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THE MINERAL INDUSTRIES EXPERIMENT STATION
College of Mineral Industries
THE PENNSYLVANIA STATE UNIVERSITY

DEPARTMENT OF GEOPHYSICS AND GEOCHEMISTRY

SEISMOGRAPH REPORT XXX

January - December

1960



University Park, Pennsylvania

PENNSYLVANIA'S COLLEGE OF MINERAL INDUSTRIES



Division of Earth Sciences

Geology - Mineralogy - Geophysics - Geochemistry - Meteorology - Geography



Division of Mineral Engineering

Mineral Economics - Mining - Mineral Preparation - Petroleum and Natural Gas



Division of Mineral Technology

Ceramic Technology

Fuel Technology

Metallurgy

THE PENNSYLVANIA STATE UNIVERSITY
MINERAL INDUSTRIES EXPERIMENT STATION
GEOPHYSICAL LABORATORY
Project C-19

Seismograph Report XXX
January-December 1960
College of Mineral Industries
Department of Geophysics and Geochemistry
University Park, Penna., U.S.A.

Locality: The station is located in a vault under the central wing of the College of Mineral Industries Building. The instruments are mounted on a concrete pillar separated from the foundations and anchored to bedrock (dolomite). The geographic coordinates are:

$$\phi = 40^{\circ} 48' \text{ N} \quad \lambda = 77^{\circ} 52' \text{ W} \quad H = 354 \text{ m}$$

The geocentric coordinates are (courtesy of Gutenberg and Richter):

$$A = 40^{\circ} 36' \text{ N} \quad \lambda = 77^{\circ} 52' \text{ W} \quad H = + 3 \text{ km.}$$

Please address all communications to:
Geophysical Laboratory
220 Mineral Sciences Bldg.
University Park, Pennsylvania, U.S.A.

During 1960 three seismographs were in continuous operation except for brief intervals during repairs, adjustments and record changing. All components were recorded photographically at a rate of 1.56 cm/min. The east-west component was recorded also by a pen galvanometer at a rate of 1.70 cm/min. The free periods of the instruments when last measured (Seis. 3 July 1960; Galv. 26 Aug. 1959; Damp. 30 June 1960) were:

<u>Component</u>	<u>Seismometer Period</u>	<u>Galvanometer Period</u>	<u>overall damping A_1/A_2 cycle</u>
North-South	11 sec	2.3 sec	2.9
East-West	14 sec	3.65 sec	2.1
Vertical	3.4 sec	4.0 sec	1.85

Adjustments were made on the vertical and east-west component instrument on 5 August, 27 August, 28 August, 29 August, 12 September and 15 October which may have resulted in changes in their period and damping.

The time is controlled by a Stromberg clock, which is compared daily with signals from radio station WWV. The time accuracy of the records is estimated to be about ± 1 second, except for those marked "-". These pulses start during the time marks and have an added uncertainty of ± 2 sec.

Epicenter locations, origin times and focal depths reported below are thru the courtesy of the United States Coast and Geodetic Survey.

<u>Date</u>	<u>Phase and component</u>	<u>G.M.C.T.</u>	<u>Remarks</u>
2 Jan., 1960	N,E		Seismic activity observed between the hours of 07:38 and 07:55
2 Jan., 1960	N,E		Seismic activity observed between the hours of 12:50 and 14:00

- 2 -

Date	Phase and Component	G.M.C.T.	Remarks
3 Jan., 1960	N,E		Seismic activity observed between the hours of 07:07 and 07:35
3 Jan., 1960	N,E		Seismic activity observed between the hours of 12:01 and 12:15
4 Jan., 1960	E		Seismic activity observed between the hours of 07:10 and 07:35
7 Jan., 1960	N,E		Seismic activity observed between the hours of 13:45 and 15:40
8 Jan., 1960	N,E		Seismic activity observed between the hours of 00:30 and 01:00
8 Jan., 1960	N,E		Seismic activity observed between the hours of 08:30 and 09:00
8 Jan., 1960	N,E		Seismic activity observed between the hours of 15:11 and 16:20
9 Jan., 1960	N,E		Seismic activity observed between the hours of 18:17 and 18:53

Date	Phase and component	G.M.C.T.	Remarks
13 Jan., 1960	-P i e N,Z N,E,Z Z	15:49:59 15:50:06 15:57:50	Epicenter 16°S, 72°W Southern Peru O=15:40:34 h=about 200 km. Δ=6300 km.
15 Jan., 1960	iP iS N,Z E	09:39:48 90:47:32	Epicenter 15°S, 75°W Near coast of Southern Peru O=09:30:24 h=about 150 km. Δ=6200 km.
20 Jan., 1960	N,E		Seismic activity observed between the hours of 03:44 and 03:55
23 Jan., 1960	iP' e Z N,E	05:00:25 05:03:57	Epicenter 4°S 127 1/2°E Ceram Island region O=04:40:56 Δ=15200 km.
23 Jan., 1960	iP' ePP e Z E,Z N,E,Z	07:50:44 07:53:32 07:54:15	Epicenter 4°S, 127 1/2°E Ceram Island region O=07:31:14 Δ=15200 km.
23 Jan., 1960	-P' ePP e N,Z Z N,E	18:15:59 18:18:47 18:20:00	Epicenter 4°S, 127 1/2°E Ceram Island region O=17:56:30 Δ=15200 km.
24 Jan., 1960	eS N,E	00:52:23	Epicenter 43 1/2°N, 127 1/2°W. Off coast of Oregon O=00:39:33 Δ=4050 km.
24 Jan., 1960	N,E,Z		Seismic activity observed between the hours of 04:48 and 06:58
25 Jan., 1960	N,E		Seismic activity observed between the hours of 16:57 and 18:25

Date	Phase and component	G.M.C.T.	Remarks
31 Jan., 1960	N,E		Seismic activity observed between the hours of 05:55 and 06:35
3 Feb., 1960	N,E		Seismic activity observed between the hours of 11:45 and 12:05
4 Feb., 1960	N N,E,Z	04:07:04 04:07:48	Epicenter $4\ 1/2^{\circ}\text{S}$ $153\ 1/2^{\circ}\text{E}$ New Ireland region O=03:46:44 h=about 150 km. $\Delta=13500$ km.
4 Feb., 1960	N,E		Seismic activity observed between the hours of 17:33 and 18:25
8 Feb., 1960	N,E		Seismic activity observed between the hours of 13:09 and 14:32
10 Feb., 1960	i -PP i e N,Z N,Z N,E,Z N,Z N,E	00:15:16 00:16:14 00:17:59 00:18:48 00:19:01	Epicenter 4°S , 128°E Ceram O=23:55:49, Feb. 9 $\Delta=15200$ km.
10 Feb., 1960	N		Seismic activity observed between the hours of 06:21 and 06:26
11 Feb., 1960	N,E		Seismic activity observed between the hours of 00:07 and 01:00
15 Feb., 1960	N,E		Seismic activity observed between the hours of 07:50 and 08:15

- 5 -

Date	Phase and component	G.M.C.T.	Remarks
16 Feb., 1960	N,E		Seismic activity observed between the hours of 13:33 and 13:42
17 Feb., 1960	1P eS	Z E 12:44:09 12:53:59	Epicenter 30°S, 112 1/2°W Easter Islands region O=12:32:10 Δ=8600 km.
19 Feb., 1960	eSKS isPs or sSP	N,E N,E,Z 11:00:22 11:04:08	Epicenter 36°N, 70 1/2°E Hindu Kush h=about 200 km. O=10:36:46 Δ=11000 km.
23 Feb., 1960		N,E	Seismic activity observed between the hours of 17:01 and 17:50
24 Feb., 1960	ePS 1	N,E N 22:07:49 22:09:45	Epicenter 7 1/2°S, 156°E Solomon Islands O=21:37:04 Δ=13600 km.
26 Feb., 1960		N,E	Seismic activity observed between the hours of 03:15 and 03:30
26 Feb., 1960	1P 1S	N,E,Z E 23:40:08 23:48:51	Epicenter 51 1/2°N, 178°W Alentian Is. O=23:29:25 Δ=2700 km.
27 Feb., 1960		N,E	Seismic activity observed between the hours of 08:40 and 10:20

Date	Phase and component	G.M.C.T.	Remarks
29 Feb., 1960	eP Z eS N,E	23:49:51 23:57:40	Epicenter 30°N, 9°W Morocco O=23:40:12 Δ=6200 km.
2 Mar., 1960	N,E,Z		Seismic activity observed between the hours of 00:16 and 01:20
2 Mar., 1960	E		Seismic activity observed between the hours of 22:06 and 22:25
5 Mar., 1960	N,E		Seismic activity observed between the hours of 14:13 and 15:50
6 Mar., 1960	N,E	04:23:20	Epicenter 24°N, 108°W Gulf of California O=04:11:54 Δ=3400 km.
8 Mar., 1960	-P' N,Z 1PP N,E,Z -pPP N,Z eS N esS or SP N eSS N -sSS N	16:51:59 16:53:20 16:53:59 17:00:53 17:02:43 17:09:22 17:10:59	Epicenter 16° 1/2°S, 168 1/2°E New Hebrides Islands O=16:33:38 h=about 250 km. Δ=13200 km.
10 Mar., 1960	-P N,Z 1S N,E	00:03:59 00:11:49	Epicenter 16°S, 72°W Southern Peru O=23:54:20 h=about 150 km. Δ=6300 km.
10 Mar., 1960	E		Seismic activity observed between the hours of 10:48 and 10:59

699

Date	Phase and component	G.M.C.T.	Remarks
10 Mar., 1960	N,E		Seismic activity observed between the hours of 19:07 and 19:30
12 Mar., 1960	ePP N,E,Z	20:51:18	Epicenter 6°S, 152°E New Britan O=20:30:39 Δ=13800 km.
14 Mar., 1960	N,E.		Seismic activity observed between the hours of 00:08 and 00:20
20 Mar., 1960	1P Z 1 Z 1 N,E,Z 1 N,E,Z eS N,E isS N,E	17:20:40 17:20:46 17:21:48 17:22:20 17:31:12 17:31:41	Epicenter 40°N, 143 1/2°E Off northeast coast of Honshu, Japan O=17:07:30 h=about 60 km. Δ=10150 km.
21 Mar., 1960	E		Seismic activity observed between the hours of 00:20 and 00:45
21 Mar., 1960	E		Seismic activity observed between the hours of 10:11 and 10:32
22 Mar., 1960	N,E		Seismic activity observed between the hours of 02:01 and 02:25
22 Mar., 1960	N,E		Seismic activity observed between the hours of 13:36 and 14:13

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Date	Phase and Component	G.M.C.T.	Remarks	
23 Mar., 1960	iP	N,E,Z	00:36:41	Epicenter 39 1/2°N, 143°E Near east coast of Honshu, Japan O=00:23:22 Δ=10200 km.
	iPP	N,E,Z	00:40:21	
	i	N,Z	00:41:14	
	iS	E	00:47:37	
	i	N	00:47:45	
23 Mar., 1960	eS	N,E	22:46:46	Epicenter 39 1/2°N, 143°E Near east coast of Honshu, Japan O=22:22:36 Δ=10200 km.
27 Mar., 1960		N,E		Seismic activity observed between the hours of 04:53 and 05:20
27 Mar., 1960		N,E		Seismic activity observed between the hours of 09:27 and 10:41
27 Mar., 1960	iP	N,Z	20:22:05	Epicenter 20°N, 104 1/2°W Jalisco, Mexico O=20:15:46 Δ=3400 km.
	eS	N,E	20:27:23	
28 Mar., 1960	eP	N,Z	00:20:19	Epicenter 7 1/2°N 82°W Off south coast of Panama O=00:13:38 Δ=3700 km.
	iS	N,E	00:25:49	
28 Mar., 1960		E		Seismic activity observed between the hours of 07:36 and 08:00
28 Mar., 1960		N,E		Seismic activity observed between the hours of 21:06 and 21:18

Date	Phase and component	G.M.C.T.	Remarks
✓ 29 Mar., 1960	eSKS? E ePS N,E,Z	06:56:49 07:01:11	Epicenter 17°S, 167°E New Hebrides Islands O=06:30:54 Δ=13400 km.
29 Mar., 1960	N,E		Seismic activity observed between the hours of 23:13 and 23:50
30 Mar., 1960	N,E		Seismic activity observed between the hours of 11:47 and 12:20
31 Mar., 1960	N,E		Seismic activity observed between the hours of 11:58 and 12:35
✓ 31 Mar., 1960	eS N	20:07:32	Epicenter 26°N, 110°W Gulf of California O=19:56:14 Δ=3400 km.
✓ 1 Apr., 1960	eS N,E	14:25:08	Epicenter 49°N, 129 1/2°W off coast of Vancouver Island O=14:12:05 Δ=4100 km.
5 Apr., 1960	N		Seismic activity observed between the hours of 07:46 and 08:32
10 Apr., 1960	N,E		Seismic activity observed between the hours of 20:52 and 21:34
✓ 13 Apr., 1960	iP N,E,Z	12:43:35	Epicenter 15 1/2°N, 92 1/2°W Guatemala Mexico border O=12:37:38 Δ=3150 km.

Date	Phase and component	G.M.C.T.	Remarks
15 Apr., 1960	1S N,E	03:47:04	Epicenter 27°S, 113°W Easter Island region O=03:25:38 Δ=8300 km.
15 Apr., 1960	N,E		Seismic activity observed between the hours of 12:00 and 12:10
15 Apr., 1960	eS N	22:33:15	Epicenter 13 1/2°S 166°E New Hebrides Is. O=22:05:06 Δ=13200 km.
21 Apr., 1960	1P N,Z eS N i N,Z	02:25:43 02:33:02 02:33:08	Epicenter 2 1/2°S 110°W Pacific Ocean about 1200 miles west of Galpagos Islands O=02:16:29 Δ=5800 km.
22 Apr., 1960	eS N eSS N	20:52:12 20:59:34	Epicenter 17 1/2°S, 174 1/2°W Tonga Is. O=20:26:28 h=about 200 km. Δ=11800 km.
24 Apr., 1960	-P ¹ N,E,Z ipP ¹ N,Z i N,Z ipPP Z -sSp or N sPs eSS N,E	03:40:59 03:43:16 03:44:36 03:46:33 03:57:59 04:02:05	Epicenter 6°S, 113 1/2°E Java Sea O=03:22:23 h=about 600 km. Δ=16000 km.
24 Apr., 1960	N,E		Seismic activity observed between the hours of 12:50 and 13:50
25 Apr., 1960	N,E		Seismic activity observed between the hours of 15:20 and 15:50

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699

Date	Phase and component	G.M.C.T.	Remarks
2 May, 1960	N,E		Seismic activity observed between the hours of 02:30 and 02:50
9 May, 1960	N,E		Seismic activity observed between the hours of 20:30 and 21:30
10 May, 1960	N,E		Seismic activity observed between the hours of 23:27 and 23:59
11 May, 1960	ePP N ePPP N,E eSKS N e N	18:58:39 19:00:35 19:02:32 19:04:48	Epicenter 3°S, 131°E Ceram Sea O=18:36:00 Δ=15000 km.
12 May, 1960	N,E		Seismic activity observed between the hours of 16:26 and 16:44
12 May, 1960	iP N,Z i N,Z eS N i N,E i N,E	22:39:14 22:39:34 22:44:30 22:44:39 22:45:23	Epicenter 7 1/2°N, 81°W Panama O=22:32:32 Δ=3700 km.
13 May, 1960	N,E		Seismic activity observed between the hours of 10:15 and 11:00
13 May, 1960	iP N,E,Z i N,E,Z iS N,E,Z i N,E,Z	16:16:42 16:16:52 16:24:16 16:24:34	Epicenter 55°N, 161 1/2°W Alaska Peninsula O=16:07:12 Δ=6050 km.

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Date	Phase and component	G.M.C.T.	Remarks
18 May, 1960	eP	N,Z	Epicenter 29°N, 130°E Ryukyu Islands O=06:35:09 h=about 100 km. Δ=11800 km.
	ePP	N,Z	
	ePPP	N,Z	
	eSKS	N	
	eSP	N,Z	
19 May, 1960	eP'	Z	Epicenter 17°S, 66°E Mascarene Islands region O=10:11:51 Δ=15800 km.
	i	N,Z	
	e	N	
	eSKS	N,E	
20 May, 1960	iP'	Z	Epicenter 28°S 167 1/2°E Norfolk Island O=11:12:31 Δ=14100 km.
	ePP	E,Z	
20 May, 1960		N,E,Z	Seismic activity observed between the hours of 18:06 and 18:15
21 May, 1960	iP	N,Z	Epicenter 37 1/2°S, 73 1/2°W Near coast of Chile O=10:02:50 Δ=8700 km.
	iS	N,E	
	e	Z	
21 May, 1960	iP	Z	Epicenter 37 1/2°S, 72 1/2°W Chile O=10:53:51 Δ=8700 km.
21 May, 1960	-P	N,Z	Epicenter 37 1/2°S, 72 1/2°W Chile O=12:59:58 Δ=8700 km.
	eS	N,E	
22 May, 1960	eS	E	Epicenter 38°S, 73 1/2°W Chile O=06:01:36 Δ=8750 km.
22 May, 1960	iP	Z	Epicenter 37 1/2°S, 73°W Chile O=08:10:53 Δ=8700 km.
	eS	N,E	

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Date	Phase and component	G.M.C.T.	Remarks
22 May, 1960	iP iS	N,Z E 10:42:39 10:52:36	Epicenter 38°S, 73 1/2°W Near coast of Chile O=10:30:39 Δ=8750 km.
22 May, 1960	iP iPP iS	N,Z N,Z N,E 10:44:42 10:47:53 10:54:42	Epicenter 37 1/2°S, 73°W Near coast of Chile O=10:32:43 Δ=8700 km.
22 May, 1960	eP	Z 12:28:48	Epicenter 38°S, 73°W Chile O=12:16:43 Δ=8750 km.
22 May, 1960	iP -PP iS	N,E,Z N N,E 19:08:02 19:11:00 19:17:57	Epicenter 38°S, 73 1/2°W Near coast of Chile O=18:55:57 Δ=8750 km.
22 May, 1960	iP	N,Z 19:22:50	Epicenter 38°S, 73 1/2°W Near coast of Chile O=19:10:47 Δ=8750 km.
23 May, 1960		N	Seismic activity observed between the hours of 14:43 and 15:30
23 May, 1960		N,E	Seismic activity observed between the hours of 16:18 and 16:48
24 May, 1960		N,E	Seismic activity observed between the hours of 03:45 and 04:37

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Date	Phase and component	G.M.C.T.	Remarks
24 May, 1960	eP ⁱ Z	15:05:52	Epicenter 44 1/2°S 167 1/2°E South Island, New Zealand O=14:46:34 Δ=14900 km.
	ePP Z	15:08:24	
	e N,E,Z	15:09:26	
	i N,E,Z	15:09:35	
24 May, 1960	e N,Z	20:45:52	Epicenter 50 1/2°S, 74°W Southern Chile O=20:32:43 Δ=10200 km.
	ePP N	20:49:28	
	e N	20:56:18	
	e N,E,Z	20:56:54	
25 May, 1960	eP Z	04:57:04	Epicenter: Southern Chile O=04:44:06
	e N	05:07:25	
25 May, 1960	eP Z	08:47:13	Epicenter 45°S, 76°W Off coast of Chile O=08:34:33 Δ=9550 km.
	i N,Z	08:47:17	
	iPP N,Z	08:50:40	
	eS N,E,Z	08:57:47	
	i N	08:57:52	
	eScS N	08:58:37	
	i N	08:58:43	
iSS N	09:03:37		
26 May, 1960	iP N,E,Z	05:21:30	Epicenter 40°N, 20°E Albania-Greece border O=05:10:05 Δ=7800 km.
	eS N,E	05:30:42	
26 May, 1960	N		Seismic activity observed between the hours of 19:55 and 21:10
27 May, 1960	iP N,Z	03:29:42	Epicenter 41°S, 76°W Off coast of Chile O=03:17:21 Δ=9100 km.
	eS N,E	03:39:59	
27 May, 1960	iP N,Z	23:19:35	Epicenter 45°S, 77°W Off coast of Chile O=23:06:55 Δ=9550 km.
	-PP N,Z	23:22:59	
	eS N,E	23:30:07	
28 May, 1960	N		Seismic activity observed between the hours of 03:55 and 04:07

Date	Phase and component	G.M.C.T.	Remarks
28 May, 1960 ✓	eS N,E	11:27:40	Epicenter 38°S, 73°W Chile O=11:05:40 Δ=8750 km.
29 May, 1960 ✓	1P N,Z 1PP N,Z 1S N,Z	07:51:30 07:54:33 08:01:24	Epicenter 38°S, 72 1/2°W Chile O=07:39:29 Δ=8750 km.
29 May, 1960	eP Z e Z eS N,E	14:17:26 14:17:40 14:27:18	Epicenter 37 1/2°S, 73°W Near coast of Chile O=14:05:25 Δ=8700 km.
29 May, 1960 ✓	1P N,Z eS N	21:36:24 21:46:45	Epicenter: Near coast of southern Chile O=21:23:54
31 May, 1960 ✓	1P N,Z ePP N,Z 1S N,E	02:52:12 02:55:13 03:02:18	Epicenter 39 1/2°S, 75°W Chile O=02:40:00 Δ=8900 km.
31 May, 1960 ✓	1P N,E,Z 1S N,E	11:08:01 11:12:38	Epicenter 18°N, 62°W Leeward Islands O=11:02:20 Δ=2950 km.
31 May, 1960	N,E		Seismic activity observed between the hours of 14:14 and 14:36
31 May, 1960 ✓	1P' N,Z	21:19:16	Epicenter 5 1/2°S, 109 1/2°E Java Sea O=21:00:40 h=about 600 km. Δ=16100 km.
1 June, 1960 ✓	-P N,Z ePP N,Z eS N,E	05:14:59 05:18:02 05:24:51	Epicenter 38°S, 73°W Chile O=05:02:56 Δ=8750 km.

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Date	Phase and component	G.M.C.T.	Remarks	
✓ 2 June, 1960	iP	N,Z	06:10:49	Epicenter 46 1/2°S, 74°W Southern Chile O=05:58:03 Δ=9700 km.
	ePP	Z	06:14:10	
	e	N	06:21:11	
	eS	E	06:21:29	
2 June, 1960	N,E,Z		Seismic activity observed between the hours of 08:09 and 10:00	
2 June, 1960	N,E		Seismic activity observed between the hours of 18:18 and 18:35	
✓ 3 June, 1960	ipP	N,Z	16:31:25	Epicenter 41 1/2°N, 141 1/2°E Near south coast of Hokkaido, Japan O=16:18:04 h=about 100 km. Δ=10100 km.
	e	N	16:41:28	
	eS	N,E	16:41:51	
	epS	E	16:42:23	
	esPS or	N	16:43:33	
	sSP			
3 June, 1960	N,E,Z		Seismic activity observed between the hours of 21:49 and 22:54	
✓ 4 June, 1960	iP	N,Z	02:33:24	Epicenter 20°N, 104 1/2°W Near coast of Jalisco, Mexico O=02:27:06 Δ=3400 km.
	ePP	N,E	02:34:18	
	ePPP	N,E,Z	02:34:30	
	eS	N	02:38:27	
4 June, 1960	N,E		Seismic activity observed between the hours of 08:25 and 08:50	
4 June, 1960	N,E		Seismic activity observed between the hours of 11:18 and 11:52	
5 June, 1960	N,E		Seismic activity observed between the hours of 08:04 and 08:20	

Date	Phase and component	G.M.C.T.	Remarks
5 June, 1960	N,E		Seismic activity observed between the hours of 20:25 and 21:00
✓ 6 June, 1960	iP eS	N,E 01:24:48 N 01:30:13	Epicenter 41°N, 125°W Off coast of northern California O=01:17:48 Δ=3900 km.
✓ 6 June, 1960	eP i -S i	N 06:08:28 N 06:08:31 N 06:18:59 E 06:19:04	Epicenter 45 1/2°S, 73 1/2°W Near coast of Chile O=05:55:44 Δ=9600 km.
6 June, 1960	eP -S	N,Z 17:28:20 N 17:38:59	Epicenter 46°S, 73 1/2°W Near coast of southern Chile O=17:15:33 Δ=9650 km.
✓ 7 June, 1960	eS	N 13:18:14	Epicenter 53°N, 158 1/2°E Near east coast of Kamchatka O=12:57:15 Δ=8300 km.
✓ 8 June, 1960	eP eS	Z 16:26:36 N 16:32:05	Epicenter, 35°N, 35°W North Atlantic Ocean O=16:19:48 Δ=3800 km.
9 June, 1960	eP'	Z 05:24:14	Epicenter 9°S, 112 1/2°E Near south coast of Java O=05:05:01 h=about 350 km. Δ=16400 km.
9 June, 1960	N,E		Seismic activity observed between the hours of 11:53 and 14:00

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Date	Phase and Component	G.M.C.T.	Remarks
✓ 9 June, 1960	iP eS	Z N 17:55:14 18:01:18	Epicenter 38°N, 26°W Azores Islands O=17:47:41 Δ=4400 km.
10 June, 1960		N,E	Seismic activity observed between the hours of 14:50 and 15:40
10 June, 1960		N,E	Seismic activity observed between the hours of 21:37 and 23:10
11 June, 1960	iP esP iS e e -	N,Z N,E,Z N,E,Z N E N 00:44:47 00:46:23 00:52:51 00:54:12 00:54:39 00:54:59	Epicenter 21°S 64 1/2°W Southern Bolivia O=00:34:48 h=about 300 km. Δ=7000 km.
✓ 11 June, 1960	ePP	N,E 15:35:06	Epicenter 9°S, 152 1/2°E D'Entrecasteaux Islands O=15:14:07 Δ=14000 km.
✓ 11 June, 1960	iP'	Z 16:56:51	Epicenter 9 1/2°S, 152 1/2°E D'Entrecasteaux Islands O=16:37:40 Δ=14000 km.
✓ 12 June, 1960	eP eS	N,Z N,E 07:32:02 07:41:48	Epicenter 36°S, 98°W South Pacific Ocean O=07:19:43 Δ=8800 km.
✓ 13 June, 1960	iP ePP eS	N,Z N,Z N 05:59:45 06:03:05 06:10:08	Epicenter 44 1/2°S, 76 1/2°W Off coast of southern Chile O=05:47:05 Δ=9500 km.

13 June 1960

11:4 ✓

13 June 1960
11:4 ✓

Date	Phase and component	G.M.C.T.	Remarks
13 June, 1960	N,E.		Seismic activity observed between the hours of 14:57 and 15:20
13 June, 1960	N,E		Seismic activity observed between the hours of 20:14 and 20:21
15 June, 1960	N		Seismic activity observed between the hours of 12:41 and 12:50
15 June, 1960	-P eS N,E	Z 15:49:59 16:00:53	Epicenter 41°N, 142 1/2°E Near north coast of Honshu, Japan O=15:36:51 Δ=10100 km.
15 June, 1960	N,E		Seismic activity observed between the hours of 18:34 and 18:50
15 June, 1960	N,E.		Seismic activity observed between the hours of 19:04 and 19:17
15 June, 1960	1P'	N,Z 23:50:22	Epicenter 26°S, 178 1/2°E South of Fiji Islands O=23:32:35 h=about 600 km. Δ= 13000 km.
17 June, 1960	-P 1 eS e iScS	N,Z N,E,Z N,E N,E N,E 16:45:58 16:46:13 16:54:23 16:54:39 16:55:49	Epicenter 52 1/2°N, 173 1/2°W Andreanof Islands, Aleutian Islands O=16:35:32 Δ=6900 km.

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Date	Phase and component	G.M.C.T.	Remarks
19 June, 1960	N		Seismic activity observed between the hours of 18:08 and 18:23
20 June, 1960	iP N,Z iPP N,Z iS N,E,Z eSS E	02:13:12 02:16:10 02:23:10 02:28:03	Epicenter 38°S, 73 1/2°W Near coast of Chile O=02:01:08 Δ=8750 km.
20 June, 1960	iP N,Z -PP N,Z iS N,E,Z eSS E	13:11:51 13:14:59 13:21:51 13:27:00	Epicenter 39 1/2°S, 73°W Chile O=12:59:40 Δ=8900 km.
21 June, 1960	N,E		Seismic activity observed between the hours of 08:51 and 10:18
21 June, 1960	N,E		Seismic activity observed between the hours of 22:02 and 01:55, 22 June 1960
22 June, 1960	eP N,Z eS N,E	23:39:13 23:47:39	Epicenter 52°N, 173°W Andreanof Islands Aleutian Islands O=23:28:50 Δ=6900 km.
25 June, 1960	N,E,Z		Seismic activity observed between the hours of 01:44 and 02:10
25 June, 1960	N,E		Seismic activity observed between the hours of 02:53 and 03:23

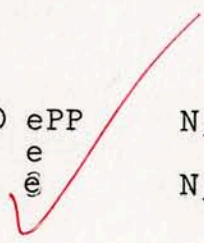
Date	Phase and component	G.M.C.T.	Remarks
25 June, 1960	eP eS	N,Z 14:00:28 N,E 14:05:46	Epicenter 6 1/2°N, 72 1/2°W Colombia O=13:53:37 Δ=3850 km.
25 June, 1960	eP eS	N,Z 19:46:25 N,E 19:55:24	Epicenter 28°S, 68°W Calamarca Province, Argentina O=19:35:27 h=about 100 km. Δ=7650 km.
27 June, 1960		N,E	Seismic activity observed between the hours of 17:44 and 18:20
28 June, 1960		N,E	Seismic activity observed between the hours of 15:08 and 15:20
29 June, 1960	eP eS	Z 02:09:48 N,E 02:20:04	Epicenter Southern Chile O=01:57:14
29 June, 1960		N,E	Seismic activity observed between the hours of 04:59 and 06:15
29 June, 1960		N,E	Seismic activity observed between the hours of 10:07 and 11:15
29 June, 1960		N,E	Seismic activity observed between the hours of 17:25 and 19:30
30 June, 1960	iP e e	N,Z 20:07:09 N,Z 20:07:28 N,Z 20:09:20	Epicenter 60°N, 151°W Kenai Peninsula, Alaska O=19:58:33 Δ=5300 km.

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Date	Phase and component	G.M.C.T.	Remarks	
1 July, 1960	N		Seismic activity observed between the hours of 08:19 and 09:30	
2 July, 1960	N,E		Seismic activity observed between the hours of 04:45 and 06:00	
2 July, 1960	ePP i e	N,Z N,E N	12:14:14 12:20:17 12:21:01	Epicenter 56°S, 27°W Sandwich Islands O=11:55:41 Δ=11700 km.
3 July, 1960	eP - eS	N,Z Z N,E	03:29:43 03:29:58 03:38:09	Epicenter 52°N, 174°W Andreanof Islands Aleutian Islands O=03:19:19 Δ=6950 km.
3 July, 1960		N,E		Seismic activity observed between the hours of 07:45 and 08:20
3 July, 1960	iP iS eP'P'	N,E,Z N,E,Z Z	20:31:29 20:40:10 21:00:06	Epicenter 50 1/2°N, 177°W Andreanof Islands Aleutian Is. O=02:20:46 Δ=7200 km.
3 July, 1960	iP	N,Z	23:03:08	Epicenter 50 1/2°N, 177°W Andreanof Islands, Aleutian Islands O=22:52:24 Δ=7200 km.
4 July, 1960	iP iPP i e eS	N,E,Z N,Z N,E N N,E	04:35:54 04:37:18 04:38:06 04:41:35 04:41:45	Epicenter 52°N, 131 1/2°W Queen Charlotte Islands O=04:28:33 Δ=4200 km.
4 July, 1960		N,E,Z		Seismic activity observed between the hours of 09:10 and 09:45

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Date	Phase and component	G.M.C.T.	Remarks	
4 July, 1960	N,E,Z		Seismic activity observed between the hours of 11:33 and 11:43	
4 July, 1960	N,E,Z		Seismic activity observed between the hours of 13:11 and 15:30	
4 July, 1960	N,E		Seismic activity observed between the hours of 18:41 and 19:00	
4 July, 1960	N,E		Seismic activity observed between the hours of 21:52 and 22:40	
5 July, 1960	N,E		Seismic activity observed between the hours of 04:50 and 07:15	
6 July, 1960	N		Seismic activity observed between the hours of 05:40 and 06:10	
8 July, 1960	N,E		Seismic activity observed between the hours of 10:40 and 11:20	
9 July, 1960	N		Seismic activity observed between the hours of 01:48 and 02:05	
10 July, 1960	ePP e e	N,Z N N,Z	00:27:42 00:28:27 00:28:43	Epicenter 0°, 98°E Off west coast of Sumatra 0=00:05:18 Δ=15500 km



Date	Phase and component	G.M.C.T.	Remarks
10 July, 1960	eP eS	N,Z 13:45:52 N,E 13:50:40	Epicenter 12 1/2°N, 86°W Near coast of Nicaragua O=13:39:55 h=about 150 km. Δ=3250 km.
11 July, 1960		N,E	Seismic activity observed between the hours of 08:28 and 09:25
11 July, 1960		N,E	Seismic activity observed between the hours of 12:18 and 14:00
13 July, 1960		N,E,Z	Seismic activity observed between the hours of 07:41 and 10:22
13 July, 1960		N	Seismic activity observed between the hours of 13:21 and 14:10
13 July, 1960		N,E	Seismic activity observed between the hours of 16:30 and 17:10
13 July, 1960		N,E	Seismic activity observed between the hours of 18:35 and 19:34
14 July, 1960	eP' ePP e ePKS	Z 10:46:11 N,Z 10:48:19 N,Z 10:49:26 Z 10:50:15	Epicenter 5°N, 127 1/2°E Molucca Passage O=10:26:58 Δ=14400 km.

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Date	Phase and component	G.M.C.T.	Remarks
16 July, 1960	N,E		Seismic activity observed between the hours of 21:45 and 22:10
16 July, 1960	N,E		Seismic activity observed between the hours of 22:29 and 23:00
17 July, 1960	N,E		Seismic activity observed between the hours of 06:09 and 06:33
18 July, 1960	N,E		Seismic activity observed between the hours of 02:15 and 03:30
19 July, 1960	N,E		Seismic activity observed between the hours of 02:52 and 03:22
19 July, 1960	N		Seismic activity observed between the hours of 04:35 and 04:59
19 July, 1960 e	N,Z	16:09:52	Epicenter 16 1/2°N, 92 1/2°W Chiapas, Mexico 0=16:03:18 h=about 200 km. Δ=3050 km.
20 July, 1960 1P eS	N,Z E	09:42:41 09:52:30	Epicenter 49°N, 157 1/2°E Kurile Islands region 0=09:30:38 Δ=8700 km.
20 July, 1960	N,E		Seismic activity observed between the hours of 21:28 and 23:35

Date	Phase and component	G.M.C.T.	Remarks
21 July, 1960	N,E		Seismic activity observed between the hours of 09:08 and 09:18
24 July, 1960	eP eS	Z 10:00:09 E 10:09:14	Epicenter 56°N, 164°E Near coast of Kamchatka O=09:48:56 Δ=7800 km.
25 July, 1960	eP e iS i	N,Z 03:52:35 N,Z 03:53:21 N,E 04:01:35 N,E 04:02:29	Epicenter 55°N, 163°E Near coast of Kamchatka O=03:41:05 Δ=7950 km.
25 July, 1960	iP iS i e eSS	N,E,Z 11:23:29 N,E 11:32:48 N,E 11:33:24 E 11:34:26 E 11:37:43	Epicenter 54°N, 159°E Kamchatka O=11:12:00 h=about 100 km. Δ=8200 km.
27 July, 1960	iP	N,Z 10:17:31	Epicenter 44.7°S, 75.1°W Near coast of southern Chile O=10:04:53.0 h=about 25 km. Δ=9460 km.
27 July, 1960		N,E	Seismic activity observed between the hours of 18:31 and 19:35
29 July, 1960	ePP	E,Z 00:44:20	Epicenter 19 1/2°S, 170 1/2°E Loyalty Islands O=00:24:06 Δ=13300 km.
29 July, 1960		N,E	Seismic activity observed between the hours of 15:29 and 15:55

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Date	Phase and component	G.M.C.T.	Remarks
29 July, 1960	eP	N,Z	Epicenter 40.1°N, 142.3°E Honshu, Japan O=17:31:39.5 h=about 50 km. Δ=10180 km.
	ePP	N,E,Z	
	esPP	N,E,Z	
	iS	N,E	
	i	N,E	
30 July, 1960		N	Seismic activity observed between the hours of 02:15 and 02:45
30 July, 1960		N,E	Seismic activity observed between the hours of 14:33 and 15:18
31 July, 1960	eP'	Z	Epicenter 5.6°S, 150.0°E New Britain O=02:55:46.2 h=about 25 km. Δ=13860 km.
	ePP	N,E	
31 July, 1960		N,E	Seismic activity observed between the hours of 08:00 and 09:13
31 July, 1960	eP	Z	Epicenter 43.6°S, 74.3°W Near coast of central Chile O=14:55:03.3 h=about 9.7 km. Δ=9350 km.
	eS	N	
2 Aug., 1960		N,E	Seismic activity observed between the hours of 05:34 and 07:05
2 Aug., 1960		N,E	Seismic activity observed between the hours of 10:23 and 11:23

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Date	Phase and component	G.M.C.T.	Remarks
2 Aug., 1960	N,E		Seismic activity observed between the hours of 14:01 and 14:45
2 Aug., 1960	N,E		Seismic activity observed between the hours of 21:14 and 21:35
4 Aug., 1960	eP eS	N,Z 07:45:40 N,E 07:54:27	Epicenter 51.4°N, 179.1°E Rat Is., Aleutian Islands O=07:34:53.8 h=about 83 km. Δ=7380 km.
5 Aug., 1960	N,E		Seismic activity observed between the hours of 09:05 and 09:18
5 Aug., 1960	N,E		Seismic activity observed between the hours of 22:48 and 00:45, 6 Aug., 1960
9 Aug., 1960	eP eS	N,Z 06:20:22 N 06:28:50	Epicenter 21.2°S 71.6°W Off coast of Chile O=06:10:11.0 h=about 104 km. Δ=6870 km.
9 Aug., 1960	iP iS	N,Z 07:46:38 N 07:52:11	Epicenter 40.0°N, 126.6°W Off coast of northern Calif. O=07:39:22.6 h=about 25 km. Δ=4080 km.
9 Aug., 1960	N,E		Seismic activity observed between the hours of 17:13 and 19:20



Date	Phase and component	G.M.C.T.	Remarks
10 Aug., 1960	N,E		Seismic activity observed between the hours of 00:11 and 01:20
12 Aug., 1960	N		Seismic activity observed between the hours of 00:09 and 00:22
12 Aug., 1960	N		Seismic activity observed between the hours of 14:00 and 14:40
12 Aug., 1960	N,E		Seismic activity observed between the hours of 16:45 and 16:52
13 Aug., 1960	1P Z 1pP N,Z esP N,Z eSKS? N es N	07:24:07 07:24:21 07:24:42 07:34:34 07:35:04	Epicenter 40.6°N, 142.0°E Near coast of Honshu, Japan O=07:11:05.5 h=about 60 km. Δ=10140 km.
13 Aug., 1960	1P N,Z 1 N,Z es N	14:27:05 14:27:08 14:37:03	Epicenter 39.7°S, 74.8°W Near coast of Chile O=14:14:57.7 h=about 61 km. Δ=8910 km.
15 Aug., 1960	N,E		Seismic activity observed between the hours of 06:06 and 06:55
17 Aug., 1960	N		Seismic activity observed between the hours of 11:47 and 12:20
19 Aug., 1960	N		Seismic activity observed between the hours of 04:26 and 04:37

- 30 -

Date	Phase and component	G.M.C.T.	Remarks
20 Aug., 1960	N		Seismic activity observed between the hours of 00:30 and 01:00
20 Aug., 1960	N,E		Seismic activity observed between the hours of 20:24 and 22:00
21 Aug., 1960	N		Seismic activity observed between the hours of 18:08 and 18:30
23 Aug., 1960	N,E		Seismic activity observed between the hours of 23:25 and 00:30, 24 Aug., 1960
24 Aug., 1960	N,E		Seismic activity observed between the hours of 02:05 and 03:30
24 Aug., 1960	N,E		Seismic activity observed between the hours of 06:38 and 07:20
25 Aug., 1960	N,E		Seismic activity observed between the hours of 18:00 and 19:50
28 Aug., 1960	N,E		Seismic activity observed between the hours of 06:12 and 07:10

Date	Phase and component	G.M.C.T.	Remarks
28 Aug., 1960	N		Seismic activity observed between the hours of 19:10 and 19:40
29 Aug., 1960	N		Seismic activity observed between the hours of 05:07 and 05:30
30 Aug., 1960 eS	N	07:05:40	Epicenter 20.9°S, 113.7°W South Pacific Ocean, about 500 miles northwest of Easter Island O=06:45:16.4 h=about 40 km. Δ=7760 km.
31 Aug., 1960	N		Seismic activity observed between the hours of 07:51 and 08:06
1 Sept., 1960	N		Seismic activity observed between the hours of 08:26 and 09:18
1 Sept., 1960	N,E		Seismic activity observed between the hours of 09:54 and 13:15
1 Sept., 1960	eP i i e eS	N,Z N,Z N,Z N,Z N,E	15:46:09 15:46:18 15:48:16 15:49:38 15:53:20
			Epicenter 56.1°N, 153.7°W Kodiak Island, Alaska O=15:37:14.4 h=about 24 km. Δ=5540 km.

Date	Phase and component	G.M.C.T.	Remarks	
1 Sept., 1960	N, E		Seismic activity observed between the hours of 20:45 and 21:25	
2 Sept., 1960	eP eS iScS	N, Z N, E N	22:13:02 22:21:19 22:22:47	Epicenter 52.0°N, 171.4°W Fox Is. Aleutian Islands O=22:02:48.9 h=about 49 km. Δ=6800 km.
3 Sept., 1960	eP'	Z	12:59:41	Epicenter 6.1°S, 154.5°E Solomon Islands O=12:41:34.9 h=about 457 km. Δ=13550 km.
4 Sept., 1960	N, E		Seismic activity observed between the hours of 00:09 and 01:40	
4 Sept., 1960	N, E		Seismic activity observed between the hours of 05:41 and 06:20	
7 Sept., 1960	N		Seismic activity observed between the hours of 01:41 and 02:40	
9 Sept., 1960	N		Seismic activity observed between the hours of 16:41 and 17:40	
10 Sept., 1960	epP'	N, Z	11:05:31	Epicenter 4.0°N, 122.6°E Celebes Sea O=10:44:51.2 h=about 629 km. Δ=14630 km.

699

Date	Phase and component	G.M.C.T.	Remarks
14 Sept., 1960	iP eS N,Z N,E,Z	01:58:21 02:02:21	Epicenter 19.6°N, 70.3°W Dominican Republic 0=01:53:32.1 h=about 103 km. Δ=2460 km.
14 Sept., 1960	N,E		Seismic activity observed between the hours of 05:19 and 06:00
15 Sept., 1960	N,E		Seismic activity observed between the hours of 00:16 and 00:40
17 Sept., 1960	iP eS i N,Z N,E N	08:04:53 08:14:45 08:15:07	Epicenter 49.3°N, 155.4°E Kurile Islands 0=07:52:50.8 h=about 35 km. Δ=8750 km.
17 Sept., 1960	iP e iPP eS i N,E,Z Z N,Z N,E N	08:17:31 08:17:55 08:20:31 08:27:24 08:27:45	Epicenter 49.9°N, 155.2°E Kurile Islands 0=08:05:29.5 h=about 28 km. Δ=8750 km.
17 Sept., 1960	N,E		Seismic activity observed between the hours of 20:23 and 21:55
18 Sept., 1960	N,E		Seismic activity observed between the hours of 10:03 and 10:37
19 Sept., 1960	ePP N,Z	04:00:04	Epicenter 15.6°N, 120.0°E Luzon Island 0=03:39:40.9 h=about 97 km. Δ=13500 km.

Date	Phase and component	G.M.C.T.	Remarks
19 Sept., 1960	1P eS	N,Z N,E 19:08:09 19:13:30	Epicenter 6.9°N, 77.5°W Colombia- Panama border O=19:01:25.4 h=about 66 km. Δ=3750 km.
20 Sept., 1960		N,E	Seismic activity observed between the hours of 04:27 and 05:00
20 Sept., 1960		N,E	Seismic activity observed between the hours of 09:36 and 10:00
22 Sept., 1960		N,E	Seismic activity observed between the hours of 06:03 and 07:25
22 Sept., 1960		N,E,Z	Seismic activity observed between the hours of 09:30 and 12:20
22 Sept., 1960		N,E	Seismic activity observed between the hours of 23:18 and 23:28
24 Sept., 1960		N,E	Seismic activity observed between the hours of 00:51 and 01:28
26 Sept., 1960		N,E	Seismic activity observed between the hours of 15:30 and 17:08
27 Sept., 1960		N,E	Seismic activity observed between the hours of 17:18 and 17:44

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699

Date	Phase and component	G.M.C.T.	Remarks
28 Sept., 1960	N,E		Seismic activity observed between the hours of 23:14 and 23:35
29 Sept., 1960	iPP Z	11:37:06	Epicenter 18.9°N, 144.7°E Mariana Islands O=11:18:52.9 h=about 469 km. Δ=12070 km.
	iSKS N,E	11:42:29	
	e N,E	11:43:22	
	-S N,E	11:44:02	
	e N,E,Z	11:45:32	
	iSP N,Z	11:45:47	
e N,E,Z	11:46:54		
29 Sept., 1960	iS N,E,Z	19:05:15	Epicenter 14.9°N, 90.3°W Guatemala O=18:54:23.0 h=about 56 km. Δ=3110 km.
30 Sept., 1960	N,E		Seismic activity observed between the hours of 03:40 and 03:50
30 Sept., 1960	N,E,Z		Seismic activity observed between the hours of 06:41 and 08:45
1 Oct., 1960	iP N,E,Z	16:21:14	Epicenter 52.2°N, 172.6°W Fox Islands Aleutian Islands O=16:10:56.9 h=about 41 km. Δ=6860 km.
	ipP N,E,Z	16:21:24	
	eS N	16:29:38	
2 Oct., 1960	N,E		Seismic activity observed between the hours of 12:15 and 13:15

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Date	Phase and component	G.M.C.T.	Remarks
4 Oct., 1960	N,E		Seismic activity observed between the hours of 10:53 and 11:25
6 Oct., 1960	eP eS	N,Z 20:02:27 N,E 20:07:50	Epicenter 58.2°N, 31.6°W North Atlantic Ocean 0=19:55:42.2 h=about 63 km. Δ=3770 km.
7 Oct., 1960	N,E		Seismic activity observed between the hours of 03:21 and 04:30
7 Oct., 1960	eP e iPP i -	N,E 15:38:02 N,E 15:38:18 N,E 15:40:49 N,E 15:41:31 E 15:41:58	Epicenter 7.4°S, 130.7°E Banda Sea 0=15:18:30.8 h=about 45 km. Δ=15350 km.
7 Oct., 1960	eS	N 20:21:36	Epicenter 20.4°S, 113.7°W Easter Island 0=20:01:32.6 h=about 203 km. Δ=7710 km.
8 Oct., 1960	iP	N,Z 01:57:53	Epicenter 16.7°N, 97.9°W Oaxaca, Mexico 0=01:51:51.2 h=about 74 km. Δ=3290 km.
8 Oct., 1960	iP iPP eSKS iS eSP esS -sSP or sPS eSS	N,Z 06:05:29 N,Z 06:09:34 N,E,Z 06:15:01 N,E 06:15:52 N,Z 06:17:13 E 06:19:52 N 06:20:57 N,E 06:22:43	Epicenter 40.0°N, 129.7°E Sea of Japan 0=05:53:01.1 h=about 608 km. Δ=10640 km.



Date	Phase and component	G.M.C.T.	Remarks
9 Oct., 1960	eP	Z 09:13:36	Epicenter 40.8°N, 141.2°E Near coast of northern Honshu, Japan. O=09:00:42.0 h=about 155 km. Δ=10150 km.
	eS	N,E 09:24:27	
	epS	E 09:25:02	
	esS	N,E 09:25:28	
11 Oct., 1960	iP	E,Z 08:10:37	Epicenter 38.1°N, 107.6°W Western Colorado O=08:05:30.5 h=about 49 km. Δ=2530 km.
	eS	N,E 08:14:53	
13 Oct., 1960	-P	N,E,Z 15:03:59	Epicenter 54.8°N, 161.2°E Kamchatka O=14:52:34.2 h=about 35 km. Δ=8030 km.
	ipP	N,E,Z 15:04:12	
	esP	N,Z 15:04:26	
	iS	N,E 15:13:17	
	isS	N,E 15:13:35	
14 Oct., 1960	N,E,Z		Seismic activity observed between the hours of 13:28 and 14:00
14 Oct., 1960	iP	N,E 21:29:30	Epicenter 51.7°N, 172.1°W Fox Islands, Aleutian Islands O=21:19:11.4 h=about 50 km. Δ=6860 km.
	iS	N,E 21:37:51	
16 Oct., 1960	N,E		Seismic activity observed between the hours of 09:46 and 10:28
22 Oct., 1960	N,E		Seismic activity observed between the hours of 08:52 and 10:00
23 Oct., 1960	N,E		Seismic activity observed between the hours of 06:47 and 07:12

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Date	Phase and component	G.M.C.T.	Remarks
27 Oct., 1960	N,E		Seismic activity observed between the hours of 05:42 and 05:52
28 Oct., 1960	eP i Z N,Z	04:27:01 04:27:06	Epicenter 71.3°N, 8.6°W Jan Mayen Island O=04:18:41.9 h=about 48 km. Δ=5040 km.
28 Oct., 1960	iP i ipP iS ipS Z N,Z Z N,E N,E	13:29:54 13:29:56 13:30:21 13:39:24 13:39:56	Epicenter 52.0°N, 157.4°E Kamchatka O=13:18:14.3 h=about 96 km. Δ=8430 km.
28 Oct., 1960	N,E		Seismic activity observed between the hours of 23:15 and 23:50
29 Oct., 1960	N,E		Seismic activity observed between the hours of 04:30 and 04:50
30 Oct., 1960	iP ipP i iS eScS N,Z N,Z Z N,E N,E	12:25:09 12:25:19 12:26:27 12:33:45 12:35:01	Epicenter 23.3°S, 70.3°W Near coast of Chile O=12:14:36.1 h=about 76 km. Δ=7130 km.
30 Oct., 1960	eP i iS ē N,Z N,Z N,E N,E	21:43:19 21:43:44 21:51:48 21:52:32	Epicenter 22.8°S, 68.0°W Chile-Bolivia border O=21:32:47.7 h=about 60 km. Δ=7100 km.
31 Oct., 1960	N,E		Seismic activity observed between the hours of 07:20 and 07:31

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Date	Phase and component	G.M.C.T.	Remarks
1 Nov., 1960	iP	N,Z 08:57:59	Epicenter 38.4°S 74.4°W Near coast of Chile 0=08:46:01.9 h=about 97 km. Δ=8760 km.
	ePP	N,Z 09:01:10	
	iScS	N,E 09:07:58	
	esS	E 09:08:24	
2 Nov., 1960		N,E	Seismic activity observed between the hours of 17:35 and 20:00
3 Nov., 1960		N,E	Seismic activity observed between the hours of 03:40 and 03:55
5 Nov., 1960		N,E	Seismic activity observed between the hours of 20:50 and 21:10
6 Nov., 1960	iP eS	Z 04:49:55	Epicenter 53.0°N, 159.8°E Near east coast of Kamchatka 0=04:38:16.7 h=about 32 km. Δ=8250 km.
		E 04:59:22	
6 Nov., 1960		N,E	Seismic activity observed between the hours of 06:55 and 08:10
6 Nov., 1960	iP	Z 22:20:06	Epicenter 52.7°N, 168.0°W Fox Is., Aleutian Islands 0=22:10:06.4 h=about 42 km. Δ=6550 km.
8 Nov., 1960		N,E	Seismic activity observed between the hours of 11:55 and 12:35

Date	Phase and component	G.M.C.T.	Remarks
9 Nov., 1960	N,E		Seismic activity observed between the hours of 03:43 and 05:45
9 Nov., 1960	N,E		Seismic activity observed between the hours of 11:33 and 12:40
9 Nov., 1960 eS	N,E	20:25:29	Epicenter 23.2°S, 70.6°W Near coast of Chile O=20:06:16.2 h=about 52 km. Δ=7120 km.
10 Nov., 1960	N,E		Seismic activity observed between the hours of 05:43 and 06:20
10 Nov., 1960	iPP i e	Z 15:06:04 N,Z 15:06:35 N,E 15:07:17	Epicenter 2.6°S, 139.4°E Near coast of New Guinea O=14:44:47.3 h=about 25 km. Δ=14360 km.
13 Nov., 1960	eSKP?	Z 06:59:32	Epicenter 1.4°N, 127.2°E Molucca Passage O=06:37:05.7 h=about 59 km. Δ=14750 km.
13 Nov., 1960	iP iPP eS	N,E,Z 09:30:42 N,E,Z 09:32:55 E 09:38:51	Epicenter 51.1°N, 168.8°W Fox Is., Aleutian Islands O=09:20:36.8 h=about 65 km. Δ=6690 km.
14 Nov., 1960	N,E,Z		Seismic activity observed between 20:06 and 21:10

Date	Phase and component	G.M.C.T.	Remarks	
15 Nov., 1960	N,E		Seismic activity observed between the hours of 07:25 and 08:08	
16 Nov., 1960	N,E		Seismic activity observed between the hours of 15:50 and 16:20	
20 Nov., 1960	iP i i eS	N,Z N,Z N,Z E	22:10:30 22:10:41 22:11:17 22:17:22	Epicenter 6.8°S, 80.7°W Near coast of Peru O=22:01:59.9 h=about 93 km. Δ=5270 km.
22 Nov., 1960		N,E		Seismic activity observed between the hours of 04:00 and 05:00
22 Nov., 1960	eP iPcP eSKS	N,Z N,Z N,E	12:41:03 12:41:07 12:51:11	Epicenter 40.0°S, 74.3°W Near coast of southern Chile O=12:28:58.4 h=about 107 km. Δ=8940 km.
23 Nov., 1960	ePP	Z	14:31:54	Epicenter 24.2°S, 176.1°W South of Tonga Islands region O=14:12:21.1 h=about 28 km. Δ=12380 km.
24 Nov., 1960	iPP ePS	Z E	07:12:01 07:21:25	Epicenter 24.2°S, 176.1°W South of Tonga Is. region O=06:52:41.1 h=about 23 km. Δ=12380 km.
25 Nov., 1960	eSKS eS	N,E N,E	22:17:42 22:18:23	Epicenter 38.0°N, 140.5°E. Honshu, Japan O=21:54:13.8 h=about 157 km. Δ=10450 km.

Date	Phase and component	G.M.C.T.	Remarks
1 Dec., 1960	N,E		Seismic activity observed between the hours of 11:44 and 12:11
1 Dec., 1960	eP ePP eS	N,Z 20:57:11 Z 20:58:18 N,E 21:02:49	Epicenter 48.8°N, 129.3°W Off coast of Vancouver Island O=20:49:45.5 h=about 15 km. Δ=4080 km.
2 Dec., 1960	iP eS	N,Z 09:21:31 N,E 09:30:10	Epicenter 24.5°S, 69.9°W Near coast of Chile O=09:10:41.0 h=about 37 km. Δ=7260 km.
2 Dec., 1960	iP	E,Z 09:48:19	Epicenter 24.3°S, 69.8°W Near coast of Chile O=09:37:38.6 h=about 64 km. Δ=7250 km.
3 Dec., 1960	eP iPP	Z 04:37:40 Z 04:41:40	Epicenter 42.8°N, 104.5°E Outer Mongolia O=04:24:17.5 h=about 45 km. Δ=10740 km.
6 Dec., 1960	iP	N,Z 09:02:42	Epicenter 8.5°N, 82.7°W Near coast of Panama O=08:56:16.5 h=about 116 km. Δ=3600 km.
6 Dec., 1960	iP i -S iP'P' -P'P'	N,Z 09:06:34 N,Z 09:06:46 N,Z 09:14:59 Z 09:35:45 Z 09:35:59	Epicenter 21.4°S, 69.0°W Northern Chile O=08:56:07.6 h=about 25 km. Δ=6930 km.
11 Dec., 1960		N,E	Seismic activity observed between the hours of 19:19 and 20:30

Date	Phase and component	G.M.C.T.	Remarks
13 Dec., 1960	N,E		Seismic activity observed between the hours of 07:59 and 10:30
14 Dec., 1960	N,E		Seismic activity observed between the hours of 01:27 and 02:44
15 Dec., 1960	eP' Z iPP Z epPP Z iSKP N,Z i Z	00:10:38 00:12:55 00:13:21 00:13:49 00:15:04	Epicenter 2.9°N, 126.5°E Molucca Passage 0=23:51:28.6, 14 Dec. h=about 77 km. Δ=14570 km.
17 Dec., 1960	iP' N,Z ipP' N,Z	10:56:21 10:57:29	Epicenter 6.4°S, 109.3°E Java Sea 0=10:37:14.1 h=about 295 km. Δ=16130 km.
26 Dec., 1960	N,E		Seismic activity observed between the hours of 01:50 and 02:10
27 Dec., 1960	iP N,E,Z i N,Z	10:42:22 10:42:31	Epicenter 41.3°N, 124.9°W Off coast of northern Calif. 0=10:35:28.0 h=about 30 km. Δ,3900 km.
29 Dec., 1960	iP Z iS N e E	10:49:19 10:59:45 10:59:51	Epicenter 44.8°S, 75.6°W Near coast of southern Chile 0=10:36:40.0 h=about 30 km. Δ=9470 km.
31 Dec., 1960	iP N,Z eSKS E	18:20:37 18:31:10	Epicenter 43.9°S, 75.0°W Near coast of southern Chile 0=18:08:12.3 h=about 92 km. Δ=9370 km.

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