

Copy of 1963



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1963

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GOVERNMENT OF INDIA
METEOROLOGICAL DEPARTMENT

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SHRI P. R. KRISHNA RAO
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 Magnification | Damping ratio | Paper speed mm/min |
|-------------|------------------------|-----------|------------------------|---|----------------------|-------|-------------------|----------------------|---------------|--------------------|
| Agra | | | | | Columbia | E | To=15 Tg=100 | | | 15 |
| | | | | | Long Period | N | To=15 Tg=95 | | | 15 |
| | | | | | - do - | Z | To=15 Tg=70 | | | 15 |
| Bombay | 18.54°N, 72.40°E | | 4 | Deccan Trap | Milne-Shaw | N | 12 350 | 13:1 | | 16 |
| | | | | | Milne-Shaw | E | 12 350 | 23:1 | | 8 |
| | | | | | Sprengnether | E | To=Tg=7 secs | | | 30 |
| Bokaro | 23.50°N, 85.49°E | | | Rock | Milne-Shaw | N | 12 250 | 20:1 | | 16 |
| | | | | | Milne-Shaw | E | 12 250 | 20:1 | | 16 |
| | | | | | Wood-Anderson | E | 0.8 950 | h=0.8 | | 60 |
| | | | | | Wood-Anderson | N | 0.8 1000 | h=0.8 | | 60 |
| Calcutta | 22.32°N, 88.22°E (1) 7 | | | Milne-Shaw | Milne-Shaw | E | 12 250 | 20:1 | | 8 |
| | (2) 6 | | | Omori-Ewing | Wood-Anderson | N | 2 870 | Critical | | 30 |
| | | | | Alluvium | Omori-Ewing | N | 16 32 | | | 25.4 |
| | | | | | Omori-Ewing | E | 21 30 | | | 25.4 |
| Chatra | 25.50°N, 87.10°E | | 151 | Sand Stone | Milne-Shaw | E | 12 250 | 20:1 | | 16 |
| | | | | | Wood-Anderson | N | 1 1000 | 30:1 | | 60 |
| | | | | | Benioff | Z | To=0 Tg=0.45 secs | Critical | | 60 |
| | | | | | Wenner-Accelerograph | ZNE | - | - | | - |
| Colombo | 06.54°N, 79.52°E | | 7 | Beach Sand | Milne-Shaw | E | 12 250 | 20:1 | | - |
| Dehra Dun | 30.19°N, 78.02°E | | 582 | Gravel | Wood-Anderson | N | 0.8 950 | Critical | | 60 |
| | | | | | Wood-Anderson | E | 0.8 850 | Critical | | 60 |
| | | | | | Milne-Shaw | N | 12 250 | 20:1 | | 8 |
| | | | | | Milne-Shaw | E | 12 250 | 20:1 | | 8 |
| Hyderabad | 17.26°N, 78.27°E | | 536 | Granite | Milne-Shaw | E | 12 250 | 20:1 | | 8 |
| | | | | | Milne-Shaw | E | 12 250 | 20:1 | | 8 |
| Kodaikanal | 10.14°N, 77.28°E | | 2345 | Rock | Milne-Shaw | E | 10 250 | 20:1 | | 8 |
| Madras | 13.00°N, 80.11°E | | 15 | - | Sprengnether | E | To=Tg=72 secs | Critical | | 30 |
| New Delhi | 28.35°N, 77.12°E | | 207 | Massive Quartzite | | | | | | |
| Poona | 18.32°N, 73.51°E | | 560 | Deccan Trap | Sprengnether | Z | To=Tg=1.6 | Critical | | 30 |
| | | | | | Wood-Anderson | E | 4 1000 | 20:1 | | 16 |
| | | | | | Milne-Shaw | N | 12 280 | 20:1 | | 8 |
| Port Blair | 11.49°N, 92.43°E | | - | - | Wood-Anderson | N | 2 1000 | 20:1 | | 30 |
| | | | | | Wood-Anderson | E | 0.8 1000 | 66:1 | | 30 |
| | | | | | Milne-Shaw | N | 12 350 | 20:1 | | 8 |
| Sehore | 23.10°N, 77.08°E | | | | Wood-Anderson | N | 0.8 980 | Critical | | 30 |
| Shillong | 25.34°N, 91.53°E | | 1500 | Quartzite Sand Stone (Shillong Quartzite) | Wood-Anderson | N | 0.8 1000 | h=0.8 | | 30 |
| | | | | | Wood-Anderson | E | 0.8 1000 | h=0.8 | | 30 |
| | | | | | Milne-Shaw | N | 12 250 | 20:1 | | 8 |
| | | | | | Benioff | Z | To=1.0 Tg=18 | | | 50 |
| | | | | | Sprengnether | E | To=Tg=6.3 | Critical | | 30 |
| | | | | | Wenner Accelerograph | ZNE | - | - | | - |
| Tocklai | 28.45°N, 94.45°E | | | Alluvium | Wood-Anderson | E | 0.8 970 | h=0.8 | | 60 |
| Vizianagram | 18.07°N, 83.27°E | | - | - | Wood-Anderson | E | 0.8 1000 | h=0.8 | | 30 |
| | | | | | Wood-Anderson | N | 2 1000 | 20:1 | | 30 |



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| DATE | STATION | COMPT | PHASE | Time (h. m. s.) | REMARKS |
|-------------|---|---------|--------------------------------------|---|--|
| June, 1963. | | | | | |
| 01 | Shillong | ZNE | eP i | 00 05 43 06 23 | Slight, near. |
| 01 | Shillong | ZNE | eP | 00 27 51 | Slight, near. |
| 01 | Shillong | ZNE | iP | 02 16 46 | Slight, distant, compression. |
| 01 | Shillong | ZNE | iP | 05 49 21 | Slight, near. |
| 01 | Epc:- 36° N 72° E in Hindukush. H= 10 h 49 m 50 s (Shillong). | | | | |
| 01 | Epc:- 36.4° N 71.5° E in Hindukush. h = about 70 km. Mag : 5.3 (CGS). -H= 10 h 49 m 54.8 s (USCGS). | | | | |
| | Dehra Dun | EN | eP iS i | 10 51 53 53 25 53 33 | 900 |
| | Delhi | ENZ | iP iS | 10 52 03 53 39 | 930 Initial ground movement towards North-West. Rarefaction. |
| | Sehore | N | iP e iS | 10 53 07 53 38 55 36 | 1470 |
| | Chatra | Z NE | eP eS | 10 53 39 56 32 | 1720 |
| | Bokaro | NE E | eP PPP iS SS PcP | 10 53 54 54 19 56 57 57 13 57 33 | 1840 Initial ground movement towards East. |
| | Poona | Z | eP | 10 53 58 | Compression. |
| | Calcutta | E | eP LR | 10 54 17 58 40 | |
| | Hyderabad | E | eP iS LR M | 10 54 23 58 00 58 44 11 00 05 | 2190 Period= 5 secs. Gr. dis = 2 u. |
| | Shillong | ZNE | iP iS | 10 54 29 58 13 | 2270 Initial ground movement towards North, West. Rarefaction. |
| | Madras | E | eP PP iS LQ LR e M | 10 55 14 55 53 59 34 11 00 07 01 19 02 35 03 22 | 2740 |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|--------------------|---------------|-------|---------------------|-------------------------------------|----------|---|
| <u>June, 1963.</u> | | | | | | |
| 01 | Visakhapatnam | E | eP PP e eS | 10 55 26 56 04 59 07 59 49 | 2840 | Distant. |
| | Bombay | ES | e e | 10 56 54 57 14 | | |
| 01 | Shillong | ZNE | eP Sg | 14 15 47 15 59 | 120 | Slight. |
| 01 | Shillong | ZNE | iP | 18 29 55 | | Slight, distant, rarefaction. |
| 01 | Chatra | Z | iP | 18 29 55 | | Slight, distant, rarefaction. |
| 01 | Delhi | Z | eP | 18 30 17 | | Slight, compression. |
| 01 | Delhi | Z | iP | 19 45 04 | | Slight, rarefaction. |
| 01 | Shillong | ZNE | iP | 20 14 25 | | Slight, distant, rarefaction. |
| 01 | Delhi | Z | eP | 20 44 49 | | Slight, rarefaction. |
| | Chatra | Z | iP | 20 45 51 | | Slight, distant, rarefaction. |
| 01 | Shillong | ZNE | iP | 20 46 18 | | Slight, distant, rarefaction. |
| 01 | Shillong | ZNE | eP | 21 21 10 | | Slight, distant. |
| 01 | Shillong | ZNE | iPg Sg | 21 54 35 54 50 | 130 | Slight. Initial ground motion towards South, West. Compression. |
| 01 | Chatra | Z | eP eS | 21 57 06 57 54 | 440 | Slight. |
| 02 | Shillong | ZNE | eP | 00 10 41 | | Slight, distant. |
| 02 | Shillong | ZNE | iP iS | 07 09 00 10 10 | 670 | Slight, compression. |
| | Tocklai | E | iP e | 07 08 35 09 04 | | Slight. |
| | Chatra | Z | iP eS | 07 09 42 10 59 | 730 | Slight. |
| 02 | Bokaro | E | eP i | 07 12 51 13 07 | | Tremor, distant. |
| 02 | Delhi | ENZ | eP | 07 14 09 | | Slight, compression. Initial ground movement towards South. |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|--------------------|-----------|--------------|-------------------|-------------------------------------|----------|--|
| <u>June, 1963.</u> | | | | | | |
| 02 | Delhi | NZ ENZ | eP iS | 09 16 09 17 48 | 960 | Slight, rarefaction. |
| 02 | Shillong | ZNE | iP | 10 10 59 | | Slight, near, compression. |
| 02 | Chatra | Z | iP | 10 11 27 | | Slight, compression. |
| 02 | Delhi | Z EN | iP iP | 10 12 15 12 16 | | Slight. Initial ground motion towards North-East. Compression. |
| | Poona | Z | iP | 10 12 22 | | Slight, compression. |
| 02 | Delhi | N Z | eP e | 13 31 50 31 55 | | Slight. |
| 02 | Dehra Dun | N | e e | 13 54 55 55 41 | | Tremor. |
| 02 | Shillong | ZNE | iP | 18 10 03 | | Slight, distant, compression. |
| 02 | Delhi | Z | eP | 18 10 29 | | Slight, compression. |
| 02 | Shillong | ZNE | eP | 18 32 42 | | Slight, near. |
| 02 | Bombay | EN N E | eP e M M | 21 22 46 32 07 22 04 28 08 | | Slight. Period = 15 secs. Amp. 2 u. |
| | Delhi | Z | eP | 21 23 03 | | Slight, compression. |
| | Shillong | ZNE | eP | 21 23 11 | | Slight, distant. |
| 02 | Delhi | Z | eP | 22 41 17 | | Slight, compression. |
| | Shillong | ZNE | iP | 22 41 25 | | Slight, distant, compression. |
| 02 | Shillong | ZNE | iP | 22 45 50 | | Slight, distant, rarefaction. |
| 03 | Shillong | ZNE | iP | 07 28 21 | | Slight, distant, compression. |
| | Delhi | ENZ | eP | 07 29 34 | | Slight, compression. Initial ground motion towards East. |
| 03 | Shillong | ZNE ZE | iP iPP | 07 45 35 45 18 | | Slight, rarefaction. |
| | Bokaro | W | iP | 07 44 22 | | Slight, distant. |
| | Chatra | Z | iP | 07 44 47 | | Slight, distant, rarefaction. |



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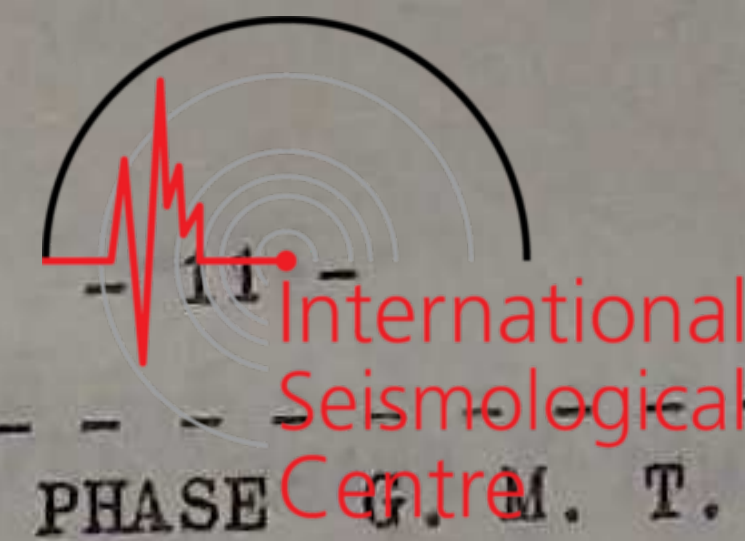
| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|--------------------|-----------|-----------|--------------|-------------------------------|----------|---|
| <u>June, 1963.</u> | | | | | | |
| 03 | Dehra Dun | N | eP e e | 07 44 51 52 17 08 05 08 | | Slight. |
| | Delhi | ENZ | iP | 07 45 01 | | Slight. Initial ground motion towards South, West. Rarefaction. |
| | Poona | Z | iP | 07 45 52 | | Slight, compression. |
| | Bombay | EN | e | 07 46 11 | | Slight. |
| | Chatra | Z | iP | 07 59 05 | | Slight, distant, compression. |
| 03 | Dehra Dun | N | e e | 10 10 52 15 16 | | Tremor. |
| 03 | Shillong | ZNE | iP | 11 51 28 | | Slight, distant, compression. |
| | Delhi | Z | eP | 11 51 49 | | Slight. |
| 03 | Delhi | ENZ | eP | 12 37 34 | | Slight. |
| 03 | Shillong | ZNE | iP | 12 39 43 | | Slight, distant, compression. |
| 03 | Delhi | Z N | iP eP | 14 50 28 | | Slight, compression. |
| 03 | Chatra | Z | eP eS | 16 41 13 41 57 | 400 | Slight. |
| 03 | Chatra | ZNE | ePg eSg | 17 43 56 44 09 | 110 | Slight. |
| | Shillong | ZNE | iP | 17 44 41 | | Slight, distant, compression. |
| 03 | Delhi | NE Z | eP i | 17 47 27 47 31 | | Slight. |
| 04 | Shillong | ZNE | iP | 00 10 21 | | Slight, distant, rarefaction. |
| 04 | Shillong | ZNE | iP | 02 26 40 | | Slight, near. |
| 04 | Delhi | Z | iP | 03 24 25 | | Slight, distant, compression. |
| 04 | Shillong | ZNE NE | iPg iSg | 10 46 10 46 29 | 160 | Slight. |
| 04 | Shillong | ZNE NE | iP iS | 13 30 19 31 14 | 500 | Slight, compression. |
| 04 | Shillong | ZNE | iP | 16 09 33 | | Slight, distant, rarefaction. |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|-------------------|---|---------|--|--|----------|--|
| <u>May, 1963.</u> | | | | | | |
| 04 | Shillong | ZNE | iP | 16 41 32 | | Slight, near, compression. |
| 04 | Delhi | Z | iP i | 19 09 58 11 40 | | Slight, distant, rarefaction. |
| 04 | Shillong | ZNE | iP | 19 30 45 | | Slight, distant, compression. |
| 04 | Chatra | Z | eP | 19 31 15 | | Slight, distant. |
| 04 | Delhi | Z | eP i | 19 32 14 32 38 | | Slight, compression. |
| 04 | Epc:- 1.0° S 127.4° E. -H= 21 h 04 m 40 s (Shillong). | | | | | |
| 04 | Epc:- 1.2° S, 127.3° E, Halmehara region. h = about 31 km. -H= 21 h 04 m 42.3 s (USCGS). Mag : 5.2 (CGS). | | | | | |
| | Shillong | ZNE | iP PcP iS NE ScS | 21 12 44 14 34 19 09 22 28 | 4790 | Rarefaction. Initial ground motion towards South-West. |
| | Calcutta | E | iP iS | 21 12 57 19 30 | 4890 | |
| | Visakhapatnam | E | iP iS | 21 13 08 20 01 | 5240 | Initial ground movement towards East. |
| | Chatra | Z NE | iP iS | 21 13 18 20 10 | 5220 | Rarefaction. |
| | Bokaro | NE E | iP PcP PPP PcS iS PS | 21 13 18 14 53 15 12 18 41 20 10 20 18 | 5220 | Initial ground movement towards West. |
| | Madras | E | iP PP i i iS | 21 13 36 15 27 20 29 20 37 20 44 | 5500 | Initial ground motion towards East. |
| | Kodaikanal | E | iP iS | 21 13 48 20 05 | 5660 | Distant. Initial ground movement towards East. |
| | Hyderabad | E | iP PP PPP S PS ScS SS LR M | 21 13 49 15 52 16 46 21 06 21 22 23 34 24 58 28 06 32 43 | 5660 | Initial ground motion towards Westward. |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|--------------------|-----------|--------------------------------|---|--|----------|---|
| <u>June, 1963.</u> | | | | | | |
| 04 | Sehore | E N | eP iS | 21 14 11 21 49 | 6050 | |
| | Poona | N | eP PcS eS PS PPS ScS SS SSS Lq Lr M | 21 14 21 19 25 22 09 22 13 22 20 24 10 25 44 27 40 27 45 30 23 34 53 | 6220 | Initial ground motion towards South, East. Rarefaction. |
| | Delhi | EZ N EZ N ENZ | iP (NeP) eP i e iS | 21 14 22 14 27 22 08 | 6190 | Initial ground motion South-East. Rarefaction. |
| | Bombay | NEZ ES E NE N E | eP PcP PP PPP iS M M | 21 14 29 15 07 16 21 18 07 22 18 43 27 42 - | 6240 | Period = 17 secs. Amp. 4 μ. |
| | Dehra Dun | EN | eP e i iS PS | 21 14 29 14 41 22 12 22 23 22 33 | 6290 | |
| 04 | Shillong | ZNE | iP | 23 14 53 | | Slight, distant, rarefaction. |
| 04 | Shillong | ZNE | iP | 23 31 23 | | Slight, distant, compression. |
| 05 | Shillong | ZNE | iP | 00 05 37 | | Slight, distant, rarefaction. |
| 05 | Shillong | ZNE | iP | 00 37 08 | | Slight, distant, compression. |
| 05 | Shillong | ZNE | eP | 05 42 20 | | Slight, near. |
| 05 | Shillong | ZNE | iP | 09 20 02 | | Slight, distant. |
| 05 | Delhi | Z ENZ | iP i | 09 21 28 21 29 | | Slight, rarefaction. |
| 05 | Shillong | ZNE | iP | 10 24 39 | | Slight, distant, compression. |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|--------------------|---|----------------|-----------------------------|--|----------|---|
| <u>June, 1963.</u> | | | | | | |
| 05 | Shillong | ZNE | iP | 11 30 33 | | Slight, distant, compression. |
| 05 | Shillong | ZNE | eP | 22 48 25 | | Slight, distant. |
| | Chatra | Z | eP | 22 49 00 | | Slight, distant. |
| 05 | Shillong | ZNE | iP | 23 01 50 | | Slight, distant, rarefaction. |
| 05 | Chatra | ZNE NE | eP eS | 23 02 25 08 56 | 4860 | Slight. |
| | Delhi | Z ENZ | iP i eS | 23 03 29 03 32 10 48 | 5700 | Slight, compression. |
| | Poona | N | eS | 23 10 38 | | Slight. |
| | Dehra Dun | N | e | 23 11 53 | | Slight. |
| 05 | Chatra | ZNE NE | iP eS | 23 51 41 52 02 | 170 | Slight, rarefaction. |
| | Shillong | ZNE | iP | 23 52 33 | | Slight, distant, compression. |
| | Delhi | NZ E ENZ | iP eP iS | 23 53 03 54 26 | 800 | Slight, rarefaction. Initial ground motion towards South. |
| | Bokaro | EN E | iP e | 23 53 07 53 37 | | Slight, near. |
| 06 | Delhi | EZ | iP i | 01 44 07 44 10 | | Slight, compression. Initial ground motion towards East. |
| 06 | Epc:- 20.3° N 120.0° E in Phillipine. -H= 05 h 18 m 53 s (Shillong). | | | | | |
| 06 | Epc:- 19.9° N 120.2° E Off coast of Phillipine. h = about 33 km. -H= 05 h 18 m 55 s (USCGS) Mag. 5.8 (CGS). | | | | | |
| | Shillong | ZNE ZE | iP PP PcP iS | 05 24 57 25 22 27 42 29 13 | 2990 | Rarefaction. Initial ground motion towards East. |
| | Chatra | ZNE NE | iP eS | 05 25 15 30 23 | 3490 | Initial ground motion towards East. Rarefaction. |
| | Bokaro | EN E | iP PPP iS SS LQ | 05 25 24 26 53 30 37 32 26 32 31 | 3580 | Distant. |





| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|-------------|-----------------|--------------------------------------|--|---|----------|--|
| June, 1963. | | | | | | |
| 06 | ✓ Visakhapatnam | EN E | iP ePP ePPP | 05 25 39 26 59 27 11 | 3930 | Distant. Initial ground movement towards North-East. |
| | | EN E | iS eSS eSSS | 31 14 33 41 34 09 | | |
| | ✓ Madras | E | iP i PP PPP iS Lq LR M | 05 26 22 26 41 27 54 28 15 32 28 35 13 37 29 40 44 | 4450 | Moderate, initial ground motion towards East. |
| | ✓ Delhi | EZ N Z EZ ENZ EZ Z | iP eP i PP iS LR M | 05 26 29 26 30 28 11 32 44 38 12 44 33 | 4590 | Slight, rarefaction. Initial ground motion towards East. Period = 15 secs. Amp. 22.5 mm. |
| | ✓ Dehra Dun | N | eP i e | 05 26 29 35 35 42 15 | | |
| | ✓ Hyderabad | E | iP PP PPP S SS SSS LR M | 05 26 32 27 59 28 23 32 45 35 29 36 00 39 02 42 59 | 4550 | Initial ground motion towards East. Period = 12 secs. Gr. dis = 6 μ. |
| | ✓ Poona | N | iP | 05 27 00 | | |
| 06 | ✓ Bombay | ENZ EN | eP PcP PPP PcS eS SS SSS | 05 27 08 28 29 29 42 32 21 33 55 37 12 38 16 | 5120 | |
| | | N E | M M | 48 29 49 40 | | Period = 18 secs. Amp. = 6 μ. |
| | ✓ Kodaikanal | E | PP i | 05 28 32 33 26 | | Distant. |
| 06 | Shillong | ZNE | iP | 06 13 00 | | Slight, distant, rarefaction. |
| 06 | Shillong | ZNE | iP | 08 25 34 | | Slight, near. |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|-------------|------------|-------------|-------------|----------------------------|----------|--|
| June, 1963. | | | | | | |
| 06 | Chatra | Z | eP | 08 25 58 | | Slight, distant. |
| | Delhi | ENZ | iP | 08 26 57 | | Slight. Initial ground motion South-West. Rarefaction. |
| 06 | Delhi | E Z | iP i | 09 58 49 58 25 | | Slight. Initial ground motion towards East. |
| 06 | ✓ Shillong | ZNE | iP | 12 14 48 | | Slight, distant, compression. |
| | ✓ Chatra | Z | eP | 12 14 56 | | Slight, distant. |
| | ✓ Delhi | NZ E | eP e | 12 15 00 23 50 | | Slight, compression. |
| | ✓ Poona | N | eP | 12 15 13 | | Slight. |
| 06 | Hyderabad | E | M | 12 32 51 | | Period = 6 secs. Gr. dis = 2 μ. |
| 06 | Dehra Dun | N E N | e e e | 13 06 42 10 36 10 49 | | Slight. |
| 06 | Chatra | Z | eP eS | 17 22 29 22 49 | 160 | Slight. |
| 06 | ✓ Shillong | ZNE | iP | 17 54 59 | | Slight, distant, rarefaction. |
| 06 | ✓ Chatra | Z | iP | 17 55 21 | | Slight, distant, compression. |
| 06 | Chatra | Z | ePg eSg | 18 12 17 12 32 | 130 | Slight. |
| 06 | Shillong | ZNE | iP | 20 32 06 | | Slight, near. |
| 07 | Shillong | ZNE | eP iS | 04 47 50 48 50 | 570 | Slight. |
| 07 | Shillong | ZNE | iP | 07 01 30 | | Slight, distant. |
| 07 | Chatra | Z | eP | 07 02 35 | | Slight, distant. |
| 07 | Shillong | ZNE | iP | 08 13 25 | | Slight, distant, compression. |
| 07 | Chatra | Z ZNE | iP iS | 12 58 45 59 09 | 190 | Slight, compression. |
| 07 | Shillong | ZNE | iP | 12 59 00 | | Slight, distant. |
| 07 | Bokaro | E | e | 13 00 22 | | Tremor. |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|-------------|------------|-----------|---------------|----------------------------|----------|--|
| June, 1963. | | | | | | |
| 07 | Port Blair | NE | ePg iSg | 14 53 10 53 16 | 50 | Slight. |
| 07 | Shillong | ZNE | iP | 15 55 54 | | Slight, distant. |
| | Chatra | Z NE | iP iS | 15 56 30 16 01 54 | 3770 | Slight, compression. |
| | Delhi | ENZ Z | P e | 15 57 44 06 44 | | Slight, distant. |
| | Port Blair | E | i i e | 16 00 57 03 23 05 15 | | Slight, distant. |
| | Dehra Dun | EN | i | 16 03 58 | | Slight. |
| 08 | Chatra | Z | eP eS | 07 33 13 33 45 | 280 | Slight. |
| 09 | Chatra | Z | iP eS | 00 25 42 27 02 | 770 | Slight, compression. |
| 09 | Delhi | Z | i | 01 02 05 | | |
| 09 | Delhi | Z ENZ | iP i iS | 03 52 34 52 36 54 14 | 970 | Slight, rarefaction. |
| 09 | Chatra | Z | eP | 03 55 07 | | Slight. |
| 09 | Chatra | Z | iP | 03 57 01 | | Slight, rarefaction. |
| 09 | Chatra | Z | ePg eSg | 04 01 06 01 18 | 110 | Slight. |
| 09 | Chatra | Z | iP | 07 21 43 | | Slight, distant, rarefaction. |
| 09 | Delhi | EZ | iP | 09 11 18 | | Slight, rarefaction. Initial ground motion towards East. |
| 09 | Delhi | Z | eP | 13 49 55 | | Slight, rarefaction. |
| 09 | Delhi | Z N | eP i i | 23 01 21 01 22 01 24 | | Slight, compression. |
| 10 | Delhi | NZ | i | 03 34 37 | | |
| 10 | Delhi | NZ ENZ | iP iS | 04 16 16 17 57 | 980 | Slight, North. Rarefaction. |
| 10 | Shillong | ZNE | iP | 04 29 50 | | Slight, distant, compression. |

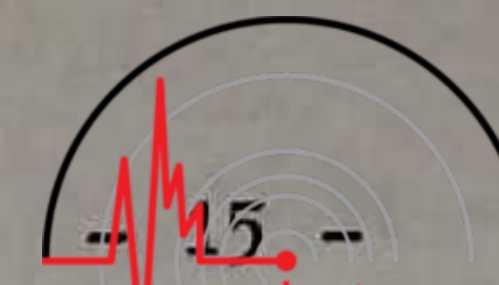
| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|-------------|--|-------------------|-----------------------|--|----------|---|
| June, 1963. | | | | | | |
| 10 | Epc:- 55.4° S 146.4° E 800 km. West of Macquarie Islands. h = about 33 km. -H= 04 h 16 m 37.7 s (USCGS) Mag: 6 $\frac{1}{4}$ (Pas), 5 $\frac{3}{4}$ -6 (Pal), 6.1 (CGS). | | | | | |
| | Chatra | Z NE | eP e | 04 30 04 40 34 | | |
| | Madras | E | eS PPS e | 04 40 07 41 39 58 02 | | |
| | Bombay | EN EN | eS e | 04 40 23 48 08 | | |
| 10 | Poona | N | eS e e | 04 40 23 47 52 05 01 33 | | |
| 10 | Dehra Dun | N | iS e e | 04 41 15 49 14 05 08 20 | | |
| 10 | Delhi | Z ENZ | iP iS | 05 47 51 49 03 | 690 | Slight, rarefaction. |
| 10 | Epc:- 55.3° S 146.1° E. 800 Km. West of Macquarie Island. h = about 18 km. -H= 06 h 39 m 04.0 s (USCGS). Mag : 6 $\frac{1}{4}$ -6 $\frac{1}{2}$ (Pas) , 6 $\frac{1}{4}$ -6 $\frac{1}{2}$ (Pal) 6.0 (CGS). | | | | | |
| | Madras | E | eP SKS iS iS | 06 51 52 07 02 21 02 27 02 40 | 9670 | |
| | Visakhapatnam | E N | iP eP | 06 52 06 | | 10,000 Initial ground motion towards East. |
| | | E N | eS | 07 02 58 | | |
| | Shillong | ZNE | iP | 06 52 16 | | Compression. |
| | Chatra | Z NE | iP ISKS | 06 52 34 07 03 09 | 10650 | Rarefaction. |
| | Delhi | ENZ EN Z EN | e i i | 06 57 08 07 03 35 04 40 | | South-East Compression. |
| | Kodaikanal | E | i | 07 02 14 | | |
| 10 | Dehra Dun | N | i i | 07 02 44 05 18 | | |
| 10 | Poona | N | SKS e | 07 03 06 10 38 | | |



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| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS |
|-------------|--|------------------|---------------|----------------------------|----------|---|
| June, 1963. | | | | | | |
| 10 | Bombay | EN | SKS | 07 03 08 | | |
| 10 | Shillong | ZNE | iP | 10 56 42 | | Slight, near, rarefaction. |
| 10 | Chatra | Z | eP | 10 57 00 | | Slight, distant. |
| 10 | Delhi | Z | eP | 10 57 29 | | Slight. |
| 10 | Shillong | ZNE | iP | 11 49 02 | | Slight, near. |
| 10 | Chatra | Z | eP | 11 50 22 | | Slight, distant. |
| 10 | Shillong | ZNE | iP | 12 30 22 | | Slight, near, compression. |
| | Chatra | Z | iP | 12 30 53 | | Slight, distant, compression. |
| | Delhi | ENZ | iP | 12 31 41 | | Slight. Initial ground South-West. motion. Compression. |
| 10 | Shillong | ZNE | iPn Sg | 18 23 22 23 33 | 120 | Slight, rarefaction. |
| 10 | Shillong | ZNE | iP | 18 52 40 | | Slight, distant, compression. |
| | Chatra | Z | iP i e | 18 52 53 54 24 57 26 | | Distant. |
| | Delhi | ENZ NZ ENZ | iP i iS | 18 53 06 53 10 54 44 | 950 | Slight, North-West. Rarefaction. |
| 10 | Delhi | Z | i | 21 41 06 | | |
| 10 | Dehra Dun | EN | e i | 23 33 00 34 48 | | Tremor. |
| 10/11 | Shillong | ZNE | iP | 00 09 27 | | Slight, distant, compression. |
| 23-54 | Delhi | ENZ | iP | 00 10 46 | | Slight. |
| 11 | Delhi | ENZ | eP iS | 00 56 15 57 56 | 980 | Slight. |
| 11 | Epc:- 37.1° N 70.3° E in Hindukush. h = about 38 km. -H= 03 h 25 m 40.7 s (USCGS). Mag: 4.3 (CGS). | | | | | |
| | Dehra Dun | EN | eP i iS | 03 28 04 29 42 30 00 | 1090 | |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS |
|-------------|--|---------|-----------------------------|--|----------|--|
| June, 1963. | | | | | | |
| 11 | Delhi | ENZ | iP i iS M | 03 28 09 28 12 30 09 31 20 | 1170 | Initial ground motion towards North-West. Rarefaction. |
| | Sehore | N E | eP i | 03 29 11 33 54 | | Other phases not clear. |
| | Chatra | Z NE | eP iS | 03 29 42 32 55 | 1930 | |
| | Bokaro | NE E | eP PPP SS SSS e | 03 30 03 30 30 33 49 34 12 34 31 | 2080 | Initial ground motion towards East. |
| | Shillong | ZNE | eP iS | 03 30 30 34 21 | 2350 | |
| | Madras | E | e i e e | 03 30 39 35 54 36 39 37 36 | | |
| | Visakhapatnam | EN | eP eS | 03 30 41 34 43 | 2490 | |
| 11 | Poona | Z | e | 03 34 03 | | |
| | Kodaikanal | E | e | 03 38 41 | | Slight, distant. |
| 11 | Chatra | Z | eP | 13 20 34 | | Slight, distant. |
| | Delhi | Z | eP | 13 20 42 | | Slight, rarefaction. |
| | Dehra Dun | N | e | 13 27 04 | | Tremor. |
| 11 | Shillong | ZNE | iPn Sg | 14 12 40 12 52 | 120 | Slight, compression. |
| 11 | Delhi | ENZ | e | 16 23 19 | | |
| 11 | Epc:- 30.7° N 86.9° E in Tibet. h = about 33 km. -H= 18 h 07 m 24.1 s (USCGS). Mag: 4.5 (CGS). | | | | | |
| | Chatra | Z | iP eS | 18 08 30 09 20 | 460 | Rarefaction. |
| | Bokaro | NE E | iP PP LQ eS SSS | 18 09 09 09 14 10 15 10 29 10 50 | 770 | Initial ground movement towards West. |
| | Calcutta | N | eP iS | 18 09 23 10 59 | 910 | |



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| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|--------------------|-----------------|-------------|---------------|----------------------------------|----------|--|
| <u>June, 1963.</u> | | | | | | |
| 11 | ✓ Delhi | ENZ | iP iS | 18 09 34 11 13 | 960 | North-West. Compression. |
| | ✓ Dehra Dun | E N | eP PP | 18 09 53 10 00 | 1110 | Slight. |
| | | E N E | e eS i | 10 49 10 52 11 45 12 25 | | |
| | ✓ Visakhapatnam | EN | e iS | 18 12 47 14 37 | | |
| 11 | ✓ Poona | Z | eP | 18 14 01 | | Slight. |
| | ✓ Bombay | EN N | eP eS M | 18 14 34 15 60 20 08 | 820 | Slight. Period = 10 secs. Amp: = 3 u. |
| | | | M | 18 19 | | |
| | ✓ Madras | E | e e | 18 15 10 15 36 | | |
| | ✓ Port Blair | E | i | 18 15 52 | | |
| | ✓ Kodaikanal | E | e | 18 18 55 | | Slight, distant. |
| 11 | Delhi | ENZ | eP | 18 36 56 | | |
| 11 | Chatra | Z | iP | 18 38 31 | | Slight, distant. |
| 11 | Dehra Dun | EN E | e i | 18 39 53 40 09 | | Tremor. |
| 11 | Chatra | Z | iP e | 18 54 06 55 04 | | Slight, distant, rarefaction. |
| 11 | Tocklai | E | eP | 19 08 34 | | Slight. |
| 11 | Tocklai | E | e | 19 09 49 | | |
| 12 | Shillong | ZNE | eP iS | 00 00 33 01 08 | 310 | Slight. |
| 12 | Delhi | ENZ | iP | 01 40 19 | | Slight, rarefaction. Initial ground motion towards North-East. |
| 12 | Chatra | Z ZNE | iP iSg | 02 42 37 43 00 | 180 | Slight, compression. |
| 12 | Shillong | ZNE | iP | 02 43 07 | | Slight, near. |
| 12 | Chatra | Z | eP eS | 05 42 17 42 47 | 270 | Slight. |
| 12 | Chatra | Z | iP eS | 05 45 22 45 52 | 270 | Slight, rarefaction. |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|--------------------|------------|--------------|--------------|----------------------------|----------|--|
| <u>June, 1963.</u> | | | | | | |
| 12 | Chatra | Z | eP iS | 06 05 16 05 47 | 270 | Slight. |
| 12 | Delhi | Z | i | 07 42 33 | | |
| 12 | Delhi | NZ | iP | 11 52 14 | | Slight, North, compression. |
| 12 | Delhi | ENZ | iP i | 20 12 43 13 19 | | Slight, West, rarefaction. |
| | Chatra | Z | e | 20 12 49 | | Slight, distant. |
| 12 | Delhi | Z E NZ | iP i i | 22 07 16 08 08 08 10 | | Slight, rarefaction. |
| 13 | Shillong | ZNE | eP | 03 16 13 | | Slight, near. |
| 13 | Delhi | NZ | iP | 05 59 21 | | Slight, compression. Initial ground motion towards West. |
| 13 | Delhi | ENZ | i | 07 28 41 | | |
| 13 | Shillong | ZNE | iP | 10 43 25 | | Slight, distant, compression. |
| | Chatra | Z | iP | 10 43 56 | | Slight, distant, compression. |
| | Delhi | ENZ | iP | 10 44 55 | | Slight, compression. Initial ground motion towards North-West. |
| 13 | Delhi | EN | iP | 10 53 02 | | Slight, North-East. |
| 13 | Shillong | ZNE | iP | 14 45 54 | | Slight, distant, compression. |
| 13 | ✓ Chatra | Z | eP i | 17 37 31 37 57 | | Slight. |
| 13 | ✓ Delhi | EZ | iP | 17 38 35 | | Slight, rarefaction. Initial ground motion towards East. |
| 13 | ✓ Shillong | ZNE | iP | 17 51 57 | | Slight, distant, rarefaction. |
| 13 | Chatra | Z | eP | 22 31 06 | | Slight, distant. |
| 13 | Chatra | Z ZNE | iP* eSg | 22 37 14 37 32 | 140 | Slight, rarefaction. |
| 14 | Port Blair | NE | ePg iSg | 04 29 05 29 13 | 70 | Slight. |
| 14 | Dehra Dun | N | e | 15 37 07 | | Tremor. |



| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|--------------------|------------|--------|------------|----------------------|----------|---|
| <u>June, 1963.</u> | | | | | | |
| 14 | Shillong | ZNE | eP S | 19 21 39 22 22 | 400 | Slight. |
| 14 | Shillong | ZNE | eP iS | 23 24 02 24 17 | 110 | Slight. |
| 15 | Delhi | ENZ | iPn iSn | 00 31 43 32 12 | 260 | Slight, South, compression. |
| 15 | Shillong | ZNE | iP | 08 19 14 | | Slight, near, compression. |
| 15 | Shillong | ZNE | iP | 12 02 37 | | Slight, distant, compression. |
| 15 | Port Blair | NE | i | 12 31 47 | | Slight, near. |
| 15 | Shillong | ZNE | iP | 15 51 39 | | Slight, distant. |
| 15 | Delhi | ENZ | iPg iSg | 21 38 57 39 01 | 30 | Slight. Initial ground motion North-East. Compression, Magnitude = 2.7 . |
| 16 | Delhi | ENZ | iP iS | 10 19 56 21 36 | 970 | Slight. Initial ground motion South-East. Compression. |
| 16 | Delhi | NZ | iPn | 11 41 32 42 10 | 350 | Slight, rarefaction. Initial ground motion towards South. |
| 16 | Shillong | ZNE | iP | 12 21 59 | | Slight, distant, compression. |
| 16 | Shillong | ZNE | iP | 13 59 43 | | Slight, distant, rarefaction. |
| 16 | Shillong | ZNE | eP | 16 01 47 | | Slight, near. |
| 16 | Shillong | ZNE | eP iS | 16 38 46 39 30 | 400 | Slight. |
| 17 | Chatra | Z | iP | 04 09 47 | | Slight, distant, compression. |
| 17 | Delhi | ENZ | iP | 09 49 23 | | Slight, rarefaction. |
| 17 | Delhi | ENZ | eP | 10 21 04 | | Slight, compression. |
| | Shillong | ENZ | eP | 10 21 31 | | Slight, distant. |
| 7 | Delhi | ENZ | eP | 11 04 19 | | Slight, rarefaction. |
| 7 | Dehra Dun | N E | e e | 11 06 23 06 33 | | Tremor. |
| 7 | Delhi | ENZ | iP | 16 38 44 | | Slight, compression. |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|--------------------|---|----------|--|--|----------|---|
| <u>June, 1963.</u> | | | | | | |
| 17 | Port Blair | E | i e | 18 25 21 19 18 02 | | |
| 17 | Shillong | ZNE | iP | 18 44 44 | | Slight, distant. |
| | Chatra | Z | iP | 18 44 48 | | Slight, distant, rarefaction. |
| | Delhi | ENZ | iP | 18 44 52 | | Slight. Initial ground motion towards North. Rarefaction. |
| 17 | Dehra Dun | N | e | 18 55 06 | | Slight. |
| 17 | Epc:- 4.1° S 102.2° E, near south coast of Sumatra. h = about 73 km. -H= 23 h 02 m 06.6 s (USCGS). Mag : 6.1 (CGS). | | | | | |
| | Port Blair | E | eP i | 23 06 48 09 38 | | |
| | Madras | E | eP PP PPP iS Lq LR M | 23 07 50 08 37 08 48 12 29 13 24 14 43 17 11 | 3030 | |
| | Visakhapatnam | EN E | eP PP PPP | 23 08 04 08 49 09 03 | 3130 | Distant. |
| | | EN E | iS SS SSS | 12 43 14 07 14 23 | | |
| | Shillong | ZNE | iP iS | 23 08 20 13 18 | 3330 | Compression. Initial ground movement towards North-West. |
| 17 | Poona | Z | iP | 23 08 25 | | Rarefaction. |
| 17 | Bokaro | E | eP iS | 23 08 30 13 35 | 3520 | Distant. |
| 17 | Chatra | Z NEZ | iP eS | 23 08 48 14 06 | 3670 | Compression. |
| 17 | Delhi | ENZ | iP iS | 23 09 41 15 44 | 4390 | Initial ground motion North-West. Compression. |
| 17 | Dehra Dun | EN | eP iS | 23 09 51 15 55 | 4410 | |
| | Bombay | EN | e eS N e M | 23 11 33 15 48 16 49 20 60 | | |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|-------------|--|---------------|--|--|----------|---|
| June, 1963. | | | | | | |
| 18 | Chatra | Z | eP | 02 15 47 | | Slight, distant. |
| 18 | Delhi | NZ | iP | 02 55 38 | | Slight. Initial ground motion North. Compression. |
| 18 | ✓ Shillong | ZNE | iP | 04 09 12 | | Slight, near, compression. Initial ground movement towards South-West. |
| | ✓ Chatra | Z | iP | 04 09 47 | | Slight, distant, compression. |
| 18 | Delhi | ENZ | iP | 04 10 52 | | Slight, compression. Initial ground motion towards North-West. |
| 18 | Port Blair | E | e | 04 23 45 | | |
| 18 | Delhi | NZ | iP i | 08 40 10 41 53 | | Slight, South, compression. |
| 18 | Delhi | Z | iP | 12 55 06 | | Slight, compression. |
| 19 | Port Blair | NE | eP PPP iS SS SSS | 04 29 45 30 01 30 09 30 20 30 31 | 200 | Slight. |
| | Delhi | Z | iP | 04 33 52 | | Slight, rarefaction. |
| 19 | Delhi | ENZ | iPg iSg | 06 38 04.1 38 10.5 | 60 | Locally felt. Initial ground motion South-East. Compression. Magnitude . 3.7. |
| | Dehra Dun | EN N EN | ePn Pg PP PPP, LQ LR iSn Sg SS SSS | 06 38 31 38 35 38 38 38 45 38 50 38 56 39 00 39 07 39 19 | 210 | Slight. |
| | Chatra | Z | eP | 06 40 12 | | Slight, distant. |
| 19 | Poona | Z | eP | 06 43 17 | | Slight. |
| 19 | Delhi | ENZ EZ | iPg iSg | 07 33 18.0 33 20.8 | 30 | Slight. Initial ground motion East. Compression. |
| 19 | Epc:- 4.7°N 126.5° E in Taland Islands region. h = about 83 km. -H= 09 h 09 m 04.0 s (USCGS), Mag: 5¼-5½(Pal), 6.2 (CGS). | | | | | |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|-------------|-----------------|----------------------------|---|---|----------|--|
| June, 1963. | | | | | | |
| 19 | ✓ Shillong | ZNE | iP PP e e | 09 15 24 22 20 25 28 28 42 | | |
| | ✓ Port Blair | N E N E N | eP PP iS SS i | 09 15 53 17 16 21 20 23 45 26 02 | 3950 | |
| | ✓ Bokaro | E | eP PP PcS iS | 09 17 03 18 47 22 41 23 25 | 4700 | Initial ground movement towards East. |
| | ✓ Chatra | Z NE | iP iS i | 09 17 03 23 25 26 54 | 4700 | Slight, compression. |
| | ✓ Visakhapatnam | E N | iP eP e | 09 17 10 19 00 | | Initial ground movement towards North-East. |
| | ✓ Madras | E | iP PP PPP iS PS PPS SS LQ LR M | 09 17 25 19 15 19 59 24 13 24 21 24 28 27 26 28 19 30 30 34 11 | 5050 | Initial ground motion towards West. |
| | ✓ Delhi | ENZ Z ENZ EN Z | iP i i eS e M | 09 18 09 18 10 19 20 25 20 26 08 - - - | 5780 | Initial ground motion North-West. Compression. Period = 38 secs. Amp. = 15 mm. |
| | ✓ Dehra Dun | EN | eP iS | 09 18 09 25 20 | 5780 | Slight. |
| | ✓ Poona | NEZ | iP | 09 18 18 | | Initial ground movement towards W. S. and compression. |
| | ✓ Bombay | NZ N | e e | 09 19 22 19 39 | | |
| 19 | ✓ Kodaikanal | E | i i | 09 19 37 24 43 | | |
| 19 | ✓ Hyderabad | N E | M M | 09 24 41 24 49 | | Pd. = 6 secs. Amp. = 3 u. Pd. = 9 secs. Amp. = 4 u. |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|-------------|---|-----------|---|--|----------|---|
| June, 1963. | | | | | | |
| 19 | Epc:- 24.9° N 90.5° E Hymensingh of East Pakistan. -H= 10 h 47 m 32 s (Shillong). Mag: 6.2 (Delhi). | | | | | |
| 19 | Epc:- 25.0° N 92.1° E in Assam India. h = about 51 km. -H= 10 h 47 m 24.7 s (USCGS). Mag: 5.7 (CGS). | | | | | |
| / | Shillong | ZNE | iP | 10 47 39 | | Locally felt, also felt at Gauhati, Half-long, Choparmukh, Laxmipur North and Sri-nangal E.P. |
| / | Calcutta | E | iP i | 10 48 28 49 01 | | |
| / | Chatra | ZNE NE | iP PP iS | 10 48 37 48 44 49 30 | 500 | Initial ground motion towards North West. Compression. |
| / | Bokaro | NE E | iP PP P* Pg eS Sg | 10 48 49 48 56 49 00 49 11 49 53 50 20 | 610 | Initial ground movement towards East. |
| / | Visakhapatnam | EN | iP iS | 10 50 00 52 13 | 1330 | Initial ground movement North East. |
| / | Delhi | ENZ | iP i iS | 10 50 34 50 45 52 55 | 1390 | Initial ground motion North West. Compression. |
| / | Port Blair | NE E | eP i i | 10 50 34 51 00 51 47 | 1390 | |
| / | Dehra Dun | NE E | eS i | 52 55 53 48 | | |
| / | Dehra Dun | EN | e i iS | 10 50 35 52 50 52 56 | 1390 | |
| / | Hyderabad | EN N | eP eS M | 10 50 49 53 20 54 35 | 1490 | |
| / | Hyderabad | E | M | 54 44 | | Period = 6 secs. Gr.dis = 7 u. Period = 8 secs. Gr.dis = 5 u. |
| / | Madras | E | iP PP PPP LQ eS SS SSS LR M | 10 51 09 51 21 51 27 53 52 53 57 54 15 54 27 54 33 55 41 | 1670 | Initial ground motion towards East. |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|-------------|---|---------|--|--|----------|--|
| June, 1963. | | | | | | |
| 19 | Kodaikanal | E | iP i | 10 51 53 55 35 | | |
| / | Poona | EN N | ePP eS SS SSS | 10 51 01 55 10 55 32 55 46 | | Initial ground movement South West and compression. |
| / | Bombay | ENZ | e eS M M | 10 52 54 56 16 58 20 58 50 | 2030 | Period = 7 secs. Amp: = 4 u. |
| 19 | Chatra | Z | iP | 18 02 20 | | Slight, distant, rarefaction. |
| | Delhi | Z | iP | 18 04 17 | | Slight, rarefaction. |
| 19 | Tocklai | E | iP iS | 18 14 24 14 58 | 290 | Slight. |
| 19 | Chatra | Z | iP | 18 32 59 | | Slight, distant, rarefaction. |
| / | Delhi | ENZ | iP | 18 33 47 | | Slight. Initial ground motion towards South-East. Rarefaction. |
| 19 | Delhi | ENZ | eP | 18 43.24 | | Slight. Initial ground motion South-East. Compression. |
| 19 | Epc:- 31.5° N 140.3° E in South of Honshu, Japan. h = about 38 km. -H= 23 h 01 m 51.5 s (USCGS). Mag: 5.2 (Ber), 5.4 (Pal), 5.0 (CGS). | | | | | |
| / | Shillong | ZNE | iP iS | 23 02 48 18 10 | 4850 | |
| / | Chatra | Z | eP | 23 10 18 | | |
| / | Bokaro | EN E | iP PP e eS | 23 10 37 12 24 17 24 17 35 | 5350 | Initial ground movement towards West. |
| / | Port Blair | E | i | 23 10 41 | | |
| / | Dehra Dun | EN | e | 23 11 11 | | |
| / | Delhi | Z | iP | 23 11 12 | | Slight, compression. |
| / | Madras | E | eP PP PPP PcS, ScP eS PS PPS | 23 11 46 14 02 15 20 16 30 19 55 20 07 20 17 | 6610 | Slight. |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | Δ km. | REMARKS. |
|-------------|-----------------|-----------|---------------|----------------------------|-----------------|--|
| June, 1963. | | | | | | |
| 19 | Madras (Contd.) | E | e SS LQ | 23 22 14 23 46 26 48 | | |
| 19 | Delhi | ENZ | iPg iSg | 23 18 27.2 18 30.0 | 30 | Slight. Initial ground motion S.E. Compression. |
| 20 | Chatra | Z ZNE | eP eS | 01 36 17 36 48 | 280 | Slight. |
| 20 | Delhi | ENZ | i | 01 38 23 | | |
| 20 | Delhi | EZ ENZ | iPg iSg | 12 03 04.8 03 07.7 | 30 | Slight. Initial ground motion South-East. Compression. |
| 20 | Delhi | ENZ | iPg iSg | 16 47 18.2 47 24.7 | 60 | Slight, South-East. Compression. |
| 20 | Delhi | ENZ | iPg iSg | 20 14 22.4 14 25.3 | 30 | Locally felt. Initial ground motion North East. Compression. Mag : 3.2 |
| 20 | Delhi | ENZ | iPg iSg | 20 41 40 41 43 | 30 | Slight. Initial ground motion North East. Compression. |
| 20 | Delhi | ENZ | iPg iSg | 21 27 08 27 11 | 30 | Slight. Initial ground motion North East. Compression. |
| 20 | Delhi | ENZ | iPg iSg | 21 29 43.7 29 46.7 | 30 | Slight. Ground motion North East. Compression. |
| 20 | Delhi | ENZ | iPg iSg | 21 29 52 29 55.5 | 30 | Slight. Initial ground motion North East. Compression. |
| 20 | Delhi | Z ENZ | iPg iSg | 22 06 43.5 06 46.4 | 30 | Slight, compression. |
| 20 | Delhi | Z | iP | 23 04 57 | | Slight, distant, rarefaction. |
| 21 | Delhi | ENZ | iPg iSg | 04 26 43.6 26 46.6 | 30 | Locally felt. Slight. Initial ground motion North-East. Compression. |
| | Dehra Dun | EN | e | 04 27 38 | | Tremor. |
| | Chatra | Z | eP | 04 29 34 | | Slight, distant. |
| 21 | Delhi | ENZ | iPg iSg | 06 23 02.7 23 07.6 | 40 | Slight. Initial ground motion South-West. Compression. |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | Δ km. | REMARKS. | |
|-------------|--|-------|--------------|----------------------------|-----------------|--|--------------------|
| June, 1963. | | | | | | | |
| 21 | Delhi | ENZ | iPg iSg | 06 31 30.1 31 32.5 | 20 | Locally felt. Slight. Initial ground motion North-East. Compression. | |
| 21 | Delhi | ENZ | iPg iSg | 08 33 23.8 33 26.5 | 20 | Slight. Initial ground motion towards North-East. Compression. | |
| 21 | Delhi | ENZ | iPg iSg | 10 58 32.7 58 35.6 | 30 | Slight. Initial ground motion North-East. Compression. | |
| 21 | Delhi | Z | eP i i | 12 37 44 37 46 37 59 | | Slight, rarefaction. | |
| 21 | Poona | N | | 13 44 11 | | | |
| 21 | Shillong | ZNE | iP | 13 51 38 | | Slight, distant, rarefaction. | |
| 21 | Chatra | Z | iP | 13 51 58 | | Slight, distant, compression. | |
| 21 | Delhi | ENZ | iP | 13 52 39 | | Slight. Initial ground motion South-West. Rarefaction. | |
| 21 | Dehra Dun | N | e | 14 09 04 | | Tremor. | |
| | Shillong | ZNE | iPn Sg | 14 09 27 09 41 | 120 | Slight, compression. | |
| 21 | Port Blair | E | e | 14 12 06 | | | |
| 21 | Shillong | ZNE | iP | 14 37 48 | | Slight, distant, rarefaction. | |
| 21 | Chatra | Z | iP | 14 38 22 | | Slight, distant, rarefaction. | |
| 21 | Delhi | EZ | i | 14 39 27 | | | |
| 21 | Epc:- 24.8° W 90.9° S in Mymensingh district. Shillong) -H= 15 h 26 m 38 s () | | | | | | Mag : 6.1 (Delhi). |
| 21 | Epc:- 25.2° N 92.2° E, Eastern India. h = about 56 km. -H= 15 h 26 m 31 s (USCGS). | | | | | | Mag: 5.6 . |
| | Tocklai | E | iP | 15 27 08 | | | |
| | Shillong | ZNE | iP | 15 26 43 | | Locally felt, also felt from Gauhati, Chaparmukh and Luding. | |
| | Calcutta | E | iP iS | 15 27 31 28 14 | 390 | | |

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

June, 1963.

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | Δ km. | REMARKS. |
|----------------|----------|--------|----------|----------------------|--|---|
| 21 | Chatra | ZNE | iP | 15 27 43 | 500 | Initial ground motion towards North, West. Compression. |
| | | NE | PP | 27 51 | | |
| | | | PPP | 27 58 | | |
| | | | Pg | 28 04 | | |
| | | | iS | 28 36 | | |
| | | | SS | 28 45 | | |
| | | | S* | 28 56 | | |
| | | | Sg | 29 00 | | |
| /Bokaro | NE | eS | 15 28 01 | | | |
| | | i | 28 57 | | | |
| | | i | 29 52 | | | |
| /Visakhapatnam | EN | iP | 15 29 05 | 1200 | Near. Initial ground movement North-East. | |
| | | iS | 31 07 | | | |
| Delhi | ENZ | eP | 15 29 40 | 1390 | Slight. Initial ground motion South-East. Rarefaction. | |
| | | i | 29 44 | | | |
| | PP | 29 51 | | | | |
| | ENZ | iS | 32 02 | | | |
| /Sehore | E | eP | 15 29 48 | | | |
| | | e | 32 03 | | | |
| /Hyderabad | EN | eP | 15 30 10 | 1670 | Slight. | |
| | | iS | 32 58 | | | |
| | N | LR | 34 34 | | | |
| | E | M | 35 58 | | | |
| | N | M | 36 19 | | | |
| /Madras | E | iP | 15 30 15 | 1730 | Initial ground motion towards East. | |
| | | PP | 30 27 | | | |
| | | PPP | 30 35 | | | |
| | | LQ | 32 56 | | | |
| | | eS | 33 10 | | | |
| | | e | 33 17 | | | |
| | | SS | 33 29 | | | |
| | | LR | 33 34 | | | |
| | | M | 34 46 | | | |
| | | /Poona | NZ | | | eP |
| i | 31 19 | | | | | |
| PP | 31 27 | | | | | |
| i | 34 26 | | | | | |
| iS | 34 37 | | | | | |
| SS | 35 15 | | | | | |
| /Bombay | EN | eP | 15 31 13 | | | |
| | | e | 34 29 | | | |
| | | e | 36 26 | | | |
| /Dehra Dun | EN | i | 15 31 58 | | | |
| 21 | Shillong | ZE | iPn | 18 27 44 | 200 | Slight, compression. |
| | | | Sg | 28 11 | | |
| 21 | Delhi | NZ | eP | 19 26 58 | | Slight, distant, compression. |

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| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | Δ km. | REMARKS. |
|------|----------|-------|-------|----------------------|-----------------|--|
| 21 | Shillong | ZE | iP | 19 27 58 | | Slight, distant, rarefaction. |
| 21 | Delhi | ENZ | iPg | 20 46 22.4 | 30 | Slight. Initial ground motion North-East. Compression. |
| | | | iSg | 46 25.3 | | |
| 21 | Delhi | NZ | iP | 23 22 43 | | Slight, South, rarefaction, near. |
| 22 | Shillong | ZNE | iP | 04 48 19 | | Slight, distant, compression. |
| | Chatra | Z | iP | 04 48 49 | | Slight, distant, rarefaction. |
| 22 | Bokaro | E | eP | 09 51 15 | | Tremor, local. |
| 22 | Shillong | ZNE | iP | 16 18 41 | | Slight, distant, rarefaction. |
| | Delhi | ZNE | iP | 16 20 06 | | Slight, Initial ground motion towards South-East. Rarefaction. |
| 22 | Delhi | ENZ | iP | 16 26 24 | | Slight. Initial ground motion towards North-East. Rarefaction. |
| 22 | Delhi | Z | iP | 16 41 07 | | Slight, rarefaction. |
| 22 | Shillong | ZNE | eP | 20 58 49 | | Slight, distant. |
| | Delhi | Z | eP | 20 59 34 | | Slight, compression. |
| 22 | Shillong | ZNE | eP | 22 03 03 | | Slight, distant. |
| 23 | Delhi | Z | eP | 03 36 47 | | Slight, compression. |
| 23 | Delhi | Z | iP | 04 08 11 | | Slight, compression. |
| 23 | Shillong | ZNE | iP | 09 03 23 | | Slight, distant, compression. |
| 23 | Chatra | Z | eP | 09 03 55 | | Slight, distant. |
| | Delhi | Z | eP | 09 04 46 | | Slight, compression. |
| 23 | Shillong | ZNE | iP | 10 24 25 | | Slight, near. |
| 23 | Shillong | ZNE | iP | 10 47 20 | 270 | Slight. |
| | | | Sg | 47 50 | | |
| 23 | Shillong | ZNE | iP | 10 59 12 | | Slight, distant, compression. |
| 23 | Delhi | Z | iP | 11 00 35 | | Slight, compression. |
| | | IN | eP | | | |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|-------------|---|----------------|----------------------------------|---|----------|---|
| June, 1963. | | | | | | |
| 23 | Shillong | ZNE | iP Sg | 17 20 57 21 09 | 120 | Slight, rarefaction. |
| 23 | Shillong | ZNE | iP | 18 35 48 | | Slight, distant, rarefaction. |
| | Delhi | Z | eP | 18 37 24 | | Slight, distant, compression. |
| 23 | Delhi | ENZ | iP i | 23 53 45 53 50 | | Slight, near. Initial ground motion towards South-West. Compression. |
| 24 | Epc:- 59.5° N 151.7° W in in Cook Inlet h = about 52 km. -H= 04 h 26 m 37.9 s (USCGS). Mag : 6 ³ / ₄ (Pas) 5.7 (CGS) Felt. | | | | | |
| | Shillong | ZNE N | iP PP S PS SS SSS | 04 38 44 41 41 48 48 49 38 54 08 57 51 | 8890 | Rarefaction. |
| | Chatra | ZNE NE | iP iS | 04 38 49 48 54 | 8910 | |
| | Dehra Dun | N E EN | iP eP i i iS | 04 38 53 38 53 39 45 41 04 49 00 | 8960 | Initial ground motion towards North. |
| | Delhi | ENZ EN Z | iP eS M | 04 39 00 49 18 - - - | 9200 | Slight. Initial ground motion North-East. Period = 22 secs. Amp: 38 mm. |
| | Calcutta | E | e iS | 04 39 19 49 26 | | |
| | Visakhapatnam | E EN | iP SKS eS | 04 39 49 50 08 50 45 | 10110 | Distant. Initial movement East. |
| | Poona | NEZ | iP e eS | 04 40 18 50 46 51 45 | 10890 | Initial ground motion North, East. Rarefaction. |
| | Bokaro | E | iP e i | 04 49 29 49 58 50 26 | | |
| | Bombay | EN | e | 04 49 30 | | |
| 24 | Port Blair | E | e | 05 09 18 | | |

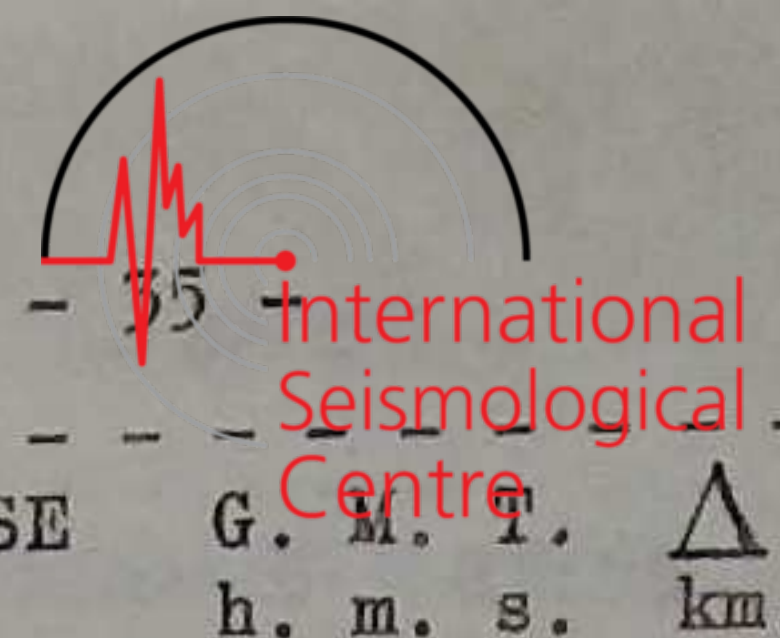
| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|-------------|--|--------------|---|--|----------|---|
| June, 1963. | | | | | | |
| 24 | Hyderabad | E | M | 05 15 16 | | Period = 24 secs. Gr. dis = 24 u. |
| | | N | M | 15 19 | | Period = 23 secs. Gr. dis = 15 u. |
| 24 | Chatra | Z | iP | 16 28 02 | | Slight, distant, rarefaction. |
| | Shillong | ZNE | iP | 16 28 50 | | Slight, distant, compression. |
| | Delhi | NZ E Z | eP iP i | 16 29 21 29 22 | | Slight. Initial ground motion South, East. Rarefaction. |
| 24 | Shillong | ZNE | iP | 17 04 10 | | Slight, near, rarefaction. compression. |
| 24 | Shillong | ZNE | iP | 19 03 05 | | Slight, distant, compression. |
| 24 | Shillong | ZNE | iP S | 23 12 15 13 30 | 720 | Slight, compression. |
| 25 | Chatra | Z | eP* eSg | 00 02 12 02 24 | 100 | Slight. near, compression. |
| 25 | Shillong | ZNE | iP | 04 00 36 | | Slight, distant, compression. |
| 25 | Shillong | ZNE | iP | 12 03 11 | | Slight, distant, compression. |
| 25 | Shillong | ZNE | ePg Sg | 13 53 14 53 36 | 190 | Slight. |
| | Delhi | EZ ENZ | iP e | 13 56 53 57 58 | | Slight, rarefaction. |
| 25 | Epc:- 8.4° S 106.5° E near South coast of Java. -H= 14 h 32 m 14.3 s (USCGS). Mag : 5.4 (CGS). | | | | | |
| 25 | Shillong | ZNE | iP | 14 39 17 | | Distant, compression. |
| 25 | Chatra | Z NE | iP eS | 14 39 43 45 52 | 4490 | Compression. |
| 25 | Delhi | EZ ENZ | eP eS | 14 40 34 47 15 | 5000 | Compression. |
| 25 | Madras | E | iP PcP PP PPP e eS PPS ScS/SKS SS | 14 40 35 41 12 42 55 44 28 49 06 49 15 49 35 50 25 53 12 | 5020 | Initial ground motion towards East. |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|-------------|---|----------|-----------------------------|--|----------|---|
| June, 1963. | | | | | | |
| 25 | Madras (Contd.) | E | LQ LR M | 14 56 38 59 29 15 04 48 | | |
| 25 | Dehra Dun | EN | iP | 14 47 36 | | Initial ground movement towards South West. |
| | Bombay | N E | e M M | 14 50 22 59 - 15 02 | | |
| 25 | Shillong | ZNE | eP | 14 54 07 | | Slight, near. |
| 26 | Shillong | ZNE | iP | 08 41 25 | | Slight, distant. |
| 26 | Shillong | ZNE | iP S | 09 48 58 54 50 | 4210 | Compression. Initial ground motion towards North, West. |
| | Chatra | Z | iP e | 09 49 36 51 24 | | Slight, rarefaction |
| | Delhi | NZ EZ | eP i | 09 50 41 50 42 | | Slight, compression Initial ground motion towards South. |
| 26 | Epc:- 36.0° N 78.0° E Karakoran Range.. -H= 14 h 09 m 21 s . (Shillong). Mag: 6.0 (Delhi) | | | | | |
| | Epc:- 36.4° N 76.9° E in Sinkiang Province, China. h = about 33 km. -H= 14 h 09 m 13.0 s (USCGS) Mag: 5.3 (CGS). | | | | | |
| 26 | Dehra Dun | EN | eP PP PPP iS iS | 14 10 51 10 58 11 05 11 55 12 06 | 710 | Slight, near shock. |
| | Delhi | ENZ | iP eS | 14 11 11 12 31 | 870 | Initial ground motion towards South, East Compression. |
| | Chatra | Z ZNE | iP i | 14 12 23 14 38 | | Compression. |
| | Shillong | ZNE | iP e | 14 13 04 15 58 | | Compression. Initial ground motion towards North, West. |
| | Poona | Z | eP e | 14 14 01 18 41 | | |
| | Sehore | N E | e i | 14 14 35 14 53 | | |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|-------------|------------|-----------|---------------------|-------------------------------------|----------|--|
| June, 1963. | | | | | | |
| 26 | Madras | E | eS e LQ LR | 14 18 42 19 03 19 09 20 14 | | |
| 26 | Shillong | ZNE | iP | 14 42 27 | | Slight, distant, compression. |
| 26 | Shillong | ZNE | iP | 17 22 47 | | Slight, near. |
| 26 | Tocklai | E | ePg iSg | 17 22 47 23 08 | 180 | Slight, near. |
| | Chatra | Z | iP eS | 17 23 47 25 06 | 750 | Slight, rarefaction. |
| | Delhi | ENZ EZ | iP eS | 17 25 49 28 33 | 1630 | Slight. Initial ground motion South-West. Rarefaction. |
| 26 | Delhi | Z N | eP e | 18 02 08 03 07 | | Slight. |
| | Chatra | Z | eP | 18 02 18 | | Slight, distant. |
| | Poona | Z | eP | 18 02 18 | | Slight. |
| | Shillong | ZNE | iP | 18 02 21 | | Slight, distant, compression. |
| 26 | Port Blair | Z E | e i | 20 47 26 48 54 | | |
| | Delhi | Z | eP | 20 51 18 | | Slight, compression. |
| 27 | Port Blair | Z | e | 04 11 53 | | |
| 27 | Shillong | ZNE | iP | 07 20 31 | | Slight, distant, compression. |
| | Chatra | Z | iP | 07 20 36 | | Slight, distant, compression. |
| | Delhi | NZ | eP | 07 20 39 | | Slight, compression. Initial ground motion towards South. |
| 7 | Delhi | Z | eP | 10 45 18 | | Slight, compression. |
| 7 | Shillong | ZNE | iP | 11 54 05 | | Slight, distant, rarefaction. |
| 7 | Chatra | Z | eP | 11 54 33 | | Slight. |
| | Delhi | ZN | iP | 11 55 28 | | Slight, South, rarefaction. |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|-------------|---|----------|--|--|----------|---|
| June, 1963. | | | | | | |
| 27 | Delhi | ENZ | eP | 12 02 24 | | Slight. Initial ground motion South, East. Rarefaction. |
| 27 | Shillong | ZNE | iP | 12 33 25 | | Slight, near, compression. |
| 27 | Shillong | ZNE | iPg Sg Sn | 13 46 19 46 32 46 35 | 110 | Slight, rarefaction. |
| 27 | Epc:- 14.4° N 93.7° E in Andaman Islands region. h = about 33 km. -H= 15 h 32 m 53.1 s (USCGS). Mag : = 5.2 (CGS). | | | | | |
| ✓ | Port Blair | ZNE | iP iS | 15 33 33 34 03 | 270 | Slight, rarefaction. Initial ground movement S. W. |
| ✓ | Visakhapatnam | NE | iP iPP iPPP iLq iS | 15 35 21 35 30 35 36 37 08 37 13 | 1090 | Slight, near. Initial ground movement North-East. |
| ✓ | Shillong | ZNE | iP | 15 35 35 | | Slight, distant, compression. |
| ✓ | Bokaro | E | eP iS | 15 35 47 37 50 | 1200 | Slight. |
| ✓ | Madras | E | eP iP PP PPP LQ eS SS LR M | 15 35 54 35 56 36 08 36 11 38 06 38 15 38 27 38 42 39 50 | 1390 | |
| ✓ | Chatra | Z ZNE | iP eS | 15 36 10 38 43 | 1510 | Compression. |
| ✓ | Poona | Z | eP | 15 37 19 | | |
| ✓ | Delhi | ENZ | iP i | 15 37 37 44 17 | | Initial ground motion towards North-West. Compression. |
| ✓ | Dehra Dun | EN | e | 15 41 41 | | |
| ✓ | Madras | E | e e e | 15 48 13 49 01 49 19 | | Near, tremor. |
| 27 | Calcutta | E | e e | 16 34 53 36 38 | | Slight. |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
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| June, 1963. | | | | | | |
| 27 | Shillong | ZNE | iPg Sg S* | 18 25 15 25 25 25 27 | 90 | Slight, compression. |
| 27 | Delhi | ENZ NZ | iP i | 20 16 20 18 04 | | Slight. Initial ground motion South, West. Rarefaction. |
| 27 | Delhi | ZN ZE | iPg iSg | 23 27 29 27 34 | 40 | Tremor, South. Compression. Locally felt. |
| 27 | Shillong | ZNE | iP | 23 34 05 | | Slight, distant, rarefaction. |
| 27 | Delhi | Z | iP | 23 54 15 | | Slight, near, compression. |
| 28 | Chatra | Z | iP eS | 02 26 59 27 13 | 100 | Slight, compression. |
| Epc:- 27.5° S 66.1° E in Indian Ocean. h = about 33 km. -H= 02 h 26 m 51.6 s (USCGS. Mag . 6.0 (CGS). | | | | | | |
| 28 | Bombay | EN N EN N | eP e e M | 02 37 21 39 10 44 13 56 - | | |
| ✓ | Port Blair | Z E | iP i i | 02 37 24 44 18 48 36 | | Distant, compression. |
| 28 | Madras | E | eP | 02 37 51 | | |
| ✓ | Poona | N | eP e | 02 37 56 44 46 | | Slight, compression. |
| ✓ | Chatra | Z | eP | 02 38 42 | | Slight, distant. |
| ✓ | Shillong | ZNE | iP i | 02 38 46 46 52 | | Slight, rarefaction. |
| 28 | Delhi | ENZ | eP | 03 10 11 | | Slight, compression. |
| 28 | Delhi | Z | iP | 04 46 04 | | Slight, rarefaction. |
| 28 | Shillong | ZNE | eP | 06 05 54 | | Slight, near. |
| 28 | Delhi | Z | eP | 06 06 05 | | Slight, rarefaction. |
| 28 | Epc:- 0° Equator, 98° E West of Sumatra. -H= 13 h 47 m 51 s (Shillong) | | | | | |
| 28 | Epc:- 1.3° N 97.4° E Near coast of Sumatra. -H= 13 h 47 m 47.7 s (USCGS). | | | | | |



| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|-------------|---------------|-----------|--|--|----------|--|
| June, 1963. | | | | | | |
| 28 | Port Blair | E | eP i | 13 52 13 53 02 | | |
| | Madras | E | eP PP PPP iS LQ LR M | 13 52 24 52 51 52 01 56 18 56 28 57 29 59 17 | 2380 | |
| | Visakhapatnam | NE | eP eS | 13 52 55 56 32 | 2420 | |
| | Calcutta | E | eP iS | 13 52 47 56 52 | 2520 | Slight. |
| | Shillong | ZNE | iP iS LR | 13 53 06 57 34 59 30 | 2880 | Compression. |
| | Bombay | EN | eP | 13 53 07 04 15 | | |
| | Bokaro | EN E | eP PP iS LQ LR PcS | 13 53 13 53 48 57 35 58 11 59 20 14 00 19 | 2780 | Slight. Initial ground movement towards South-East. |
| | Chatra | ZNE NE | eP iS | 13 53 30 58 12 | 3080 | Slight. |
| 28 | Delhi | ENZ Z | eP i | 13 54 22 54 24 | | Compression. Initial ground motion towards North. |
| 28 | Dehra Dun | EN | eP iS e | 13 54 33 59 57 14 09 23 | 3765 | |
| 28 | Hyderabad | E | e | 13 57 26 | | Period = 9 secs. Gr. dis = 4 u. |
| 28 | Shillong | ZNE | iP | 16 20 56 | | Slight, locally felt, also felt from Lakshmipur North. |
| | Chatra | Z | eP eS | 16 21 20 22 12 | 490 | Slight. |
| 28 | Chatra | Z | iP eS | 18 20 39 21 00 | 170 | Slight, compression. |
| | Shillong | ZNE | eP P* S Sg | 18 21 15 21 20 22 00 22 19 | 410 | Slight. |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|-------------|-----------|---------------|---|--|----------|---|
| June, 1963. | | | | | | |
| 28 | | | | Epc:- 46.0° N 154.0° E in Kurile Island. -H= 21 h 55 m 33 s (Shillong) | | |
| | | | | Epc:- 46.5° N 153.2° E in Kurile Island h = about 33 km. -H= 21 h 55 m 38.8 s (USCGS). Mag : 6 $\frac{3}{4}$ (Pas), 6.1 S.D. 0.3 (CGS). | | |
| | Shillong | ZNE NE | iP PP ScP/PcS iS PS SS | 22 04 52 06 50 09 58 12 20 12 40 15 58 | 5870 | Compression. Initial ground movement towards South, West. |
| | Chatra | ZNE NE | iP PcP PP PPP PcS iS SS SSS LQ LR N E Mn Mn | 22 05 12 06 07 07 18 08 32 09 57 12 56 16 32 18 47 19 02 21 31 22 25/26 22 30/31 | 6150 | Initial ground motion towards South-West and compression. |
| | Calcutta | E | iP iS | 22 05 21 13 11 | 6230 | |
| 28 | Bokaro | EN N | iP PcP iS PPS ScS SS | 22 05 33 06 19 13 36 13 57 15 13 17 31 | 6500 | Initial ground movement towards North-West. |
| | Dehra Dun | EN E EN | iP PcP PP PPP PcP iS PS PPS ScS SS SSS EN LQ LR PKKP1 i M | 22 05 39 06 24 07 54 09 20 10 24 13 54 14 05 14 20 15 24 17 54 20 22 20 48 23 38 26 38 28 01 28 47 | 6720 | Moderate. Initial ground movement towards South, West. |
| | Delhi | ENZ Z | i iP PPP | 22 05 49 05 50 09 32 | 6670 | Initial ground motion South-West. Compression. |



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| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | Δ km. | REMARKS | | | |
|---------------|---------------------|---|----------|---|---|------------------------------------|----------|------|---|
| 28 | Delhi (Contd.) | ENZ | iS | 22 14 02 | 6810 | Period = 14 secs. Amp. 1.77 mm. | | | |
| | | | PS | 14 20 | | | | | |
| | | | PPS | 14 28 | | | | | |
| | | EN | ScS,SKS | 15 40 | | | | | |
| | | | SS | 18 10 | | | | | |
| | | N | SSS | 20 48 | | | | | |
| | | EN | LR | 23 44 | | | | | |
| | | Z | M | - - - | | | | | |
| | | Port Blair | ZNE E | iP PP i iS PS PPS i SS SSS LR M | | | 22 05 56 | 6810 | Compression. Initial ground movement S-W. |
| | | | | | | | 08 18 | | |
| 10 07 | | | | | | | | | |
| 14 16 | | | | | | | | | |
| 14 29 | | | | | | | | | |
| 14 48 | | | | | | | | | |
| 17 09 | | | | | | | | | |
| 18 33 | | | | | | | | | |
| 20 56 | | | | | | | | | |
| 24 10 | | | | | | | | | |
| 29 26 | | | | | | | | | |
| Visakhapatnam | NE | iP eS ePS ePPS | 22 06 11 | 7110 | Distant. Initial ground movement towards N-E. | | | | |
| | | | 14 47 | | | | | | |
| | | | 15 23 | | | | | | |
| | | | 15 37 | | | | | | |
| Sehore | E | eP eS | 22 06 15 | 7200 | | | | | |
| | | | 14 56 | | | | | | |
| Hyderabad | E | iP PcP PP PPP iS PS PPS SS LR M | 22 06 31 | 7550 | Initial ground motion towards West. | | | | |
| | | | 06 47 | | | | | | |
| | | | 09 07 | | | | | | |
| | | | 11 09 | | | | | | |
| | | | 15 30 | | | | | | |
| | | | 15 58 | | | | | | |
| | | | 16 37 | | | | | | |
| | | | 19 55 | | | | | | |
| | | | 26 21 | | | | | | |
| | | | 32 58 | | | | | | |
| Madras | E | iP PcP PP PPP iS PS PPS ScS/SKS SS SSS LQ LR | 22 06 45 | 7800 | Initial ground motion towards West. | | | | |
| | | | 07 05 | | | | | | |
| | | | 09 23 | | | | | | |
| | | | 11 03 | | | | | | |
| | | | 15 56 | | | | | | |
| | | | 16 20 | | | | | | |
| | | | 16 40 | | | | | | |
| | | | 16 48 | | | | | | |
| | | | 20 29 | | | | | | |
| | | | 23 33 | | | | | | |
| 25 07 | | | | | | | | | |
| 28 23 | | | | | | | | | |
| Bombay | EZ EN N EN | iP PP PcS iS | 22 06 54 | 7870 | Moderate. | | | | |
| | | | 09 41 | | | | | | |
| | | | 10 21 | | | | | | |
| | | | 16 09 | | | | | | |
| | | | 16 09 | | | | | | |

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| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | Δ km. | REMARKS |
|------------|----------------|---------------------------------|----------|----------------------|---|--|
| 28 | Bombay(Contd.) | EN | SKS1 | 22 16 40 | | Period 16 secs. Amp. = 49 u. |
| | | | SS | 21 00 | | |
| | | N | SSS | 24 51 | | |
| | | | M | 43 39 | | |
| | | | | | | |
| Kodaikanal | E | iP i i i | 22 07 25 | | Initial ground movement towards West. | |
| | | | 11 40 | | | |
| | | | 17 10 | | | |
| | | | 21 22 | | | |
| Poona | NEZ N | iP i PP PPP e iS | 22 07 31 | 8140 | Initial ground movement South-West. Compression. | |
| | | | 07 50 | | | |
| | | | 10 00 | | | |
| | | | 11 40 | | | |
| | | | 16 38 | | | |
| | | | 17 00 | | | |
| 28 | Delhi | EZ | eP | 22 32 12 | | Slight, rarefaction. Initial ground motion towards West. |
| | | | | | | |
| Shillong | ZNE | eP | 22 34 17 | | Slight, distant, compression. | |
| | | | | | | |
| Chatra | Z | iP | 22 34 36 | | Slight, distant, compression. | |
| | | | | | | |
| Delhi | Z ENZ | eP i | 22 35 13 | | Slight, compression. | |
| | | | 35 14 | | | |
| 28 | Shillong | ZNE | iP | 22 58 46 | | Slight, distant, compression. |
| | | | | | | |
| Delhi | ENZ | eP | 22 59 42 | | Slight, compression. | |
| | | | | | | |
| 28 | Shillong | ZNE | iP | 23 06 17 | | Slight, distant, compression. |
| | | | | | | |
| Chatra | Z | iP | 23 06 36 | | Slight, distant, rarefaction. | |
| | | | | | | |
| Delhi | EZ N | iP eP | 23 07 14 | | Slight. Initial ground motion North-East. Rarefaction. | |
| | | | | | | |
| Port Blair | Z | eP | 23 07 21 | | Slight, distant. | |
| | | | | | | |
| 28 | Shillong | ZNE | iP | 23 26 52 | | Slight, distant, rarefaction. |
| | | | | | | |
| Chatra | Z | iP | 23 27 22 | | Slight, near, rarefaction. | |
| | | | | | | |
| Delhi | ENZ | iP | 23 28 16 | | Slight. Initial ground motion North, West. Rarefaction. | |
| | | | | | | |
| 29 | Shillong | ZNE | iP | 00 03 10 | | Slight, distant, compression. |
| | | | | | | |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|-------------|------------|-------|----------|----------------------|----------|---|
| June, 1963. | | | | | | |
| 29 | Chatra | Z | iP | 00 03 29 | | Slight, distant, compression. |
| | Delhi | ENZ | iP | 00 04 07 | | Slight. Initial ground motion South-West. Compression. |
| | Port Blair | Z | iP | 00 04 13 | | Slight, distant, compression. |
| 29 | Shillong | ZNE | iP | 02 31 00 | | Slight, distant, compression. |
| | Chatra | Z | iP | 02 31 20 | | Slight, distant, compression. |
| 29 | Shillong | ZNE | iP | 04 16 18 | | Slight, distant, rarefaction. |
| | Delhi | Z | eP | 04 17 22 | | Slight, rarefaction. |
| 29 | Shillong | ZNE | iP | 05 48 10 | | Slight, distant, compression. |
| | Delhi | ENZ | eP | 05 49 07 | | Slight. Initial ground motion North, East. Rarefaction. |
| 29 | Shillong | ZNE | iP | 10 20 13 | | Slight, near, compression. |
| 29 | Shillong | ZNE | eP | 11 05 59 | | Slight, near. |
| 29 | Chatra | Z | eP | 11 08 36 | | Slight, distant. |
| 29 | Shillong | ZNE | iP | 12 52 40 | | Slight, distant, compression. |
| | Chatra | Z | eP | 12 53 12 | | Slight, distant. |
| | Delhi | Z | eP | 12 54 13 | | Slight, rarefaction. |
| 29 | Shillong | ZNE | iP | 13 23 19 | | |
| | Delhi | ENZ | eP | 13 24 16 | | Slight. Initial ground motion North-East. Rarefaction. |
| 29 | Shillong | ZNE | iP | 14 30 10 | | Slight, distant, compression. |
| | Delhi | NZ | eP | 14 31 07 | | Slight, rarefaction. |
| 29 | Delhi | EZ | iP | 15 02 52 | | Slight, West, compression. |
| 29 | Chatra | Z | iP iS | 15 30 33 31 14 | 380 | Slight. |

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | △ km. | REMARKS. |
|---|---------------|-------|----------|----------------------|----------|--|
| June, 1963. | | | | | | |
| 29 | Shillong | ZNE | iP | 15 45 05 | | Slight, near, compression. |
| 29 | Shillong | ZNE | iP | 18 51 28 | | Slight, distant, compression. |
| | Chatra | Z | iP | 18 51 47 | | Slight, distant. |
| | Delhi | ENZ | eP | 18 52 26 | | Slight, compression. |
| 29 | Shillong | ZNE | iP | 20 25 55 | | Slight, distant, compression. |
| | Chatra | Z | e | 20 26 14 | | Slight. |
| | Delhi | ENZ | eP | 20 26 51 | | Slight, South, compression. |
| 30 | Shillong | ZNE | iP | 00 51 36 | | Slight, distant, compression. |
| | Delhi | Z | eP | 00 52 32 | | Slight, compression. |
| 30 | Shillong | ZNE | iP Sg | 01 19 59 20 29 | 220 | Slight, compression. |
| 30 | Shillong | ZNE | eP | 04 28 09 | | Slight, distant. |
| | Port Blair | Z | e | 04 30 43 | | |
| Epc:- 2.5° S 102.4° E in Sumatra . | | | | | | |
| h = about 160 km. | | | | | | |
| -H= 06 h 45 m 36.8 s (USCGS). Mag : 6.5(CGS). | | | | | | |
| | Port Blair | Z | eP | 06 49 22 | 1870 | |
| | | E | i | 50 02 | | |
| | | | iS | 52 30 | | |
| | Visakhapatnam | NE | eP | 06 51 15 | 3100 | |
| | | | eS | 55 43 | | |
| | Shillong | ZNE | iP | 06 51 31 | 3320 | Rarefaction. Initial ground motion towards South-East. |
| | | | iS | 56 10 | | |
| | Madras | E | i | 06 51 41 | | Initial ground motion towards East. |
| | | | i | 51 49 | | |
| | | | i | 52 12 | | |
| | | | iS | 55 34 | | |
| | Chatra | Z | iP | 06 51 58 | 3665 | Rarefaction. |
| 30 | | NE | iS | 56 59 | | |
| | Delhi | ENZ | iP | 06 52 53 | 4380 | Initial ground motion towards North, West. |
| | | | iS | 58 38 | | Compression. |



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

June, 1963.

| DATE | STATION | COMPT | PHASE | G. M. T. h. m. s. | Δ km. | REMARKS. |
|------|-----------|----------|-----------------------|-------------------------------------|-----------------|---|
| 30 | Bokaro | E | e i i | 06 56 31 57 00 57 48 | | |
| 30 | Dehra Dun | EN | iP | 06 58 47 | | Slight. Initial ground movement towards North-East. |
| 30 | Delhi | Z | eP e | 07 43 43 46 24 | | Slight, rarefaction. |
| 30 | Shillong | ZNE | iP | 07 48 08 | | Slight, distant, compression. |
| 30 | Bombay | EN NE | iP PP PPP iS | 07 53 52 54 13 54 42 57 51 | 2550 | Slight. |
| 30 | Shillong | ZNE | iP | 12 07 01 | | Slight, local, compression. Initial ground motion towards North East. Locally felt at Lakshmipur North. |
| | Chatra | Z NE | iP E i | 12 07 56 08 58 09 25 | | Slight, rarefaction. |
| 30 | Shillong | ZNE | iP | 18 06 25 | | Slight, near, rarefaction. |
| 30 | Delhi | NZ | e | 18 12 20 | | |
| 30 | Shillong | ZNE | iP | 22 14 06 | | Slight, distant, compression. |
| | Chatra | Z | iP | 22 14 25 | | Slight, distant, compression. |
| | Delhi | ENZ | iP | 22 15 03 | | Slight, South-West. Compression. |

MICROSEISMIC

- 41 -

| 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 | | | | | June, 1963. | | | | |
| 01 | 00 | 1 | 0.9 | 4.0 | 07 | 00 | 1 | 2.2 | 5.0 |
| | 03 | 1 | 1.0 | 3.9 | | 03 | 1 | 2.4 | 5.0 |
| | 06 | 1 | 1.1 | 3.8 | | 06 | 1 | 2.5 | 5.0 |
| | 09 | 1 | 1.0 | 4.0 | | 09 | 1 | 2.4 | 5.0 |
| | 12 | 1 | 0.9 | 3.9 | | 12 | 1 | 2.2 | 5.0 |
| | 15 | 1 | 0.9 | 4.0 | | 15 | 1 | 2.2 | 5.0 |
| | 18 | 1 | 1.0 | 4.0 | | 18 | 1 | 2.5 | 5.0 |
| | 21 | 1 | 0.9 | 3.9 | | 21 | 1 | 2.8 | 5.0 |
| 02 | 00 | 1 | 0.9 | 4.0 | 08 | 00 | 1 | 2.9 | 5.0 |
| | 03 | 1 | 1.0 | 4.0 | | 03 | 1 | 2.4 | 5.0 |
| | 06 | 1 | 0.9 | 4.0 | | 06 | 1 | 2.9 | 5.0 |
| | 09 | 1 | 0.9 | 4.0 | | 09 | 1 | 2.5 | 5.1 |
| | 12 | 1 | 0.9 | 3.9 | | 12 | 1 | 2.7 | 5.0 |
| | 15 | 1 | 0.9 | 4.0 | | 15 | 1 | 2.8 | 5.0 |
| | 18 | 1 | 1.0 | 4.0 | | 18 | 1 | 2.7 | 5.0 |
| | 21 | 1 | 1.0 | 4.0 | | 21 | 1 | 2.7 | 5.4 |
| 03 | 00 | 1 | 1.0 | 4.0 | 09 | 00 | 1 | 2.6 | 5.0 |
| | 03 | 1 | 1.0 | 3.9 | | 03 | 1 | 2.7 | 5.0 |
| | 06 | 1 | 1.0 | 4.0 | | 06 | 1 | 2.6 | 5.0 |
| | 09 | 1 | 1.8 | 4.0 | | 09 | 1 | 2.7 | 5.0 |
| | 12 | 1 | 1.0 | 4.0 | | 12 | 1 | 2.7 | 5.0 |
| | 15 | 1 | 1.0 | 4.0 | | 15 | 1 | 2.7 | 5.0 |
| | 18 | 3 | 0.7 | 2.0 | | 18 | 1 | 3.0 | 5.0 |
| | | | 1.0 | 3.5 | | 21 | 1 | 3.0 | 5.0 |
| 04 | 00 | 3 | 0.6 | 2.0 | 10 | 00 | 3 | 3.1 | 5.0 |
| | | | 0.9 | 3.9 | | | | 0.5 | 1.8 |
| | 06 | 3 | 0.6 | 1.7 | | 06 | 3 | 2.1 | 4.8 |
| | | | 1.1 | 3.5 | | | | 0.5 | 1.8 |
| | 12 | 3 | 0.6 | 1.9 | | 12 | 3 | 2.6 | 5.0 |
| | | | 1.2 | 3.8 | | | | 0.4 | 1.4 |
| | 18 | 3 | 1.7 | 4.0 | | 18 | 3 | 2.3 | 5.0 |
| | | | 0.5 | 1.6 | | | | 0.4 | 1.7 |
| 05 | 00 | 3 | 1.6 | 4.0 | 11 | 00 | 3 | 2.0 | 4.9 |
| | | | 0.5 | 1.8 | | | | 0.5 | 1.7 |
| | 03 | - | - | - | | 06 | 3 | 1.9 | 4.0 |
| | 06 | 1 | 1.6 | 4.0 | | | | 0.5 | 1.7 |
| | 09 | 1 | 1.8 | 4.0 | | 12 | 3 | 1.8 | 4.0 |
| | 12 | 1 | 1.9 | 4.0 | | | | 0.5 | 2.0 |
| | 15 | 1 | 2.0 | 4.5 | | 18 | 3 | 1.7 | 4.0 |
| | 18 | 1 | 2.2 | 4.5 | | | | 0.5 | 1.5 |
| | 21 | 1 | 2.2 | 4.6 | | | | | |
| 06 | 00 | 1 | 2.2 | 4.5 | 12 | 00 | 3 | 1.8 | 3.8 |
| | 03 | 1 | 1.9 | 4.7 | | | | 0.6 | 2.0 |
| | 06 | . | . | . | | 06 | 3 | 1.5 | 3.0 |
| | 09 | 1 | 2.1 | 5.0 | | | | 0.4 | 1.5 |
| | 12 | 1 | 2.4 | 4.9 | | 12 | 3 | 1.7 | 4.0 |
| | 15 | 1 | 2.3 | 5.0 | | | | 0.6 | 2.0 |
| | 18 | 1 | 2.4 | 5.0 | | 18 | 3 | 1.5 | 4.0 |
| | 21 | 1 | 2.4 | 5.0 | | | | 0.4 | 1.5 |

Date Hour GMT K Mean simple amplitude in m.m. Mean period in sec.

Station: Bombay (Contd.)

June, 1963.

| Date | Hour GMT | K | Mean simple amplitude in m.m. | Mean period in sec. |
|------|----------|---|-------------------------------|---------------------|
| 13 | 00 | 3 | 1.6 | 2.4 |
| | | | 0.5 | 1.5 |
| | 06 | 3 | 1.2 | 3.5 |
| | | | 0.5 | 1.8 |
| | 12 | 3 | 1.2 | 3.1 |
| | | | 0.9 | 2.0 |
| | 18 | 3 | 1.5 | 3.0 |
| | | | 0.5 | 2.0 |
| 14 | 00 | 3 | 1.5 | 3.1 |
| | | | 0.6 | 2.0 |
| | 06 | 3 | 1.6 | 3.6 |
| | | | 0.5 | 1.8 |
| | 12 | 3 | 0.5 | 2.0 |
| | | | 1.5 | 4.0 |
| | | | 1.4 | 3.1 |
| | 18 | 3 | 0.8 | 1.7 |
| | | | 1.2 | 3.0 |
| 15 | 00 | 3 | 1.7 | 4.0 |
| | | | 0.5 | 2.0 |
| | | | 1.5 | 3.0 |
| | 06 | 3 | 1.1 | 3.9 |
| | | | 0.8 | 2.0 |
| | 12 | 3 | 1.5 | 3.7 |
| | | | 0.6 | 2.0 |
| | 18 | 3 | 0.8 | 1.7 |
| | | | 1.2 | 3.0 |
| 16 | 00 | 3 | 1.5 | 3.0 |
| | | | 0.6 | 1.9 |
| | | | 1.6 | 4.0 |
| | 06 | 3 | 1.6 | 4.0 |
| | | | 1.1 | 3.0 |
| | 12 | 3 | 1.5 | 4.0 |
| | | | 1.2 | 3.0 |
| | 18 | 3 | 1.4 | 4.0 |
| | | | 0.6 | 2.0 |
| 17 | 00 | 3 | 1.0 | 2.0 |
| | | | 1.1 | 3.4 |
| | 06 | 3 | 1.2 | 2.0 |
| | | | 1.3 | 4.1 |
| | 12 | 3 | 1.1 | 4.0 |
| | | | 1.0 | 2.0 |
| | 18 | 3 | 0.5 | 2.0 |
| | | | 1.3 | 4.0 |
| 18 | 00 | 3 | 1.1 | 3.0 |
| | | | 1.0 | 5.0 |
| | 06 | 3 | 1.2 | 4.0 |
| | | | 0.8 | 2.1 |
| | 12 | 3 | 1.2 | 4.0 |
| | | | 0.4 | 1.9 |
| | 18 | 3 | 0.5 | 1.8 |
| | | | 1.8 | 4.0 |
| | | | 1.8 | 4.0 |



Date Hour GMT K Mean simple amplitude in m.m. Mean period in sec.

Station: Bombay (Contd.)

June, 1963.

| Date | Hour GMT | K | Mean simple amplitude in m.m. | Mean period in sec. |
|------|----------|---|-------------------------------|---------------------|
| 25 | 00 | 3 | 1.5 | 4.0 |
| | | | 0.5 | 2.0 |
| | 06 | 3 | 1.5 | 4.0 |
| | | | 0.5 | 2.2 |
| | 12 | 3 | 1.9 | 4.3 |
| | | | 0.9 | 2.9 |
| | 18 | 3 | 1.5 | 4.1 |
| | | | 0.8 | 2.1 |
| 26 | 00 | 3 | 1.5 | 4.3 |
| | | | 0.5 | 1.9 |
| | 06 | 3 | 1.6 | 5.0 |
| | | | 1.0 | 3.0 |
| | | | 0.4 | 1.6 |
| | 12 | 3 | 1.5 | 5.0 |
| | | | 1.2 | 3.5 |
| | | | 0.4 | 1.5 |
| | 18 | 3 | 1.3 | 3.9 |
| | | | 0.6 | 2.7 |
| 27 | 00 | 3 | 1.3 | 4.0 |
| | | | 0.6 | 2.0 |
| | 06 | 3 | 1.0 | 4.0 |
| | | | 0.5 | 2.2 |
| | 12 | 3 | 1.1 | 3.0 |
| | | | 1.0 | 2.0 |
| | 18 | 3 | 1.3 | 4.0 |
| | | | 1.0 | 3.0 |
| | | | 0.6 | 2.0 |
| 28 | 00 | 3 | 1.5 | 4.0 |
| | | | 1.1 | 3.0 |
| | | | 0.5 | 2.0 |
| | 06 | 3 | 1.3 | 3.9 |
| | | | 0.7 | 2.0 |
| | 12 | 3 | 1.4 | 3.9 |
| | | | 0.5 | 1.9 |
| | | | 1.1 | 3.0 |
| | 18 | 3 | 1.4 | 4.0 |
| | | | 1.2 | 2.9 |
| 29 | 00 | 3 | 1.0 | 3.0 |
| | | | 0.5 | 1.9 |
| | 06 | 3 | 1.0 | 3.0 |
| | | | 1.1 | 4.0 |
| | | | 0.4 | 1.6 |
| | 18 | 3 | 1.1 | 3.1 |
| | | | 0.5 | 2.0 |
| 30 | 00 | 3 | 1.0 | 4.0 |
| | | | 0.6 | 2.1 |
| | 06 | 3 | 1.6 | 4.0 |
| | | | 0.6 | 2.0 |
| | 12 | 3 | 1.7 | 4.0 |
| | | | 0.5 | 2.0 |
| | 18 | 3 | 1.7 | 4.0 |
| | | | 1.0 | 2.0 |

Station: Madras.

| Date | Hour GMT | K | Mean simple amplitude in m.m. | Mean period in sec. |
|------|----------|---|-------------------------------|---------------------|
| 01 | 00 | 1 | 0.7 | 3.7 |
| | | | 0.5 | 2.8 |
| | 03 | 1 | 0.7 | 3.6 |
| | | | 0.4 | 2.5 |
| | 06 | 1 | 0.7 | 3.5 |
| | | | 0.4 | 2.6 |
| | 12 | 1 | 0.6 | 3.5 |
| | | | 0.3 | 2.6 |
| | 18 | 1 | 0.6 | 3.5 |
| | | | 0.3 | 2.4 |
| 02 | 00 | 3 | 0.6 | 3.6 |
| | | | 0.2 | 1.9 |
| | 03 | 1 | 0.6 | 3.3 |
| | | | 0.4 | 2.6 |
| | 06 | 1 | 0.6 | 3.5 |
| | | | 0.4 | 2.7 |
| | 12 | 1 | 0.5 | 3.5 |
| | | | 0.6 | 2.8 |
| | 18 | 1 | 0.5 | 3.5 |
| | | | 0.5 | 2.8 |
| 03 | 00 | 1 | 0.6 | 3.3 |
| | | | 0.6 | 2.7 |
| | 03 | 1 | 0.7 | 2.9 |
| | | | 0.8 | 2.8 |
| | 06 | 1 | 0.9 | 3.0 |
| | | | 0.7 | 3.4 |
| | 12 | 1 | 0.8 | 3.4 |
| | | | 0.8 | 2.8 |
| 04 | 00 | 1 | 0.7 | 3.4 |
| | | | 0.5 | 2.7 |
| | | | 0.1 | 1.5 |
| | 03 | 1 | 0.5 | 2.7 |
| | | | 0.2 | 1.8 |
| | 06 | 1 | 0.7 | 2.7 |
| | | | 0.7 | 2.7 |
| | 12 | 1 | 0.7 | 3.4 |
| | | | 0.8 | 3.5 |
| | 18 | 1 | 0.6 | 2.7 |
| | | | 0.6 | 2.7 |
| 05 | 00 | 1 | 0.9 | 3.5 |
| | | | 0.7 | 2.6 |
| | 03 | 1 | 1.0 | 3.5 |
| | | | 0.8 | 2.6 |
| | 06 | 1 | 1.1 | 3.5 |
| | | | 0.8 | 2.6 |
| | 12 | 1 | 1.2 | 3.9 |
| | | | 0.8 | 2.7 |
| | 18 | 1 | 1.3 | 4.1 |
| | | | 0.7 | 2.8 |
| 06 | 00 | 1 | 1.3 | 4.2 |
| | | | 0.5 | 2.6 |

| 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. |
|--------------------------------------|----------|---|-------------------------------|---------------------|------|----------|---|-------------------------------|---------------------|
| Station: Madras (Contd.) June, 1963. | | | | | | | | | |
| 06 | 03 | 1 | 1.4 | 4.6 | 14 | 00 | 3 | 0.5 | 4.5 |
| | | 1 | 0.5 | 2.7 | | | 3 | 0.3 | 2.6 |
| | 06 | 1 | 1.5 | 4.3 | | 03 | 3 | 0.5 | 4.1 |
| | | 1 | 0.7 | 2.7 | | | 3 | 0.4 | 2.7 |
| | 12 | 1 | 1.7 | 4.6 | | 06 | 3 | 0.4 | 2.7 |
| | | 1 | 0.5 | 2.6 | | 12 | 3 | 0.5 | 4.2 |
| | 18 | 1 | 1.7 | 4.7 | | | 3 | 0.5 | 2.8 |
| | | 1 | 0.5 | 2.7 | | 18 | 3 | 0.5 | 4.2 |
| | | | | | | | 3 | 0.4 | 2.7 |
| 07 | 00 | 1 | 1.8 | 4.5 | 15 | 00 | 3 | 0.5 | 4.3 |
| | | 1 | 0.4 | 2.6 | | | 3 | 0.4 | 2.7 |
| | 03 | 1 | 1.7 | 4.5 | | 03 | 3 | 0.5 | 3.7 |
| | | 1 | 1.7 | 4.5 | | | 3 | 0.4 | 2.8 |
| | 12 | 1 | 1.8 | 4.8 | | | 3 | 0.2 | 2.0 |
| | 18 | 1 | 2.0 | 4.7 | | 06 | 3 | 0.5 | 3.2 |
| 08 | 00 | 1 | 2.0 | 4.8 | | | 3 | 0.2 | 1.8 |
| | 03 | 1 | 2.1 | 5.3 | | 12 | 3 | 0.6 | 2.8 |
| | 06 | 1 | 2.3 | 5.0 | | | 3 | 0.4 | 2.1 |
| | 12 | 1 | 2.1 | 5.1 | | 18 | 3 | 0.6 | 4.0 |
| | 18 | 1 | 2.4 | 5.4 | | | 3 | 0.5 | 2.5 |
| | | | | | | | 3 | 0.4 | 2.1 |
| 09 | 00 | 1 | 2.6 | 5.5 | 16 | 00 | 3 | 0.5 | 3.9 |
| | 03 | 1 | 2.5 | 5.5 | | | 3 | 0.4 | 2.7 |
| | 06 | 1 | 2.3 | 5.5 | | | 3 | 0.2 | 2.0 |
| | 12 | 1 | 2.1 | 5.5 | | 03 | 3 | 0.4 | 2.7 |
| | 18 | 1 | 2.2 | 5.6 | | | 3 | 0.2 | 1.9 |
| 10 | 00 | 1 | 2.3 | 5.5 | | 06 | 3 | 0.5 | 2.9 |
| | 03 | 1 | 2.2 | 5.6 | | | 3 | 0.3 | 2.1 |
| | 06 | 1 | 2.0 | 5.6 | | 12 | 3 | 0.6 | 4.3 |
| | 12 | 1 | 2.0 | 5.6 | | | 3 | 0.7 | 2.9 |
| | 18 | 1 | 1.7 | 5.3 | | 18 | 3 | 0.7 | 4.2 |
| 11 | 00 | 1 | 1.6 | 5.2 | 17 | 00 | 3 | 0.5 | 2.7 |
| | 03 | 1 | 1.7 | 5.1 | | | 3 | 0.7 | 4.4 |
| | 06 | 1 | 1.6 | 5.0 | | 03 | 3 | 0.5 | 2.9 |
| | 12 | 1 | 1.5 | 5.1 | | | 3 | 0.6 | 4.2 |
| | 18 | 1 | 1.3 | 5.0 | | 06 | 3 | 0.5 | 2.9 |
| 12 | 00 | 1 | 1.0 | 5.1 | | | 3 | 0.7 | 4.5 |
| | 03 | 1 | 1.0 | 5.0 | | 12 | 3 | 0.5 | 2.7 |
| | 06 | 1 | 0.9 | 4.9 | | | 3 | 0.9 | 4.4 |
| | | 3 | 0.1 | 1.9 | | 18 | 3 | 0.4 | 2.7 |
| | 12 | 1 | 0.9 | 5.0 | | | 3 | 0.9 | 4.6 |
| | | 3 | 0.1 | 2.0 | | 18 | 3 | 0.3 | 2.7 |
| | 18 | 1 | 0.8 | 5.0 | 18 | 00 | 3 | 0.8 | 4.5 |
| | | 3 | 0.2 | 2.2 | | | 3 | 0.3 | 2.6 |
| 13 | 00 | 3 | 0.7 | 4.7 | | 03 | 1 | 0.8 | 4.5 |
| | | 3 | 0.3 | 2.2 | | | 3 | 0.4 | 2.7 |
| | 03 | 3 | 0.7 | 4.4 | | 06 | 1 | 0.8 | 4.5 |
| | | 3 | 0.6 | 2.7 | | | 3 | 0.4 | 2.8 |
| | 06 | 3 | 0.7 | 4.5 | | 12 | 1 | 0.9 | 4.3 |
| | | 3 | 0.5 | 2.8 | | | 3 | 0.4 | 2.9 |
| | 12 | 3 | 0.7 | 4.6 | | 18 | 1 | 0.8 | 4.2 |
| | | 3 | 0.5 | 2.8 | | | 3 | 0.4 | 2.7 |
| | 18 | 3 | 0.6 | 4.4 | | | 3 | 0.4 | 2.7 |
| | | 3 | 0.4 | 2.8 | | | | | |

| 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: Madras (Contd.) June, 1963. | | | | | | | | | |
| 19 | 00 | 1 | 0.8 | 4.4 | 24 | 00 | 1 | 1.2 | 4.2 |
| | | 3 | 0.3 | 2.5 | | | 1 | 0.8 | 2.8 |
| | 03 | 1 | 0.8 | 4.4 | | 03 | 1 | 1.0 | 4.3 |
| | | 3 | 0.4 | 2.7 | | | 1 | 0.8 | 2.8 |
| | | 3 | 0.1 | 1.5 | | 06 | ... | Earthquake waves. | |
| | 06 | 1 | 0.8 | 4.4 | | 12 | 1 | 1.1 | 4.3 |
| | | 3 | 0.3 | 2.7 | | | 1 | 1.0 | 2.9 |
| | | 3 | 0.1 | 1.5 | | 18 | 1 | 1.0 | 4.4 |
| | 12 | 1 | 0.7 | 4.3 | | | 1 | 0.6 | 2.7 |
| | | 3 | 0.4 | 2.8 | | | | | |
| | 18 | 1 | 0.9 | 4.4 | 25 | 00 | 1 | 1.0 | 4.4 |
| | | 3 | 0.4 | 2.8 | | | 1 | 0.6 | 2.9 |
| 20 | 00 | 1 | 0.9 | 4.5 | | 03 | 1 | 1.0 | 4.4 |
| | | 3 | 0.4 | 2.7 | | | 1 | 0.6 | 2.7 |
| | 03 | 1 | 0.8 | 4.3 | | 06 | 1 | 0.9 | 4.3 |
| | | 3 | 0.3 | 2.7 | | | 1 | 0.6 | 2.6 |
| | 06 | 1 | 0.9 | 4.3 | | 12 | 1 | 0.9 | 4.4 |
| | | 3 | 0.4 | 2.7 | | | 1 | 0.6 | 2.8 |
| | 12 | 1 | 0.9 | 4.3 | | 18 | 1 | 0.9 | 4.3 |
| | | 3 | 0.7 | 2.7 | | | 1 | 0.6 | 2.7 |
| | 18 | 1 | 0.9 | 4.4 | 26 | 00 | 1 | 0.9 | 4.4 |
| | | 3 | 0.5 | 2.8 | | | 1 | 0.7 | 2.8 |
| | | | | | | | 1 | 0.2 | 1.7 |
| 21 | 00 | 1 | 0.9 | 4.4 | | 03 | 3 | 0.8 | 4.3 |
| | | 3 | 0.5 | 2.8 | | | 1 | 0.7 | 2.8 |
| | | 3 | 0.2 | 1.8 | | | 1 | 0.3 | 1.9 |
| | 03 | 1 | 1.0 | 4.4 | | 06 | 3 | 0.8 | 4.4 |
| | | 3 | 0.4 | 2.8 | | | 1 | 0.5 | 2.8 |
| | 06 | 1 | 1.0 | 4.2 | | | 1 | 0.3 | 2.0 |
| | | 3 | 0.4 | 2.8 | | 12 | 3 | 0.9 | 4.1 |
| | 12 | 1 | 0.9 | 4.2 | | | 1 | 0.6 | 2.9 |
| | | 3 | 0.4 | 2.8 | | | 3 | 0.2 | 2.0 |
| | 18 | 1 | 0.9 | 4.4 | | 18 | 3 | 0.9 | 4.3 |
| | | 3 | 0.3 | 2.5 | | | 1 | 0.6 | 2.7 |
| 22 | 00 | 1 | 0.9 | 4.3 | 27 | 00 | 1 | 0.8 | 4.4 |
| | | 3 | 0.3 | 2.7 | | | 1 | 0.5 | 2.7 |
| | 03 | 1 | 0.9 | 4.5 | | | 3 | 0.2 | 1.6 |
| | | 3 | 0.4 | 2.7 | | 03 | 1 | 0.7 | 4.3 |
| | 06 | 1 | 0.9 | 4.5 | | | 1 | 0.6 | 2.8 |
| | | 3 | 0.5 | 2.7 | | 06 | 1 | 0.8 | 4.3 |
| | 12 | 1 | 0.9 | 4.4 | | | 1 | 0.6 | 2.9 |
| | | 3 | 0.5 | 2.7 | | 12 | 1 | 0.8 | 4.1 |
| | 18 | 1 | 1.0 | 4.6 | | | 1 | 0.5 | 2.7 |
| | | 3 | 0.4 | 2.7 | | 18 | 1 | 0.7 | 4.1 |
| | | | | | | | 3 | 0.4 | 2.7 |
| 23 | 00 | 1 | 1.0 | 4.4 | 28 | 00 | 1 | 0.8 | 4.1 |
| | | 3 | 0.5 | 2.7 | | | 3 | 0.2 | 2.3 |
| | 03 | 1 | 1.0 | 4.5 | | 03 | 1 | 0.8 | 3.9 |
| | | 3 | 0.4 | 2.7 | | | 3 | 0.3 | 2.6 |
| | 06 | 1 | 1.1 | 4.2 | | 06 | 1 | 0.8 | 3.7 |
| | | 1 | 0.6 | 2.6 | | | 3 | 0.3 | 2.7 |
| | 12 | 1 | 1.1 | 4.3 | | | 1 | 0.8 | 3.9 |
| | | 1 | 0.7 | 2.7 | | 12 | 1 | 0.8 | 3.9 |
| | 18 | 1 | 1.1 | 4.3 | | | 1 | 0.7 | 3.9 |
| | | 1 | 0.7 | 2.8 | | 18 | 1 | 0.7 | 3.9 |



| 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. |
|------|----------|---|-------------------------------|---------------------|------|----------|---|-------------------------------|---------------------|
|------|----------|---|-------------------------------|---------------------|------|----------|---|-------------------------------|---------------------|

Station: Madras(Contd.)

June, 1963.

| | | | | | | | | | | | |
|----|----|--------|-----|-----|----|----|---------|-----|-----|-----|-----|
| 29 | 00 | 1 | 0.7 | 3.7 | 06 | 00 | 3(b) | 0.6 | 3.8 | | |
| | | 1 | 0.5 | 2.9 | | |(c) | - | - | | |
| | | 3 | 0.1 | 1.5 | | | 3 | 0.8 | 4.5 | | |
| 03 | 03 | 1 | 0.7 | 3.8 | 07 | 00 | 3 | 1.1 | 4.4 | | |
| | | 3 | 0.3 | 2.7 | | | 3 | 0.9 | 4.5 | | |
| 06 | 06 | 1 | 0.7 | 3.8 | 07 | 06 | 3 | 1.2 | 4.7 | | |
| | | 3 | 0.3 | 2.6 | | | 3 | 1.0 | 4.9 | | |
| | | 12 | 1 | 0.7 | | | 4.0 | 3 | 1.1 | 5.0 | |
| 18 | 18 | 1 | 0.7 | 4.1 | 08 | 00 | 3 | 1.2 | 4.9 | | |
| | | 3 | 0.3 | 2.5 | | | 3 | 1.3 | 4.9 | | |
| | | 3 | 0.1 | 1.9 | | | 3 | 1.1 | 5.2 | | |
| 30 | 00 | 1 | 0.7 | 3.9 | 08 | 06 | 3 | 1.0 | 5.0 | | |
| | | 1 | 0.7 | 2.8 | | | 3 | 1.1 | 5.2 | | |
| | | 03 | 1 | 0.9 | | | 2.9 | 3 | 1.0 | 5.0 | |
| 06 | 06 | 1 | 1.1 | 3.0 | 09 | 00 | 3 | 1.1 | 5.0 | | |
| | | 12 | 1 | 0.8 | | | 2.9 | 3 | 1.4 | 5.0 | |
| | | 12 | 1 | 0.8 | | | 2.9 | 3 | 1.3 | 5.2 | |
| 18 | 18 | 1 | 0.8 | 3.9 | 09 | 12 | 3 | 0.9 | 5.6 | | |
| | | 1 | 0.8 | 3.9 | | | 3 | 1.0 | 5.6 | | |
| | | 1 | 0.6 | 2.8 | | | 3 | 1.1 | 4.8 | | |
| 01 | 00 | 2 | 0.3 | 3.4 | 10 | 00 | 3 | 1.0 | 5.6 | | |
| | | 06 | 2 | 0.3 | | | 3.5 | 3 | 1.1 | 4.8 | |
| | | 12 | 2 | 0.3 | | | 3.6 | 3 | 1.0 | 5.1 | |
| 02 | 00 | 2 | 0.4 | 3.7 | 10 | 06 | 3 | 1.1 | 5.0 | | |
| | | 06 | 2 | 0.4 | | | 3.7 | 3 | 1.1 | 5.0 | |
| | | 12 | 2 | 0.4 | | | 3.7 | 3 | 1.1 | 5.0 | |
| 03 | 00 | 2 | 0.4 | 3.7 | 11 | 00 | 3 | 1.0 | 5.3 | | |
| | | 06 | 2 | 0.6 | | | 3.2 | 3 | 0.9 | 5.3 | |
| | | 12 | 2 | 0.7 | | | 3.6 | 12 | 3 | 0.9 | 5.1 |
| 04 | 00 | 0,0(a) | - | - | 11 | 18 | 2 | 0.9 | 5.0 | | |
| | | 06 | 2 | 0.3 | | | 3.4 | 12 | 2 | 0.9 | 5.0 |
| | | 12 | 2 | 0.3 | | | 3.6 | 18 | 2 | 0.9 | 5.0 |
| 05 | 00 | 2 | 0.4 | 3.7 | 12 | 00 | 2 | 0.9 | 4.6 | | |
| | | 06 | 2 | 0.6 | | | 3.2 | 06 | 2 | 0.7 | 4.7 |
| | | 12 | 2 | 0.7 | | | 3.6 | 12 | 2 | 0.7 | 4.8 |
| 06 | 00 | 0,0 | - | - | 12 | 18 | 0,0 | - | - | | |
| | | 06 | 2 | 0.5 | | | 3.5 | 06 | 2 | 0.5 | 3.8 |
| | | 12 | 2 | 0.6 | | | 3.4 | 12 | 2 | 0.5 | 3.2 |
| 07 | 00 | 2 | 0.5 | 3.8 | 13 | 00 | 0,0 | - | - | | |
| | | 12 | 2 | 0.6 | | | 3.9 | 06 | 2 | 0.5 | 3.8 |
| | | 18 | 2 | 0.6 | | | 3.6 | 12 | 2 | 0.5 | 3.2 |
| 08 | 00 | 2 | 0.6 | 3.6 | 13 | 06 | 2 | 0.4 | 3.1 | | |
| | | 06 | 2 | 0.5 | | | 3.5 | 12 | 2 | 0.4 | 3.1 |
| | | 12 | 2 | 0.6 | | | 3.4 | 18 | 2 | 0.4 | 3.1 |
| 09 | 00 | 2 | 0.5 | 3.4 | 14 | 00 | 2 | 0.5 | 3.4 | | |
| | | 06 | 2 | 0.7 | | | 3.9 | 06 | 0,0 | - | - |
| | | 12 | 2 | 0.6 | | | 3.6 | 12 | 2 | 0.7 | 3.9 |
| 10 | 00 | 2 | 0.6 | 3.6 | 14 | 18 | 2 | 0.6 | 3.6 | | |
| | | 06 | 2 | 0.6 | | | 3.6 | 18 | 2 | 0.6 | 3.6 |
| | | 12 | 2 | 0.6 | | | 3.5 | 00 | 2 | 0.6 | 3.6 |
| 11 | 00 | 2 | 0.6 | 3.7 | 15 | 00 | 2 | 0.6 | 3.6 | | |
| | | 06 | 2 | 0.6 | | | 3.7 | 06 | 2 | 0.5 | 3.5 |
| | | 12 | 2 | 0.6 | | | 3.6 | 12 | 2 | 0.5 | 3.5 |
| 12 | 00 | 2 | 0.5 | 3.5 | 15 | 06 | 2 | 0.6 | 3.6 | | |
| | | 06 | 2 | 0.6 | | | 3.4 | 12 | 2 | 0.6 | 3.4 |
| | | 12 | 2 | 0.6 | | | 3.5 | 18 | 2 | 0.6 | 3.5 |
| 13 | 00 | 2 | 0.6 | 3.7 | 16 | 00 | 2 | 0.6 | 3.7 | | |
| | | 06 | 2 | 0.6 | | | 3.7 | 06 | 2 | 0.6 | 3.7 |
| | | 12 | 2 | 0.6 | | | 3.6 | 12 | 2 | 0.6 | 3.6 |
| 14 | 00 | 2 | 0.5 | 3.4 | 16 | 06 | 2 | 0.5 | 3.5 | | |
| | | 06 | 2 | 0.7 | | | 3.9 | 12 | 2 | 0.6 | 3.6 |
| | | 12 | 2 | 0.6 | | | 3.6 | 18 | 2 | 0.5 | 3.5 |
| 15 | 00 | 2 | 0.6 | 3.6 | 16 | 12 | 2 | 0.6 | 3.6 | | |
| | | 06 | 2 | 0.5 | | | 3.5 | 18 | 2 | 0.5 | 3.5 |
| | | 12 | 2 | 0.6 | | | 3.4 | 00 | 2 | 0.6 | 3.7 |
| 16 | 00 | 2 | 0.6 | 3.7 | 16 | 06 | 2 | 0.6 | 3.7 | | |
| | | 06 | 2 | 0.6 | | | 3.7 | 12 | 2 | 0.6 | 3.6 |
| | | 12 | 2 | 0.6 | | | 3.6 | 18 | 2 | 0.5 | 3.5 |
| 17 | 00 | 2 | 0.5 | 3.5 | 16 | 12 | 2 | 0.5 | 3.5 | | |
| | | 06 | 2 | 0.5 | | | 3.5 | 18 | 2 | 0.5 | 3.5 |
| | | 12 | 2 | 0.5 | | | 3.5 | 00 | 2 | 0.5 | 3.5 |

Note: (a) Microseism very feeble.
 (b) Thunderstorm in progress.
 (c) Earthquake.
 (d) Power failure.

Station: Visakhapatnam.

| | | | | | | | | | | | |
|----|----|--------|-----|-----|----|----|-----|-----|-----|-----|-----|
| 01 | 00 | 2 | 0.3 | 3.4 | 11 | 00 | 3 | 1.0 | 5.3 | | |
| | | 06 | 2 | 0.3 | | | 3.5 | 06 | 3 | 0.9 | 5.3 |
| | | 12 | 2 | 0.3 | | | 3.6 | 12 | 3 | 0.9 | 5.1 |
| 02 | 00 | 2 | 0.4 | 3.7 | 11 | 18 | 2 | 0.9 | 5.0 | | |
| | | 06 | 2 | 0.4 | | | 3.7 | 12 | 2 | 0.9 | 5.0 |
| | | 12 | 2 | 0.4 | | | 3.7 | 18 | 2 | 0.9 | 5.0 |
| 03 | 00 | 2 | 0.4 | 3.7 | 12 | 00 | 2 | 0.9 | 4.6 | | |
| | | 06 | 2 | 0.6 | | | 3.2 | 06 | 2 | 0.7 | 4.7 |
| | | 12 | 2 | 0.7 | | | 3.6 | 12 | 2 | 0.7 | 4.8 |
| 04 | 00 | 0,0(a) | - | - | 12 | 18 | 0,0 | - | - | | |
| | | 06 | 2 | 0.3 | | | 3.4 | 06 | 2 | 0.7 | 4.7 |
| | | 12 | 2 | 0.3 | | | 3.6 | 12 | 2 | 0.7 | 4.8 |
| 05 | 00 | 2 | 0.4 | 3.7 | 13 | 00 | 0,0 | - | - | | |
| | | 06 | 2 | 0.6 | | | 3.2 | 06 | 2 | 0.5 | 3.8 |
| | | 12 | 2 | 0.7 | | | 3.6 | 12 | 2 | 0.5 | 3.2 |
| 06 | 00 | 0,0 | - | - | 13 | 06 | 2 | 0.4 | 3.1 | | |
| | | 06 | 2 | 0.5 | | | 3.5 | 12 | 2 | 0.5 | 3.2 |
| | | 12 | 2 | 0.6 | | | 3.4 | 18 | 2 | 0.4 | 3.1 |
| 07 | 00 | 2 | 0.5 | 3.8 | 14 | 00 | 2 | 0.5 | 3.4 | | |
| | | 12 | 2 | 0.6 | | | 3.9 | 06 | 0,0 | - | - |
| | | 18 | 2 | 0.6 | | | 3.6 | 12 | 2 | 0.7 | 3.9 |
| 08 | 00 | 2 | 0.6 | 3.6 | 14 | 18 | 2 | 0.6 | 3.6 | | |
| | | 06 | 2 | 0.5 | | | 3.5 | 18 | 2 | 0.6 | 3.6 |
| | | 12 | 2 | 0.6 | | | 3.4 | 00 | 2 | 0.5 | 3.4 |
| 09 | 00 | 2 | 0.6 | 3.5 | 15 | 00 | 2 | 0.6 | 3.6 | | |
| | | 06 | 2 | 0.5 | | | 3.5 | 06 | 2 | 0.5 | 3.5 |
| | | 12 | 2 | 0.6 | | | 3.4 | 12 | 2 | 0.6 | 3.4 |
| 10 | 00 | 2 | 0.6 | 3.5 | 15 | 06 | 2 | 0.6 | 3.6 | | |
| | | 06 | 2 | 0.5 | | | 3.5 | 12 | 2 | 0.5 | 3.5 |
| | | 12 | 2 | 0.6 | | | 3.4 | 18 | 2 | 0.6 | 3.4 |
| 11 | 00 | 2 | 0.6 | 3.7 | 15 | 12 | 2 | 0.6 | 3.5 | | |
| | | 06 | 2 | 0.6 | | | 3.7 | 18 | 2 | 0.6 | 3.5 |
| | | 12 | 2 | 0.6 | | | 3.6 | 00 | 2 | 0.6 | 3.7 |
| 12 | 00 | 2 | 0.5 | 3.5 | 16 | 06 | 2 | 0.6 | 3.7 | | |
| | | 06 | 2 | 0.6 | | | 3.7 | 12 | 2 | 0.6 | 3.7 |
| | | 12 | 2 | 0.6 | | | 3.6 | 18 | 2 | 0.6 | 3.6 |
| 13 | 00 | 2 | 0.5 | 3.5 | 16 | 12 | 2 | 0.5 | 3.5 | | |
| | | 06 | 2 | 0.5 | | | 3.5 | 18 | 2 | 0.5 | 3.5 |
| | | 12 | 2 | 0.5 | | | 3.5 | 00 | 2 | 0.5 | 3.5 |

| 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(Contd.)

June, 1963.

| | | | | | | | | | | | |
|----|----|-----|------|-----|----|----|-----|-----|-----|-----|-----|
| 17 | 00 | 2 | 0.5 | 4.0 | 28 | 00 | 2 | 0.5 | 3.2 | | |
| | | 06 | 2 | 0.5 | | | 3.8 | 06 | 2 | 0.6 | 3.8 |
| | | 12 | 2 | 0.6 | | | 4.0 | 12 | 2 | 0.7 | 3.4 |
| 18 | 00 | 2 | 0.3 | 4.0 | 28 | 18 | 2 | 0.3 | 3.7 | | |
| | | 06 | 2 | 0.5 | | | 3.7 | 00 | 2 | 0.3 | 3.0 |
| | | 12 | 2 | 0.5 | | | 3.8 | 06 | 2 | 0.6 | 3.5 |
| 19 | 00 | 2 | 0.4 | 3.6 | 29 | 12 | 2 | 0.5 | 3.8 | | |
| | | 06 | 2 | 0.5 | | | 4.1 | 18 | 2 | 0.5 | 3.2 |
| | | 12 | 2 | 0.5 | | | 3.7 | 00 | 2 | 0.4 | 2.8 |
| 20 | 00 | 2 | 0.5 | 3.7 | 30 | 06 | 2 | 0.4 | 3.1 | | |
| | | 06 | 2 | 0.5 | | | 3.9 | 12 | 2 | 0.6 | 3.5 |
| | | 12 | 2 | 0.5 | | | 4.3 | 18 | 2 | 0.6 | 3.7 |
| 21 | 00 | 2 | 0.5 | 3.8 | 30 | 12 | 2 | 0.6 | 3.5 | | |
| | | 06 | 2 | 0.6 | | | 4.0 | 18 | 2 | 0.6 | 3.7 |
| | | 12 | 2 | 0.5 | | | 4.3 | 00 | 2 | 0.4 | 2.8 |
| 22 | 00 | 2 | 0.5 | 3.8 | 30 | 06 | 2 | 0.4 | 3.1 | | |
| | | 06 | 2 | 0.6 | | | 4.1 | 12 | 2 | 0.6 | 3.5 |
| | | 12 | 2 | 0.5 | | | 4.4 | 18 | 2 | 0.6 | 3.7 |
| 23 | 00 | 0,0 | - | - | 30 | 12 | 2 | 0.6 | 3.5 | | |
| | | 06 | 2 | 0.6 | | | 4.0 | 18 | 2 | 0.6 | 3.7 |
| | | 12 | (d) | - | | | - | 00 | 2 | 0.4 | 2.8 |
| 24 | 00 | 2 | 0.3 | 3.3 | 30 | 06 | 2 | 0.4 | 3.1 | | |
| | | 06 | 2 | 0.4 | | | 3.4 | 12 | 2 | 0.6 | 3.5 |
| | | 12 | 2 | 0.7 | | | 4.9 | 18 | 2 | 0.6 | 3.7 |
| 25 | 00 | 2 | 0.4 | 4.0 | 30 | 12 | 2 | 0.6 | 3.5 | | |
| | | 06 | 2 | 0.5 | | | 4.3 | 18 | 2 | 0.6 | 3.7 |
| | | 12 | 2 | 0.6 | | | 5.0 | 00 | 2 | 0.4 | 2.8 |
| 26 | 00 | 2 | 0.4 | 4.4 | 30 | 06 | 2 | 0.4 | 3.1 | | |
| | | 06 | 2 | 0.6 | | | 4.4 | 12 | 2 | 0.6 | 3.5 |
| | | 12 | 2 | 0.4 | | | 4.4 | 18 | 2 | 0.6 | 3.7 |
| 27 | 00 | 2 | 0.6 | 3.9 | 30 | 12 | 2 | 0.6 | 3.5 | | |
| | | 06 | 2 | 0.8 | | | 2.7 | 18 | 2 | 0.6 | 3.7 |
| | | 12 | 2(b) | 1.0 | | | 3.6 | 00 | 2 | 0.4 | 2.8 |
| 28 | 00 | 2 | 1.2 | 3.2 | 30 | | | | | | |



| 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: Bokaro(Contd.)

June, 1963.

| | | | | | | | | | |
|----|----|-----|-----|-----|----|----|-----|-----|-----|
| 08 | 00 | 1 | 1.3 | 5.0 | 19 | 12 | 1 | 0.7 | 4.6 |
| | 06 | 1 | 1.5 | 5.4 | | 18 | 1 | 0.7 | 5.0 |
| | 12 | 1 | 1.5 | 6.0 | 20 | 00 | 3 | 0.7 | 4.6 |
| | 18 | 1 | 1.6 | 5.4 | | 06 | 1 | 0.7 | 4.4 |
| 09 | 00 | 1 | 1.5 | 5.4 | | 12 | 1 | 0.6 | 5.8 |
| | 06 | 1 | 1.6 | 6.0 | | 18 | 3 | 0.5 | 4.4 |
| | 12 | 1 | 1.6 | 5.8 | 21 | 00 | 3 | 0.6 | 4.4 |
| | 18 | 1 | 1.7 | 5.8 | | 06 | 3 | 0.8 | 4.4 |
| 10 | 00 | 1 | 1.4 | 5.0 | | 12 | 3 | 0.7 | 4.6 |
| | 06 | 3 | 1.4 | 5.6 | | 18 | 3 | 0.7 | 4.8 |
| | 12 | 3 | 1.4 | 5.4 | 22 | 00 | 3 | 0.6 | 4.4 |
| | 18 | 1 | 1.3 | 5.2 | | 06 | ... | - | - |
| 11 | 00 | 3 | 1.4 | 5.4 | | 12 | 1 | 0.7 | 4.8 |
| | 06 | 3 | 1.2 | 5.2 | | 18 | 1 | 0.7 | 4.6 |
| | 12 | 3 | 1.3 | 5.2 | 23 | 00 | 1 | 0.6 | 4.6 |
| | 18 | 3 | 1.1 | 5.4 | | 06 | 1 | 0.6 | 4.4 |
| 12 | 00 | 1 | 1.2 | 5.0 | | 12 | 1 | 0.7 | 4.4 |
| | 06 | ... | - | - | | 18 | 1 | 0.6 | 4.8 |
| | 12 | 3 | 1.1 | 5.0 | 24 | 00 | 1 | 0.6 | 4.6 |
| | 18 | 3 | 1.2 | 5.2 | | 06 | ... | - | - |
| 13 | 00 | 3 | 1.0 | 4.8 | | 12 | 3 | 0.8 | 4.8 |
| | 06 | 3 | 0.8 | 5.4 | | 18 | 3 | 0.8 | 4.8 |
| | 12 | 3 | 0.7 | 4.8 | 25 | 00 | 3 | 0.6 | 4.8 |
| | 18 | 3 | 0.8 | 4.8 | | 06 | ... | - | - |
| 14 | 00 | 3 | 0.8 | 4.0 | | 12 | ... | - | - |
| | 06 | 3 | 0.7 | 4.2 | | 18 | ... | - | - |
| | 12 | 3 | 0.8 | 4.0 | 26 | 00 | ... | - | - |
| | 18 | 3 | 0.7 | 4.2 | | 06 | ... | - | - |
| 15 | 00 | 2 | 0.8 | 4.0 | | 12 | ... | - | - |
| | 06 | 2 | 0.8 | 4.4 | | 18 | ... | - | - |
| | 12 | 2 | 0.8 | 4.0 | 27 | 00 | ... | - | - |
| | 18 | 2 | 0.8 | 4.6 | | 06 | 1 | 0.6 | 3.8 |
| 16 | 00 | 3 | 0.8 | 4.4 | | 12 | 1 | 0.6 | 3.8 |
| | 06 | 3 | 0.7 | 4.0 | | 18 | 1 | 0.5 | 3.4 |
| | 12 | 3 | 0.7 | 4.6 | 28 | 00 | 1 | 0.6 | 4.2 |
| | 18 | 3 | 0.7 | 4.6 | | 06 | 1 | 0.6 | 4.6 |
| 17 | 00 | 3 | 0.8 | 4.4 | | 12 | 2 | 0.7 | 4.8 |
| | 06 | 3 | 0.8 | 4.0 | | 18 | 2 | 0.7 | 4.6 |
| | 12 | 1 | 0.9 | 4.2 | 29 | 00 | ... | - | - |
| | 18 | 3 | 0.8 | 4.2 | | 06 | 1 | 0.6 | 4.4 |
| 18 | 00 | 3 | 0.9 | 4.4 | | 12 | 2 | 0.5 | 4.2 |
| | 06 | 3 | 0.9 | 4.2 | | 18 | 3 | 0.6 | 4.4 |
| | 12 | 1 | 0.8 | 4.4 | 30 | 00 | 3 | 0.6 | 4.8 |
| | 18 | 1 | 0.8 | 4.4 | | 06 | 1 | 0.7 | 4.2 |
| 19 | 00 | 3 | 0.8 | 4.4 | | 12 | 1 | 0.9 | 4.6 |
| | 06 | 3 | 1.1 | 4.8 | | 18 | 1 | 0.7 | 4.4 |

.....