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PAKISTAN METEOROLOGICAL SERVICE

GEOPHYSICAL INSTITUTE

QUETTA.



Pakistan Meteorological Service

Director,
Meteorological Service

Sibte Nabi Naqvi

Deputy Director,
Geophysical Institute

Abdul Qadir Khan

Officer Incharge,
Seismological Section

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Particulars of Stations and Instruments

(a) Stations

| Station | Symbol | Latitude | Longitude | Height (a.s.l.) | Ground |
|------------|--------|-----------|-----------|-----------------|----------------------|
| Quetta | Qt | 30° 11' N | 66° 57' E | 1721 meters | Cretaceous Limestone |
| Lahore | Lh | 31° 33' N | 74° 20' E | 210 " | Alluvium |
| Karachi | Kr | 24° 50' N | 67° 02' E | 30 " | Alluvium |
| Chittagong | Ch | 22° 21' N | 91° 49' E | 35 " | Alluvium |
| Warsak | Wr | 34° 09' N | 71° 25' E | 343 " | River Terrace |

(b) Instruments

| Instruments | Components | Period Seismo. & Galvo. | Damping | Max. Magnification |
|---------------------------------|------------|----------------------------|----------|-----------------------|
| Quetta (Central Station) | | | | |
| Sprengnether | Z | 1.9 sec. | Critical | 5,500 |
| " | N | 1.95 " | " | 4,500 |
| " | E | 1.95 " | " | 5,800 |
| " | N | 15.8 " | " | 15,000 |
| " | E | 19.5 " | " | 16,000 |

(Contd.)

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| Instruments | Components | Period Seismo. & Galvo. | Damping | Max. Magnification |
|--|------------|----------------------------------|----------|-----------------------|
| Willmore | Z, N, & E | Seismo = 1 sec. Galvo = 1/4 " | — | — |
| Sprengnether Pen recorder | E | | 1.0 " | — |
| Lahore | | | | |
| Sprengnether | Z | 1.8 " | Critical | 4,900 |
| " | N | 1.7 " | " | 4,200 |
| " | E | 1.6 " | " | 4,100 |
| Karachi | | | | |
| Sprengnether | Z | 1.8 sec | Critical | 5,890 |
| " | N | 1.6 " | " | 4,700 |
| " | E | 1.4 " | " | 4,700 |
| Chittagong | | | | |
| Sprengnether | Z | 1.7 " | Critical | 5,200 |
| " | N | 1.8 " | " | 5,700 |
| " | E | 1.5 " | " | 3,600 |
| " | N | 7.0 " | " | 6,600 |
| Willmore | Z | Seismo = 1 sec. Galvo = 1/4 " | — | — |
| Warsak | | | | |
| Sprengnether | N | 2.0 sec. | Critical | 4,000 |
| Willmore (with Sprengnether galvo. & recorder) | Z | 1.0 " | — | — |

* indicates long period seismographs, Sprengnether or Milne-Shaw.
c=compression, d=dilatation, X=unidentified phase.
Mu=Actual ground motion of the indicated phase in microns.
Sec=Period of the indicated phase in seconds.
(Pas), (Berk), (Up), (Ki), (Pal), stand for seismological observatories Pasadena (U.S.A.), Berkly (U. S. A.), Uppsala (Sweden), Kiruna (Sweden) & Palisade (U. S. A.) respectively.
All times are in Greenwich Mean Time.

| Date | Station | Phase | h m s | Date | Station | Phase | h m s |
|------|--|--------------------------|----------------------------------|------|--|-------------|-------------------|
| 1 | Qt Lh | ePZ ePZ | 00 47 03 48 14 | | | | |
| | USCGS H | 00 45 14.6 | ✓ | 2 | Qt | ePZ | 12 20 44 |
| | 33.6 N 59.0 E | | | 2 | Wr | ePZ | 18 46 05 |
| | East Iran | | | | Qt | ePZ | 20 |
| | depth about 33 km | | | | USCGS H | 18 33 52.4 | |
| 1 | Wr Qt | ePZ ePZ | 05 11 30 12 12 | | 6.1 S 146.7 E | | |
| | USCGS H | 05 01 56.0 | ✓ | | Near north coast of New Guinea | | |
| | 41.9 N 143.4 E | | | | depth about 60 km | | |
| | Near coast of Hokkaido, Japan | | | 3 | Qt | ePZ | 15 52 16 |
| | depth about 55 km | | | | USCGS H | 15 40 12.1 | |
| 1 | Wr | ePZ | 09 35 34 | | 4.5 S 143.2 E | | |
| | USCGS H | 09 26 35.5 | ✓ | | Near north coast of New Guinea | | |
| | 81.5 N 119.5 E | | | | depth about 80 km | | |
| | North Polar region | | | 3 | Wr Qt | ePZ ePPE | 16 38 35 48 04 |
| | depth about 25 km | | | | USCGS H | 16 24 55.6 | ✓ |
| 1 | Wr | ePZ | 12 12 15 | | 10.6 S 164.9 E | | |
| | USCGS H | 12 00 04.1 | | | Santa Cruz Islands region | | |
| | 53.4 N 164.5 W | | | | depth about 36 km | | |
| | Fox Islands, Aleutian Islands | | | | Mag 5 1/2 (Pal) | | |
| | depth about 36 km | | | 3 | Qt | ePE | 19 44 11 |
| 1 | Ch Lh Wr Qt | ePZ ePZ ePZ ePZ | 12 21 19 22 42 57 23 16 | | eXE | 45 41 | |
| | USCGS H | 12 11 09.2 | ✓ | 4 | Wr | ePKPZ | 14 21 48 |
| | 4.2 S 143.6 E | | | | USCGS H | 14 02 32.2 | ✓ |
| | Near north coast of New Guinea | | | | 8.0 N 83.0 W | | |
| | depth about 80 km | | | | Near south coast of Panama and Costa Rica | | |
| 2 | Wr Qt | iPZ ePZ eSE | 00 25 23 51 34 54 | | depth about 23 km | | |
| | USCGS H | 00 14 50.4 | ✓ | 4 | Wr | ePZ | 20 02 22 |
| | 18.6 N 145.5 E | | | | USCGS H | 19 55 12.8 | |
| | | | | | 35.0 N 25.6 E | | |
| | | | | | Crete | | |
| | | | | | depth about 27 km | | |

Major Shocks

| Date | Station | Phase | h | m | s | Date | Station | Phase | h | m | s |
|------|---------|------------------------------|----|----|-------|------|---------|---------------------------------|----|----|----|
| | ✓ | epPZ | 01 | 03 | 11 | | Qt | ePZ | | 17 | 45 |
| | | e!(PP)Z | | 05 | 27 | | | eSE | | 21 | 29 |
| | | eSE | | 11 | 19 | | H | 03 13 06 | | | |
| | | eXE | | | 25 | | | East Pakistan | | | |
| | | esSE | | | 36 | 13 | Qt | ePZ | 12 | 19 | 42 |
| | | eSSE | | 15 | 12 | | | eSE | | 21 | 27 |
| | ✓ Kr | ePZ | | 03 | 14 | | Wr | ePZ | | 20 | 33 |
| | | USCGS H 00 52 47.0 | | | | 13 | ✓ Wr | iPZ | 18 | 40 | 19 |
| | | 38.2 N 142.3 E | | | | | | e(S)Z | | 43 | 52 |
| | | Near east coast of Honshu | | | | | ✓ Lh | ePZ | | 40 | 29 |
| | | Japan | | | | | ✓ Qt | ePZ | | 41 | 16 |
| | | depth about 68 km | | | | | ✓ Ch | ePZ | | | 40 |
| | | Mag 6 3/4 (Pal), 7 7/4 (Pas) | | | | | | USCGS H 18 35 38.3 | | | |
| 12 | ✓ Ch | ePZ | | 05 | 24 27 | | | 49.1 N 87.2 E | | | |
| | | epPZ | | | 35 | | | Kazakh, S. S. R. China border | | | |
| | | ePcPZ | | | 26 06 | | | depth about 28 km | | | |
| | | eSNE | | | 31 12 | 13 | Qt | ePZ | 23 | 04 | 52 |
| | | esSZNE | | | 27 | | | USCGS H 22 54 33.9 | | | |
| | ✓ Wr | ePZ | | | 25 45 | | | 37.8 N 142.8 E | | | |
| | ✓ Qt | ePZ | | | 26 21 | | | Off east coast of Honshu, Japan | | | |
| | | USCGS H 05 16 05.0 | | | | | | depth about 44 km | | | |
| | | 38.2 N 142.5 E | | | | 14 | ✓ Wr | ePZ | 16 | 59 | 44 |
| | | Near east coast of Honshu | | | | | ✓ Qt | ePZ | 17 | 00 | 22 |
| | | Japan | | | | | | USCGS H 16 50 05.8 | | | |
| | | depth about 26 km | | | | | | 38.2 N 142.5 E | | | |
| 12 | Qt | ePKPZ | | 16 | 55 45 | | | Off east coast of Honshu, Japan | | | |
| | | USCGS H 16 36 08.4 | | | | 14 | ✓ Wr | ePZ | 18 | 52 | 38 |
| | | 21.7 S 71.9 W | | | | | ✓ Qt | ePZ | | 53 | 14 |
| | | Near coast of northern Chile | | | | | | USCGS H 18 42 56.9 | | | |
| | | depth about 38 km | | | | | | 37.7 N 142.8 E | | | |
| 13 | Ch | iPE | | 03 | 13 40 | | | Off east coast of Honshu, Japan | | | |
| | | iSE | | | 14 04 | | | depth about 44 km | | | |
| | Wr | ePZ | | 17 | 10 ± | 15 | ✓ Qt | ePZ | 07 | 42 | 17 |
| | | e(S)N | | 20 | 35 | | | USCGS H 07 32 14.8 | | | |
| | | | | | | | | 36.2 N 140.6 E | | | |



Major Shocks

| Date | Station | Phase | h | m | s | Date | Station | Phase | h | m | s |
|------|---------|---------------------------|---|----|---------|------|---------|------------------------|-----|----|-------|
| | | Honshu, Japan | | | | | ✓ Qt | ePZ | 13 | 30 | 24 |
| | | depth about 123 km | | | | | | eSE | | 38 | 43 |
| 15 | Wr | iPZ | | 11 | 44 06 | | | esSZ | | 40 | 02 |
| | Qt | ePZ | | | 32 | | | USCGS H 13 20 15.1 | | | |
| | | USCGS H 11 35 21.1 | | | | | | 30.6 N 140.6 E | | | |
| | | 13.7 N 120.6 E | | | | | | South of Honshu, Japan | | | |
| | | Luzon, Philippine Islands | | | | | | depth about 176 km | | | |
| | | depth about 40 km | | | | 16 | Qt | ePZ | 18 | 06 | 52 |
| 15 | ✓ Qt | ePZ | | 18 | 20 49 | | | USCGS H 17 54 49.2 | | | |
| | ✓ Wr | ePZ | | | 21 07 | | | 44.8 S 37.2 E | | | |
| | ✓ Lh | ePZ | | | 38 | | | Prince Edward Islands | | | |
| | | USCGS H 18 08 27 | | | | | | depth about 25 km | | | |
| | | 2.7 S 11.6 W | | | | 16 | Qt | ePZ | 18 | 13 | 23 |
| | | Ascension Islands region | | | | | | ePZ | | | 55 |
| | | depth about 25 km | | | | 16 | Qt | ePZ | 18 | 20 | 46 |
| 15 | ✓ Qt | ePZ | | 18 | 57 41 | | | ePZ | | 21 | 11 |
| | ✓ Wr | ePZ | | | 58 | | 17 | ✓ Wr | ePZ | 10 | 11 43 |
| | | USCGS H 18 45 17.4 | | | | | | USCGS H 10 03 46.9 | | | |
| | | 2.9 S 11.9 W | | | | | | 42.3 N 17.3 E | | | |
| | | Ascension Islands region | | | | | | Adriatic Sea | | | |
| | | depth about 25 km | | | | | | depth about 25 km | | | |
| 15 | Qt | ePKPZ | | 22 | 49 47 | | | ePZ | 11 | 41 | 26 |
| | | USCGS H 22 31 06.2 | | | | | | ePZ | | | 45 |
| | | 56.6 S 26.2 W | | | | | | USCGS H 11 33 51.0 | | | |
| | | Sandwich Islands | | | | | | 37.8 N 19.9 E | | | |
| | | depth about 25 km | | | | | | Ionian Sea | | | |
| 16 | ✓ Qt | ePZ | | 00 | 22 45 | | | depth about 25 km | | | |
| | ✓ Wr | ePZ | | | 57 | | | ePZ | 11 | 52 | 41 |
| | | USCGS H 00 15 15.7 | | | | | | ePZ | | 56 | 02 |
| | | 33.2 N 20.4 E | | | | | | ePZ | | | 42 |
| | | Ionian Sea | | | | | | USCGS H 11 51 17.6 | | | |
| | | depth about 25 km | | | | | | 26.1 N 95.1 E | | | |
| 16 | ✓ Lh | ePZ | | 13 | 29 37 | | | East Pakistan | | | |
| | | eSN | | | 37 15 | | | depth about 153 km | | | |
| | | iPZ | | | 29 50 ° | | | ePZ | 21 | 03 | 46 |
| | ✓ Wr | eSZ | | | 37 39 | | | | | | |

Major Shocks

| Date | Station | Phase | h | m | s | Date | Station | Phase | h | m | s | |
|------|---------|-------|---------------------------------|----|---------|------|---------|--|-------|----|------|----|
| | | ePZ | 21 | 04 | 22 | | | H | 18 | 48 | 02 | |
| | | esSE | ✓ | 13 | 04 | | | 35.6 N 70.9 E | | | | |
| | USCGS H | | 20 | 54 | 13.4 | | | Hindukush | | | | |
| | | | 38.4 | S | 142.2 E | | | depth about 33 km | | | | |
| | | | Near east coast of Honshu Japan | | | 19 | ✓ | Ch | ePZ | 22 | 27 | 31 |
| | | | depth about 110 km | | | | | epPZ | ✓ | 28 | 22 | |
| 17 | ✓ | Qt | 22 | 47 | 28 | | | USCGS H | 22 | 15 | 26.0 | |
| | ✓ | Wr | ✓ | 47 | | | | 15.8 S 168.0 E | | | | |
| | | | USCGS H 22 34 56.7 | | | | | New Hebrides Islands | | | | |
| | | | 1.5 | S | 14.9 W | | | depth about 213 km | | | | |
| | | | Mid Atlantic Ocean | | | 19 | ✓ | Wr | ePZ | 23 | 25 | 05 |
| | | | depth about 25 km | | | | | Lh | ePZ | 16 | | |
| 18 | ✓ | Qt | 19 | 34 | 06 | | | Ch | ePZ | 39 | | |
| | | | 37 | 38 | | | | Qt | eSN | 33 | 21 | |
| | | | 41 | 16 | | | | | ePZ | 25 | 44 | |
| | | | 44 | 05 | | | | | epPE | 27 | 55 | |
| | ✓ | Wr | 34 | 08 | | | | | eSE | 33 | 31 | |
| | | | 37 | 43 | | | | USCGS H | 23 | 16 | 04.1 | |
| | | | 10.0 | S | 79.0 W | | | 69.8 N 138.6 E | | | | |
| | | | Off coast of Peru | | | | | Siberia U.S.S.R. | | | | |
| | | | depth about 39 km | | | 20 | ✓ | Wr | ePKPZ | 06 | 06 | 38 |
| | | | Mag 6 $\frac{3}{4}$ (Pas) | | | | | Qt | ePKPE | 39 | | |
| 19 | Qt | ePE | 12 | 00 | 09 | | | ePPE | 08 | 00 | | |
| | Wr | ePZ | 25 | | | | | Ch | ePKPZ | 07 | 03 | |
| | | | USCGS H 11 55 27.3 | | | | | ePKSZ | 10 | 46 | | |
| | | | 38.6 | N | 44.0 E | | | USCGS H | 05 | 47 | 55.3 | |
| | | | Eastern Turkey | | | | | 20.6 N 72.2 W | | | | |
| | | | depth about 25 km | | | | | Near north coast of Haiti | | | | |
| 19 | Wr | iPZ | 18 | 48 | 36 | | | depth about 25 km | | | | |
| | | iSZ | 49 | 02 | | | | Mag 6 (Pal), 6 $\frac{1}{2}$ -6 $\frac{3}{4}$ (Pas), | | | | |
| | Lh | ePZ | 17 | | | 20 | Qt | 6 $\frac{3}{4}$ -7 (Berk) | 21 | 35 | 24 | |
| | | eSNE | 50 | 17 | | 21 | Wr | ePE | 01 | 08 | 47 | |
| | Qt | ePE | 49 | 36 | | | Qt | ePZ | 09 | 36 | | |
| | | eSE | 50 | 48 | | 21 | Wr | ePZ | 21 | 30 | 09 | |

Major Shocks

| Date | Station | Phase | h | m | s | Date | Station | Phase | h | m | s | |
|------|---------|---------|---|----|---------|------|---------|---------------------|-------|-----|------|----|
| | | USCGS H | 21 | 18 | 01.7 | | | iPZ | 14 | 20 | 45 | |
| | | | 6.5 | S | 144.6 E | | | iSZ | 21 | 26 | | |
| | | | New Guinea | | | | | Lh | ePZ | 35 | | |
| | | | depth about 42 km | | | | | eSNE | 22 | 35 | | |
| 22 | ✓ | Lh | 04 | 49 | 13 | | Qt | ePZ | 21 | 51 | | |
| | ✓ | Wr | ✓ | 18 | | | | eSE | 23 | 09 | | |
| | | | USCGS H 04 29 39.0 | | | | | H | 14 | 20 | 08 | |
| | | | 44.2 | S | 72.6 W | | | 36.3 N 70.9 E | | | | |
| | | | Near Chile Argentina border | | | | | Hindukush | | | | |
| | | | depth about 120 km | | | | | depth about 70 km | | | | |
| 22 | ✓ | Wr | 05 | 04 | 23 | | | USCGS H | 14 | 19 | 53.8 | |
| | | | 07 | 45 | | | | 37.4 N 71.1 E | | | | |
| | | | USCGS H 04 45 20.3 | | | | | Hindukush | | | | |
| | | | 15.5 | N | 93.1 W | | | depth about 32 km | | | | |
| | | | Near coast of Chiapas, Mexico | | | | | depth about 175 km | | | | |
| | | | depth about 69 km | | | 24 | ✓ | Qt | ePKPE | 16 | 25 | 27 |
| | | | Mag 5 $\frac{1}{4}$ 5 $\frac{1}{2}$ (Pal) | | | | | ePPE | 28 | 44 | | |
| 23 | ✓ | Ch | 06 | 06 | 41 d | | | Wr | ePKPZ | 25 | 27 | |
| | | | 08 | 15 | | | | ePPZ | 28 | 45 | | |
| | | | 12 | 14 | | | | USCGS H | 16 | 06 | 23.7 | |
| | | | 13 | 33 | | | | 2.2 S 76.1 W | | | | |
| | | | 16 | 33 | | | | Ecuador Peru border | | | | |
| | ✓ | Wr | 07 | 43 | | | | depth about 175 km | | | | |
| | | | 15 | 23 | | 25 | Qt | ePE | 01 | 17 | 28 | |
| | | | USCGS H 05 58 04.9 | | | | | Wr | ePE | 45 | | |
| | | | 42.9 | N | 143.4 E | | | 25 | Wr | ePZ | 07 | 03 |
| | | | Hokkaido, Japan | | | | | iSZ | 04 | 20 | | |
| | | | depth about 25 km | | | | | Qt | ePE | 47 | | |
| | | | Mag 7 7 $\frac{1}{4}$ (Pas), 7 (Pal) | | | | | eSE | 06 | 06 | | |
| 23 | Wr | iPZ | 15 | 19 | 01 | | | H | 07 | 03 | 04 | |
| | | iSZ | 27 | | | | | Hindukush | | | | |
| | Qt | ePE | 20 | 01 | | 25 | Wr | iPZ | 12 | 22 | 22 | |
| | | eSE | 21 | 14 | | | | iSZ | 47 | | | |
| | | | H. 15 18 26 | | | | | Qt | ePZ | 23 | 18 | |
| | | | Hindukush | | | | | eSE | 24 | 37 | | |

| Date | Station | Phase | h | m | s |
|------|---------|--------------------|----|-------|------|
| | H | 21 21 35 | | | |
| | | Hindukush | | | |
| 25 | Ch | ePZNE | 15 | 55 | 46 |
| | | epPZ | | 56 | 02 |
| | | ePcPE | | 57 | 27 |
| | | eSNE | 16 | 02 | 34 |
| | | eScSNE | | 05 | 37 |
| 25 | ✓Ch | ePZNE | 15 | 55 | 46 |
| | ✓Lh | epPZ | | 56 | 58 |
| | ✓Wr | eSNE | 16 | 04 | 40 |
| | ✓Qt | iPZ | 15 | 57 | 07 |
| | | eSZ | 16 | 04 | 58 |
| | | ePZ | 15 | 57 | 42 |
| | | esSE | 16 | 06 | 05 |
| | | USCSG H | 15 | 47 | 29.4 |
| | | 38.4 N | | 142.5 | E |
| | | Honshu, Japan | | | |
| | | depth about 56 km | | | |
| 25 | ✓Wr | ePZ | 19 | 59 | 27 |
| | ✓Qt | ePZ | 20 | 00 | 01 |
| | | USCSG H | 19 | 49 | 57.3 |
| | | 38.4 N | | 142.7 | E |
| | | Honshu, Japan | | | |
| | | depth about 120 km | | | |
| 26 | Wr | ePZ | 03 | 14 | 33 |
| | | USCSG H | 03 | 11 | 33.8 |
| | | 44.4 N | | 78.4 | E |
| | | Kazakh, S. S. R. | | | |
| | | depth about 25 km | | | |
| 26 | Qt | ePE | 15 | 55 | 17 |
| | | esSE | | 57 | 05 |
| | Wr | ePZ | | 56 | 23 |
| | | USCSG H | 15 | 53 | 12.2 |
| | | 28.5 N | | 57.2 | E |

| Date | Station | Phase | h | m | s |
|------|---------|---------------------|----|------|------|
| | | Southern Iran | | | |
| | | depth about 41 km | | | |
| 26 | Qt | ePE | 18 | 19 | 10 |
| 27 | Qt | ePE | 01 | 17 | 16 |
| 27 | ✓Wr | ePKP ₂ Z | 07 | 07 | 20 |
| | | USCSG H | 06 | 47 | 27.0 |
| | | 44.4 S | | 74.8 | W |
| | | Southern Chile | | | |
| | | depth about 31 km | | | |
| 28 | ✓Qt | ePE | 11 | 25 | 40 |
| | | eSE | | 31 | 04 |
| | ✓Lh | ePZ | 26 | 28 | |
| | ✓Wr | ePZ | 25 | 29 | |
| | | eSZ | 31 | 36 | |
| | ✓Ch | ePZ | 28 | 47 | |
| | | epPZ | 29 | 04 | |
| | | ePcPZ | | 40 | |
| | | USCSG H | 11 | 18 | 57.4 |
| | | 36.4 N | | 26.6 | E |
| | | Dodecanese Islands | | | |
| | | depth about 40 km | | | |
| 28 | ✓Qt | ePZE | 12 | 50 | 32 |
| | | eSE | | 55 | 52 |
| | ✓Wr | ePZ | 50 | 49 | |
| | ✓Ch | ePZ | 53 | 39 | |
| | | ePcPZ | | 54 | 30 |
| | | USCSG H | 12 | 43 | 49.1 |
| | | 36.6 N | | 26.7 | E |
| | | Dodecanese Islands | | | |
| | | depth about 48 km | | | |
| 28 | Qt | ePZ | 21 | 55 | 23 |
| 29 | Qt | ePZ | 02 | 17 | 18 |
| 30 | ✓Ch | iPZN | 02 | 34 | 39 c |
| | | ipPZ | | 35 | 04 |
| | | iPPZ | | 24 | |

| Date | Station | Phase | h | m | s |
|------|---------|----------------------|----|-------|------|
| | | iPcPZ | 02 | 36 | 21 |
| | ✓Wr | iPZ | | 35 | 56 c |
| | ✓Qt | eSN | | 43 | 37 |
| | | ePE | | 36 | 32 |
| | | eSE | | 44 | 46 |
| | | USCSG H | 02 | 26 | 30.0 |
| | | 38.8 N | | 140.9 | E |
| | | Honshu, Japan | | | |
| | | depth 104 km | | | |
| 30 | ✓Wr | ePZ | 09 | 55 | 17 |
| | ✓Qt | ePZ | | 44 | |
| | | e(S)E | 10 | 05 | 22 |
| | | USCSG H | 09 | 44 | 17.4 |
| | | 17.0 N | | 147.3 | E |
| | | Mariana Islands | | | |
| | | depth about 109 km | | | |
| 30 | ✓Wr | ePKPZ | 16 | 35 | 38 |
| | | USCSG H | 16 | 16 | 47.8 |
| | | 17.9 S | | 176.1 | W |
| | | Tonga Islands region | | | |
| | | depth about 26 km | | | |
| 30 | ✓Ch | ePZ | 20 | 46 | 38 |
| | | ePPZ | | 47 | 57 |
| | | eSN | | 52 | 09 |
| | ✓Lh | ePZ | | 49 | 00 |
| | ✓Wr | ePZ | | 23 | |
| | | eSN | | 57 | 08 |
| | ✓Qt | ePZ | | 49 | 42 |
| | | USCSG H | 20 | 39 | 45.1 |
| | | 6.4 N | | 124.0 | E |
| | | Banda Sea | | | |
| | | depth about 28 km | | | |
| 30 | ✓Wr | ePZ | 23 | 59 | 30 |
| | ✓Qt | ePZ | | 48 | |

USCSG H 23 50 33.5
72.0 N 7.2 E
Svalbard region
depth about 25 km

Minor Shocks

| Date | Phase | h m s | Date | Phase | h m s |
|------|---------------|------------|------|-------|------------|
| | Quetta | | 8 | ePE | 07 58 33 |
| | | | | eSE | 59 47 |
| 1 | ePZ | 03 54 42 ± | 8 | eXE | 09 09 54 |
| 1 | ePZ | 14 40 29 | 8 | ePgE | 11 12 10.6 |
| | e(S)E | 41 02 | | eSgE | 12.0 |
| 1 | ePgE | 18 28 49.3 | 8 | ePE | 13 41 28 |
| | eSgE | 59.8 | | eSE | 46 |
| 1 | eXE | 20 06 22 | 8 | ePE | 14 37 15 |
| 1 | eXE | 20 07 55 | | eSE | 38 32 |
| 1 | ePE | 20 44 48 ± | 8 | ePZ | 17 17 25 ± |
| 2 | ePE | 00 51 32 | 8 | eXZ | 18 03 |
| | eSE | 52 04 | | eXE | 29 |
| 2 | eXE | 18 12 00 | 8 | ePZE | 21 45 22 |
| 2 | ePgE | 21 07 01.4 | | eSE | 46 37 |
| | eSgE | 12.2 | 9 | ePZ | 10 41 07 ± |
| 2 | ePgE | 23 21 29.6 | | e(S)E | 42 05 |
| | eSgE | 42.1 | | eXE | 45 |
| 3 | ePE | 01 41 24 | 9 | eXZ | 14 03 15 |
| | eSE | 41 | 10 | ePZ | 06 16 59 ± |
| 3 | ePE | 16 55 06 | 10 | ePZ | 09 01 34 ± |
| 5 | ePZ | 21 06 16 | 10 | eSZ | 02 15 |
| | e(S)Z | 40 | 10 | eXZ | 10 49.0 |
| 6 | eXZ | 01 04 06 | 10 | ePZ | 14 14 57 ± |
| 6 | ePZ | 22 40 41 | 10 | ePgZ | 20 35 14 |
| | eSZE | 41 06 | | eSgE | 29 |
| 7 | ePgE | 03 47 49.8 | 11 | ePZ | 00 01 32 |
| | eSgE | 55.5 | | eSE | 02 49 |
| 7 | ePZ | 14 06 01 | 11 | ePZ | 13 15 34 ± |
| | eSZNE | 23 | | eSE | 58 |
| 7 | e(P)Z | 15 03 36 | 12 | e(P)Z | 01 16 30 |
| 7 | ePZ | 18 21 55 | 12 | e(P)E | 01 32 38 |
| | eXZ | 22 15 | 12 | ePZ | 07 44 33 ± |
| | e(S)E | 49 | 12 | eXZ | 10 18.0 |
| 7 | ePE | 18 40 22 ± | 12 | ePZ | 18 40 36 ± |
| | eSE | 41 | 12 | e(S)E | 42 04 |
| 8 | ePgZ | 00 50 11.9 | 12 | ePZ | 19 32 23 |
| | eSgZ | 13.4 | | | |

Minor Shocks

| Date | Phase | h m s | Date | Phase | h m s |
|------|-------|--------------|------|-------|------------|
| | eSE | 33 05 | 19 | eXE | 19 34.0 |
| 12 | ePZ | 22 30 27 | 19 | eXE | 20 37 28 |
| | eSE | 31 49 | 19 | ePE | 20 54 25 |
| 12 | eXE | 23 33 12 | | eSE | 55 43 |
| 13 | ePgZ | 20 20 02.3 ± | 20 | eXE | 06 16.0 |
| | eSgZ | 04.2 | 20 | ePE | 07 54 01 |
| 13 | ePZ | 20 46 02 | | eSE | 55 20 |
| | eSZ | 47 30 | 20 | ePgE | 13 28 21.4 |
| 14 | ePZ | 15 34 58 | | eSgE | 31.9 |
| | eSZ | 35 19 | 20 | ePE | 17 06 27 |
| 14 | ePZ | 15 51 05 | | e(S)E | 07 17 |
| 14 | ePZ | 14 50 00 ± | 20 | ePgE | 20 09 00.3 |
| | ePZ | 01 44 23 | | eSgE | 13.5 |
| 15 | ePgZ | 04 22 40.2 | 20 | ePE | 20 25 03 |
| | eSgZ | 51.5 | | eSE | 26 20 |
| 16 | ePZ | 11 55 15 | 20 | ePE | 22 00 23 |
| | eSE | 42 | | eSE | 46 |
| 16 | ePE | 14 24 07 ± | 21 | eXE | 01 15.0 |
| 17 | eXZ | 09 19.0 | 23 | e(P)E | 06 37 16 |
| 17 | ePZ | 11 11 56 | 23 | ePE | 08 24 06 |
| 17 | ePZ | 14 21 04 | | eSE | 36 |
| 18 | ePE | 08 43 11 | 23 | iPgE | 20 21 48.1 |
| | eSE | 34 | | iSgE | 49.5 |
| 18 | ePE | 14 42 05 | 24 | eXE | 00 59.0 |
| | eSE | 43 18 | 24 | ePE | 04 39 37 ± |
| 18 | eXE | 14 46 25 | 24 | ePgE | 06 59 46.3 |
| 18 | ePE | 16 50 46 ± | | eSgE | 50.3 |
| | eXZ | 59 | 24 | ePE | 07 20 47 |
| | e(S)E | 52 20 | | eSE | 21 43 |
| | e(S)E | 27 | 24 | eXE | 09 40.0 |
| 19 | ePE | 13 15 53 | | eSE | 42 02 |
| | eSE | 16 14 | 24 | ePgE | 13 17 14.6 |
| 19 | ePE | 15 15 31 | | eSgE | 20.0 |
| | eSE | 17 17 | 24 | ePE | 13 54 30 |
| 19 | ePE | 17 04 36 | | eSE | 55 47 |
| | eSE | 05 13 | 24 | ePE | 16 53 15 |

| Date | Phase | h m s | Date | Phase | h m s |
|------|-------|------------|------|-------|--------------|
| 24 | ePE | 17 15 01 | 28 | ePE | 13 05 23 |
| | e(S)E | 40 | | eSE | 43 |
| 25 | ePE | 02 01 57 | 28 | eXE | 17 27 02 |
| 25 | eXE | 03 03.0 | 28 | ePE | 19 45 29 |
| 25 | ePgE | 03 54 39 | 29 | ePE | 12 22 29 |
| | eSgE | 53.1 | | eSE | 50 |
| 25 | ePE | 19 27 33 ± | 29 | ePE | 12 28 43 |
| 26 | eXE | 01 25 18 | | e(S)E | 30 40 |
| 26 | ePE | 07 44 15 | 29 | ePE | 15 01 08 |
| | eSE | 45 40 | 29 | ePgE | 15 02 29.7 |
| 26 | ePgE | 14 27 32.5 | | eSgE | 34.1 |
| | eSgE | 41.7 | 29 | ePE | 16 42 31 |
| 26 | ePgE | 21 37 36.9 | | eSE | 43 00 |
| | eSgE | 40.2 | 29 | ePE | 18 49 19 |
| 26 | ePE | 22 50 25 | 29 | eXE | 20 22 53 |
| | eSE | 51 03 | | e(S)E | 23 09 |
| 26 | ePE | 23 26 45 | 30 | ePE | 16 41 14 |
| | eSE | 27 03 | | eSE | 42 30 |
| 27 | ePE | 01 09 15 | 30 | eXE | 18 47 07 |
| 27 | eXE | 06 25.0 | | eXE | 23 |
| 27 | eXE | 08 26.0 | 30 | ePE | 20 17 57 ± |
| 27 | ePgE | 10 25 52.4 | 30 | ePE | 20 31 19 |
| | eSgE | 59.2 | | | |
| 27 | eSgE | 14 12 48 | | | |
| | eSE | 14 02 | | | |
| 27 | eXE | 18 40.0 | 1 | iPZ | 22 08 26.2 c |
| 27 | ePE | 19 49 09 | 2 | ePZ | 14 32 32.6 |
| | eSE | 50 33 | | iSZ | 57.8 |
| 27 | eXE | 23 11.0 | 3 | ePZ | 23 26 48.0 |
| 28 | eXE | 05 23.0 | 4 | ePZ | 10 56 42.8 |
| 28 | ePE | 07 13 17 | 4 | ePgZ | 12 31 06.7 |
| | eSE | 59 | | iSgZ | 20.1 |
| 28 | eXE | 07 49.0 | 4 | ePZ | 20 57 06.0 |
| 28 | ePgE | 08 29 51.4 | | eSZ | 58 24 |
| | eSgE | 58.9 | 5 | ePZ | 00 30 18.5 |
| 28 | ePgE | 09 25 43.9 | | eSZ | 31 46.9 |
| | eSgE | 52.0 | 5 | ePZ | 07 38 53.3 |

| Date | Phase | h m s | Date | Phase | h m s |
|------|-------|--------------|------|-------|--------------|
| 6 | ePZ | 06 24 16.0 | 14 | ePZ | 00 57 32.4 |
| 7 | ePN | 17 39 15.8 | | iSZ | 58 03.7 |
| 7 | iPZ | 18 21 11.4 c | 14 | ePZ | 05 04 32.6 |
| | iSN | 56.6 | | eSZ | 05 04.8 |
| 8 | ePZ | 07 57 28.4 | 14 | ePZ | 12 17 37.3 |
| | eSN | 58 02.4 | 14 | ePZ | 15 02 56.2 |
| 8 | ePZ | 09 07 51.0 | 14 | ePZ | 16 59 43.8 |
| | iSZ | 08 38.8 | 15 | ePZ | 01 43 44.3 |
| 8 | iPZ | 14 36 17.3 d | 16 | ePZ | 01 55 31.6 |
| | iSZ | 49.4 | 16 | ePZ | 10 02 24.1 |
| 8 | iPZ | 17 16 39.8 d | 17 | ePZ | 06 49 33.0 |
| | iSZ | 17 09.0 | | eSN | 50 43.2 |
| 8 | ePZ | 22 44 26.5 | 17 | ePZ | 07 08 17.5 |
| | iSZ | 58.8 | | eSN | 09 43.1 |
| 9 | ePZ | 07 20 28.2 | 17 | iPZ | 08 09 58.3 d |
| | eSZ | 51 5 | | iSZ | 10 24.7 |
| 9 | ePZ | 10 33 25.3 | 17 | ePZ | 13 57 29.1 |
| 9 | ePZ | 22 42 42.3 | | eSZ | 58.3 |
| 10 | ePZ | 14 13 29.0 | 17 | ePZ | 21 38 52.6 |
| | eSN | 14 18.2 | 18 | ePZ | 05 32 25.5 |
| 10 | ePZ | 14 25 10.6 | 18 | ePZ | 12 50 55.9 |
| 10 | ePZ | 21 27 43.2 | | iSZ | 51 22.1 |
| | eSZ | 28 29.5 | 18 | iPZ | 14 33 08.0 c |
| 10 | ePZ | 21 44 55.7 | | iSZ | 36.6 |
| | eSN | 51 06.0 | 18 | ePZ | 16 50 03.1 |
| 11 | iPZ | 00 00 13.8 d | 18 | ePZ | 12 16 07.8 |
| | iSN | 38.0 | 19 | ePZ | 07 53 30.8 |
| 12 | iPZ | 10 17 02.4 d | | iSZ | 51.1 |
| 12 | ePZ | 11 29 26.2 | 19 | ePZ | 08 53 45.2 |
| 12 | ePZ | 22 29 19.6 | 19 | eEZ | 15 14 21.1 |
| 12 | iSZ | 48.8 | 19 | ePZ | 20 37 50.7 |
| 13 | iPZ | 20 44 56.0 d | 19 | ePZ | 20 53 29.6 |
| | iSZ | 45 34.6 | | iSZ | 54 02.4 |
| 13 | ePZ | 23 38 20.5 | 20 | ePN | 07 53 02.4 |
| | iSZ | 47.6 | | iSN | 34.7 |

| Date | Phase | h m s | Date | Phase | h m s |
|------|-------|--------------|------|---------------|--------------|
| 20 | ePN | 17 06 15.2 | 25 | eSZ | 16 04 58.2 |
| | iSN | 47.5 | 25 | ePZ | 21 42 34.3 |
| 20 | ePN | 20 24 08.2 | | iSZ | 43 04.3 |
| | iSN | 41.7 | 26 | ePZ | 01 55 39.9 |
| 21 | iPZ | 06 49 17.6 c | 26 | ePZ | 07 22 35.4 |
| | iSN | 48.0 | 26 | ePZ | 07 44 41.6 |
| 21 | ePZ | 08 08 14.6 | 26 | ePZ | 18 59 34.2 |
| 21 | ePZ | 12 54 57.1 | 26 | ePZ | 21 08 38.7 |
| 21 | ePZ | 15 42 23.9 | | eSZ | 09 14.9 |
| 21 | ePZ | 17 32 25.8 | 26 | ePZ | 22 50 54.2 |
| | eSZ | 36 34.2 | 27 | iPZ | 14 11 51.3 |
| 22 | ePZ | 06 00 08.3 | | iSZ | 12 19.7 |
| | iSZ | 36.5 | 27 | ePZ | 19 48 04.8 |
| 22 | ePZ | 17 19 16.3 | | eSZ | 38.0 |
| | eSZ | 49.8 | 29 | iPZ | 06 11 37.2 d |
| 22 | ePZ | 19 00 17.7 | | iSZ | 12 07.5 |
| 22 | iPZ | 19 17 40.0 d | 29 | ePZ | 12 27 35.2 |
| | iSZ | 18 10.2 | | iSZ | 28 56.0 |
| 22 | ePZ | 19 24 03.0 | 29 | iPZ | 22 46 54.0 d |
| 23 | ePZ | 00 46 33.2 | | iSZ | 47 14.2 |
| | iSZ | 47 05.4 | 30 | ePZ | 16 40 13.2 |
| 23 | ePZ | 04 24 32.1 | | iSZ | 46.4 |
| 23 | ePZ | 08 15 46.6 | 30 | ePZ | 20 30 17.3 |
| 24 | iPZ | 00 57 21.8 c | | | |
| | iSZ | 50.0 | | Lahore | |
| 24 | iPgZ | 07 23 40.4 d | 2 | ePZ | 00 25 31 |
| | iSgZ | 52.0 | 13 | eXZ | 03 19 27 |
| 24 | ePZ | 09 38 36.9 | | eXZ | 03 21 36 |
| 24 | iPZ | 10 04 20.4 | 15 | ePZ | 01 43 02 |
| | iSZ | 59.2 | 15 | ePZ | 18 57 54 |
| 24 | ePZ | 12 07 33.9 | 18 | ePZ | 16 49 22 |
| | eSZ | 08 06.1 | 18 | ePZ | 19 31 15 |
| 25 | ePZ | 05 42 11.0 | 20 | ePZ | 16 06 27 |
| | eSZ | 49.6 | 20 | ePZ | 19 24 49 |
| 25 | ePZ | 10 44 23.9 | 20 | ePZ | 23 09 31 |
| | | | 21 | eSE | 06 50 54 |

| Date | Phase | h m s | Date | Phase | h m s |
|------|------------------|------------|------|-------|-------|
| 22 | ePZ | 19 18 20 | | | |
| 22 | eSE | 19 22 | | | |
| 22 | ePZ | 19 23 48 | | | |
| 29 | ePZ | 22 47 58 ± | | | |
| | Karachi | | | | |
| 1 | ePZ | 00 46 54 | | | |
| | eSZ | 49 11 | | | |
| 10 | ePZ | 21 45 03 | | | |
| | eSZ | 45 36 | | | |
| 11 | ePZ | 09 38 37 | | | |
| 12 | ePZ | 19 32 00.8 | | | |
| | eSZ | 26.3 | | | |
| | Chitagong | | | | |
| 11 | e(P)Z | 10 57 41 | | | |
| 13 | e(P)E | 20 02 03 | | | |
| | eSZE | 18 | | | |
| 14 | eXE | 19 29 23 | | | |
| 15 | ePNE | 12 36 48 | | | |
| | eSNE | 58 | | | |
| 16 | e(P)Z | 13 27 56 | | | |
| 18 | eXE | 14 55 06 | | | |
| 18 | eXE | 14 16 23 | | | |
| 20 | eXZNE | 14 36 02 | | | |
| 21 | eXZ | 03 43 22 | | | |
| 22 | eXZ | 04 49 40 | | | |
| 23 | ePZE | 04 21 13 | | | |
| 24 | ePZN | 01 50 46 | | | |
| | eXZ | 52 | | | |
| | eSZNE | 51 03 | | | |
| 24 | eXN | 05 58 02 | | | |
| 25 | ePZNE | 15 55 46 | | | |
| 30 | ePZ | 20 46 38 | | | |
| | ePPZ | 47 57 | | | |
| | eSN | 52 09 | | | |