

South Africa

SEISMOLOGICAL BULLETIN
MAGNETIC OBSERVATORY, HERMANUS.

JANUARY
FEBRUARY 1964
MARCH

LOCATION

Lat. $34^{\circ} 25.5$ S., Long. $19^{\circ} 13.5$ E.

85 feet above mean sea-level, 700 yards from coast.

INSTRUMENTS

Two Milne-Shaw seismographs, recording N-S and E-W horizontal ground movements.

	Nominal magnification	Free period	Damping ratio	Recording speed
E-W	250	12 secs	20:1	8mm/min
N-S	250 (April 1-30)	10 secs (April 1-30)	"	"
	150 (May 1 onwards)	12 secs (May 1 onwards)	"	"

The time is recorded in the form of a 2-sec. break in the record every minute excepting on the hour and half-hour. The clock correction is determined daily to an accuracy of 0.2 sec.

Date 1964	Phase	U.T. h m s	Epicentral data (USCGS)	Δ	Remarks
Jan. 1	e F	17 49.5 19 37			Traces
Jan. 3	i P F	21 52 22 22 03	53.0 S., 21.2 E (Bouvet Island region) H= 21:48:05.6 h about 33 km.	18.0	Very weak (N-S record only)
Jan. 4	e S F	10 20(00) 10 28	52.9 S., 20.9 E (Bouvet Island region) H= 21:12:09.3 h about 33 km.	18.8	Very weak phase
Jan. 5	e PS F	16 48 17 17 46	61.4 S., 154.9 E (Macquarie Island region) H= 16:25:52.6 h about 33 km.	77.6	Very weak phase
Jan 5.	i P i (PPP) e i S F	23 50 29 51 26 53 50 53 58 01 55	52.3 S., 28.6 E (Prince Edward Island region) H= 23:46:10.7 h about 33 km.	19.4	Mag 6.0 (CGS)
Jan. 7	e F	12 46 13 20			Traces
Jan 9.		18 54 20 52			Traces
Jan 18	i PS(ScSP?) F	12 33 39 14 10	23.1 N., 120.5 E (Taiwan) H= 12:04:40.0 h about 33 km.	112.0	Mag. 6.1 (CGS) N-S record only.
Jan 19	e S F	07 03 08 07 23	58.6 S., 25.1 W (Sandwich Islands) H=06:49:55.9 h about 33 km.	38.0	Very weak phase. N-S record only.
Jan 19	e F	09 51 10 13			Traces
Jan 23	e F	00 21 02 01			Traces

Date	Phase	U.T. h m s	Epicentral data (USCGS)	Δ	Remarks
Jan. 28	e P e S e (PS) F	14 21 33 31 40 33(00) 15 33	36.5 N., 70.9 E (Hindu Kush) H= 14:09:17.1 h about 207 km.	85 ⁰ .7	Mag. 6.1 (CGS) N-S record only.
Jan. 30	e F	18 25 18 38			Traces
Feb. 5	i PKS e (SKSSKS) F	11 53 02 12 12(12) 13 42	36.5 N., 141.0 E (Central Honshu, Japan) H= 11:30:15.7 h about 46 km.	133 ⁰ .5	Weak
Feb. 6	e PKP ₁ e PKP ₂ i PP i SKKS e SKSP e SSP F	13 27(29) 27(58) 31 39 38 30 42(00) 52(34) 17 00	55.7 N., 155.8 W (Kodiak Island region) H= 13:07:25.2 h about 33 km.	158 ⁰ .6	
Feb. 9	i F	07 48 51 08 25			
Feb. 12	e F	21 31 21 38			Traces
Feb. 12	e F	23 48 23 57			
Feb. 14	i PP e ScSP F	16 50 04 59 34 19 19	5.1 S., 151.7 E (New Britain) H= 16:29:45.0 h about 55 km.	120 ⁰ .1	
Feb. 18	e F	12 48 13 20			Traces
Feb. 23	e F	23 18 23 43			Traces
Feb. 25	e P e S F	00 38 33 41 49 01 13	44.7 S., 37.5 E (Prince Edward Island region) H= 00:34:32.0 h about 33 km.	17 ⁰ .8	Mag. 5.6 (CGS)
Feb. 27	e (L) F	02 48 47 03 05	7.6 S., 39.6 E (Near coast of Tanganyika) H= 02:32:23.7 h about 33 km.	32 ⁰ .9	
Feb. 27	i _E SKS i _N F	15 34 02 35 18 16 19	21.7 N., 94.4 E (Central Burma) H= 15:10:48.4 h about 102 km.	90 ⁰ .9	Mag. 6.4 (CGS)
Mar. 5	i PS F	06 18 46 06 39	45.2 S., 96.4 E Indian Ocean, east of Kerguelen Island) H= 06:00:41.3 h about 40 km.	58 ⁰ .1	Mag. 5.5 (CGS)
Mar. 6	e F	19 55 20 09			Traces
Mar. 7	i (L) F	10 41 24 11 05	70.8 N., 2.4 E (Jan Mayen Island region) H= 09:58:57.1 h about 33 km.	106 ⁰ .0	
Mar. 15	e F	13 49 20 13 53			"Near" oceanic earthquake?

Date	Phase	U.T. h m s	Epicentral data (USCGS)	Δ	Remarks
Mar. 15	i PcP i (!) S F	22 42 22 51 41 24 05	36.2 N., 7.6 W (West of Strait of Gi- braltar) H= 22:30:26.0 h about 27 km.	75 ⁰ .2	Mag. 6.2 (CGS)
Mar. 17	e F	23 38 23 40			Traces "Near oceanic earthquake?"
Mar. 19	i S F	10 01 01 10 44	14.7 N., 56.3 E (Arabian Sea) H= 09:42:34.9 h about 33 km.	60 ⁰ .7	
Mar. 19		22			
Mar. 21	i (!) (SKS) e e e (PPS) F	04 05 40 06 19 08 18 09 53 05 17	6.4 S., 127.9 E (Banda Sea) H= 03:42:19.6 h about 367 km.	101 ⁰ .5	
Mar. 22	e F	09 10 09 48			Traces
Mar. 26	e F	14 26 14 56			Traces
Mar. 28	e _N PKP i _N i _E F	03 56 20 56 46 56 48 11+	61.1 N., 147.6 W (Prince William Sound) H= 03:36:12.7 h about 20 km.	152 ⁰ .2	Mag. 8.4 (Pas), 8.6 (Pal), 8.5 (CGS) Numer- ous aftershocks traces disturbed until about 17h 15m, March 28.
Mar. 28		20	59.8 N., 148.7 W (Prince William Sound) H= 20:29:08.6 h about 40 km.	153 ⁰ .6	Mag. 6.6 (Pas).
Mar. 29		07 18 08 20			Traces
Mar. 29	e F	18 00 18 44			Traces
Mar. 29	i (?) i F	19 01 17 01 24 19 47			
Mar. 30	e F	02 42(30) 05 17	56.6 N., 152.9 W (Prince William Sound) H= 02:18:06.3 h about 25 km.	157 ⁰ .3	Very weak phase
Mar. 30	e (SS) F	07 53(00) 09 43	59.9 N., 145.7 W (Prince William Sound) H= 07:09:34.0 h about 15 km.	152 ⁰ .8	Very weak phase
Mar. 30	e F	14 32 15 10			Traces
Mar. 30	e F	17 37 18 24			Traces
Mar. 31	e F	01 38 02 08			Traces
Mar. 31	e F	10 18 11 09			Traces

SEISMOLOGICAL BULLETIN
MAGNETIC OBSERVATORY, HERMANUS.

FOR I.S.R.C.

APRIL
MAY 1964

JUNE
LOCATION

 Lat. $34^{\circ} 25.5' S.$, Long. $19^{\circ} 13.5' E.$

85 feet above mean sea-level, 700 yards from coast.

INSTRUMENTS

Two Milne-Shaw seismographs, recording N-S and E-W horizontal ground movements.

	<u>Nominal magnification</u>	<u>Free period.</u>	<u>Damping ratio</u>	<u>Recording speed</u>
E-W	250	12 secs	20:1	8mm/min
N-S	250 (April 1-30)	10 secs (April 1-30)	"	"
	150 (May 1 onwards)	12 secs (May 1 onwards)	"	"

The time is recorded in the form of a 2-sec. break in the record every minute excepting on the hour and half-hour. The clock correction is determined daily to an accuracy of 0.2 sec.

Date 1964	Phase	U.T. h m s	Epicentral data (USCGS)	Δ	Remarks
April 2	i P(PcP) e S(ScS) e LQ F	01 24 08 34 16 45 53 04 15	5.9 N., 95.7 E (Near coast of northern Sumatra) H= 01:11:55 h about 132 km.	82.5	Mag. 5.2 (CGS)
April 2	e F	04 57 05 11			Traces
April 3	e F	23 45 24 33			Traces
April 4	e F	06 13 06 49			Traces
April 4	e F	10 01 11 01			Traces
April 4	e e SS F	18 17 22 30 08 20 42	56.3 N., 154.4 W (Prince William Sound; Alaska aftershock) H= 17:46:08.6 h about 25 km.	157.8	Mag. 5.7 (CGS)
April 5	e F	02 06 04 01			Traces
April 8	i F	08 25 07 09 11	6.8 S., 68.9 E (Chagos Archipelago region) H= 08:08:11.8 h about 33 km.	53.4	Mag. 5.7 (CGS)
April 8	e (PKS) F	11 21 23 13 03	45.8 N., 150.8 E (Kurile Islands) H= 10:58:09.1 h about 40 km.	142.0	Mag. 5.5 (CGS)
April 11	e F	16 41 17 00	Aegean Sea? CGS Card 33-64		Confused by microseisms.
April 12	e F	02 49 03 39			ditto
April 13	e F	09 13 09 34			ditto

Date 1964	Phase	U.T. h m s	Epicentral data (USCGS)	Δ	Remarks
April 15	e F	17 09 17 30			Traces
April 16	e (SS) F	20 11 08 21 48	Alaska aftershock? (H= 19:26:57.4)		Traces
April 17	e F	04 58 06 49			Traces
April 19	i S F	14 29 19 15 31	60.5 S., 58.3 W (Near South Shetland Islands) H= 14:12:21.9 h about 33 km.	54.5	Mag. 5.4 (CGS)
April 20	e F	13 20 13 51			Traces
April 23	e i i i i F	03 47 16 51 31 51 49 57 49 58 48 ?	5.3 S., 134.0 E (Aru Islands region) H= 03:32:50.3 h about 33 km.	106.9	Mag. 6.4 (CGS). No record 0610-0745.
April 24	e F	? 08 52			No record 0625-0723
April 29	e F	04 59 05 20			Traces
April 29	e F	17 53 18 01			Traces
May 2	e PP e PKS e (SKSP) e (PS)	16 33 35 34(16) 43 48 44 01	45.5 N., 150.3 E Kurile Islands H= 16:11:00.2 h about 35 km.	141.8	Mag. 5.7 (CGS)
May 3	e F	14 37 14 43			"Near" oceanic earth quake? Very weak.
May 4	e (PP) F	(17 11 39) 18 04	55.8 S., 4.4 W (Bouvet Island region) H= 17:05:20 h about 33 km.	26.8	Mag. 5.4 (CGS)
May 5	e F	11 23 07 11 52	55.8 S., 4.3 W (Bouvet Island region) H= 11:12:52 h about 33 km.	26.8	
May 6	i PcS (S) F	04 40 26 04 50	60.7 S., 25.2 W (Sandwich Islands) H= 04:27:02.4 h about 33 km.	38.8	
May 6	e F	16 55 17 16			Traces. "Near" oceanic earthquake?
May 7	i P i e PP i S F	05 52 12 52 18 53 30 57 24 07 30	4.0 S., 34.9 E (Tanganyika) H= 05:45:29.5 h about 33 km.	34.0	Mag. 6.4 (CGS)
May 7	e PP e PKS e F	08 19(55) 20 57 29(02) 10 40	40.4 N., 139.0 E (Off coast of Japan) H= 07:58:14.3 h about 33 km.	132.6	Mag. 6.2 (CGS)
May 7	e F	21 26 22 14			Traces

Date 1964	Phase	U.T. h m s	Epicentral data (USCGS)	Δ	Remarks
May 8	e F	17 50 18 22			Traces
May 12		18 48 20 40			Traces
May 16	i SS F	16 42 37 17 42	32.8 S., 178.3 W Kermadec Islands region H= 16:07:46.2 h about 33 km.	110.5	Mag. 5.4 (CGS)
May 19	e SKKS F	23 28 12 01 05	0.7 S., 80.2 W (Near coast of Ecuador) H= 23:03:41.8 h about 54 km.	97.2	Mag. 5.4 (CGS)
May 25	e (S) e PS e SS F	20 04 14 04 32 08 29 21 21	9.1 S., 88.9 E (Indian Ocean) H= 19:44:07.0 h about 33 km.	68.1	Mag. 5.5 (CGS)
May 26	i P i pP i S F	11 06 28 07 00 12 19 15 04	56.2 S., 27.8 W (Sandwich Islands) H= 10:59:12.3 h about 120 km.	38.5	Mag. $\sim 7\frac{1}{2}$
May 27	e F	00 01 00 10			Traces
May 27	e P e PP i S i SS (or L) F	01 03 55 04 33 09 39 12 42 02 05	56.1 S., 27.6 W (Sandwich Islands) H= 00:56:42.5 h about 105 km.	38.4	Mag. 5.6 (CGS)
May 27	e S e SS (Or L) F	06 43 56 46 56 06 59	56.2 S., 27.4 W (Sandwich Islands) H= 06:30:57.7 h about 116 km.	38.4	Mag. 5.8 (CGS). E-W record only.
May 30	i PKS F	14 53 31 16 33	36.2 N., 141.1 E (Near coast of Japan) H= 14:30:45.3 h about 49 km.	133.4	Mag. 5.4 (CGS)
May 31	e PP i PKS F	01 02 54 03 40 03 04	43.5 N., 146.8 E (Kurile Islands) H= 00:40:36.4 h about 48 km.	139.1	Mag. 6.3 (CGS)
June 10	e (S) F	22 41 31 23 23	5.0 N., 127.4 E (Talaud Island region) H= 22:16:44.8 h about 146 km.	108.0	Mag. 5.5 (CGS). Very weak phase.
June 11	e PcS e SS (or L) F	21 41 09 44 09 21 50	55.9 S., 27.7 W (Sandwich Islands) H= 21:28:08.2 h about 135 km.	38.5	Mag. 6.1 (CGS)
June 14	e S F	12 36 57 13 29	38.0 N., 38.5 E (Southeastern Turkey) H= 12:15:31.3 h about 8 km.	75.0	Very weak phase
June 15	e S e PS F	00 28 20 29(02) 02 00	5.4 N., 97.0 E (Northern Sumatra) H= 00:05:31.1 h about 33 km.	83.1	Mag. 5.5 (CGS)

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June 16	i PP i i PKS e SSP F	04 23 22 23 37 24 30 41 15 08 35	38.3 N., 139.1 E (Near coast of Japan) H= 04:01:44.3 h about 57 km.	132.1	Mag. 6.1 (CGS)
June 21	e F	01 30 01 49			Traces
June 23	i i PKS ₁ i PKS ₂ i e SS F	01 49 11 49 23 49 35 50 02 02 07.0 03 41	43.3 N., 146.1 E (Kurile Islands) H= 01:26:37.0 h about 77 km.	138.4	Mag. 6.2 (CGS)
June 27	e F	17 00 17 11	11.5 S., 13.8 W (Ascension Islands region) H= 16:43:47.0 h about 33 km.	38.1	Traces. Mag. 4.7 (CGS).
June 28	e F	13 21 15 16			Traces
June 28	e F	17 36 18 32			Traces
June 30	i (SKS) i i (S) e i i i F	14 10 50 10 57 11 31 11 54 12 56 13 22 13 56 16 28	0.8 S., 122.5 E Northern Celebes H= 13:46:21.6 h about 36 km.	100.3	Mag. 6.3 (CGS)

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Lat. $34^{\circ} 25.5'$ S., Long. $19^{\circ} 13.5'$ E.

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INSTRUMENTS

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	Nominal magnification	Free period.	Damping ratio	Recording speed
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N-S	250 (April 1-30)	10 secs (April 1-30)	"	"
	150 (May 1 onwards)	12 secs (May 1 onwards)	"	"

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April 2	e F	04 57 05 11			Traces
April 3	e F	23 45 24 33			Traces
April 4	e F	06 13 06 49			Traces
April 4	e F	10 01 11 01			Traces
April 4	e e SS F	18 17 22 30 08 20 42	56.3 N., 154.4 W (Prince William Sound; Alaska aftershock) H= 17:46:08.6 h about 25 km.	157.8	Mag. 5.7 (CGS)
April 5	e F	02 06 04 01			Traces
April 8	i F	08 25 07 09 11	6.8 S., 68.9 E (Chagos Archipelago region) H= 08:08:11.8 h about 33 km.	53.4	Mag. 5.7 (CGS)
April 8	e (PKS) F	11 21 23 13 03	45.8 N., 150.8 E (Kurile Islands) H= 10:58:09.1 h about 40 km.	142.0	Mag. 5.5 (CGS)
April 11	e F	16 41 17 00	Aegean Sea? CGS Card 33-64		Confused by microseisms.
April 12	e F	02 49 03 39			ditto
April 13	e F	09 13 09 34			ditto

Date 1964	Phase	U.T. h m s	Epicentral data (USCGS)	Δ	Remarks
April 15	e F	17 09 17 30			Traces
April 16	e (SS) F	20 11 08 21 48	Alaska aftershock? (H= 19:26:57.4)		Traces
April 17	e F	04 58 06 49			Traces
April 19	i S F	14 29 19 15 31	60.5 S., 58.3 W (Near South Shetland Islands) H= 14:12:21.9 h about 33 km.	54.5	Mag. 5.4 (CGS)
April 20	e F	13 20 13 51			Traces
April 23	e i i i i F	03 47 16 51 31 51 49 57 49 58 48 ?	5.3 S., 134.0 E (Aru Islands region) H= 03:32:50.3 h about 33 km.	106.9	Mag. 6.4 (CGS). No record 0610-0745.
April 24	e F	? 08 52			No record 0625-0723
April 29	e F	04 59 05 20			Traces
April 29	e F	17 53 18 01			Traces
May 2	e PP e PKS e {SKSP} e {PS}	16 33 35 34(16) 43 48 44 01	45.5 N., 150.3 E Kurile Islands H= 16:11:00.2 h about 35 km.	141.8	Mag. 5.7 (CGS)
May 3	e F	14 37 14 43			"Near" oceanic earth quake? Very weak.
May 4	e (PP) F	(17 11 39) 18 04	55.8 S., 4.4 W (Bouvet Island region) H= 17:05:20 h about 33 km.	26.8	Mag. 5.4 (CGS)
May 5	e F	11 23 07 11 52	55.8 S., 4.3 W (Bouvet Island region) H= 11:12:52 h about 33 km.	26.8	
May 6	i PcS (S) F	04 40 26 04 50	60.7 S., 25.2 W (Sandwich Islands) H= 04:27:02.4 h about 33 km.	38.8	
May 6	e F	16 55 17 16			Traces. "Near" oceanic earthquake?
May 7	i P i e PP i S F	05 52 12 52 18 53 30 57 24 07 30	4.0 S., 34.9 E (Tanganyika) H= 05:45:29.5 h about 33 km.	34.0	Mag. 6.4 (CGS)
May 7	e PP e PKS e F	08 19(55) 20 57 29(02) 10 40	40.4 N., 139.0 E (Off coast of Japan) H= 07:58:14.3 h about 33 km.	132.6	Mag. 6.2 (CGS)
May 7	e F	21 26 22 14			Traces

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May 27	e P e PP i S i SS (or L) F	01 03 55 04 33 09 39 12 42 02 05	56.1 S., 27.6 W (Sandwich Islands) H= 00:56:42.5 h about 105 km.	38.4	Mag. 5.6 (CGS)
May 27	e S e SS (Or L) F	06 43 56 46 56 06 59	56.2 S., 27.4 W (Sandwich Islands) H= 06:30:57.7 h about 116 km.	38.4	Mag. 5.8 (CGS). E-W record only.
May 30	i PKS F	14 53 31 16 33	36.2 N., 141.1 E (Near coast of Japan) H= 14:30:45.3 h about 49 km.	133.4	Mag. 5.4 (CGS)
May 31	e PP i PKS F	01 02 54 03 40 03 04	43.5 N., 146.8 E (Kurile Islands) H= 00:40:36.4 h about 48 km.	139.1	Mag. 6.3 (CGS)
June 10	e (S) F	22 41 31 23 23	5.0 N., 127.4 E (Talaud Island region) H= 22:16:44.8 h about 146 km.	108.0	Mag. 5.5 (CGS). Very weak phase.
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June 23	i i PKS ₁ i PKS ₂ i e SS F	01 49 11 49 23 49 35 50 02 02 07.0 03 41	43.3 N., 146.1 E (Kurile Islands) H= 01:26:37.0 h about 77 km.	138.4	Mag. 6.2 (CGS)
June 27	e F	17 00 17 11	11.5 S., 13.8 W (Ascension Islands region) H= 16:43:47.0 h about 33 km.	38.1	Traces. Mag. 4.7 (CGS).
June 28	e F	13 21 15 16			Traces
June 28	e F	17 36 18 32			Traces
June 30	i (SKS) i i (S) e i i i F	14 10 50 10 57 11 31 11 54 12 56 13 22 13 56 16 28	0.8 S., 122.5 E Northern Celebes H= 13:46:21.6 h about 36 km.	100.3	Mag. 6.3 (CGS)

Hermanus
July - Dec. 1964

(1)

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JULY
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	250 (Oct. 22 onwards)	12 secs.	"	"

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	F	21 15			
Jul. 5	e	23 59			Traces
	F	01 31			
Jul. 6	e	02 39			Traces
	F	04 40			
Jul. 6	i PP	07 42 52	18.3 N., 100.4 W (Guerrero, Mexico) H = 07:22:11.7 h about 100 km.	124.4 ⁰	Mag. 6.3 (CGS)
	e	44 16			
	i	47 23			
	i	49 48			
	i	59 43			
	F	08 04 43			
Jul. 8	i (.)	12 19 48	5.5 S., 129.8 E (Banda Sea) H = 11:55:39 h about 165 km.	113.5	Mag. 6.5 (CGS)
	e SKS	20 32			
	F	13 35 ..			
Jul. 9	i PP	17 00 07	15.5 S., 167.6 E (New Hebrides Islands) H = 16:39:49.3 h about 121 km.	121.7	Mag. 6.6 (CGS)
	i	00 20			
	i	16 15			
	i (SS)	16 28			
	F	19 39 ..			
Jul. 12	i	00 58 51			"Near tremor?"
	e	01 00 23			
	F	01 01 ..			
Jul. 13	i S	23 51 02	48.3 S., 32.0 E (Prince Edward Island region) H = 23:43:48 h about 33 km.	17.1	
	i	51 57			
	F	23 55 ..			

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Date 1964	Phase	U.T. h m s	Epicentral data (CGS)	Δ	Remarks
Jul. 17	i S e ScS i (SS) F	02 54 48 55 31 59 23 03 50	38.2 N., 23.7 E (Southern Greece) H = 02:34:26.9 h about 150 km.	73.1	Mag. 5.4 (CGS)
Jul. 24	i PP e F	08 35 34 54 33 11 09 ..	47.2 N., 153.8 E (Kurile Islands) H = 08:12:40.0 h about 33 km.	144.1	Mag. 5.9 (CGS)
Jul. 24	e F	18 21 19 21			Traces
Jul. 25	i P i S F	19 42 53 52 29 21 45	27.9 S., 70.9 W (Northern Chile) H = 19:31:07.0 h about 26 km.	75.0	Mag. 6.1 (CGS)
Jul. 28	i (SKS) F	19 02 19 20 22	51.2 S., 139.0 E (About 1000 km SW of Tasmania) H = 18:40:04.3 h about 33 km.	79.3	Mag. 5.3 (CGS)
Jul. 28	i S F	22 02 15 23 30	14.3 N., 96.2 E (Andaman Islands region) H = 21:38:43.5 h about 33 km.	88.0	Mag. 5.5 (CGS)
Jul. 31	e (SSP) F	06 29 00 08 15	6.1 S., 149.4 E (New Britain) H = 05:52:18.8 h about 63 km.	118.0	Mag. 5.9 (CGS) Confused by micro- seisms.
Aug. 5	i P i (S) F	22 34 31 43 51 24 16	41.1 S., 74.9 W (Off coast of southern Chile) H = 22:23:13.0 h about 33 km.	70.9	Mag. 6.1 (CGS)
Aug. 6	e F	19 53 19 59			Traces
Aug. 13	e F	00 52 .. 01 50	5.4 S., 154.3 E (Solomon Islands) H = 00:31:14.1 h about 383 km.	121.8	Mag. 6.0 (CGS) Confused by micro- seisms.
Aug. 18	i S i SKS e ScS or PS F	05 06 35 06 50 07(02) 06 27	26.4 S., 71.5 W (Off coast of northern Chile) H = 04:44:58.0 h about 8 km.	76.0	Mag. 6.4 (CGS)
Aug. 19	e F	10 09 10 30	"Near" oceanic earth- quake		Traces
Aug. 19	e F	15 57 16 18	Ditto		Traces
Aug. 20	i S F	13 04 20 13 30	37.4 S., 78.3 E (Mid-Indian Rise) H = 12:48:47.7 h about 33 km.	47.5	
Aug. 23	e F	16 22 16 45			Traces
Aug. 25	e F	11 50 12 10	Dodecanese Islands? (CGS card 66-64)		Traces

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Date 1964	Phase	U.T. h m s	Epicentral data (CGS)	Δ	Remarks
Aug. 25	e SKS F	14 13 28 16 12	78.2 N., 126.6 E (East of Severnaya Zemlya) H = 13:47:20.6 h about 50 km.	127.5	First arrivals very weak.
Aug. 27	e F	20 11 20 45	Eastern Mediterranean Sea? (CGS card 70-64)		Traces
Aug. 29	e F	01 09 01 15			Traces "Near" oceanic earthquake.
Sept. 4	e (SKS) F	10 59(15) 12 00	4.0 S., 131.4 E (West New Guinea region) H = 10:34:13.1 h about 33 km.	105.7	Mag. 5.9 (CGS) Weak phase.
Sept. 4 and 5 : See page 6.					
Sept. 5	e S e (PPS) F	12 44 33 45 02 13 05	0.6 N., 25.9 W (Central Mid-Atlantic Ridge) H = 12:27:22.2 h about 33 km.	55.2	Mag. 4.7 (CGS)
Sept. 7	e (P _{Diff.}) F	11 45 17 12(30)	4.1 S., 151.7 E (New Britain Region) H = 11:29:17.6 h about 246 km.	120.9	
Sept. 12	i PS F	13 12 30 13 53	4.4 S., 144.0 E (Near north coast of New Guinea) H = 12:43:19.0 h about 120 km.	115.0	Mag. 6.3 (CGS)
Sept. 12	i P e PP i (S) i PS e SS F	22 20 12 23 52 30 49 32 16 37 15 01 26	49.1 S., 164.2 E (Auckland Islands region) H = 22:07:03.2 h about 33 km.	90.8	Mag. 6.9 (CGS)
Sept. 15	i i i F	15 42 12 45 17 52 01 17 11	8.9 N., 93.1 E (Nicobar Islands region) H = 15:29:32.2 h about 37 km.	82.1	Mag. 6.2 (CGS) Epicentral data not applicable?
Sept. 16	e F	02 07 02 55			Traces
Sept. 18	e F	00 47 01 05			Traces
Sept. 26	e F	01 31 01 55			Traces
Sept. 28	e S F	05 21 33 06(15)	1.2 S., 24.1 W (Central Mid-Atlantic Ridge) H = 05:04:55.5 h about 37 km.	52.5	Mag. 5.5 (CGS) Very weak.
Sept. 29	e F	15 03 15 58			Traces
Sept. 30	e F	05 17 05 28			Traces

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Date 1964	Phase	U.T. h m s	Epicentral data (CGS)	Δ	Remarks
Oct. 2	e L1 F	13 52 22 14 31	10.5 S., 162.4 E. (Solomon Islands) H = 13:00:39.7 h about 68 km.	123.0	Mag. 6.0 (CGS) Very weak.
Oct. 6	i P i S F	14 43 13 52 44 17 33	40.3 N., 28.2 E. (Turkey) H = 14:31:19.2 h about 10 km.	75.5	Mag. 6.0 (CGS)
Oct. 11	i SKS i F	21 39 35 43 14 22 45	0.6 S., 121.7 E. (Northern Celebes) H = 21:15:03.9 h about 33 km.	100.0	Mag. 6.3 (CGS)
Oct. 12	e F	08 37.0 08 42			"Near" oceanic earthquake.
Oct. 12	e SS e LQ F	22 27 39 37 51 23 29	31.3 S., 110.8 W. (Easter Island region) H = 21:55:33.2 h about 25 km.	99.3	
Oct. 15	e F	21 43 22 24			Traces
Oct. 16	e F	07 32 11 30			Traces Confused by microseisms.
Oct. 17	e F	10 26 10 45			Traces
Oct. 18	e S F	09 24 15 10 09	2.9 N., 65.7 E. (Carlsberg Ridge) H = 09:06:26.0 h about 33 km.	57.6	Mag. ?
Oct. 18	i i ! i F	12 48 26 54 47 55 44 14 57	7.0 S., 124.0 E. (Banda Sea) H = 12:32:24.1 h about 574 km.	108.0	Mag. 5.8 (CGS) Epicentral data not applicable.
Oct. 21	e SKS F	23 33 08 01 44	28.1 N., 93.8 E. (India-China border region) H = 23:09:18.8 h about 37 km.	94.4	Mag. 5.9 (CGS)
Oct. 23	e P i SKS i S i e SS F	02 09 07 19 32 19 46 20 01 25 55 04 37	19.8 N., 56.0 W. (North Atlantic Ocean) H = 01:56:03.2 h about 31 km.	89.9	Mag. 6.4 (CGS)
Oct. 27	i (S) i PS F	21 42 26 42 35 23 04	45.6 S., 96.1 E. (Southeast Indian Rise) H = 21:24:31.2 h about 33 km.	57.7	Mag. ?
Nov. 5	e F	13 20 13 24			Traces
Nov. 7	e F	19 15 20 00			Traces

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Date 1964	Phase	U.T.			Epicentral data (CGS)	Δ	Remarks
		h	m	s			
Nov. 8	e (SKS) F	03 07 14 04 27			49.0 S., 163.7 E (Auckland Islands region. H = 02:43:57 h about 33 km.	90.6	Mag. 6½ (PAS)
Nov. 16	e F	06 07 06 18					Traces
Nov. 17	e SKS e F	08 41 22 45 27 11 35			5.7 S., 150.7 E (New Britain region) H = 08:15:39.3 h about 45 km.	119.3	Mag. 6.7 (CGS)
Nov. 18	e F	15 04 15 53					Traces
Nov. 18	e F	23 27 23 53					Traces
Nov. 19	e (PP) i SKS e (PS) e e F	23 55(32) 24 01 08 05 01 12 02 12 24 02 31			6.0 S., 150.8 E (New Britain region) H = 23:35:06.0 h about 3 km.	119.0	Mag. 6.0 (CGS)
Nov. 24	i SKS i F	12 06 09 09 36 15 00			13.1 N., 124.7 E (Philippine Islands) H = 12:40:51.4 h about 78 km.	110.0	
Nov. 26	e F	11 15 12 00					Traces
Nov. 30	e i SS F	12 39 .. 55 41 15 00			6.8 N., 94.8 E (Nicobar Islands region) H = 12:27:38.6 h about 33 km.	82.2	Mag. 5.7 (CGS)
Dec. 3	e i S F	03 58 .. 04 05 23 05 09			15.0 S., 66.8 E (Mid-Indian Rise) H = 03:50:01.2 h about 46 km.	47.0	Mag. 6.1 (CGS)
Dec. 4	e F	16 44 17 12					Traces
Dec. 7	e F	19 48 19 58					Traces
Dec. 9	i S i sS F	13 54 16 57 46 14 30			27.5 S., 63.2 W (Santiago del Estero Province, Argentina) H = 13:35:42.4 h about 586 km.	69.3	Mag. 5.9 (CGS)
Dec. 10	i PKS e (PPP) F	15 33 54 46 10 17 14			40.4 N., 138.9 E (Eastern Sea of Japan) H = 15:11:05.5 h about 33 km.	132.5	Mag. 6.0 (CGS)
Dec. 13		22 09 22 58					"Near" oceanic earthquake
Dec. 13		23 04 23 41					"

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Date 1964	Phase	U.T. h m s	Epicentral data (CGS)	Δ	Remarks
Dec. 14	i P i S F	02 04 22 08 50 04 05	54.3 S., 2.4 W (South Atlantic Ridge) H = 01:59:05.6 h about 33 km.	25.2	Mag. ?
Dec. 22	e S F	04 57 13 06 02	28.2 N., 57.0 E (Southern Iran) H = 04:36:34.7 h about 42 km.	72.4	Mag. 5.5 (CGS)
Dec. 27	e F	18 43 19 17			Traces
Dec. 28	e PP e SKKS F	16 35 34 41(33) 17 51	22.1 S., 179.6 W (South of Fiji Islands) H = 16:16:11.0 h about 611 km.	120.4	Mag. 6.2 (CGS)
Sept. 4	e F	04 01 04 15			Traces
Sept. 5	e (PP) e e F	03 14(29) 24(28) 31(00) 05 36	5.8 S., 154.0 E (Solomon Islands) H = 02:53:50.6 h about 69 km.	121.4	Mag. 6.4 (CGS)