

Copies 443



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GOVERNMENT OF INDIA
METEOROLOGICAL DEPARTMENT

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DIRECTOR GENERAL OF OBSERVATORIES

List of Seismograph Stations with their Instruments and Constants

Station	Latitude	Longitude	Height a. s. l. (Metres)	Lithographic foundation	Instrument	Compt	Period in secs	Static Magnifi- cation	Damping ratio	Paper speed mm/min
Agra					Columbia Long Period - do - - do -	E N Z	To = 15 To = 15 To = 15	Tg = 100 Tg = 85 Tg = 70		15 15 15
Bombay	18.54°N	72.40°E	6	Deccan Trap	Milne-Shaw Milne-Shaw Sprengnether	N E E	12 12 To = Tg = 7 secs	350 350	13:1 13:1	15 8 30
Bokaro	23.90°N	85.48°E		Rock	Milne-Shaw Milne-Shaw Wood-Anderson Wood-Anderson	N E E N	12 12 0.8 0.8	250 250 950 1000	20:1 20:1 h = 0.8 h = 0.8	15 15 60 50
Calcutta	22.32°N	88.32°E	(1) 7 (2) 6	Milne-Shaw Omori-Ewing Alluvium	Milne-Shaw Wood-Anderson Omori-Ewing Omori-Ewing	E N N E	12 2 16 21	250 870 32 30	20:1 Critical -	8 30 25.4 25.4
Chatra	25.50°N	87.10°E	161	Sand Stone	Milne-Shaw Wood-Anderson Benloff Wenner- Accelerograph	E N Z ZNE	12 1 To = 0 -	250 1000 Tg = 0.45 -	20:1 30:1 Critical -	15 60 60 -
Colombo	06.54°N	79.52°E	7	Beach Sand	Milne-Shaw	E	12	250	20:1	-
Dehra Dun	30.19°N	78.02°E	482	Gravel	Wood-Anderson Wood-Anderson Milne-Shaw Milne-Shaw	N E N E	0.8 0.8 12 12	980 850 250 250	Critical Critical 20:1 20:1	60 60 8 8
Hyderabad	17.94°N	78.37°E	538	Granite	Milne-Shaw Milne-Shaw	E N	12 12	250 250	20:1 20:1	8 8
Kodaikanal	10.14°N	77.28°E	2348	Rock	Milne-Shaw	E	10	250	20:1	8
Madras	13.00°N	80.11°E	15	-	Sprengnether	E	To = Tg = 7.2 secs	Critical		30
New Delhi	28.34°N	77.12°E	207	Massive Quartzite						
Poona	18.32°N	73.51°E	560	Deccan Trap	Sprengnether Wood-Anderson Milne-Shaw	Z E N	To = Tg = 1.4 4 12	Critical 1000 280		30 14 8
Port Blair	11.40°N	92.45°E			Wood-Anderson Wood-Anderson Milne-Shaw	N E N	2 0.8 12	1000 1000 350	20:1 65:1 20:1	30 30 8
Sehore					Wood-Anderson	N	0.8	980	Critical	30
Shillong	25.36°N	91.53°E	1500	Quartzite Sand Stone (Shillong Quartzite)	Wood-Anderson Wood-Anderson Milne-Shaw Benloff Sprengnether Wenner Accelerograph	N E N Z E ZNE	0.8 0.8 12 To = 1.0 To = Tg = 4.3 -	1000 1000 250 Tg = 18 Critical -		30 30 8 40 30 -
Tocklal	28.45°N	94.45°E		Alluvium	Wood-Anderson	E	0.8	970	h = 0.8	60
Vijayanagram	18.07°N	83.27°E			Wood-Anderson Wood-Anderson	E N	0.8 2	1000 1000	h = 0.8 20:1	30 30

DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	△ km.	REMARKS.
January, 1963.						
01	Kodaikanal	E	i	00 03 15		Slight, distant.
01	Epc: 6.8° S, 155.9° E h = about 165 Kms.	E				Soloman Islands. -H = 12 h 17 m 38.6 s (USCGS).
	Shillong	Z	iP	12 28 35		Slight, compression.
	Chatra	Z	iP	12 29 00		Feeble, compression.
	Dehra Dun	Z	eP	12 29 35		Feeble.
	Delhi	Z	iP	12 29 46		Slight, compression.
	Poona	Z	iP	12 29 55		Slight, compression.
	Delhi	Z	eP	12 30 19		Slight.
01	Delhi	EN N	eP i	12 39 50 39 51		Slight, 1st ground motion North, West.
01	Bombay	E	e	12 40 19		
01	Shillong	Z	eP	13 41 49		Slight, near.
01	Epc: - 20.8° N, 144.6° E, Mariana Islands. h = about 43 Kms. -H = 13 h 48 m 06.5 s (USCGS).					
	Shillong	Z	iP	13 56 47		Slight, rarefaction.
01	Shillong	Z	iP	14 32 20		Slight, near, compression.
01	Chatra	Z	eP eS	14 33 21 34 23	590	Slight.
01	Delhi	Z	iP i	14 35 23 35 41		Slight, compression.
01	Delhi	Z	iP	14 51 06		Slight, rarefaction.
01	Chatra	Z	eP eS	16 26 15 26 36	170	Feeble.
01	Shillong	Z	eP	16 47 51		Slight, near.
01	Calcutta	E	e	16 53 23		Slight.
01	Delhi	EN Z	e e	16 55 19 55 41		
01	Bombay	E	e	17 00 39		
01	Shillong	Z	iP	18 00 32		Slight, distant, rarefaction.
01	Shillong	Z	eP	18 38 57		Slight, near.

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01	Delhi	Z	iP	19 30 54		Slight, compression.
01	Shillong	Z	iP	19 33 42		Slight, distant, compression.
01	Epc:- 40.2° S, 81.3° E. Indian Ocean. h = about 33 Km. - H = 19 h 35 m 55.1 s (USCGS).					
	Hyderabad	N	eP	19 45 49	6420	Moderate.
			eS	53 48		
			ScS	55 40		
			SS	57 37		
			LR	20 02 25		
		E	LR	02 29		
		N	M	04 58		Pd.=18 sec.Gr.dis=10 μ.
		E	M	05 01		Pd.=21 sec.Gr.dis=7 μ.
	Poona	Z	eP	19 45 55	6690	Slight.
		N	eS	54 08		
	Shillong	Z	iP	19 46 42		Slight, rarefaction.
01	Dehra Dun	Z	e	19 47 00		Tremor.
01	Port Blair	E	e	19 51 06		
			e	52 07		
			i	52 58		
			Mn	- -		Pd.=19 sec.Gr.dis=10 μ
01	Bombay	NE	e	19 54 17		Slight.
01	Delhi	ENZ	eP	19 56 00		Slight, 1st ground motion South, East, compression.
		N	e	20 00 34		
		NZ	e	08 22		
		Z	M	- -		Pd.16 sec.Amp=8.3 m.m.
01	Madras	E	e	19 59 41		
01	Shillong	Z	eP	22 57 23		Slight, distant.
01	Epc:- 56.6° N, 157.7° W. Alaska Peninsula 5 $\frac{3}{4}$ (Pal). Mag. 6 $\frac{1}{2}$ (Pas). h = about 50 Km. 57°N16°W - H = 23 h 39 m 05.6 s (USCGS) - H = 23 h 39 m 05 s (SHILLONG)					
	Shillong	ZE	iP	23 51 06	8640	Compression.
		E	PcP	51 18		
			PP	54 09		
			PPP	55 56		
		E	iS	00 00 59		
			SKS	01 15		
			ScS	01 24		
			PS	01 40		
			PPS	02 00		
			SS	06 05		
			SSS	09 17		
			LQ	11 43		



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01	Dehra Dun	ENZ	iP	23 51 17	8850	First ground motion North-West.
			PcP	51 27		
		Z	PP	54 59		
	Delhi	ENZ	iP	23 51 27	9070	First ground motion South, West, compression.
			PcP	51 32		
			PP	54 36		
		EZ	PPP	56 08		
		ENZ	SKS, S	00 01 39		
	Bokaro	NE	iP	23 51 33	9130	
			PcP	51 45		
			PP	54 46		
			PPP	56 52		
			S	00 01 48		
			SKS	01 53		
			PS	02 51		
			SS	07 43		
	Calcutta	E	iP	23 51 33	9150	
			iS	00 01 49		
	Visakhapatnam	EN	iP	23 52 03	10000	
		E	i	58 58		
			iSKS	00 02 34		
			iS	02 57		
			M	20 30		
	Port Blair	NE	iP	23 52 06	9910	First ground motion South, West.
		E	PPP	57 24		
		NE	SKS	02 30		
		E	iS	02 54		
	Hyderabad	EN	iP	23 52 14	10210	South-West.
			iPP	55 56		
		E	SKS 1	00 02 38		
		N	SKS 1	02 43		
		EN	S	03 09		
			Ps	04 31		
			SS	09 34		
		N	LR	22 46		
		E	LR	23 22		
		N	M	31 13		
		E	M	31 28		
	Bombay	NEZ	eP	23 52 17	10265	
			PP	56 02		
		NE	SKS	00 02 47		
			iS	03 19		
		N	M	39 -		
	Poona	NEZ	iP	23 52 18	10242	First ground motion South, West, compression.
		Z	i	56 03		
		N	PP	56 04		
			SKS1	00 02 45		
		EN	iS	03 19		
		N	Ps	04 45		

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01	Madras	E	eP	23 52 29	10480	
			PP	56 16		
			PPP	58 16		
			SKS	00 02 59		
			iS/ScS	03 39		
			Ps	04 51		
			PPs	05 31		
			SS	10 00		
			LR	22 39		
			M	29 55		
02	Dehra Dun	EN	iS	00 01 19		
		E	SKS1	01 27		
			PPS	02 32		
	Delhi	E	ScS	00 01 52		
		EZ	PS	02 18		
		ENZ	PPS	02 31		
		EN	SS	07 38		
		EZ	Lq	14 09		
		NEZ	i	20 17		
		Z	M	- - -		Pd.=23sec. Amp.=20 mm.
02	Delhi	Z	iP	06 54 19		Slight,rarefaction .
02	Chatra	Z	e	14 52 13		Slight,distant.
02	Epc:- 04.1° S 135.2° E Near South Coast of Western New Guinea. h = about 33 Km. - H = 14 h 56 m 05.4 s (USCGS).					
	Shillong	ZE	iP	15 05 09	5610	Slight,compression.
		E	iS	12 23		
			PS	12 29		
			PPS	12 40		
			SS	16 07		
			SSS,Lq	18 06		
	Visakhapatnam	E	iP	15 05 23	5910	Slight.
			iS	12 53		
	Chatra	Z	eP	15 05 41		Slight.
	Madras	E	iP	15 05 57	6330	Slight.
			PP	07 59		
			PPP	09 24		
			iS	13 51		
			PS	14 02		
			PPS	14 11		
			ScS	15 49		
			Lq	19 56		
			LR	22 33		
	Port Blair	E	iP	15 06 13	6640	Slight.
			i	07 12		
			i	07 26		
			iPPP	10 02		
			i	11 00		
			iS	14 24		

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02	Dehra Dun	EN	eP	15 06 35	7140	Feeble.
		N	eS	15 13		
		E	e	15 23		
	Delhi	Z	iP	15 06 40	7080	Slight,rarefaction.
		NE	e	06 46		
			eS	15 14		
	Poona	Z	eP	15 06 40		Slight.
	Bombay	EZ	eP	15 06 52	7110	Slight.
		Z	PP	09 14		
		E	eS	15 28		
			SKS	16 48		
	Calcutta	E	e	15 12 50		Slight.
	Chatra	Z	e	15 52 11		Slight.
02	Delhi	Z	iP	16 11 59		Slight,compression.
02	Epc:- 52.9° S, 118.2° W, South Pacific Ocean. h = about 33 Km. - H = 15 h 55 m 47.9 s (USCGS).					
	Poona	Z	eP	16 15 18		Slight.
	Shillong	Z	iP	16 15 19		Slight,rarefaction.
	Chatra	Z	eP	16 15 32		Slight.
	Delhi	Z	eP	16 15 40		Slight,rarefaction.
02	Delhi	E	e	16 39 02		
		EN	e	17 13 22		
02	Chatra	Z	eP	17 38 58		Feeble,near.
02	Chatra	Z	e	18 09 14		Slight,distant.
02	Delhi	Z	eP	18 10 16		Slight,distant, compression.
02	Shillong	Z	iP	18 18 42		Slight,distant, compression.
02	Shillong	Z	eP	21 32 50		Slight,near.
02	Chatra	Z	iP	21 33 22	800	Feeble,compression.
			eS	34 45		
03	Epc:- 29.7° N 130.1° E . Ryukyu Islands. h = about 33 Km. - H = 03 h 05 m 03.5 s (USCGS).					
	Shillong	Z	iP	03 11 45		Slight,rarefaction.
	Chatra	Z	eP	03 12 21		Slight.



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03	Dehra Dun	Z	iP	03 13 19	Slight.
	Delhi	Z	iP	03 13 26	Slight, rarefaction.
	Poona	Z	eP	03 14 10	Slight.
	Bombay	E	e	03 21 33	Slight.
		N	M	39 -	
		E	M	40 -	
	Port Blair	E	i	03 26 48	
03	Chatra	Z	eP	04 00 43	Slight, distant.
03	Shillong	Z	iP	04 01 05	Slight, distant, compression.
03	Delhi	Z	iP	05 14 54	Slight, rarefaction.
03	Delhi	Z	eP	08 06 53	Slight, distant, compression.
03	Chatra	Z	eP	09 35 52	Slight, distant, compression.
03	Shillong	Z	iP	09 50 23	Slight, distant, compression.
	Visakhapatnam	E	e	09 51 14	Slight, distant.
			i	10 00 39	
	Delhi	Z	iP	09 51 43	Slight, compression.
	Poona	Z	iP	09 51 48	Slight.
	Dehra Dun	Z	eP	09 51 51	
03	Bombay	E	e	10 02 15	Slight.
03	Shillong	Z	iP	12 12 33	Slight, near.
03	Epc:- 6.9° S, 155.2° E . Solomon Islands. h = about 91 K. Felt Boku. - H = 13 h 56 m 34.5 s (USCGS).				
	Chatra	Z	iP	14 08 02	Feeble, rarefaction.
	Delhi	Z	iP	14 08 51	Slight, rarefaction.
03	Dehra Dun	Z	eP	14 09 05	Tremor.
03	Bokaro	E	eP	15 05 46	Slight.
03	Epc:- 5.9° S 155.0° E . Solomon Islands. h = about 99 Km. -H = 19 h 12 m 49.8 s (USCGS).				
	Shillong	Z	iP	19 23 42	Slight, rarefaction.

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03	Shillong	Z	iP	20 30 44	Slight, distant, rarefaction.
03	Bokaro	NE	iP	20 55 09	Slight.
03	Shillong	Z	iP	20 58 12	Slight, distant, rarefaction.
04	Epc:- 1.2° N, 27.7° W h = about 33 Km. 1500 Km. South of Cape Verde Islands. -H = 00 h 23 m 55.1 s (USCGS).				
	Delhi	Z	eP	00 45 24	Slight, rarefaction.
04	Chatra	Z	iP	00 59 43	Feeble, near, compression.
04	Shillong	Z	eP	04 59 00	Slight, near.
04	Shillong	Z	eP	05 48 38	Slight, near.
04	Epc:- 29.7° N, 142.2° E . Bomin Islands region. h = about 33 Km. - H = 05 h 42 m 35.3 s (USCGS).				
	Shillong	Z	iP	05 50 45	Slight.
	Delhi	Z	iP	05 52 13	Slight, rarefaction.
			e	53 10	
	Poona	Z	iP	05 52 57	Slight, rarefaction.
	Dehra Dun	Z	eP	05 53 05	Tremor, rarefaction.
04	Epc:- 46.3° N 154.3° E Kurile Islands. h = about 33 Km. - H = 08 h 47 m 25.2 s (USCGS).				
	Delhi	Z	iP	08 57 38	Slight, rarefaction.
	Dehra Dun	Z	iP	08 58 32	Tremor, rarefaction.
04	Bokaro	NE	iP	10 10 16	Slight, tremor.
04	Epc:- 4.7° S, 154.0° E . Solomon Islands region. Felt Rabaul. h = about 69 Km. -H = 12 h 16 m 38.0 s (USCGS).				
	Shillong	Z	iP	12 27 26	Slight, compression.
	Chatra	Z	eP	12 27 53	Slight.
	Delhi	Z	iP	12 28 50	3190 Slight, compression.
		E	eP		
		NE	eS	38 41	
	Poona	Z	eP	12 28 56	Slight.

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04	Bombay	E	eP e e	12 29 00 29 06 40 00		Slight.
04	Dehra Dun	Z	eP	12 29 49		Tremor.
04	Shillong	Z	eP	13 18 30		Slight, distant.
04	Chatra	Z	eP eS	13 18 45 19 15	270	Slight.
04	Dehra Dun	Z	eP e	14 54 23 54 47		Tremor.
04	Chatra	Z	eP eS	17 01 28 01 54	220	Feeble.
04	Shillong	Z	iP	17 43 50		Slight, distant, compression.
04	Shillong	Z	iP	18 24 54		Slight, distant, compression.
04	Shillong	Z	iP	20 47 03		Slight, distant, rarefaction.
04	Epc:- 6.9° N 73.1° W . Colombia. h = about 160 Km. - H = 21 h 17 m 10.0 s (USCGS).					
	Shillong	Z	iP	21 36 28		Slight, compression.
04	Shillong	Z	iP	22 27 17		Slight, near.
04	Epc:- 46.5° N 153.7° E . Kurile Islands. h = about 33 Km. - H = 23 h 50 m 09.1 s (USCGS).					
	Shillong	Z	eP	23 59 26		Slight.
	Chatra	Z	eP	23 59 44		Slight.
	Dehra Dun	Z	iP	00 01 33		Tremor, compression.
05	Chatra	Z	iP	00 06 22		Feeble, near, compression.
05	Shillong	Z	eP	00 06 54		Slight, near.
05	Epc:- 3.2° N 127.0° E . Halmahera region. h = about 33 Km. -H= 00 h 20 m 11.6 s (USCGS).					
	Shillong	Z	iP	00 27 49		Slight, compression.
	Chatra	Z	eP	00 28 23		Slight, compression.
	Poona	Z	iP	00 29 37		Slight.



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05	Dehra Dun	Z	iP	00 30 52		Tremor, compression.
05	Shillong	Z	iP	03 40 50		Slight, distant, compression.
	Delhi	Z	iP	03 42 32		Slight, compression.
	Dehra Dun	Z	iP	03 42 37		Tremor, rarefaction.
05	Epc:- 46.8° N 153.7° E. Kurile Islands. h = about 33 Km. - H = 07 h 05 m 22.3 s					
	Shillong	Z	iP	07 14 37		Slight, compression.
	Dehra Dun	Z	iP	07 15 31		Tremor, compression.
	Delhi	Z	iP i	07 15 34 16 26		Slight, compression.
05	Bokaro	NE	iP	10 16 20		Slight, tremor.
05	Bokaro	Z	eP	10 35 35		Slight.
05	Delhi	Z	iP iS	10 35 41 36 58	760	Slight.
05	Shillong	Z	eP	11 51 16		Slight, near.
05	Epc:- 17.8° S 167.9° E . New Habrides Islands. Felt : Port Vila. h = about 33 Km. -H = 13 h 04 m 48.1 s (USCGS).					
	Shillong	Z	iP	13 17 23		Slight, rarefaction.
05	Epc:- 10.0° S 124.0° E Timor. h = about 33 Km. - H = 13 h 16 m 43.0 s (USCGS).					
	Shillong	Z E	iP PP PPP iS PS PPS	13 25 14 27 05 27 54 32 06 32 15 32 42	5220	Slight, compression.
	Port Blair	E	eP i i	13 25 20 29 43 39 36		
	Madras	E	iP PP eS PS PPS ScS LR M	13 25 30 27 25 32 27 32 33 32 41 35 25 39 11 43 15		Slight, East.

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05	Bokaro	E	eP i	13 25 39 32 57		Slight.
06	Epc:- 6.0° N 125.3° E . Near coast of Mindanao, Philippine Islands. h = about 143 Km. - H = 03 h 18 m 56.6 s (USCGS).					
	Shillong	Z	iP	03 25 58		Slight.
	Chatra	Z	eP	03 26 23		Feeble.
	Delhi	Z	iP i	03 27 41 28 06		Slight,compression.
	Poona			03 27 49		Slight,compression.
05	Epc:- 1.8° S 80.7° W. Near coast of Equador. h = about 51 Km. -H= 06 h 17 m 28.0 s					
	Delhi	Z	iP	06 37 03		Slight,compression.
	Chatra	Z	e	06 37 13		Slight.
	Poona	Z	eP	06 37 15		Slight.
	Shillong	Z	eP	06 37 17		Slight.
06	Delhi	Z	eP	07 04 58		Slight,compression.
06	Epc:- 46.8° N 153.6° E. Kurile Islands. h = about 33 Km. - H = 07 h 29 m 54.3 s (USCGS).					
	Shillong	Z	iP	07 39 09		Slight,compression.
	Chatra	Z	eP	07 39 28		Slight,compression.
	Delhi	Z	iP	07 40 05		Slight,compression.
06	Shillong	Z	eP	10 02 21		Slight,distant.
06	Visakhapatnam	E	i	14 28 41		Slight,distant.
06	Chatra	Z	eP i	14 59 06 59 25	150	Slight.
06	Shillong	Z	iP	14 59 42		Slight,distant, compression.
06	Epc:- 4.9° S 153.8° E. Solomon Islands region. h = about 131 Kms. - H = 15 h 24 m 48.2 s (USCGS).					
	Shillong	Z	iP	15 35 31		Slight.
	Chatra	Z	eP	15 35 58		Slight,compression.



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06	Delhi	Z	iP	15 36 48		Slight,rarefaction.
06	Shillong	Z	eP	16 09 49		Slight,distant.
06	Shillong	Z	eP	16 25 48		Slight,distant.
06	Delhi	Z	iP	17 33 59		Slight,compression.
06	Delhi	Z	iP	18 04 45		Slight, compression, distant.
06	Shillong	Z	eP	19 07 49		Slight,near.
06	Epc:- 8.9° S, 123.8° E. Near Flores. h = about 33 Km. - H = 19 h 46 m 58.8 s (USCGS).					
	Shillong	Z	iP	19 55 23		Slight,compression.
	Chatra	Z	eP	19 55 55		Slight,compression.
	Delhi	Z	iP	19 56 51		Slight,compression.
	Dehra Dun			19 56 58		
06	Dehra Dun	Z	iP	21 30 09		Tremor,rarefaction.
06	Epc:- 47.4° N 155.9° E . Kurile Islands. h = about 33 Km. -H= 21 h 20 m 56.5 s (USCGS).					
	Shillong	Z	iP	21 30 22		Slight,compression.
	Chatra	Z	iP	21 30 39		Slight,rarefaction.
	Delhi	Z NE	eP S	21 31 15 39 39	6890	Slight,rarefaction.
	Bombay	EsZ NE N	eP eS M	21 32 20 41 45 22 07 -	8010	Slight.
	Poona	Z	eP	21 32 16		Slight.
07	Delhi	Z	eP	03 38 31		Slight,rarefaction.
07	Epc:- 6.4° S 154.7 E . Solomon Islands region. Felt Boku. h = about 80 Km. -H = 06 h 24 m 49.2 s					
	Shillong	Z	iP	06 36 13		Slight,rarefaction.
	Chatra	Z	iP	06 36 13		Slight,rarefaction.
	Delhi	Z	eP	06 37 02		Slight,rarefaction.
		Z	e	37 14		
07	Epc:- 0.6° N 126.7° E. Halmahera region. h = about 42 Km. -H= 11 h 48 m 22.7 s . Mag.5½-5¾ (Pal).					



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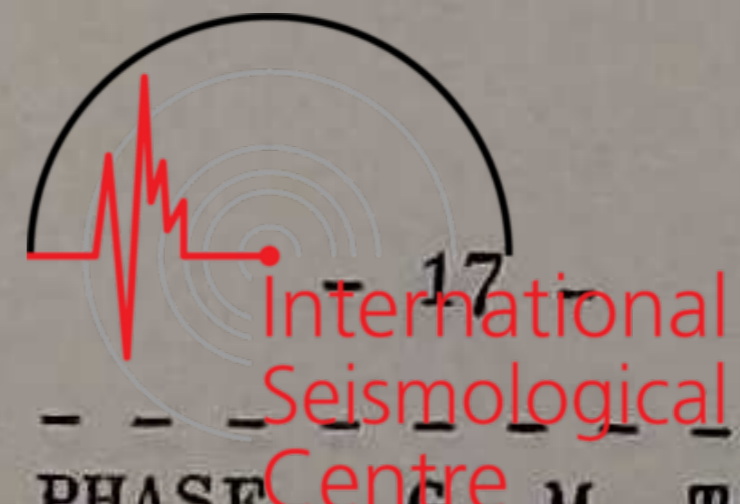
DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS.		
07	Shillong	ZNE	iP	11 56 02	4550	Rarefaction.		
		NE	iS	12 02 15				
	Calcutta	E	e	11 56 24				
		Chatra	Z	e	11 56 38		Rarefaction.	
	Port Blair		E	eP	11 56 39			
			i	12 00 49				
			i	01 33				
			e	08 46				
	07	Bokaro	E	eP	11 56 39			
				PP	58 28			
			iS	12 03 15				
			PS	03 23				
			PPS	03 31				
			SS	06 29				
			LR	07 13				
			SSS	07 20				
07			Madras	E	eP	11 57 15	4750	
					PP	58 53		
		eS		12 03 40				
		LQ		06 55				
		LR		09 03				
		M		12 17				
	07	Delhi		Z	iP	11 57 44	5740	Compression.
				EN	eP	57 44		
				ENZ	S	12 05 05		
				EN	PS	05 09		
Z			e	05 16				
EN			PPS	05 22				
N			i	05 46				
EN			ScS	07 28				
EN			SS	08 45				
EN			LR	12 06				
Z	M	- - -			Pd. = 23 sec. Amp. = 12 mm.			
07	Dehra Dun	Z	eP	11 57 45				
		EN	e	57 57				
07	Poona	E	i	12 05 26				
		E	i	06 27				
07	Colaba	Z	iP	11 57 45		Rarefaction.		
07	BOMBAY	EZ	eP	11 57 52	6060			
		E	PPP	12 01 22				
		E	eS	05 30				
		E	e	05 36				
		NE	ScS	07 37				
		E	M	23 -				
07	Visakhapatnam	N	M	24 -				
		ES	iP	11 58 41				
07	Delhi	Z	iP	12 05 07		Slight, compression.		

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07	Shillong	Z	iP	19 32 07		Slight, compression.	
07	Shillong	Z	iP	21 36 42		Slight, distant, compression.	
07	Shillong	Z	iP	21 43 23		Slight, distant, compression.	
		Chatra	Z	eP	21 43 55		Feeble, distant.
		Chatra	Z	eP	21 44 45		Slight.
		Delhi	Z	iP iS	21 45 24 46 28	1177	Slight, compression.
08	Epc: - 39.9° N 77.9° E Sinkiang Province China. h = about 33 Km. -H = 01 h 31 m 47.4 s (USCGS).						
08	Dehra Dun	Z	eP	01 34 08		Feeble.	
		ENZ	i	35 55			
		Z	i	36 01			
08	Delhi	Z	iP iS	01 34 27 36 28	1180	Slight.	
		Shillong	Z	iP	01 36 00		Slight, compression.
08	Poona	Z	eP	01 36 41		Slight.	
08	Chatra	Z	i	03 13 26		Slight, near.	
08	Delhi	Z	eP	03 16 29		Slight, compression.	
08	Dehra Dun	Z	eP	07 42 19		Tremor.	
		Delhi	Z	iP	07 44 06		Slight, compression.
08	Shillong	Z	eP	08 01 00		Slight, near.	
		Chatra	Z	eP	08 01 55 02 39		400
08	Bokaro	NE	iP	08 39 20		Slight, tremor.	
08	Epc: - 31.2° N, 130.2° E Near south coast of Kyushu, Japan. h = about 177 Km. -H = 15 h 46 m 45.5 s (USCGS).						
08	Shillong	Z	iP	15 53 14		Slight, rarefaction.	
		Chatra	Z	iP	15 53 47		Slight, rarefaction.
08	Dehra Dun	Z	eP	15 54 43		Tremor.	
08	Delhi	EZ	iP	15 54 50		Slight, first ground motion West, compression.	
		Z	i	55 27			
		Z	i	56 25			

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08	✓ Poona	Z	eP	15 55 41		Slight.
	✓ Calcutta	E	e	16 00 47		Slight.
08	Chatra	Z	iPg iSg	19 48 26 48 34	70	Slight, rarefaction.
08	Chatra	Z	eP eS	21 41 34 41 58	200	Slight.
08	Shillong	Z	iP	21 42 00		Slight, distant, compression.
09	Dehra Dun	Z	e	03 21 32		Tremor.
09	Epc:- 18.6° N 145.4° E . Mariana Islands. h = about 192 Km. -H= 03 h 13 m 26.4 s (USCGS).					
	✓ Shillong	Z	iP	03 22 02		Slight, rarefaction.
	✓ Chatra	Z	iP i	03 22 35 23 22		Feeble.
	✓ Delhi	Z	eP	03 23 31		Slight, compression.
	✓ Poona	Z	iP	03 24 04		Slight, rarefaction.
09	Shillong	Z	iP	04 20 05		Slight, local.
09	Dehra Dun	Z	iP i	05 29 07 30 02		Feeble, rarefaction.
09	Shillong	Z	eP	06 26 45		Slight, near.
09	Epc:- 10.3° S 124.0° E. Timor Islands. h = about 33 Km. -H= 06 h 53 m 28 s					
	Shillong	Z	eP	07 01 21		Slight.
	Delhi	Z	iP	07 03 25		Slight, rarefaction.
09	Shillong	Z	iP	08 07 27		Slight, distant, rarefaction.
09	Dehra Dun	Z	iP	08 21 15		Tremor, rarefaction.
09	Bokaro	Z	iP	10 34 39		Slight, tremor.
09	Epc:- 3.3° S 29.4° E Republic of the Congo. h = about 33 Km. -H= 18 h 22 m 33.4 s					
09	Madras	E	e e e	18 28 47 34 07 51 03		Slight.



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09	Delhi	Z	eP i	18 32 10 32 14		Slight, rarefaction.
	Chatra	Z	e	18 32 26		Tremor.
	Shillong	Z	iP	18 33 23		Slight, rarefaction.
09	Shillong	Z	eP	19 23 44		Slight, near.
	Chatra	Z	eP	19 24 41		Feeble, near.
	Shillong	Z	iP	21 24 08		Slight, compression.
09	Chatra	Z	iP iS	22 27 15 27 36	140	Feeble.
10	Dehra Dun	Z	iP	02 18 52		Tremor, compression.
10	Epc:- 36.7° N 70.8° E . Hindu Kush h = about 193 Km. -H = 06 h 47 m 04.0 s (USCGS).					
	Dehra Dun	Z	eP	06 49 06 50 44		Slight.
	Delhi	Z	iP iS	06 49 16 50 53	950	Slight, compression.
10	Bokaro	Z	iP	10 37 34		Slight.
10	Dehra Dun	Z	e	16 16 47		Tremor.
10	Dehra Dun	Z	eP	18 16 00		Tremor.
10	Epc:- 13.1° N 146.5° E . Mariana Islands. h = about 61 Km. -H= 18 h 54 m 46.1 s (USCGS).					
	Shillong	Z	iP	19 03 55		Slight, compression.
	Dehra Dun	Z	eP	19 05 25		Slight.
	Delhi	Z	iP e	19 05 25 05 36		Slight, rarefaction.
10	Epc:- 4.2° S 104.6° E Sumatra. h = about 211 Km. -H= 20 h 13 m 05.9 s (USCGS).					
	Shillong	Z	iP	20 19 14		Slight, rarefaction.
	Delhi	Z	iP i	20 20 36 21 24		Tremor, rarefaction.
10	Delhi	Z	iP	22 38 47		Slight, compression.

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11	Shillong	ZE	iP	01 10 45	3180	Slight, compression.
		EN	iS	15 33		
		E	LQ	16 43		
			SS	16 53		
			SSS	17 42		
			LR	18 26		
Bokaro	E	eP		01 11 50	2240	Slight.
		PP		12 09		
		S		15 32		
		LQ		15 38		
		SS		15 54		
		M		18 12		
	Dehra Dun	Z	eP	01 12 06		Slight.
11	Shillong	Z	iP	03 27 16		Slight, near, compression.
11	Chatra	Z	iP iS	04 28 28 29 02	300	Feeble.
11	Shillong	Z	eP	06 51 38		Slight, near.
11	Bokaro	NE	iP	07 54 25		Slight, tremor.
11	Epc:- 35.7° N 70.7° E . Hindu Kush. h = about 127 Km. -H = 11 h 41 m 40.0 s (USCGS).					
11	Delhi	Z	iP iS	11 43 43 45 16	900	Slight, compression.
	Dehra Dun	Z	eP i	11 43 45 45 12		Tremor.
11	Shillong	Z	iP	11 46 14		Slight, distant, compression.
11	Epc:- 45.0° S 75.7° W . Near coast of Southern Chile. h = about 33 Km. -H = 12 h 12 m 16.2 s					
✓	Poona	Z	iPKP	12 31 47		Slight, compression.
	Bombay	NZE NE	ePKP M	12 31 47 13 32 -		Slight.
✓	Delhi	Z	iPKP iPP	12 32 02 35 35	16950	Slight, rarefaction.
	Dehra Dun	Z	ePKP i i	12 32 08 32 19 32 33		Tremor.
✓	Shillong	Z	iPKP	12 32 12		Slight, compression.
11	Epc:- 29.4° S 178.6° W Kermadec Islands. h = about 225 Km. -H = 17 h 05 m 42.3 s					



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11	Delhi	Z	iP	17 23 53		Slight, rarefaction.
	Dehra Dun	Z	i	17 24 57		Slight.
	Chatra	NE	ePg eSg	17 47 47 47 51	30	Slight.
	Shillong	Z	ePg	17 47 57		Slight, near.
11	Chatra	NE	eP eS	18 06 28 06 57	250	Slight.
11	Shillong	Z	eP	18 07 16		Slight, distant.
	Bokaro	E	iP	18 07 29		Slight.
	Dehra Dun	Z	e	18 07 39		Slight.
	Delhi	Z	iP i	18 07 45 09 11		Slight, rarefaction.
12	Delhi	Z	iP i	00 09 43 11 25		Slight, rarefaction.
12	Epc:- 4.8° N 76.7° W . Northern Colombia. h = about 102 Km. -H = 03 h 40 m 34.8 s (USCGS).					
✓	Shillong	Z	iP	04 00 06		Slight, rarefaction.
12	Epc:- 36.1° N 69.6° E . Hindu Kush. h = about 97 Km. -H = 06 h 20 m 13.6 s (USCGS).					
	Epc:- 37° N 71.3° E Hindu Kush. -H = 06 h 20 m 15 s (SHILLONG)					
✓	Dehra Dun	ENZ	iP	06 22 23	980	Slight. Initial ground motion North-East. Rarefaction.
			PP	22 30		
			PPP	22 37		
			LQ	23 52		
			iS	24 05		
			SS	24 17		
			LR	24 21		
			SSS	24 28		
			Sg, M	25 02		
			Delhi	ENZ		
		E	PP	22 39		
		E	PPP	22 50		
		E	i	23 15		
		E	LQ	23 51		
		ENZ	i	24 15		
		E	iS	24 21		
		E	SS, LR	24 29		
		E	SSS	24 39		
		E	M	25 17		

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12	Sehore	E	eP	06 23 33		
	Bombay	N E ES	eP e e	06 24 01 27 18 27 28		Slight.
	Chatra	ZNE NE	iP iS	06 24 12 27 13	1810	Slight. Initial ground movement South-East, compression. Slight.
	Poona	Z	eP eS SSS i M	06 24 19 27 37 28 13 29 27 30 24	2030	
	Bokaro	NE	iP PP S SS SSS LR M	06 24 27 24 44 27 39 28 02 28 16 28 34 30 02	1920	Slight.
	Visakhapatnam	E E E ES	iP i i i	06 24 31 28 23 28 30 31 31		Slight.
	Calcutta	E	iP	06 24 53 28 40	2300	Slight.
	Shillong	ZNE E E NE E	iP PP PPP iS LQ SS SSS LR	06 24 59 25 23 23 31 28 53 29 07 29 26 29 43 30 11	2380	Slight, rarefaction.
	Madras	E	e e e	06 26 20 26 44 30 46		Slight.
12	Shillong	Z	eP	07 09 13		Slight, near.
12	Epc:- 1.8° N 129.5° E. Halmahera region. h = about 112 Km. -H = 09 h 13 m 04.2 s (USCGS).					
	Shillong	Z	iP	09 20 54		Slight, rarefaction.
	Chatra	Z	iP	09 21 28		Feeble, compression.
	Dehra Dun	Z	iP	09 22 33		Tremor, rarefaction.
	Delhi	Z	iP i	09 22 34 22 45		Slight, rarefaction.

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12	Dehra Dun	Z	e	10 21 31		Tremor.
12	Kodaikanal	E	e	10 22 30		Slight, distant.
12	Delhi	Z	iPg iSg	10 27 31 29 34	20	Tremor, rarefaction.
12	Shillong	Z	iP	10 55 21		Slight, distant, rarefaction.
12	Delhi	Z	iPg iSg	14 18 11 18 14	20	Tremor, compression.
12	Shillong	Z	iP	19 02 40		Slight, distant, rarefaction.
12	Shillong	Z	eP	19 15 15		Slight, distant.
12	Shillong	Z	e	20 03 25		Slight.
12	Shillong	Z	iP	20 21 08		Slight, compression.
12	Delhi	Z	iP	23 17 34		Slight, compression.
	Dehra Dun	Z	e	23 17 36		Tremor.
12	Shillong	Z	iP	23 28 53		Slight, distant, rarefaction.
12	Delhi	Z	iP	23 30 40		Slight, compression.
12	Dehra Dun	Z	iP	24 30 38		Tremor, rarefaction.
13	Shillong	Z	eP	06 24 57		Slight, distant.
13	Shillong	Z	iP	07 00 25		Slight, distant, compression.
13	Delhi	Z	eP	07 04 32		Slight, compression.
13	Dehra Dun	Z	iP	07 04 34		Tremor, rarefaction.
13	Dehra Dun	Z	e	08 02 07		Tremor.
13	Shillong	Z	eP	09 45 59		Slight, near.
13	Shillong	Z	iPg iSg	11 11 09 17 18	90	Slight.
13	Chatra	Z	iP	12 10 50	180	Slight, compression.
13	Epc:- 49.7° S 163.7° E . Duckland Island region. h = about 33 Km. - H = 16 h 21 m 13.1 s (USCGS).					
13	Dehra Dun	Z	eP	16 27 49		

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13 Epc:- 31.8° S 68.2° W . San Juan Province, Argentina.
h = about 142 Km.
-H = 17 h 20 m 22.9 s (USCGS).

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	Shillong	Z	eP	17 38 55		Slight.
	Delhi	Z	eP i	17 39 55 40 01		Slight, rarefaction.
	Dehra Dun	Z	iP	17 40 05		Slight, compression.
13	Chatra	Z	iP	17 46 41		Slight, near.
13	Delhi	Z	P	17 48 33		Slight.
13	Delhi	Z	iPg iSg	17 56 17 56 22	40	Slight, rarefaction.
13	Shillong	Z	eP	18 45 01		Slight, distant.
13	Dehra Dun	Z	eP	21 35 32		Tremor.
13	Shillong	Z	eP	22 19 49		Slight, distant.
13	Shillong	Z	eP e	23 38 20 38 55		Slight, local.
14	Delhi	Z	iP	01 46 41		Slight, rarefaction.
14	Dehra Dun	Z	iP	06 28 13		Slight, compression.
14	Delhi	Z	iP i	06 28 25 30 15		Slight, compression.
14	Shillong	Z	iP	09 37 05		Slight, distant, rarefaction.
14	Shillong	Z	eP	10 14 25		Slight, distant.
14	Visakhapatnam	ES	iP	11 12 45		
14	Chatra	Z	i	11 17 11		Slight, near.
14	Poona	Z	eP	11 17 23		Slight.
14	Delhi	Z	iP	11 19 19		Slight, compression.
14	Shillong	Z	iP	11 32 37		Slight, distant, rarefaction.
14	Shillong	Z	iP	12 43 17		Slight, distant, rarefaction.
14	Dehra Dun	Z	e	12 44 48		Tremor.
14	Delhi	Z	eP	12 44 55		Slight, compression.
14	Delhi	Z	iP	16 14 17		Tremor, compression.



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14 Epc:- 45.7° N 26.6° E . In Romania.
h = about 132 Km.
-H = 18 h 33 m 25.3 s (USCGS).

DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS.
	Dehra Dun	Z	e	18 41 11		
	Delhi	Z	iP i	18 41 15 41 41		Slight, rarefaction.
	Chatra	Z	iP i	18 42 11 42 38		Slight, distant, compression.
	Shillong	Z	iP	18 42 43		Slight, distant, compression.
14	Shillong	Z	eP	21 21 50		Slight, distant.
15	Epc:- 68.9° N 17.1° W. Denmark Strait. h = about 33 Km. -H = 01 h 32 m 20.0 s (USCGS).					
	Dehra Dun	Z	e	01 42 55		Tremor.
	Delhi	Z	eP	01 43 00		Slight, distant, rarefaction.
15	Shillong	Z	iP	02 41 43		Slight, distant, rarefaction.
15	Chatra	Z	iP	02 42 16		Slight, distant, rarefaction.
15	Dehra Dun	Z	i	02 43 11		Tremor.
15	Poona	Z	iP	02 43 40		Slight, rarefaction.
15	Shillong	Z	iP	04 50 14		Slight, near.
15	Epc:- 69.0° N 16.9° W . Jan Mayen Island region. h = about 33 Km. -H = 05 h 23 m 10.4 s (USCGS).					
	Chatra	Z	PP e	05 34 21	73	Slight, distant.
	Delhi	EN E	e e	05 42 35 48 45	65	
15	Bokaro	NE	iP	08 05 31		Slight, tremor.
15	Shillong	Z	iP	09 59 42		Slight, distant, compression.
15	Shillong	Z	iP	12 25 49		Slight, distant, compression.
15	Chatra	Z	eP	12 26 21		Slight, distant.
15	Dehra Dun	Z	e	12 27 14		Slight.

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15	Delhi	Z	eP	12 27 27		Slight, rarefaction.
15	Calcutta	E	e	12 30 32		Slight.
15	Epc:- 36.7° N 102.1° E TSinghai, China. h = about 33 Km. -H = 12 h 22 m 29.9 s (USCGS).					
15	Delhi	EN	eP	12 31 33		
		EN	e	35 35		
15	Epc:- 24.9° N 122.0° E. Near coast of Formosa. h = about 47 Km. -H = 15 h 08 m 57.2 s (USCGS).					
15	Shillong	Z	iP	13 14 39		Slight, distant, compression.
15	Epc:- 36.0° N 23.9° E. Mediterranean Sea. h = about 81 Km. -H = 15 h 04 m 15.0 s (USCGS).					
	Dehra Dun	Z	iP	15 12 25		Slight, compression.
	Delhi	Z	iP	15 12 27		Slight, compression.
	Chatra	Z	eP	15 13 31		Slight, distant, compression.
	Shillong	Z	iP	15 14 00		Slight, distant, compression.
15	Epc:- 17.1° S 179.6° W. Fiji Islands. h = about 276 Km. -H = 17 h 39 m 19.2 s (USCGS).					
15	Shillong	Z	iP	17 47 12		Slight, distant, rarefaction.
15	Dehra Dun	Z	eP	19 13 11		Slight.
			i	14 51		
			i	14 57		
15	Epc:- 38.2° N 75.8° E. Northern India. h = about 153 Km. -H = 19 h 11 m 09 s					
	Delhi	Z	iP	19 13 29	1060	Slight, rarefaction.
			iS	15 10		
	Chatra	Z	eP	19 14 37		Slight, distant.
	Shillong	Z	eP	19 15 17		Slight, distant.
15	Shillong	Z	iP	19 39 21		Slight, distant, compression.
	Chatra	Z	eP	19 43 57		Slight, distant.

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15	Dehra Dun	Z	iP	19 44 12		Tremor, compression.
	Delhi	Z	iP	19 44 14		Slight, rarefaction.
	Chatra	Z	iP	19 44 35	180	Slight, compression.
			iS	44 56		
15	Shillong	Z	eP	19 55 39		Slight, distant, tremor.
15	Delhi	Z	eP	21 33 36		Slight, rarefaction.
15	Delhi	EZ	eP	22 36 31	7530	Slight.
		E	eS	45 29		
16	Dehra Dun	Z	eP	01 50 58		Feeble.
		ENZ	i	51 27		
16	Delhi	Z	iPn	01 51 08	310	Slight, compression.
			iSn	51 43		
16	Chatra	Z	eP	02 04 38	370	Slight.
			eS	05 18		
16	Shillong	Z	iP	03 30 52		Slight, distant, rarefaction.
16	Delhi	Z	eP	03 33 42		Slight, distant, rarefaction.
16	Dehra Dun	Z	e	03 33 45		Tremor.
16	Epc:- 9.7° N 93.9° E in Nicobar Islands. h = about 70 Km. -H = 04 h 49 m 11.9 s.					
	Port Blair	NE	eP	04 49 59	200	Slight.
			iS	50 22		
	Madras	E	iP	04 52 29	1360	Slight. Initial ground motion towards East.
			PP	52 37		
			eS	54 47		
			LR	55 16		
			M	56 15		
	Shillong	Z	iP	04 52 53		Slight, distant, compression.
	Poona	Z	eP	04 53 18		Slight.
	Chatra	Z	iP	04 53 24		Slight, distant, rarefaction.
			i	56 42		
	Delhi	Z	iP	04 54 29	3030	Slight, rarefaction.
			iS	59 08		
	Dehra Dun	Z	iP	04 54 35		Slight, rarefaction.
			i	59 30		

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16	Bokaro	E	iP	04 55 41		Slight, other phases not clear.
Epc:- 51.3° N 179.9° W in Andeanof Islands, Alentian Islands. h = about 38 Km. -H= 05 h 44 m 52.3 s .						
✓	Chatra	Z	iP	05 56 11		Slight, distant, compression.
✓	Dehra Dun	Z	iP	05 56 26		Slight, compression.
✓	Delhi	Z	iP	05 56 36		Slight, distant, compression.
	Delhi	Z	eP	06 57 01		Slight, distant, compression.
	Bokaro	NE	iP	08 58 20		Slight, tremor.
16	Visakhapatnam	NE	iP	10 24 30		Slight, distant.
16	Epc:- 54.4° N 35.0° E . 1300 Km. Southwest of Iceland. h = about 33 Km. -H = 12 h 32 m 37 6 s .					
	Dehra Dun	Z	e	12 44 35		Slight.
	Delhi	Z	eP	12 44 41		Slight, distant, compression.
16	Port Blair	NE	ePg iSg	13 02 58 50 03 04		Slight.
16	Delhi	Z	iP	15 28 44		Slight, distant, rarefaction.
16	Dehra Dun	Z	e	15 28 46		Tremor.
Epc:- 36.3° N 70.3° E in Hindukush. h = about 243 Km. -H= 15 h 30 m 10 s .						
	Dehra Dun	Z	iP i	15 32 13 33 41		Slight, compression.
	Delhi	Z	iP iS	15 32 23 1018 34 14		Slight, rarefaction.
	Chatra	Z	iP	15 33 58		Slight, compression.
	Poona	Z	eP	15 34 10		Slight, compression.
	Shillong	Z	iP	15 34 39		Slight, distant, compression.
16	Shillong	Z	eP	17 02 41		Slight, near.
16	Dehra Dun	Z	iP	19 25 12		Slight rarefaction.

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16	Dehra Dun	Z	eP i	20 33 26 35 04		Slight.
16	Delhi	Z	iP iS	20 33 37 91.0 35 11		Slight, compression.
16	Shillong	Z	iP	20 35 51		Slight, distant, compression.
16	Epc:- 11.1° S 111.6° E in South of Java . h = about 94 Km. -H = 21 h 08 m 38.8 s .					
✓	Madras	E	e	21 16 01 16 39 17 44		Slight.
✓	Shillong	Z	eP	21 16 13		Slight, distant, rarefaction.
✓	Poona	Z	iP	21 17 05		Slight, rarefaction.
✓	Delhi	Z	eP	21 17 35		Slight, rarefaction.
✓	Dehra Dun	Z	iP	21 17 43		Slight, rarefaction.
✓	Delhi	NE Z	eP e	21 24 50 24 58		Slight, distant, East.
16	Shillong	Z	iP	23 55 42		Slight, near, rarefaction.
17	Shillong	Z	eP	03 07 41		Slight, distant.
17	Delhi	Z	eP i	04 42 06 42 40		Slight, rarefaction.
17	Shillong	Z	iP	04 44 45		Slight, distant, compression.
17	Shillong	Z	iP	06 02 40		Slight, distant, compression.
17	Dehra Dun	Z	eP	06 04 31		Tremor.
17	Bokaro	NE	iP	09 47 49		Slight.
17	Shillong	Z	eP	12 44 42		Slight, distant.
17	Shillong	Z	eP	15 23 07		Slight, near.
17	Shillong	Z	eP	15 38 19		Slight, near.
17	Shillong	Z	eP	15 43 28		Slight, distant.
17	Shillong	Z	eP	16 40 23		Slight, local.

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17	Chatra	Z	iP iS	16 41 10 42 09	560	Slight, rarefaction.
17	Delhi	Z	eP	16 47 13		Slight, rarefaction.
17	Shillong	Z	eP	17 11 36		Slight, distant.
17	Shillong	Z	iP	17 44 10		Slight, distant, compression.
17	Shillong	Z	iP	18 43 34		Slight, distant, compression.
17	Dehra Dun	Z Z	i i	19 50 31 51 10		Tremor.
17	Delhi	Z	eP	19 50 32		Slight.
17	Delhi	Z	iP	19 51 00		Slight, compression.
17	Shillong	Z	iP	20 30 25		Slight, distant, rarefaction.

17 Epc:- 25.6° N 125.2° E in Ryukyu Islands.
h = about 140 Km.
- H = 20 h 41 m 14.8 s .

✓	Shillong	Z	iP	20 47 12		Slight, distant, rarefaction.
✓	Chatra	Z	iP	20 47 49		Slight, distant, rarefaction.
✓	Dehra Dun	Z	iP i	20 48 53 54 30		Slight, rarefaction.
✓	Delhi	EZ Z Z NEZ	iP e e eS	20 48 59 54 30 55 07 55 14	4590	Slight, rarefaction. First ground motion East.
✓	Poona	Z	iP	20 49 42		Slight, rarefaction.
17	Shillong	Z	iP	22 54 32		Slight, near, compression.
17	Chatra	Z	eP	23 02 31		Slight, distant.
17	Shillong	Z	iP	23 03 10		Slight, distant, compression.
17	Shillong	Z	eP	23 36 21		Slight, distant.
18	Shillong	Z	iP	01 32 46		Slight, near, compression.
	Chatra	Z	iP iS	01 33 45 34 55	670	Slight, rarefaction.



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18	Delhi	Z	iP	01 35 47		Slight, rarefaction.
18	Delhi	Z	eP	01 38 25		Slight, rarefaction.
18	Shillong	Z	eP	02 30 55		Slight, near.
18	Dehra Dun	Z	iP	03 20 12		Tremor, compression.
18	Delhi	Z	iP	03 20 22		Slight, rarefaction.
18	Shillong	Z	iP	03 24 03		Slight, distant, rarefaction.
18	Shillong	Z	iP	03 46 18		Slight, near, compression.
18	Bokaro	NE	iP	11 01 00		Slight.
18	Shillong	Z	eP	11 42 33		Slight, near.
18	Shillong	Z	iP	12 43 08		Slight, distant.
18	Delhi	Z	eP	14 01 59		Slight, compression.
18	Shillong	Z	eP e	18 26 42 26 55		Slight, near.
18	Shillong	Z	iP	19 33 29		Slight, distant.
18	Shillong	Z	eP	21 36 59		Slight, near.
18	Shillong	Z	eP	21 46 46		Slight, distant.
19	Epc:- 38.8° N 74.8° E in Sinkiang Province, China. h = about 33 Km. -H= 02 h 35 m 06.8 s .					
	Dehra Dun	Z EN	eP i	02 37 27 39 49		Slight.
	Chatra	Z	eP	02 38 45		Slight, distant.
	Shillong	Z	eP	02 39 35		Slight, distant.
	Poona	Z	eP	02 39 47		Slight, compression.
19	Bokaro	NE	iP	07 21 15		Slight, tremor.
19	Shillong	Z	eP	07 30 35		Slight, distant.
	Delhi	Z	iP	07 31 46		Slight, rarefaction.
19	Shillong	Z	eP	21 10 34		Slight, distant.
19	Shillong	Z	e	21 54 34		Slight.
19	Shillong	Z	eP	21 59 00		Slight, near.
19	Chatra	Z	eP	21 59 55		Slight, distant.

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20	Shillong	Z	eP	00 12 21		Slight, near.
20	Delhi	Z	iP	03 01 23		Slight, compression.
20	Shillong	Z	eP	06 00 28		Slight, distant.
20	Shillong	Z	iP	09 07 35		Slight, distant, rarefaction.
	Dehra Dun	Z	iP	09 07 59		Slight, rarefaction.
20	Delhi	Z	iP	09 08 10		Slight, rarefaction.
20	Delhi	Z	iP	14 50 49		Slight, compression.
	Dehra Dun	Z	e	14 51 02		Tremor.
	Shillong	Z	iP	14 51 04		Slight, distant, compression.
20	Delhi	Z	iP	18 59 19		Slight, compression.
20	Shillong	Z	eP	22 11 51		Slight, local.
20	Delhi	Z	iP	22 45 17		Slight, compression.
20	Delhi	Z	iP	22 47 00		Slight, compression.
20	Shillong	Z	eP	23 58 18		Slight, local.
21	Chatra	Z	eP	01 30 47		Slight, distant.
21	Delhi	Z	iP	10 46 14		Slight, rarefaction.
	Dehra Dun	Z	iP	10 46 15		Slight, compression.
21	Delhi	Z	iP	19 06 23		Slight, compression.
21	Dehra Dun	Z	e	21 04 39		Slight.
	Delhi	Z	iP	21 04 51		Slight, compression.
22	Port Blair	NE	eP iS	03 06 18 06 36	150	Slight.
Epc:- 31.5° N 89.3° E in Tibet. h = about 33 Km. -H ₀ = 04 h 55 m 16.4 s (USCGS). 32° N 90° E. -H = 04 h 55 m 00 s (C.S.O. SHILLONG).						
22	Shillong	ZEN E	eP LQ iS SS SSS M	04 56 51 57 46 57 58 58 11 58 24 58 32	610	Slight.



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22	Chatra	Z ZNE	iP eS	04 56 33 57 38	610	Slight, rarefaction.
	Bokaro	NE	iP LQ iS LR SSS M	04 57 17 58 39 58 53 59 01 59 13 59 41	930	Slight.
22	Calcutta	E	eP e e	04 57 27 59 06 59 32		Slight.
	Dehra Dun	Z ENZ ENZ EN EN	eP i iS i e	04 57 39 58 30 59 33 05 00 47 14 17	980	Slight.
	Delhi	Z E E E	iP eS e i	04 57 52 59 55 05 00 47 01 27	1200	Slight, rarefaction.
	Visakhapatnam	E E E ES	eP iS i M	04 58 28 05 01 08 02 35 02 45	1590	Moderate, distant. Initial ground move- ment South West.
	Poona	Z	eP eS	04 59 42 05 03 04	2030	Slight.
	Madras	E	eP e eS LQ LR M	04 59 55 05 03 34 03 47 03 56 04 49 06 32	2360	Slight.
	Sehore	EN	eP	05 01 02		
22	Bombay	N ES NEZS N	eP e eS M	05 03 14 03 40 05 53 07 40	1570	Slight. Pd. = 10 sec. Gr. dis = 3 μ.
	Port Blair	E	i i	05 03 39 05 24		
22	Bokaro	NE	iP	08 00 14		Slight.
22	Bokaro	NE	iP	11 39 26		Slight.
22	Shillong	Z	iP	12 15 58		Slight, local.
22	Shillong	Z	iP	16 16 34		Slight, distant, compression.

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22	Dehra Dun	Z	e	16 17 20		Tremor.
	Delhi	Z	iP	16 17 30		Slight, rarefaction.
22	Shillong	Z	iP	16 21 02		Slight, distant, compression.
	Dehra Dun	Z	e	16 21 48		Tremor.
	Delhi	Z	iP	16 21 59		Slight, rarefaction.
22	Shillong	Z	iP	23 19 17		Slight, distant, compression.
	Delhi	Z	iP	23 20 42		Tremor, rarefaction.
23	Shillong	Z	iP	04 20 34		Slight, distant, compression.
23	Shillong	Z	iP	04 48 45		Slight, distant, compression.
23	Shillong	Z	eP	06 44 49		Slight, distant.
23	Shillong	Z	eP	16 35 05		Slight, local.
23	Shillong	Z	iP	17 29 29		Slight, distant, compression.
23	Shillong	Z	e	17 30 35		Slight, distant, tremor.
23	Shillong	Z	eP	18 04 10		Slight, near.
23	Shillong	Z	iP	21 16 23		Slight, distant, compression.
24	Shillong	Z	eP	04 27 53		Slight, distant.
24	Epc:- 6.0° S 112.6° E in Java Sea. h = about 493 Km. -H = 09 h 29 m 11.6 s (USCGS).					
	Shillong	ZNE E	iP iS	09 35 48 40 53	3450	Slight, rarefaction.
	Delhi	ENZ	iP	09 36 11		Slight, rarefaction. Initial ground motion South East.
	Dehra Dun	Z	iP	09 37 19		Slight, compression.
24	Chatra	Z	e	09 41 46		Slight, distant.
24	Delhi	ENZ	iP	09 43 28		Slight, rarefaction. Initial ground motion South East.



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24	Shillong	Z	eP	11 31 49		Slight, near.
24	Dehra Dun	Z	e	14 39 02		Tremor.
24	Delhi	Z	iP	15 46 23		Slight, compression.
	Dehra Dun	Z	e	15 46 33		Slight.
24	Shillong	Z	eP	15 48 29		Slight, near.
24	Shillong	Z	iP	17 11 29		Slight, local.
24	Shillong	Z	iP	18 29 23		Slight, local.
	Calcutta	E	e	20 31 45		Slight.
	Dehra Dun	Z	e	20 32 22		Slight.
Epc:- 8.0° N 126.8° E in off coast of Hindanao h = about 67 Km. -H = 22 h 27 m 32.5 s (USCGS).						
24	Port Blair	E	i	22 34 15		
			i	34 25		
			i	38 42		
24	Shillong	ZNE E	iP iS SS LR	22 34 41 40 51 43 02 43 11	4180	Slight, compression.
	Calcutta	E	eP PP PcP eS	22 35 02 36 39 37 17 41 02	4330	Slight.
	Bokaro	E	eP eP i eS eSS e	22 35 22 37 12 41 04 41 44 44 18 51 03	4580	Slight.
	Madras	E	eP ePP eS	22 35 53 37 43 42 40		Slight.
	Delhi	ENZ ENZ ENZ	iP e i	22 36 28 36 48 38 30		Slight, compression. First ground motion North West.
	Dehra Dun	EZ N E EN	eP e e eS	22 36 30 36 54 42 49 43 45	5550	Slight.

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24	Poona	Z	iP	22 36 41		Slight, rarefaction.
	Bombay	NE Z ES NEs N	eP PP eS M	22 36 46 38 46 44 32 23 05 -	6180	Moderate.
24	Shillong	Z	iP	22 51 27		Slight, distant.
24	Dehra Dun	Z	e	22 53 16		Tremor.
24	Shillong	Z	iP	23 29 14		Slight, distant.
24	Delhi	Z	iP	23 31 01		Slight, rarefaction.
25	Shillong	Z	eP	00 13 41		Slight, near.
25	Shillong	Z	iP	00 28 40		Slight, distant, rarefaction.
25	Shillong	Z	eP	04 00 05		Slight, near.
25	Shillong	Z	iP	04 17 48		Slight, distant, compression.
25	Delhi	Z	iP	06 41 38		Slight, rarefaction.
25	Shillong	Z	eP	07 40 09		Slight, near.
25	Shillong	Z	eP	08 12 31		Slight, near.
25	Shillong	Z E	eP i i	09 04 58 06 37 06 48		Slight, near.
25	Delhi	Z	iP	09 05 56		Slight, rarefaction.
25	Calcutta	E	e	09 07 36		Slight.
25	Bombay	N ES	e e	09 15 16 16 57		Slight.
25	Shillong	Z	eP	11 18 30		Slight, near.
25	Dehra Dun	Z	iP	12 44 27		Slight, compression.
25	Shillong	Z	eP	12 58 03		Slight, near.
25	Delhi	ENZ	iP	12 59 29		Slight, compression. Initial ground motion North West.
25	Poona	Z	iP	13 00 03		Slight, compression.
26	Shillong	Z	eP	06 44 05		Slight, near.
26	Dehra Dun	Z	e	06 58 58		Tremor.

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26	Delhi	Z	eP	06 59 18		Slight, compression.
26	Shillong	Z	eP	11 46 12		Slight, near.
26	Shillong	Z	eP	12 29 58		Slight, near.
26	Shillong	Z	eP	13 30 32		Slight, distant, tremor.
26	Dehra Dun	Z	e e	16 46 02 47 57		Tremor.
26	Delhi	Z	eP	16 48 19		Slight, rarefaction.
26	Dehra Dun	Z	eP	19 20 07		Tremor.
26	Chatra	Z	iP	19 21 51		Slight, distant, compression.
26	Shillong	Z	iP	19 22 38		Slight, distant, rarefaction.
26	Shillong	Z	eP	19 56 25		Slight, near.
26	Chatra	Z	eP eS	19 56 48 57 20	280	Slight.
26	Shillong	Z	eP	21 40 14		Slight, distant.
27	Shillong	Z	iP	01 13 25		Slight, distant, rarefaction.
27	Chatra	Z	iP	01 14 01		Slight, distant, rarefaction.
27	Dehra Dun	Z	iP iS	01 15 03 21 43	5010	Slight.
27	Delhi	EZ ENZ	iP iS	01 15 19 21 49	4850	Slight, rarefaction. Initial ground motion East.
27	Poona	Z	iP	01 15 50		Slight, rarefaction.
27	Calcutta	E	i	01 19 43		Slight.
27	Shillong	Z	eP	05 43 53		Slight, near.
27	Shillong	Z	iP	11 59 37		Slight, distant, compression.
27	Dehra Dun	Z	iP i	11 59 44 12 02 49		Slight, rarefaction.
27	Delhi	Z	iP	11 59 55		Slight, compression.
27	Shillong	Z	eP	13 57 40		Slight, distant.

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27	Shillong	Z	eP	15 44 37		Slight, distant.
27	Shillong	Z	eP	17 31 04		Slight, near.
27	Shillong	Z	iP	18 56 55		Slight, distant, compression.
27	Chatra	Z	iP	18 57 23		Slight, distant, compression.
27	Dehra Dun	Z	iP	18 58 15		Tremor, rarefaction.
27	Delhi	Z	eP	18 58 19		Slight, compression.

Epc:- 41.2° N 49.8° E in Caspian Sea near Azarbizan SSR .
h = about 33 Km.

-H = 19 h 35 m 14.3 s . Mag. 5 $\frac{1}{2}$ -5 $\frac{3}{4}$ (Pal).

Epc:- 37° N 48.4° E , -H= 19 h 35 m 20 s (CSO SHILLONG).

27	Dehra Dun	EZ	iP	19 40 40	2920	Slight, rarefaction. First ground movement towards West.
			i	40 55		
			PP	41 14		
		ENZ	PPP	41 29		
		EN	PcP	44 18		
			iS	45 11		
		N	i	45 38		
		EN	LQ	45 53		
			SS	46 12		
			SSS	46 27		
			LR	47 05		
		N	M	49 09		
		E	ScS	51 51		
	Delhi	ENZ	iP	19 40 43	2920	Slight, rarefaction. Initial ground motion North West. Probable depth 80 Km.
			PP	40 59		
		Z	SP	41 12		
			PP	41 19		
			PPP	41 43		
		ENZ	iS	45 06		
			i	45 17		
		N	sS	45 38		
		EZ	i	45 43		
		N	i	46 05		
			SS	46 22		
			SSS	46 41		
			LQ	47 21		
	Bokaro	E	iP	19 42 01	3780	Slight. Initial ground motion toward ds West.
			PPP	43 35		
			PcP	44 32		
		NE	S	47 26		
			SS/LQ	49 30		
			SSS	49 55		
			LR	50 39		

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27	Bombay	NEZ	eP	19 41 18	3250	Slight.
		EN	eS	46 11		
		E	e	46 36		
		E	LQ	47 41		
		E	LR	49 20		
	Poona	Z	eP	19 41 26	3320	Slight.
		NE	iS	46 23		
	Chatra	ZNE	iP	19 41 55	3720	Moderate, rarefaction.
		NE	iS	47 16		
	Calcutta	E	eP	19 42 27	3890	Slight.
			iS	47 59		
	Madras	E	eP	19 42 38	4210	Slight. 0 = 19 h 35 m 18 s.
			e	42 54		
			PP	44 08		
			PPP	44 30		
			iS	48 30		
			PCS=ScP	48 40		
			LQ	50 45		
			LR	52 46		
			M	56 48		
27	Visakhapatnam	EN	iP	19 42 40	4220	Moderate, distant.
		E	iPP	44 10		
		E	iP	48 00		
		EN	iS	48 33		
		EN	iSS	51 10		
		EN	LR	51 42		
		E	P	51 59		
		E	ScS	52 31		
		EN	M	50 30		
	Shillong	EN	iP	19 42 49	4320	Slight.
		E	PP	44 09		
			PPP	44 22		
		EN	iS	48 49		
		E	SS, LQ	50 36		
	Port Blair	E	ePPP	19 44 43		
			eSS	50 43		
			i	53 22		
27	Shillong	Z	iP	21 14 37		Slight, distant, compression.
28	Delhi	Z	iP	01 37 12		Slight, compression.
	Dehra Dun	Z	iP	01 37 15		Slight, compression.
			i	37 17		
28	Dehra Dun	Z	e	02 31 51		Slight.
			i	31 55		
	Poona	Z	iP	02 31 56		Slight, rarefaction.
28	Delhi	Z	i	03 31 45		Tremor.

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28	Delhi	Z	iP	03 31 50		Slight, compression.
28	Shillong	Z	iP	04 13 52		Slight, distant, rarefaction.
	Dehra Dun	Z	i	04 14 53		Slight.
	Delhi	Z	iP	04 15 03		Slight, compression.
	Poona	Z	eP	04 16 01		Slight.
28	Shillong	Z	eP	06 22 18		Slight, local.
28	Shillong	Z	eP	07 49 44		Slight, distant.
28	Shillong	Z	iP	08 28 09		Slight, distant, compression.
28	Delhi	Z	iP	09 43 15		Slight, rarefaction.
	Dehra Dun	Z	e	09 44 06		Slight.
28	Shillong	Z	iP	10 51 55		Slight, distant, rarefaction.
28	Shillong	Z	eP	11 54 10		Slight, distant.

Epc:- 2.6° S 149.9° E in New Britain.
h = about 33 Km.
-H = 12 h 12 m 19.8 s (USCGS).
Mag: 6½ (Pas).

Epc:- 1.5° S 151° E . - H= 12 h 12 m 15 s (CSO SHILLONG)

28	Port Blair	E	iP	12 22 20		
			PP	24 33		
			i	25 55		
			i	32 20		
28	Shillong	ZNE E	iP	12 22 43	6980	Moderate.
			PP	25 05		
			PPP	26 37		
		NE	iS	31 12		
		E	PS	31 29		
			PPS	31 40		
			SS	35 09		
			SSS	37 58		
			LQ	38 44		
			LR	41 42		
28	Calcutta	E	iP	12 23 06		Moderate.
			PcP	23 43		
			PP	25 32		
			i	31 06		
			iS	31 54		
			PS	32 20		
			PPS	32 57		
			SS	36 16		
			SSS	39 05		

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28	Chatra	Z	iP	12 23 13	7470	Slight, rarefaction.
			i	23 44		
			iPP	25 34		
			iS	32 07		
			i	33 15		
			i	36 48		
	Bokaro	E	iP	12 23 16	7445	
			PcP	23 36		
			i	25 35		
			PPP	27 22		
			PcS	27 39		
			iS	32 11		
			PS	32 37		
			PPS	32 45		
			ScS	33 03		
	Madras	E	iP	12 23 39	7980	Moderate. Initial ground motion towards East.
			PcP	24 00		
			PP	26 29		
			PPP	28 02		
			e	29 25		0 = 12 h 12 m 12 s.
			iS	32 59		
			ScS/PPS	33 41		
			e	35 29		
			SS	37 40		
			SSS	40 40		
			LQ	42 24		
			LR	45 37		
	Kodaikanal	E	eP	12 23 51	8380	Moderate, distant.
			iS	33 31		
			i	36 07		
	Hyderabad	E	eP	12 23 54	8050	Moderate.
			iS	33 18		
			SS	38 49		
			Lq	42 49		
			LR	46 26		
			M	52 48		Pd. = 15 sec. Gr. dis = 4 μ.
	Dehra Dun	EZ	iP	12 24 07	8550	Slight, distant, rarefaction.
		EZ	PcP	24 18		
		EN	iS	33 55		
		EN	ScS	34 15		
		EN	PS	34 37		
		EN	PPS	34 53		
		E	SS	38 59		
		N	LQ	45 01		
		E	M	55 28		
28	Delhi	ENZ	iP	12 24 08	8402	Moderate, compression. Initial ground motion South West.
		EZ	PcP	24 40		
		Z	PP	26 53		
		ENZ	iS	33 49		
		EZ	SKS	34 10		

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DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	REMARKS	
28	Delhi		N	ScS	34 21	Pd.=21 sec.Gr.dis=64 u.
			E	PS	34 31	
			E	PPS	34 49	
			N	SS	38 19	
			N	SSS	42 13	
			E	i	43 46	
			N	i	44 25	
			N	LQ	45 30	
			N	LQ	45 30	
			N	ENZ	M	
28	Poona		Z	eP	12 24 14	
			N	PP	27 02	
			N	iS	34 03	
			N	PS	34 34	
			N	SS	39 07	
			N	LQ	44 57	
			N	LQ	44 57	
			N	LR	46 06	
28	Bombay		ZE	eP	12 24 18	8750 Moderate.
			E	PcP	24 26	
			E	PP	27 12	
			NE	eS	34 16	
			E	ScS	34 30	
			E	PPS	35 23	
E	i	36 17				

Epc:- 54.7° N 161.6° W in Alaska Peninsula.
h = about 33 Km.

-H= 13 h 00 m 50.7 s . Mag: 6-6½ (Pas) (USCGS).

Epc:- 56.0° N 165° W , -H= 13 h 00 m 55 s (CSO SHILLONG).

DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	REMARKS	
28	Shillong		ZNE	iP	13 12 48	8700
			E	PP	15 48	
			NE	iS	22 41	
			E	SKS	22 46	
				PS	23 26	
				PPS	23 46	
	SS	27 48				
28	Chatra		ZNE	iP	13 12 58	8750 Compression.Initial ground motion towards North. Period = 17 secs. Gr.dis = 26 u. Period = 19 secs. Gr.dis = 66 u.
			N	S	22 56	
			N	M	M 48	
			N	M	48 -	
			E	M	57 -	
28	Dehra Dun		ENZ	iP	13 13 06	8980 Compression. Initial ground movement towards North - East.
			EN	PcP	13 13	
			E	PPP	18 00	
			E	iS	23 14	
			E	SKS	23 19	
			E	ScS	23 19	
			EN	PS	23 30	
			EN	PPS	23 57	
			E	SS	24 12	
			E	LQ	28 19	
E	LQ	34 34				
EN	PKKS	35 00				
EN	M	45 00				



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DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	REMARKS	
28	Bokaro		NE	eP	13 13 13	9130
			E	PP	16 24	
			E	PPP	18 22	
			NE	S	24 28	
28	Delhi		ENZ	iP	13 13 15	9180 Compression.Initial ground motion South West. Period = 20 secs. Amp: = 117 mm.
			EZ	PcP	13 21	
			EN	i	13 35	
			Z	PP	16 31	
			ENZ	SSKS	23 32	
			N	SCS	23 40	
			ENZ	i	23 57	
			ENZ	PS	24 07	
			ENZ	SS	29 31	
			E	SSS	33 01	
N	SSS	33 05				
EN	LR	38 11				
ENZ	M					
28	Visakhapatnam		iP	13 13 48	9910	
			i	07 04		
			iS	24 36		
			iPS	25 45		
			i	26 24		
			M	51 36		
28	Port Blair		E	iP	13 13 51	9750 Initial ground movement East.
				PP	17 29	
				eS	24 33	
				PS	25 28	
				PPS	25 52	
				i	29 31	
				LR	42 01	
				M	49 16	
28	Bombay		NZ	eP	13 14 00	9950
			NE	eS	24 50	
			E	ScS	25 16	
			E	PPS	26 00	
			N	M	57 42	
28	Hyderabad		E	eP	13 14 01	10100
				PS	26 02	
				SS	30 49	
				LR	42 37	
				M	49 57	
28	Poona		Z	iP	13 14 02	Compression.
			N	i	24 59	
28	Madras		E	iP	13 14 16	10450 Initial ground movement towards East. 0 = 13 h 00 m 55 s.
				PP	18 07	
				PPP	20 12	
				SKS	24 46	
				SKKS	25 08	

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DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS..
28	Madras (contd.)	E	iS/ScS	13 25 25		
			PS	26 51		
			PPS	27 22		
			LQ	40 26		
			LR	45 46		
			M	53 52		
28	Shillong	Z	iP	13 30 18		Slight, distant, rarefaction.
28	Shillong	Z	iP	16 05 24		Slight, distant, compression.
28	Shillong	Z	iP	16 25 21		Slight, distant, rarefaction.
28	Shillong	Z	iP	16 41 33		Slight, near, rarefaction.
28	Delhi	Z	iP	18 11 29		Slight, rarefaction.
28	Dehra Dun	Z	e	18 28 05		Tremor.
28	Shillong	Z	iP	18 31 21		Slight, near, compression.
28	Shillong	Z	iP	18 48 21		Slight, distant, rarefaction.
28	Dehra Dun	Z	e	19 10 46		Tremor.
28	Shillong	Z	iP	23 21 51		Slight, distant, compression.
29	Shillong	Z	iP	05 59 14		Slight, distant,
29	Shillong	Z	eP	07 35 16		Slight, distant.
29	Dehra Dun	Z	iP	07 35 27		Slight, compression.
29	Chatra	Z	iP i	07 35 35 36 59		Slight, distant, rarefaction.
29	Bokaro	NE	iP	07 57 37		Slight, local.
29	Shillong	Z	iP	03 09 47		Slight, distant, rarefaction.
29	Shillong	Z	iP	08 28 54		Slight, distant, compression.
29	Delhi	Z	iP	08 35 14		Slight, compression.
29	Delhi	Z	iP	09 11 01		Slight, rarefaction.



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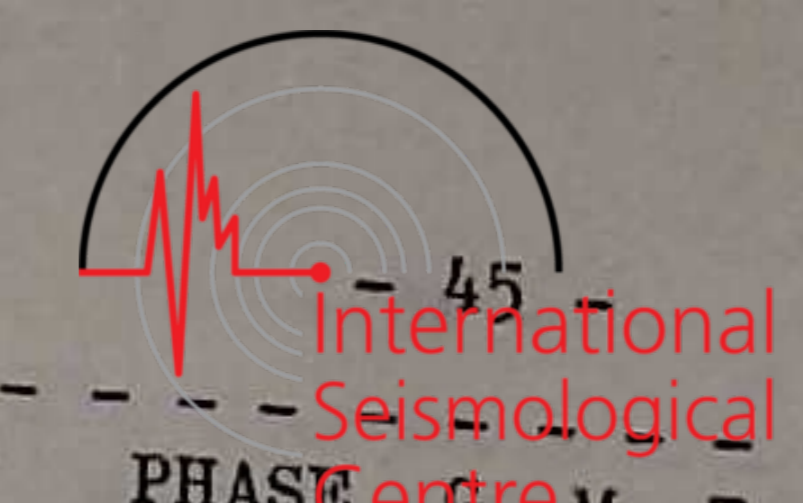
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29	Epc:- 49.7° N 154.9° E in Kurile Islands. h = about 126 Km. -H= 09 h 21 m 14.3 s .					
	Epc:- 59.5° N 150° E, -H= 09 h 21 m 12 s (CSO SHILLONG).					
	Shillong	ZNE EN E	iP iS PS PPS SS	09 30 25 37 48 37 55 38 05 49 20	5730	Slight, compression.
	Chatra	Z	iP	09 30 43		Slight, distant, compression.
	Calcutta	E	iP iS	09 31 00 38 48	6220	Slight.
	Port Blair	E	eP PP iS	09 31 01 33 40 39 50	7380	Slight.
	Bokaro	E	iP PPP S ScS i	09 31 02 35 51 38 54 40 39 41 38	6300	Slight. Initial ground motion toward ds West.
	Dehra Dun	ENZ Z Z EN E E	iP PP PPP iS i i	09 31 06 31 41 31 52 09 39 02 39 40 40 40	6370	Slight, compression. Initial ground move- ment towards South- East.
	Delhi	ENZ E ENZ EZ E ENZ EN E ENZ EN EN EN E	iP e PP i PPP e iS PS PPS SS ScS e SS	09 31 17 31 33 31 53 33 59 34 57 35 38 39 22 39 42 40 02 40 20 40 52 41 47 43 39	6820	Slight, compression. First ground motion South West. Probable depth 140 Kms.
	Visakhapatnam		iP ePP iS ScS i	09 31 47 34 14 40 21 41 03 42 02	7080	Moderate, distant . Initial ground motion towards South West.

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DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS.
29	Hyderabad	EN	iP	09 32 03	7360	Slight. Initial ground motion towards South West.
			PcP	32 32		
			PPS	41 44		
			SS	44 45		
			LR	52 03		
			LR	52 04		
29	Poona	ENZ	iP	09 32 17	7590	Slight, compression. Initial ground motion towards South West.
			iS	41 18		
29	Madras	E	iP	09 32 18	7610	Slight. Initial ground motion towards West.
			e	32 18		
			PcP	32 44		
			iS	41 20		
29	Colaba	NEZ	eP	09 32 20	7665	Period = 18 secs. Gr. dis = 3 μ .
			eS	41 25		
			SKS	42 08		
			M	10 01 28		
29	Chatra	Z	iP	09 40 16		Slight, distant, compression.
29	Bokaro	NE	iP	10 37 51		Slight, local.
29	Delhi	Z	iP	18 53 10		Slight, rarefaction.
			i	53 23		
29	Delhi	Z	eP	19 18 13		Slight, compression.
29	Shillong	Z	iP	20 53 23		Slight, distant, rarefaction.
29	Chatra	Z	iP	53 42		Slight, distant, rarefaction.
29	Chatra	Z	iP	21 14 12	140	Slight, rarefaction.
			eS	14 30		
29	Shillong	Z	iP	21 15 35		Slight, distant, rarefaction.
29	Chatra	Z	iP	21 17 10		Slight, distant, rarefaction.
30	Delhi	Z	iP	02 59 59		Slight, compression.
30	Shillong	Z	iP	04 51 53		Slight, distant, compression.



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DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	Δ km.	REMARKS.	
30	Chatra	Z	iP	04 52 03		Slight, distant, compression.	
30	Dehra Dun	Z	iP	04 52 10		Tremor, compression.	
Epc:- 55.6° S 28.3° W in Sandwich Islands region. h = about 33 Km. -H = 10 h 10 m 04.1 s. Mag : 6½ (Pas) (USCGS).							
30	Kodaikanal	E	e	10 28 01		Distant.	
			i	35 04			
			i	38 10			
30	Poona	Z	eP	10 28 41			
			NZ	i			29 26
30	Delhi	Z	ePKP	10 28 57	13490		
			ENZ	ePP			30 32
			EN	PPP			32 34
30	Dehra Dun	Z	iP	10 29 01		Compression.	
			i	29 17			
			i	29 26			
30	Chatra	Z	eP	10 29 05		Distant.	
			e	31 26			
30	Shillong	ZNE	iP	10 29 06	7633	Moderate, compression.	
			E	pP			31 40
				PPP			33 17
				ScP			33 30
				iS			38 09
				PS			38 29
				PPS			38 43
				ScS			38 57
				SS			42 28
				SSS			45 26
				LQ			46 40
	LR	49 59					
30	Bokaro	NE	e	10 29 09			
30	Madras	E	eP	10 29 23	8240	Moderate.	
			iS	38 56			
			PS/ScS	39 29			
			PPS	39 49			
			SSS	47 00			
			LQ	48 57			
30	Bombay	NEZ	eP	10 29 24	8220	Moderate.	
			NE	PP			29 45
			E	e			37 18
			E	iS			38 56
30		N	M	11 10 16		Period = 17 secs. Gr. dis = 10 μ .	

DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	△ km.	REMARKS.
January, 1963.						
30	Hyderabad	EN	eP PcP i iS SS LR LR M	10 29 36 29 39 35 32 39 12 44 51 53 32 53 36 59 28	8290	Local. Period = 22 secs. Gr. dis = 34 u. Period = 18 secs. Gr. dis = 19 u.
	Visakhapatnam		e i	10 30 10 35 22		
	Port Blair	E	eP i PP PPP i i i i i SS LQ M	10 30 13 32 01 33 24 35 14 37 19 39 38 41 02 41 24 42 26 43 45 45 56 52 30 11 04 32	9188	Moderate.
	Calcutta	E	i	10 30 46		Moderate.
Epc:- 29.7° N 80.5° E in India Nepal Border. h = about 57 Km. -H = 10 h 33 m 59.1 s (USCGS). Epc:- 29.5° N 80.9° E, -H = 10 h 33 m 50 s (CSO.SHILLONG).						
30	Dehra Dun		iP iS	10 34 38 35 05	235	Slight, rarefaction.
	Delhi	ENZ	Pn Pg Sn	10 34 48 34 59 35 27	355	Slight, rarefaction. Initial ground motion towards East.
	Chatra	Z	iP e e e	10 35 33 37 18 40 44 42 29		Moderate, distant. Compression.
	Sehore	NE	eP iS	10 35 43 37 04	780	Slight, near
	Bokaro	NE	iP iS	10 35 49 37 08	755	Slight, near.
	Shillong	ZE Z	iP iS	10 36 30 38 37	1240	Slight, compression.



DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	△ km.	REMARKS.
January, 1963.						
30	Visakhapatnam		eP iS e i i	10 36 48 39 01 39 48 41 00 45 15	1300	Slight, distant. Initial ground motion towards South West.
	Poona		iP eS	10 36 56 39 15	1355	Slight, compression.
	Bombay	Z	eP eS SS	10 36 59 39 30 39 49	1490	Slight.
	Calcutta	E	e i	10 38 02 39 11		Slight.
30	Madras	E	i e e e	10 40 46 40 52 41 40 45 29		Slight.
30	Delhi	EN Z E N E	i PS SS SSP SSS	10 40 24 40 29 46 44 47 24 51 34	355	Slight, rarefaction. Initial ground motion towards East.
30	Shillong	Z	eP	12 36 00		Slight, distant.
30	Shillong	Z	iP	15 54 09		Slight, distant, compression.
30	Chatra	Z	iP Sg	17 41 27 41 41	120	Slight.
	Shillong	ZE E	iP iS	17 41 42 42 27	410	Slight.
	Bokaro	NE E	iP iS	17 42 02 42 49	435	Slight, near.
	Calcutta	E	e	17 42 12 42 58		Slight.
	Dehra Dun	Z	eP i	17 43 25 45 25		Slight.
	Poona	Z	e e	17 44 43 49 12		Slight.
30	Shillong	Z	eP	19 32 31		Slight, near, compression.
30	Chatra	Z	eP S	22 37 31 37 55	200	Slight.
	Shillong	Z	eP	22 38 19		Slight, near.



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31	Dehra Dun	Z	eP i i	00 24 25 24 28 25 00		
	Chatra	Z	eP eS	00 25 28 26 35	630	Slight.
31	Epc:- 27.9° N 126.3° E in Ryukyu Island. -H = 05 h 06 m 46 s					
	Shillong	ZNE ZE NE E	iP PcP iS ScP LQ SS SSS LR ScS M	05 12 59 15 44 18 10 21 53 22 26 22 31 23 08 24 04 25 51 26 49	3530	Moderate, rarefaction.
	Chatra	ZNE	iP PP PPP eS SS	05 13 37 14 52 15 10 19 05 21 14	3830	Moderate, rarefaction. Initial ground motion towards East.
31	Port Blair	E	eP PP PPP PcP i iS i LQ/SS LR M	05 13 44 15 03 15 33 16 29 18 06 19 25 19 49 21 47 23 18 26 17	4020	Moderate.
31	Calcutta	E	iP i	05 13 34 14 54 18 50		
31	Bokaro	NE E NE E	iP PP i S i	05 13 52 15 21 18 22 19 42 24 10	4180	Moderate. Initial ground motion towards East.
31	Visakhapatnam		iP i i i LQ LR	05 14 27 16 25 23 09 30 05 05 31 29 32 31		

31	Dehra Dun	ENZ	iP PP PcP PPP PcS iS PS PPS SS LQ SSS LR N	05 14 40 16 21 16 30 16 56 20 26 21 05 21 13 21 21 24 06 24 35 24 56 26 41 30 12	4755	Moderate, compression. Initial ground motion towards South West.
31	Delhi	ENZ E E ENZ EN ENZ Z NZ E ENZ E E ENZ	iP PcP PP PPP PcS/ScP iS PS PPS SS ScS SSS LR M	05 14 46 16 14 16 22 17 12 20 22 21 15 21 19 21 25 24 01 24 38 25 12 27 23	4825	Moderate, rarefaction. Initial ground motion towards South East.
	Madras	E	iP PP PPP PcS/ScP iS SS LQ LR M	05 15 01 16 50 17 26 20 29 21 45 25 03 25 37 27 38 30 54	5090	Period=20 secs. Amp. 45 mm. Moderate. Initial ground motion towards East.
	Hyderabad	EN N N EN N E N E N	iP PP PPP iS SS LR LR M M	05 15 02 16 59 17 47 21 48 24 57 29 02 29 05 32 47 32 50	5120	Moderate. Initial ground motion towards East. Period = 15 secs. Gr. dis = 8 μ . Period = 21 secs. Gr. dis = 8 μ .
	Poona	NEZ N	iP iS PS PPS SS i LQ/SSS M	05 15 30 22 41 22 49 22 59 25 56 26 54 27 24 34 01	5545	Moderate. compression. Initial ground motion towards South West.

DATE	STATION	COMPT	PHASE	G. M. T. h. m. s.	△ km.	REMARKS
<u>January, 1963.</u>						
31	Kodaikanal	E	iP e	05 15 30 26 45		Slight, distant.
31	Bombay	NZ N	eP PP eS M	05 15 35 17 29 22 55 37 51	5720	Moderate. Period = 17 secs. Gr. dis = 15 μ.
31	Bokaro	NE	iP	09 24 53		Slight, local.
31	Dehra Dun	Z	eP	09 31 13		Slight.
31	Delhi	Z	iP	09 31 23		Slight, rarefaction.
31	Shillong	Z	eP	10 59 23		Slight, local.
31	Chatra	Z	iP S	11 00 21 01 42	780	Slight, rarefaction.
31	Chatra	Z	iP	11 39 28		Slight, distant, rarefaction.
31	Delhi	Z	iP	11 39 54		Slight, rarefaction.
31	Bokaro	NE	iP	11 47 49		Slight, local.
31	Dehra Dun	Z	iP	12 02 20		Slight, rarefaction.
31	Delhi	Z	iP	15 15 29		Slight, rarefaction.
31	Chatra	Z	iP	15 16 33		Slight, distant, rarefaction.
31	Shillong	Z	eP	15 17 13		Slight, distant.
31	Shillong	Z	eP	17 00 48		Slight, distant.
31	Dehra Dun	Z	iP i	17 11 28 11 29		Slight, compression.
31	Delhi	Z	iP	17 11 31		Slight, rarefaction.
31	Chatra	Z	iP	17 12 44		Slight, distant, rarefaction.
31	Shillong	Z	iP	17 13 19		Slight, distant, rarefaction.
31	Chatra	Z	iP	18 55 52		Slight, distant, compression.
31	Dehra Dun	Z	iP	18 56 03		Slight, rarefaction.
31	Delhi	Z	iP	18 56 13		Slight, compression.
31	Shillong	Z	eP	20 42 54		Slight, tremor.
31	Shillong	Z	iP	23 25 08		Slight, near.
31	Shillong	Z	eP	23 39 50		Slight, near.

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TABULATION

Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.	Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.
Station: Madras. January, 1963. Component: E-W.									
01	00	3	0.3	3.8	07	00	1	0.7	2.9
		3	0.3	2.9		03	1	0.7	3.0
	03	3	0.4	3.2		06	1	0.7	3.0
	06	3	0.3	2.6		12	1	0.7	3.0
	12	3	0.3	3.0		18	1	0.8	2.9
	18	3	0.4	3.1	08	00	1	0.9	2.9
		3	0.2	1.6		03	1	0.8	3.0
02	00	...	Earthquake.			06	1	0.8	3.0
	03	3	0.4	3.3		12	1	0.9	3.0
		3	0.1	1.4		18	1	1.0	3.0
	06	3	0.3	3.2	09	00	1	0.9	2.9
	12	3	0.4	3.3		03	1	0.9	2.9
	18	3	0.2	1.8		06	1	0.8	2.9
		1	0.5	3.5		12	1	0.8	2.9
		1	0.5	3.5		18	1	0.7	2.9
03	00	1	0.5	3.5	10	00	1	0.7	2.9
	03	1	0.6	3.5		03	1	0.7	2.9
	06	1	0.5	3.3			3	0.2	1.5
	12	1	0.4	2.5		06	1	0.7	2.9
		1	0.5	2.8		12	1	0.5	2.9
	18	1	0.7	3.7		18	1	0.5	2.9
		1	0.5	2.9					
04	00	1	0.8	3.5	11	00	1	0.4	2.8
		1	0.6	2.7		03	1	0.4	2.8
	03	1	0.7	3.7		06	1	0.4	2.7
		1	0.5	2.7		12	2	0.5	4.3
	06	1	0.7	3.6			3	0.3	2.8
		1	0.5	2.8		18	2	0.5	4.4
	12	1	0.7	3.6			3	0.3	2.7
		1	0.6	2.7	12	00	2	0.4	4.5
	18	1	0.7	3.8			3	0.3	2.9
		1	0.7	3.0		03	2	0.4	4.5
05	00	1	0.8	3.8			3	0.3	2.7
		1	0.7	2.9			3	0.1	1.5
		3	0.2	1.8		06	3	0.3	2.7
	03	1	0.7	3.4		12	2	0.5	4.8
		1	0.6	2.7			3	0.3	2.7
		3	0.1	1.5		18	2	0.5	5.0
	06	1	0.7	3.6			3	0.3	2.7
		1	0.6	2.9	13	00	2	0.6	5.9
	12	1	0.8	3.7			3	0.2	2.6
		1	0.7	2.9		03	2	0.7	6.1
	18	1	0.8	3.4			3	0.3	2.5
		1	0.7	3.0		06	2	0.6	5.9
							3	0.2	2.3
06	00	1	0.7	3.4	12	00	2	0.7	6.0
		1	0.7	2.9			3	0.2	2.5
	03	1	0.7	3.1	18	00	2	0.6	5.6
	06	1	0.7	3.1			3	0.2	2.3
	12	1	0.6	2.9					
	18	1	0.7	2.9					



Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.	Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.
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Station : Madras (Contd.) January, 1963. Component: E-W.

14	00	2	0.5	5.6	19	06	3	0.3	2.7
		3	0.2	2.2		12	3	0.4	2.7
	03	2	0.5	5.4			3	0.1	1.4
		3	0.2	2.4		18	3	0.4	2.7
	06	2	0.5	5.6			3	0.1	1.4
		3	0.2	2.5	20	00	3	0.4	2.9
	12	2	0.5	5.7		03	3	0.4	3.0
		3	0.2	2.6		06	3	0.4	2.9
	18	2	0.6	5.8		12	3	0.4	2.8
		3	0.3	2.7			3	0.2	1.9
2	15	00	0.6	5.8		18	3	0.3	2.9
3	0.5	0.6	0.3	2.6			3	0.1	1.3
3	0.2	2.4	0.1	1.5	21	00	3	0.4	2.9
3	0.1	1.5	0.2	2.1			3	0.1	1.5
	06	3	0.2	2.1		03	...	No record	
	12	2	0.5	5.2		06	...	-do-	
		3	0.3	2.5		12	...	-do-	
	18	2	0.5	5.5		18	...	-do-	
		3	0.3	2.8	22	00	3	0.4	2.7
16	00	2	0.5	5.2			3	0.1	1.4
		3	0.4	2.8		03	3	0.4	3.1
	03	2	0.4	5.2			3	0.1	1.3
		3	0.4	2.9		06	3	0.4	3.2
	06	2	0.4	5.3			3	0.2	1.3
		3	0.4	3.1		12	3	0.3	2.7
	12	2	0.4	5.1		18	3	0.3	2.7
		3	0.4	3.3	23	00	3	0.2	2.7
	18	2	0.5	5.4		03	3	0.3	3.0
		3	0.4	3.5		06	3	0.2	2.7
17	00	2	0.6	5.7			3	0.1	1.3
		3	0.5	3.4		12	3	0.2	2.5
	03	2	0.4	5.5		18	3	0.3	4.3
		3	0.5	3.4			3	0.3	2.5
	06	2	0.5	5.5		24	00	3	0.3
		3	0.4	3.5			3	0.3	4.1
	12	2	0.6	5.4			3	0.3	2.5
		3	0.4	3.4		03	3	0.3	2.6
	18	2	0.7	6.1		06	...	No record.	
		3	0.4	3.2		12	3	0.3	2.5
18	00	2	0.7	6.0		18	1	0.4	2.6
		3	0.4	3.0			3	0.1	1.5
	03	2	0.6	5.7		25	00	1	0.4
		3	0.3	2.7			3	0.2	1.5
	06	3	0.3	2.7			3	0.4	2.7
	12	3	0.3	2.5			3	0.2	1.6
	18	2	0.5	5.9			1	0.4	2.7
		1	0.3	2.7			3	0.5	2.7
19	00	1	0.4	2.7			3	0.2	1.7
	03	3	0.3	2.7			3	0.4	3.1
		3	0.1	1.5			3	0.4	2.4
							3	0.2	1.6

Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.	Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.
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Station : Madras (Contd.) January, 1963. Component: E-W.

26	00	1	0.5	3.0	Station: Visakhapatnam.				
		3	0.2	1.8	01	00	00	-	-
	03	1	0.5	2.8		06	2	0.3	4.5
		3	0.2	1.5		12	2	0.4	4.8
	06	1	0.5	2.7		18	2	0.3	4.0
	12	1	0.5	2.7	02	00	00	-	-
	18	1	0.5	2.8		06	2	0.4	3.0
27	00	1	0.5	2.7		12	2	0.5	4.2
	03	1	0.5	2.7		18	00	-	-
	06	1	0.5	2.8	03	00	00	-	-
	12	1	0.4	2.8		06	2	0.4	3.0
	18	1	0.4	2.7		12	2	0.4	5.0
28	00	1	0.4	2.8		18	2	0.3	4.2
	03	1	0.4	2.8	04	00	00	-	-
	06	1	0.3	2.7		06	2	0.4	4.8
	12	1	0.3	2.7		12	2	0.4	4.2
	18	3	0.4	3.1		18	2	0.3	3.4
		3	0.3	2.4	05	00	00	-	-
29	00	3	0.4	3.4		06	2	0.5	5.0
		3	0.3	2.5		12	2	0.5	4.8
	03	3	0.4	3.4		18	00	-	-
		3	0.2	2.4	06	00	00	-	-
	06	3	0.3	3.3		06	00	-	-
		3	0.2	2.5		12	00	-	-
	12	3	0.4	3.4		18	00	-	-
		3	0.3	2.5	07	00	00	-	-
	18	3	0.4	3.5		06	00	-	-
		3	0.3	2.7		12	00	-	-
30	00	3	0.4	4.1		18	00	-	-
		3	0.3	2.8	08	00	00	-	-
	03	3	0.4	2.7		06	2	0.4	3.0
	06	3	0.4	2.7		12	2	0.3	2.9
	12	...	Earthquake.			18	2	0.3	3.1
	18	3	0.5	2.9	09	00	00	-	-
		3	0.1	1.5		06	2	0.3	2.1
31	00	3	0.4	2.7		12	2	0.3	3.2
		3	0.1	1.7		18	2	0.2	2.9
	03	3	0.4	2.9	10	00	00	-	-
		3	0.1	1.8		06	2	0.4	3.8
	06	...	Earthquake.			12	2	0.4	3.9
	12	3	0.3	2.8		18	2	0.3	3.1
	18	3	0.4	2.8					
		3	0.2	1.7					

Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.	Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.
Station : Visakhapatnam. Component: E-W.									
January, 1963.									
11	00	00	-	-	22	00	00	-	-
	06	2	0.3	3.6		06	2	0.3	3.4
	12	2	0.3	3.7		12	2	0.3	-
	18	2	0.3	3.8		18	00	-	-
12	00	00	-	-	23	00	00	-	-
	06	2	0.3	3.9		06	2	0.4	4.2
	12	2	0.4	4.4		12	2	0.4	4.5
	18	2	0.3	3.9		18	00	-	-
13	00	00	-	-	24	00	00	-	-
	06	2	0.5	4.2		06	2	0.4	4.3
	12	2	0.4	4.9		12	2	0.4	4.8
	18	2	0.4	4.6		18	00	-	-
14	00	00	-	-	25	00	00	-	-
	06	2	0.5	4.6		06	2	0.3	3.1
	12	2	0.4	4.8		12	2	0.3	3.3
	18	2	0.4	4.4		18	00	-	-
15	00	00	-	-	26	00	00	-	-
	06	2	0.5	4.9		06	00	-	-
	12	2	0.4	4.6		12	2	0.4	3.9
	18	2	0.4	4.2		18	00	-	-
16	00	00	-	-	27	00	00	-	-
	06	2	0.4	3.1		06	2	0.2	2.9
	12	2	0.4	3.2		12	2	0.4	3.9
	18	00	-	-		18	00	-	-
17	00	00	-	-	28	00	00	-	-
	06	2	0.4	4.3		06	2	0.2	2.8
	12	2	0.4	4.4		12	2	0.3	3.1
	18	00	-	-		18	2	0.3	3.0
18	00	00	-	-	29	00	00	-	-
	06	00	-	-		06	2	0.2	2.2
	12	2	0.3	2.7		12	2	0.2	2.8
	18	00	-	-		18	2	0.2	2.9
19	00	00	-	-	30	00	00	-	-
	06	2	0.3	2.8		06	2	0.2	2.9
	12	2	0.3	2.9		12	0	-	-
	18	00	-	-		18	00	-	-
20	00	00	-	-	31	00	00	-	-
	06	2	0.2	2.5		06	00	-	-
	12	2	0.3	2.6		12	2	0.2	3.0
	18	00	-	-		18	00	-	-
21	00	00	-	-					
	06	2	0.3	3.2					
	12	2	0.3	3.5					
	18	00	-	-					

Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean Period in Sec.	Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.
Station : Shillong Component: E-W.									
January, 1963.									
01	00	1	0.3	4.0	12	000	1	0.7	5.0
	06	...	-	-		06	1	0.6	5.0
	12	1	0.4	4.5		12	1	0.6	5.1
	18	1	0.3	4.2		18	1	0.6	5.2
02	00	...	-	-	13	00	1	0.5	5.1
	06	1	0.3	4.1		06	2	0.5	5.1
	12	1	0.3	4.0		12	2	0.6	5.2
	18	1	0.4	4.3		18	2	0.7	5.2
03	00	1	0.4	4.5	14	00	2	0.7	5.3
	06	1	0.3	4.0		06	2	0.4	4.5
	12	1	0.4	4.5		12	2	0.3	4.1
	18	1	0.5	4.8		18	2	0.3	4.0
04	00	1	0.5	4.9	15	00	2	0.3	4.0
	06	...	-	-		06	1	0.3	4.2
	12	1	0.4	4.5		12	1	0.3	4.4
	18	1	0.3	4.1		18	1	0.4	4.5
05	00	1	0.4	4.3	16	00	1	0.4	4.5
	06	1	0.4	4.4		06	...	-	-
	12	1	0.5	4.8		12	3	0.5	5.0
	18	1	0.4	4.2		18	3	0.4	4.8
06	00	1	0.4	4.4	17	00	3	0.5	5.1
	06	1	0.5	5.0		06	2	0.5	5.1
	12	1	0.6	5.0		12	2	0.5	5.0
	18	1	0.6	5.1		18	3	0.4	5.0
07	00	1	0.5	5.0	18	00	3	0.4	5.0
	06	3	0.5	5.0		06	3	0.4	4.6
	12	...	-	-		12	3	0.3	4.4
	18	1	0.4	4.8		18	3	0.3	4.2
08	00	1	0.4	4.8	19	00	3	0.3	4.2
	06	3	0.5	5.0		06	3	0.4	4.8
	12	3	0.4	4.6		12	3	0.5	5.0
	18	3	0.4	4.7		18	3	0.5	5.1
09	00	3	0.3	4.5	20	00	3	0.5	5.1
	06	3	0.4	4.8		06	3	0.4	4.5
	12	3	0.5	5.0		12	3	0.4	4.4
	18	3	0.4	4.8		18	3	0.3	4.3
10	00	3	0.5	5.1	21	00	3	0.3	4.2
	06	3	0.5	4.9		06	3	0.4	4.2
	12	3	0.5	4.8		12	3	0.4	4.0
	18	3	0.6	5.0		18	3	0.3	4.0
11	00	3	0.6	5.0	22	00	3	0.3	4.0
	06	3	0.7	5.1		06	...	-	-
	12	1	0.6	5.0		12	3	0.4	5.0
	18	1	0.7	5.0		18	3	0.3	4.8



Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.	Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.
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Station : Shillong (Contd.) January, 1963. Component: E-W.

23	00	3	0.4	5.0	02	00	...	-	-
	06	3	0.4	5.1		06	...	-	-
	12	3	0.3	4.8		12	...	-	-
	18	3	0.3	4.9		18	3	0.4	4.8
24	00	3	0.2	4.5	03	00	...	-	-
	06	1	0.3	4.5		06	...	-	-
	12	1	0.4	4.7		12	3	0.4	5.0
	18	1	0.4	4.7		18	1	0.5	5.0
25	00	1	0.4	4.6	04	00	...	-	-
	06	3	0.4	4.8		06	...	-	-
	12	3	0.3	4.5		12	3	0.4	4.0
	18	3	0.3	4.6		18	2	0.4	3.0
26	00	3	0.3	4.5	05	00	...	-	-
	06	3	0.3	4.1		06	...	-	-
	12	3	0.4	5.0		12	3	0.4	4.2
	18	3	0.3	4.5		18	3	0.4	4.2
27	00	3	0.3	4.6	06	00	...	-	-
	06	3	0.3	4.2		06	...	-	-
	12	3	0.3	4.4		12	3	0.4	5.0
	18	3	0.3	4.2		18	3	0.4	5.0
28	00	3	0.3	4.2	07	00	3	0.4	4.8
	06	3	0.2	4.0		06	...	-	-
	12	3	0.2	4.0		12	...	-	-
	18	3	0.3	4.2		18	3	0.4	5.0
29	00	3	0.2	4.0	08	00	3	0.4	5.0
	06	3	0.2	3.9		06	...	-	-
	12	3	0.2	4.1		12	...	-	-
	18	3	0.3	4.6		18	...	-	-
30	00	3	0.3	4.4	09	00	...	-	-
	06	3	0.3	4.6		06	3	0.4	4.5
	12	...	-	-		12	3	0.4	4.8
	18	3	0.4	5.0		18	3	0.4	4.5
31	00	3	0.3	4.7	10	00	3	0.4	4.4
	06	...	-	-		06	3	0.4	5.0
	12	3	0.3	4.6		12	3	0.4	5.0
	18	3	0.2	4.1		18	3	0.4	4.8

S

Station: Bokaro.

01	00				11	00	3	0.4	4.8
	06	...	-	-		06	3	0.4	5.0
	12	...	-	-		12	3	0.4	5.0
	18	3	0.4	5.0		18	3	0.4	9.8
					12	00	3	0.4	4.8
						06	3	0.4	4.8
						12	3	0.4	5.0
						18	3	0.4	5.2

Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.	Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.
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Station : Bokaro (Contd.) January, 1963. Component: E-W.

13	00	3	0.4	5.0	24	00	3	0.4	4.8
	06	...	-	-		06	...	-	-
	12	...	-	-		12	3	0.4	4.4
	18	...	-	-		18	3	0.4	4.8
14	00	...	-	-	25	00	3	0.4	4.0
	06	3	0.4	4.8		06	...	-	-
	12	3	0.4	4.6		12	...	-	-
	18	3	0.4	4.8		18	...	-	-
15	00	3	0.4	4.6	26	00	...	-	-
	06	...	-	-		06	3	0.4	5.0
	12	...	-	-		12	3	0.3	4.8
	18	...	-	-		18	3	0.3	4.7
16	00	...	-	-	27	00	3	0.3	4.7
	06	3	0.4	4.0		06	3	0.3	4.6
	12	3	0.4	4.0		12	3	0.3	4.8
	18	3	0.4	4.2		18	3	0.3	4.8
17	00	...	-	-	28	00	3	0.3	4.8
	06	...	-	-		06	3	0.3	5.0
	12	...	-	-		12	3	0.3	4.5
	18	3	0.4	4.0		18	3	0.3	4.6
18	00	3	0.4	4.0	29	00	3	0.3	4.4
	06	...	-	-		06	3	0.3	4.4
	12	2	0.4	4.0		12	3	0.2	4.6
	18	3	0.4	4.0		18	3	0.3	5.0
19	00	...	-	-	30	00	3	0.3	4.7
	06	...	-	-		06	3	0.3	5.0
	12	3	0.4	4.0		12	...	-	-
	18	3	0.4	4.0		18	3	0.2	5.0
20	00	...	-	-	31	00	3	0.2	4.1
	06	...	-	-		06	...	-	-
	12	3	0.4	5.0		12	3	0.2	4.0
	18	3	0.4	4.2		18	3	0.3	4.7
21	00	...	-	-					
	06	...	-	-					
	12	3	0.4	5.0					
	18	3	0.4	4.2					
22	00	...	-	-					
	06	...	-	-					
	12	3	0.4	4.8					
	18	3	0.4	4.5					
23	00	...	-	-					
	06	...	-	-					
	12	3	0.4	4.2					
	18	3	0.4	4.8					

Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.	Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.
Station: Bombay (Colaba) January, 1963. Component: E-W.									
01	00	3	0.4	4.9	07	00	3	0.6	4.6
			0.3	2.4				0.3	2.0
	06	3	0.4	3.7		06	.	.	.
			0.4	2.5		12	.	.	.
	12	3	0.5	3.9		18	3	0.6	4.5
			0.5	2.7				0.4	2.2
	18	3	0.5	4.8	08	00	3	0.8	4.7
			0.4	2.3				0.4	3.0
02	00	.	.	.	06	06	3	0.6	4.5
	06	3	0.6	4.8				0.4	3.0
			0.4	2.0		12	3	0.6	4.6
	12	3	0.6	4.4				0.4	3.0
			0.3	2.0		18	3	0.5	5.4
	18	3	0.6	4.1				0.4	3.0
			0.3	2.0	09	00	3	0.6	5.4
03	00	3	0.7	4.2				0.5	3.0
			0.4	2.3		06	3	0.6	4.6
	06	3	0.8	4.3				0.4	3.0
			0.3	1.7		12	3	0.6	5.1
	12	3	0.6	4.1				0.5	3.0
			0.5	1.8		18	3	0.6	5.5
	18	3	0.6	4.3				0.5	3.0
			0.6	2.0	10	00	3	0.6	5.8
04	00	3	0.8	4.2				0.5	3.0
			0.5	2.2		06	.	.	.
	06	3	0.8	4.1		12	3	0.6	5.8
			0.3	2.1				0.4	3.0
	12	3	0.8	4.3		18	3	0.5	5.6
			0.4	2.2				0.4	3.0
	18	3	0.7	4.1	11	00	3	0.5	5.4
			0.4	1.5				0.4	3.0
05	00	3	0.7	4.3	06	06	.	.	.
			0.3	1.6		12	3	0.5	5.7
	06	3	0.7	4.2				0.4	3.0
			0.4	1.8		18	3	0.5	5.5
	12	3	0.6	4.4				0.4	2.3
			0.3	1.8	12	00	3	0.6	5.1
	18	3	0.7	4.1				0.5	2.5
			0.3	2.3		03	1	0.6	2.5
06	00	3	0.6	4.4		06	1	0.7	2.4
			0.3	2.5		09	1	0.6	2.7
	06	3	0.6	4.6		12	1	0.6	5.4
			0.4	3.0		18	3	0.6	5.4
	12	3	0.7	4.3				0.5	2.7
			0.4	3.0	13	00	3	0.6	5.8
	18	3	0.7	4.7				0.4	2.6
			0.4	2.5		06	3	0.7	5.7
								0.4	2.7
						12	3	0.6	5.2
								0.4	3.0
						18	3	0.7	5.3
								0.5	2.3
								0.5	2.3

Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.	Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.
Station: Bombay (Colaba) January, 1963. Component: E-W.									
(Contd.)									
14	00	3	0.7	5.5	20	00	3	0.6	5.7
			0.7	2.5				0.3	1.8
	03	1	0.6	2.6		06	.	.	.
	06	1	1.0	2.6		12	3	0.6	6.0
	09	1	1.2	2.9				0.4	2.3
	12	1	1.2	2.9		18	3	0.6	5.6
	15	1	0.9	2.8				0.4	2.3
	18	3	0.7	5.1	21	00	.	.	.
			0.6	2.5		06	3	0.5	5.9
15	00	3	0.7	5.4				0.3	2.1
			0.6	2.5		12	3	0.6	5.7
	03	1	0.9	2.5				0.3	2.0
	06	1	0.9	2.6		18	3	0.6	5.4
	09	1	1.2	3.2				0.9	2.0
	12	1	1.1	3.1	22	00	3	0.6	5.1
	15	1	1.2	3.3				0.3	2.2
	18	1	1.2	3.5		06	3	0.5	5.0
16	00	.	.	.				0.4	2.1
	06	1	1.0	3.5		12	3	0.5	4.8
	09	1	0.7	3.2				0.4	2.0
	12	1	0.8	3.1		18	3	0.6	4.6
	15	1	0.7	2.6				0.3	2.0
	18	1	0.7	2.9	23	00	3	0.5	4.9
	21	1	0.9	3.0				0.3	2.2
17	00	1	0.8	2.7		06	3	0.5	4.8
	06	3	0.7	5.7				0.3	2.0
			0.7	2.6		12	3	0.4	4.9
	12	3	0.7	5.8				0.3	2.0
			0.6	3.0		18	3	0.5	4.8
	18	3	0.7	6.0				0.4	1.8
			0.6	2.7	24	00	.	.	.
18	00	3	0.7	5.4		06	3	0.6	4.7
			0.5	2.6				0.4	2.1
	06	3	0.7	6.4		12	3	0.5	4.8
			0.5	2.5				0.3	2.2
	12	3	0.6	5.5		18	3	0.6	5.0
			0.5	2.3				0.3	2.0
	18	3	0.5	5.6	25	00	3	0.6	4.9
			0.4	2.5				0.4	2.3
19	00	3	0.6	5.3		06	3	0.5	5.0
			0.4	2.8				0.7	2.3
	06	3	0.6	5.1		12	3	0.4	4.8
			0.5	2.5				0.6	2.2
	12	3	0.7	5.6		18	3	0.6	5.5
			0.5	2.5				0.8	1.8
	18	3	0.7	5.9					
			0.6	3.0					

Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.	Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.
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Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.	Date	Hour GMT	K	Mean simple amplitude in m.m.	Mean period in sec.
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Station: Bombay (Colaba)
(Contd.)

January, 1963.

Component: E-W.

26	00	3	0.5	5.0
			0.4	1.8
	06	.	.	.
	12	3	0.4	4.9
			0.3	2.3
	18	3	0.4	5.3
			0.3	2.0
27	00	3	0.4	4.4
			0.3	2.0
	06	3	0.4	4.8
			0.3	2.0
	12	3	0.4	4.7
			0.3	2.2
	18	3	0.5	5.1
			0.4	2.2
28	00	3	0.4	4.5
			0.5	2.3
	06	.	.	.
	12	3	0.5	4.6
			0.3	2.2
	18	3	0.5	4.9
			0.3	2.2
29	00	3	0.5	5.2
			0.3	2.0
	06	3	0.4	4.8
			0.3	2.0
	12	3	0.5	4.6
			0.5	2.3
	18	3	0.6	4.8
			0.5	2.0
30	00	3	0.4	5.2
			0.4	2.1
	06	3	0.5	5.2
			0.4	2.0
	12	.	.	.
	18	3	0.5	5.0
			0.3	1.9
31	00	3	0.5	5.0
			0.4	2.1
	06	3	0.5	4.6
			0.4	2.0
	12	3	0.4	4.5
			0.4	2.0
	18	3	0.4	4.6
			0.3	1.6

Station:
Port Blair

01	00	1	0.2	3
	06	1	0.4	3
	12	1	0.4	3
	18	1	0.4	3
02	00	...	-	-
	06	1	0.4	3
	12	1	0.4	3
	18	1	0.4	3
03	00	1	0.4	3
	06	1	0.8	3
	12	1	0.8	3
	18	1	0.8	3
04	00	1	0.8	3
	06	1	0.8	3
	12	1	0.4	3
	18	1	0.4	3
05	00	1	0.4	3
	06	1	0.4	3
	12	1	0.4	3
	18	1	0.4	3
06	00	1	0.4	3
	06	1	0.4	3
	12	1	0.4	3
	18	1	0.4	3
07	00	1	0.4	3
	06	1	0.4	2
	12	...	-	-
	18	1	0.4	3
08	00	1	0.4	3
	06	1	0.4	3
	12	1	0.4	3
	18	1	0.4	3
09	00	1	0.4	3
	06	1	0.2	3
	12	...	-	-
	18	1	0.2	3

Station: Port Blair (Contd.)

January, 1963.

Component: E-W.

10	00	0,0	-	-
	06	1	0.2	3
	12	1	0.2	2
	18	1	0.2	3
11	00	1	0.2	2
	06	1	0.2	2
	12	1	0.2	2
	18	1	0.2	2
12	00	1	0.2	2
	06	1	0.2	2
	12	1	0.2	2
	18	1	0.2	2
13	00	1	0.2	2
	06	1	0.2	7
	12	1	0.4	7
	18	1	0.2	7
14	00	1	0.2	5
	06	1	0.4	7
	12	...	-	-
	18	1	0.4	7
15	00	1	0.4	7
	06	1	0.4	3
	12	1	0.4	3
	18	1	0.4	3
16	00	1	0.4	3
	06	1	0.4	3
	12	1	0.8	3
	18	1	0.4	3
17	00	1	0.2	3
	06	3	0.2	3
	12	1	0.4	7
	18	1	0.4	7
18	00	1	0.4	7
	06	1	0.2	6
	12	0,0	-	-
	18	0,0	-	-
19	00	1	0.2	7
	06	1	0.4	7
	12	1	0.4	7
	18	1	0.4	7
20	00	1	0.2	3
	06	1	0.4	3
	12	1	0.4	3
	18	1	0.2	3
21	00	1	0.2	3
	06	1	0.2	3
	12	1	0.2	3
	18	1	0.2	3
22	00	1	0.2	3
	06	1	0.2	3
	12	1	0.2	3
	18	1	0.2	3
23	00	1	0.2	3
	06	1	0.2	3
	12	1	0.2	3
	18	1	0.2	3
24	00	...	-	-
	06	1	0.2	3
	12	1	0.2	3
	18	1	0.4	3
25	00	1	0.4	3
	06	1	0.4	3
	12	1	0.4	3
	18	1	0.4	3
26	00	1	0.4	3
	06	1	0.4	3
	12	1	0.4	3
	18	1	0.4	3
27	00	1	0.4	3
	06	1	0.4	3
	12	1	0.4	3
	18	1	0.4	3
28	00	1	0.4	3
	06	1	0.4	3
	12	1	0.4	3
	18	1	0.2	3
29	00	1	0.2	3
	06	1	0.2	3
	12	1	0.2	3
	18	1	0.2	3
30	00	1	0.2	3
	06	1	0.2	3
	12	...	-	-
	18	1	0.2	3
31	00	1	0.2	3
	06	...	-	-
	12	1	0.2	3
	18	1	0.4	3