i	24 38		
		NE	iS	25 27		
		N	SSS	25 52		
			S*	26 09		
			Sg	26 29		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				H. M. S.	Km.	
1953						
06	Apia: 12° S., 168½° E., New Hebrides, 0 = 12h 27m 41s (U.S.C.G.S.)					
	12½° S., 168½° E., 0 = 12h 27m 41s (B.C.I.S.)					
	Mag. - 8½ (Perkeley, Prague). 6½ (Pasadena, Roma, Kiruna).					
	Oscillations	N	e	12 40 24		Slight.
			i	50 41		
	Quetta	Z	ipY	12 40 28	9530	Slight.
		NE	eP1			
			PP	45 35		
			PKP	48 32		
			SS	50 00		
			SKS	81 00		
			PS	01 46		
			PKS	02 12		
			SSS	13 00 08		
			LQ	03 38		
			LR	07 31		
			M	18 --		
	Hyderabad	E	ip	12 40 49	9550	
			PP	44 32		
			PS	51 23		
			SS	13 07 01		
			M	15 11		Per. =31 secs A = 8.
	Kodaikanal	E	ip	12 40 55	10050	
			PS	51 49		
	Bombay	E	ep	12 41 14	10945	Slight.
			e	44 18		
			PPP	47 30		
			SKS	51 54		
		N	ea	52 21		
		NE	e	52 40		
			i	53 08		
		E	PS	53 57		
			PPS	54 43		
			i	59 54		
		*	SKKS	52 18		
08	Apia: 35½° N., 70° E., in Hindu Kush, h = 200 km; 0 = 08h 21m 35s (USCGS).					
	35½° N., 70° E., h = 250 km ; 0 = 08h 21m 39s (B.C.I.S.)					
	37° N., 70° E., h = 230 km; 0 = 08h 31m 31s (Strasburg).					
	Fait over NW Pakistan (Press report from Quetta).					
	Delhi Sum	NE	ip	08 23 41	890	Moderate.
			PP	23 47		
			e	23 53		
			e	24 18		
			LQ	25 13		
			G	26 24		
			Guard M	28 03		
	New Delhi	NE	ip	08 23 48	900	Slight. Direction of first motion South and East.
			PP	23 57		
			PcP	24 04		
			P*	24 11		
		N	i	24 38		
		NE	LQ	25 27		
		N	SSS	25 52		
			S*	26 00		
			SE	26 29		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1953 05 Contd.	Chatra	Z	iPχ	08 25 24	1800	Slight.
		NE	ePχ			
		NEZ	PP	25 37		
			PPP	25 47		
			LQ	28 22		
			iS	28 24		
			?	28 36		
			SS	28 43		
			SSS	28 56		
			LR	29 07		
			M	30 32		Suppressed.
	Bombay	NE	iP	08 25 30		Slight.
		E	PP	25 42		
		N	PP	25 45		
		NE	PPP	25 52		
		N	i	26 22		
		NE	i	26 44		
		N	i	27 04		
		NE	i	27 43		
			iS	28 41		
			i	28 52		
		E	SS	29 12		
	Poona	Z	iP	08 25 35	1970	Slight.
		E	PP	25 49		
			PPP	25 57		
			eS	28 51		
			SS	29 01		
			SSS	29 16		
			LR	29 29		
			M	30 50		
	Hyderabad	N	iP	08 25 58	2100	
			i	26 58		
		NE	iS	29 26		
		N	i	29 35		
		N	L	31 38		
			M	32 56		Per. = 8 secs μ = 3.
		E	M	33 29		Per. = 8 secs μ = 3.
	Calcutta	E	eP	08 26 04		Slight.
			i(S)	29 45		
	Shillong	N	iP	08 26 09	2230	Moderate.
			iS	29 50		
	Madras	E	iP	08 26 44	2540	Moderate.
			pP	27 19		
			e	30 21		
			iS	30 50		
			LQ	31 23		
			SS	31 38		
			Lr	32 25		
			PcS	33 51		
	Kodaikanal	E	e	08 28 22		Slight.
			iS	31 22		
	Colombo	E	e	08 29 21		
			e	33 34		
			M	37 51		Amp = 0.1mm.

DATE	STATION	COMPT.	PHASE	O. H. M. S.	Δ h. m. s.	Δ km.	REMARKS
1933							
20	Chetra	Z	IP?	08 25 24		1800	Slight.
Contd.		NS	eP?				
		NZ	PP	25 27			
			PPP	25 47			
			LQ	26 22			
			LR	26 24			
			T	26 35			
			SS	26 43			
			SSS	26 66			
			LR	26 07			
			M	30 32			Suppressed.
	Bombay	NS	IP	08 25 20			Slight.
		E	PP	25 42			
		N	PP	25 46			
		NS	PPP	25 02			
		N	i	26 22			
		NS	i	26 44			
		N	i	27 04			
		NS	i	27 45			
			LR	28 41			
			i	28 58			
		E	SS	29 12			
	Poona	Z	IP	08 25 26		1970	Slight.
		E	PP	25 49			
			PPP	26 07			
			SS	28 51			
			SSS	29 01			
			SSS	29 16			
			LR	29 29			
			M	30 30			
	Hyderabad	N	IP	08 25 58		2100	
			i	28 58			
		NS	iS	29 55			
		N	i	30 35			
		N	i	31 30			
			M	38 56			Per. = 8 secs. A = 3.
		E	M	53 29			Per. = 8 secs. A = 3.
	Calcutta	Z	eP	08 26 04			Slight.
			i(S)	29 40			
	Gulilong	N	IP	08 26 09		2230	Moderate.
			iS	29 50			
	Madras	E	IP	08 26 44		2540	Moderate.
			PP	27 19			
			e	30 21			
			iS	30 50			
			LQ	31 25			
			eS	31 38			
			LR	32 25			
			PPS	33 31			
	Sodalkanal	E	e	08 26 22			Slight.
			iS	31 22			
	Colombo	E	e	08 26 21			
			e	33 34			
			M	37 51			Amp = 0.1mm.

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Nov. 1953 07	Epc: Off the West Coast of Sumatra; 0 = 13h 03m 07s (U.S.C.G.S.) $0\frac{1}{2}^{\circ}$ S., $98\frac{1}{2}^{\circ}$ E.; 0 = 13h 03m 07s (B.C.I.S.) 0° Lat., 100° E.; 0 = 13h 03m 06s (Shillong) Mag. - 6 (Kiruna).					
Madras		E	iP	13 08 16	2550	Moderate.
			PP	08 50		
			PPP	09 00		
			e	11 53		
			iS	12 23		
			LQ	12 52		
			SS	13 08		
			Lr	13 56		
			PcS	15 26		
Kodaikanal		E	iP	13 08 31	2620	Slight.
			iS	12 43		
			LQ	13 21		
			LR	14 32		
			M	16 26		
Calcutta		E	eP	13 08 39	2810	Slight.
			iS	13 03		
Hyderabad		E	eP	13 08 51	2940	
			PP	09 30		
			iS	13 24		
			e	14 20		
			L	15 35		
			M	18 11		Per. = 20 secs μ = 16.
		N	M	19 05		Per. = 20 secs μ = 16.
Shillong		ZN	iP	13 08 52	3000	Slight.
			PP	09 24		
			PPP	09 43		
			PcP	12 01		
			eS	13 29		
			SSS	14 43		
			e	15 03		
			PcS	15 32		
			LR	15 58		
			ScS	19 29		
Chatra		Z	iP	13 09 16	3255	Slight.
		NE	eP			
			PP	10 06		
			PPP	10 26		
			PcP	12 26		
			iS	14 09		
			?	14 42		
			LQ	15 23		
			SS	15 38		
			SSS	15 59		
			LR	16 46		
			M	19 16		
Poona		E	eP	13 09 29	3368	Slight.
			PP	10 27		
			PPP	10 39		
			eS	14 29		
			LQ	16 02		
			SS	16 17		
			SSS	16 30		
			LR	17 32		
			M	19 56		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS.
				H. M. S.	Km.	
1933 Oct. 07	Epo: Off the West Coast of Guadra; 0 = 13h 03m 07s (U.S.C.G.S.) 010° S.; 084° W.; 0 = 13h 03m 07s (B.C.I.S.) 0° lat.; 100° W.; 0 = 13h 03m 06s (Philippe) Mag. - 6 (Kirnos).					
	Madras	E	IP	13 08 16	2880	Moderate.
			PP	08 50		
			PPP	08 00		
			S	11 03		
			Is	14 23		
			Ig	12 22		
			Ps	13 08		
			Ir	13 56		
			PcS	15 26		
	Kodaikanal	E	IP	13 08 31	2820	Slight.
			Is	12 43		
			Ig	13 21		
			IR	14 02		
			M	16 26		
	Calcutta	E	eP	13 08 39	2810	Slight.
			Is	13 03		
	Hyderabad	E	eP	13 08 31	2040	
			PP	08 30		
			Is	13 24		
			S	14 20		
			L	15 28		
			M	18 11		Per. = 20 secs μ = 10.
		N	M	19 05		Per. = 20 secs μ = 18.
	Shillong	ZN	IP	13 08 32	3000	Slight.
			PP	08 24		
			PPP	08 43		
			PcP	12 01		
			Es	13 20		
			Oss	14 43		
			S	15 03		
			PcS	15 32		
			LR	16 56		
			Sos	19 29		
	Quetta	E	IPY	13 09 16	3265	Slight.
		NE	eP Y			
			PP	10 06		
			PPP	10 24		
			PcP	12 26		
			Is	14 09		
			S	14 42		
			Ig	15 23		
			Ps	15 34		
			Ir	15 52		
			LR	16 46		
			M	19 16		
	Poona	E	eP	13 09 26	3340	Slight.
			PP	10 27		
			PPP	10 37		
			Es	14 23		
			Ig	15 09		
			Ss	15 17		
			Sos	15 36		
			LR	17 32		
			M	19 56		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1953						
07 Contd.	Bombay	NE	iP	13 09 40	3490	Slight.
		N	i	10 29		
		E	PPP	10 54		
			i	13 00		
		N	i	13 30		
		NE	i	14 14		
			i	14 23		
			iS	14 48		
			i	15 04		
		N	PcS	16 06		
		NE	SS	16 48		
		N	SSS	17 04		
			LR	17 59		
	New Delhi	NE	eP	13 10 06		Slight, phases not very certain.
		N	PP	11 27		
		NE	PPP	11 46		
		N	PcP	12 21		
			e(S)	15 49		
			PcS	16 11		
			SSS	18 53		
			LR	20 24		
			M	22 58		
	Dehra Dun	NE	e	13 11 26		Feeble.
07	Shillong	Z	iP	16 13 22		Slight.
07	Shillong	Z	iP	18 10 10		Slight.
08	Shillong	Z	e	11 43 49		Tremor.
08	Shillong	Z	i	14 55 40		Tremor.
08	Shillong	Z	iP	15 20 01	200	Slight.
			i	20 31		
08	Shillong	Z	iP	15 38 36		Tremor.
09	Shillong	ZN	iP	07 34 56	150	Slight.
		NE	PP	35 04		
			Sg/S	35 15		
			SS	35 25		
09	Shillong	Z	iP	12 17 25		Slight.
09	Shillong	Z	iP	14 15 22		Slight.
09	Shillong	Z	iP	15 25 29		Slight.
09	Shillong	Z	iP	15 44 54		Slight.
09	Shillong	Z	iP	15 50 35		Slight.

09 Epc: $52\frac{1}{2}^{\circ}$ N., 159° E. Off the East Coast of Kamchatka;
h = 60 km ca; 0 = 17h 25m 42m 42s.
Mag. - $6\frac{1}{2}$ - $6\frac{3}{4}$ (Hurbanovo), $6\frac{1}{2}$ (Pasadena, Kiruna, Uppsala, Roma, Praha), $6\frac{1}{4}$ - $6\frac{1}{2}$ (Skalnate Pleso).

	Shillong	ZN	iP	17 35 21	6130	Moderate.
		N	PP	37 35		
			PPP	38 55		

Date	Station	Comp.	Phase	h. m. s.	Δ	Remarks
				h. m. s.	km.	
Nov. 1963 27 Contd.	Fombuy	EW.	IP	12 05 40	2400	Slight.
		N	i	10 29		
		S	PP	10 54		
				13 00		
		N		13 30		
		EW	S	14 14		
			I	15 23		
				14 28		
				15 04		
				16 06		
				16 48		
				17 04		
				17 29		
	New Delhi	NS	SP	14 40 06		Slight, phases not very certain.
		N		11 27		
		NS	PP	11 45		
		N	PcP	12 21		
			S(G)	15 42		
			PcS	16 11		
			SSS	18 32		
			IR	20 24		
			M	23 08		
	Delhi	NS	S	15 11 26		Marble.
07	Shillong	Z	IP	15 13 22		Slight.
07	Shillong	Z	IP	18 10 10		Slight.
08	Shillong	Z	S	11 25 40		Tremor.
08	Shillong	Z	I	14 08 40		Tremor.
08	Shillong	Z	IP	15 20 01	200	Slight.
			i	20 31		
08	Shillong	Z	IP	18 38 35		Tremor.
09	Shillong	EW	IP	07 34 15	180	Slight.
		NS	PP	35 04		
			SPP	35 15		
			SS	35 20		
09	Shillong	Z	IP	13 17 23		Slight.
09	Shillong	Z	IP	14 15 22		Slight.
09	Shillong	Z	IP	15 30 20		Slight.
09	Shillong	Z	IP	16 44 04		Slight.
09	Shillong	Z	IP	19 00 35		Slight.
09	Epic: 54½° N., 138° E. off the East Coast of Kamchatka; h = 60 km (?); D = 170 km 45m 42s. Mag. - 6½ - 6¾ (Murmansk), 6¾ (Frasdsena, Kiruna, Uppsala, Rome, Prague), 7½ - 7¾ (Greenwich Observ.).					
	Shillong	NS	IP	17 35 21	0150	Moderate.
		E	PP	37 25		
			PcP	38 55		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1953 09 Contd.	Shillong (Contd.)	N	eS	17 43 13		
			ScS	45 06		
			SS	47 05		
			LQ	50 14		
			LR	53 13		
			M	56 57		
	Chatra	Z	iPX	17 35 37	6440	Slight.
		NE	ePX			
			PcP	36 32		
			PP	37 43		
			PPP	39 13		
			PcS	40 24		
			eS	43 37		
			ScS	45 40		
			SS	47 44		
			SSS	49 47		
			LQ	50 09		
			LR	52 42		
		E	M	57 50		Per. = 15 secs μ = 7.
	New Delhi	NE	eP	17 36 06	7080	Moderate.
		N	eS	44 40		
			PPS	45 14		
			i	46 13		
			M	59 21		
	Hyderabad	NE	iP	17 36 58	7800	
		E	PP	39 49		
			iS	46 10		
		N	L	59 46		
			M	18 05 38		Per. = 14 secs μ = 14.
		E	M	05 49		Per. = 14 secs μ = 14.
	Poona	E	iP	17 37 07	8080	Moderate.
			PcP	37 20		
			PP	40 02		
			PPP	41 44		
			eS	46 33		
			SKS	46 51		
			PS	47 12		
			PPS	47 31		
			SS	51 19		
			SSS	54 29		
			LQ	56 09		
			LR	18 00 21		
			M	06 30		
	Madras	E	iP	17 37 08	7960	Moderate.
			PcP	37 21		
			iS	46 27		
			ScS	46 51		
			PS	47 02		
			PPS	47 28		
			SS	51 18		
	Bombay	NE	iP	17 37 09	8055	
			PcP	37 21		
		E	PP	39 51		
			iS	46 33		
			i	46 49		
			PS	47 11		
			PPS	47 31		
			M	18 12 27		Per. = 18 secs μ = 20.

DATE	STATION	COMP.	PHASE	O. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1933						
De	Ghilizone	N	eS	17 43 13		
Contd.	(Contd.)		pcS	45 06		
			SS	47 08		
			LQ	50 14		
			LR	55 13		
			M	56 37		
	Cheltn	Z	iY	17 35 37	6140	Slight.
		NS	ePY			
			PcP	35 32		
			PP	37 43		
			PrP	39 13		
			PcS	40 14		
			SS	43 37		
			PcS	45 40		
			SS	47 44		
			SSS	49 47		
			LQ	50 09		
			LR	52 42		
		E	M	57 30		Pcp. = 15 sec. A = 7.
	New Delhi	NE	eP	17 36 06	9020	Moderate.
		N	eS	44 40		
			PPS	46 14		
			i	48 13		
			M	59 21		
	Uppsala	UP	iP	17 36 58	7803	
		E	PP	39 49		
			LQ	46 10		
		E	E	59 46		
		N	M	18 03 38		PPr. = 14 sec. A = 14.
		E	M	08 49		Ler. = 14 sec. A = 14.
	Cocos	Z	iP	17 37 07	8080	Moderate.
			PcP	39 22		
			PP	40 02		
			PPP	41 44		
			eS	46 55		
			PcS	48 11		
			LR	57 32		
			PPS	47 21		
			SS	51 13		
			SSS	54 59		
			LQ	59 09		
			LR	18 00 21		
			M	18 50		
	Madras	Z	iP	17 37 08	7850	Moderate.
			PcP	39 23		
			PP	45 27		
			PcS	46 51		
			PS	47 02		
			PPS	47 45		
			SS	51 18		
	Bombay	NS	iP	17 37 09	8058	
			PcP	37 22		
		E	PP	39 51		
			PS	46 55		
			S	46 19		
			PS	47 11		
			PPS	47 31		
		N	M	18 12 37		Pcp. = 18 sec. A = 20.

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1953						
9 Contd.	Kodaikanal	E	i(P)	17 37 36		Distant.
9	Shillong	Z	e	19 03 02		Feeble, near.
10	Shillong	Z	e	00 15 03		Slight, near.
10	Shillong	Z	e	08 40 20		Beginning doubtful due to traffic disturbaces.
10	Shillong	Z	i	23 02 34		Slight.

Epc: $50\frac{1}{2}^{\circ}$ N., 157° E. Off the South Coast of Kamtchatka;
h = 60 km ca; O = 23h 40m 20s (U.S.C.G.S.)
51° N., 157° E., Kamtchatka - Cape Lopatka;
O = 23h 40m 25s (Shillong).

Mag. - $7\frac{1}{4}$ (Roma), 7 - $7\frac{1}{4}$ (Pasadena), 7 (Uppsala, Praha, De Bilt), $6\frac{1}{4}$ - 7 (Hurbanovo), $6\frac{3}{4}$ (Kiruna), $6\frac{1}{2}$ - $6\frac{3}{4}$ (Berkeley).

Shillong	ZN	iP	23 49 54	6020	Moderate.
	N	PcP	50 53		
		PP	52 14		
		PPP	53 19		
		eS	57 30		
		PS	57 48		
		PPS	57 48		
		ScS	59 51		
		SS	00 00 31		
		SSS	02 07(?)		
		LR	05 23		
		M	08 51		
Chatra	Z	iP	23 50 10	6260	Moderate.
	NE	eP			
		PcP	51 00		
		PP	52 11		
		PPP	53 41		
		PcS	55 05		
		eS	58 00		
		PS	58 10		
		PPS	58 20		
		ScS	00 00 00		
		SS	01 49		
		e	03 26		
		SSS	03 56		
		LR	07 00		
	E	M	11 22		Per. = 25 secs μ = 100.
Dehra Dun	E	e(e)	23 50 37		Tremor.
New Delhi	NE	iP	23 50 42	6810	Moderate.
		PcP	51 19		
	N	PP	53 20		
		eS	59 02		
		PPS	59 24		
		i	00 00 54		
		LQ	06 24		
		M	15 36		
Hyderabad	NE	iP	23 51 30		Moderate.
		i(S)	00 00 41		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	△ km.	REMARKS
Nov. 1953 10 Contd.	Hyderabad Contd.	E	e	00 01 33		
		N	e	05 53		
			L	14 20		
		E	M	18 18		Per. = 18 secs μ = 22.
		N	M	18 18		Per. = 19 secs μ = 27.
	Madras	E	iP	23 51 42	7910	Moderate.
			PcP	51 55		
			PP	54 32		
			iS	00 00 59		
			SPS	01 25		
			PPS	01 41		
			SS	05 56		
	Bombay	E	iP	23 51 44	8020	Moderate.
			PcP	51 58		
			PP	54 16		
			PPP	56 21		
			iS	00 01 06		
			i	01 22		
			PS	01 46		
			PPS	02 21		
			i	04 54		
	Poona	Z	iP	23 51 44	7935	Moderate.
		E	PcP	51 55		
			PP	54 27		
			PPP	56 12		
			eS	00 01 02		
			PS	01 39		
			PPS	01 58		
			SS	05 46		
			LQ	11 01		
			LR	14 33		
			M	20 39		
	Kodaikanal	E	iP	23 52 11		Slight.
			iS	00 02 51(?)		
			LQ	15 35		
			LR	17 29		
			M	25 17		
	Colombo	E	P	23 52 16		
			S	00 02 32(?)		
			M	29 37		Amp ± 0.2mm.
12	Shillong	Z	iPg	06 57 58	20	Slight.
			eSg	58 00		
12	New Delhi	E	eP	07 45 42	1380	Slight.
			PP	45 53		
		NE	eS	48 02		
		N	SS	48 16		
		NE	SSS	48 27		
	Dehra Dun	N	e	07 46 00		Feeble.
		NE	i	48 29		
	Bombay	E	e	07 47 07		Feeble.
		NE	e	47 35		
	Chatra	Z	e	07 47 32		Slight, distant.

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Nov. 1953						
12 Contd.	Shillong	Z	iP	07 48 10		Feeble.
12	Shillong	Z	i	15 46 28		Tremor.
13	Shillong	Z	i	00 39 44		Feeble.
13	Epc: About 400 miles S.W. of Guam, 0 = 11h 10m 41s G.M. T.(USCGS) $11\frac{3}{4}^{\circ}$ N., $138\frac{3}{4}^{\circ}$ E., 0 = 11h 10m 45s (B.C.I.S.) 12° N., 142° E., 0 = 11h 10m 40s (Shillong).					
	Shillong	Z	iP	11 19 14	5270	Slight.
		N	PP	21 29		
			PPP	22 06		
			iS	26 05		
			ScS	29 06		
			SS	29 25		
			SSS	30 28		
			LR	33 14		
	Chatra	Z	eP	11 19 46		Slight, distant.
	Madras	E	iP	11 20 35	6980	Moderate.
			PP	22 48		
			PPP	24 08		
			iS	28 35		
			PS	28 45		
	Hyderabad	E	P	11 20 43	6600	
		EN	iS	28 52		
		E	M	44 30		Per. = 15 secs μ = 4.
		N	M	46 00		Per. = 15 secs μ = 3.
	Bombay	N	eP	11 21 19	3390	Feeble.
		E	iP			
			PcP	21 41		
			PP	23 49		
			PPP(?)	25 15		
		NE	iS	30 09		
		N	e	31 13		
		E	i	32 00		
			LR	42 30		
13	Shillong	Z	e	15 42 22		Tremor.
13	Epc: $3^{\circ}.5$ N., 96° E., Off the West Coast of Sumatra; 0 = 16h 17m 05s (B.C.I.S.) $3\frac{1}{2}^{\circ}$ N., 96° E., 0 = 16h 17m 02s (U.S.C.G.S.) $3^{\circ}.5$ N., 96° E., 0 = 16h 17m 05s (Shillong). Mag. - $6\frac{1}{2}$ (Kiruna), 6 (Uppsala).					
	Colombo	E	P	16 21 00		Trace faint.
			L	25 00		
			M	28 00		Amp = 0.5 mm.
	Madras	E	iP	16 21 24	1980	Moderate.
			PP	21 37		
			PPP	21 45		
			iS	24 41		
			LQ	24 45		
			SS	25 00		
			SSS	25 18		
			M	27 01		
			PcS	28 24		
			ScS	32 45		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1953						
13 Contd.	Calcutta	E	eP	16 21 49	2190	Slight.
			iS	25 26		
	Shillong	ZN	iP	16 21 58	2390	Slight.
		N	iS	25 51		
			LQ	26 11		
			SS	26 25		
			SSS	26 46		
			LR	27 12		
	Hyderabad	EN	iP	16 22 01	2440	
		N	iS	26 00		
		E	iS	26 05		
			SSS	26 50		
			L	28 01		
		N	M	28 59		Per. = 21 secs μ = 25.
		E	M	29 59		Per. = 21 secs μ = 8.
	Chatra	NEZ	eP	16 22 23	2670	Slight.
		NE	PP	22 50		
			PPP	23 04		
			eS	26 38		
			LQ	27 04		
			SS	27 30		
			SSS	27 49		
			LR	28 24		
			M	30 16		
	Poona	E	iP	16 22 44	2900	Slight.
			PP	23 26		
			PPP	23 38		
			eS	27 14		
			LQ	28 25		
			SSS	28 41		
			LR	29 28		
			M	31 49		
	Bombay	NE	iP	16 22 52	3000	Slight.
			PP	23 38		
		N	PPP	23 50		
		E	i	26 17		
			i	26 33		
		NE	iS	27 29		
			LQ	28 34		
		N	SSS	28 56		
			LR	29 47		
	New Delhi	NE	eP	16 23 18	3300	Slight.
		N	iPp	23 35		
		NE	iS	28 14		
		N	iSs	28 37		
			SS	29 57		
	Dehra Dun	NE	iP	16 23 29		Feeble.
			iS	28 31		
13	Shillong	Z	e	17 33 03		Tremor.
13	Shillong	Z	e	18 02 01		Feeble, near.
13	Shillong	Z	i	18 22 08		Tremor.

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1953 13	Epc: 13° S., 166° E. New Hebrides; 0 = 19h 15m 37s (U.S.C.G.S.) Mag. - 6¾ - 7 (Hurbanovo), 6¾ (Pasadena, Praha, Strasbourg, Roma), 6½ (Kiruna).					
	Shillong	Z	iP	19 28 02	9110	Moderate.
		N	PcP	28 15		
			iS	38 15		
			ScS	38 29		
			PS	39 08		
			PPS	39 27		
	Calcutta	E	eP	19 28 14	9330	Moderate.
			iS	38 38		
	Chatra	NEZ	eP	19 28 24	9440	Slight.
		NE	PP	31 42		
			PPP	33 24		
			SKS_1	38 42		
			eS	38 53		
			ScS	39 04		
			PS	39 45		
			PPS	40 08		
			SS	44 17		
			SSS	47 53		
			LQ	51 15		
			LR	56 04		
			M	20 02 30		
	Madras	E	iP	19 28 40	8590	Moderate.
			PP	32 09		
			PPP	34 11		
			SKS	38 48		
			ScS	39 24		
	Hyderabad	E	eP	19 28 51	10080	
			PP	32 24		
			SKS	39 27		
		N	S	39 46		
		E	SS	45 55		
		N	L	59 06		
		E	M	20 05 21		Per. = 15 secs μ = 28.
		N	M	06 41		Per. = 15 secs μ = 50.
	Poona	E	eP	19 29 15		Moderate.
			e	34 29		
			e	41 30		
			e	49 11		
			M	20 04 33		
	Bombay	E	eP	19 29 16	10550	Moderate. Long distance shock.
			i	32 43		
		N	e	33 19		
			e	37 28		
		NE	SKS	39 50		
			SKKS	40 11		
		E	iS	40 29		
		N	i	40 43		
		E	PS	42 12		
			e	47 41		
	Colombo	E	P	19 39 02		
			e	20 07 05		
			M	15 15		Amp = 0.1 mm.

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1953 13 Contd.	New Delhi	N	e	19 39 39		Moderate.
			i	40 18		
			e	43 33		
			e	45 56		
13	Shillong	Z	i	20 54 57		Tremor.
14	Shillong	Z	e	17 49 17		Tremor.
			e	49 39		
14	Epc: 52° N., 160° E., Off the SE Coast of Kamchatka; O = 20h 03m 27s (U.S.C.G.S.) 52¾° N., 160¼° E., O = 20h 03m 30s (B.C.I.S.).					
	Shillong	Z	iP	20 13 17	6390	Slight.
		N	iP	13 18		
			e	14 25		
			eS	21 14		
			Mn	36 18		Per. = 16 secs μ = 10.
	Chatra	NEZ	eP	20 13 31	6440	Slight.
		NE	PcP	14 10		
			PP	15 40		
			PPP	17 04		
			PcS	18 20		
			eS	21 31		
			ScS	23 09		
			SS	24 58		
			LQ	28 10		
			LR	30 58		
		E	M	35 51		Per. = 15 secs μ = 16.
	Calcutta	E	eP	20 13 47	6890	Slight.
			eS	22 11		
			?	23 56		
			SS	26 26		
	New Delhi	NE	eP	20 14 04	7360	Moderate.
		N	eS	22 53		
			ScS	24 05		
	Hyderabad	N	iP	20 14 48	7990	
			S	24 09		
			M	44 38		Per. = 14 secs μ = 10.
	Poona	E	iP	20 15 05	8150	Slight.
			PcP	15 19		
			eS	24 33		
			PPS	25 09		
			M	43 19		
	Bombay	E	ePX	20 15 05	8200	Slight.
		N	iPX			
		NE	PcP	15 18		
		E	e	17 23		
		NE	eS	24 36		
			SKS	24 50		
		N	PPS	25 12		
			M	50 38		Per. = 17 secs μ = 11.
		E	M	51 18		Per. = 18 secs μ = 7.

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Nov. 1953						
14 Contd.	Madras	E	iP	20 15 08		Slight shock. Phases uncertain.
			iS?	24 51		
	Kodaikanal	E	e	20 24 43		Tremor.
14	Shillong	Z	e	21 34 04		Tremor.
			e	34 37		
14	New Delhi	NE	iP	23 34 32	50	Slight, direction of first motion North and West.
			iS	34 38		
	Dehra Dun	NE	iP	23 34 55	200	Slight.
		E	P*	34 57		
			Pg	35 00		
			PP	35 02		
		NE	iS	35 19		
		N	S*	35 22		
			SS	35 32		
15	Shillong	ZNE	iP	00 48 13	245	Slight.
		NE	iSg	48 48		
16	Shillong	Z	i	16 13 45		Tremor.
16	Shillong	Z	i	16 29 39		Tremor.
16	Shillong	Z	i	17 30 20		Slight.
		N	e	40 51		
	Bombay	E	e	17 34 01		Very distant shock, feebl recorded.
			i	35 45		
			e	37 41		
			i	39 02		
	Poona	N	eP	17 35 00		Probably a distant shock, phases not clear.
17	Shillong	Z	i	04 28 46		Feeble, near.

17 Epc: 13°.3 N., 92°.0 W., Off the Coast of Guatanala;
0 = 13h 29m 50s (B.C.I.S.)
14° N., 92° W., 0 = 13h 29m 52s (U.S.C.G.S.)
13°48'N., 91°47'W., h = 100km; 0 = 13h 29m 58s (Tacubaya).
Mag. - 7¼ - 7½ (Pasadena), 7½ (Kiruna, Roma), 7 - 7¼ (Berkeley), 7 (Praha, Strasbourg, Hurbanovo, Tacubaya), 6¾ - 7 (Uppsala, Skalnate Pleso).

	New Delhi	NE	ePKP	13 49 06	14800	Great.
		N	PP	51 36		
			iPKS	52 40		
			i	53 48		
			e	58 22		
			SKKS	58 45		
			PPS	14 04 10		
			e	09 19		
	Chatra	NEZ	PKP	13 49 13		Moderate. Distant, Intermediate phases lost in changing the record.
		E	M	14 33 --		
		N	M	37 --		

| Day. 1963 | | |

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1953 17 Contd.	Dehra Dun	NE	e	13 49 16		Moderate. Distant, Phases not clear.
			i	52 42		
		N	M	14 44 31		
	Poona	N	PKP	13 49 29		Moderate.
			PP	52 27		
			SKKS	59 44		
			e	14 04 59		
			e	08 14		
			e	15 34		
	Bombay	NE	$iPKP_1$	13 49 29	16010	Great. Phases not very well defined.
		N	PP	52 54		
			i	53 15		
			$SKKS_1$	59 42		
			i	14 07 39		
		NE	SS	11 30		
		N	SSP	12 13		
	Calcutta	E	PKP_1	13 49 34	16120	Moderate.
			SKS_2	56 41		
			e	14 01 59		
			e	10 34		
			SSP	11 40		
			e	17 06		
			LR	37 07		
	Hyderabad	EN	iP	13 49 40		
			PP	52 41		
			SKKS	59 58		
			PPS	05 50		
			L	13 55		
			M	22 52		Per. = 30 secs μ = 59.
		E	M	22 53		Per. = 30 secs μ = 54.
	Colombo	E	PKP	13 49 52		
			M_1	14 48 19		Amp = 0.6 mm.
			M_2	55 47		Amp = 0.6 mm.
	Madras	E	PKP?	13 49 53		Moderate shock. Identification of phases not certain.
			e	52 08		
			PP	53 18		
			PPP	56 40		
	Kodaikanal	E	i	13 50 25		Distant shock.
			e	14 00 00		
18	Shillong	Z	i	03 10 28		Slight.
			i	11 12		
18	Dehra Dun	N	eP	17 43 45	280	Feeble.
		NE	P*	43 47		
		N	PP	43 51		
			Pg	43 53		
		NE	PPP	43 57		
			LQ	44 05		
		NE	LR	44 12		
		N	iS	44 17		
		NE	S*	44 19		
			Sg	44 24		
			SS	44 28		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ Km.	REMARKS
1935 Nov. 18	Dehra Dun	ZE	e	15 49 16		Moderate. Distant.
contd.			i	52 42		Phases not clear.
		N	M	14 44 31		
	Poona	N	PKP	13 45 29		Moderate.
			PP	52 27		
			SKKS	59 44		
			e	14 04 59		
			e	08 14		
			e	15 34		
	Bombay	ZE	IPKP	13 49 29		16010 Great. Phases not very well defined.
		N	PP	52 24		
			i	53 18		
			SKKS	59 42		
			i	14 07 39		
		ZE	SS	11 30		
		N	SSP	12 15		
	Calcutta	E	PKP	13 49 34		16120 Moderate.
			SKS	56 41		
			e	14 01 59		
			e	10 54		
			SSP	11 40		
			e	17 06		
			LR	37 07		
	Hyderabad	ZE	iP	13 49 40		
			PP	52 41		
			SKKS	59 59		
			PPS	05 50		
			i	15 55		
		N	M	22 52		Per. = 30 secs m = 59.
		E	M	22 53		Per. = 30 secs m = 54.
	Colombo	E	PKP	13 49 52		
			M_1	14 49 19		Amp = 0.6 mm.
			M_2	55 47		Amp = 0.6 mm.
	Madras	E	PKPZ	13 49 52		Moderate shock. Identification of phases not certain.
			e	52 08		
			PP	53 18		
			PPP	56 40		
	Kodaikanal	E	i	13 50 25		Distant shock.
			e	14 00 00		
18	Stations	Z	i	03 10 28		Slight.
			i	11 12		
18	Dehra Dun	N	eP	17 13 45	280	Feeble.
		NE	P*	45 47		
		N	PP	45 51		
			PS	48 03		
		ZE	LPP	13 57		
			LQ	44 03		
		NE	LR	44 12		
		N	LG	44 17		
		NE	S*	44 19		
			SS	44 24		
			SSS	44 28		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
Nov. 1953				h. m. s.	km.	
18 Contd.	New Delhi	NE	eP	17 44 14	490	
		E	PP	44 21		
		EN	PPP	44 26		
		E	eS	45 07		
		NE	S*	45 19		
18	Epc: 13° N., 57°E., Arabian Sea; 0 = 18h 39m 28s (U.S.C.G.S.) 13° N., 57° E., 0 = 18h 39m 30s (B.C.I.S.).					
	Bombay	E	iP	18 43 15	1820	Slight.
			PP	43 29		
			PPP	43 33		
			i	44 28		
			i	45 02		
			eS	46 17		
			i	46 29		
			SSS	46 51		
			LR	47 03		
	Poona	E	iP	18 43 27	2000	Slight.
			PP	43 37		
			PPP	43 47		
			eS	46 47		
			SSS	47 05		
			LR	47 34		
			M	49 08		
	Kodaikanal	E	iP	18 44 05	2250	Slight.
			iS	47 47		
	Hyderabad	E	iP	18 44 10	2340	
			PP	44 31		
		N	S	48 01		
		E	SS	48 11		
			L	49 46		
			M	50 28		Per. = 12 secs μ = 4.
		N	M	50 28		Per. = 15 secs μ = 7.
	Madras	E	iP	18 44 27	2620	Moderate.
			PP	44 58		
			PPP	45 07		
			iS	48 39		
			LQ	49 09		
			M	52 15		
	Chatra	NEZ	eP	18 45 49	3520	Slight.
		NE	e	46 37		
			PP	46 57		
			e	48 26		
			eS	50 59		
			LQ	52 48		
			e	53 30		
			LR	54 15		
			M	56 58		
	Shillong	Z	iP	18 46 21		
		N	e	51 55		
	Calcutta	E	e	18 46 22		
			i	50 57		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1953						
19	Shillong	ZNE	iPg	19 27 08	80	Slight, felt.
		NE	iSg	27 16		
20	Dehra Dun	N	eP	01 53 49	320	Feeble.
			LQ	54 15		
		NE	LR	54 22		
			iS	54 25		
			SSS	54 46		
20	Bombay	N	e	03 32 27		Feeble, distant.
			e	36 05		
			e	37 07		
		E	i	41 27		
	Hyderabad	N	M	03 57 38		Per. = 16 secs μ = 6.
20	Shillong	Z	e	04 27 08		Slight.
			e	27 22		
20	Chatra	Z	e	19 21 31		Slight, distant.
20	Dehra Dun	NE	e	20 19 45		Tremor.
	New Delhi	NE	eP	20 19 46	1100	Slight.
		E	PPP	20 01		
		NE	eS	21 39		
			SS	21 52		
		N	SSS	22 05		
			M	22 55		
20	Shillong	N	iP	23 43 48	330	Slight.
			e	43 54		
			i	44 20		
			iS?	44 25		
			Sg	44 40		
21	Shillong	Z	e	05 37 47		Slight, near.
21	Bombay	NE	e	07 13 56		Feeble.
		E	e	16 06		
		NE	e	19 48		
		N	e	23 25		
			e	24 47		
	Shillong	Z	i	07 15 35		Tremor.
	Chatra	Z	e	07 15 26		Slight, distant.
	Hyderabad	E	M	07 26 50		Per. = 15 secs μ =4.
		N	M	26 53		Per. = 14 secs μ = 4.
22	Shillong	Z	e	04 36 58		Slight, near.
			i	37 48		
22	Shillong	Z	i	11 04 24		Tremor.
22	Shillong	Z	i	13 23 41		Tremor.
22	Shillong	Z	i	16 23 21		Slight, near.
			i	23 49		

Date	Station	Comp.	Phase	G. M. T.	Δ	Remarks
				h. m. s.	km.	
1935 Nov. 19	Shillong	EW	IPg	19 27 08	80	Slight, late.
			Sg	27 16		
20	Lecture Gen.	N	Ep	01 03 19	380	Feeble.
			Lg	04 15		
		NE	IM	31 42		
			IS	04 25		
			Pms	04 40		
20	Moscow	N	e	03 32 27		Feeble, distant.
			i	35 05		
			e	37 07		
			i	41 27		
	Kyoto(Ed)	N	M	02 07 38		Per. = 20 secs in e.
20	Shillong	E	e	04 27 08		Slight.
			i	27 22		
20	Chatra	E	e	19 21 31		Slight, distant.
20	Baba Dua	NE	e	20 19 40		Tremor.
	New Delhi	NE	e	20 19 46	1190	Slight.
			i	20 01		
		NS	e	21 39		
			i	21 52		
		E	e	22 05		
			i	22 58		
20	Shillong	N	IP	23 43 48	330	Slight.
			e	43 54		
			i	44 20		
			IST	44 25		
			Sg	44 40		
21	Shillong	E	e	06 27 47		Slight, near.
21	Bombay	NS	e	07 13 56		Feeble.
		E	e	13 05		
		NE	e	19 46		
		N	e	23 25		
			e	24 47		
	Shillong	E	i	07 15 35		Tremor.
	Chatra	E	e	07 15 25		Slight, distant.
	Hyderabad	E	M	07 26 50		Per. = 15 secs in e.
		N	M	25 03		Per. = 14 secs in e.
22	Shillong	E	e	04 36 03		Slight, near.
			i	37 43		
22	Shillong	E	i	11 06 24		Tremor.
22	Shillong	E	i	13 23 41		Tremor.
22	Shillong	E	i	16 23 21		Slight, near.
			i	23 44		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1953						
22	Shillong	Z	e	17 39 28		Slight, near.
			i	40 01		
22	Dehra Dun	N	eP	17 47 44		Feeble, near.
			i	48 59		
22	Shillong	Z	e	17 49 41		Tremor.
	Poona	E	e	17 53 00		Very slight. Phases not clear.
22	New Delhi	NE	eP	18 17 48	740	Slight.
			PP	17 57		
		E	PPP	18 03		
			eS	19 06		
			SSS	19 28		
			Sg	19 43		
22	Shillong	Z	e	19 04 39		Slight, near.
			e	05 41		
23	Shillong	Z	i	03 50 58		Tremor.
23	Shillong	Z	e	05 51 42		Slight, near.
			i	51 49		
	Bombay	N	e	05 53 50		Feeble.
			e	58 37		
			e	06 01 46		
23	Shillong	Z	i	09 05 39		Tremor.
23	Shillong	Z	e	16 32 22		Slight, near.
			i	33 14		
24	Shillong	Z	i	10 08 14		Tremor.
24	Shillong	Z	e	10 19 51		Tremor.
24	Bombay	E	iX	12 01 21		
		N	eX			
	Shillong	Z	i	12 03 05		Tremor.
24	Shillong	Z	e	14 20 17		Tremor.
24	Shillong	Z	i	18 16 14		Tremor.
			i	16 48		
24	Shillong	Z	e	21 46 14		Tremor.
24	Shillong	Z	e	23 22 12		Tremor.
25	Shillong	Z	iP	03 30 36		Feeble, local.
			i	31 07		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1953 25	Epc: 34° N., 141° E., In Pacific, of the South Coast of Hondo, Japan.					
				0 = 17h 48m 49s (U.S.C.G.S.)		
	34°.1 N., 141°.0 E. 0 = 17h 48m 50s (B.C.I.S.)					
	34°.3 N., 141°.8 E. h = 40 - 60 km; 0 = 17h 48m 55s (C.M.O.)					
	Mag. - 8.3 (Wellington), 8¼ (Pasadena, Hurbanovo), 8.2 (Praha), 8-8¼ (Berkeley, Skalnate Pleso), 7¾ (Kiruna, Uppsala), 7.7 (Roma).					
	Shillong	ZNE	iP	17 56 56	5550	Great.
		N	PPP	59 13		
			iS	18 03 15		
			PS	03 27		
			PPS	03 39		
			SS	06 20		
			LQ	06 49		
			SSS	07 00		
			Lr	08 35		
			M	12 08		
			Mn	14 --		
	Chatra	Z	iPX	17 57 24	5110	Great. First movement down.
		N	iPX			First movement North.
		E	iPX			First movement East.
		NE	PcP	59 04		
			PP	59 17		
			PPP	18 00 01		
			PcS	03 07		
			iS	04 09		
			PS	04 18		
			PPS	04 30		
			SS	07 15		
			LQ	08 05		
			SSS	08 26		
			LR	10 22		
		N	MX	13.33		Per. = 19 secs μ = 684.
		E	MX			Per. = 26 secs μ = 1453.
	Calcutta	E	iP	17 57 30	5210	Great. First movement West and North.
		N	iP	57 33		
		E	PP	59 19		
		NE	iS	18 04 21		
		N	?	07 19		
			SS	07 39		
		E	LR	10 57		
			M	15 12		
	Dehra Dun	NE	iP	17 58 12	5810	Moderate.
		N	PcP	59 00		
		NE	iS	18 05 37		
		N	SS	09 27		
			SSS	11 25		
			LQ	11 38		
			LR	15 21		
			M	18 49		
			Mn	21 26		Per. = 11 secs μ = 80.
	New Delhi	NE	iP	17 58 19	5950	Great. Direction of first motion North and East.
			PcP	59 17		
		N	PP	18 00 21		
		NE	iS	05 51		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1953						
25 Contd.	New Delhi Contd.	N	ScS	18 07 59		
			SSS	09 57		
			i	12 07		
			LR	14 14		
			M	18 41		
			Mn	21 04		Per. = 25 secs μ = 1008.
	Hyderabad	NE	iP	17 58 47	6420	
		E	PP	18 00 57		
		N	iS	06 46		
		E	PS	06 54		
		N	e	11 00		
		E	L	17 51		
			M	20 03		Per. = 27 secs μ = 530.
		N	M	20 23		Per. = 24 secs μ = 470.
	Madras	E	iP	17 58 53	6480	Great. Phases not clear due to overlapping of trace.
			iS	18 06 55		
	Poona	N	iP	17 59 09	6700	Great.
			PPP	18 02 58		
			eS	07 39		
			SS	11 06		
			SSS	13 46		
			LR	16 54		
			M	21 06		Per. = 15 secs μ = 164.3.
	Bombay	NE	iP	17 59 14	6850	Great.
		E	PcP	59 48		
		N	PcP	59 51		
			i	18 00 54		
		NE	PP	01 32		
		N	PPP	03 04		
		E	PPP	03 15		
		E	iS	07 36		
		N	PS	08 46		
			ScS	08 01		
			SSS	14 23		
			LQ	15 02		
			LR	17 40		
			M	26 24		Per. = 19 secs μ = 237(?).
	Colombo	E	iP	17 59 20		
			S	18 07 42		
			L	19 39		
			M	23 14		Amp = 29.5 mm.
	Kodaikanal	E	eP	18 00 18	6830	Moderate.
			PP	02 33		
			PRP	04 06		
			iS	08 39		
			SS	13 48		
			SSS	16 27		
			LQ	17 12		
			LR	20 06		
			M	25 24		Per. =19 secs μ = 12.
25	Shillong	Z	i	19 10 31		Tremor.
25	Shillong	Z	e	23 44 11		Tremor.

DATE	STATION	COMPT.	PHASE	t. h. m. s.	Δ	REMARKS
Nov. 27				h. m. s.	km.	
20	New Delhi	N	SGS	18 07 59		
Contd.	Contd.		SBS	08 57		
			Z	13 07		
			LR	14 14		
			R	16 41		
			Mn	21 04		Per. = 25 secs/m = 1008.
	Rodrigues	NS	IP	17 58 47	6420	
		E	PP	18 40 17		
		N	LQ	04 45		
		Z	LR	06 34		
		E	T	11 00		
		E	L	17 51		
		N		20 03		Per. = 27 secs/m = 868.
		N	M	20 23		Per. = 24 secs/m = 470.
	Madras	E	IP	17 54 53	6180	Dread. Trace not clear due to overlapping of trace.
			LS	18 05 05		
	Poona	N	IP	17 58 09	6720	Dread.
			PPP	18 03 58		
			Es	07 39		
			SP	11 06		
			SKS	13 46		
			LR	16 54		
			M	21 05		Per. = 18 secs/m = 1843.
	Bombay	NS	IP	17 58 14	6800	Dread.
		E	PcP	58 48		
		N	PcP	59 31		
			L	18 00 04		
		EW	PS	05 39		
		N	PPP	05 04		
		E	PPP	05 16		
		E	LR	07 34		
		N	PS	08 48		
			SPS	09 01		
			SKS	14 27		
			LQ	15 02		
			LR	17 42		
			M	20 24		Per. = 19 secs/m = 2877(?).
	Colombo	E	IP	17 58 05		
		Z		18 07 42		
		L		19 39		
		M		23 14		Amp = 29.5 mm.
	Kodaikanal	E	PP	18 00 18	6020	Moderate.
			PS	08 33		
			PSP	09 06		
			LQ	09 39		
			SS	13 48		
			SKS	15 27		
			LQ	17 13		
			LR	20 00		
			M	23 04		Per. = 19 secs/m = 1.4.
28	Shillong	Z	I	18 10 31		Tremor.
28	Shillong	E	E	23 44 11		Tremor.

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1953 26	Epc: 34° N., 141° E. Off the South Coast of Hondo, Japan; 0 = 00h 03m 28s (U.S.C.G.S.) 34.4° N., 141.8° E., h = 40 - 50 km; 0 = 00h 03m 33s. Felt. (C.M.O., Japan).					
	Mag. - 7.4 (Wellington), 7.1 (Roma), 7 (Berkeley, Praha), 6¾ (Pasadena), 6½ - 6¼ (Kiruna, Hurbanovo), 6½ (Uppsala).					
	Shillong	Z	iP	00 11 35	4665	Moderate. Aftershock of the previous major shock of Nov.'53.
		N	iS	17 55		
	Chatra	NEZ	eP	00 12 04		Slight. Aftershock of previous great shock of 25th Nov. '53.
		NE	e(S)	18 48		
		N	MX	30 --		Per. = 22 secs μ = 50.
		E	MX			Per. = 20 secs μ = 75.
	Calcutta	E	e(P)	00 12 26		Moderate. Aftershock of the great shock of 25th Nov. '53.
			i(S)	19 26		
	Dehra Dun	N	iP	00 12 51	5810	Slight. Aftershock of Tokyo shock of 25th Nov. 1953.
			iS	20 16		
			PPS	20 32		
			M	32 51		
	New Delhi	NE	eP	00 12 56	5950	Moderate.
			eS	20 28		
		N	M	32 53		
	Hyderabad	E	iP	00 13 28	6420	Moderate.
			PP	15 46		
		NE	S	21 27		
			SS	25 37		
		N	L	31 37		
		E	M	35 01		Per. = 18 secs μ = 14.
		N	M	35 37		Per. = 18 secs μ = 16.
	Madras	E	iS	00 13 33	6533	Moderate.
			PcP	14 21		
			PPP	17 16		
			ScP	18 19		
			iS	21 38		
			PS	21 53		
			PPS	22 04		
			ScS	23 02		
	Poona	E	eP	00 13 49	6810	Moderate.
			PcP	14 28		
			PP	16 48		
			PPP	17 34		
			eS	22 09		
			PPS	22 34		
			ScS	23 39		
			SSS	26 03		
			M	36 48		

Place	Station	Comp.	Phase	G. M. T.	Δ	Remarks
				h. m. s.	km.	
Epicentre						
26	Epoca	32° N., 141° E. off the South Coast of Honshu, Japan				
		0 = 00h 12m 28s (G.M.T.)				
		34.4 N., 141.6 E., H = 40 - .35r km; 0 = 00h 09m 09s. Bull. (G.M.T.), Japan).				
		Mag. - 7.4 (Teitington), 7.1 (Rome), 7 (Benkiev, Prague), 6½ (Frankfurt), 6½ - 6¾ (Cirona, Gurbenovo), 6½ (Uppsala).				
Pritlong	Z	IP	00 12 35	4805		Moderate. Aftershock of the previous major shock of Nov.'03.
	N	IS	17 55			
Chatra	NEZ	eP	00 12 04			Slight. Aftershock of previous great shock of 26th Nov. '03.
	NZ	e(G)	12 42			
	N	MX	30 --			Per. = 22 secs A = 00.
	E	MX				Per. = 20 secs A = 75.
Calcutta	Z	e(P)	00 12 20			Moderate. Aftershock of the great shock of 26th Nov. '03.
		i(G)	12 28			
Dehra-Dun	N	IP	00 12 23	5830		Slight. Aftershock of Tokyo shock of 26th Nov. 1923.
		IS	20 15			
		PPZ	20 32			
		N	20 51			
New Delhi	NE	eP	00 12 28	6320		Moderate.
		es	20 38			
	N	M	32 53			
Moradabad	Z	IP	00 12 30	6420		Moderate.
		PP	12 46			
	NE	S	21 27			
		SS	28 37			
	N	L	31 37			
	E	M	35 21			Per. = 12 secs A = 14.
	N	M	35 37			Per. = 16 secs A = 16.
Madras	N	IP	00 12 33	6535		Moderate.
		PcP	14 21			
		PPP	17 16			
		ScP	18 12			
		IS	21 38			
		IC	21 53			
		PPS	28 04			
		ScS	29 02			
Poona	Z	eP	00 12 47	6810		Moderate.
		PcP	14 25			
		PP	16 46			
		PPP	17 31			
		SP	22 02			
		PPS	22 34			
		SPS	23 59			
		SSS	28 03			
		M	36 46			

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1953						
26 Contd.	Bombay	N	eP	00 13 56	6835	Slight, aftershock.
		E	iP			
		NE	i	14 05		
		E	i	14 12		
		N	PcP	14 27		
			i	14 51		
			PPP	17 41		
		E	iS	22 17		
		N	eS	22 21		
			PS	22 42		
			PPS	22 54		
			SS	26 24		
	Kodaikanal	E	iP	00 14 00	6830	
			iS	22 21		
	Colombo	E	L	00 37 00		PKS lost while changing the chart. Amp = 0.4 mm.
			M	46 29		

26 Epc: 34° N., 141° E. Off the Coast of Hondo, Japan; 0 = 01h 47m 27s (U.S.C.G.S.)
34°.2 N., 141°.8 E., h = 50 km; 0 = 01h 47m 29s. Felt, (C.M.O., Japan).
Mag. - 6.5 (Roma), 6¼ - 6½ (Hurbanovo), 6 - 6¼ (Praha), 6 (Kiruna).

	Shillong	Z	i(P)	01 55 34		Tremor.
	Chatra	NEZ	eP	01 56 01	5100	Slight.
		E	eS	02 02 45		
			M	15 --		
	Dehra Dun	N	i	01 56 49		Slight.
			i	02 04 14		
	New Delhi	NE	eP	01 56 55	6090	Moderate.
		N	iS	02 04 29		
			M	17 12		
	Madras	E	iP	01 57 29	6580	Moderate.
			iS	02 05 36		
	Poona	E	i(P)	01 57 48		Moderate. Phases not clear.
	Bombay	E	iP	01 57 52	6910	Slight.
			i	58 07		
			PP	02 00 14		
			PcS	02 20		
			iS	06 17		
			i	06 28		
			PPS	06 43		
			ScS	07 14		
			SS	10 05		
			SSS	12 55		
			LQ	12 31		
26	Shillong	Z	e	04 29 51		Tremor.

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Nov. 1953						
26	Dehra Dun	N	eP	06 02 47	960	Slight.
			LQ	04 16		
			iS	04 26		
			LR	04 40		
			M	05 29		
26	Epc: 34° N., 141° E., 0 = 08h 14m12s (U.S.C.G.S.) 34°.3 N., 141°.6 E. h = 30 - 40 km; 0 = 08h 14m 16s. Felt. (C.M.O., Japan). Mag. - 6¼ - 7½ (Hurbanovo), 7¼ (Praha), 7.2 (Roma), 7 (Berkeley, Strasbourg, Kiruna, Wellington), 6¾ - 7 (Pasadena), 6¾ (Uppsala).					
	Shillong	Z	iP	08 22 20	5550	Moderate. Probably aftershock.
		N	PPP	24 36		
			iS	28 39		
			PS	28 53		
			PPS	29 00		
			LQ	32 06		
			SSS	34 38		
			M	37 38		
	Chatra	Z	iP	08 22 46	5010	Moderate.
		NE	eP			
			PP	24 38		
			PPP	25 16		
			PcS	28 24		
			eS	29 26		
			PS	29 35		
			PPS	29 43		
			SS	32 35		
			LQ	33 14		
			SSS	33 35		
			LR	35 28		
		E	M	39 43		Per. = 19 secs μ = 100.
	Calcutta	E	eP	08 23 06	5110	Moderate.
			iS	29 51		
	Dehra Dun	NE	iP	08 23 34	5810	Moderate. Aftershock.
		N	iS	30 59		
			PS	31 09		
			PPS	31 22		
			ScS	32 51		
			LQ	36 52		
			LR	39 29		
			M	43 53		
			Mn	46 --		Per. = 18 secs μ = 10.
	New Delhi	NE	eP	08 23 41	6090	Moderate.
		N	iS	31 15		
			PS	31 27		
			ScS	33 25		
			SS	35 24		
			M	43 48		
	Hyderabad	E	iP	08 24 14	6360	
			PP	26 50		
		N	e	31 59		
		NE	S	32 10		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1953						
26 Contd.	Hyderabad Contd.	E	SS	08 35 38		
		N	L	42 14		
			M	45 23		Per. = 20 secs μ = 47.
		E	M	45 29		Per. = 21 secs μ = 33.
	Poona	E	eP	08 24 35	6720	Slight.
			PP	26 44		
			eS	32 49		
			PS	33 03		
			ScS	34 11		
			SS	36 55		
			SSS	39 25		
			LQ	40 01		
			M	48 11		
	Bombay	N	eP	08 24 38	6870	Slight. Aftershock.
		E	iP			
		NE	PcP	25 13		
		E	PP	27 09		
		NE	iS	33 01		
		N	PS	33 16		
		E	PS	33 22		
			PPS	33 36		
			ScS	34 11		
		N	i	34 30		
		E	SS	37 00		
		N	SSS	39 43		
			LQ	40 --		
			M	55 18		Per. = 18 secs μ = 20.
	Colombo	E	P	08 24 49		
			S	33 09		
			L	43 49		
			M	48 39		Amp = 0.6 mm.
	Kodaikanal	E	iP	08 24 55	6780	Probably the aftershoc
			iS	33 09		of previous earthquake
			M	48 54		
26	Shillong	Z	i	14 01 33		Local, tremor.
26	Dehra Dun	N	eP	19 15 14		Feeble.
			i	16 45		
	New Delhi	NE	eP	19 15 24	980	Slight.
		E	PP	15 32		
			PPP	15 39		
			LQ	16 56		
		NE	iS	17 05		
		N	SSS	17 30		
		E	S*	17 37		
	Shillong	Z	i	19 17 53		Tremor.
26	Dehra Dun	N	e	21 49 51		Tremor.
27	Shillong	Z	e	00 15 07		Feeble, near.
27	Shillong	Z	i	03 16 44		Tremor.

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Nov. 1953						
27	Chatra	Z	i	11 38 35		Slight, distant.
	New Delhi	NE	eP	11 39 32	5920	Moderate.
		N	eS	47 03		
	Shillong	Z	e	11 39 38		Feeble, distant.
	Poona	E	eP?	11 40 24		Other phases not clear.
	Bombay	E	eP	11 40 27	6835	Feeble. Aftershock mixed up with microseism.
			PcP	41 02		
			PP	42 49		
			iS	48 48		
			PS	49 06		
			PPS	49 17		
27	Shillong	Z	i	14 10 50		Feeble, near.
27	Shillong	Z	e	18 39 37		Tremor.
27	Shillong	Z	i	23 14 39		Tremor.
28	New Delhi	N	eP	00 39 37	2020	Slight.
			PP	39 53		
			eS	42 58		
28	Shillong	Z	i(Pg)	03 55 34		Slight, local.
28	Shillong	Z	e?	04 13 34		Slight.
			e	13 53		
			e	14 30		
28	Shillong	Z	e	19 36 57		Slight.
		N	e(M)	20 16 20		
28	Chatra	Z	i	20 27 11		Slight, distant.
	Shillong	Z	iP	20 27 40		Slight.
			i	28 00		
28	Shillong	Z	iP	22 08 57		Slight.
		N	e	16 27		
28	Epc: 17° S., 93° E., Indian Ocean; 0 = 23h 11m 07s (U.S.C.G.S.)					
	Hyderabad	N	eP	23 18 22	4000	
			eS	24 01		
			SS	26 25		
			L	29 13		
			M	31 26		
	Poona	E	eP	23 18 44		Very feeble, other phases not clear.
	Shillong	Z	iP	23 19 01		Slight.
		N	eP	19 04		
			i(PP)	20 41		
			e(S)	25 19		
			e(M)	37 12		
	Bombay	N	e	23 20 24		Feeble.
		E	e	20 29		
		N	i	20 34		
			e	21 07		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Nov. 1953						
28	Bombay	E	e	23 21 12		
Contd.	Contd.		i	24 57		
		N	e	25 02		
		E	e	26 25		
			e	27 07		
29	Epc: 44° N., 86° E. Sinkiang Province, China; O = 00h 35m 40s (U.S.C.G.S.)					
	Dehra Dun	N	iP	00 39 16		Slight.
			e(S)	42 21		
			LR	43 12		
			M	44 44		
	Chatra	Z	i	00 39 42		Slight, distant.
	Shillong	Z	iP	00 40 03		Slight, phases not clear.
		N	eP	40 04		
			e	43 15		
			i(M)?	47 24		
	Bombay	NE	eP	00 41 33		Feeble, other phases doubtful.
		E	i(S)	43 27		
	Poona	E	e	00 42 58		Very feeble. Other phases not clear.
	Hyderabad	N	e(S)	00 46 23		
		E	M	52 53		Per. = 11 secs μ = 4.
		N	M	53 20		Per. = 12 secs μ = 11.
29	Bombay	NE	e	04 18 51		Feeble.
		E	i	22 50		
			e	26 12		
			i	27 34		
	Chatra	NE	e	04 36 --		Surface waves.
30	Dehra Dun	NE	e	11 23 24		Tremor.
30	Poona	Z	eP	13 53 47		Tremor.
30	Poona	Z	eP	17 58 18		Tremor.

Earthquake Reports
Non-Instrumental Reports

The following table contains a list of earthquakes that were reported by Voluntary Observers from various stations during November, 1953.

Place at where felt	Date	G.M.T. of earthquake	Duration in secs	Intensity R.F.scale	No. of shocks	Remarks
Srinagar	1.11.53	17-25-00	3	VII	1	The direction from North
Srinagar	5.11.53	08-20-00	3	VII	1	The direction from North-West.
Tezpur	9.11.53	07-35-00	5	VI	-	-
Srinagar	14.11.53	00-00-57	2	VI	1	The direction from
Shillong	20.11.53	19-30-00	4	V	1	North.
Shillong	30.11.53	19-30-00	25	IV	1	Rumbling sound heard.
Shillong	30.11.53	19-30-00	24	IV	2	-do-
Shillong	30.11.53	19-30-00	30	V	1	

SM:24.1.56

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GOVERNMENT OF INDIA

METEOROLOGICAL DEPARTMENT

S E I S M O L O G I C A L B U L L E T I N

December, 1953.

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Published under the direction of

Dr. S.C. Roy, D.Sc.(Lond.), F.N.I,

Director General of Observatories.

Instruments and their constants.

Station.	Instruments	Compt.	Period in secs	Static Magnification	Damping ratio	Paper Speed mm/min.
Bombay	Milne-Shaw	N	12	350	16:1	16
	Milne-Shaw	E	12	350	12:1	8
	Sprengnether	E	7	-		30
Calcutta	Milne-Shaw	E	10	150	20:1	8.0
	Wood-Anderson	N	2	870	Critical	30.0
	Omori-Ewing	N	18	32	-	25.4
	Omori-Ewing	E	19	30	-	25.4
Chatra	Milne-Shaw	N-S	10.0	150	20:1	16
	Milne-Shaw	E-W	12.0	250	20:1	16
	Wood-Anderson	N-S	1.0	1000	30:1	60
	Wood-Anderson	E-W	1.0	1000	30:1	60
	Benioff	Z	To=0.72 Tg=0.45	-	Es = 2.3:1 Eg = Critical	60
Colombo	Milne-Shaw	E-W	12	250	20:1 23:1 from 23rd Nov.	-
Dehra Dun	Milne-Shaw	N-S	12	250	20:1	16
	Wood-Anderson	E-W	1	1000	30:1	60
	Wood-Anderson	N-S	1	1000	30:1	60
Hyderabad	Milne-Shaw	E-W	12.0	253	20:1	8.0
	Milne-Shaw	N-S	12.0	251	20:1	8.0
Kodaikanal	Milne-Shaw	E-W	10.0	250	20:1	8.0
Madras	Sprengther	E-W	7.3			30
New Delhi	Milne-Shaw	N-S	12	280	20:1	8
	Wood-Anderson	N-S	4	1070	20:1	8
	Wood-Anderson	E-W	2	1841	30:1	60
	Omori-Ewing	E-W	28	30	1	12
Poona	Milne-Shaw	N-S	12	250	20:1	8
	Wood-Anderson	E-W	4	1100	20:1	16
	Sprengther	Z	To=Tg=1.5			30
Shillong	Milne-Shaw	N-S	12	250		8.0
	Wood-Anderson	N-S	4	1000		60.0
	Wood-Anderson	N-S	1	1000		30.0
	Wood-Anderson	E-W	1	1000		30.0
	Benioff	Z	To = 1.0 Tg =0.18	-		60.0

SEISMOLOGICAL BULLETIN

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

Dec.
1953
01 Epc: 29° N., 128½° E., h = 60 km ca; Riu-Kiu Island.
0 = 05h 08m 30s (U.S.C.G.S.)
29°.2 N., 128°.8 E. h = 280 km ca; 0 = 05h 08m 50s (CMO, Japan)
29°. N., 128°.6 E. h = 200 km ca; 0 = 05h 08m 44s (B.C.I.S.)

Shillong	N	•P	05 14 37	3780	Moderate.

Instruments and their constants.

Station	Instruments	Compt.	Period in secs	Static Magnifi-cation	Damping mc/s	Paper speed mm/min
Bombay	Milne-Shaw	N	12	350	16:1	14
	Milne-Shaw	E	12	350	16:1	14
	Seismometer	Z	5	-		30
Calcutta	Milne-Shaw	N	10	150	20:1	8.0
	Wood-Anderson	N	8	270	Critical	30.0
	Omori-Ewing	N	18	35	-	30.0
	Omori-Ewing	E	18	30	-	30.0
Chelten	Milne-Shaw	N-S	10.0	180	20:1	14
	Milne-Shaw	E-W	12.0	250	20:1	14
	Wood-Anderson	N-S	1.0	1000	30:1	30
	Wood-Anderson	E-W	1.0	1000	30:1	30
	Seismometer	Z	To=0.75	-	Ss = 3.0:1	30
			Tm=0.45		Mg = Critical	
Colombo	Milne-Shaw	E-W	12	250	20:1	-
					23:1 from 23rd Nov.	
Delta Dun	Milne-Shaw	N-S	12	250	20:1	14
	Wood-Anderson	N-S	1	1000	30:1	30
	Wood-Anderson	E-W	1	1000	30:1	30
Hyderabad	Milne-Shaw	E-W	12.0	253	20:1	8.0
	Milne-Shaw	N-S	12.0	254	20:1	8.0
Kodaikanal	Milne-Shaw	E-W	10.0	250	20:1	8.0
Madras	Seismometer	E-W	7.3			30
New Delhi	Milne-Shaw	N-S	12	250	20:1	8
	Wood-Anderson	N-S	1	1000	20:1	8
	Wood-Anderson	E-W	1	1000	20:1	30
	Omori-Ewing	E-W	28	30	1	12
Poona	Milne-Shaw	N-S	12	250	20:1	8
	Wood-Anderson	N-S	1	1100	20:1	14
	Seismometer	Z	To=Tm=1.3			30
Simla	Milne-Shaw	N-S	12	250		8.0
	Wood-Anderson	N-S	1	1000		30.0
	Wood-Anderson	E-S	1	1000		30.0
	Wood-Anderson	E-W	1	1000		30.0
	Seismometer	Z	To = 1.0	-		30.0
			Tm =0.18			

SEISMOLOGICAL BULLETIN

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

1909

01 Sept. 28, 8h, large E, Δ = 80 km est Rio-Eta Island.
P = 0h 0m 30s (Mid.O.G.S.)
28.3 h. large E, Δ = 280 km est; P = 0h 0m 20s (GMO, Japan)
28.5 h. large E, Δ = 320 km est; P = 0h 0m 45s (S.O.I.S.)

Obliqua N 40 09 14 97 3980 Moderate.

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Dec. 1953						
01	Shillong	N	sP	05 15 29		
Contd.	Contd.		e	15 49		
			e	17 47		
			eS	19 37		
			sS	21 06		
			PcS/SS	21 23		
			SSS	21 44		
			e	22 41		
			e	25 05		
	Chatra	ZE	iPχ	05 15 34	4110	Slight.
		N	ePχ			
		NE	pP	16 23		
			PPP	17 49		
			e	19 11		
			e	20 20		
			eS	20 55		
		E	i	23 38		
		NE	SS	23 53		
			e	25 26		
			e	27 49		
			e	29 49		
			e	30 00		
			e	33 02		
			e	37 --		
	New Delhi	NE	eP	05 16 39		Moderate.
		N	e	19 41		
		NE	e	22 09		
		N	(S)	22 57		
			e	25 22		
			SS	26 12		
	Dehra Dun	N	i(P)	05 16 41		Moderate.
	Hyderabad	N	P	05 17 00	5280	Slight.
			S	23 30		
			L	30 55		
			M	35 57		Per. = 13 secs μ = 4.
	Poona	Z	i(P)	05 17 03		Moderate.
		E	PP	19 15		
			eS	24 16		
			e	26 51		
			LQ	28 44		
			LR	06 31 06		
			M	34 53		
	Madras	E	iP	05 17 04		Moderate.
			i	17 53		
			PP	19 23		
			PPP	20 43		
			i	25 13		
			i	25 30		
			i	25 38		
			e	26 43		
			e	29 03		
			e	31 38		
			LQ	32 11		
			LR	35 07		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	△ km.	REMARKS
Dec. 1953						
01 Contd.	Kodaikanal	E	P	05 17 31		Direction of Initial Ground movement- West.
			e(S)	26 04		
	Bombay	NE	iP	05 17 32	5370	Slight.
		E	i	18 27		
		N	i	18 30		
		NE	PcP	18 49		
		E	i	18 59		
			PP	19 30		
			PPP	20 23		
			ScP	22 41		
		NE	iS	24 32		
		N	i	25 15		
		N	i	26 01		
		E	i	26 05		
			i	26 13		
		N	ScS	27 00		
		E	ScS	27 05		
		N	SS	28 00		
		E	SSS	29 41		
01	Hyderabad	N	iP	05 17 54	5470	
			PP	20 08		
			iS	25 00		
			M	38 30		Per. = 15 secs μ = 4.
01	Shillong	Z	iPg	16 15 15		Slight.
			P	15 24		
			PP/S	15 27		
			P*	15 33		
			SS	15 36		
	Poona	Z	eP	16 17 00		Tremor.
01	Poona	Z	eP	16 28 20		Tremor.
01	Shillong	Z	e	18 43 12		Tremor.
			e	43 16		
			e	43 18		
			e	43 20		
01	Poona	Z	i(?)	20 55 19		Tremor.
01	Shillong	Z	e	21 35 09		Tremor.
			e	35 12		
			e	35 20		
			e	35 33		
	Poona	Z	i?	21 40 47		Tremor.
02	Poona	Z	i(?)	00 40 37		Tremor.
02	Epc: $3\frac{1}{2}^{\circ}$ S., $141\frac{1}{2}^{\circ}$ E., New Guinea; 0 = 04h 24m 50s (U.S.C.G.S.) $2\frac{3}{4}^{\circ}$ S., $141\frac{1}{2}^{\circ}$ E., 0 = 04h 24m 51s (B.C.I.S.) Mag. - 6.8 (Wellington), $6\frac{3}{4}$ (Pasadena, Berkeley, Kiruna), $6\frac{1}{2}$ (Praha).					
	Shillong	ZN	iP	04 34 30	6210	Moderate.
		N	PcP	35 30		
			PP	36 32		
			PPP	37 50		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
1930.						
01	Kodaikanal	Z	P	08 17 32		Direction of initial ground movement. Weak.
Contd.			e(S)	45 04		
	Bombay	NS	IP	09 17 32	887%	Slight.
		E	i	16 27		
		N	i	16 30		
		UD	PcP	16 42		
		E	i	16 39		
			PP	17 30		
			PPP	20 23		
			ScP	22 41		
		NS	iS	24 32		
		N	i	25 13		
		N	i	26 01		
		E	i	28 05		
			i	26 13		
		N	ScS	27 00		
		E	SeS	27 05		
		N	SS	29 00		
		E	SSS	29 41		
01	Bydgoszcz	N	IP	08 17 34	847%	
			PP	20 08		
			iS	29 00		
			M	35 30		Per. = 15 secs. A = 4.
01	Shillong	Z	IP	15 15 15		Slight.
			P	15 24		
			PP/3	15 27		
			P*	15 33		
			SS	15 36		
	Poona	Z	eP	16 17 00		Tremor.
01	Poona	Z	eP	16 28 20		Tremor.
01	Shillong	Z	e	16 43 12		Tremor.
			e	43 16		
			e	43 18		
			e	43 20		
01	Poona	Z	i(?)	20 35 19		Tremor.
01	Shillong	Z	e	21 35 09		Tremor.
			e	35 12		
			e	35 20		
			e	35 35		
	Poona	Z	iP	21 40 17		Tremor.
02	Poona	Z	i(?)	00 40 37		Tremor.
08	Upsala					59° S., 141½° E., New Guinea; 0 = 0.4h 1.4m 50s (U.S.G.S.). 59° S., 141½° E., 0 = 0.4h 2.4m 41s (S.O.I.S.). Mag. - 5.5 (Wellington), 6½ (Pasadena, Berkeley, Kiruna). 6½ (Prague).
01	Shillong	NS	iP	01 34 40	4210	Moderate.
		N	iSP	38 40		
			PP	46 32		
			PPP	51 00		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Dec. 1953 02 Contd.	Shillong Contd.	N	iS	04 42 17		
			LQ	46 31		
			LR	48 52		
			M	53 06		
	Calcutta	E	iP	04 34 46		Moderate, first movement West.
			i(S)	43 01		
			ScS	44 36		
			?	47 23		
	Chatra	Z	iP	04 35 04	6730	Slight.
		NE	eP			
			PcP	35 49		
			PP	37 11		
			PPP	38 34		
			e	40 06		
		N	iS	43 19		
		E	eS			
		NE	PS	43 32		
			PPS	43 43		
			ScS	44 53		
			SS	47 04		
			LQ	50 08		
			LR	52 53		
			M	57 30		
	Madras	E	iP	04 35 21	7050	Moderate.
			PcP	35 51		
			PP	37 42		
			PPP	39 17		
			PcS	39 49		
			iS	43 54		
			PS	44 19		
			PPS	44 32		
			ScS	45 06		
			SS	48 03		
			SSS	50 47		
			LQ	51 39		
			LR	54 34		
			e	43 02		
	Hyderabad	E	iP	04 35 37	7260	
			iS	44 21		
			ScS	45 33		
		N	SS	48 09		
			L	57 02		
			M	05 01 12		Per. = 20 secs μ = 11.
	Kodaikanal	E	P	04 35 37	7290	
			S	44 22		
	New Delhi	NE	eP	04 36 01	7650	Moderate.
		N	PcS	40 34		
			iS	45 04		
			PS	45 21		
			SKS	46 00		
			SS	49 10		
			LQ	53 15		

DATE	STATION	COMPT.	PHASE	O. M. T.	Δ	REMARKS
				H. M. S.	Km.	
Dec. 1955						
02	Shillong	N	iS	04 42 17		
Contd.	Contd.		LQ	46 31		
			LR	48 02		
			M	53 06		
	Calcutta	E	iP	04 34 46		Moderate, first movement West.
			i(S)	43 01		
			iaS	44 36		
			?	47 23		
	Chatra	Z	iPY	04 35 04	6750	Slight.
		NE	epY			
			pcP	35 49		
			PP	37 11		
			PPP	38 34		
			e	40 08		
		N	iSY	43 19		
		E	esY			
		NE	PS	45 32		
			PPS	45 43		
			SaS	44 55		
			aa	47 04		
			LQ	50 02		
			LR	52 23		
			M	57 30		
	Madras	E	iP	04 35 21	7050	Moderate.
			pcP	36 51		
			PP	37 40		
			PPP	39 17		
			PcS	39 49		
			iS	43 54		
			PS	44 19		
			PPS	44 32		
			SaS	45 06		
			SS	48 03		
			SSS	50 47		
			LQ	51 49		
			LR	54 44		
			e	43 02		
	Hyderabad	E	iP	04 35 37	7260	
			iS	44 21		
			SaS	45 33		
		N	SS	48 09		
			e	57 02		
			M	05 01 32		Per. = 20 secs, A = 11.
	Kodaikanal	E	P	04 35 30	7290	
			S	44 22		
	New Delhi	NE	ep	04 36 01	7580	Moderate.
		N	PcS	40 34		
			iS	43 04		
			PS	45 21		
			SKS	46 00		
			SS	46 10		
			LQ	53 15		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Dec. 1953 02 Contd.	Dehra Dun	N	eP	04 36 05	7590	Moderate.
			PcP	36 28		
			PPP	40 23		
			iS	45 06		
			PS	45 30		
	Poona	Z	iP	04 36 05	7750	Moderate.
		E	PcP	36 15		
			PP	38 44		
			PPP	40 21		
			S	45 14		
			PS	45 45		
			PPS	46 01		
			SS	49 52		
			SSS	52 54		
			LQ	54 45		
			LR	58 09		
			M	05 04 00		
	Bombay	N	eP	04 36 13	7840	Slight.
		E	iP			
		NE	PcP	36 24		
		E	i	37 12		
		NE	PP	38 47		
		N	PPP	40 34		
		E	PPP	40 37		
		NE	iS	45 27		
			i	45 47		
		E	PS	46 00		
		NE	PPS	46 12		
			i	46 27		
			SS	50 06		
		E	i	51 30		
		N	SSS	53 27		
		E	LQ	55 07		
		N	LQ	55 23		
		E	LR	57 44		
02	Epc: 34°.1 N., 141°.1 E.; h = 40 km, O = 06h 10m 13s (C.M.O., Japan)					
	Poona	Z	eP	06 28 26		Tremor.
02	Poona	Z	eP	09 20 43		Tremor.
02	Chatra	Z	e	09 55 48		Slight, distant.
		NE	e	10 18 --		Surface waves.
02	Poona	Z	eP	09 57 34		Tremor.
02	Poona	Z	eP	10 40 50		Tremor.
03	Poona	Z	eP	00 21 05		Tremor.
03	Shillong	Z	e	01 44 24		Tremor.
			e	44 27		
			e	44 33		
03	Shillong	Z	e	03 34 18		Tremor.
			e	34 32		
			e	34 36		
			e	34 48		

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Dec. 1953						
03	Shillong	Z	e	03 36 21		Slight.
			e	36 31		
			e	36 54		
			e	37 02		
03	Shillong	Z	e	04 42 50		Slight.
			e	43 11		
			e	43 16		
03	Shillong	Z	e	08 15 15		Slight.
			e	15 17		
			e	15 25		
			e	15 28		
			e	15 37		
			e	16 22		
			e	16 41		
03	Epc: 31° N., 85½° E., Central Tibet; O = 14h 54m 03s (U.S.C.G.S.) 31° N., 86° E., O = 14h 54m 12s (Shillong). Mag. 6¾ (Praha), 6¼ - 6½ (Hurbanovo), 6¼ (Kiruna, Strasbourg).					
	Chatra	NEZ	iP	14 55 21	540	Moderate.
		NE	PP	55 27		
			P*	55 30		
			PPP	55 34		
			Pg	55 41		
			LQ	56 06		
			iS	56 18		
			LR	56 20		
			SS	56 28		
			S*	56 32		
			SSS	56 37		
			Sg	56 47		
	Dehra Dun	NE	iP	14 55 50	780	Moderate.
		N	P	55 57		
			PP	56 03		
			P*	56 05		
			Pg	56 23		
			LQ	56 58		
		NE	iS	57 09		
		N	SS	57 30		
			S*	57 34		
			Sg/M	57 51		
	Shillong	ZNE	iP	14 56 02	870	Moderate.
		N	PP	56 09		
			PPP	56 15		
			Pg	56 33		
			LQ	57 15		
		NE	S	57 30		
		N	SSS	57 47		Per. = 11.3 secs μ = 34
			S*	57 56		
			Sg/M	58 14		
	New Delhi	NE	eP	14 56 05	890	Moderate.
		N	Pg	56 45		
			iS	57 37		
			M	58 35		
			Mn	15 00 05		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Dec. 1953 03 Contd.	Calcutta	E	iP	14 56 16	935	Moderate. First movement West.
			iS	57 52		
			S*	58 26		
			Sg	58 49		
	Hyderabad	NE	iP	14 57 42	1600	
		E	iS	15 00 23		
			L	01 55		
		N	M	02 34		Per. = 11 secs μ = 171.
		E	M	02 47		Per. = 9 secs μ = 207.
	Poona	Z	iP	14 57 58	2000	Moderate.
		E	e	58 07		
			PP	58 19		
			e	15 00 50		
			e	01 06		
			S	01 19		
			SS	01 29		
		N	M	03 07		
	Bombay	NE	iP	14 58 02	1990	Moderate.
			PP	58 22		
			e	15 01 01		
			i	01 05		
			S	01 20		
		E	SS	01 28		
		N	SS	01 36		
		N	LR	01 45		
			M	03 30		Per. = 11 secs μ = 146.
	Madras	E	iP	14 58 30		Moderate, other phases doubtful.
			PP	58 47		
			PPP	58 56		
	Colombo	E	P	14 59 41		
			S	15 03 59		
			L	07 43		
			M	08 26		Amp = 4.5 mm.
03	Chatra	Z	iP	15 38 02	540	Feeble.
			iS	38 59		
	Shillong	Z	e	15 40 10		Tremor.
	Poona	Z	eP	15 40 42		Tremor.
03	Chatra	Z	iP	17 37 28	536	Slight.
			iS	38 25		
	Shillong	Z	e	17 38 08		Tremor.
			e	38 11		
			e	38 19		
	New Delhi	NE	eP	17 38 10	890	Slight.
		E	PP	38 19		
			Pg	38 53		
		NE	eS	39 42		
		E	SS	39 54		
	Poona	Z	eP	17 40 14		Slight.
		E	i?	43 45		
			i?	45 05		

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Dec. 1953						
03 Contd.	Bombay	N	i	17 43 14		
		NE	e	45 12		
		E	e	46 46		
03	Chatra	Z	iP	17 59 26	560	Slight, aftershock of the previous shock.
			iS	18 00 25		
	Shillong	Z	e	18 00 07		Tremor.
			e	00 09		
			e	01 34		
	New Delhi	NE	eP	18 00 12	880	Slight.
			eS	01 42		
03	Shillong	Z	e	19 56 11		Tremor.
03	Shillong	Z	e	21 33 42		Tremor.
03	Chatra	Z	iP	22 52 43	550	Slight, aftershock.
			iS	53 40		
03	Chatra	Z	iP	22 52 43	540	Slight, aftershock.
			iS	53 40		
	Shillong	Z	e	22 53 00		Tremor.
03	Chatra	Z	iP	22 55 12	536	Slight, aftershock.
			iS	56 09		
	Poona	E	eP	22 57 50	1402	Slight.
			PPP	58 04		
			LQ	23 00 02		
			eS	00 12		
			SSS	00 37		
			M	01 48		
	Bombay	NE	e	22 58 25		Very feeble.
		N	e	23 00 07		
		E	e	01 25		
04	Epc: 40° N., 77° E., Sinkiang Province; 0 = 07h 50m 56s (B.C.I.S.) 41° N., 78° E., Thian Shan Mts.; 0 = 07h 50m 50s (Shillong) 0 = 07h 50m 56s (Quetta).					
	Dehra Dun	N	eP	07 53 20	1170	Moderate.
			PP	53 30		
			PPP	53 38		
		NE	iLQ	55 06		
			iS	55 18		
		N	M	56 30		
	New Delhi	NE	eP	07 53 38	1230	Slight.
			eS	55 44		
		N	M	57 11		
	Chatra	Z	(P)	07 54 31		Slight, near.
		NE	e	57 18		
			eS	57 40		

DATE	STATION	COMPT.	PHASE	O. M. T.	Δ	REMARKS
				h. m. s.	Km.	
1953						
03	Bombay	N	i	17 43 14		
Contd.		NE	e	43 12		
		E	e	46 46		
03	Chatra	Z	ip	17 59 26	560	Slight, aftershock of the previous shock.
			is	18 00 25		
	Shillong	Z	e	18 00 07		Tremor.
			e	00 09		
			e	07 34		
	New Delhi	NE	ep	18 00 12	880	Slight.
			es	07 42		
03	Shillong	Z	e	19 36 11		Tremor.
03	Shillong	Z	e	21 73 42		Tremor.
03	Chatra	Z	ip	22 32 43	550	Slight, aftershock.
			is	44 40		
03	Chatra	Z	ip	22 32 43	540	Slight, aftershock.
			is	44 40		
	Shillong	Z	e	22 33 00		Tremor.
03	Chatra	Z	ip	22 55 12	336	Slight, aftershock.
			is	55 09		
	Poona	E	ep	22 37 50	1402	Slight.
			ppp	38 04		
			ig	23 00 02		
			es	00 12		
			sss	00 37		
			M	01 48		
	Bombay	NE	e	22 38 25		Very feeble.
		N	e	23 00 07		
		E	e	01 25		

04 Epi: 42° N., 77° E., Sinkiang Province; O = 07h 30m 30s (B.C.I.S.)
41° N., 78° E., Tahan Shan Mts.; O = 07h 30m 30s (Shillong)
O = 07h 30m 30s (Quetta).

	Dehra Dun	N	ep	07 32 20	1170	Moderate.
			pp	33 30		
			ppp	33 38		
		NE	ipg	33 03		
			is	33 18		
		N		33 30		
	New Delhi	NE	ep	07 37 38	1230	Slight.
			es	44		
		N	M	37 11		
	Chatra	Z	(P)	07 14 21		Slight, near.
		NE	e	17 18		
			es	17 40		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Dec. 1953 04 Contd.	Shillong	NZ	eP	07 55 17	2120	Slight.
			PPP	55 44		
			S	58 47		
			LR	59 02		
			SS	59 14		
			SSS	59 35		
			M	08 01 20		
			PcS	03 26		
	Bombay	NE	eP	07 55 47	2470	Slight.
		N	i	55 51		
		NE	iS	59 48		
		E	LQ	08 00 07		
			SS	00 27		
			SSS	00 41		
	Poona	N	iP	07 55 48	2570	Moderate.
			PP	56 11		
			PPP	56 32		
			eS	59 57		
			LQ	08 00 20		
			SS	00 44		
			LR	01 26		
			M	03 16		
	Hyderabad	N	e	07 55 55		Time uncertain.
			i	08 00 07		
				00 47		
				02 50		
				04 53		Per. = 9 secs μ = 3.
		E		05 17		Per. = 9 secs μ = 3.
	Calcutta	E	i	07 59 13		Slight, near.
			i	08 02 44		
	Madras	E	eS	08 01 20		Moderate.
04	New Delhi	N	eP	08 31 01	1250	Slight.
		NE	eS	33 08		
	Shillong	Z	e	08 32 32		Tremor.
	Poona	N	eP	08 33 14		Tremor.
04	Shillong	Z	i	10 11 16		Slight.
			e	11 29		
			e	12 34		
			e	12 38		
04	Epc: 49½° N., 129° W., Off Coast of Vancouver Island; O = 14h 54m 46s (U.S.C.G.S.) Mag. 6½ (Tacubaya, Praha), 6¼ - 6½ (Strasbourg, Hurvanovo), 6¼ (Kiruna), 6 (Berkeley, Pasadena, Uppsala).					
	Shillong	NZ	eP	15 08 22	11000	Slight.
		N	PP	12 13		
			PPP	14 14		
			S	19 50		
			PS	21 01		
			PPS	21 46		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Dec. 1953 04 Contd.	Shillong Contd.	N	SSP	15 25 27		
			SS	26 22		
			LQ	34 38		
			LR	39 22		
			M	47 11		
	Chatra	Z	e(P)	15 08 25		[illegible] Dist[illegible]
	Bombay	E	ePP	15 12 30		
			e	13 11		
		N	e	13 41		
		E	e	15 19		
		NE	e	18 51		
			e	19 26		
		E	SKS	19 57		
			e	22 17		
	Poona	Z	e	15 13 47		Slight, phases not clear.
		N	i?	19 57		
			i?	23 13		
			i?	28 41		
	Bombay	E	i	15 24 23		
			e	28 01		
	Calcutta	E	e	15 20 08		Slight, distant.
			i	27 23		
	Hyderabad	N		15 23 21		
		E	M	53 24		Per. = 18 secs μ = 9.
		N	M	53 26		Per. = 18 secs μ =17.
04	Shillong	Z	P	18 12 21		Slight.
			e	12 26		
			e	12 33		
			e	12 45		
			e	13 01		
04	Shillong	Z	e	18 25 09		Tremor.
	Chatra	Z	e	18 25 37		Slight.
04	New Delhi	E	eP	19 38 28	790	Slight.
			eS	39 50		
	Shillong	Z	e	19 41 24		Tremor.
05	Shillong	Z	e	04 04 08		Tremor.
05	Shillong	Z	e	06 54 02		Tremor.

05 Epc: 34° N., 141½° E.; 0 = 09h 41m 17s (U.S.C.G.S.)
34°.3 N., 141°.4 E.; h = 40 km, 0 = 09h 41m 24s (C.M.O., Japan)
Mag. 6 (Praha).

Shillong	Z	iPX	09 49 26	4520	Slight.
	N	ePX			
		PcP	51 19		
		PPP	51 44		
		S	55 37		
		SS	58 43		

DATE	STATION	COMPT.	PHASE	O. M. T.	Δ	REMARKS
				h. m. s.	km.	
04 Cont'd.	Smilions	N	SSP	16 28 47		
			SS	55 22		
			LQ	24 04		
			LR	35 27		
			M	47 11		
	Chatra	Z	e(P)	15 08 25		
	Bombay	E	eSP	16 12 50		
			e	13 11		
			e	15 41		
		N	e	15 19		
		E	e	18 51		
		NE	e	19 25		
			e	19 27		
		E	SKS	22 17		
			e			
	Poona	Z	e	15 15 47		Slight, phases not clear.
		N	LQ	19 07		
			LR	23 13		
			LT	29 41		
	Bombay	E	i	15 24 23		
			e	28 01		
	Calcutta	E	e	15 20 06		Slight, distant.
			i	27 23		
	Wyrnesburg	N		15 25 21		Par. = 18 secs/mm = 9.
		T	N	53 24		Per. = 18 secs/mm = 17.
		N		54 28		
04	Smilions	Z	P	16 12 21		Slight.
			e	13 06		
			e	12 33		
			e	12 46		
			e	13 01		
04	Smilions	Z	e	18 25 09		Tremor.
	Chatra	Z	e	18 25 37		Slight.
04	New Delhi	E	eP	19 36 28	720	Slight.
			eS	39 50		
	Smilions	Z	e	19 41 24		Tremor.
05	Smilions	Z	e	04 04 08		Tremor.
05	Smilions	Z	e	05 54 02		Tremor.
05	Epic: 34° N., 141½° E.; 0 = 09h 41m 17s (G.S.G.S.) 24.5° N., 141½° E.; h = 40 km. 0 = 09h 41m 41s (G.M.O., Japan) Mag. 6 (Prona)					
	Smilions	Z	IPI	09 42 26	4522	Slight.
		N	eP1			
			ecP	51 14		
			EPP	51 46		
			S	55 37		
			SS	59 43		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Dec. 1953						
05 Contd.	Shillong Contd.	N	LQ	09 59 04		
			SSS	59 48		
			LR	10 01 23		
			M	04 51		
	Poona	Z	i(?)	09 49 38		Distant shock.
		E	i	51 51		Phases doubtful.
			i	59 57		
	Chatra	Z	eP	09 49 52		Slight, distant.
		NE	e	10 10 -		Surface waves.
	Bombay	NE	iP	09 51 43	6860	Feeble.
		E	PcP	52 16		
			PP	54 06		
		NE	eS	10 00 05		
		E	PPS	00 36		
			i	01 32		
		N	ScS	01 35		
		E	i	05 30		
	Hyderabad	E	eS	09 59 14		
		N	M	10 15 59		Per. = 15 secs μ = 4.
		E	M	18 57		Per. = 12 secs μ = 2.
05	Poona	Z	eP	10 07 21		Tremor.
05	Shillong	Z	iP	17 46 29	520	Slight.
			PP	46 35		
			P*	46 40		
			Pg	46 51		
			LQ	47 14		
			S	47 27		
			S*	48 07		
			SSS	48 14		
			Sg/M	48 18		
05	Epc: 34° N., 141½° E.; O = 18h 39m 25s (U.S.C.G.S.) 34°.2 N., 141°.6 E. h = 50 km ca; O = 18h 39m 29s (CMO, Japan)					
	Shillong	Z	e(P)	18 47 32		Tremor.
	Poona	Z	eP	18 49 46		Tremor.
	Bombay	E	eP	18 49 51	6920	Very feeble.
			PP	52 09		
			PPP	53 37		
			eS	58 17		
			e	59 45		
05	Epc: 37½° N., 21° E., Off the West Coast of Greece; O = 19h 34m 15s (B.C.I.S.) Felt in the region of Messinie (Athenes) Press report.					
	Shillong	Z	i	19 42 25		Tremor.
			e	42 34		
06	Shillong	Z	e?	00 12 55		Slight.
			e	13 07		
			e	13 45		

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	Km.	
Dec. 1950.						
05	Shillong	N	LQ	09 59 04		
Contd.			ESS	59 48		
			LR	10 01 23		
			M	04 51		
	Poona	Z	i(Y)	09 49 38		Distant shock.
		E	i	51 51		Phases doubtful.
			i	59 57		
	Chatra	Z	eP	09 49 32		Slight, distant.
		NE	e	10 10 -		Surface waves.
	Bombay	NE	iP	09 51 43	5860	Feeble.
		N.	PcP	52 18		
			PP	54 00		
		NE	eS	10 00 05		
		E	PPS	00 38		
			i	01 22		
		N	SCS	01 50		
		E	i	05 20		
	Hyderabad	E	eS	09 59 14		
		N	M	10 13 59		Per. = 15 secs = A.
		E	M	18 57		Per. = 12 secs = Z.
05	Poona	Z	eP	10 07 21		Tremor.
05	Shillong	Z	iP	17 46 29	320	Slight.
			PP	46 38		
			P*	46 40		
			PS	46 51		
			LQ	47 14		
			S	47 27		
			S*	48 07		
			SSS	48 14		
			SSM	48 18		
05	Epc: 34° N., 141½° E.; 0 = 18h 39m 25s (U.S.C.G.S.) 34½° N., 141½° E, h = 50 Km ; 0 = 18h 39m 27s (CMO, Japan)					
	Shillong	Z	e(P)	18 47 38		Tremor.
	Poona	Z	eP	18 49 45		Tremor.
	Bombay	E	eP	18 49 51	6920	Very feeble.
			PP	52 09		
			PPP	53 37		
			eS	58 17		
			e	59 45		
05	Epc: 37½° N., 21° E., Off the West Coast of Greece; 0 = 19h 54m 15s (B.C.I.S.) Felt in the region of Messinie (Athens) Press report.					
	Shillong	Z	i	19 42 25		Tremor.
			e	42 34		
06	Shillong	Z	eP	00 12 55		Slight.
			e	13 07		
			e	13 46		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Dec. 1953 06	Dehra Dun	NE	e	02 12 15		Slight, other phases
			i	47 53		not clear.
06	Shillong	Z	e	04 15 56		Tremor.
06	Shillong	Z	i	04 57 44		Tremor.
06	Epc: 0°, 123½° E., Celebes Sea; h = 100 km; O = 17h 23m 54s (U.S.C.G.S.)					
	Shillong	Z	iP	17 31 27		Slight.
		N	eP	31 30		
			e	37 21		
			e	40 37		
	Chatra	Z	iP	17 32 01		Slight, distant.
	Poona	Z	eP	17 33 00		Slight, phases not clear.
	Bombay	~~NE~~	eP	17 33 10	57°°	Very feeble.
		E	PcP	35 12		
		N	PcS	38 12		
		NE	iS	40 31		
		N	PS	40 38		
		E	i	41 06		
		NE	ScS	42 44		
		E	SS	44 10		
07	Epc: 22° S., 68½° W., Chile; h = 100 km ca. O = 02h 05m 37s (U.S.C.G.S.) Considerable damages (U.S.C.G.S.) Mag. 7¼ - 7½ (Pasadena), 7¼ (Tacubaya), 7 (Berkeley, Kiruna), 6¾ - 7 (Uppsala), 6¾ (Praha).					
	Bombay	E	iPKP$_1$	02 25 01		Milne-Shaw record
			PP	28 22		over-run. Great.
			PKS$_2$	28 47		
			PPP	31 17		
			SKS$_2$	32 18		
			SKKS$_1$	35 05		
			i	37 25		
			e	38 29		
			e	40 15		
			SSP	46 55		
			SSS	51 47		
	Poona	Z	ePKP	02 25 06		Distant, phases lost
		E	i	28 22		in shifting.
			i	29 19		
			i	35 10		
			i	35 44		
			i	37 49		
			i	40 13		
	Colombo	E	P	02 25 09		
			e	38 45		
			L	03 15 19		
			M	24 47		Amp = 0.3 mm.

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Dec. 1953 07 Contd.	Kodaikanal	E	i	02 25 10		Slight.
			i	35 10		
	New Delhi	NE	ePKP	02 25 16		Moderate.
		N	e	28 39		
			e	39 31		
				47 35		
			SS	48 20		
	Hyderabad	E	PKP	02 25 17		
			e	25 47		
			e	28 44		
			e	35 31		
			e	39 01		
			e	47 51		
			e	03 08 42		
			M	22 13		Per. = 16 secs μ = 11.
	Chatra	Z	iPKP$_1$	02 25 26	17555	Moderate.
		E	ePKP$_1$			
			PKP$_2$	26 05		
			PKS$_1$	29 00		
			PP	29 36		
			SKS$_2$	32 25		
			PPP	33 18		
			PKKP$_1$	34 00		
			SKKS$_1$	36 22		
			SKKS	37 05		
			PKKS$_1$	37 33		
			SKKS$_1$	40 00		
			SKKKS	42 00		
			PPS	42 44		
			SKSP	44 10		
			SS	49 44		
			SSS	55 19		
			SS$_2$	56 43		
			SSP$_2$	58 21		
			LR	03 18 48		
			M	31 30		Per. = 22.5 secs μ = 18.
	Shillong	Z	PKP	02 25 30		Slight.
		N	e	25 42		
			e	36 39		
			e	40 16		
	Calcutta	E	PKP$_1$	02 25 32	17450	Moderate.
			PKS$_1$	29 08		
			PKKP$_1$	34 04		
			SKKS$_1$	36 31		
			SKKS$_2$	41 11		
			PPS	43 01		
			SS	49 42		
			SSS?	55 21		
	Madras	E	i	02 39 02		Beginning lost. Other phases not clear.
07	Shillong	Z	e?	07 03 09		Slight, local.
			i	03 19		

14

COMPT.	PHASE	G. M. T.	Δ	REMARKS
		h. m. s.	km.	
Local	E	02 29 10		Slight.
		35 10		
Ind	BE	PKP	02 26 16	Moderate.
	N	e	28 39	
		e	30 31	
			47 36	
		SS	48 20	
		PKP	02 25 17	
		e	25 47	
		e	28 44	
		e	35 31	
		e	39 01	
		e	47 51	
		e	03 18 42	
		N	48 13	Per. = 16 secs
		PKP	02 25 26	IPSSS Moderate.
			26 05	
			29 00	
			29 39	
			32 28	
			33 18	
			34 00	
			34 22	
			37 08	
			37 23	
			40 00	
			42 00	
			42 44	
			44 10	
			49 44	
			55 19	
			56 43	
			58 21	
			03 18 48	
			21 30	Per. = 22.5 secs
Local	E	PKP	02 25 30	Slight.
	N		29 42	
			34 59	
			40 14	
	E	PKP	02 25 32	IVASS Moderate.
			29 08	
			34 04	
			36 31	
			41 11	
			43 01	
			48 42	
			55 21	
	E		02 29 02	Beginning lost. Other phases not clear.
Local	Z		02 03 09	Slight, local.
			03 19	

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

Dec. 1933
07 Epc: 38½° N., 141½° E., Off the East Coast of Hondo, Japan;
0 = 14h 11m 32s (U.S.C.G.S.)
38½° N., 143° E., 0 = 14h 11m 25s (B.C.I.S.)
38°7 N., 143° E., 0 = 14h 11m 33s (C.M.O., Japan).
Mag. 6½ (Uppsala, Praha).

Shillong	NZ	iP	14 19 39	4860	Slight.
	N	iS	26 10		
		PPS	26 29		
		LQ	29 33		
		LR	31 33		
		M	35 21		
Ghatra	Z	i(P)	14 20 05		Slight, distant.
	E	eS	26 48		
		e	40 42		Surface waves.
Calcutta	E	iP	14 20 17	5310	Slight.
		iS	27 14		
Dehra Dun	N	iP	14 20 42		Slight.
New Delhi	NE	eP	14 20 53	5980	Slight.
		eS	28 26		
Hyderabad	NE	e	14 21 30		Time uncertain.
	E	eP	23 41		
	NE	e	29 31		
	E	e	33 45		
	N	M	44 22		Per. = 12 secs μ = 3.
	E	M	45 14		Per. = 12 secs μ = 3.
Poona	Z	eP	14 21 51		Slight, other phases not developed.
Bombay	NE	iP	14 21 55	6860	Feeble.
	E	PcP	22 29		
	N	PcP	22 33		
	NE	PP	24 09		
		PPP	25 45		
	N	eS	30 17		
	E	iS			
	N	PS	30 23		
	E	PS	30 36		
	NE	ScS	31 40		
	E	SSS	36 43		
Colombo	E	P	14 22 05		
		(S)	30 45		
		M	56 05		Amp = 0.1 mm.
07 Poona	Z	eP	15 49 04		Tremor.
07 Poona	Z	eP	19 20 02		Tremor.
07 Shillong	Z	i	21 17 18		Tremor.
08 Shillong	Z	eP	01 48 00		Slight.
	N	e	55 56		
		e	59 11		

STATION	PHASE	O. B. T.	Δ	REMARKS
		h. m. s.	km.	
N. 14.4° E., OFF the East Coast of Honjo, Japan: O = 14h 11m 35s (U.S.C.G.S.)				
O = 14h 11m 36s (U.C.L.S.)				
O = 14h 11m 35s (C.M.O., Japan).				

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Dec.						
	Chatra	Z	e	02 19 32		Slight, distant.
	Poona	Z	eP	02 21 15		Slight, other phases not clear.
	Bombay	E	eP	02 21 22	7000	Feeble.
			iS	29 52		
			PS	30 14		
			PPS	30 28		
			i	30 51		
			ScS	31 02		
08	Shillong	Z	iP	03 20 52		Slight.
08	Poona	Z	eP	13 50 34		Tremor.
08	Shillong	Z	iP	15 36 45	240	Slight, felt.
		N	eP	36 45		
			iSg	37 19		
[illegible]	Shillong	Z	iP	20 22 24		Tremor.
08	Shillong	Z	iP	21 38 41		Slight.
			i	38 59		
09	Shillong	Z	i	04 13 41		Slight, local.
				13 56		
09	Shillong	Z	i	19 09 28		Slight, local.
			i	09 50		
09	Shillong	Z	e	21 08 30		Tremor.
10	Shillong	Z	i	01 42 11		Slight.
10	Shillong	Z	e	02 51 48		Slight.
			i	51 59		
10	Shillong	Z	i	06 21 31		Slight.
10	Shillong	Z	e	08 03 54		Tremor.
10	Shillong	Z	i	14 33 08		Slight.
			e	34 10		
10	Shillong	Z	e	21 04 19		Tremor.
10	Epc: (36°.5 N., 70°.5 E., h = 220 km) Hindukush; O = 21h 27m 35s (B.C.I.S.) Felt at Drosh and Landikotal (Press Report from Quetta).					
	Dehra Dun	N	eP	21 29 33		Moderate.
			e	29 42		
			PP	29 50		
		NE	i	31 04		
			e	31 12		
			S	31 28		
			e	31 35		
			e	31 56		

DATE	EPICENTRE	SURFACE	PHASES	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
		Z	q	02 19 32		Slight, distant.
		Z	ep	02 21 15		Slight, other phases not clear.
		Z	ep	02 21 22	7020	Feeble.
			Sn	29 09		
			Pg	30 14		
			PKS	30 28		
			r	30 31		
			Lgs	31 02		
08	Shillong	Z	ip	03 20 22		Slight.
09	Poona	Z	ep	18 50 34		Tremor.
07	Shillong	Z	ip	15 36 45	240	Slight, felt.
		N	ep	36 45		
			log	37 10		
		Z	ip	20 22 24		Tremor.
07	Shillong	Z	ip	21 38 41		Slight.
			i	38 59		
	Shillong	Z	i	04 13 41		Slight, local.
				13 56		
03	Shillong	Z	i	19 09 28		Slight, local.
			i	09 50		
00	Shillong	Z	e	21 08 30		Tremor.
10	Shillong	Z	i	01 42 11		Slight.
14	Shillong	Z	e	02 31 48		Slight.
			i	31 59		
15	Shillong	Z	i	06 21 31		Slight.
17	Shillong	Z	e	08 05 54		Tremor.
10	Shillong	Z	i	14 33 08		Slight.
			e	34 10		
14	Shillong	Z	e	21 04 19		Tremor.
10	Kabul (36°5 N., 70°5 E., h = 220 km) Hindukush; O = 10h 27m 55s (B.C.I.S.) felt at Peshawar and Bandar-Abbas (Press Report from Quetta).					
	Debra Dun	N	ep	21 29 35		Moderate.
			e	29 42		
			Pp	29 50		
		N	i	31 04		
			e	31 12		
			e	31 28		
			e	31 30		
			e	31 56		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Dec. 1953 10 Contd.	New Delhi	NE	eP	21 29 43	950	Slight.
			e	29 51		
			e	29 58		
		E	e	30 05		
		NE	e	30 27		
		E	e	31 23		
			S	31 35		
			e	31 45		
			e	31 55		
	Chatra	Z	i	21 31 17		Feeble, probably deep focus.
			i	34 16		
	Poona	Z	iP	21 31 32	2000	Slight.
		E	PPP	31 56		
			eS	34 51		
			SS	34 58		
			LR	35 52		
			M	37 30		
	Shillong	Z	i	21 31 48		Slight.
	Chatra	Z	e	15 11 42		Feeble, near.
			i	13 16		
	Shillong	Z	eP	15 11 52		Slight.
		N	e	12 02		
			e	12 56		
	Bombay	E	e	15 19 00		
		N	e	21 15		
		E	e	22 18		
	Shillong	Z	i	05 38 45		Slight.
12	Shillong	Z	i	07 25 30		Slight, local.

12 Epi: $3\frac{1}{2}^{\circ}$ S., 81° W., Off the Coast of Peru;
0 = 17h 31m 22s (U.S.C.G.S.)
$3^{\circ}.7$ S., $80^{\circ}.7$ W., 0 = 17h 31m 23s (B.C.I.S.)
Several lives lost and property damaged in Tumbes and Corrales (U.S.C.G.S.)
Mag. $7\frac{3}{4}$ (Pasadena), 7.6 (Praha), $7\frac{1}{2}$ (Kiruna), 7.4 (Berkeley), $7\frac{1}{4}$ (Hurbanovo, Tacubaya, Strasbourg), 7 (Uppsala).

Dehra Dun	NE	eP	17 51 12		Moderate, other phases not clear.
	E	i	52 51		
New Delhi	N	ePKP	17 51 13		Great.
		e	54 35		
		e	04 46		
		e	13 40		
		e	19 42		
Bombay	NE	$iPKP_1$	17 51 18		Very great.
	E	PKP_2	51 31		
	NE	e	54 45		
	N	e	57 51		
	E	e	58 19		
	N	PPP	58 25		
		SKKS	18 01 57		
			04 15		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Dec. 1953 12 Contd.	Shillong Contd.	N	SS	18 15 33		
			SSS	21 37		
			LQ	38 16		
			LR	47 33		
			M	53 33		
			Mn	19 22 --		Per. = 18 secs μ = 128
	Calcutta	E	$iPKP_1$	17 51 26	18000	Great, first movement West.
			PKP_2	52 25		
			PP	55 56		
			PPP?	18 00 15		
			$SKKS_1$	05 37		
			PPS	09 35		
			SS?	16 10		
			SSP?	17 25		
			LQ	39 25		
			LR	47 05		
			M	58 45		
			Mn	19 14 27		Per. = 18 secs μ = 327
	Madras	E	eP	17 51 29		Great.
			iS	18 05 48		
			e	20 32 00		
	Kodaikanal	E	PKP	17 51 33		
	Poona	N	PP?	17 55 04	16385	Great. Δ = 147°.5
			SS?	18 14 09		All phases doubtful
			SSS?	33 36		and not fitting.
			LR?	41 34		EPC: Near about Peru
			M?	53 33		Equador Border.
12	Shillong	Z	i	19 57 55		Slight, local.
			i	58 38		
13	Epc: 50° N., 158½° E., Off the South Coast of Kamchatka; 0 = 06h 56m 00s (U.S.C.G.S.) 50°.5 N., 158° E., 0 = 06h 55m 59s (B.C.I.S.) Mag. - 6 (Praha).					
	Shillong	NZ	eP	07 05 37	6170	Slight.
		N	PcP	06 34		
			PP	07 47		
			PPP	08 59		
			PcS	10 31		
			iS	13 22		
			PPS	13 42		
			ScS	15 39		
			SS	16 59		
			LQ	19 13		
			LR	21 38		
			M	26 13		
	Chatra	Z	i	07 06 01		Slight, distant.
		NE	e	14 06		
			e	15 45		
			e	27 00		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Dec. 1953						
13	Hyderabad	NE	eP	07 07 19	7830	
Contd.		N	iS	16 32		
			M	36 05		Per. = 15 secs μ = 4.
		E	M	36 30		Per. = 15 secs μ = 4.
	Poona	Z	eP	07 07 35	7980	Moderate.
		E	eS	16 55		
			M	37 13		
	Bombay	NE	eP	07 07 40	8020	Slight.
			PcP	07 50		
		N	PP	10 22		
		NE	e	17 02		
		E	i	17 19		
			i	17 46		
			SS	21 44		
		N	i	22 40		
13	Shillong	Z	P	10 14 17	420	Slight.
			P*/PP	14 25		
			PPP	14 30		
			Pg	14 34		
			S/LR	15 03		
			Sg	15 26		
13	Shillong	Z	i	14 10 15		Tremor.
13	Shillong	Z	e	22 24 51		Tremor.
13	Shillong	Z	e	23 10 18		Tremor.
14	Shillong	Z	e	00 24 51		Tremor.
14	Epc: 19° N., 122° E. Off the North Coast of Luzon (Phillipine) 0 = 10h 37m 01s (U.S.C.G.S.) 19°.1 N., 123°.3 E., 0 = 10h 37m 02s (B.C.I.S.) Felt at Cagayan (Press report of Manila).					
	Shillong	Z	iP	10 42 38	3020	Slight.
			eS	47 16		
			LQ	48 17		
			SS	48 42		
			PcS	49 19		
			LR	49 51		
			M	52 42		
	Calcutta	E	eP	10 43 18		Slight.
			e	49 13		
			e	51 48		
			M	56 58		
			Mn	11 03 08		Per. = 13 secs μ = 27.
	Chatra	Z	i	10 43 42		Slight, distant.
	Hyderabad	E	eP	10 44 52	4620	
			iS	51 09		
			M	11 02 28		Per. = 14 secs μ = 3.

DATE	STATION	COMPT.	PHASE	O. M. T.	Δ	REMARKS
				h. m. s.	km.	
1929.						
	Jabalpur	NS	ep	07 07 10	7830	
		E		16 32		
				56 04		Per. = 15 secs approx = 4.
		E	M	56 30		Per. = 15 secs approx = 4.
	Poona	Z	ep	07 07 35	7920	Moderate.
		E	es	16 55		
			M	37 13		
	Bombay	NE	ep	07 07 40	8020	Slight.
			Pcp	07 50		
		N	ep	10 22		
		NE	e	17 02		
		E	i	17 19		
			i	17 46		
			SR	21 44		
		N	i	22 40		
13	Shillong	Z	e	10 14 17	420	Slight.
			pP/PP	14 28		
			PKP	14 30		
			Pn	14 34		
			S/SR	15 03		
			Sn	15 34		
14	Shillong	Z	i	14 10 15		Tremor.
15	Shillong	Z	e	22 34 51		Tremor.
16	Shillong	Z	e	23 10 18		Tremor.
17	Shillong	Z	e	00 24 01		Tremor.

14 Epic: 10° N., 122° E. off the North Coast of Luzon (Philippine) O = 10h 37m 01s (G.C.D.S.)
10.1° N., 123.5° E., O = 10h 37m 02s (B.C.I.S.)
Felt at Sangayan (Press report of Manila).

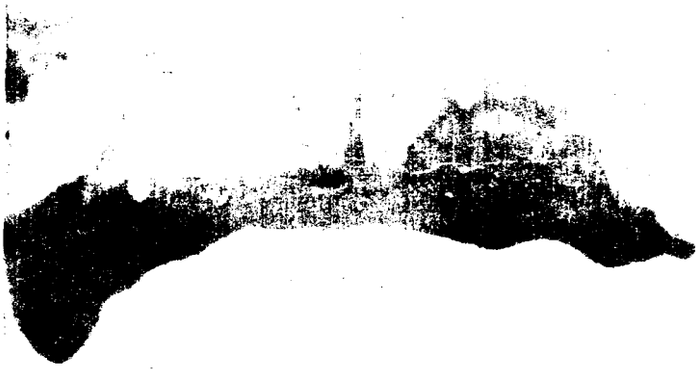
	Shillong	Z	ep	10 42 30	3020	Slight.
			es	47 15		
			Lg	48 17		
			Gr	48 42		
			PcS	49 19		
			LR	49 51		
		E		52 42		
	Uelgunda	E	ep	10 45 13		Slight.
			e	49 13		
			e	51 48		
			M	56 38		
			Rm	12 03 04		Per. = 13 secs approx = 27
	Sheona	Z	i	10 43 42		Slight, distant.
	Hyderabad	E	ep	10 44 52	4820	
			Lg	51 09		
			M	11 03 28		Per. = 11 secs approx = 3.

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Dec. 1953 14 Contd.	Poona	Z	eP	10 45 27	5080	Slight.
		N	PPP	47 51		
			eS	52 11		
			LR	56 20		
			M	11 02 07		
	Bombay	N	eP	10 45 32	5055	Feeble.
		E	iP			
		NE	i	46 15		
		E	PP	47 14		
			PPP	48 00		
			iS	52 15		
			PS	52 21		
		NE	PPS	52 28		
		E	i	53 38		
			SS	55 21		
			LQ	56 16		
			SSS	56 40		
	Kodaikanal	E	e	10 47 03		Very slight tremor.
14	Epc: 19½° N., 122° E. Off the North Coast of Luzon; O = 13h 39m 46s (U.S.C.G.S.) Felt at Cagayan (Press report from Manila).					
	Shillong	Z	iP	13 45 30	3290	Slight.
		N	PPP	46 51		
			S	50 23		
			LQ	51 45		
			SSS	52 39		
			LR	53 11		
			M	55 59		
	Chatra	Z	i	13 46 26		Slight.
	Calcutta	E	e	13 47 28		Slight, distant.
			e	55 10		
			M	59 58		
			Mn	14 02 46		Per. = 12 secs μ = 17.
	Poona	Z	eP	13 48 10		Slight, phases doubtfu
		E	i(?)	48 52		
	Bombay	E	eP	13 48 18	5140	Slight.
			PP	50 10		
			PPP	50 54		
			eS	55 05		
			PPS	55 22		
	Kodaikanal	E	e	13 54 30(?)		
	Hyderabad	E	M	14 06 28		Per. = 12 secs μ = 2.
14	Shillong	Z	i	14 40 44		Tremor.
14	New Delhi	E	eP	15 21 13	1090	Slight.
			eS	23 05		
	Dehra Dun	N	i	15 22 59		Feeble.

DATE	STATION	COMPT.	PHASE	G. M. T.	△	REMARKS
				h. m. s.	km.	
Dec. 1953						
14	Shillong	Z	e	15 23 05		Tremor.
Contd.			e	23 07		
15	Shillong	Z	e	18 02 45		Slight.
			e	02 53		
			e	03 07		
			e	03 30		
			e	03 51		
15	Shillong	Z	e	20 29 35		Tremor.
16	Shillong	Z	e	00 36 08		Tremor.
16	Shillong	Z	iP	01 02 15	290	Slight.
			Pg	02 25		
			PPP	02 29		
			LQ	02 37		
			S	02 48		
			Sg/SS	02 59		
			SSS	03 10		
16	Bombay	E	i	02 55 26		
			e	03 03 21		
16	Shillong	Z	P	17 07 28	370	Slight.
			P*	07 32		
			Pg	07 38		
			LR	08 04		
			S	08 08		
			Sg	08 21		
16	Shillong	Z	e	21 43 54		Tremor.
			e	44 03		
17	Shillong	Z	e	01 10 33		Tremor.
17	Shillong	Z	P	05 49 44		Slight.
			e	49 52		
17	Shillong	Z	e	09 12 05		Tremor.
17	Shillong	Z	P	18 04 08	220	Slight.
			Pg	04 11		
			PP	04 15		
			S*	04 36		
			Sg	04 40		
			SSS	04 45		
17	Shillong	Z	P	18 29 11	600	Slight.
			PP	29 18		
			Pg	29 32		
			S/LR	30 06		
			SS	30 14		
			S*	30 19		
			Sg	30 31		
18	Shillong	Z	iP X	00 06 31	220	Slight, felt at Shillong.
		NE	eP X			
		N	PP	06 34		
			Pg	06 37		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Dec. 1953 18 Contd.	Shillong Contd.	N	PPP	00 06 46		
			S	06 57		
			S*	07 00		
			Sg	07 02		
			SS	07 08		
18	Poona	Z	eP	00 10 25		Tremor.
18	Shillong	Z	eP	10 29 38		
			Pg/PPP	29 52		
			S	30 22		
			S*	30 28		
			SS	30 32		
			Sg	30 37		
			SSS	30 43		
18	Poona	Z	eP	11 57 24		Tremor.
18	Poona	Z	eP?	12 22 42		Tremor.
18	Shillong	Z	e	14 27 12		Tremor.
18	Shillong	Z	iP	20 06 24	220	Slight.
			Pg	06 26		
			S*	06 51		
			Sg	06 55		
			SS	07 01		
18	Shillong	Z	e	22 42 47		Tremor.
18	Shillong	Z	e	23 26 25		Tremor.
			e	27 14		
19	Shillong	Z	e	08 25 52		Tremor.
19	Shillong	Z	iP	10 19 56		Slight.
			i	20 14		
			e	21 14		
19	Shillong	Z	P	10 54 35		Slight.
			e	55 06		
19	Shillong	Z	Pg	14 15 18		Slight, local.
			Sg	15 29		
19	Bombay	E	e	17 30 21		
			e	38 49		
	Shillong	Z	iP	17 36 27	3260	Slight.
		N	PcP	39 24		
			eS	41 21		
			LQ	42 12		
			SS	42 45		
			SSS	43 16		
			LR	44 18		
			M	46 10		
	Chatra	Z	e	17 37 07		Slight, distant.

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS
Dec. 1953 19	Shillong	Z	iP	18 49 33		Slight.
			e	50 01		
			e	50 43		
			e	50 57		
	Dehra Dun	N	i	18 52 32		Feeble.
19	Shillong	Z	Pg	19 07 14	110	Feeble, local.
			Sg	07 26		
20	Epc: 39½° N., 136½° E., Sea of Japan; h = 300 km. 0 = 00h 21m 19s (U.S.C.G.S.) 39°.5 N., 137° E., h = 360 km; 0 = 00h 21m 23s (C.M.O., Japan) Mag. - 6½ (Kiruna).					
	Shillong	Z	iP	00 28 27	4170	Slight, phases not clear.
		N	pP	29 23		
			sP	29 53		
			S	33 58		
	Chatra	Z	iP	00 28 53	4690	Slight, distant.
			i	33 57		
			eS	34 51		
			e	38 14		
	Dehra Dun	N	iP	00 29 34	5330	Slight.
			iS	36 06		
	New Delhi	NE	eP	00 29 44	5470	Slight.
		N	eS	36 23		
			e	38 58		
	Bombay	NE	eP	00 30 45	6500	Feeble.
		E	PcP	31 47		
		NE	pP	31 56		
		E	PP	32 47		
		NE	iS	38 21		
			PS	38 28		
		E	PPS	38 40		
			e	39 38		
			i	40 45		
			SS	41 58		
	Poona	Z	eP	00 30 47		Slight.
		E	PcP	31 43		
			PPP	33 54		
			eS	38 14		
			ScS	39 53		
			SS	41 55		
			SSS	01 44 12		
20	Shillong	Z	i	04 16 09		Tremor.
20	Epc: 16° N., 119° E. Off the West Coast of Luzon; 0 = 06h 34m 48s (U.S.C.G.S.) Felt at Zambales (Press report from Manila).					
	Shillong	Z	i	06 40 41		Slight.
		N	e	40 45		
			e	43 15		
			e	45 41		
			e	46 28		
			e	49 10		
			e	51 21		



DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Dec. 1953						
20 Contd.	Poona	Z	eP	06 42 57		Slight.
		E	i	44 48		
			i(S)	49 32		
	Bombay	E	i	06 43 06		Slight.
			i	43 25		
			e	44 54		
			i	46 54		
			e	49 50		
			e	51 48		
20	Shillong	Z	e	08 31 49		Tremor.
20	Epc: Central Chili; 0 = 09h 19m 40s (U.S.C.G.S.) 34½° S., 70½° W., 0 = 09h 19m 46s (B.C.I.S.).					
	Poona	Z	ePKP	09 39 28		Slight.
		E	i	42 07		
			i	49 35		
	Bombay	E	iPKP$_1$	09 39 30	16110	Long distance shock,
		N	ePKP$_1$			feebly recorded.
		E	PP	42 48		
			SKS	46 32		
			SKKS	49 38		
	Madras	E	PKP	09 39 37		Tremor.
			e	45 44		
	Shillong	Z	PKP$_1$	09 39 52		Slight, distant.
		N	e	40 17		
			i	55 19		
			e	10 05 12		
	Colombo	E	L	10 34 --		
			M	40 35		Amp = 0.6mm.
20	Shillong	Z	e	11 49 57		Tremor.
20	Shillong	Z	i	17 03 00		Slight.
20	New Delhi	NE	eP	18 44 42	820	Slight.
		E	P*	45 01		
			Pg	45 19		
		NE	S	46 07		
	Poona	Z	eP	18 46 16		Slight.
20	New Delhi	NE	e	20 29 39		Slight.
20	Epc: 34½° N., 140½° E. Off the South Coast of Hondo; 0 = 21h 20m 14s (U.S.C.G.S.) 34°.3 N., 141°.0 E., h = 40 km Ca; 0 = 21h 20m 14s Felt (C.M.O., Japan). Mag. - 6½ (Uppsala), 6⅓ - 6½ (Hurbanovo), 6½ (Kiruna, Praha, Strasbourg).					
	Chatra	Z	eP	21 28 40		Slight, distant.
	Madras	E	iP	21 30 19		Moderate.

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
Dec. 1953				h. m. s.	km.	
20 Contd.	Poona	Z	P	21 30 27	6670	Slight.
		E	PP	32 34		
			PPP	33 22		
			PcS	35 34		
			eS	38 39		
			PPS	38 51		
			SSS	44 50		
			LR	47 50		
			M	52 38		
	Bombay	NE	eP	21 30 36	6870	Feeble.
			PcP	31 09		
		N	PP	32 48		
		E	PP	32 51		
		N	PPP	34 18		
		E	PPP	34 23		
			PcS	35 03		
			eS	38 59		
			PS	39 15		
			PPS	39 30		
		N	ScS	40 26		
		E	SS	42 59		
	Colombo	E	P	21 30 43		Feeble.
			L	59 --		
			M	22 05 30		L and M very small in amplitude.
21	Epc: $38\frac{1}{2}^{\circ}$ N., 75° E., Pamir Region, U.S.S.R. - China Boarder O = 01h 41m 56s (U.S.C.G.S.)					
	Dehra Dun	NE	eP	01 43 58	870	Moderate.
		N	PP	44 05		
			e	44 19		
		NE	i	44 30		
			LQ	45 17		
		N	iS	45 27		
			SSS	45 51		
			Sg	46 18		
	New Delhi	NE	e	01 44 16		Slight.
		E	P	44 23		
			PP	44 35		
			e	45 41		
		NE	e	45 50		
	Chatra	Z	e(P)	01 45 25		Slight, near.
			i	48 06		
	Poona	Z	eP	01 46 26	2121	Slight.
		E	eS	49 56		
			SS	50 24		
			LR	50 55		
			M	52 26		
	Bombay	E	i	01 48 31		
		N	e	49 45		
		E	i	49 47		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
Dec. 1953				h. m. s.	km.	
21	Shillong	Z	e	05 14 47		Tremor.
			i	15 06		
21	Poona	Z	eP	07 25 40		Tremor.
21	Dehra Dun	N	i	12 05 32		Tremor.
21	Epc: 42° N., 141½° E. Off the South Coast of Hokkaido, Japan; 0 = 17h 36m 12s (U.S.C.G.S. and B.C.I.S.) 41°.4 N., 142°.2 E., h = 40 km ca; 0 = 17h 36m 18s Felt (C.M.O., Japan).					
	Shillong	Z	iP	17 44 22		Slight.
	Chatra	Z	e	17 44 45		Slight, distant.
	Poona	Z	e(P)	17 46 33		Slight.
	Bombay	NE	iP	17 46 35	6870	Very feeble.
		E	PPP	50 28		
			eS	54 58		
			PS	55 16		
			SS	59 02		
21	Shillong	Z	iP	21 30 56	165	Slight.
		NE	eP	30 56		
		N	Pg	31 00		
			PP	31 02		
		NE	iSg	31 17		
22	Shillong	Z	i	00 39 11		Slight.
22	Shillong	Z	i	03 34 01		Tremor.
22	Poona	Z	e?	06 36 23		Tremor.
22	Epc: 6° S., 109½° E., Java Sea; 0 = 07h 49m 34s (U.S.C.G.S.) 8° S., 108° E., 0 = 07h 49m 32s (B.C.I.S.) 7°.5 S., 108°.2 E. 0 = 07h 49m 44s (Djakarta).					
	Shillong	Z	eP	07 56 41		Slight.
			i	56 42		
			i	59 05		
	Bombay	E	e	07 57 41		
		N	e	57 46		
		E	i	58 02		
			e	08 04 00		
			e	07 30		
	Poona	Z	e	07 58 10		Slight, phases doubtful.
		E	e	08 04 28		
22	Dehra Dun	NE	i	11 58 45		Feeble.

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Dec. 1953 22	Epc: 16° N., 119° E. Off the West Coast of Luzon Phillipine; O = 18h 45m 18s (U.S.C.G.S.) 16.0° N., 119¼° E., O = 18h 45m 17s (B.C.I.S.) Mag. - 5¾ (Roma).					
	Shillong	N	iP	18 51 10	3610	Moderate.
		Z	iP	51 11		
		N	PPP	52 15		
			PcP	53 51		
			eS	56 25		
			LQ	59 10		
			LR	19 01 10		
			M	02 58		
	Calcutta	E	eP	18 51 36	4065	Slight.
			iS	57 19		
			SS	59 44		
	Chatra	NEZ	eP	18 51 46		Slight, distant.
	Madras	E	iP	18 52 40		Moderate.
			PP	54 02		
			PPP	54 29		
	Kodaikanal	E	e	18 52 43		Slight.
	Hyderabad	E	P	18 52 49	4480	
			PP	54 26		
			S	58 58		
		N	M	19 08 41		Per. = 12 secs μ = 4.
		E	M	08 48		Per. = 12 secs μ = 4.
	Colombo	E	P	18 52 51		
			SSS	19 02 21		
			L	12 --		
			M	15 06		Amp = 0.1 mm.
	New Delhi	NE	eP	18 53 03		
		N	e	54 46		
	Poona	Z	eP	18 53 24	5200	Moderate.
		E	PP	55 12		
			PPP	55 57		
			eS	19 00 15		
			SS	03 38		
			LQ	04 36		
			M	10 33		
	Bombay	NE	iP	18 53 33	4870	Slight.
		E	PP	55 20		
			PcS	58 50		
		N	e	58 58		
		E	iS	19 00 05		
			PS	00 13		
			PPS	00 25		
		N	e	00 35		
			e	01 50		
		E	SSS	04 09		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Dec. 1953						
22	Shillong	Z	iP	20 49 00		Slight.
		N	e	53 55		
			e	59 02		
	Poona	Z	eP	20 51 18		Tremor.
22	Poona	Z	e?	23 29 56		Tremor.
23	Poona	Z	eP	16 39 25		Tremor.
	Shillong	Z	i	16 43 26		Slight.
	Poona	Z	eP	16 45 09		Tremor.
23	Poona	Z	eP	18 41 57		Tremor.
	Bombay	NE	eP	18 42 04	8110	Very feeble.
		E	PcP	42 16		
		NE	PP	44 46		
		E	PPP	46 35		
		NE	iS	51 31		
		N	e	51 41		
24	Epc: 51½° N., 159½° E. Off the East Coast of Kamchatka; O = 02h 33m 39s (U.S.C.G.S.) 52½° N., 159½° E., O = 02h 33m 40s (B.C.I.S.) Mag. - 6⅓ (Roma, Kiruna, Praha), 6 (Uppsala).					
	Shillong	Z	iP	02 43 29	6390	Moderate.
		N	eS	51 26		
			SS	54 56		
			SSS	57 30		
			LR	03 30 45		
			M	35 45		Per. = 19 secs μ = 42.
	Chatra	NEZ	eP	02 43 44	6590	Slight.
		NE	PcP	44 26		
			PP	45 55		
			PPP	47 32		
			eS	51 52		
			PS	52 07		
			PPS	52 17		
			ScS	53 25		
			SS	55 54		
			SSS	58 54		
			LQ	58 25		
			LR	03 01 24		
		E	M	06 30		Per. = 19 secs μ = 16.
	Calcutta	E	i	02 44 14		Slight, distant.
			e	52 58		
			?	55 12		
			Mn	03 13 36		Per. = 15 secs μ = 34.
	New Delhi	N	eP	02 44 15	7200	Moderate.
			eS	52 56		
			PS	53 15		
			LQ	03 00 55		
			M	08 43		

DATE 1938	STATION	COMPT.	PHASE	G. M. T. h. m. s.	△ Km.	REMARKS
26	Zalilong	Z	iP	20 49 00		Slight.
		N	e	36 30		
			e	39 02		
	Poona	Z	eP	20 31 18		Tremor.
28	Poona	Z	ei	23 29 38		Tremor.
23	Poona	E	eP	18 39 28		Tremor.
	Zalilong	Z	i	16 45 26		Slight.
	Poona	Z	eP	16 45 09		Tremor.
28	Poona	Z	eP	18 41 27		Tremor.
	Bombay	NE	eP	18 42 04	8110	Very feeble.
		N	PcP	42 16		
		NE	PP	44 46		
		E	PPP	46 38		
		NE	iS	51 31		
		N	e	51 41		

24 Ebor 31½° N., 139½° E. off the East Coast of Kamchatka:
D = 928 33m 39s (U.S.G.G.S.)
38½° N., 139½° E., D = 928 33m 40s (H.G.I.S.)
Mag. = 6½ (Rome, Kiruna, Prague), 6 (Uppsala).

Zalilong	Z	iP	02 43 29	6300	Moderate.
	N	e	31 26		
		PP	34 38		
		SSS	37 30		
		LR	03 30 43		
		M	33 48		Per. = 19 secs. = 22.
Chatra	NEZ	eP	02 45 44	5390	Slight.
	NE	PcP	44 28		
		PP	46 38		
		PPP	47 32		
		es	51 52		
		PS	52 07		
		PPS	52 17		
		SCS	53 28		
		SS	53 34		
		SSS	53 04		
		LQ	58 28		
		LR	03 01 24		
	E	M	00 30		Per. = 19 secs. = 16.
Calcutta	N	i	02 44 14		Slight, distant.
		e	52 58		
		P	55 12		
		Km	03 15 36		Per. = 18 secs. = 34.
New Delhi	N	eP	02 44 16	7200	Moderate.
		es	52 56		
		PS	53 18		
		LQ	03 00 36		
		M	03 13		

Dec. 1953				h. m. s.	km.	
24 Contd.	Hyderabad	NE	P	02 45 01	7860	
			S	54 16		
		N	L	03 07 45		
			M	12 25		Per. = 15 secs μ = 10.
		E	M	13 23		Per. = 15 secs μ = 4.
	Poona	Z	iP	02 45 13	8200	Moderate.
		N	PcP	45 14		
			PP	47 53		
			eS	54 45		
			LQ	03 04 36		
			LR	07 55		
			M	13 58		
	Bombay	NE	iP	02 45 18	8200	Moderate. Probably followed by an aftershock.
			PcP	45 31		
		N	PP	48 05		
			PPP	49 49		
		NE	iS	54 49		
		N	PS	55 24		
			PPS	55 39		
		E	i	56 11		
		N	i	56 16		
			SS	59 35		
			SSS	03 03 42		
			LQ	04 00		
			LR	08 08		
			M	20 35		Per. = 18 secs μ = 15.
	Colombo	E	e	02 56 11		
			M	03 19 39		Amp = 0.2mm.
24	Shillong	Z	iP	15 30 05	144	
			Sg	30 23		
24	Shillong	Z	iP	16 07 04	289	
			Sg?	07 44		

24 Epc: 52° N., 159½° E. Off the East Coast of Kamchatka;
0 = 23h 21m 09s (B.C.I.S.)
Mag. - 6½ (Praha, Uppsala), 6¼ (Roma), 6 - 6½ (Strasbourg), 5¾ - 6 (Pasadena).

	Shillong	Z	iP	23 30 59	6370	Moderate.
		N	PP	33 00		
			PPP	34 36		
			S	38 55		
			PS	39 10		
			PPS	39 37		
			SSS	45 12		
			LR	48 14		
			M	52 59		
	Chatra	Z	iP)	23 31 13	6520	Slight.
		NE	eP)			
			PP	33 23		
			PPP	34 54		
			eS	39 17		
			ScS	41 02		
			LQ	46 02		
			LR	48 53		
			M	54 15		

DATE	STATION	COMPT.	PHASE	G. M. T. h. m. s.	Δ km.	
Dec. 1953 24 Contd.	New Delhi	N	eP	23 31 59		Moderate.
			e(S)	40 39		
	Calcutta	E	eP	23 31 34		Slight, distant.
			e	40 32		
			Mn	00 01 27		Per. = 16 secs μ = 27.
	Hyderabad	NE	iP	23 32 34	7850	
			iS	41 48		
		N	PS	42 03		
			L	55 45		
			M	00 00 01		Per. = 15 secs μ = 16.
		E	M	02 08		Per. = 15 secs μ = 7.
	Poona	Z	iP	23 32 44	8200	Moderate.
		E	e	32 56		
			eS	42 15		
		N	PS	42 47		
			PPS	43 08		
			SS	46 41		
			M	00 04 11		
	Bombay	NE	iP	23 32 46	8130	Moderate.
		E	e	32 55		
		NE	PP	35 30		
			eS	42 14		
		E	e	42 35		
			PS	42 41		
			PPS	42 53		
			SS	46 55		
		N	M	00 08 07		Per. = 18 secs μ = 17.
	Kodaikanal	E	P	23 33 03		
			e	43 03		

25 Epc: 52° N., 159½° E., Off the East Coast of Kamchatka;
0 = 01h 51m 26s (U.S.C.G.S.)
53°.0 N., 159¾° E., 0 = 01h 51m 24s (B.C.I.S.)
Mag. - 7.2 (Praha), 7 (Kiruna, Roma, Hurbanovo, Uppsala, Strasbourg), 6¾ (Pasadena).

	Shillong	Z	iP	02 01 16	6390	Moderate.
		N	PP	03 28		
			PPP	05 03		
			iS	09 13		
			PS	09 22		
			PPS	09 38		
			SS	13 40		
			SSS	15 34		
			LQ	15 59		
			LR	18 33		
			M	21 44		
			Mn	24 14		Per. = 18 secs μ = 114.
	Chatra	NEZ	iP	02 01 30	6533	Moderate.
		NE	PcP	01 59		
			PP	03 41		
			PPP	05 13		
			PcS	06 23		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	
				h. m. s.	km.	
Dec. 1953 25 Contd.	Chatra	E	iS	02 09 35		
		NE	PS	09 53		
			PPS	10 11		
			ScS	11 16		
			SS	13 34		
			SSS	15 56		
			LQ	16 19		
			LR	18 34		
		E	M	24 00		Per. = 17 secs μ = 148.
	Dehra Dun	N	P	02 01 55	6360	Moderate.
			PcP	02 31		
			PP	04 12		
			PPP	05 48		
			PcS	06 29		
			iS	09 51		
			PS	10 10		
			PPS	10 19		
			ScS	11 10		
			LR	20 18		
			M	25 28		
	Calcutta	E	iP	02 01 56	6890	Moderate, first movement West.
			PPP	05 43		
			iS	10 20		
			PS	10 32		
			SSS	17 02		
			LR	20 46		
			M	25 23		
			Mn	32 42		Per. = 11 secs μ = 86.
	New Delhi	NE	eP	02 02 02	4530	Moderate.
		N	eS	10 47		
			SSS	17 59		
			LR	22 34		
	Hyderabad	NE	iP	02 02 52	7860	
		N	PP	05 44		
		E	iS	12 07		
		N	SSS	19 15		
			L	26 41		
		E	M	30 41		Per. = 18 secs μ = 79.
		N	M	31 11		Per. = 22 secs μ = 106.
	Poona	Z	eP	02 03 02	8180	Moderate.
		E	PcP	03 12		
		N	PP	05 44		
			PPP	07 35		
		E	eS	12 32		
			PS	12 56		
			PPS	13 19		
		N	SS	17 35		
			SSS	20 47		
			LR	26 26		
			M	33 08.		

DATE	STATION	COMPT.	PHASE	G. M. T.	Δ	REMARKS
				h. m. s.	km.	
Dec. 1953 25 Contd.	Bombay	NE	iP	02 03 03	8200	Moderate.
			PcP	03 18		
		N	PP	05 46		
		NE	PPP	07 35		
		N	eS	12 34		
		E	iS			
			SKS	12 51		
		NE	PS	13 08		
		N	ScS	13 14		
			PPS	13 21		
		E	LQ	22 24		
		N	LQ	22 29		
			M	38 18		Per. = 17 secs μ = 132.
		E	M	38 45		Per. = 17 secs μ = 105.
	Madras	E	iP	02 03 06	8090	Moderate.
			PcP	03 15		
			PP	05 47		
			iS	12 32		
			PS	12 55		
			ScS	13 09		
			PPS	13 25		
			SS	17 31		
			SSS	20 25		
			LR	22 44		
	Kodaikanal	E	P	02 03 24		
			S	13 12		
25	Dehra Dun	N	i	12 04 13		Feeble, other phases not clear.
25	Shillong	Z	P	16 21 13		Slight, phases not clear.
		N	e	24 54		
			e	31 08		
			e	35 58		
	Bombay	E	e	16 23 29		
			e	24 38		
			e	31 49		
25	Shillong	Z	e	17 06 54		Tremor.
			e	07 18		
25	Shillong	N	M	18 25 08		
25	Shillong	Z	e	19 16 31		Tremor.
25	Shillong	Z	P	21 31 26	330	Slight.
			P*	31 30		
			PP	31 33		
			Pg	31 36		
			PPP	31 39		
			LQ	31 52		
			LR	32 01		
			Sg	32 15		
25	Shillong	Z	e	23 23 23		Tremor.
25	Shillong	Z	e	23 54 33		Very feeble.