

HERMANUS

1963

whole year

Jan-June 1963

SEISMOLOGICAL BULLETIN

MAGNETIC OBSERVATORY, HERMANUS

JANUARY

FEBRUARY

MARCH

Copy
No. 1963
South

LOCATION

Lat. 34° 25.5 S., Long. 19° 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 250; damping ratio 20:1; recording speed 8 mm/min. Free periods: E-W, 12 secs; N-S, 10 secs.

The time is recorded in the form of a 2-3 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 1963	Phase	U.T. h m s	Epicentral data (USCGS)	Δ _{meas}	Remarks
✓ Jan. 1	e S i(PPS) F	19 51 35 53 02 20 28	40.2 S., 81.3 E (Indian Ocean) H = 19:35:55.1 h about 33 km.	48.9°	
✗ Jan. 2		16 37 16 54			Traces
✗ Jan. 9	e F	18 39 09 19 02	3.3 S., 29.4 E (Republic of the Congo) H = 18:22:33.4 h about 33 km.	32.7°	
✓ Jan. 15	e P e S i F	22 23 40 28 14 28 31 23 22	31.3 S., 13.4 W (South Atlantic Ocean) H = 22:17:50.9 h about 33 km.	27.6°	
✓ Jan. 27	e S F	19 57 27 20 38	41.2 N., 49.8 E (Caspian Sea) H = 19:35:14.3 h about 33 km.	80.9°	Mag. 5½-5¾ (Pal.)
✗ Jan. 28	e(SKSP) F	12 42 46 ?	2.6 S., 149.9 E (New Britain) H = 12:12:19.8 h about 33 km.	120.5°	Mag. 6½ (Pas.)
✓ Jan. 30	i P i i PP e S e SS F	10 17 27 17 35 19 02 23 23 26 19 ?	55.6 S., 28.3 W (Sandwich Islands) H = 10:10:04.1 h about 33 km.	38.6°	Mag. 6½ (Pas.)
✓ Feb. 5	i P i S e F	20 50 43 21 00 02 00 14 23 00	38.4 S., 73.2 W (Near coast of central Chile) H = 20:39:21.6 h about 41 km.	71.0°	Mag. 5¾-6 (Pal.)

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Magnetic Observatory, Hermanus, South Africa.

JANUARY
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Date 1963	Phase	U.T. h m s	Epicentral data (USCGS)	Δ meas	Remarks
✓ Feb. 6	e S F	01 42 10 03 07	38.4 S., 73.6 W (Near coast of central Chile) H = 01:21:29.0 h about 33 km.	71.2 ^o	Mag. 5 $\frac{1}{4}$ -5 $\frac{1}{2}$ (Pal)
✓ Feb. 6	e F	13 46 15 13 50			Near oceanic earthquake
✓ Feb. 13	e PP F	09 09 26 ?	24.5 N., 121.8 E (Northern Formosa) H = 08:50:00.2 h about 33 km.	113.5 ^o	Mag. 7 $\frac{1}{4}$ (Pas.) Part of record missing
✓ Feb. 13	e PP e (PS) e SS F	18 34.5 44 19 51.4 21 36	9.9 S., 160.8 E (Solomon Islands) H = 18:13:55.1 h about 29 km.	122.5 ^o	Mag. 6 $\frac{1}{2}$ (Pas.)
✓ Feb. 14	i (PS) F	12 27 08 13 25	00.9 N., 30.0 W (Mid-Atlantic Ocean) H = 12:09:11.4 h about 33 km.	57.1 ^o	Mag. 4.6 (CGS)
✓ Feb. 14	eSKS e (PS) F	22 33 19 37 09 23 44	5.0 S., 144.6 E (Eastern New Guinea) H = 22:07:54.3 h about 80 km.	115.1 ^o	Mag. 6 $\frac{1}{2}$ (Pas.)
✓ Feb. 21	e F	09 44 09 59			'Near' oceanic earthquake
✓ Feb. 21	i e e F	17 30 40 34 24 37 45 18 50	32.7 N., 20.9 E (Near coast of Libya) H = 17:14:35.7 h about 33 km.	67.4 ^o	Mag. 5.0 (CGS)
✓ Feb. 21	e F	21 01 21 12			'Near' oceanic earthquake
✓ Feb. 26	ePP eSKS e e F	20 33 29 39 07 41 14 42 56 23 11	7.5 S., 146.2 E (Eastern New Guinea) H = 20:14:08.7 h about 171 km.	114.7 ^o	Mag. 7.1 (CGS) Record missing: 0502 - 0522
✓ Feb. 27	ePP e F	04 50 10 59 56 07 20	6.0 S., 149.4 E (New Britain region) H = 04:30:00.8 h about 52 km	118.0 ^o	Mag. 5.2 (CGS) 6 $\frac{1}{2}$ -6 $\frac{3}{4}$ (Pal.)
✓ Feb. 28	eS eSS F	01. 46 10 49 36	16.3 S., 66.0 E (Indian Ocean) H = 01:31:13.2 h about 33 km	45.7 ^o	

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Date	Phase	U.T. h m s	Epicentral data (USCGS)	Δ meas	Remarks
1963 Mar. 4	e F	14 35 15 26			Traces
Mar. 4	e F	15 47 16 15			Traces
Mar. 4	e F	16 30 17 31			Traces
Mar. 5	e F	07 56 08 34			Traces
Mar. 7	e(SS) ePKKS F	05 55 (25) 55 38 07 12	27.0 S., 113.5 W (Approx 500 km west of Easter Island) H = 05:22:01.1 h about 33 km.	103.0	Mag. 5.6 (CGS) Disturbed by micro- seisms.
Mar. 7	e F	12 36 58 13 42	44.3 S., 75.3 W (Near coast of Southern Chile) H = 12:16:28.5 h about 45 km.	69.0	Mag. 5.6 (CGS) Disturbed by micro- seisms
Mar. 10	e F	03 53 04 20			
Mar. 11	e e F	18 54 23 55 56 19 10			Near oceanic earthquake
Mar. 16	i PKP i e(PP) e SS i(SKSSKS) e F	09 04 33 04 44 07 33 26 30 27 10 32 0 12 03	46.5 N., 154.7 E (Kurile Islands region) H = 08:44:48.3 h about 26 km.	144.0	Mag. 6.2 (CGS)
Mar. 24	e S F	02 31 (28) 03 35	9.7 S., 120.4 E (Sumba Island region) H = 02:07:12.8 h about 33 km.	93.0	Mag. 5.4 (CGS)
Mar. 24	i S F	13 05 10 14 08	34.4 N., 47.9 E (Western Iran) H = 12:44:03.2 h about 33 km.	74.0	Mag. 5.2 (CGS) Record missing 1306 - 1327
Mar. 25	e F	20 52 21 29			Traces
Mar. 25	e e(PKKP) F	23 09.0 17.1 00 15	0.7 N., 96.5 E (Off southwest coast of Sumatra) H = 22:46:16.2 h about 30 km.	80.0	Mag. 5.6 (CGS)

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MARCH

Date	Phase	U.T. h m s	Epicentral data (USCGS)	Δ_{meas}	Remarks
✓ 1963 Mar. 26	e PP i i i SKKS i i e! e SS F	10 07 51 08 18 08 45 14 53 15 09 15 21 17.1 23 39 13 00	29.7 S., 177.8 W (Kermadec Islands) H = 09:48:19.7 h about 45 km.	113°7	Mag. 6 $\frac{3}{4}$ -7 (Pas.)
✓ Mar. 26	i PP e PS e SS e F	13 44 31 54 09 14 00 17 14 04 (00) 16 00	29.8 S., 177.9 W (Kermadec Islands) H = 13:25:02.6 h about 42 km.	113°5	Mag. 5.9 (CGS.)
X Mar. 26	e F	22 14 23 43	36.0 N., 135.7 E (Near east coast of Honshu, Japan) H = 21:34:41.1 h about 33 km.	129°1	Mag. 5.9 (CGS) Traces.
✓ Mar. 28	i(PS) i SS e i F	00 43 43 49 12 51 07 55 51 03 25	66.3 N., 19.6 W (Iceland) H = 00:15:47.5 h about 15 km.	105°3	Mag. 7-7 $\frac{1}{4}$ (Pas.)
X Mar. 28	e F	04 15 04 20			'Near' oceanic earthquake?
X Mar. 31	e F	? 09 28			Record missing: 0532 - 0554 and 0610 - 0619

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APRIL
MAY 1963
JUNE

LOCATION

Lat. 34° 25.5' S., Long. 19° 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 250; damping ratio 20:1; recording speed 8 mm/min. Free periods: E-W, 12 secs; N-S, 10 secs. The time is recorded in the form of a 2-3 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	Phase	U.T. h m s	Epicentral data (USCGS)	Δ	Remarks
X 1963 Apr. 3	i(ScS) e Ps F	15 11 14 15 12 14 16 09	55.4 S., 128.2 W (South Pacific Ocean) H = 14:47:55.5 h about 33 km	85.8°	Mag. 5.8 (CGS)
X Apr. 5	e F	20 17 20 26			Traces
X Apr. 6	i F	00 01 13 00 02			
✓ Apr. 7	i i F	22 58 33 59 19 24 13			
X Apr. 8	e S F	15 19 15 32			Traces
X Apr. 11	e F	16 58 02 17 08	60.2 S., 18.7 W (Sandwich Islands region) H = 16:45:25.1 h about 33 km	35.6°	
✓ Apr. 13	e(SKs) e(S) e(PPS) F	02 44 15 44 37 46 39 03 34	6.2 S., 76.5 W (Central Peru) H = 02:20:57.5 h about 125 km	91.1°	Mag. 6.3 (CGS)
✓ Apr. 16	e i(SKs) i F	01 48(07) 54 23 55 49 05 26	0.8 S., 128.0 E (Halmahera region) H = 01:29:19.4 h about 33 km	104.8°	Mag. 6.1 (CGS) Followed by several strong aftershocks
X Apr. 17	e e F	02 49(33) 53(31) 03 37	19.6 S., 178.6 E (Fiji Islands) H = 02:11:26.1 h about 33 km	122.2°	Mag. 5.9 (CGS)
X Apr. 17	e SKKS F	17 40(45) 18 23	3.5 S., 135.4 E (Western New Guinea) H = 17:03:02.4 h about 39 km	109.3°	Mag. 5.5 (CGS)

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Date	Phase	U.T. h m s	Epicentral data (USCGS)	Δ	Remarks
1963					
✓ Apr. 19	e SKS e F	07 59 55 08 11 36 10 10	35.8 N., 96.9 E (Tsinghai Province, China) H = 07:35:23.7 h about 33 km	100.9 ^o	Initial phases very weak.
X Apr. 25	e F	09 36 09 43			Traces ('hear' oceanic earthquake)
X Apr. 25	e F	11 38 11 44			Traces
X Apr. 29	e F	23 13 23 31			Traces
X Apr. 30	e F	01 23 03 56			Confused by microseisms
✓ May 1	i i PS e e SS F	10 31 02 33 00 35 (02) 39 20 12 29	19.0 S., 169.0 E (New Hebrides Islands) H = 10:03:20.0 h about 140 km	119.2 ^o	Mag. 6.2 (CGS)
✓ May 8	e (?) F	10 44 57 12 34			
X May 9	e F	19 36 19 42			Traces. "Near" oceanic earthquake?
✓ May 10	e SKKS e F	22 46 41 48 (30) 01 00	2.2 S., 77.6 W (Ecuador) H = 22:22:42.2 h about 33 km	94.1 ^o	Mag. 5.7 (CGS)
X May 12	e F	21 29 22 08			Traces
X May 13	e F	13 47 13 55			Traces
✓ May 19	i P i (PS) i PKKP F	01 14 15 23 22 33 54 03 00 ca.	46.5 S., 75.1 W (Coast of southern Chili) H = 01:03:04.1 h about 33 km	68.3 ^o	Mag. 6.5 (CGS)
✓ May 19	e i S i PS i (SS) e PKKS F	21 58 18 58 57 59 47 22 04 45 09 46 23 42	23.8 N., 45.9 W (North Atlantic Ocean) H = 21:35:49.6 h about 33 km	85.0 ^o	Mag. 6.0 (CGS)
✓ May 20	i PP i (S) i (PS) e SS F	11 57 28 12 05 02 06 48 13 08 14 27	30.7 S., 178.3 W (Kermadec Islands region) H = 11:38:00.9 h about 34 km	112.7 ^o	
✓ May 22	e F	22 17 (08) 23 02	8.2 S., 115.7 E (Java Sea) H = 21:53:02.5 h about 33 km	90.5 ^o	Mag. 5.6 (CGS) No clear phases

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Date	Phase	U.T. h m s	Epicentral data (USCGS)	Δ	Remarks
✓ 1963 May 25	e P e i S F	16 15 15 19 59 21 01 18 13	56.8 S., 25.0 W (Sandwich Islands region) H = 16:08:00.8 h about 29 km	37.3 ^o	P very weak.
✗ May 30	e F	07 14 08 09			Traces
✗ June 1	e F	22 24 22 36			Traces
✓ June 2	e P e PP i S e i SS F	21 11 04 12 07 16 12 18 00 18 30 22 52	58.5 S., 15.6 W (Sandwich Islands region) H = 21:04:24.2 h about 50 km	33.4 ^o	Mag. 5.9 (CGS)
✗ June 3	e F	12 18 12 47			Traces
✓ June 4	i(S) i F	21 29 29 30 09 22 58	1.2 S., 127.3 E (Halmahera region) H = 21:04:42.3 h about 31 km	95.9 ^o	Mag. 5.2 (CGS) Measured phases very weak
✗ June 6	e F	12 23 12 44			Traces
✗ June 7	e F	20 30 20 54			Traces
✗ June 7	e F	23 45 24 19			Traces
✗ June 8	i S F	04 34 14 05 11	22.7 S., 13.7 W (South Atlantic Ocean) H = 04:22:53.0 h about 33 km	31.2 ^o	Mag. 4.9 (CGS) Measured phase very weak
✓ June 10	i(SKS) e(PPS) e(SS) F	04 38 52 39 42 44 14 05 32	55.4 S., 146.4 E (800 km west of Macquarie Islands) H = 04:16:37.7 h about 33 km	79.5 ^o	Mag. 6.1 (CGS)
✗ June 10	i SS e L F	06 29 12 (18) 08 00	55.3 S., 146.1 E (800 km west of Macquarie Islands) H = 06:39:04.0 h about 18 km	79.6 ^o	Mag. 6.0 (CGS) Records changed 0656 - 0702
✓ June 17	e SKS F	18 53 02 20 05	65.8 S., 179.5 W (Scott Island region). H = 18:30:54.1 h about 33 km	78.5 ^o	Mag. 5.6 (CGS)

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Date	Phase	U.T. h m s	Epicentral data (USCGS)	Δ	Remarks
1963					
June 18	e F	03 53 03 59			Traces ("Near" oceanic earth- quake?)
June 21	e F	00 51 01 07			Traces
June 26	e PS F	18 10 05 19 14	7.1 N., 82.3 W (Near south coast of Panama) H = 17:42:40.6 h about 20 km	103.5 ⁰	Mag. 6.0 (CGS)
June 28	e PKP i i(PPP) F	22 15 12 26 05 29 59 01 05	46.5 N., 153.2 E (Kurile Islands region) H = 21:55:38.8 h about 33 km	143.6 ⁰	Mag. 6.1 (CGS)

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MAGNETIC OBSERVATORY, HERMANUS.

LOCATION

JULY
AUGUST 1963
SEPTEMBER

Lat. 34° 25.5' S., Long. 19° 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 250; damping ratio 20:1; recording speed 8 mm/min. Free periods; E-W, 12 secs; N-S, 10 secs. The time is recorded in the form of a 2-3 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	Phase	U.T. h m s	Epicentral data (USCGS)	Δ	Remarks
✓ 1963 July 4	e SKS e F	11 23(19) 27(34) 12 40	26.3 S., 177.7 W (Tonga Islands region) H = 10:58:13.2 h about 158 km	117°1	
✓ July 4	e(S) F	23 08 14 23 43	18.5 S., 12.6 W (St. Helena Island region) H = 22:56:15.7 h about 33 km	32°7	Mag. 5.6(CGS)
X X July 9	e F	10 19 10 54			Traces
X X July 10	e F	06 42 07 48			Traces
✓ July 14	i S F	06 05 32 07 06	10.4 N., 62.6 W (Off coast of northern Venezuele) H = 05:41:43.0 h about 24 km.	89°3	Mag. 5.5(CGS)
✓ July 16	e(S) e(SSS) F	18 49 34 58(25) 20 16	43.1 N., 41.5 E (Georgia, S.S.R.) H = 18:27:16.4 h about 33 km	80°4	Mag. 5.8(CGS)
X July 17	e(SS) F	03 31 46 03 39	46.9 S., 33.3 E (Prince Edward Islands region) H = 03:24:37.4 h about 33 km	16°5	
✓ July 18	e e F	05 11(08) 13(49) 06 00	61.0 S., 22.3 W (Sandwich Islands region) H = 04:56:09.2 h about 33 km	38°4	Mag. 6.0(CGS)
X July 20	e F	06 58 08 20			Disturbed by microseisms. Records chan- ged 0701-0706

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Date	Phase	U.T.			Epicentral data (USCGS)	Δ	Remarks
		h	m	s			
1963							
X July 24	e F	12 28 12 41					Traces
✓ July 26	e F	04 41(06) 05 20 ca.		42.1 N., 21.5 E (Southern Yugoslav- via) H = 04:17:16.7 h about 33 km.	76°9		Mag. 5.4(CGS)
X July 29	e(SSP) e(SS) F	20 49 41 20 51 56 22 55		30.2 S., 177.3 W (Kermdec Island) H = 20:14:07.3 h about 39 km and 29.7 S., 177.0 W (Kermadec Island) H = 20:16:36.9 h about 33 km	113.3 113°9		Mag. 5.7(CGS) Mag. 5.5(CGS)
✓ Aug. 3	i P e PcS i!S F	10 32 27 37 15 41 19 13 13		7.7 N., 35.8 W (Mid-Atlantic Ocean) H = 10:21:36.6 h about 33 km	67°2		Mag. 6.1(CGS)
X Aug. 5	e F	16 01 16 45					Traces
				No record 6/8/63 - 12/8/63. Building operations in progress.			
✓ Aug. 15	i P i S, i SS F	17 36 41 45 55 51 36 19 58		13.8 S., 69.3 W (Peru-Bolivia border) H = 17:25:05.9 h about 543 km	81°3		Mag. 8(BKS)
X Aug. 17	e F	11 43 13 52					No clear phases
X Aug. 22	e SSP F	20 29 42 22 19		9.4 S., 158.0 E. (Solomon Island) H = 19:52:25.0 h about 33 km	121°2		Mag, 6.1(CGS)
X Aug. 28	i F	00 48 14 00 56			<1°4 (<150km)		Severe earth tremor in Western Cape. Felt over a wide area, including Hermanus.
✓ Aug. 29	e SKS i!S F	09 17 19 17 37 10 32		39.6 N., 74.2 E (Sinkiang Province, China) H = 08:53:48.4 h about 31 km	90°0		Mag. 5.5(CGS) SKS very weak.
X July 30	e SS F	06 21 24 07 16		29.6 S., 177.3 W (Kermdec Islands region) H = 05:45:53.3 h about 33 km	113°8		Mag. 5.3(CGS)

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✓ 1963 Aug. 29	e P i PP e SKS e(S) F	15 43 59 47 41 54 31 55 10 18 39	7.1 S., 81.6 W (Off coast of Peru) H = 15:30:31.4 h about 23 km	94°4	Mag. 6.1(CGS)
X Sept. 4	e F	05 45(00) 06 15			Oceanic?
Z Sept. 4	i(SS) F	14 09 31 15 28	71.4 N., 73.3 W (Near east coast of Baffin island) H = 13:32:12.3 h about 33 km.	123°5	Mag. 5.9(CGS)
X Sept. 7	e F	08 06 08 36			Traces.
X Sept. 14	e F	04 50 05 29			Traces
✓ Sept. 15	i PP e PKS i SKS i SKKS i(ScSP) F	01 07 41 09 23 12 59 14 38 17 52 04 34	10.3 S., 165.6 E (Santa Cruz Island) H = 00:46:54.1 h about 43 km	125°0	Mag. 6.3(CGS)
✓ Sept. 17	i PP i e(ScSP) e(SSP) F	19 41 02 44 56 51 08 58 14 23 03	10.1 S., 165.3 E (Santa Cruz Islands) H = 19:20:08.2 h about 17 km	124°9	
✓ Sept. 18	e S i SS e(SSS) F	17 19 45 24 26 28 06 18 33	40.9 N., 29.2 E (Turkey) H = 16:58:12.5 h about 33 km	76°0	Mag. 5.2(CGS)
✓ Sept. 23	i i i (e) F	09 06 21 09 58 10 13 18 00 11 ca.		~ 20°	Near Kariba Dam, Southern Rhodesia. Seismographs adjusted 0645- 0706, hence no record of ear- lier shock.
X Sept. 23	i e F	15 12 25 13 46 15 20			ditto.
✓ Sept. 23	e	16 19 07			Isolated phase
✓ Sept. 23	e i F	22 30(11) 46 26 22 47			Kariba.
X Sept. 24	i(S)	09 21 42 23 45 27			ditto

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✓ 1963 Sept. 24	i(S) i e F	16 53 43 54 07 17 06 40 18 19	10.6 S., 78.0 W (Near coast of Peru.) H = 16:30:16.0 h about 80 km	90°0	Mag. 6.0(CGS)
✓ Sept. 25	i e i F	07 08 19 11 55 12 09 07 54			Kariba. (as on Sept. 23)
X Sept. 29	e F	03 37 03 45			Traces.
** July 19 X	e e i e i F	06 27 .. 31 13 34 01 35 32 35 54 06 50	43.3 N., 8.1 E (Ligurian Sea) H = 05:46:05.2 h about 33 km.	78°6	Phases seem too late for this earthquake.

SEISMOLOGICAL BULLETIN
MAGNETIC OBSERVATORY, HERMANUS.

OCTOBER
NOVEMBER 1963
DECEMBER

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 250; damping ratio 20:1; recording speed 8 mm/min. Free periods: E-W, 12 secs; N-S, 10 secs. 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	Phase	U.T. h m s	Epicentral data (USCGS)	Δ	Remarks
1963					
✓ Oct. 3	e(S) i(SS) F	16 01 (30) 04 22 16 31	58.5 S., 25.1 W (Sandwich Islands) H = 15:48:17.2 h about 54 km.	38.0	
X Oct. 4	e SSP e E e N F	00 02 33 03 (11) 01 31	32.2 N., 131.6 E (Kyushu, Japan) H = 23:24:34.7 h about 33 km.	124.8	Mag. 5.7 (CGS) Very weak phases.
✓ Oct. 5	e S e N PS e E SS F	15 14 00 14 12 17 55 16 44	11.6 N., 42.8 E (French Somaliland) H = 14:57:47.4 h about 33 km.	51.4	Mag. 5.3 (CGS)
X Oct. 5	e L F	17 45 20 18 05	11.7 N., 42.6 E (French Somaliland) H = 17:18:25.0 h about 33 km.	51.4	
X Oct. 8	e F	01 20 01 55			Traces
X Oct. 8	e e i E F	13 16 10 19 00 19 15 13 48	45.5 S., 35.3 E (Prince Edward Is- land region) H = 13:12:15.8 h about 33 km.	16.8	
✓ Oct. 12	e PKP e PP e PKS e PS F	11 46 37 49.5 50 14 11 59.8 15 11	44.8 N., 149.0 E (Kurile Islands) H = 11:26:57.9 h about 40 km.	140.6	Mag. $6\frac{3}{4} - 7$ (Pas)
✓ Oct. 13	i PKP F	05 37 23 11 00	44.8 N., 149.5 E (Kurile Island) H = 05:17:57.1 h about 60 km.	141.0	Mag. $8\frac{1}{4}$ (Pas)
X Oct. 13	e F	14 13 14 50			Traces
X Oct. 13	e F	17 13 17 51			Traces
X Oct. 14	e F	01 11 02 01			Traces
X Oct. 14	e F	14 35 15 25			Traces

Date	Phase	U.T. h m s	Epicentral data (USCGS)	Δ	Remarks
1963					
X Oct. 15	e F	10 52 11 10			Traces
✓ Oct. 16	e S F	16 06 51 17 06	38.6 N., 73.4 E (Tadzik, S.S.R.) H = 15:43:00.8 h about 33 km.	88.9	
Y Oct. 17	e F	00 05 01 37			
Y Oct. 20	e i PKS e PPP F	01 12 16 16 19 00 04 43	44.7 N., 150.7 E (Kurile Islands) H = 00:53:07.2 h about 25 km.	141.8	Mag. 6 ³ / ₄ - 7 (Pas)
Y Oct. 20	e F	10 30 10 56			Traces
Y Oct. 20	e F	13 11 14 00			Traces
Y Oct. 24	e F	06 50 08 34			Traces
Y Oct. 27	e F	15 38 16 12			Traces
Y Oct. 28	e F	09 00 09 42			Traces
X Oct. 31	e SS e F	03 55 00 58 19 06 04	21.8 S., 175.0 W (Tonga Islands) H = 03:17:42.0 h about 33 km.	121.8	Mag. 5.2 (CGS)
X Nov. 3	i SKS i i PS F	34 05 34 46 35 48 05 46	3.5 S., 77.8 W (Peru-Ecuador border) H = 03:10:12.7 h about 33 km.	93.8	Mag. 6.0 (CGS)
✓ Nov. 4	i P i ! i ! PP e SKS F	01 31 05 31 15 35 29 41 5 06 25	6.8 S., 129.6 E (Banda Sea) H = 01:17:08.9 h about 80 km.	102.5	Mag. 5.8 (CGS)
✓ Nov. 6	e i (PS)	02 39 42 16	2.6 S., 138.4 E (Western New Guinea) H = 02:13:16.8 h about 33 km.	112.1	Mag. 5.7 (CGS)
X Nov. 8	i L i F	10 09 26 10 48 10 21	16.5 S., 28.5 E (Northern Rhodesia) H = 09:59:24.3 h about 33 km.	20.0	Mag. 5.5 (CGS)
✓ Nov. 9	e (?) i P (PoP) i pP i SKS (or S) F	21 26 53 27 08 29 15 36 38 24 00	9.0 S., 71.5 W (Western Brazil) H = 21:15:30.4 h about 600 km.	85.6	Mag. 5.9 (CGS)
✓ Nov. 10	i P (PoP) i pP i SKS (or S) F	01 12 17 14 26 21 47 02 35	9.2 S., 71.5 W (Western Brazil) H = 01:00:38.8 h about 600 km.	85.5	Mag. 5.6 (CGS)
X Nov. 10	e F	17 40 19 40			Traces
X Nov. 15	e F	21 30 23 39			Traces

Date	Phase	U.T. h m s	Epicentral data (USCGS)	Δ	Remarks
1963					
X Nov. 17	e F	23 45 24 50			Traces
✓ Nov. 17	i S i e F	01 08 05 12 02 13 02 02 45	7.6 N., 37.4 W (North Atlantic Ocean) H = 00:48:02.6 h about 33 km.	67 ⁰ .9	Mag. 5.9 (CGS)
✓ Nov. 18	e PKS e (SKSP) F	15 01 41 10 47 17 00	29.9 N., 113.6 W (Gulf of California) H = 14:38:28.9 h about 14 km.	140 ⁰ .0	Mag. 5.7 (CGS)
✓ Nov. 27	e F	17 53 18 03			Traces
✓ Dec. 2	e F	13 48 14 10			Traces
✓ Dec. 3	i S F	23 25 24 24 40	22.4 S., 69.3 W (Northern Chile) H = 23:03:41.6 h about 16 km.	76 ⁰ .4	Mag. 6.1 (CGS)
X Dec. 4	e F	16 23 17 35			Traces
✓ Dec. 15	e P i pP i SKS i S (ScS) F	19 46 25 48 46 55 48 56 09 21 55	4.8 S., 108.0 E (Java Sea) H = 19:34:45.5 h about 650 km.	86 ⁰ .2	Mag. 6.4 (CGS)
X Dec. 16	e F	14 24 14 59			Traces
✓ Dec. 18	e PP F	00 50 09 04 10	24.8 S., 176.6 W (Tonga Islands) H = 00:30:02.6 h about 46 km.	118 ⁰ .6	Mag. 6.5 (CGS)
X Dec. 19	e F	17 51 18 22			Traces
X Dec. 20	e F	15 52 17 00			Traces
X Dec. 28	e F	18 15.0 19 00			Traces
✓ Dec. 31	e P e (PP) i S F	17 44 45 46 07 50 33 20 09	56.5 S., 26.0 W (Sandwich Islands) H = 17:37:32.1 h about 30 km.	37 ⁰ .8	Mag. 6.3 (CGS)