

# Bulletin of the Seismographic Stations

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BERKELEY—MOUNT HAMILTON—PALO ALTO  
SAN FRANCISCO—FERNDALE—FRESNO  
MINERAL—ARCATA—RENO—CORVALLIS—SHASTA  
MANZANITA LAKE—VINEYARD—RUTH

Earthquakes and the Registration of Earthquakes

From January 1, 1960 to March 31, 1960

BY

ALAN RYALL  
GEORGE MITCHELL  
MICHAEL BLACKFORD

UNIVERSITY OF CALIFORNIA PRESS  
BERKELEY AND LOS ANGELES  
1963



SEISMOGRAPHIC STATIONS OF THE UNIVERSITY OF CALIFORNIA

Perry Byerly, Director

EARTHQUAKES IN NORTHERN CALIFORNIA, NEVADA, AND OREGON

and

REGISTRATION OF EARTHQUAKES AT: BERKELEY, MOUNT HAMILTON,  
PALO ALTO, SAN FRANCISCO, FERNDALE, FRESNO, MINERAL, ARCATA,  
RENO, CORVALLIS, SHASTA, MANZANITA LAKE, VINEYARD, AND RUTH

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The list following this page gives the latitude and longitude of the epicenters for earthquakes which were well enough recorded to permit such a determination.

Map No. for each epicenter corresponds to a number plotted on the map which follows the list of epicenters.

Date and Origin Time are given in Greenwich Civil Time. Subtract eight (8) hours to convert to Pacific Standard Time (P.S.T.). This will change the date for some of the earthquakes.

M is the Richter Magnitude of the earthquakes as determined from the maximum trace amplitudes recorded for the shock by the standard Wood-Anderson Torsion Seismographs. In routine practice, the nomogram given by Nordquist in the "Bulletin of the Seismological Society of America," 32:164, is used for magnitude determinations.

Q indicates the excellence with which the epicenter has been located; "a" indicates excellent, "b" good, "c" fair, and "d" poor. Under Remarks will be found a short descriptive location of each epicenter, usually with reference to a point named on the map. Information on small foreshocks and aftershocks is sometimes included in the Remarks. When numerous foreshocks or aftershocks accompany a large earthquake, a separate table is generally included following the main list of local shocks, giving origin times, Richter Magnitudes, and, where significant differences in location can be determined, the geographic coordinates. The larger earthquakes of after-shock series are also included in the main list of local shocks.

Information on the intensities of shocks reported felt is also included under Remarks. Reports on felt earthquakes are chiefly those collected by the Seismological Field Survey of the United States Coast and Geodetic Survey, which publishes a more complete summary of such reports in "Abstracts of Earthquake Reports for the Pacific Coast and Western Mountain Region." This is a quarterly publication, and may be obtained from the District Officer, San Francisco District, Coast and Geodetic Survey, 121 Customhouse, San Francisco 26, California, or from the Director, U. S. Coast and Geodetic Survey, Washington 25, D.C.

Intensities are given by Roman numerals when sufficient information on the effects of the shock is available. These intensity numbers assigned by the Coast and Geodetic Survey are based on the Modified Mercalli Intensity Scale of 1931 (Harry O. Wood and Frank Neumann, "Bulletin of the Seismological Society of America," 21:277-283, 1931), the criteria of which follow in an abridged form.



MODIFIED MERCALLI INTENSITY SCALE OF 1931

(Abridged)

- I. Not felt except by a very few under especially favorable circumstances.
- II. Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.
- III. Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration like passing truck. Duration estimated.
- IV. During the day felt indoors by many, outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls made creaking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
- V. Felt by nearly everyone; many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.
- VI. Felt by all; many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.
- VII. Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.
- VIII. Damage slight in specially designed structures; considerable in ordinary substantial buildings with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Disturbed persons driving motor cars.
- IX. Damage considerable in specially designed structures; well designed frame structures thrown out of plumb; great in substantial buildings with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.
- X. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.
- XI. Few, if any (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipe lines completely out of service. Earth slips and land slips in soft ground. Rails bent greatly.
- XII. Damage total. Waves seen on ground surfaces. Lines of sight and level distorted. Objects thrown upward into the air.

EARTHQUAKES IN NORTHERN CALIFORNIA, NEVADA, AND OREGON

Map No.	Date 1960	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
1	Jan. 2	12-16-11	37° 07'	121° 56'	b	3.4	Northeast of Santa Cruz. h = 10 km.
2	Jan. 4	04-28-02	36.9°	121.6°	d	2.0	Southeast of Santa Cruz.
3	Jan. 4	12-18-20	36.2°	120.7°	d	3.2	West of Coalinga.
4	Jan. 7	01-25-09	37° 10'	122° 00'	b	2.3	North of Santa Cruz. h = 10 km.
5	Jan. 7	05-19-26	37.0°	121.5°	d	2.0	East of Santa Cruz.
6	Jan. 7	06-12-05	37.2°	121.8°	d	2.4	Southwest of Mt. Hamilton.
7	Jan. 12	06-25-33	36° 55'	121° 45'	b	3.4	Southeast of Santa Cruz. Felt 3.7 miles north of Aptos, IV. Motion rapid, lasted 2 seconds. Direction northeast. Awakened observer in weakly built mountain cabin (on piers and posts). Door rattled and swung north. Ground: soil, compact, steep.
8	Jan. 13	08-43-38	36° 53'	121° 30'	c	2.3	Southeast of Santa Cruz.
9	Jan. 15	16-23-22	37° 47'	122° 08'	a	2.2	Southeast of Berkeley. h = 20 km.
9	Jan. 15	19-30-06	37° 47'	122° 08'	a	2.6	Aftershock of 1623. h = 20 km.
10	Jan. 16	06-47-55	39.8°	117.6°	d	3.8	Northeast of Fallon, Nevada.
10	Jan. 16	08-19-27	39.8°	117.6°	d	3.6	Aftershock of 0647.
11	Jan. 16	11-50-12	39° 35'	118° 11'	c	3.9	East of Fallon, Nevada.
12	Jan. 16	22-57-14	40.2°	117.9°	d	3.9	East of Lovelock, Nevada.
13	Jan. 17	18-54-58	37.7°	122.8°	d	2.0	West of San Francisco. Felt in San Bruno (Skyline and San Bruno Avenue). Very slight rolling motion.
14	Jan. 20	03-25-53	36° 47'	121° 26'	b	5.0	South of Hollister. Felt over an area of approximately 7,500 square miles of west-central coastal areas of California. Maximum intensity (damage) VI. Minor damage occurred at the W. A. Taylor Winery, about 7 miles south of Hollister on Cienega Road: underground pipeline broken; several 20-foot-long hairline cracks in asphalt pavement; small portions of ceiling fell; chimney cracked



Map No.	Date 1960	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
							at roof line. At the Howard Harris Ranch in the same area walls cracked and reservoir crack enlarged.
							Intensity VI at W. A. Taylor Winery, 7 miles south of Hollister; Harris Ranch 7½ miles south of Hollister; Hollister and Paicines.
14	Jan. 20	03-47-51	36° 47'	121° 26'	b	3.6	Aftershock of 0325. Felt.
15	Jan. 20	13-12-40	36° 50'	121° 28'	c	2.7	Aftershock of 0325. Felt.
16	Jan. 21	14-29-56	38° 28'	117° 53'	c	4.2	East of Hawthorne, Nevada. h = 10 km.
16	Jan. 21	15-27-21	38° 28'	117° 53'	c	4.1	Aftershock of 1429.
17	Jan. 22	22-01-18	36° 47'	121° 20'	c	2.6	Southeast of Hollister. Felt Harris Ranch, 7½ miles south of Hollister, IV. Motion slow. Lasted 20 seconds. Direction northeast. Felt by all in home. Windows and doors rattled; house creaked. Ground: soil, level.
18	Jan. 24	18-35-27	36.7°	121.3°	d	2.1	Southeast of Vineyard.
19	Jan. 24	23-49-47	40° 27'	121° 03'	c	3.0	East of Mineral.
15	Jan. 25	05-52-45	36.8°	121.5°	d	2.8	Northwest of Hollister.
20	Jan. 26	05-52-23	37° 21'	121° 39'	b	3.3	At Mt. Hamilton.
21	Jan. 26	13-57-51	37° 47'	121° 31'	b	2.5	Northeast of Livermore. h = 10 km.
18	Jan. 26	14-44-34	36° 43'	121° 18'	c	3.2	Near Vineyard. Felt at Harris Ranch, IV. Very brief. Felt by several and awakened few in home. Windows rattled; walls creaked. Ground: soil, loose, level.
21	Jan. 26	14-48-49	37° 47'	121° 31'	c	2.5	Aftershock of 1357.
22	Jan. 27	00-10-37	41° 54'	125° 40'	c	4.4	Off coast of northern California.
23	Jan. 27	20-50-57	36.7°	121.2°	d	2.6	Southeast of Vineyard.
24	Jan. 30	00-49-24	37.3°	121.7°	d	2.6	Near Mt. Hamilton.
25	Feb. 1	11-08-18	36.8°	121.7°	d	2.9	Southeast of Santa Cruz.
15	Feb. 3	08-51-42	36° 49'	121° 28'	c	2.8	Near Hollister.
26	Feb. 4	08-49-48	40° 24'	123° 40'	b	3.4	Southeast of Ferndale.
27	Feb. 6	09-41-14	36° 49'	121° 33'	c	3.4	West of Hollister.

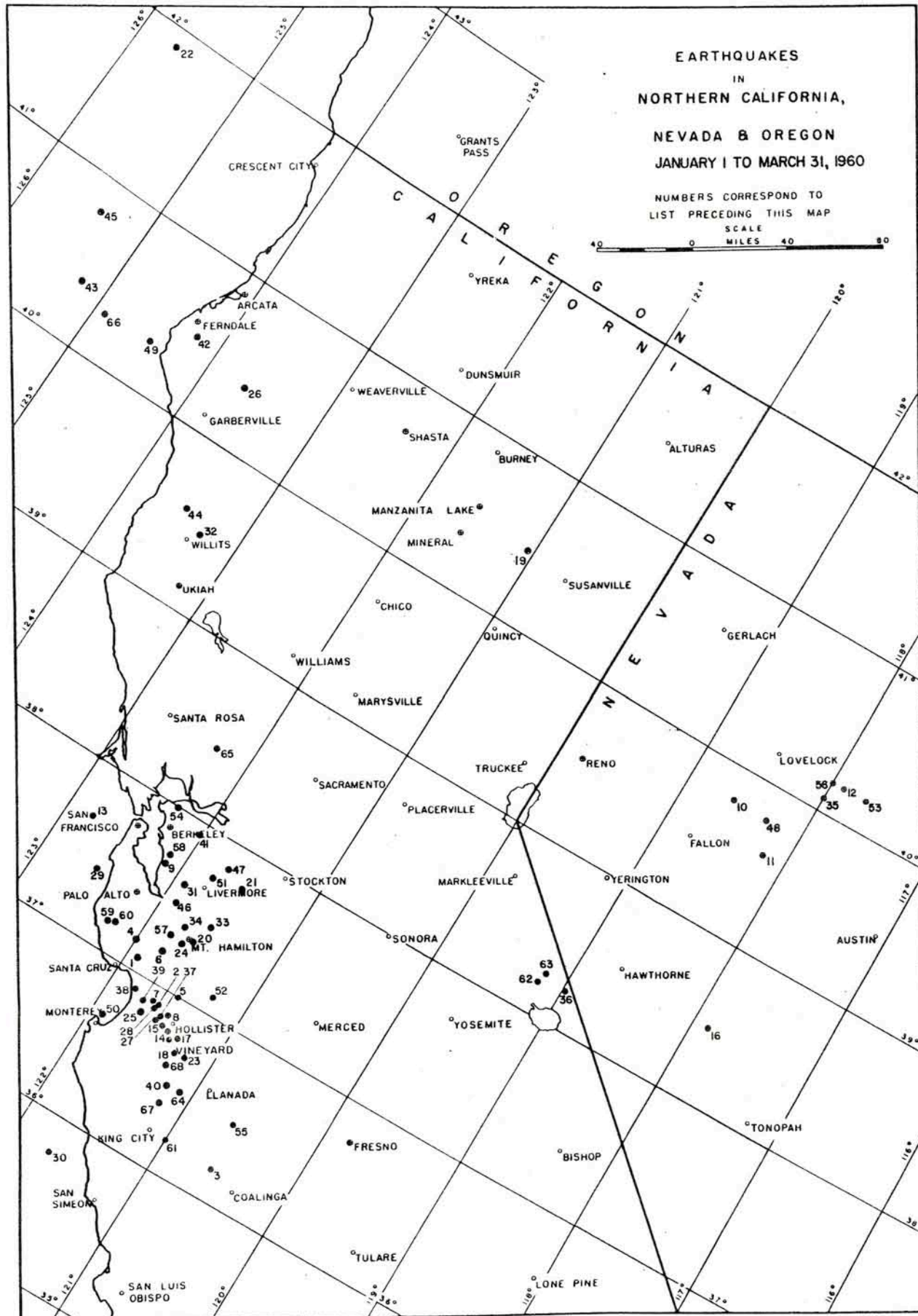
Map No.	Date 1960	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
28	Feb. 13	17-16-49	36° 51'	121° 32'	c	3.7	West of Hollister. Felt Moss Landing and Salinas Power plants (P.G.&E.).
29	Feb. 13	18-16-34	37° 25'	122° 33'	c	1.9	West of Palo Alto.
30	Feb. 14	08-34-30	35.8°	121.7°	d	2.8	West of San Simeon.
31	Feb. 14	15-21-51	38° 49'	121° 56'	c	2.1	West of Livermore.
32	Feb. 15	19-03-56	39.5°	123.3°	d	2.9	Northeast of Willits. Felt at Willits and Potter Valley power plants.
15	Feb. 16	16-54-33	36.8°	121.5°	d	2.8	Southwest of Hollister.
33	Feb. 17	08-10-44	37° 29'	121° 35'	b	2.9	Northeast of Mt. Hamilton.
34	Feb. 19	16-33-17	37° 24'	121° 45'	b	3.3	Northwest of Mt. Hamilton.
15	Feb. 20	03-06-36	36° 47'	121° 30'	c	3.0	Southwest of Hollister. h = 10 km.
35	Feb. 22	21-34-37	40.1°	118.0°	d	3.4	East of Lovelock, Nevada.
14	Feb. 22	22-18-40	36.8°	121.4°	d	2.3	Near Hollister.
36	Feb. 23	09-52-08	38° 15'	118° 58'	c	2.9	Southwest of Hawthorne, Nevada.
37	Feb. 23	10-31-15	36° 52'	121° 37'	b	2.9	West of Hollister.
20	Feb. 24	10-04-25	37° 22'	121° 43'	c	1.8	Near Mt. Hamilton.
38	Feb. 24	17-37-53	36° 55'	121° 48'	b	2.6	East of Santa Cruz.
39	Feb. 24	23-44-57	36° 53'	121° 43'	b	2.8	West of Hollister. Felt at Harris Ranch. Small shock.
40	Feb. 25	06-34-31	36.5°	121.2°	d	2.7	Southwest of Llanada.
15	Feb. 26	05-07-53	36° 49'	121° 27'	c	2.8	Near Hollister.
41	Feb. 27	19-22-25	37° 56'	122° 01'	b	3.4	Northeast of Berkeley. Felt in San Francisco Bay area. Slight shocks (including aftershocks below), centering in the Walnut Creek area were reported felt in some East Bay communities. Also felt slightly at San Francisco. Some reports of broken dishes but no other damage. Not felt by person in car on road near Moraga nor by person working in yard at Canyon.
41	Feb. 27	19-23-15	37° 56'	122° 01'	b	2.7	Aftershock of 1922. Felt.
41	Feb. 27	19-27-12	37° 56'	122° 01'	b	2.7	Aftershock of 1922. Felt.
24	Feb. 29	07-45-31	37° 19'	121° 42'	a	2.4	Near Mt. Hamilton.



Map No.	Date 1960	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
42	Mar. 1	02-24-40	40.5°	124.2°	d	2.3	Southeast of Ferndale.
	Mar. 1	06-00-18	40° 22'	127° 30'	b	4.3	Off coast of northern California.
43	Mar. 2	08-29-08	40.4°	125.2°	d	3.0	Off Cape Mendocino.
25	Mar. 3	00-55-18	36° 49'	121° 40'	c	2.8	West of Hollister.
44	Mar. 3	17-06-11	39.6°	123.5°	d	3.0	Northwest of Willits.
45	Mar. 4	23-13-15	40.8°	125.4°	d	3.4	Off coast west of Arcata.
46	Mar. 5	10-57-28	37.5°	121.9°	d	1.6	Northwest of Mt. Hamilton.
47	Mar. 7	22-40-16	37° 51'	121° 42'	b	3.3	Southwest of Stockton.
48	Mar. 8	04-42-45	39.8°	118.3°	d	3.5	Northeast of Fallon, Nevada.
49	Mar. 10	23-46-18	40° 17'	124° 30'	b	3.4	Southwest of Ferndale.
50	Mar. 12	17-35-12	36° 40'	121° 55'	b	2.4	North of Monterey.
18	Mar. 14	07-05-23	36.7°	121.3°	d	2.5	Southeast of Vineyard.
51	Mar. 14	20-47-25	37° 45'	121° 46'	c	2.2	North of Livermore.
52	Mar. 16	23-44-32	37° 07'	121° 16'	c	2.5	Northeast of Hollister.
53	Mar. 18	04-28-44	40.2°	117.7°	d	3.5	East of Lovelock, Nevada.
54	Mar. 19	20-46-34	38° 00'	122° 16'	c	1.5	North of Berkeley.
55	Mar. 21	20-46-39	36° 30'	120° 44'	c	2.5	Southeast of Llanada.
38	Mar. 22	05-34-26	36.9°	121.8°	d	2.6	East of Santa Cruz.
56	Mar. 22	06-58-55	40.2°	118.0°	d	3.7	East of Lovelock, Nevada.
57	Mar. 22	16-34-08	37.3°	121.8°	d	2.2	Southwest of Mt. Hamilton.
58	Mar. 22	18-31-33	37° 44'	122° 08'	a	2.6	Southeast of Berkeley. Felt East Oakland and San Leandro. Mild shock. Oakland police reported they received about 50 calls.
59	Mar. 22	19-30-41	37° 11'	122° 15'	c	2.2	Southwest of Palo Alto.
58	Mar. 22	19-32-10	37° 44'	122° 08'	c	1.4	Aftershock of 1831.
60	Mar. 25	19-34-33	37.2°	122.2°	d	2.2	South of Palo Alto.
61	Mar. 26	21-39-21	36° 13'	121° 00'	c	2.7	East of King City.
62	Mar. 27	01-40-01	38° 13'	119° 12'	c	3.8	Foreshock of 0401, Mar. 29.
63	Mar. 29	03-31-12	38° 18'	119° 11'	c	4.0	Foreshock of 0401.
63	Mar. 29	04-01-57	38° 17'	119° 10'	c	4.2	Southwest of Hawthorne, Nevada.
64	Mar. 29	11-46-42	36° 30'	121° 06'	c	2.4	Southeast of Vineyard.
65	Mar. 31	01-35-08	38° 27'	122° 17'	b	2.3	East of Santa Rosa.

Map No.	Date 1960	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
66	Mar. 31	04-23-36	40.3°	124.9°	d	3.7	Offshore southwest of Ferndale.
67	Mar. 31	08-35-09	36.4°	121.2°	d	2.6	Southeast of Vineyard.
68	Mar. 31	09-06-02	36.6°	121.3°	d	2.6	Southeast of Vineyard.





THE REGISTRATION OF EARTHQUAKES

<u>Station</u>	<u>North Latitude</u>	<u>West Longitude</u>	<u>Altitude Meters</u>	<u>Station Symbol</u>	<u>Present Auspices and Date</u>
Berkeley	37° 52.4'	122° 15.6'	81	B, BG, BP*	University of California - 1887
Mt. Hamilton	37° 20.5'	121° 38.5'	1282	MH	Lick Observatory - 1887
Palo Alto	37° 25.0'	122° 10.9'	83	PA	Stanford University - 1927
San Francisco	37° 46.6'	122° 27.1'	100	SF	University of San Francisco - 1931
Ferndale	40° 34.6'	124° 15.7'	15	Fe	City of Ferndale - 1933
Fresno	36° 46.0'	119° 47.8'	88	F	Fresno City College - 1935
Mineral	40° 20.7'	121° 36.3'	1495	M	National Park Service - 1938
Arcata	40° 52.6'	124° 04.5'	59	A	Humboldt State College - 1948
Reno	39° 32.3'	119° 48.8'	1386	R	University of Nevada - 1948
Corvallis	44° 35.1'	123° 18.2'	123	C	Oregon State College - 1950
Shasta	40° 41.6'	122° 23.5'	312	SH	Bureau of Reclamation - 1942
Manzanita Lake	40° 32.2'	121° 33.7'	1800	ML	National Park Service - 1956
Vineyard	36° 45.0'	121° 23.1'	330	V	W. A. Taylor and Co. - 1959
Ruth	39° 14'	114° 59'	2270	Ru	University of California and California Institute of Technology - 1959

\*B denotes readings of short period instruments, BG and BP of long period instruments (12 sec. Galitzin-Wilip, and 30 sec. Press-Ewing).

Earthquakes in the Northern California, Nevada, and Oregon region are included in the following list only if of magnitude 4 or greater, or if of special interest. Times usually are not reported for PA, SF, Fe or ML unless of special interest or in case of defective records at other stations.

Measurement and interpretation of seismograms from all the above listed stations is done at Berkeley; requests for special data or for copies of seismograms should be addressed to Seismographic Station, University of California, Berkeley 4, California.



STATION EQUIPMENT

Type and Component

Short-period Benioff Z  
 Short-period Benioff N, E  
 Short-period Wood-Anderson N, E  
 Short-period Sprengnether N, E, Z  
 Short-period Marion-Slichter Z  
 Short-period Slichter N, E, Z  
 Short-period Wilson-Lamison Z  
 Long-period Galitzin-Wilip N, E, Z  
 25 kg Bosch-Omori, N, E  
 Loucks-Omori N, E  
 Short-period LOOX torsion N, E,  
 Long-period Press-Ewing N, E, Z  
 Short-period Lehner-Griffith Z

Station

B, MH, PA, M, SH  
 SH  
 B, MH, PA, SF, M, A, V  
 F, R  
 V  
 C  
 C  
 B  
 Fe  
 ML  
 B  
 B, Ru  
 SF

The three components are indicated by N, E, Z in the "phase" column of the following tabulation of readings. When no letter appears, the phase is read from the vertical component (Z) only. "i" (impetus) preceding a phase designates sudden beginning of the motion; "e" (emersio) designates gradual beginning.

In the column headed "Ground Motion", "c" or "d" indicates initial compression or dilatation of the ground as read from the vertical component instrument. N, S, E, or W indicates that the initial ground motion was north, south, east, or west, respectively.

Maximum amplitude of earth displacement in microns ( $\mu$ ) and periods in seconds (sec) of the indicated phases are given for the Berkeley station in the column headed "Time (GCT)." Combined horizontal amplitude of N and E components are designated by H.

Instrument Changes: On January 3 and 4, 1960 instrument changes were made at the seismographic stations at Ruth, Nevada. Recording by the Benioff EW component seismometer originally installed on October 4, 1959 was discontinued on January 3, 1960. The next day, three components (N, E, Z) of Press-Ewing instruments ( $t_o = 30$  seconds and  $T_g = 90$  seconds) commenced operation.

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
Jan. 1	M	eP	04 21 29.2	d	USCGS: 49°N, 153½°E, 0 = 04 11 40. Kurile Islands.
	R	eP	41.1		
	C	iP	05.6	c	
Jan. 1	SH	iP	25.8	d	USCGS: 27½°N, 142°E, 0 = 04 17 32. Bonin Islands.
	F	eP	04 29 44.0		
	R	e	49.9		
Jan. 1	MH	iP	06 09 43.6		USCGS: 18½°N, 147°E, 0 = 05 57 26. Mariana Islands.
	F	eP	51.6		
	M	iP	38.7	c	
Jan. 1	R	iP	48.1	c	
	C	eP	27.7		
	SH	iP	35.7		
Jan. 1	M	e(P)	08 05 42.5	d	
	R	e(P)	06 20.9		
	SH	e	05 48.1		
Jan. 1	MH	e(P)	23 21 51		USCGS: 56°N, 162½°E, 0 = 23 12 31. Near east coast of Kamchatka.
	F	eP	57.1		
	M	e(P)	28.4	c	
Jan. 2	R	eP	45.1		
	SH	e(P)	23.5		
	MH	iP	02 01 58.0	d	
Jan. 2	M	eP	42.5	d	USCGS: 54°N, 157½°E, 0 = 01 52 18. Kamchatka.
	R	i(P)	54.9	c	
	C	eP	15.2		
Jan. 2	B	iP	03 33 10.9	d	USCGS: 15½°S, 68°W, 0 = 03 21 52. h about 150 km. Bolivia. PAS: Magnitude 6-1/4.
	MH	epP	42	(d)	
	F	iP	07.3	d	
Jan. 2	M	eP	32 57.1		
	M	iP	33 16.1	d	
	A	iP	28.1	c	
Jan. 2	R	iP	09.0	d	
	C	iP	38.0	d	
	SH	eP	20.0		
Jan. 2	SF	ip	11.0	d	USCGS: 2½°N, 96°E, 0 = 05 06 54. Off coast of Sumatra.
	MH	iPKP	05 25 53.9		
	M	iPKP	59.8	c	
Jan. 2	C	e(PKP)	53		USCGS: 56½°N, 163½°E, 0 = 06 59 36. Near east coast of Kamchatka.
	MH	eP	07 08 49		
	M	eP	35		
Jan. 2	R	e(P)	56		
	C	eP	07		
	SH	i(P)	32		
Jan. 2	B	ePKP	08 46 09.9		USCGS: 0 = 08 27 14. Sandwich Islands.
	MH	e	17		
	MH	iPKP	15.9	d	
Jan. 2	M	i	20.7	c	
	M	iPKP	19.0	c	
	SH	e(PKP)	20		
Jan. 2	SF	e	15		



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
Jan. 2	MH	(i)PKP	12 41 29		BCIS: 56°S, 2°W, 0 = 12 21 50. South Atlantic Ocean west of Bouvet Island.
	F	e	46.2		
	M	ePKP	22	d	
	C	ePKP	32		
	SH	ePKP	33.6		
Jan. 2	MH	(i)	21 36 06	c	USCGS: 5°S, 152½°E, 0 = 21 22 51. New Britain.
	M	eP	35 59.1	d	
	R	(e)P	36 17		
	C	eP	35 54.6		
	SH	eP	57.1		
Jan. 3	MH	eP	07 01 28		USCGS: 16°N, 99°W, 0 = 06 55 25. Near coast of Oaxaca, Mexico.
	F	e	29	d	
	M	e(P)	53	d	
	R	eP	36.6		
Jan. 3	M	e	10 00 10		44½°N, 111½°W, 0 = 09 57 32. Hebgen Lake, Montana.
	R	e(P)	09 59 56		
	SH	e	10 00 04		
Jan. 3	M	eP	11 37 18	d	USCGS: 44°N, 84½°E, 0 = 11 24 00. Sinkiang Province, China.
	R	eP	22		
	C	iP	36 59.8	d	
	SH	eP	37 17		
Jan. 3	B	eP	11 44 39		USCGS: 61°N, 152°W, 0 = 11 38 30. South central Alaska.
	MH	iP	45.5	d	
	M	iP	21.4	c	
	i		44.2		
	R	iP	34.5	c	
	C	iP	43 42.9	c	
	SH	iP	44 17.0	c	
	SF	iP	54.1	d	
Jan. 3	F	eP	20 32 22.3		USCGS: 39½°N, 15½°E, 0 = 20 19 30. h about 250 km. Tyrrhenian Sea.
	M	iP	11.4	c	
	R	iP	11.4	c	
	C	iP	31 58.2	c	
	SH	eP	32 10.7		
Jan. 3	B	eP	21 30 37.6	c	USCGS: 45°N, 148°E, 0 = 21 20 13. h about 150 km. Kurile Islands.
	epP		31 14.2		
	MH	iP	30 37.8	c	
	F	eP	52.1		
	M	iP	31.3	c	
	i		48.3	c	
	A	eP	20		
	R	iP	41.5	c	
	C	iP	07.7	c	
	SH	iP	26.5	c	
	SF	iP	38.3	c	
Jan. 4	B	eP	15 15 51		USCGS: 5½°S, 77½°W, 0 = 15 05 39. Northern Peru.
	MH	iP	46.2	d	
	F	eP	34		
	M	iP	57.0	d	
	R	iP	47.2	c	
	C	iP	16 20.9	c	
	SH	eP	01		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
Jan. 5	B	eP	02 39 36		BCIS: 35°S, 92°W, 0 = 02 27.6. Off the coast of Chile.
	MH	iP	32.6	c	
	M	e(P)	48	d	
	R	i	43	d	
	SH	e	48		
Jan. 5	MH	eP	05 25 29	c	USCGS: 19°S, 69½°W, 0 = 05 13 48. Northern Chile.
	M	eP	39		
	R	iP	32	d	
	SH	e	28		
Jan. 5	B	eP	09 43 30		USCGS: 15°S, 173°W, 0 = 09 32 07. Samoa Islands region.
	MH	i(P)	30	d	
	F	e	35		
	M	i(P)	45.5	c	
	R	i	45	c	
	SH	i(P)	39.2	d	
Jan. 6	MH	eP	13 22 55		USCGS: 10½°S, 167°E, 0 = 13 11 00. Santa Cruz Islands.
	i		23 31.2		
	M	eP	30		
	R	e(P)	46		
	SH	eP	28		
Jan. 6	MH	iP	20 04 28.2	d	BCIS: 20°S, 175°W, 0 = 19 52.7. Tonga Islands.
	M	eP	38	c	
	SH	eP	37		
	MH	iP	22 25 48.8	d	
Jan. 6	M	iP	20.7	c	
	e		26 38		
	A	e(P)	25 05		
	R	e(P)	59		
	C	iP	24 51.5	c	
	SH	e(P)	25 09		
Jan. 7	MH	iPKP	08 34 19.3	c	USCGS: 6½°N, 94°E, 0 = 08 15 21. Nicobar Islands.
	M	ePKP	21	d	
	B	ePKP	13 47 10		
	BP	eNE	14 13.9		
Jan. 7		eRNEZ	27.3		BCIS: 56°S, 27½°W, 0 = 13 28 16. Sandwich Islands. PAS: Magnitude 6¼-6½.
	MH	iPKP	13 47 09.8	c	
	e		48 47		
	F	ePKP	47 10		
	M	ePKP	13	c	
	e		48 58		
	R	ePKP	47 03		
	e		13		
	C	ePKP	27		
	SH	ePKP	15		
	Ru	eP	48 42		
	i(SSS)		14 05 22		
	iR		27 18		
Jan. 8	B	iPKP	02 54 05.3	d	USCGS: 58½°S, 26°W, 0 = 02 35 00. Sandwich Islands.
	MH	(i)PKP	03.8	c	
	M	iPKP	53 43.6	c	
	R	iPKP	54 05.0	c	



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
Jan. 8	C	ePKP	57		
(Cont.)	SH	iPKP	09.0	d	
Jan. 8	R	e(P)	07 55 52		BCIS: 17°S, 172½°W, 0 = 07 44 08. Samoa Islands region.
Jan. 8	M	ePKP	08 34 18.3	c	BCIS: 6½°N, 94°E, 0 = 08 15 21. Nicobar Islands.
	SH	iPKP	35.3	d	
Jan. 8	B	iPKP	11 48 17.1	d	USCGS: 55°S, 27½°W, 0 = 11 29 18. Sandwich Islands.
	MH	iPKP	16.1	d	
	M	ePKP	19	c	
	R	e	28		
	SH	e	47 54		
Jan. 8	B	iPKP	15 04 53.7	d	USCGS: 55½°S, 27½°W, 0 = 14 45 53. Sandwich Islands.
	MH	iPKP	47.5	c	
		i	08 26.1		
	F	iPKP	04 35.3		
	M	iPKP	56.3	c	
	R	ePKP	49		
	SH	iPKP	57.4	d	
Jan. 9	MH	e(P)	04 12 14		BCIS: 37.2°N, 29.0°E, 0 = 03 58 48. Southwest Turkey.
	M	eP	25	c	
	SH	iP	25.9	d	
Jan. 9	MH	iP	04 57 23.2	d	BCIS: 17°S, 178½°W, 0 = 04 46 06. h about 300 km. Fiji Islands.
	M	iP	31.0	d	
	R	e	58 27		
	SH	iP	57 30.5		
Jan. 9	B	eP	07 37 50		USCGS: 36°N, 69°E, 0 = 07 23 50. h about 150 km. Hindu Kush.
	MH	iP	52.2	d	
	M	eP	36	c	
	C	iPN	20.7	d	
	SH	eP	58		
Jan. 9	B	iP	07 53 26.6	d	USCGS: 1°S, 124°E, 0 = 07 41 57. Celebes.
	MH	iP	26.9	d	
	M	eP	33		
	SH	iP	36.2	d	
	SF	iP	39.1		
Jan. 10	C	e(P)	06 38 28		USCGS: 12°N, 145°E, 0 = 06 26 00. h about 100 km. Mariana Islands region.
Jan. 10	M	eP	23 38 20	d	
	R	eP	52		
Jan. 11	M	eP	02 40 24		USCGS: 28°N, 131°E, 0 = 02 27 38. Ryukyu Islands.
	R	iP	21.9	(c)	
	SH	iP	28.6		
Jan. 11	SH	iP	18 02 41.2	d	USCGS: 29°S, 176°W, 0 = 17 49 58. Kermadec Islands.
Jan. 12	C	eP	02 05 47.5		USCGS: 23½°N, 122°E, 0 = 01 52 37. Near east coast of Formosa.
	SH	iP	56.8	d	
Jan. 12	SH	iPKP	03 28 02.7	c	USCGS: 55½°S, 27°W, 0 = 03 09 10. Sandwich Islands region.
Jan. 12	M	iP	22 34 18.4	d	USCGS: 17°S, 173°W, 0 = 22 22 34. Tonga Islands.
	SH	iP	17.9	c	

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
Jan. 13	M	eP	07 40 08		USCGS: 3½°S, 140°E, 0 = 07 26 26. Northern New Guinea.
	SH	iP	05.2		
Jan. 13	B	iP	15 51 35.4	d	USCGS: 16°S, 72°W, 0 = 15 40 34. h about 200 km. Southern Peru. Many casualties and extensive property damage at Arequipa. PAS: Magnitude 7½.
	BP	i	52 24	d	
		ePP	54 15		
		iSNE	16 00 53	SW	
		iSSN	05 40		
		eGE	11.8		
			mu sec		
		PZ	46 10		
		PH	23 10		
		SH	56 12		
	MH	iP	15 51 31.4	d	
		iS	16 00 33.6		
		eSNE	44		
	F	iP	15 51 20.4	d	
	M	eP	41		
	R	iP	33.7	d	
	C	iP	52 04.3	d	
	SH	iP	51 45.3	d	
	SF	iP	35.5	d	
Jan. 13	F	eP	16 18 33		
	M	eP	19 12	c	
	R	iP	18 59.5	c	
	SH	eP	19 09		
Jan. 13	B	iP	16 37 40.3	c	USCGS: 51½°N, 180°, 0 = 16 29 41. Andreanof Islands, Aleutian Islands.
	MH	iP	49.0	c	
	F	eP	58		
	M	iP	29.6	c	
		i	38 12.1	d	
	R	eP	37 41		
	C	iP	02.9	c	
	SH	iP	25.4	c	
Jan. 14	MH	iP	10 37 33.0	d	USCGS: 37°N, 140°E, 0 = 10 25 52. Honshu, Japan.
	F	e(P)	48		
	M	iP	21.7	d	
	R	eP	32		
	C	e(P)	14		
	SH	iP	19.4	c	
Jan. 15	B	eP	09 41 17	c	USCGS: 15°S, 75°W, 0 = 09 30 24. h about 150 km. Near coast of southern Peru. 4 injured and minor damage in Ica Province. Felt in Lima area. PAS: Magnitude 7.
		e	36		
	BP	iSNZ	50 23	NZ	
		eSSNE	54 56		
		eN	58 40		
		e	10 00.1		
		eRNEZ	04.0		
			mu sec		
		PZ	5.2 12		
		PH	2.9 12		
		SH	10.1 18		
	MH	iP	09 41 13.3	c	



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
Jan. 15 (Cont.)	F	ipP	53.2	c	
		eP	04		
	M	eP	23	c	
		ipP	57.4	d	
	R	iP	17.8	d	
	C	iP	48.9		
	SH	iP	24.9	d	
Jan. 15	MH	e(P)	10 09 30		
	F	e(P)	35		
	R	i(P)	34.5	d	
	SH	eP	10		
	M	eP	25		
Jan. 16	B	iP	12 42 01.7	c	USCGS: 20½°S, 178°W, 0 = 12 30 56. h about 600 km. Fiji Islands region.
	MH	iP	04.4	c	
	F	iP	08.0	c	
	M	iP	29.3	c	
	R	iP	15.8	(d)	
	SH	iP	08.8	c	
	SF	eP	00		
Jan. 16	MH	iP	15 45 41.5	d	USCGS: 22½°S, 173½°E, 0 = 15 32 56. Loyalty Islands region.
	M	eP	46		
Jan. 16	B	iP	20 55 34.7	c	USCGS: 63°N, 151°W, 0 = 20 49 31. h about 150 km. Alaska. Felt: College.
	MH	iP	41.3	c	
	F	iP	50.8	c	
	M	iP	17.1	c	
		i	56 09.3		
	R	iP	55 29.2	c	
	C	iP	54 38.6	c	
	SH	eP	55 12		
Jan. 16	B	iP	20 58 30.4	c	
	MH	iP	32.8	c	
	M	iP	24.5	c	
	R	iP	29.0	c	
	C	iP	15.7	(c)	
	SH	iP	57 22.9	c	
	SF	eP	58 37		
Jan. 16	B	iP	21 54 27.5	d	USCGS: 10°S, 161½°E, 0 = 21 41 44. Solomon Islands.
	BP	eR	22 21.0		
	MH	iP	21 54 30.1	c	
	F	eP	36		
	M	eP	33		
	R	iP	40.1	d	
	C	eP	45		
	SH	eP	32		
Jan. 17	B	iP	03 08 49.2		USCGS: 14½°S, 74½°W, 0 = 02 57 58. h about 150 km. Near coast of southern Peru.
		e	09 26		
	BP	eSN	17 53		
		eSSNE	22.4		
		eRNEZ	31.6		
	MH	iP	08 45.0	c	
	F	eP	25		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
Jan. 17 (Cont.)	M	eP	56	c	
		i	09 23.8		
	R	iP	08 47.4	c	
	C	iP	09 20.0	(d)	
	SH	iP	07 58.8	c	
	SF	eP	08 56		
Jan. 17	M	e(P)	04 30 16	c	USCGS: 40½°N, 142°E, 0 = 04 19 07. Off coast of northern Honshu, Japan.
	R	eP	37		
	C	eP	08		
	SH	e(P)	00.4		
Jan. 18	M	eP	00 26 04	c	USCGS: 16°S, 174½°W, 0 = 00 14 30. h about 100 km. Tonga Islands region.
	SH	eP	03		
Jan. 18	MH	iPKP	01 24 02.1	d	USCGS: 0 = 01 04 11. About 650 miles southwest of Prince Edward Islands.
	SH	ePKP	23 33		
Jan. 18	MH	eP	19 39 07		USCGS: 9°N, 77°W, 0 = 19 30 18. h about 100 km. Off coast of Panama. Felt: Balboa Heights.
	M	eP	12		
	R	eP	01		
	C	e(P)	41		
Jan. 19	B	iP	02 26 29.1	c	USCGS: 52°N, 158°E, 0 = 02 16 52. Near southeast coast of Kamchatka.
	BP	eR	42.9		
	MH	iP	26 34.8	c	
	F	iP	45.4	c	
	M	iP	20.2	c	
	R	iP	32.2	c	
	C	iP	25 53.9	c	
	SH	iP	26 15.9	c	
Jan. 19	MH	iP	08 56 31.3	c	USCGS: 17°N, 98°W, 0 = 08 50 24. Near coast of Oaxaca, Mexico.
	F	eP	33		
	M	eP	47		
	R	iP	35.0	c	
	C	e(P)	57 22		
	SH	eP	56 52		
Jan. 19	B	iP	09 26 28		USCGS: 23°S, 180°, 0 = 09 15 04. h about 600 km. South of Fiji Islands. PAS: Magnitude 6.
	BP	iSNE	35 59	SE	
	MH	iP	26 29.2	d	
		epP	28 31		
	F	iP	26 33.6	d	
	M	eP	38	c	
	R	epP	28 53		
		eP	26 42		
	C	e(P)	47		
	SH	iP	36.7	d	
Jan. 19	MH	iP	16 22 43.3	c	USCGS: 24°N, 142°E, 0 = 16 10 36. h about 100 km. Volcano Islands.
	M	eP	35		
	R	e(P)	47		
	C	e(P)	23 02		
	SH	eP	22 33		
Jan. 20	SH	iP	03 01 12.9	d	USCGS: 17½°S, 178°W, 0 = 02 50 02. h about 500 km. Fiji Islands.



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
Jan. 20	B	iPNZ	03 26 14.7	Sd	36°47'N, 121°26'W, 0 = 03 25 53. South of Hollister. Magnitude 5.
		iSE	33.7		
	MH	iPNEZ	05.0	d	
		iSNE	13.2		
	F	iPNEZ	17.2	SEc	
	M	eP	48.2	d	
	A	eP	27 02		
	R	eP	26 43		
	C	eP	27 53		
	SH	iP	26 53.9	d	
	PA	iPNEZ	08.6	NWc	
	SF	iPNZ	14.3	d	
Jan. 21	B	iP	10 54 35		USCGS: 16°S, 179½°E, 0 = 10 43 33. h about 100 km. Fiji Islands.
	BP	e(S)NE	11 04 19		
		eNE	05.0		
		eNE	13.8		
		eREZ	17		
			R from WSW		
	F	eP	10 54 34		
	M	eP	37		
	R	eP	49		
Jan. 23	MH	ePKP	04 59 56		
	F	ePKP	05 00 04		
	M	e	04 59 21		
	R	iPKP	05 00 12.7	c	
	SH	e	04 59 30		
Jan. 23	MH	iP	06 35 13.5	c	USCGS: 17°S, 177°W, 0 = 06 24 08. h about 400 km. Fiji Islands region.
	F	eP	19		
	M	eP	22		
	R	iP	27.9	d	
	C	eP	32		
	SH	iP	34 27.2	c	
Jan. 23	MH	ePKP	07 49 53		
	F	e	50 25		
	M	e	12	c	
	R	ePKP	49 59		
	SH	ePKP	52		
Jan. 23	MH	eP	18 11 18		USCGS: 4°S, 127½°E, 0 = 17 56 30. Ceram Island region. PAS: Magnitude 6-1/2 - 6-3/4.
		e	15 12		
	F	e	46		
	R	e	42		
	SH	eP	11 09		
		ePKP	14 46		
Jan. 23	MH	eP	22 10 22		
	M	eP	16		
	R	eP	23		
Jan. 24	B	iP	00 41 14.4	d	
	MH	iP	24.2	c	
	F	iP	45.3	d	
	M	eP	16		
	A	eP	40 30		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks	
1960			h. m. s.			
Jan. 24	R	iP	41 18.5	c	USCGS: 15½°S, 179°W, 0 = 04 21 42. Fiji Islands. PAS: Magnitude 6¼-6½.	
(Cont.)	C	iPNE	40 23.2			
	SH	eP	43			
	PA	eP	41 20	d		
Jan. 24	B	eP	04 33 33	c		
	BP	iSE	43 18	E		
		i(ScS)NE	56			
		eGNE	53			
		eREZ	56			
			R from SW			
			mu sec			
		PZ	1.0 8			
		SH	3.3 22			
		MaxH	17 24			
	MH	iP	04 33 34.1	c		
	F	eP	40			
	M	iP	32 42.9	d		
	R	iP	33 48.0	d		
	C	e(P)	54			
	SH	iP	02.7	d		
	SF	eP	32			
Jan. 24	MH	eP	06 36 22		BCIS: 17.4°N, 61.3°W, 0 = 06 26 47. Lesser Antilles.	
	M	iP	23.0	d		
	SH	iP	26.6	d		
Jan. 24	B	iP	09 29 09.2	c		USCGS: 20½°S, 180°, 0 = 09 17 59. h about 600 km. Fiji Islands region.
	MH	iP	10.1	c		
	F	eP	14			
	M	eP	18			
	R	iP	22.1	c		
	C	eP	28			
	SH	iP	17.8	c		
Jan. 25	C	ePN	08 55 32			
	SH	eP	38			
Jan. 25	BP	e(S)NE	16 50 34		USCGS: 52½°N, 160°E, 0 = 08 46 25. Near east coast of Kamchatka. USCGS: 16°S, 179°W, 0 = 16 29 26. Fiji Islands. PAS: Magnitude 6¼.	
		eGN	17 00.8			
		eRNEZ	04			
			R from SW			
			mu sec			
		SH	1.1 28			
		MaxH	6 22			
	MH	iP	16 41 22.0	d		
	F	eP	27			
	M	iP	29.1	d		
	R	eP	36			
	C	eP	42 08			
	SH	eP	41 28			
Jan. 26	B	eP	22 34 01		USCGS: 30°S, 178°W, 0 = 22 21 19. Kermadec Islands. Felt: Raoul Island.	
	BP	eR	23 00			
	MH	iP	22 34 03.2	d		
	F	eP	06			
	M	eP	11	d		



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
Jan. 26 (Cont.)	R	eP	15		
	C	eP	17		
	SH	eP	12		
Jan. 29	MH	ePKP	08 05 54		USCGS: 53°S, 10°E, 0 = 07 46 17. Bouvet Island region.
	M	ePKP	58		
	R	iPKP	53.9	c	
	C	ePKP	06 10		
	SH	ePKP	05 56		
Jan. 29	B	eP	22 59 31		0 = 22 47 20. Mariana Islands region.
	MH	iP	25.5	c	
	F	eP	44		
	M	iP	29.5	c	
	C	eP	36		
	SH	eP	26		
Jan. 30	MH	iP	02 57 15.1	c	USCGS: 22°N, 144½°E, 0 = 02 45 03. Mariana Islands region.
	F	eP	20		
	M	iP	08.6	c	
	R	eP	18		
	SH	iP	05.8	d	
Jan. 30	MH	eP	04 57 28		BCIS: 0 = 04 45 17. Mariana Islands region.
	F	eP	36		
	M	iP	22.1	c	
	R	e(P)	32		
	SH	iP	19.4	d	
Jan. 30	MH	eP	09 09 47		BCIS: 0 = 08 58.0. Mariana Islands region.
	M	eP	10 03		
	SH	eP	09 53		
Jan. 30	MH	iP	15 39 39.1	d	21½°N, 143½°E, 0 = 15 27 23. Volcano Island region.
	M	iP	38 33.5	c	
	R	eP	39 50		
	C	e(P)	24		
	SH	eP	30		
Jan. 30	B	eP	18 08 15	(d)	USCGS: 21½°N, 142½°E, 0 = 17 56 05. Mariana Islands region.
	MH	iP	24.2	d	
	M	iP	17.9	d	
	SH	eP	15		
Jan. 30	B	iP	18 50 27.2	d	USCGS: 22°N, 144°E, 0 = 18 38 10. Mariana Islands region.
	BP	eREZ	19 14.8		
			R from WNW		
	MH	eP	18 50 29		
	F	eP	38		
	M	iP	23.1	d	
	R	iP	33.2	c	
	C	iP	12.1	c	
	SH	eP	20		
Jan. 31	B	eP	03 46 57		USCGS: 21½°N, 143½°E, 0 = 03 34 42. Mariana Islands region.
	MH	eP	47 00		
	F	eP	09		
	M	eP	46 55		
	R	eP	47 04		
	SH	eP	46 51		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
Jan. 31	B	e(pP)	04 16 15		USCGS: 12½°S, 167½°E, 0 = 04 03 11. h about 200 km. Santa Cruz Islands.
	MH	iP	15 22.3	c	
		i	16 16.7		
	F	eP	15 28		
	M	epP	16 19		
	R	iP	15 32.2	c	
		ipP	16 27.5		
	C	e(pP)	31		
	SH	eP	15 25		
Jan. 31	B	eP	05 20 32		USCGS: 33½°N, 134½°E, 0 = 05 08 18. Near east coast of Shikoku, Japan.
		e	21 08		
	BP	e(S)N	30 29		
		eLN	41.0		
	MH	eP	20 34		
	F	eP	46		
	M	eP	23		
	R	eP	32		
	C	e(P)	05		
	SH	eP	17.8		
Jan. 31	MH	iP	08 32 11.2	d	USCGS: 21½°N, 143½°E, 0 = 08 19 50. Mariana Islands region.
	M	eP	04		
	R	eP	14		
	SH	eP	02		
Jan. 31	MH	iP	16 24 49.2	d	USCGS: 0 = 16 12 29. Mariana Islands region.
	R	eP	52		
Jan. 31	MH	iP	19 18 53.2	c	USCGS: 16°S, 172½°W, 0 = 19 07 23. Samoa Islands region.
	F	e	19 08		
	M	iP	11.4	c	
	R	iP	12.9	d	
	SH	eP	02		
Jan. 31	MH	iP	20 40 33.5		USCGS: 21½°N, 143½°E, 0 = 20 28 14. Mariana Islands region.
	F	eP	42		
	M	eP	17		
	R	iP	36.2	c	
	SH	eP	24		
Feb. 1	B	iP	02 10 50.5	c	USCGS: 43°N, 132°W, 0 = 02 08 37. Pacific Ocean off coast of Oregon.
	BP	eEZ	57		
		eNE	12 35		
		eRZ	13 01		
	MH	iP	11 00.1	d	
		i	12 51.8		
	F	iP	11 23.9	d	
	M	iP	10 44.3	d	
		i	11 07.6		
	A	eP	10 23		
	R	iP	11 06.8	c	
	C	iP	10 24.7	c	
	SH	iP	36.2	c	
	SF	eP	50		
Feb. 1	F	eP	14 05 56		USCGS: 50½°N, 160°E, 0 = 13 56 08. Off east coast of Kamchatka.
	M	iP	33.2	d	



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
Feb. 1 (Cont.)	R	iP	45.4	d	
	C	iP	06.5	d	
	SH	eP	29		
Feb. 2	R	iP	06 43 14.2	c	USCGS: 33½°S, 179°W, 0 = 06 29 52. Kermadec Islands region.
	SH	iP	07.8	d	
Feb. 3	MH	e(P)	02 34 18		USCGS: 37°S, 179°E, 0 = 02 20 55. Off coast of North Island, New Zealand.
	F	e(P)	45		
	M	e(P)	28		
	R	e(P)	46		
	SH	eP	30		
Feb. 3	B	eP	11 34 08		USCGS: 24°N, 108½°W, 0 = 11 29 55. Gulf of California.
	BP	e(S)NE	37 37	SW	
		eQNE	38.2		
		eRZ	39.3	SW	
	MH	iP	34 00.7	c	
		i	12.1		
	F	eP	44		
	M	eP	27		
	R	iP	10.3	d	
	C	e(P)	35 24		
	SH	eP	34 37		
Feb. 3	M	iP	13 15 47.2	c	
		i	16 39.2		
	A	e(P)	12		
	R	e(P)	18		
	C	eP	15 41		
	SH	eP	37		
Feb. 4	BP	ePEZ	03 59 25	Ec	USCGS: 4½°S, 153½°E, 0 = 03 46 30. New Ireland region. Felt.
		e	04 03 44		PAS: Magnitude 6-1/2 - 6-3/4.
		e(S)E	09 45		
		eGE	15.0		
		eN	23.4		
		eREZ	26 47		
	MH	eP	03 59 27		
		i	43.4	c	
		i	04 00 19.1	c	
	F	eP	03 59 47		
	A	e	04 00 07		
	R	e(P)	03 59 56		
		i	04 00 15.7		
Feb. 4	C	eP	03 59 29		USCGS: 38½°N, 143°E, 0 = 16 50 30. Off east coast of Honshu, Japan.
	B	eP	17 01 53		Felt: Tokyo.
	BP	e(S)E	11 04		
		eR	23.0		
		R from W			
	MH	eP	17 01 58		
	F	eP	02 08		
	R	eP	00		
	C	iP	01 27.6	c	
Feb. 4	MH	iP	20 49 16.8	d	USCGS: 18½°S, 178°W, 0 = 20 38 20. h about 600 km. Fiji Islands.
	F	eP	21		
	C	eP	35		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
Feb. 4	M	e(P)	21 09 06		USCGS: 39½°N, 142½°E, 0 = 20 57 55. Near coast of Honshu, Japan.
	R	e(P)	18		
Feb. 5	B	eP	02 14 20		USCGS: 37°S, 95½°W, 0 = 02 02 14. South Pacific Ocean.
	MH	iP	17.9	d	
	F	eP	10		
	M	eP	32		
	R	iP	25.6	c	
	C	e(P)	55		
	SH	eP	32		
Feb. 6	MH	iPKP	17 29 56.4	d	USCGS: 6°S, 104°E, 0 = 17 10 45. Near coast of Sumatra.
	M	iPKP	50	d	Felt: Southern Sumatra.
	C	iPKP	47.5	c	
	SH	ePKP	51		
Feb. 7	B	eP	04 34 23		USCGS: 7½°N, 71½°W, 0 = 04 24 50. Venezuela.
	MH	eP	18		
	F	eP	29		
	R	iP	15.8	d	
Feb. 7	MH	e	10 25 39		USCGS: 5°N, 123°E, 0 = 10 07 50. h about 600 km. Celebes Sea.
	R	e	47		
	SH	e	03		
Feb. 7	B	eP	11 28 20		USCGS: 15½°S, 173°W, 0 = 11 16 54. Samoa Islands region.
	BP	eRNEZ	49.2		Felt: Apia.
		R from SW			
	MH	iP	11 28 21.1	c	
		i	32.3	c	
	F	eP	25		
	M	eP	28		
	R	iP	34.9	d	
	C	e(P)	44		
	SH	eP	30		
Feb. 8	BP	e(S)N	13 10 36		USCGS: 58°S, 67°W, 0 = 12 45 34. Drake Passage.
		iNE	13 48	NW	PAS: Magnitude 6-3/4.
		eGE	30.5		
		eRNZ	36		
		R from S			
	R	e	13 04 21.7		
Feb. 10	MH	iP	23 31 12.4	c	USCGS: 15½°S, 173°W, 0 = 23 19 55. Samoa Islands region.
	F	eP	23		
	R	iP	32.6	d	
Feb. 11	B	iP	04 11 02.4	d	USCGS: 24°S, 180°, 0 = 03 59 24. h about 500 km. South of Fiji Islands.
	R	i(P)	28.8	d	
	SH	eP	10		
Feb. 11	R	iP	04 39 09.0	d	USCGS: 14°S, 170½°E, 0 = 04 27 22. h about 450 km. New Hebrides region.
	SH	iP	02.4	d	
Feb. 11	B	eP	13 06 34		USCGS: 34°S, 70½°W, 0 = 12 53 59. h about 100 km. Chile.
		e(pP)	07 04		Felt: Santiago.
	MH	iP	06 31.7	c	
		ipP	07 01.3	d	
	F	eP	06 23		



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
Feb. 11 (Cont.)	R	iP	34.7	d	
		ipP	07 05.3	d	
	SH	iP	06 41.9	d	
Feb. 11	B	eP	21 08 39		USCGS: 11½°S, 166½°E, 0 = 20 56 08. Santa Cruz Islands.
	BP	eRNEZ	33.5		
			R from WSW		
	F	eP	21 08 45		
	R	eP	09 05		
	C	e(P)	08 42		
	SH	iP	43.9	c	
Feb. 13	MH	iP	00 33 44.9	c	USCGS: 19°N, 101½°W, 0 = 00 28 24. h about 100 km. Mexico.
	F	eP	30		
	R	iP	50.0	d	
Feb. 13	B	eP	20 51 30		USCGS: 17½°S, 70°W, 0 = 20 40 06. h about 150 km. Peru.
		e(pP)	52 13		
	MH	iP	51 26.4	c	
		i(pP)	52 08.1		
	M	iP	51 16.6	c	
	R	eP	28		
	C	iP	56.7	c	
	SH	eP	39		
Feb. 14	R	eP	18 30 49		USCGS: 6°S, 75½°W, 0 = 18 20 46. h about 150 km. Northern Peru.
	SH	eP	31 01		
Feb. 14	R	e(P)	21 17 24.3		USCGS: 18½°N, 145½°E, 0 = 21 04 36. h about 200 km. Mariana Islands.
Feb. 14	MH	eP	22 25 11		USCGS: 52°N, 171½°W, 0 = 22 17 54. Fox Islands, Aleutian Islands.
	F	eP	25		
	R	iP	09.3	d	
	SH	eP	24 50		
Feb. 15	B	eP	07 43 57		USCGS: 12°N, 87°W, 0 = 07 36 08. Near coast of Nicaragua.
	BP	eN	50 16		
		eQN	56		
	MH	iP	43 50.4	d	
	F	eP	38		
	R	eP	51		
	SH	eP	44 07		
Feb. 16	B	iP	05 12 29.8	c	USCGS: 18½°N, 146°E, 0 = 05 00 14. Mariana Islands.
	MH	iP	31.0	d	
	F	eP	42		
	R	iP	37.8	c	
	SH	iP	24.6	c	
Feb. 17	B	e(P)	12 43 16		USCGS: 30°S, 112½°W, 0 = 12 32 10. Easter Islands region.
	BP	i(S)E	52 23		PAS: Magnitude 6½.
		eE	13 01.4		
		eRNZ	04.5		
	MH	iP	12 43 11.6	c	
	F	eP	07		
	R	eP	26		
	C	iP	55.6	c	
	SH	eP	33		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
Feb. 17	R	eP	16 38 35		USCGS: 43½°N, 145½°E, 0 = 16 27 40. Near east coast of Hokkaido, Japan.
	C	eP	02		
	SH	eP	20		
Feb. 18	MH	eP	21 44 51	d	USCGS: 52½°N, 160°E, 0 = 21 35 11. Near east coast of Kamchatka.
	F	eP	45 07		
	R	iP	44 48.7	c	
	C	e	36		
	SH	eP	28		
Feb. 19	B	iP	05 15 25.9	c	USCGS: 60½°N, 151°W, 0 = 05 09 23. Kenai Peninsula. Felt: Anchorage.
	MH	iP	31.9	d	
	F	eP	43		
	R	iP	21.6	d	
	C	eP	14 30		
	SH	iP	15 03.8	d	
Feb. 19	BP	eP	10 51 29		USCGS: 36°N, 70½°E, 0 = 10 36 46. h about 200 km. Hindu Kush. Felt: Kashmir Valley, Rawalpindi, Pakistan.
		e	54 59		
		eN	11 00 58		
		e(S)NZ	03 57		
		eNZ	05.1		
		eRNZ	27		
	MH	iP	10 51 31.8		
	F	eP	37		
	R	iP	24.7	c	
		i	54 54.5		
	C	i	50 09.6	d	
		i	51 00.9		
	SH	eP	27		
	Ru	e(P)	29		
		e	54 51		
		eN	11 00 55		
		eNZ	03 49		
		eRNZ	26.5		
Feb. 19	MH	iP	11 06 16.8	c	
		i	07 12.5		
	R	eP	06 23		
	SH	eP	25		
Feb. 20	B	eP	06 17 01		USCGS: 17½°S, 177½°W, 0 = 06 05 28. h about 200 km. Fiji Islands region.
	MH	iP	02.0	d	
	F	eP	06		
	M	iP	10.7	d	
	R	iP	14.7	c	
	C	eP	19		
	SH	iP	09.3	d	
Feb. 21	MH	iP	02 22 15.1	d	USCGS: 14½°N, 92°W, 0 = 02 15 34. h about 150 km. Mexico, Guatemala.
	M	eP	40		
	R	eP	18		
	C	eP	23 00		
Feb. 21	F	eP	08 26 41		USCGS: 36°N, 4½°E, 0 = 08 13 31. Northern Algeria. 47 killed, 21 injured and 500 houses destroyed at Beni-Ilman and Melouza.
	M	eP	33		
	R	iP	33.8	d	



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
Feb. 21	B	eP	09 50 29		USCGS: 20°S, 178½°W, 0 = 09 39 26. h about 600 km. Fiji Islands.
	MH	iP	29.6	d	
	F	eP	34		
	M	iP	39.5	c	
	R	eP	44		
	C	iP	47.4	c	
	SH	iP	38.0	d	
	V	eP	29		USCGS: 52°N, 175°W, 0 = 17 21 59. Andreanof Islands, Aleutian Islands.
Feb. 21	MH	iP	17 29 35.2	c	
	M	eP	27		
	R	e(P)	43		USCGS: 20°S, 178½°W, 0 = 00 54 30. h about 600 km. Fiji Islands.
	SH	eP	17		
Feb. 22	B	iP	01 05 34.1	d	
	MH	iP	33.7	d	
	F	eP	38		
	R	iP	47.1	c	
	C	iP	51.5	c	
	SH	iP	41.9	d	USCGS: 6°S, 154½°E, 0 = 16 04 50. Solomon Islands. Felt: Rabaul, Londolovit. PAS: Magnitude 6-6¼.
Feb. 23	B	e(P)	16 17 49		
	BP	eRNEZ	45		
			R from WSW		
	MH	iP	16 17 54.8	d	
	F	e	18 29		
	M	iP	17 55.1	d	USCGS: 7½°S, 156°E, 0 = 21 37 04. Solomon Islands. Felt: Rabaul, Kieta, Numa, Buin. PAS: Magnitude 6-1/2 - 6-3/4.
	R	e(P)	18 04		
	SH	eP	17 52		
	Ru	e(P)	16 19		
		eREZ	48		
	B	eP	21 49 58		
		ePP	53 28		USCGS: 51½°N, 178°W, 0 = 00 07 10. Andreanof Islands, Aleutian Islands. USCGS: 51½°N, 178°W, 0 = 08 10 03. Aleutian Islands.
	BG	eNE	22 00 55		
	BP	e	01 52		
		e	10.3		
		eGE	13		
		eREZ	16.6		
			R from WSW		
			mu sec		
		PZ	1.1 18		
		PPZ	0.6 20		
		MaxH	8.1 17		
Feb. 24	MH	iP	21 49 59.8	c	
		ePP	53 27		
	F	eP	50 06		
	M	eP	02		
	R	iP	08.3	c	
		iPP	53 42.6		
	C	eP	50 03		
	SH	eP	00		
	Ru	iPEZ	28		
		iEZ	22 02 56		
		iREZ	19 59		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
Feb. 25	M	eP	11 50 04		USCGS: 1°S, 138°E, 0 = 02 08 31. New Guinea.
	A	e(P)	49 37		
	C	eP	50 13		
	SH	eP	49 56		USCGS: 20°S, 174°W, 0 = 06 32 36. Tonga Islands.
Feb. 26	MH	iP	02 22 25.3	c	
	SH	eP	12.2		USCGS: 17½°N, 98½°W, 0 = 21 29 20. h about 150 km. Chiapas, Mexico.
Feb. 26	M	eP	05 37 20		
	SH	eP	23		
Feb. 26	B	eP	06 44 21		
		e	33		
	MH	iP	22.0	c	
		i	33.9	c	0 = 15 14 06. Central Alaska.
	F	eP	26		
	M	eP	33		
	R	iP	36.9	d	
	SH	iP	44.2	d	
	V	eP	22		
Feb. 26	MH	i	15 20 11.4	c	USCGS: 51½°N, 178°W, 0 = 23 29 25. Andreanof Islands, Aleutian Islands. PAS: Magnitude 6-6¼.
	M	e	19 59		
		e	20 20		
	R	e	12		
	SH	e	19 54		
Feb. 26	M	e(P)	21 35 42	c	
	R	iP	36 17.1		USCGS: 51½°N, 178°W, 0 = 00 07 10. Andreanof Islands, Aleutian Islands. USCGS: 51½°N, 178°W, 0 = 08 10 03. Aleutian Islands.
	C	e(P)	37 05		
Feb. 26	B	iP	23 37 10		
	BP	eSNEZ	43 21		
		iGNE	46.6	SW	
		eRNEZ	48.5		
			mu sec		
		PZ	0.8 14		
		SH	3.4 20		
		MaxH	5.6 18		
	MH	eP	23 37 16		
	F	eP	28		
	M	eP	01		
	A	eP	36 40		
	R	eP	37 16		
	C	iP	36 35.6	d	
	SH	iP	56.7	c	
	V	eP	37 21		
Feb. 27	M	iP	00 14 41.0	c	
	C	e(P)	21		
	SH	eP	42		
Feb. 27	B	eP	08 17 50		
	BP	eSNEZ	24 04		
		iGNEZ	27.3	SW	
		eRNEZ	29.1		
			R from WNW		
			mu sec		
		SH	1.7 18		
		MaxH	2.2 19		



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
Feb. 27 (Cont.)	MH	eP	08 17 54	d	
		i	18 25.3		
	F	eP	10		
	M	eP	17 40		
	R	eP	59		
	C	eP	13		
	SH	eP	35		
	V	eP	18 03		
Feb. 27	B	eP	09 08 45		USCGS: 30½°S, 179½°W, 0 = 08 56 00. Kermadec Islands.
	BP	eSE	19 19		
		eRNEZ	35.0		
	MH	eP	08 39		
	F	eP	09		
	M	eP	44		
	R	eP	58		
	SH	eP	55		
Feb. 28	MH	e	23 20 16		USCGS: 3°S, 142°E, 0 = 23 05 39. New Guinea. Felt: Aitape and Lumi.
	M	eP	19 22		
	C	e(P)	16		
Feb. 29	MH	iP	23 53 07.3	c	USCGS: 30°N, 9°W, 0 = 23 40 12. Morocco. 10,000 dead, 25,000 wounded. Major property damage at Agadir.
	M	eP	52 56		
	R	iP	55.5	c	
March 1	MH	iP	03 37 41.0	d	USCGS: 18½°S, 178°W, 0 = 03 26 41. h about 600 km. Fiji Islands.
	M	iP	50.2		
	C	eP	58		
March 1	B	eP	20 11 41		USCGS: 22°S, 175°W, 0 = 19 59 33. Tonga Islands.
	F	e(P)	37		
	M	eP	43		
	R	iP	58.6	d	
	SH	eP	41		
March 2	BP	eP	00 16 06		USCGS: 19°N, 101½°W, 0 = 00 10 26. Michoacan, Mexico. Felt: Mexico City.
		e(S)N	20 50		
		eQNE	23.5		
		eR	24.3		
	MH	iP	15 59.5	d	
		i	16 12.6		
	F	eP	15 45		
	M	eP	16 19		
	R	eP	04		
	C	e(P)	54		
	V	eP	01		
	Ru	ePEZ	15.6		
		e(S)E	20.0		
		e(G)E	22.0		
		eREZ	24.8		
March 2	MH	eP	22 07 03		USCGS: 52°N, 30°W, 0 = 21 56 25. North Atlantic Ocean.
	F	eP	06 49		
	M	eP	37		
	R	e(P)	55		
	SH	eP	37		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
March 2 (Cont.)	Ru	e(P)EZ	03		
		e(SS)E	19		
		eGEZ	23		
		eREZ	27		
March 3	MH	eP	01 52 40		USCGS: 11°N, 62½°W, 0 = 01 42 46. h about 100 km. Near coast of Venezuela. Felt: Trinidad.
	M	eP	44		
March 3	M	eP	05 06 25		USCGS: 64½°N, 150°W, 0 = 04 59 20. Central Alaska. Felt: College and Fairbanks.
	C	eP	04 59		
March 4	B	iP	01 21 00.5	d	USCGS: 51°N, 175½°W, 0 = 01 13 20. Andreanof Islands, Aleutian Islands.
	MH	eP	06		
	F	eP	18		
	M	iP	20 52.0	c	
	R	eP	21 05		
	C	iP	20 24.2	d	
	SH	iP	46.2	c	
	V	eP	21 11		
March 4	B	eP	02 23 38		USCGS: 50½°N, 177°W, 0 = 02 15 56. Andreanof Islands, Aleutian Islands.
	MH	eP	44		
	F	eP	57		
	M	eP	30		
	R	iP	44.0	d	
	C	eP	05		
	SH	iP	25.1	d	
	V	eP	49		
	SF	iP	37.8	d	
March 4	B	iP	04 05 24.5	c	USCGS: 31°N, 129°E, 0 = 03 53 00. h about 100 km. Near south coast of Kyushu, Japan.
	BP	epP	57		
		epPP	09 04		
		eSNZ	15 35		
		e	32.0		
	MH	eP	05 28		
		e(PP)	08 31		
	F	iP	05 35.8	c	
	M	iP	19.3	c	
	A	iP	10.4	c	
	R	iP	28.3	c	
	C	iP	02.6	c	
	SH	iP	14.9	d	
	V	eP	31		
	Ru	iP	42		
		e(PP)	09.6		
		iSNEZ	16 58		
		eRNEZ	33.9		
March 5	BP	e	14 04 12		USCGS: 1°N, 129°E, 0 = 13 49 16. Halmahera Island.
		e(SKSE)	14 07		
		iN	22.7		
		eN	26.1		
		iGN	32.0		
		eREZ	36.4		



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
March 5 (Cont.)	BG	e(PP)	07 36		
			R from W		
March 6	MH	eP	14 03 39		
		e(PP)	07 46		
	F	e(P)	03 47		
		e	08 23		
	M	e(P)	03 37		
		e	06 56		
	R	e(P)	03 28		
	C	eP	26		
	SH	eP	24		
	B	eP	04 16 08		
	BP	iSNE	19 43	SW	USCGS: 24°N, 108°W, 0 = 04 11 54. Gulf of California. Magnitude 5 - 5 1/4.
		iQNE	20 25	SW	
		eR	21.1		
	MH	iP	16 03.2	d	
	F	eP	15 45		
M	iP	16 30.1	c		
A	e(P)	47			
R	iP	15 57.4	d		
C	iP	17 12.3	c		
SH	iP	16 33.8	d		
V	eP	15 55			
Ru	iPNEZ	48			
	iSNEZ	19 03			
	eRNZ	20 05			
March 7	MH	iP	05 27 32	c	
		iPP	31 42		
	M	eP	27 26		
		ePP	31 30		
March 7	R	e(PP)	29		USCGS: 52°N, 153°E, 0 = 06 12 07. h about 400 km. Off southwest coast of Kamchatka.
	SH	eP	27 24		
		e(PP)	31 17		
March 7	R	eP	06 22 43		USCGS: 10°S, 160 1/2°E, 0 = 09 38 09. Solomon Islands.
	SH	eP	39		
March 7	B	eP	09 50 54		
		e	53 41		
March 8	BP	eREZ	10 18		USCGS: 16 1/2°S, 168 1/2°E, 0 = 16 33 38. h about 250 km. New Hebrides Islands. Felt: Port Vila. PAS: Magnitude 7-7 1/4.
			R from W		
	MH	eP	09 50 58		
	F	eP	51 01		
	M	eP	50 60		
	R	iP	52.8	c	
	SH	eP	58		
	V	eP	58		
	B	iPNEZ	16 45 48.9	SWd	
		epP	46 47		
	iPP	49 07.7			
	eP'P'	17 11 53			

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
March 8 (Cont.)	BP	iSN	16 55 49		
		iSSN	57 39		
		eN	17 03.0		
		eGNE	08.1		
			mu sec		
		PZ	16 7		
		PH	4.7 4		
		SH	17 14		
	MH	iP	16 45 50.0	d	
		iPP	49 08.5	d	
		eP'P'	17 11 49		
	F	iP	16 45 54.9	d	
		eP'P'	17 11 56		
	M	iP	16 45 56.3	d	
		iPP	49 19.6		
	iP'P'	17 11 54.2			
A	iP	16 45 49.8	d		
R	iP	50.3	d		
	iPP	49 13.7			
	iP'P'	17 11 50.8			
C	iP	16 46 00.2	d		
	iPP	49 26.5			
SH	iP	45 54.6			
V	iP	49.7	d		
	iPP	49 06.8			
	eP'P'	17 11 59			
Ru	iPNEZ	16 46 17			
	iPPNEZ	49 54			
	e(S)NEZ	56 25			
PA	iP	45 47.2	d		
B	iP	24 05 36.2	(d)		
	e(pP)	06 08			
BP	iSNZ	14 51	Nd		
	eSSN	20.2			
	eGNE	25			
		mu sec			
	SH	1.9 18			
	GH	4 35			
F	eP	24 05 22			
M	iP	38.1	c		
R	iP	32.6	d		
C	e(P)	06 06			
M	eP	00 30 21			
	eP	29 46			
March 10	M	eP	02 08 45		
	R	e(P)	09 11		
C	eP	08 11			
B	eP	09 57 40			
BP	eREZ	10 23.7			
		R from WSW			
March 10				USCGS: 64°N, 149°W, 0 = 00 24 20. Central Alaska. Felt: College and Fairbanks.	
March 10				BCIS: 51°N, 128°W, 0 = 02 06 00. Coast of British Columbia.	
March 10				USCGS: 10°S, 161°E, 0 = 09 44 57. Solomon Islands.	



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
March 10 (Cont.)	MH	iP	09 57 45.0	d	
		i	58 02.9	d	
	F	eP	57 50		
	M	eP	47		
	R	iP	51.9	d	
March 10	C	eP	49		
	SH	eP	46		
	B	iP	13 55 47.9		USCGS: 15°S, 174°W, 0 = 13 44 25. Samoa Islands region. Felt: Apia.
	BP	eSE	14 05 01		
		eNE	13.5		
		eRNEZ	16.5		
		R from SW			
	MH	iP	13 55 48.7	c	
	F	eP	53		
	M	iP	59.3	c	
March 10	A	iP	52.7	c	
	R	iP	56 01.0	c	
	C	iP	09.2	c	
	SH	eP	55 58		
	V	eP	47		
	B	iP	14 42 46.6	d	USCGS: 47°N, 152°E, 0 = 14 32 39. h about 100 km. Kurile Islands.
		epP	43 09		
	MH	iP	42 51.3	c	
		ipP	43 11.7	d	
	F	iP	00.9	c	
March 11		ipP	21		
	M	iP	42 39.1	c	
		ipP	43 02.9	d	
	R	iP	42 47.9	c	
	C	iP	15.5	d	
	SH	eP	31		
		e	58		
	V	eP	55		
	MH	iP	11 37 16.1	d	USCGS: 17½°S, 178½°W, 0 = 11 26 20. h about 600 km. Fiji Islands.
	F	eP	21		
March 11	M	iP	25.5	c	
	R	i(P)	29.6	c	
	SH	iP	24.0	d	
	MH	iP	13 23 10.7	d	USCGS: 18½°N, 145°E, 0 = 13 11 10 h about 200 km. Mariana Islands.
		ipP	24 13.0	c	
March 12	M	eP	23 06		
		epP	59		
	R	eP	15		
	C	eP	22 55		
	SH	eP	23 03		
		epP	53		
	F	eP	02 27 55		USCGS: 4°S, 152½°E, 0 = 02 14 56. h about 150 km. Near coast of New Britain. Felt: Rabaul.
M	eP	44			
R	iP	55.8	d		
SH	eP	47			

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
March 12	MH	iP	12 07 25.9	d	USCGS: 42°N, 21°E, 0 = 11 54 00. Southern Yugoslavia. 1 killed, several injured at Dobi Dol and Tetova.
	F	e(P)	20		
	M	eP	09		
March 12	R	i(P)	09.8	c	
	B	iP	20 43 46.6	c	USCGS: 6°S, 152°E, 0 = 20 30 39. New Britain. PAS: Magnitude 6½.
	BP	eSKSE	54 17		
		ePSEZ	55 46		
		eGN	21 07.6		
		eREZ	11.6		
			mu sec		
		PZ	2.9 9		
		GH	14 41		
March 13	MH	iP	20 43 47.3	d	
		ePP	47 12		
	F	eP	43 54		
	M	eP	49		
		ePP	47 29		
	A	e(P)	43 45		
	R	iP	54.1	d	
	C	iP	46.0	d	
	SH	eP	47		
	V	eP	49		
March 13	MH	eP	11 52 52		USCGS: 17°N, 98½°W, 0 = 11 46 56. Guerrero, Mexico. h about 150 km.
	F	eP	39		
	M	eP	53 08		
March 13	R	e(P)	52 49		
	MH	iP	24 02 26.5	c	USCGS: 7½°N, 77°W, 0 = 23 53 32. h about 60 km. Panama-Colombia border. Felt: Balboa Heights. PAS: Magnitude 6-6¼.
	R	iP	23.2	d	USCGS: 42½°N, 143°E, 0 = 00 52 57. Hokkaido, Japan.
March 14	R	e(P)	01 04 17		
	C	eP	03 43		
	SH	eP	54		
	F	eP	19 20 01		USCGS: 44½°N, 129½°W, 0 = 19 17 27. Off coast of Oregon.
	M	eP	19 16	c	
March 14	R	iP	40.9	d	
	C	iP	18 35.3	d	
	SH	eP	19 09		
	F	eP	20 59 36		USCGS: 44½°N, 129½°W, 0 = 20 57 03. Off coast of Oregon.
	M	eP	58 51		
March 15	R	eP	59 14		
	C	iP	58 11.0	d	
	SH	eP	41		
	B	eP	09 28 24		USCGS: 51°N, 174½°W, 0 = 09 20 56. Andreanof Islands, Aleutian Islands.
	BP	eNE	37.5		
March 15	MH	iP	28 30.7	c	
	F	eP	44		
	M	eP	16		
	A	eP	01		
	R	iP	29.8		
	C	iP	27 48.2	(c)	
	SH	iP	28 11.1	d	



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
March 16	BP	eP	17 50 43		USCGS: 15½°S, 173°W, 0 = 17 39 16. Samoa Islands region.
		e(S)NEZ	18 00 31		
		eRNEZ	11.7		
			R from SW		
March 19	MH	iP	17 50 43.7	c	USCGS: 3°S, 138°E, 0 = 19 15 37. New Guinea.
		eP	48		
	R	51 00			
	C	50 55			
	SH	53			
	B	19 29 22			
	BP	e(S)NE	38 38		
		eREZ	20 01		
			R from W		
		MH	iP	19 29 26.9	
March 20	R	eP	30 19		USCGS: 40°N, 143½°E, 0 = 13 36 54. h about 60 km. Off northeast coast of Honshu, Japan.
		e(P)	29 23		
	C	23			
	SH	e(P)	13 48 03		
	B	e(P)	57 16		
	BP	e(S)NE	14 05.2		
		eQN	08.8		
			R from W		
March 20	MH	eP	13 48 08	c	USCGS: 40°N, 143½°E, 0 = 17 07 30. h about 60 km. Off northeast coast of Honshu, Japan. Felt: northern Honshu and southern Hokkaido. 5 foot seismic sea wave at Miyako. PAS: Magnitude 7.
		eP	23		
	A	e	47 57		
	R	iP	48 13.5	c	
	C	eP	47 42		
	SH	eP	54		
	B	iP	17 18 44.1	c	
		eP'P'	47 02		
	BP	ePNEZ	18 44	NWd	
		iSE	27 55	E	
		iN	32.1		
		eQ	36		
	BG	eSSN	32.7		
		eREZ	40		
		mu sec			
	PZ	4.8 24			
	PH	2.3 24			
	SH	63 24			
MH	iP	17 18 48.5	c		
	iPP	19 06.1			
	eS	28 09			
	eP'P'	46 49			
	eP	18 58			
F	eP	44			
	e(P)NE	26			
A	eP	48.0	(c)		
	iP	56.5			
R	i	16.6			
	iP	34.0			
C	iP	52			
	eP				
SH					
V					

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
March 20	MH	iP	23 39 33.7	c	USCGS: 17°N, 46½°W, 0 = 23 28 28. North Atlantic Ocean.
		eP	43		
		R	25		
		C	37		
March 21	SH	eP	34		USCGS: 39½°N, 143°E, 0 = 00 34 50. Near east coast of Honshu, Japan. PAS: Magnitude 6½.
		e(P)	00 46 07		
	B	iSNE	55 19		
	BP	eGNE	01 03.1		
		eREZ	06.9		
			R from WNW		
		mu sec			
		SH	1.4 17		
		MaxH	1.7 21		
March 21	MH	eP	00 46 12.5	d	USCGS: 16°S, 173°W, 0 = 01 49 42. Tonga Islands region.
		eP	22		
	F	eP	45 53		
	A	eP	46 12		
	R	eP	45 41		
	C	eP	56		
	SH	eP	02 01 12		
	B	eP	19.4		
	BP	eGNE	22		
			eRNEZ	01 10.9	
March 21	MH	iP	09.4	d	USCGS: 40°N, 143½°E, 0 = 06 51 29. Near east coast of Honshu, Japan.
		iP	25		
	R	eP	19		
	SH	eP	07 02 45	d	
	MH	e(P)	56		
March 21	R	e(P)	17		USCGS: 40°N, 143°E, 0 = 09 18 22. Near east coast of Honshu, Japan.
		eP	31		
	C	eP	09 29 36	(c)	
	SH	eP	38 49	NE	
	B	eSNE	43.2		
	BP	eSSN	46.6		
		eQNE	50.3		
			R from WNW		
			mu sec		
			SH	0.9 18	
		MaxH	1.1 20		
March 21	MH	eP	09 29 40	c	USCGS: 16½°S, 172½°W, 0 = 11 40 15. Samoa Islands region.
		eP	49		
	F	iP	39.8	c	
	R	eP	10		
	C	eP	26		
March 21	SH	eP	11 51 41		
		eP	12 01 05		
	B	e(S)E	09.8		
	BP	eQNE	15.5		
		eRNEZ			
		R from SW			
		mu sec			
		SH	11 51 41.7	c	
		MaxH	46		
March 21	MH	iP			
		eP			
F	iP				
	eP				



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
March 21 (Cont.)	R	i(P)	59.6	c	
	C	e(P)	54		
	SH	eP	50		
March 21	F	eP	20 00 32		USCGS: 21°S, 71°W, 0 = 19 49 00. h about 60 km. Near north coast of Chile.
	R	e(P)	46		
	C	eP	01 14		
	SH	eP	00 55		
March 21	B	e(P)	23 33 10		USCGS: 39½°N, 143°E, 0 = 23 21 43. Near east coast of Honshu, Japan.
	MH	eP	14	c	
	R	e(P)	15		
March 22	MH	iP	01 54 40.3	d	USCGS: 16°N, 97½°W, 0 = 01 48 24. Near coast of Oaxaca, Mexico.
		i	55 31.5	d	
	R	iP	54 44.3	d	
	SH	e(P)	55		
March 22	C	i	10 34 39.6	c	BCIS: 39¼°N, 143½°E, 0 = 10 23 08. Off coast of Hondo, Japan.
	SH	eP	07.5		
March 22	B	eP	13 24 54		USCGS: 20½°N, 104°W, 0 = 13 19 56. h about 150 km. Jalisco, Mexico.
	BP	iP	56	Sd (NE)	
		eSNE	29 20		
		eQNE	30.7		
		eR	31.5		
			R from SE		
			mu sec		
		PZ	1.1 6		
		PH	0.8 6		
		MaxH	2.6 29		
		MaxZ	2.7 20		
	BG	SH	2.7 13		
	MH	iP	13 24 46.1	c	
		e	26 14		
	F	eP	24 32		
	R	iP	56.4	d	
	C	iP	25 46.0	d	
	SH	eP	12		
	V	eP	24 45		
March 22	B	iPKP	20 14 40.1	(c)	USCGS: 57½°S, 26°W, 0 = 19 55 45. h about 100 km. Sandwich Islands
	MH	iPKP	39.6	d	
	R	ePKP	41		
	SH	ePKP	44		
March 23	B	eP	00 34 37	NWd	USCGS: 39½°N, 143°E, 0 = 00 23 22. Near east coast of Honshu, Japan.
	BP	eSPNEZ	46		PAS: Magnitude 6-1/2 - 6-3/4.
		eSNE	43 42		
		iGNE	51.7	SW	
		e	53		
		eR	55		
			mu sec		
		PZ	3.5 12		
		PH	1.5 12		
		SH	21 20		
		GH	23 26		
	MH	iP	00 34 44.2	c	

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
March 23 (Cont.)		i	56.9	d	
		e(S)	44 15		
	F	eP	34 53		
	M	eP	37		
	A	e(P)	22		
	R	eP	45		
	C	eP	12		
	SH	eP	26		
	V	eP	50		
	SF	e(P)	38		
March 23	B	eP	01 18 31		USCGS: 39½°N, 152½°E, 0 = 01 07 15. Near east coast of Honshu, Japan.
	MH	iP	35.7	c	
	F	iP	44.8	d	
	A	eP	14		
	R	iP	35.8	c	
	C	iP	04	(d)	
	SH	eP	20		
	V	eP	38		
March 23	MH	eP	02 02 58	c	USCGS: 39½°N, 143°E, 0 = 01 51 37. Near east coast of Honshu, Japan.
	F	eP	03 07.7		
	R	iP	02 58.4	c	
	C	e(P)	33		
	SH	eP	43		
March 23	MH	iP	02 20 32.7	d	USCGS: 40°N, 142½°E, 0 = 02 09 17. Near east coast of Honshu, Japan. h about 60 km.
	F	eP	43		
	R	e(P)	34		
	C	e(P)	19 59		
	SH	eP	20 15		
March 23	F	eP	03 17 47.6		USCGS: 44½°N, 111°W, 0 = 03 15 13. Hebgen Lake, Montana.
	R	iP	44.9	d	
	C	eP	23		
March 23	B	eP	08 58 03		USCGS: 40°N, 142½°E, 0 = 08 46 44. Near east coast of Honshu, Japan.
	BP	eGN	09 16.5		
		eREZ	18.9		
			R from W		
	MH	iP	08 58 07.6	c	
	F	eP	12		
	A	i(P)	57 50	c	
	R	eP	58 03		
	C	e(P)	57 32		
	SH	eP	48		
March 23	R	e(P)	10 40 12		USCGS: 39½°N, 143°E, 0 = 10 29 01. h about 100 km. Near east coast of Honshu, Japan.
	C	eP	39 55		
March 23	R	e(P)	12 02 30.8		USCGS: 39½°N, 143°E, 0 = 11 51 00. Near east coast of Honshu, Japan.
	C	eP	01 55		
March 23	MH	iP	14 11 58.9	c	USCGS: 0 = 14 07 00. Jalisco, Mexico.
	F	eP	46		
	R	eP	12 12		
March 23	R	eP	21 45 42		USCGS: 39½°N, 143½°E, 0 = 21 34 19. Near east coast of Honshu, Japan.
	C	eP	08		
	SH	eP	23		



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
March 23	B	eP	22 33 55		USCGS: 39°N, 143°E, 0 = 22 22 36. Near east coast of Honshu, Japan. PAS: Magnitude 6.
	BP	eSNE	34 40		
			43 07		
			R from W		
			mu sec		
			1.8 18		
	MH	iP	22 34 02.0	c	
	F	eP	09		
	R	e(P)	33 59		
	C	eP	26		
	SH	eP	41		
March 24	B	iP	03 04 36		USCGS: 50°N, 175½°W, 0 = 02 57 01. Andreanof Islands, Aleutian Islands.
	BP	eREZ	15		
			R from W		
			03 04 41.4	c	
	MH	iP	54.4	d	
	F	iP	41.5	d	
	R	iP	00.8	d	
	C	iP	22.2	d	
	SH	iP	46		
March 24	V	eP	06 04 42		USCGS: 47°N, 152½°E, 0 = 05 54 28. Kurile Islands.
	B	iP	22		
	BP	eREZ			
			R from W		
			06 04 47.0	d	
	MH	iP	56	c	
	F	eP	45.4	c	
	R	iP	09.8	c	
	C	iP	29		
	SH	eP	51		
March 24	V	eP	10 03 19		USCGS: 50½°N, 173°W, 0 = 09 56 00. Andreanof Islands, Aleutian Islands.
	B	eP	25.8	c	
	MH	iP	26		
	R	eP	02 45		
	C	eP	03 05.9	d	
	SH	iP	29		
March 24	V	eP	10 09 56		USCGS: 40°N, 144°E, 0 = 09 58 45. Near east coast of Honshu, Japan.
	B	eP	59	c	
	MH	eP	10 10		
	F	eP	09.4	d	
	R	iP	09 30		
	C	eP	46		
March 24	SH	eP	14 12 23.9	d	BCIS: 13½°N, 87°W, 0 = 14 05.0. Nicaragua.
	MH	iP			
March 25	B	iP	02 40 11.2	d	USCGS: 19°S, 177½°W, 0 = 02 28 56. h about 400 km. Fiji Islands.
		e	41 26		
	MH	iP	40 12.0	d	
	F	iP	16.4	d	
	R	iP	25.2	d	
	C	iP	30.0	d	
	SH	iP	20.5	d	
	V	eP	11		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
March 26	MH	iP	08 53 39.3	d	USCGS: 7°N, 73°W, 0 = 08 44 33. h about 200 km. Colombia.
	R	eP	37		
March 27	B	eP	04 01 03	d	USCGS: 13½°S, 166°E, 0 = 03 48 27. New Hebrides Islands. Magnitude 6¼.
		e	29		
	BG	eN	10 51		
	BP	eSN	11 27		
		ePSNZ	12 23		
		eSSNZ	16.7		
		eGN	22.8		
		eRNEZ	26.4		
			R from WSW		
			mu sec		
			PZ 2.2 9		
			PH 0.6 13		
			SH 1.2 9		
			SH 2.5 7		
			MaxH 3.4 34		
	MH	eP	04 01 03	c	
	A	eP	00.9		
	R	iP	14.1	d	
	C	eP	12		
	SH	iP	07	d	
	V	e(P)	05		
March 27	B	eP	07 31 37		USCGS: 21½°N, 108½°W, 0 = 07 26 58. Off coast of Mexico. Magnitude 5.
	BP	iSNE	35 29	SW	
		eRNEZ	36.7		
			R from SSE		
			mu sec		
			PZ 0.4 10		
			SH 2.1 15		
			MaxH 4.3 18		
	MH	iP	07 31 33.8	d	
	F	eP	14	d	
	R	eP	41	c	
	C	e(P)	32 36		
	SH	eP	31 49		
March 27	MH	i(P)	07 35 09		
	F	i(P)	34 45	d	
	R	e(P)	35 12	d	
March 27	B	eP	09 10 30		USCGS: 13½°S, 166½°E, 0 = 08 57 53. New Hebrides Islands. Magnitude 6½.
		e	43		
	BP	iSNE	21 03	SW	
		e(PS)EZ	21.9		
		iNE	22.4		
		eSSEZ	26.0		
		eGN	32.4		
		eRNEZ	36		
			R from WSW		
			mu sec		
			PZ 2.5 10		
			PH 0.7 14		
			SH 3.0 16		
			MaxH 11 32		



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
March 27 (Cont.)	MH	iP	09 10 32.2	c	USCGS: 30½°S, 178°W, 0 = 17 24 41. Kermadec Islands.
	F	eP	37		
	R	iP	42.6	c	
	C	eP	40		
March 27	SH	eP	34		USCGS: 13°S, 166°E, 0 = 19 35 25. New Hebrides Islands.
	B	i(P)	17 37 40.4	c	
	MH	iP	24.4	c	
		ipP	40.8	c	
March 27	F	eP	27		USCGS: 19°N, 105°W, 0 = 20 15 45. Near coast of Jalisco, Mexico. PAS: Magnitude 6-6¼.
	R	e(P)	38 07		
	B	iP	19 48 00.0	c	
	MH	iP	01.2	c	
March 27	F	eP	07		USCGS: 13½°S, 166°E, 0 = 06 35 58. New Hebrides Islands.
	R	eP	12		
	SH	eP	05		
	B	eP	20 20 56.6	c	
March 27	BG	eSNE	25 38		USCGS: 19°N, 105°W, 0 = 21 18 30. Near coast of Jalisco, Mexico.
			R from SE		
			mu sec		
		PZ	1.9 5		
March 27		SH	4.2 13		USCGS: 7½°N, 82°W, 0 = 00 13 38. Off south coast of Panama. Felt Balboa Heights and Coiba Island. PAS: Magnitude 6-1/2 - 6-3/4.
		MaxH	10 20		
	MH	iP	20 20 49.3	c	
		i	21 17.5	d	
March 27		i	26 04.8		USCGS: 38°18'N, 119°11'W, 0 = 03 31 12. Foreshock of 0401 SW of Hawthorne, Nevada. Magnitude 4.
	F	eP	20 34		
	R	iP	21 02.1		
	C	e(P)	51		
March 27	SH	eP	06		USCGS: 38°17'N, 119°10'W, 0 = 04 01 57. SW of Hawthorne, Nevada. Near Bridgeport, California. Magnitude 4.2.
	V	eP	20 45		
	MH	iP	21 23 45.6	d	
	F	eP	28		
March 28	R	e(P)	50		USCGS: 13½°S, 166°E, 0 = 06 42 44. New Hebrides Islands.
	B	eP	00 22 19		
	BG	eSNE	23 18		
	BP	eQNE	29 17		
March 28		eN	36		USCGS: 13½°S, 166°E, 0 = 07 55 59. New Hebrides Islands.
			38		
			mu sec		
		PZ	1.4 4		
March 28		SH	9.4 11		USCGS: 27°S, 176°W, 0 = 12 37 50. Tonga Islands region.
		MaxH	5.3 34		
	MH	iP	00 22 11.4	d	
		e	29 05		
March 28	F	eP	21 59		USCGS: 13½°S, 166°E, 0 = 06 39 32. New Hebrides Islands.
	A	eP	22 41		
	R	eP	12		
	C	eP	53		
March 28	SH	eP	33		USCGS: 13½°S, 166°E, 0 = 06 39 32. New Hebrides Islands.
	V	eP	08		
			mu sec		
		PZ	1.9 5		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
March 28	B	eP	06 48 35		USCGS: 13½°S, 166°E, 0 = 06 35 58. New Hebrides Islands.
	BP	e(S)N	59 11		
		e(PS)NEZ	07 00.1		
		eGN	10.6		
March 28		eREZ	14.0		USCGS: 13½°S, 166°E, 0 = 06 42 44. New Hebrides Islands.
			R from WSW		
			mu sec		
		PZ	0.9 6		
March 28	MH	iP	06 48 39.2	d	USCGS: 13½°S, 166°E, 0 = 06 39 32. New Hebrides Islands.
	F	eP	43		
	R	iP	48.0	c	
	C	eP	47		
March 28	SH	eP	41		USCGS: 13½°S, 166°E, 0 = 06 39 32. New Hebrides Islands.
	MH	iP	06 52 17.3		
	R	e	53 27		
	SH	eP	52 15		
March 28	MH	iP	06 55 22.5	c	USCGS: 13½°S, 166°E, 0 = 06 42 44. New Hebrides Islands.
	F	eP	28		
	R	eP	33	c	
	C	eP	31		
March 28	SH	(e)(P)	33		USCGS: 13½°S, 166°E, 0 = 07 55 59. New Hebrides Islands.
	R	eP	08 08 47	c	
	SH	eP	40	d	
	B	iP	12 50 00.0	c	
March 28	MH	iP	00.5	d	USCGS: 27°S, 176°W, 0 = 12 37 50. Tonga Islands region.
		i	10.2	c	
		i	47.3	c	
	R	iP	13.8	c	
March 28	C	eP	22		USCGS: 13½°S, 166°E, 0 = 07 55 59. New Hebrides Islands.
	SH	iP	10	d	
	B	iP	03 31 54.5	d	
		iSN	32 24.9		
March 29	MH	iP	31 50.4	c	USCGS: 27°S, 176°W, 0 = 12 37 50. Tonga Islands region.
		eSNE	32 17		
	F	iP	31 42.5	d	
		i	32 02.7		
March 29		iSNE	03.9		USCGS: 13½°S, 166°E, 0 = 06 39 32. New Hebrides Islands.
	R	iP	31 37.2	d	
		i	53.1		
		i	59.2		
March 29	SH	iP	32 08.0	d	USCGS: 38°18'N, 119°11'W, 0 = 03 31 12. Foreshock of 0401 SW of Hawthorne, Nevada. Magnitude 4.
	V	iP	31 51.1		
		iSE	32 23.3		
		iS	23.6		
March 29	B	iP	04 02 39.9	d	USCGS: 38°17'N, 119°10'W, 0 = 04 01 57. SW of Hawthorne, Nevada. Near Bridgeport, California. Magnitude 4.2.
		iSN	03 10.3		
	MH	iP	02 35.6	c	
		iSNE	03 02.6		
March 29	F	iP	02 27.7	c	USCGS: 13½°S, 166°E, 0 = 06 39 32. New Hebrides Islands.
		iS	48.1		
		iSNE	48.9		
			mu sec		







Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
March 31 (Cont.)	R C SH	iP e(P) eP	34.9 06 50 00	c	
March 31	B BP	iP eQNE	20 21 29 25.1		USCGS: 26½°N, 110½°W, O = 20 17 45. Gulf of California.
	MH	iP	26.5 21 16.6	d	
	F	eP	20 57	d	
	M	eP	21 46	d	
	R	iP	27.3	d	
	C	e(P)	22 34		
March 31	SH	eP	21 53	d	USCGS: 41½°N, 142°E, O = 21 32 44. Near north coast of Honshu, Japan.
	M	eP	21 43 48	c	
		ipP	44 06.9		
March 31	SH	epP	01		USCGS: 26½°N, 110½°W, O = 22 07 10. Gulf of California.
	B	eP	22 10 52		
		i	58		
	MH	iP	48.9	d	
	M	eP	11 08	c	
	R	iP	10 51.7	d	
	C	eP	12 02		
	SH	eP	11 08		



# Bulletin of the Seismographic Stations

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BERKELEY—MOUNT HAMILTON—PALO ALTO  
SAN FRANCISCO—FERNDALE—FRESNO  
MINERAL—ARCATA—RENO—CORVALLIS—SHASTA  
MANZANITA LAKE—VINEYARD—RUTH

Earthquakes and the Registration of Earthquakes

From April 1, 1960 to June 30, 1960

BY

ROBERT HAMILTON  
GEORGE MITCHELL  
RONALD MERRILL

UNIVERSITY OF CALIFORNIA PRESS  
BERKELEY AND LOS ANGELES  
1963





SEISMOGRAPHIC STATIONS OF THE UNIVERSITY OF CALIFORNIA

Perry Byerly, Director

EARTHQUAKES IN NORTHERN CALIFORNIA, NEVADA, AND OREGON

and

REGISTRATION OF EARTHQUAKES AT: BERKELEY, MOUNT HAMILTON,  
PALO ALTO, SAN FRANCISCO, FERNDALE, FRESNO, MINERAL, ARCATA,  
RENO, CORVALLIS, SHASTA, MANZANITA LAKE, VINEYARD, AND RUTH

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EARTHQUAKES IN NORTHERN CALIFORNIA, NEVADA, AND OREGON

The list following this page gives the latitude and longitude of the epicenters for earthquakes which were well enough recorded to permit such a determination.

Map No. for each epicenter corresponds to a number plotted on the map which follows the list of epicenters.

Date and Origin Time are given in Greenwich Civil Time. Subtract eight (8) hours to convert to Pacific Standard Time (P.S.T.) or seven (7) hours to convert to Pacific Daylight Time (P.D.T.). This will change the date for some of the earthquakes. Pacific Daylight Time was legally in effect throughout California from April 24 to September 25, 1960.

M is the Richter Magnitude of the earthquakes as determined from the maximum trace amplitudes recorded for the shock by the standard Wood-Anderson Torsion Seismographs. In routine practice, the nomogram given by Nordquist in the "Bulletin of the Seismological Society of America," 32:164, is used for magnitude determinations.

Q indicates the excellence with which the epicenter has been located; "a" indicates excellent, "b" good, "c" fair, and "d" poor. Under Remarks will be found a short descriptive location of each epicenter, usually with reference to a point named on the map. Information on small foreshocks and aftershocks is sometimes included in the Remarks. When numerous foreshocks or aftershocks accompany a large earthquake, a separate table is generally included following the main list of local shocks, giving origin times, Richter Magnitudes, and, where significant differences in location can be determined, the geographic coordinates. The larger earthquakes of after-shock series are also included in the main list of local shocks.

Information on the intensities of shocks reported felt is also included under Remarks. Reports on felt earthquakes are chiefly those collected by the Seismological Field Survey of the United States Coast and Geodetic Survey, which publishes a more complete summary of such reports in "Abstracts of Earthquake Reports for the Pacific Coast and Western Mountain Region." This is a quarterly publication, and may be obtained from the District Officer, San Francisco District, Coast and Geodetic Survey, 121 Customhouse, San Francisco 26, California, or from the Director, U. S. Coast and Geodetic Survey, Washington 25, D.C.

Intensities are given by Roman numerals when sufficient information on the effects of the shock is available. These intensity numbers assigned by the Coast and Geodetic Survey are based on the Modified Mercalli Intensity Scale of 1931 (Harry O. Wood and Frank Neumann, "Bulletin of the Seismological Society of America," 21:277-283, 1931), the criteria of which follow in an abridged form.



MODIFIED MERCALLI INTENSITY SCALE OF 1931

(Abridged)

- I. Not felt except by a very few under especially favorable circumstances.
- II. Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.
- III. Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations like passing truck. Duration estimated.
- IV. During the day felt indoors by many, outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls made creaking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
- V. Felt by nearly everyone; many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.
- VI. Felt by all; many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.
- VII. Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.
- VIII. Damage slight in specially designed structures; considerable in ordinary substantial buildings with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Disturbed persons driving motor cars.
- IX. Damage considerable in specially designed structures; well designed frame structures thrown out of plumb; great in substantial buildings with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.
- X. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.
- XI. Few, if any (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipe lines completely out of service. Earth slips and land slips in soft ground. Rails bent greatly.
- XII. Damage total. Waves seen on ground surfaces. Lines of sight and level distorted. Objects thrown upward into the air.

EARTHQUAKES IN NORTHERN CALIFORNIA, NEVADA, AND OREGON

Map No.	Date 1960	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
1	Apr. 2	13-02-10	35° 58'	120° 20'	c	2.7	South of Coalinga.
2	Apr. 2	18-28-36	36° 58'	121° 43'	a	2.5	East of Santa Cruz.
3	Apr. 2	19-01-12	36.2°	120.6°	d	3.4	West of Coalinga.
4	Apr. 3	11-59-00	39.8°	120.0°	d	2	North of Reno, Nevada.
5	Apr. 5	03-33-59	38° 18'	119° 20'	b	3.1	North of Yosemite.
5	Apr. 5	03-34-47	38° 18'	119° 20'	b	3.1	North of Yosemite.
6	Apr. 5	04-02-21	38° 10'	119° 20'	b	2.8	Northeast of Yosemite.
7	Apr. 5	19-32-14	37.2°	122.3°	d	1.8	Santa Cruz Mountains.
8	Apr. 6	08-47-25	36.8°	121.5°	d	2.1	Northwest of Vineyard.
9	Apr. 6	13-59-04	36.8°	121.2°	c	2.4	East of Hollister.
10	Apr. 8	13-53-00	40.5°	121.4°	d	2.9	Mt. Lassen.
11	Apr. 9	03-38-19	38° 24'	119° 15'	b	3.6	Foreshock of 0437.
12	Apr. 9	03-38-56	38° 22'	119° 35'	d	3.2	Foreshock of 0437.
13	Apr. 9	04-00-23	38° 25'	119° 10'	c	3.9	Foreshock of 0437.
12	Apr. 9	04-37-55	38° 22'	119° 35'	c	4.0	Southeast of Markleeville.
14	Apr. 9	08-01-14	36° 30'	121° 08'	b	3.6	Southeast of Hollister.
15	Apr. 10	19-22-00	38° 25'	119° 07'	b	3.5	West of Hawthorne, Nevada, near California-Nevada border.
16	Apr. 12	10-10-47	37° 45'	119° 25'	b	3	Near Yosemite.
17	Apr. 12	14-42-44	40.2°	124.4°	c	3.1	Off coast southwest of Arcata.
18	Apr. 12	22-12-06	38° 16'	119° 20'	c	3.3	Southeast of Markleeville.
19	Apr. 13	08-57-15	37° 32'	121° 48'	b	2.0	Northwest of Mt. Hamilton.
20	Apr. 18	02-16-21	36° 37'	121° 14'	b	3.5	Southeast of Vineyard.
20	Apr. 18	10-03-06	36° 38'	121° 13'	d	2.4	Aftershock of 0216.
20	Apr. 18	11-19-48	36° 38'	121° 13'	c	2.7	Aftershock of 0216.
21	Apr. 19	22-41-50	37.2°	121.1°	d	1.5	Santa Cruz Mountains.
22	Apr. 20	04-10-07	40° 17'	123° 47'	b	3.5	Southeast of Arcata.
23	Apr. 20	06-12-28	36° 33'	121° 15'	b	2.6	Southeast of Vineyard.
24	Apr. 21	00-03-35	36° 55'	121° 46'	b	2.9	East-southeast of Santa Cruz.
25	Apr. 23	02-21-39	39.8°	121.9°	d	3.5	North of Chico.



Map No.	Date 1960	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
26	Apr. 25	21-42-33	37° 12'	122° 46'	a	2.1	South of Palo Alto, in Santa Cruz Mountains.
27	Apr. 27	01-53-53	40.6°	123.4°	d	2.6	Southeast of Arcata.
28	Apr. 28	22-02-31	36° 57'	121° 11'	c	2.1	East of Hollister.
29	May 1	22-47-57	37° 27'	121° 14'	b	2.4	East of Mt. Hamilton.
30	May 4	09-44-32	36° 25'	120° 43'	c	3.4	Southeast of Llanada.
31	May 5	02-52-00	39° 56'	118° 48'	b	2-3	North of Fallon, Nevada.
32	May 6	00-36-32	36° 47'	121° 38'	a	2.9	West of Vineyard.
33	May 6	22-54-03	36° 52'	121° 46'	a	3.1	Northeast of Monterey.
34	May 7	05-21-05	38° 02'	121° 58'	b	2.2	Northeast of Berkeley.
35	May 7	21-03-51	36° 43'	121° 23'	a	2.4	At Vineyard.
36	May 8	17-59-42	38° 02'	118° 58'	b	3.5	Northeast of Yosemite.
37	May 9	01-21-54	37° 02'	121° 50'	a	2.8	East of Santa Cruz.
38	May 10	23-09-57	36.9°	121.6°	d	2.6	Northwest of Hollister.
39	May 11	09-09-02	37° 50'	122° 14'	b	2.4	Southeast of Berkeley.
40	May 11	13-05-54	36° 42'	121° 35'	b	2.6	East of Salinas.
41	May 13	05-27-40	37.6°	122.4°	d	1.1	South of San Francisco.
42	May 13	23-20-46	36° 57'	121° 35'	b	2.5	Northwest of Hollister.
43	May 14	12-29-12	39° 57'	119° 51'	c	2.4	North of Reno, Nevada.
44	May 14	15-52-25	39.9°	119.7°	d	3.8	Northeast of Reno, Nevada.
45	May 15	06-07-23	36° 26'	121° 16'	c	2.5	South of Vineyard.
46	May 16	18-26-31	36.6°	121.4°	d	2.8	South of Vineyard.
47	May 18	06-51-03	40° 05'	119° 17'	c	2.7	Northeast of Reno, Nevada.
48	May 19	10-14-07	40.3°	124.4°	d	4.0	South of Arcata.
49	May 20	10-37-52	40° 38'	123° 36'	b	2.0	Southeast of Arcata.
50	May 21	08-18-10	38.8°	120.2°	d	2	South of Reno, Nevada (very poor location).
51	May 23	21-50-32	36° 46'	121° 19'	c	2.9	Near Vineyard. USCGS: IV at Harris Ranch (7½ miles south of Hollister).
52	May 26	14-29-45	38.1°	123.4°	d	2	Northwest of San Francisco.
53	May 27	00-41-03	40.4°	118.0°	d	3	Northeast of Lovelock, Nevada.
38	May 31	07-16-00	36.9°	121.6°	d	2.5	Northwest of Hollister.

Map No.	Date 1960	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
54	June 1	15-20-26	40.4°	124.7°	d	2.7	Southwest off coast of Ferndale.
55	June 4	06-34-46	37.4°	121.8°	d	2.5	10 km northwest of Mt. Hamilton.
56	June 5	07-47-07	37° 31'	118° 44'	c	5.2	USCGS: Felt over an area of approximately 4,800 square miles of east central California, extending on the north from Yosemite Village east to Benton, south to Bishop and Laws, southwest to Three Rivers and Woodlake, northwest through Friant to Snelling, thence northeast through El Portal to Yosemite. Maximum intensity VI at Crowley Lake (Long Valley Dam). No damage reported. Epicenter in unsettled area. V at Bass Lake, Bishop, Dinkey Creek, El Portal, and Yosemite Village.
57	June 6	01-17-48	40° 49'	124° 53'	c	5.7	USCGS: Felt over a land area of approximately 8,000 square miles, principally in Humboldt and Trinity Counties. Maximum intensity VI at Crannell, Eureka, and Ferndale. V at Alton, Bayside, Bluelake, Cutten, Denny, Ettersburg, Fields Landing, Fortuna, Freshwater, Garberville, Holmes, Hoopa, Kneeland, Korb, Loleta, McKinleyville, Rio Dell, Samoa, and Weltchpec.
58	June 6	01-39-30	40.5°	124.7°	d	2.3	Aftershock of 0117.
59	June 6	02-30-02	40.6°	124.4°	d	3.2	Aftershock of 0117.
60	June 6	03-50-49	40.6°	124.5°	d	3.0	Aftershock of 0117.
61	June 6	06-34-32	37° 24'	121° 33'	a	2.3	Northeast of Mt. Hamilton.
62	June 6	12-03-42	40.8°	124.8°	d	3.3	Aftershock of 0117.
63	June 6	19-13-27	37° 38'	121° 24'	b	2.7	Northeast of Mt. Hamilton.
64	June 6	22-13-18	40.5°	124.5°	d	3.4	Southwest of Ferndale.
65	June 8	02-54-19	40° 34'	124° 13'	b	4.3	USCGS: Felt from Arcata north to Fortuna and Rio Dell, 50 miles to the south. Intensity III at Eureka. No damage.
65	June 8	12-00-17	40.6°	124.2°	d	3.1	Aftershock of 0254.
59	June 8	14-32-19	40.6°	124.4°	d	3.8	Aftershock of 0254.

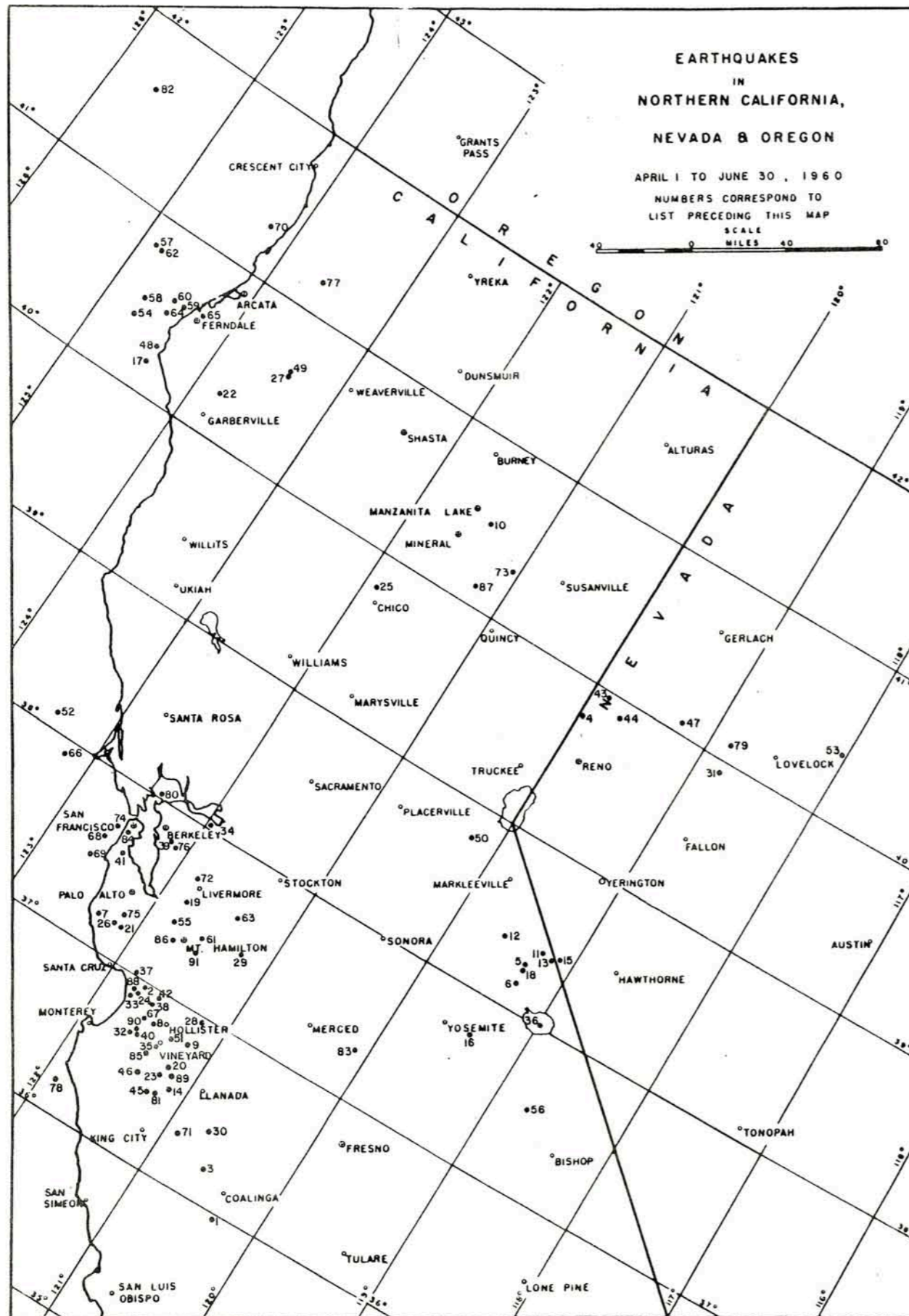


Map No.	Date 1960	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
66	June 8	18-03-15	37° 55'	123° 12'	c	2.1	West of Point Reyes.
67	June 9	03-32-22	36.8°	121.6°	d	2.3	Northwest of Vineyard.
67	June 9	03-33-13	36.8°	121.6°	d	2.1	Aftershock of 0332.
68	June 9	15-27-39	37° 39'	122° 36'	c	1.9	Southwest of San Francisco coast.
69	June 9	15-43-23	37° 29'	122° 36'	c	1.7	Aftershock of 1527.
70	June 11	11-50-31	41.3°	124.2°	d	3.1	North of Arcata.
71	June 11	17-39-48	36.3°	120.9°	d	3.7	Southeast of Vineyard; Diablo Range.
72	June 12	02-01-43	37° 42'	121° 50'	b	2.0	Northwest of Livermore.
73	June 12	07-15-34	40° 20'	121° 03'	b	3.1	North of Quincy.
74	June 16	06-42-32	37° 42'	122° 33'	b	1.5	Southwest off coast of San Francisco.
75	June 18	01-46-13	37° 16'	122° 08'	c	1.8	South of Palo Alto in Santa Cruz Mountains.
76	June 18	14-35-47	37.8°	122.1°	d	2.0	East of Oakland.
77	June 19	10-13-02	41.2°	123.6°	d	3.9	Northeast of Arcata.
78	June 19	19 51 20	36.2°	121.9°	d	2.6	Southwest of Big Sur.
79	June 23	09-17-55	40° 07'	118° 50'	b	3	North of Fallon, Nevada.
80	June 23	18-11-17	38° 05'	122° 24'	c	1.5	Northwest of Berkeley.
81	June 24	18-13-12	36° 27'	121° 13'	b	3.5	Southeast of Vineyard.
82	June 24	21-11-35	41.5°	125.6°	d	3.9	Off coast near Arcata.
83	June 25	05-07-11	37.3°	120.1°	d	3	North of Fresno.
84	June 25	08-19-37	37° 43'	122° 33'	b	2.3	Southwest of San Francisco. Felt in Parkside area of San Francisco. USCGS: Light shock felt in Daly City and in Sunset District of San Francisco.
85	June 25	08-33-56	36° 37'	121° 25'	c	2.8	South of Vineyard.
86	June 26	00-31-48	37° 18'	121° 44'	b	1.6	West of Mt. Hamilton.
73	June 28	06-41-32	40° 19'	121° 02'	b	3.8	Northwest of Quincy. USCGS: IV in Lake Almanor and Quincy areas.
87	June 28	09-41-34	40° 08'	121° 15'	b	2.5	Northwest of Quincy.
88	June 28	12-40-44	36° 55'	121° 45'	c	3.5	East of Santa Cruz. USCGS: Felt over a small area, approximately

Map No.	Date 1960	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
							700 square miles, of the coastal region east and northeast of Monterey Bay. One felt report from San Francisco. Maximum intensity V at Gilroy and Watsonville. IV at Aptos, Boulder Creek, Morgan Hill, San Juan Bautista, San Martin and Soquel.
89	June 29	08-48-42	36° 35'	121° 10'	a	3.1	Southeast of Vineyard.
90	June 29	21-25-24	36° 43'	121° 36'	b	2.5	Southwest of Hollister.
91	June 30	16-19-24	37° 20'	121° 33'	b	2.7	East of Mt. Hamilton.



THE REGISTRATION OF EARTHQUAKES



Station	North Latitude	West Longitude	Altitude Meters	Station Symbol	Present Auspices and Date
Berkeley	37° 52.4'	122° 15.6'	81	B, BG, BP*	University of California - 1887
Mt. Hamilton	37° 20.5'	121° 38.5'	1282	MH	Lick Observatory - 1887
Palo Alto	37° 25.0'	122° 10.9'	83	PA	Stanford University - 1927
San Francisco	37° 46.6'	122° 27.1'	100	SF	University of San Francisco - 1931
Ferndale	40° 34.6'	124° 15.7'	15	Fe	City of Ferndale - 1933
Fresno	36° 46.0'	119° 47.8'	88	F	Fresno City College - 1935
Mineral	40° 20.7'	121° 36.3'	1495	M	National Park Service - 1938
Arcata	40° 52.6'	124° 04.5'	59	A	Humboldt State College - 1948
Reno	39° 32.3'	119° 48.8'	1386	R	University of Nevada - 1948
Corvallis	44° 35.1'	123° 18.2'	123	C	Oregon State College - 1950
Shasta	40° 41.6'	122° 23.5'	312	SH	Bureau of Reclamation - 1942
Manzanita Lake	40° 32.2'	121° 33.7'	1800	ML	National Park Service - 1956
Vineyard	36° 45.0'	121° 23.1'	330	V	W. A. Taylor and Co. - 1959
Ruth	39° 14'	114° 59'	2270	Ru	University of California and California Institute of Technology - 1959

\*B denotes readings of short period instruments, BG and BP of long period instruments (12 sec. Galitzin-Wilip, and 30 sec. Press-Ewing).

Earthquakes in the northern California, Nevada, and Oregon region are included in the following list only if of magnitude 4.5 or greater, or if of special interest. Times usually are not reported for PA, SF, Fe or ML unless of special interest or in case of defective records at other stations.

Measurement and interpretation of seismograms from all the above listed stations are done at Berkeley; requests for special data or for copies of seismograms should be addressed to Seismographic Station, University of California, Berkeley 4, California.



STATION EQUIPMENT

Type and Component	Station
Short-period 100 kg Benioff Z	B, MH, PA, M, V
Short-period moving-coil Benioff N, E, Z	SH
Short-period Wood-Anderson N, E	B, MH, PA, SF, M, A, V
Short-period Sprengnether N, E, Z	F, R
Short-period Slichter N, E, Z	C
Short-period Wilson-Lamison Z	C
Short-period 100X torsion N, E	B
Short-period Lehner-Griffith Z	SF
Short-period moving-coil Benioff Z	A
Long-period Galitzin-Wilip N, E, Z	B
Long-period Press-Ewing N, E, Z	B, Ru
25 kg Bosch-Omori N, E	Fe
Loucks-Omori N, E	ML

The three components are indicated by N, E, Z in the "phase" column of the following tabulation of readings. When no letter appears, the phase is read from the vertical component (Z) only. "i" (impetus) preceding a phase designates sudden beginning of the motion; "e" (emersio) designates gradual beginning.

In the column headed "Ground Motion", "c" or "d" indicates initial compression or dilatation of the ground as read from the vertical component instrument. N, S, E, or W indicates that the initial ground motion was north, south, east, or west, respectively.

Maximum amplitude of earth displacement in microns ( $\mu$ ) and periods in seconds (sec) of the indicated phases are given for the Berkeley station in the column headed "Time (GCT)". Combined horizontal amplitude of N and E components are designated by H.

Instrument Changes: On April 8, 1960, instrument changes were made at the seismographic station at Vineyard. Recording was discontinued on the film recorder which had Wood-Anderson N, E and a short-period Marion moving-coil Z. The new instruments, which were installed in a Butler Building a short distance west of the winery where the previous instruments were located, were a short-period 100 kg Benioff Z and short-period Wood-Anderson N, E.

On May 17, 1960, instrument changes were made at the station at Arcata. The short-period Sprengnether Z seismometer was removed from service and was replaced by a small Benioff moving-coil Z seismometer. In the new installation,  $T_o = 0.42$  sec,  $T_g = 0.2$  sec.

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
April 1	MH	iP	03 06 19.1	c	USCGS: 22°S, 179½°W, 0 = 02 55 04. h about 650 km. Fiji Islands region.
	F	iP	22.7	c	
	M	iP	28.6	d	
April 1	C	eP	37		USCGS: 14½°S, 73½°W, 0 = 13 18 23. h about 100 km. Southern Peru.
	SH	(e)	34		
	MH	eP	13 29 21	d	
April 1	R	iP	23.6	c	USCGS: 49°N, 129½°W, 0 = 14 12 05. Off coast of Vancouver Island.
	SH	eP	35		
	B	iP	14 15 04.5	d	
April 1	BP	ePNZ	05	Nd	USCGS: 49°N, 129½°W, 0 = 14 12 05. Off coast of Vancouver Island.
		eSE	17 20		
	MH	iP	15 13.2	d	
April 1	F	iP	29.6	d	USCGS: 17½°S, 180°, 0 = 23 02 31. h about 550 km. Fiji Islands.
	M	iP	14 37.8	d	
	A	ePE	19		
April 1	R	iP	58.1	d	USCGS: 18½°N, 146°E, 0 = 06 39 08. Mariana Islands.
	C	iP	13 39.9	d	
	SH	eP	14 29		
April 1	MH	eP	14 45 49		USCGS: 18½°N, 146°E, 0 = 06 39 08. Mariana Islands.
	M	eP	07	d	
	R	eP	27		
April 1	SH	eP	44 59		USCGS: 15.5°S, 173°W, 0 = 11 49 35. Region of the Samoan Islands.
	F	eP	23 13 39	c	
	M	eP	44	d	
April 2	C	iPN	15 34.3		USCGS: 6°S, 152°E, 0 = 14 14 42. New Britain.
	MH	eP	05 21 13		
	M	iP	25.3	d	
April 2	R	e(P)	30		USCGS: 3°N, 76½°W, 0 = 15 00 36. h about 150 km. Colombia.
	SH	eP	25		
	B	iP	06 51 20.3	c	
April 2	MH	iP	23.9	c	USCGS: 28°N, 139½°E, 0 = 05 10 32. h about 550 km. Bonin Islands region.
	M	eP	18	d	
	R	iP	28.5	c	
April 2	C	e(P)	09		USCGS: 15½°N, 60½°W, 0 = 23 57 50. Lesser Antilles.
	SH	iP	16.1	d	
	M	eP	12 01 07		
April 2	R	eP	23		USCGS: 15½°N, 60½°W, 0 = 23 57 50. Lesser Antilles.
	C	eP	14 27 47		
	M	eP	13 10 31		
April 2	R	iP	21.3	c	USCGS: 15½°N, 60½°W, 0 = 23 57 50. Lesser Antilles.
	MH	eP	05 21 50.0	c	
	M	iP	23 47.7	c	
April 3	M	iP	21 42.1	c	USCGS: 15½°N, 60½°W, 0 = 23 57 50. Lesser Antilles.
		epP	23 38		
	SH	eP	21 40		
April 3		epP	23 34		USCGS: 15½°N, 60½°W, 0 = 23 57 50. Lesser Antilles.
	MH	iP	00 07 47.4	d	
		ipP	08 06.2	d	



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
April 3 (Cont.)	SH	eP	07 51.7		
		epP	08 07		
April 4	B	e(P)	04 28 06		BCIS: 0 = 04.
	BP	e(S)NE	32 20		Epicenter in the Gulf of California.
	MH	iP	28 03.3	d	
	F	eP	27 47	c	
	M	eP	28 26	c	
	R	eP	14		
April 4	B	iP	08 08 47.7	(c)	USCGS: 10°S, 161½°E, 0 = 07 56 15.
		e	09 14		h about 100 km. Solomon Islands.
		e	42		
	BP	eSNE	19 10		
		eGN	31.3		
		eREZ	34.5		
			R from W		
	MH	iP	08 08 49.9	c	
	F	e(P)	58		
	M	eP	53	c	
	R	iP	09 01.7	c	
	C	iP	08 56.2	c	
	SH	eP	51		
	SF	eP	47		
April 4	MH	eP	12 58 28	c	USCGS: 5°S, 152°E, 0 = 12 45 30.
	M	eP	29	d	h about 100 km. New Britain.
	R	e(P)	33		Felt: Rabaul and Karla.
	SH	e(P)	27		
April 4	MH	eP	23 30 27	d	USCGS: 50½°N, 177°W, 0 = 23 22 47.
	R	i(P)	33.5	c	Aleutian Islands.
April 5	B	eP	07 36 48		USCGS: 61°S, 26°W, 0 = 07 17 45.
	BP	eGNE	08 11.4		Sandwich Islands.
		eRNEZ	17.5		
			R from SE		
	MH	iP	07 36 46.9	c	
	M	eP	50		
	R	eP	49		
	SH	eP	51		
April 5	B	iPKP	12 55 18.6	c	USCGS: 60½°S, 25°W, 0 = 12 36 15.
	MH	ePKP	17	d	Sandwich Islands.
	F	ePKP	15		
	M	ePKP	20	d	
	R	ePKP	19	c	
	C	ePKP	20	c	
	SH	ePKP	22		
April 6	B	iP	02 16 59.4	d	USCGS: 20°S, 168½°W, 0 = 02 05 06.
	MH	iP	56.1	d	Chile-Bolivia border.
		ipP	17 31.5		
	F	iP	16 46.6	d	
	M	eP	17 04	d	
	A	eP	16		
	R	iP	16 58.2	d	
	C	iP	17 26.3	d	

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
April 6 (Cont.)	SH	iP	08.6	d	
	SF	iP	16 59.9	d	
April 7	B	eP	13 59 01		USCGS: 24°S, 179½°W, 0 = 13 47 28.
		epP	14 00 52		h about 500 km. Fiji Islands region.
	BP	iSN	08 36		
		eSPNEZ	09 34		
	MH	iP	13 59 01.3	d	
		ipP	14 00 49.3	c	
	F	eP	13 59 07		
		epP	14 00 55		
	M	eP	13 59 10	d	
		ipP	14 00 59	c	
	R	eP	13 59 15		
		ipP	14 01 06.2		
	C	eP	13 59 18		
	SH	eP	09	c	
		epP	14 00 57		
April 7	B	iP	24 07 36.0	d	USCGS: 21°S, 177°W, 0 = 23 55 54.
		ipP	08 27.5		h about 200 km. Tonga Islands.
			22		Magnitude 6.
	BP	ipP	22		
	BG	iSNE	17 19		
	BP	eR	28		
			R from SW		
			mu sec		
	BP	PZ	0.9 10		
	BG	SH	3.3 8		
	MH	iP	24 07 36.9	d	
		ipP	08 27.5	c	
	F	eP	07 42	d	
	M	eP	46	d	
		ipP	08 38		
	A	iP	07 41.5	d	
	R	iP	50.1	d	
		iS	17 45.6		
	C	iP	07 55.2	d	
	SH	iP	46.2	d	
	SF	eP	35		
April 9	B	eP	04 38 34	c	38°22'N, 119°35'W, 0 = 04 37 55.
		eSN	39 05		Southeast of Markleeville.
	MH	iP	38 30.2	c	Magnitude: 4.0.
		iSN	57.2		
	F	iP	24.6	d	
		iS	44.7		
	M	eP	39	d	
		iSN	39 14.2		
	R	iP	38 17.3	d	
		iS	32.9		
	C	e(P)	39 39		
	SH	iP	38 48.3	d	
		iS	39 31.7		
	V	iP	38 32.5	c	
		eSNE	39 05		



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
April 9 (Cont.)	PA	iP	38 34.8	c	
		i(S)	39 04.3		
	SF	eP	38 36		
		eS	39 05		
April 10	MH	eP	05 02 18.5	c	USCGS: 12½°N, 143½°E, 0 = 04 49 41. h about 100 km. Mariana Islands region.
	M	eP	15		
April 10	B	eP	20 33 02		USCGS: 53°N, 167½°W, 0 = 20 26 12. Fox Islands, Aleutian Islands.
	BP	eSEZ	38 38		
		eQN	41.0		
		eREZ	42.5		
			R from W		
	MH	iP	20 33 07.1	d	
		i	27.7	c	
	F	eP	23		
	M	eP	32 52	c	
	R	iP	33 06.4		
	C	eP	32 20		
	SH	eP	46		
April 13	M	eP	04 57 55		USCGS: 52°N, 175°W, 0 = 04 50 28. Andreanof Islands, Aleutian Islands.
	C	eP	29		
	SH	eP	47		
April 13	B	eP	12 44 32		USCGS: 15½°N, 92½°W, 0 = 12 37 38. Guatemala-Mexico border. 1 killed, 14 injured. PAS: Magnitude 6.
	BP	ePPEZ	45 57		
		eSNE	50 09		
		eQNE	54.7		
		eR	56.3		
			mu sec		
		PZ	1.0 5		
		SH	1.1 12		
		MaxH	11 21		
	MH	iP	12 44 27.5	c	
		i	45 15.6	d	
	F	eP	44 16		
	M	iP	40	c	
	A	iP	58.6	d	
	R	iP	28.8	c	
	C	iP	45 08.9	c	
	SH	eP	44 45		
	V	eP	24		
April 13	B	eP	13 21 27		USCGS: 52½°N, 169°W, 0 = 13 14 28. Fox Islands, Aleutian Islands.
	MH	eP	30	c	
		i	40.2	d	
	M	eP	15	c	
	R	eP	35		
	C	eP	20 45		
	SH	eP	21 09		
April 14	MH	iP	00 39 23.5	c	BCIS: 48°5'N, 130°4'W, 0 = 00 37 51.8. West of Vancouver Island.
April 15	B	eP	03 36 26		USCGS: 27°S, 113°W, 0 = 03 25 38. Easter Islands region. PAS: Magnitude 6½.
	BP	eSNEZ	45 12		
		e(SS)NZ	49.3		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
April 15 (Cont.)		eGE	52.8		
		eRNZ	56.1		
	MH	eP	36 19	d	
	M	eP	37		
	SH	eP	40		
April 15	MH	e(P)	04 25 59		USCGS: 13½°S, 166°E, 0 = 04 13 25. New Hebrides Islands.
	M	eP	26 05	c	
	SH	eP	25 03		
April 15	MH	eP	08 45 37		USCGS: 28°S, 177°W, 0 = 08 33 08. Kermadec Islands.
	M	eP	49		
April 15	B	eP	11 50 06	(c)	USCGS: 40½°N, 142°E, 0 = 11 39 01. h about 150 km. Near north coast of Honshu, Japan.
		ePcP	27		
		epP	48		
	BP	e(S)N	12 00.0		
		eSSSN	07.6		
		eREZ	11		
			R from W		
	MH	iP	11 50 10.5	c	
		ipP	58.1	d	
	M	iP	49 58.8	c	
	C	iP	36.8	c	
	SH	eP	55		
	V	eP	50 15		
April 15	B	eP	22 17 44	d	USCGS: 13½°S, 166°E, 0 = 22 05 06. New Hebrides Islands. PAS: Magnitude 6½.
	BP	eSNE	28 14		
		e(PS)NEZ	29 17		
		eQN	39.8		
		eRNEZ	43.5		
			R from WSW		
			mu sec		
	BG	PZ	4.5 7		
	BP	SH	1.7 9		
		MaxH	4.3 30		
	MH	iP	22 17 46.4	c	
	M	eP	49	d	
	R	iP	55.8	d	
	C	iP	52.8	c	
	SH	eP	49		
April 17	BP	eRNEZ	16 15.5		USCGS: 21°S, 175½°W, 0 = 15 40 02. Tonga Islands.
	MH	iP	15 52 00.2	c	
	M	eP	12		
	SH	eP	13		
April 17	B	iP	22 00 42.9	c	USCGS: 20°S, 180°, 0 = 21 49 24. h about 500 km. Fiji Islands.
	MH	iP	43.9	c	
	M	iP	51	c	
	C	eP	01 12		
	SH	iP	00 50.9	d	
April 18	B	iP	08 18 28.7	d	USCGS: 28°N, 139½°E, 0 = 08 07 07. h about 450 km. Bonin Islands region.
		ipP	20 08.3	(d)	
	MH	iP	18 33.0	d	
		i	19 12.9	c	



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
April 18 (Cont.)	M	e	18 29	d	
	C	iP	09.0	c	
	SH	iP	21.9	d	
		epP	20 00.0		
April 18	MH	iP	09 13 51.5	d	USCGS: 13½°S, 166°E, 0 = 09 01 20. New Hebrides Islands.
	M	eP	14 02	c	
	SH	eP	01		
April 18	MH	iP	13 13 51.2	c	USCGS: 13½°S, 166°E, 0 = 13 01 12. New Hebrides Islands.
	M	eP	55		
	SH	eP	53		
April 19	MH	e(P)	09 34 15	c	USCGS: 20°S, 173½°W, 0 = 09 22 31. Tonga Islands.
	M	e(P)	29		
	R	e(P)	35		
April 19	M	eP	19 33 14	c	USCGS: 51½°N, 174°W, 0 = 19 26 00. Andreanof Islands, Aleutian Islands.
	SH	eP	13		
April 19	MH	iP	20 40 13.6	d	USCGS: 51°N, 172½°W, 0 = 20 32 51. Fox Islands, Aleutian Islands.
	C	iP	39 31.8	c	
	SH	eP	54		
April 21	B	eP	02 24 27		USCGS: 2½°S, 110°W, 0 = 02 16 29. Pacific Ocean, about 1200 miles west of Galapagos Islands. Magnitude 5-3/4.
	BP	eSNE	30 51		
		eRNZ	36.7		
			R from S		
	MH	iP	02 25 16.8	d	
		i(pP)	26 19.5	d	
	M	iP	24 34.5	c	
	R	iP	37.1	c	
	C	eP	25 21.4		
	SH	e(P)	24 48		
April 21	F	ePNE	23 40 58	NW	PAS: 32°44'N, 115°42'W, 0 = 23 39 20. West of El Centro, California. PAS: Magnitude 4.2 USCGS: Felt at El Centro. III at San Diego.
		iSNE	42 03.5		
	M	e(S)	43 59		
	R	e	31		
April 22	B	eP	20 37 47	c	USCGS: 17½°S, 174½°W, 0 = 20 26 28. h about 200 km. Tonga Islands.
	BP	eSNE	47 03		
	MH	iP	37 47.0	d	
		epP	38 35	d	
	F	ePNE	37 55		
	R	iP	38 02.4	d	
	C	iP	07.3	d	
	SH	eP	37 55		
	SF	eP	46		
April 23	F	ePNE	21 57 14	NW	BCIS: 0 = 21 55.9. Southern California.
		e(S)NE	58 22		
	R	eP	54		
		eSE	22 00 56		
April 23	M	eP	24 06 44	c	USCGS: 53°N, 172½°E, 0 = 23 58 23. Near Islands, Aleutian Islands.
	C	iP	16.1	(d)	
	SH	eP	39		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
April 24	B	iPKP	03 40 14.8		USCGS: 6°S, 113½°E, 0 = 03 22 23. h about 600 km. Java Sea.
		e(PP)	41 42		
	BP	e(SP)E	50 22		
		e(SP)NE	51 54		
		e(sPS)NE	54 33		
		i(SS)E	57.8		
	MH	iPKP	40 15.6	d	
		i(SCS)	30.2	d	
		i(PP)	41 54.6		
		i(SP)	50 21.6		
	M	iPKP	40 12.8	d	
		i	42 54.2		
		eSP	50 20		
	A	iPKP	40 10.7	d	
	R	iPKP	17.9	d	
	C	ePKP	10		
	SH	ePKP	13		
		eSP	50 26		
	V	iPKP	40 17.9	d	
	Ru	iPKP	25.4		
		iPP	42 21.8		
		i(SPP)	45 20.6		
		e(SPS)	54 58		
		i	56 41.4		
	PA	iPKP	40 15.2	d	
	SF	iPKP	14.0	d	
April 24	BP	ePPSN	12 43 53		USCGS: 28°N, 54½°E, 0 = 12 14 26. Southern Iran. 500 dead, many injured and major property damage at Gerash and Lar.
		eN	55.6		
		e(R)E	13 07.4		
	MH	e(PKP)	12 33 12		
	M	e(PP)	30		
	R	i(PP)	57.1		
	Ru	e(PPS)N	43 29		
		e(R)E	13 05 31		
April 24	MH	iP	15 03 16.0	c	USCGS: 33½°S, 72°W, 0 = 14 50 45. Near coast of central Chile.
	M	e(PP)	53	c	
	R	e(P)	33		
	SH	eP	29		
April 25	MH	iP	04 11 19.2	c	USCGS: 46°N, 144°E, 0 = 04 01 10. h about 400 km. Off north coast of Hokkaido, Japan.
	M	e	17	c	
	C	eP	10 54		
April 25	B	iP	14 59 49.0		USCGS: 56°N, 155°W, 0 = 14 53 53. Kodiak Island region.
	MH	iP	15 00 01.0	c	
	M	iP	14 59 36.9	c	
	C	eP	00.3		
	SH	iP	30.8		
	Ru	e(L)NE	15 08 29		
		e(R)	09 47		
April 26	MH	iP	04 42 07		USCGS: 11°N, 84½°W, 0 = 04 34 06. Nicaragua-Costa Rica border.
	M	e	25		
	V	eP	14		



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
April 27	M R C Ru	eP e eP e	09 34 41 35 08 34 42 36 00	c	USCGS: 44½°N, 111°W, 0 = 04 32 30. Hebgen Lake, Montana. Felt: West Yellowstone.
April 27	MH M C	iP eP e(P)	21 17 19.0 08 16 48	c c	USCGS: 40°N, 142°E, 0 = 21 05 51. Near north coast of Honshu, Japan.
April 29	B MH M	iPKP iPKP ePKP	02 34 35.6 34.2 38	c d c	USCGS: 56½°S, 26°W, 0 = 02 15 35. Sandwich Islands.
	R C SH	iPKP iPKP ePKP	34 35.6 46.7 39	c d	
April 29	MH M	iP eP	04 02 00.0 04	d d	USCGS: 55½°S, 25°W, 0 = 03 43 04. Sandwich Islands.
		e	17	c	
April 29	B BP	eP e(S)NE eRNEZ	13 51 13 14 01 52 17.6	(d)	USCGS: 30°S, 178½°W, 0 = 13 38 31. Kermadec Islands.
		R from SW			
	MH F M R C SH Ru	iP eP iP iP eP eP eE	13 51 12.5 17 22.6 26.3 33 22 14 16 37 20 25	c d d	
April 29	R	iP	14 58 32.6	c	USCGS: 27°S, 179½°W, 0 = 14 45 42. Kermadec Islands region.
April 29	SH MH	e(P) iPP	57 29 19 51 01.8	c	USCGS: 0°, 122°E, 0 = 19 32 12. Celebes.
	M R SH Ru	ipPP e(PP) epPP ePKP epPP eSP eEZ	32.8 22 34 50 32 52 25 20 01 36 26 01		
April 29	M A Ru	iPKP e(PKP) e(R)EZ	21 02 51.3 53 30.5	d	USCGS: 0°, 121½°E, 0 = 20 44 27. Celebes.
April 30	MH	e(sP) eSZ	01 51 33 02 01 36		BCIS: 44°N, 110-3/4°E, 0 = 01 38 06. Etruscan Apennines, Italy. Felt: V Galeata, II Premilcuore.
April 30	M R SH Ru	ePKP ePKP e(PKP) e	04 20 05 19 58 20 10 55 30		USCGS: 0°, 122°E, 0 = 04 01 32. Celebes.

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
April 30	M R C SH	eP e eP eP	11 11 43 55 48 54 42	d c	USCGS: 16°S, 173°W, 0 = 11 00 05. Tonga Islands region.
April 30	MH F R	eP eP eP	14 30 12 14 21	d	USCGS: 9°S, 157°E, 0 = 14 17 04. Solomon Islands.
April 30	B MH F R SH	iP iP e(P) eP eP	15 24 40.0 40.8 36 53 49	c c	BCIS: 15°S, 175°E, 0 = 15 12.7. Region west of the Fiji Islands.
April 30	MH F M	iPKP ipPP ePP iPKP epPP iPP ePP ePKP ePP	22 27 40.8 30 17.6 28 42 27 39.5 30 16 28 46.8 29 27 38 28 32	d d c d d	USCGS: 6°S, 124½°E, 0 = 22 10 07. h about 600 km. Banda Sea.
May 1	M	eP	19 32 14.7	c	0 = 19.
May 2	M	eP	00 33 01	d	0 = 00.
May 2	M C SH	iP eP e	01 13 17.4 12 58 13 22	d	USCGS: 44°N, 84½°E, 0 = 01 00 00. Sinkiang Province, China.
May 2	MH M R SH	eP eP eP eP	04 28 53 29 02 06 02	c d	USCGS: 28°S, 176°W, 0 = 04 16 27. Kermadec Islands region.
May 2	BP	eSSN eQNE eR	12 44 51 55.5 13 01.4		USCGS: 0°, 121½°E, 0 = 12 10 11. Celebes. Felt: Una-Una.
		R from W			
	MH M R SH	iPKP iPP ePKP iPKP ePKP	12 28 54.5 30 01.7 28 48 52.7 45	c d c c	
May 3	B MH M C	iP iP eP eP	08 08 14.6 15.1 23 33	d d c	USCGS: 24°S, 179°W, 0 = 07 55 54. Tonga Islands region.
May 3	SH B BP MH F M R	iP iP eREZ iP iP eP eP	08 19 23.2 31.6 49.4 19 32.3 33.4 41 45	d d c c	USCGS: 24°S, 179½°W, 0 = 08 07 08. Tonga Islands region.



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
May 3 (Cont.)	C	eP	50		
	SH	eP	40		
	Ru	eE	41 18		
		e	53 20		
May 3	SH	eP	14 43 38		USCGS: 40°N, 143°E, 0 = 14 32 34. Near east coast of Honshu, Japan. Felt: Miyako.
May 3	B	iP	22 34 20.3	d	USCGS: 32°N, 140°E, 0 = 22 22 41. h about 150 km. South of Honshu, Japan. Felt: IV Hachijo-Hima and III Tokyo.
	MH	iP	24.4	c	
	F	iP	32.6	c	
	M	eP	10		
	R	iP	24.7	c	
	C	iP	33 58.1	c	
	SH	eP	51		
		epP	34 13		
May 3	B	eP	24 08 39	c	USCGS: 19½°S, 178½°W, 0 = 23 57 37. h about 600 km. Fiji Islands.
	MH	iP	39.7	c	
	C	eP	58		
May 4	B	eP	01 40 26	c	USCGS: 18°S, 71½°W, 0 = 01 28 52. h about 100 km. Near coast of Peru.
	MH	iP	12.4	c	
	V	i	32.0	c	
May 4	BP	eRNEZ	19 08.3		USCGS: 20°S, 173°E, 0 = 18 29 40. Loyalty Islands region.
	MH	iP	18 42 15.7	d	
	F	e(P)	22		
	M	e	47		
	R	eP	49		
	SH	eP	23		
	Ru	eE	19 07 05		
		eEN	11 10		
May 5	R	e	03 44 39		USCGS: 46°N, 111½°W, 0 = 03 39 50. Montana. Felt at Manhattan, Logan and Three Forks.
May 5	B	eP	11 35 34	c	USCGS: 52½°N, 158½°E, 0 = 11 26 00. Near east coast of Kamchatka.
		ipP	46.2	c	
	BP	eRNEZ	51 45		
	MH	iP	35 39.2	d	
		i	52.1		
	F	eP	51		
	M	iP	25.1	c	
		ipP	57.6	c	
	R	eP	37		
	C	iP	34 58.5	d	
	SH	eP	35 20		
May 6	MH	eP	06 32 07	d	USCGS: 21½°S, 71°W, 0 = 06 19 20. Near coast of Chile.
	M	e	31 42		
	C	iP	37.8	c	
	SH	eP	20		
May 6	MH	iP	12 18 55.8	c	USCGS: 14½°N, 101°W, 0 = 12 12 53. Off coast of Mexico.
	F	eP	42		
	M	eP	19 14	c	
	R	iP	02.2	c	

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
May 6 (Cont.)	C	eP	50		
	Ru	eE	24 54		
May 6	M	eP	18 56 37	d	USCGS: 54°N, 161°E, 0 = 18 47 26. Near east coast of Kamchatka.
	R	e	57 01		
	C	i(P)	56 09.7	d	
	SH	e(P)	43		
May 8	MH	iP	03 31 03.0	d	USCGS: 6½°S, 108°W, 0 = 03 22 44. Pacific Ocean, about 900 miles southwest of Galapagos Islands.
	M	eP	28		
May 8	Ru	eNE	45 09		USCGS: 14½°N, 92°W, 0 = 12 08 52. h about 60 km. Mexico-Guatemala border.
	MH	iP	12 15 39.5	c	
May 8	M	iP	14 39 31.4	d	USCGS: 45½°N, 151°E, 0 = 14 29 14. h about 100 km. Kurile Islands.
	R	eP	37	c	
	C	iP	08.4	d	
May 9	B	iP	00 23 45.8	d	USCGS: 30½°N, 129½°E, 0 = 00 11 10. h about 150 km (BCIS), Ryukyu Islands. Felt: Yaku-Shima.
	MH	iP	50.0	d	
	M	iP	22 41.6	c	
	R	iP	23 49.4	c	
	C	iP	24.4	d	
May 9	B	iP	16 40 07.1	d	USCGS: 6½°N, 33½°W, 0 = 16 27 26. Atlantic Ocean.
	MH	iP	05.5	c	
	M	e(P)	22	c	
	R	eP	39 59		
	SH	eP	40 05		
May 9	B	iP	20 21 44.9	c	USCGS: 4½°S, 106°W, 0 = 20 13 29. h about 60 km. Pacific Ocean, about 900 miles southwest of Galapagos Islands.
		isP	23 17.2	d	
	BP	eS	28 26		
		eQN	32 06		
		eRNZ	34.3		
		R from S			
	MH	iP	20 21 47.2	c	
	F	e(P)	28		
	M	eP	58	c	
	R	eP	52		
	C	eP	22 35		
	Ru	eE	31 45		
		eN	35 12		
May 9	M	(i)P	23 48 30	c	44½°N, 111½°W, 0 = 23 45 53. Hebgen Lake, Montana.
	R	e	50 14		
May 10	MH	eP	23 23 04		USCGS: 15½°N, 92½°W, 0 = 23 16 17. Near coast of Chiapas, Mexico.
	F	eP	22 46.2		
	M	eP	23 16	c	
	R	iP	04.1	d	
May 10	B	eP	23 30 26		USCGS: 34°N, 131½°E, 0 = 23 17 57. h about 100 km. Near coast of western Honshu, Japan.
	MH	iP	32.7	c	
	M	eP	00	d	
		i	21.1	d	
	R	iP	30.0		
	C	eP	29 42		
	SH	eP	57		



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
May 11	BP	iPS eLZ eREZ	09 03 45 09.6 23.4		USCGS: 3°S, 131°E, 0 = 18 36 00. Ceram Sea. PAS: Magnitude 6½.
May 12	BP	e(R)Z	R from WNW 16 11.8		USCGS: 43½°N, 128½°W, 0 = 16 08 26. h about 60 km. Near coast of Oregon.
	MH	eP	10 23	c	
	F	iP	43.7	d	
	M	iP	09 54.6	c	
	A	e(P)	32		
	R	e(P)	10 15		
	C	iP	09 20.7	(d)	
	SH	eP	46		
	Ru	e(S)NE	13 53		
May 12	MH	iP	23 09 04.5	d	USCGS: 7½°N, 80½°W, 0 = 23 00 36. Near south coast of Panama.
	M	eP	16	d	Felt: Balboa Heights.
	R	e(P)	20		
May 13	B	iP	10 05 30.5	c	USCGS: 20°N, 109°W, 0 = 10 00 40. Revilla Gigedo Islands region.
	BP	eSNE eLNE eRZ	09 34 11.3 11.9		
			R from S		
	MH	iP	10 05 22.9	c	
		i	10 14.4		
	F	iP	05 08.9	d	
	M	eP	49	c	
		e	10 44		
May 13	MH	iP	10 26 00.5		BCIS: 0 = 10 17 40. Region of the Revilla Gigedo Islands. Aftershock of May 13, 1960, 10 00 40.
	M	e	34		
May 13	B	iP	16 13 36.8	(c)	USCGS: 55°N, 161½°W, 0 = 16 07 12. Alaska Peninsula. Felt: Cold Bay. Magnitude 6.
		i	45.8		
	BP	eSEZ eREZ	18 40 21		
			R from WNW		
			mu sec		
		PZ	1.5 7		
		SH	3.7 16		
	MH	iP	16 13 40.1	c	
		i	52.4		
	F	iP	56.4	d	
	M	eP	24	d	
		i	33.9	c	
	A	eP	11		
	C	eP	12 59		
	SH	iP	13 18.7		
		e	28		
	Ru	iPE	14 13.1		
		iSE	19 26.7		
		i(G)E	21 59.9		
	PA	iP	13 39.9	c	
	SF	eP	36		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
May 13	BP	e(L) e(R)	21 24.3 29.3		USCGS: 32½°S, 179°W, 0 = 20 46 35. Kermadec Islands region.
May 14	MH	eP	22 29 25	d	USCGS: 53½°N, 159½°E, 0 = 22 19 55. Kamchatka.
	R	iP	23.7		
	C	eP	28 45		
	SH	eP	29 06		
May 15	R	e(P)	13 43 57.6		USCGS: 24°N, 121½°E, 0 = 13 30 20. Near east coast of Formosa.
	C	eP	24		
	SH	eP	35		
May 15	R	iP	21 43 58.6	d	USCGS: 54½°N, 164½°W, 0 = 21 37 08. Alaska Peninsula.
	C	i(P)	12.4	c	
	SH	eP	29		
May 17	M	eP	09 29 24		USCGS: 78°N, 8°E, 0 = 09 19 32. Svalbard region.
May 18	B	eP	06 47 40	c	USCGS: 29°N, 130°E, 0 = 06 35 09. h about 100 km. Ryukyu Islands.
	BP	iP	41	c	Felt: Yaku-shima; Kagoshima and Miyazaki, Japan.
		iSNE	58 06	SE	PAS: Magnitude 6-3/4.
		eGN	07 10 13		
		eRNEZ	13.9		
			R from W		
	MH	iP	06 47 43.4	c	
		i	59.0	c	
	F	eP	53		
		i	48 06.3	d	
	M	eP	47 35	d	
		i	37.4	d	
	A	eP	29		
	R	iP	44.0		
	C	ePN	23		
	V	eP	49		
	SF	eP	42		
May 19	M	eP	08 03 22	c	0 = 07.
	C	iP	02 52.3	c	
May 19	B	eP	10 32 32		USCGS: 17°S, 66°E, 0 = 10 11 51. Mascarene Islands region.
		e	33 01		
	BP	eGNE	11 57.2		
		e(R)	29		
	MH	e(P)	10 32 28		
		e	33 11		
	M	e(P)	32 18	c	
	R	i(P)	26.0	d	
	C	e(P)	06		
	SH	e(P)	31 57		
		e	32 09		
		e	53		
May 20	BP	eRNZ	00 18.0		BCIS: 0 = 00. Epicenter probably off coast of Southern Mexico--insufficient reports.
			R from S		



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks	
1960			h. m. s.			
May 20	B	eP	11 25 52		USCGS: 28°S, 167½°E, 0 = 11 12 31. Norfolk Island. PAS: Magnitude 6-1/2 - 6-3/4.	
		BP	52			
		e	29 40			
		e(S)E	35 53			
		ePSEZ	38 25			
		eNE	42.5			
		eGNE	50			
		eRNEZ	55			
			R from WSW			
			MH	iP		11 25 51.8
May 20	F M R SH MH M R	e	29 35		USCGS: 45°N, 111°W, 0 = 17 54 02. Hebgen Lake, Montana. Felt: Gibbon Meadows.	
		e	37 38			
		eP	25 56	c		
		eP	57	d		
		iP	26 04.1			
		eP	25 57			
		e	17 56 24	d		
		e	45			
		eP	43			
		iE	56.4			
May 21	C SH B BP BG BP B BP BG MH F M A R C SH V PA SF B MH F M R SH B	e	58 46.1		USCGS: 37½°S, 73½°W, 0 = 10 02 50. Near coast of Chile. Several injured and moderate property damage at Concepcion and surround- ing area. Magnitude 7¼-7½.	
		e	56 27			
		e	49			
		e(P'P')	10 42 23	cNW		
		iPNEZ	15 44			
		iSN	26 24			
		eRN	44.4			
			mu sec			
		PZ	7.7 6			
		PH	5.6 18			
SH	86 24					
iP	10 15 42.2	d				
i	58.6	d				
eSNE	26 23					
eP	15 33					
eE	47					
eP	54	c				
e(P)	16 17					
eP	15 45	c				
iP	16 23.3	c				
eP	15 55					
e	41					
iP	47.4	d				
eP	50					
eP	11 06 45					
iP	45.3	d				
eP	35					
eP	52					
eP	48					
eP	55					
May 21	B	eP	12 00 52		USCGS: 38°S, 71°W, 0 = 11 47 58. Chile.	
		e	01 08			

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
May 21	B	eP	12 34 08		USCGS: 37½°S, 73°W, 0 = 12 21 16. Chile.
		e	19		
May 21	R SH B MH F M R B MH R R	iP	20.5	c	USCGS: 37½°S, 72½°W, 0 = 12 59 58. Chile. BCIS: h about 60 km.
		eP	19		
		eP	13 12 50		
		e	13 02		
		iP	12 47.8	c	
		eP	40		
		eP	58	d	
		iP	51.9	c	
		eP	14 12 15		
		iP	06		
May 21	R R B MH	eP	18		USCGS: 37½°S, 72½°W, 0 = 13 59 17. Chile.
		eP	15 21 37		
		eP	15 28 28	d	
		eP	28		
		i	40.0		
		eP	44		
		iP	47.1	d	
		eP	35		
		eP	19 19 21		
		e	33		
May 21	R	eP	19 40 54		USCGS: 37½°S, 73°W, 0 = 15 08 45. Chile.
		eP	03 58 59		
		eP	59 20		
		eP	08 23 54		
		iP	51.8	c	
		eP	43		
		e	59		
		iP	55.8	c	
		eP	24 01		
		iP	10 43 31		
May 22	BP MH F M R SH BP MH F M R C SH V B BP	i(S)NE	54 17		USCGS: 38°S, 73½°W, 0 = 10 30 39. Near coast of Chile. Magnitude 6¼.
			mu sec		
		PZ	2.8 10		
		PH	0.9 12		
		SH	9.3 22		
		eP	10 43 29	d	
		eP	21		
		eP	46	d	
		iP	34.0	d	
		i(P)	44 20.5	c	
eP	43 41				
eP	25				
eP	10 45 35				
iPNEZ	37	NWc			
iSNE	56 15				
	mu sec				
PZ	11 20				
PH	4.1 20				
SH	65 28				
May 22	B BP	eP	10 45 35		USCGS: 37½°S, 73°W, 0 = 10 32 43. Near coast of Chile. Magnitude 7.
		e	56 15		



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
May 22 (Cont.)	MH	eP	10 45 30		
		i	47.9	c	
		i	49 08.2		
	F	eP	45 33		
	M	eP	41	(c)	
	R	eP	35		
	C	e(P)	46 04		
	SH	e(P)	45 45		
	PA	e(P)	34		
	SF	eP	36		
May 22	C	eP	11 09 41		USCGS: 19½°N, 121½°E, 0 = 10 56 26. Babuyan Islands.
May 22	B	e(P)	12 29 33		USCGS: 38°S, 73°W, 0 = 12 16 43. Chile.
	MH	eP	27		
	F	eP	33		
	M	eP	50		
May 22	R	e	50		
	BG	iPNEZ	19 08 53	NWc	USCGS: 38°S, 73½°W, 0 = 18 55 57. Near coast of Chile. Magnitude 7¼.
		iSKSNE	19 20		
		iSN	41		
			mu sec		
		PZ	11 6		
		PH	3.5 4		
		SH	54 11		
		SKSH	12 10		
		MH	eP	19 08 49	c
May 22		i	51.5	d	
	F	eP	42		
	M	eP	59	c	
	A	e(P)	09 16		
	R	iP	08 53.5	c	
	C	eP	09 22		
	V	eP	08 47		
	Ru	ePNE	45		
		eNE	19 06		
	PA	eP	08 50	c	
May 22	SF	eP	53		
	BP	e(P)	19 23 37		USCGS: 38½°S, 74½°W, 0 = 19 10 37. Chile. Magnitude 7-1/2 - 7-3/4.
			mu sec		
	BG	PZ	16 9		
	MH	i(P)	19 23 34.4		
	F	i	26.9		
	M	eP	43	(c)	
	A	e(P)	24 03		
	R	iP	23 39	(c)	
	C	eP	24 12		
May 22	V	e(P)	23 31		
	PA	iP	35.6	d	
	SF	eP	39		
	BG	iPNEZ	19 24 15	(NWc)	USCGS: 39½°S, 74½°W, 0 = 19 11 17. Near coast of Chile. More than
	B	eP'P'	50 13		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks	
1960			h. m. s.			
May 22 (Cont.)	BWA	e(S)NE	34 58		2,000 killed, 3,000 injured and \$550 million damage in Chile; seismic sea wave caused 56 deaths, \$75 million damage in Hawaii; 138 deaths and \$50 million damage in Japan; \$500 thousand damage in west coast of U.S. Magnitude 8½.	
		eGNE	48			
			mu sec			
	BG	PZ	46 6			
		PH	15 6			
	BWA	PH	2.8 2.5			
		SH	100 10			
		GH	3500 55			
		V	iP	19 24 04		(d)
	May 22	B	e(P)	19 40 36		
May 22	B	eP	20 29 36		0 = 20.	
	R	eP	38			
	C	e(P)	30 23			
	B	eP	22 26 55		USCGS: 39°S, 74°W, 0 = 22 14 02. Chile.	
May 22		i	27 00.0			
	MH	iP	26 52.4	d		
	F	eP	49			
	M	eP	27 06	c		
	R	i	05.8	d		
	B	eP	22 28 20.0		BCIS: 39°S, 74°W, 0 = 22 15 23. Chile.	
	MH	i	22.7	d		
	M	eP	27	c		
	R	e(P)	29			
	B	iP	23 17 33.9	c	USCGS: 41°S, 76°W, 0 = 23 04 38. Chile.	
May 22	MH	iP	30.9	c		
		i	19 55.3			
	M	eP	17 53	c		
	R	iP	35.6	c		
	R	iP	23 42 21.6	c	USCGS: 39½°S, 72°W, 0 = 23 29 18. Chile.	
	MH	iP	23 45 37.1	c	USCGS: 41½°S, 73½°W, 0 = 23 32 40. h about 60 km. Chile.	
		iPP	48 05.3	c		
	F	eP	45 28			
	R	eP	42			
	MH	iP	23 51 55.4		BCIS: 40°S, 74°W, 0 = 23 39 00. Chile.	
May 22	B	iP	00 09 08.7		USCGS: 42½°S, 74°W, 0 = 23 56 10. h about 60 km. Chile.	
	MH	iP	06.2	c		
	F	eP	08 59			
	M	e(P)	09 19			
	R	eP	09			
	SH	eP	19			
	B	eP	00 38 37		USCGS: 38½°S, 75°W, 0 = 00 25 44. Near coast of Chile.	
	MH	iP	35.7	c		
		i	40 10.5			
	F	eP	38 27			
May 23	M	eP	45	d		
		e	40 21			
	R	e(P)	38 39			
	SH	eP	47			







Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
May 24 (Cont.)		iGNE eRNEZ	29.3 34	(NW)	
			R from SW		
			mu sec		
	BP	PPZ	0.7 10		
		SKSH	3.3 32		
		GH	26 50		
		MaxH	16 19		
		MaxZ	14 19		
	MH	ePP	15 05 04		
	R	e	25		
	C	e	06 16		
	SH	e	04 56		
May 25	B	eP	06 46 39		40°S, 74°W, O = 06 33 40. Chile.
	MH	iP	37.0	c	
May 25	B	eP	08 47 51		USCGS: 45°S, 76°W, O = 08 34 33. Off coast of Chile. Magnitude 6¼-6½.
	BP	iPPNEZ	51 46		
		eNE	57 43		
		iSE	59 05		
		iPSNE	09 00 21		
		eSSNE	04.7		
		i(SSS)NEZ	08.9		
		eGNE	12		
		eRNEZ	18.2		
			R from SSE		
			mu sec		
		PZ	3 10		
		PH	0.8 20		
		PPZ	2.0 14		
		PPH	1.8 16		
		GH	40 42		
		SH	8.2 15		
	MH	eP	08 47 46	c	
		i	53.1	d	
	F	eP	44	c	
	M	eP	59		
	R	eP	57		
	SH	e(P)	59		
	V	eP	43		
	Ru	eP	46		
		eNE	50 31		
		eNE	58 59		
May 25	B	iP	10 12 26.4	c	USCGS: 38°S, 73½°W, O = 09 59 36. h about 60 km. Chile.
		e	13 48		
	MH	eP	12 23	d	
	M	eP	42		
May 25	B	eP	10 26 01	d	USCGS: 28½°S, 177°W, O = 10 13 39. h about 60 km. Kermadec Islands region.
	MH	iP	00.9		
	F	eP	06		
	M	e	11		
	R	eP	19		
	SH	e	02		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
May 25	B	iP	12 58 41.5	c	USCGS: 41½°S, 74°W, O = 12 45 42. h about 60 km. Chile.
	MH	eP	38	d	
		i	46.7	c	
			43		
May 25	B	eP	15 10 30.9	c	USCGS: 22°S, 179½°W, O = 14 59 12. h about 600 km. Fiji Islands.
	MH	iP	31.8	c	
		e	12 30		
		e	13 45		
	F	iP	10 35	c	
	M	eP	41	c	
		e	12 48		
	R	iP	10 43.6	c	
	SH	iP	39.4		
May 25	B	iP	15 16 30.7	c	22°S, 179½°W, O = 15 05 15. h about 600 km. Fiji Islands.
	MH	iP	31.1	c	
	M	iP	41.1	d	
	C	e(P)	50		
	SH	iP	39.2		
May 25	B	eP	19 34 45		USCGS: 40°S, 75½°W, O = 19 21 48. Chile.
	BP	eRNEZ	20 03.8		
	MH	iP	19 34 42.3	c	
	M	eP	53	c	
	R	eP	47		
	SH	iP	55.4	d	
May 26	MH	eP	01 41 06	c	40½°S, 74°W, O = 01 29 10. Near coast of Chile.
May 26	B	iP	05 23 39.6	(c)	USCGS: 40°N, 20°E, O = 05 10 05. Albania-Greece border. 8 people killed, 100 injured, 500 houses heavily damaged and 580 more suf- fered lighter damage centering around Korce.
	BP	ePP	27 32		
		eSE	35 05		
		ePSNEZ	36 07		
		eSSNZ	41.9		
		eQNE	50		
	MH	iP	23 39.2	c	PAS: Magnitude 6½.
		iPP	27 09.3		
	F	eP	23 38		
	M	eP	26	d	
	R	iP	27.4	c	
	C	iP	14.9	c	
	SH	iP	24.6		
May 26	MH	iP	12 07 46.9	d	42°S, 74°W, O = 11 54 48. h about 60 km. Chile.
May 26	B	iP	15 21 38.6	c	41½°S, 73½°W, O = 15 08 39. h about 60 km. Chile.
	MH	iP	36.3	c	
	SH	eP	48		
May 27	MH	eP	00 37 53	d	USCGS: 22°S, 172°E, O = 00 25 03. Loyalty Islands region.
	F	e	38 12		
	M	e	29	d	
	R	e	21		
	SH	eP	17		
May 27	M	e	01 38 14		USCGS: 42½°N, 98½°E, O = 01 24 45. Mongolia.
	C	eP	37 27		
	SH	iP	43.2		



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
May 27	B BP	eP eRNZ	03 30 22 59.7		USCGS: 41°S, 76°W, 0 = 03 17 21. Off coast of Chile.
			R from S		
	MH	iP	03 30 18.8	d	
	F	eP	12		
	M	eP	29	d	
	R	eP	25		
	SH	iP	32.2	d	
May 28	MH	iP	03 18 55.7	c	USCGS: 39½°S, 74½°W, 0 = 03 05 53. Chile.
	M	eP	19 04	d	
	R	e	01		
	SH	iP	03.3		
May 28	B	iP	10 57 11.4	d	USCGS: 40½°S, 74°W, 0 = 10 44 16. h about 60 km.
	MH	iP	08.4	d	Chile.
	i		58 30.2		
	M	eP	57 18	c	
	R	eP	13		
May 28	B	e(P)	11 18 43		USCGS: 38°S, 73°W, 0 = 11 05 40. Chile.
	BG	eSN	29 18		
	BP	eRNEZ	47.1		
			R from SSE		
	MH	iP	11 18 40.0	c	
	R	iP	44.3	c	
	C	eP	19 12		
	Ru	eP	18 23		
		eSNEZ	28 53		
May 29	BP	iP	07 52 22	c	USCGS: 38°S, 72½°W, 0 = 07 39 29. Chile. Magnitude 6¼.
		eSKSE	08 02 42		
		eSNE	03 05		
		eSSNE	08.8		
		eGNE	17		
		eRNZ	20.8		
			R from SSE		
			mu sec		
	BG	PZ	1.7 6		
	BP	SH	2.9 9		
		GH	3.6 45		
		RH	4.4 19		
	MH	iP	07 52 19.2	c	
		i	29.1	d	
		i	53 24.2		
		i	56 01.1		
	F	eP	52 09		
	M	eP	35	c	
		i	45.7		
	R	iP	22.9	c	
	C	eP	51		
	SH	eP	31		
	V	eP	17		
	Ru	iP	12.4		
		eNEZ	08 02 39		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
May 29	R	eP	08 47 17		USCGS: 37½°S, 73°W, 0 = 08 34 20. Southern Chile.
May 29	BP	eP	21 37 03	d	USCGS: 43°S, 77°W, 0 = 21 23 54. Near coast of southern Chile.
		eNE	48 06		
		iNE	49 18		
		eRNZ	22 06		
			R from S		
	MH	e	21 36 55		
	F	eP	53		
	M	e	37 15		
	R	iP	04.9	c	
	SH	eP	13		
May 29	B	iP	21 52 46.3	c	USCGS: 38°S, 73½°W, 0 = 21 39 46. h about 60 km. Chile.
	R	iP	47.7	c	
	SH	eP	55		
May 30	M	e	07 07 49		USCGS: 53½°N, 164°W, 0 = 07 01 15. Unimak Islands region.
	C	eP	09		
May 31	B	eP	02 52 55	d	USCGS: 39½°S, 75°W, 0 = 02 40 00. Chile. Magnitude 6.
	BP	iSKSNE	03 03 26	NW	
		iSNE	46		
		iPSN	04 44		
		eSSNE	09.1		
		eSSSNEZ	13.1		
		eGNE	16.5		
		eRNEZ	21.7		
			R from S		
			mu sec		
	BG	PZ	1.3 5		
		SKSH	1.1 5		
		SH	2.6 10		
	BP	MaxH	2.7 26		
		MaxZ	2.8 27		
	MH	eP	02 52 53	d	
		i	53 14.9	d	
	F	iP	52 44.8		
	M	eP	53 02	d	
	R	iP	52 59.5		
	SH	iP	53 06.3	d	
	Ru	iP	52 47.0		
		e	03 03 23		
	SF	eP	02 52 56		
May 31	B	iP	11 12 00.8	c	USCGS: 18°N, 62°W, 0 = 11 02 20. Leeward Islands. Felt St. Kitts and Antigua. Magnitude 6.
	BG	iPP	14 09	c	
		ePPP	15 26		
	BP	iSNE	19 53		
		iScSN	21 52		
		eSSN	23.7		
		eQN	25.6		
		iEZ	26 22		
		eREZ	29		
			R from E		



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
May 31 (Cont.)			mu sec		
		PZ	1.7 12		
		PH	0.8 14		
		SH	2.1 27		
	BG	MaxH	14 22		
		MaxZ	13 22		
	MH	iP	11 11 57.6	c	
		i	12 16.9	d	
	F	iP	11 45.2	c	
	M	iP	57.1	c	
		i	12 06.5	d	
	A	iP	12.0	d	
	R	iP	11 46.8	c	
	C	iP	12 09.1	c	
	SH	iP	01.0		
	V	iP	11 55.8		
	PA	iP	12 00.4	c	
	SF	iP	01.5	c	
May 31	R	eP	13 24 22.5		USCGS: 7½°S, 156°E, 0 = 13 11 02. Solomon Islands.
June 1	SH	e	23 58		USCGS: 38°S, 73°W, 0 = 05 02 56. Chile.
	BP	eP	05 15 50		
		eSKSE	26 18		
		eSNE	36		
		eRNZ	46.6		
		R from S			
	MH	e	05 15 54		
	F	eP	41		
	R	eP	53		
	SH	e	58		
	Ru	eP	40		
		eSNEZ	26 15		
		eRNZ	44.2		
		R from SE			
June 2	B	iP	06 11 25.8	c	USCGS: 46½°S, 74°W, 0 = 05 58 03. Southern Chile.
	BP	eNE	21.4		PAS: Magnitude 6-3/4.
		eGE	37.2		
		eRN	42.4		
		R from S			
	MH	iP	06 11 22.4	d	
	F	eP	16		
	R	eP	31		
	SH	eP	36		
	V	eP	22		
	Ru	iP	19		
		e(S)N	23 39		
		eGE	37.1		
		eR	42.7		
June 2	B	e(P)	07 30 43		USCGS: 19°S, 175°W, 0 = 07 19 10. h about 150 km. Tonga Islands.
	MH	iP	44.4	d	
		i	31 18.2		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
June 2	B	iP	08 00 19.2		USCGS: 5½°S, 151½°E, 0 = 07 47 11. New Britain. Felt: Rabaul, Karlai, Ragarere, Palmalmal.
	BP	eE	09 58		PAS: Magnitude 6-1/2 - 6-3/4.
		e(S)NE	11 05		
		eNE	12 18		
		eGN	23 50		
		eRE	28 10		
		R from WSW			
	MH	eP	08 00 19		
	F	eP	27	(c)	
	M	eiP	22	(c)	
		i	38.0		
	R	iP	28.5	c	
	C	iP	18.9	c	
	SH	iP	20.4		
	V	iP	23		
	Ru	iP	47		
		eSE	11 42		
		eN	12 18		
		e(PS)NZ	13 28		
		e(G)N	27.3		
		eR	31.2		
June 2	B	iP	08 49 10.4	d	USCGS: 40°S, 74°W, 0 = 08 36 10. Near coast of Chile.
	MH	eP	07	d	
	F	iP	00.2		
	M	eP	17	c	
	R	iP	12.6	c	
	SH	iP	21.2		
	V	iP	05.0	d	
	PA	iP	09.5	c	
	SF	eP	11		
June 2	B	iP	19 10 15.1	d	USCGS: 20½°S, 178½°W, 0 = 18 59 05. h about 550 km. Fiji Islands.
	MH	iP	15.5	d	
	F	iP	19.7	d	
	M	iP	25.0	c	
	R	iP	28.0	d	
	C	iP	33.5	d	
	SH	iP	24.2		
	PA	iP	14.3	c	
	SF	iP	14.1	d	
June 2	B	eP	19 59 38	(d)	USCGS: 20½°S, 178°W, 0 = 19 48 29. h about 550 km. Fiji Islands.
	MH	iP	39.3	d	
	F	eP	43		
	M	iP	48.1	c	
	C	eP	57		
	SH	iP	47.9		
June 3	MH	eP	03 34 58	c	USCGS: 29°S, 176½°W, 0 = 03 22 31. h about 60 km. Kermadec Islands.
		i	35 28.5	c	
	M	eP	05		
	SH	eP	07		
June 3	B	eP	07 51 22		USCGS: 5½°S, 151°E, 0 = 07 38 14. New Britain. Felt: Lolobar, Palmalmal, Taliligap.
	BP	eREZ	08 20.2		
		R from W			



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
June 3 (Cont.)	MH	eP	07 51 25	c	
	F	eP	30		
	M	iP	24.5	d	
	R	eP	32		
June 3	SH	eP	23		
	MH	iP	10 39 05.5	c	19°S, 66½°W, 0 = 10 27 40.
	M	eP	14	c	h about 250 km. Southern Bolivia.
	C	eP	35		
	SH	eP	18		
June 3	B	iP	13 25 37.3	c	USCGS: 17½°S, 179½°W, 0 = 13 14 38.
	MH	iP	38.4	c	h about 600 km. Fiji Islands.
		i	27 47.4		PAS: Magnitude 6.
	F	eP	25 43		
	M	iP	46.3	c	
		i	26 00.3		
		i	27 54.7		
	R	iP	25 50.8	c	
	C	iP	54.6	c	
	SH	iP	45.7	c	
	V	iP	38	c	
June 3	B	iP	13 34 35.8	c	USCGS: 17½°S, 179°W, 0 = 13 23 37.
		epP	36 43		h about 600 km. Fiji Islands.
	MH	iP	34 37.2	c	PAS: Magnitude 6.
		ipP	36 45.2		
		i	37 41.6		
	F	iP	34 41.3		
	M	iP	45.1	c	
	R	iP	49.7	c	
	C	iP	53.4	c	
	SH	iP	44.5	d	
	V	ePEZ	37		
June 3	B	eP	16 29 11		USCGS: 41½°N, 141½°E, 0 = 16 18 04.
		epP	25		h about 100 km. Near south coast of Hokkaido, Japan.
	BP	eREZ	50.0		
		R from W			
	MH	eP	16 29 15	d	
		ipP	33.1	c	
	F	eP	24		
		epP	43		
	M	eP	03	d	
		ipP	19.4	c	
	R	e(P)	16		
	C	eP	28 43		
	SH	eP	29 01		
		epP	19		
June 3	BG	e(P)	21 40 32		USCGS: 31½°N, 114°W, 0 = 21 38 02.
	BP	eNZ	42.5		Gulf of California.
		R from SE			
	MH	i(P)	21 40 16.7	c	
	F	e	39 54		
	M	eP	40 48	d	
		i	41 49.2	c	

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
June 3 (Cont.)	R	eP	40 25		
		iE	43 29.8		
	C	e	41 57		
	SH	e	40 57		
June 3	B	e(P)	22 01 54		USCGS: 41°S, 73½°W, 0 = 21 48 57.
	MH	i(P)	52.1		Near coast of Chile.
June 4	BP	iPNEZ	02 32 18	SEd	USCGS: 20°N, 104½°W, 0 = 02 27 06.
		eSNEZ	36 38		Near coast of Jalisco, Mexico.
		eQNE	37.6		Magnitude 5-3/4.
		eR	39.3		
		R from SE			
		mu sec			
	BG	PZ	3.7 3		
		PH	2.2 3		
	BP	SZ	1.4 20		
		SH	1.9 20		
	BG	MaxH	11 22		
	BP	MaxH	4.6 23		
		MaxZ	3.4 23		
	MH	iP	02 32 11.4	d	
		i	20.2	c	
	F	eP	31 56		
	M	iP	32 32.0	d	
		i	33 08.9	d	
	R	iP	32 19.7	d	
		iE	44.6		
	C	iP	33 09.4	c	
	SH	iP	32 36.4		
	V	iP	06	d	
	PA	iP	15.2	d	
	SF	e(P)	19		
June 4	R	eP	03 15 48		USCGS: 39°S, 73½°W, 0 = 03 02 49.
					Near coast of Chile.
June 4	M	eP'	03 38 43	d	USCGS: 9°S, 67°E, 0 = 03 18 54.
	R	iP'	39 07.7	c	Indian Ocean.
	SH	eP'	38 45		
June 4	B	i(P)	10 26 20.3	d	USCGS: 24°N, 143°E, 0 = 10 14 11.
	MH	iP	24.4	d	Volcano Islands region.
	M	iP	17.7	d	
		i	33.1	c	
	R	e(P)	28		
	C	iP	04.3	c	
	SH	iP	14.9	d	
June 4	M	iP	11 16 13.8	c	USCGS: 39½°N, 30½°W, 0 = 11 05 10.
					Azores region.
June 5	B	iP	07 47 52.6	c	37°31'N, 118°44'W, 0 = 07 47 07.
		i	48 00.6		Northwest of Bishop. Felt.
		eSNE	26		Magnitude 5.2.
		iSNE	27.9		
	MH	iPEZ	47 46.5	c	
		eN	47		



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
June 5 (Cont.)	F	iSE	48 15.3	cSW	
		iSN	16.3		
		iP	47 26.8		
		iNZ	36.7		
		iSN	42.3		
	M	iP	48 03.7	d	
		i	09.6	d	
		i(S)E	53.8		
	A	iN	49 00.8		
		ePE	48 53		
		iSN	49 57.1		
	R	iP	47 44.1	d	
		i(S)E	48 13.3		
	SH	iE	24.3		
		iP	13.9		
		iNZ	26.6		
	C	iSE	28.4		
		iP	49 06.4	c	
	V	iPEZ	47 45.3	c	
		iPN	45.5	c	
iE		47.6			
eSE		48 09			
eE		36			
eSN		09			
eN		55			
iP		47 51.6	c		
iSN		48 24.1			
iE		26.0			
SF	eP	47 55			
	e	48 02			
June 5	MH	iN	35.5		
		iP	09 41 42.5	c	
M	eP	56	d		
	eP	44			
June 6	C	eP	42 27		
		iP	01 18 42.9	c	
MH	iSNE	19 22.8			
	iPNEZ	18 53.8	c		
F	iSE	19 40.9			
	iN	42.7			
	iP	13.4			
	i	16.8			
	iN	35.0			
M	iP	18 28.0	c		
	iNE	28.4			
	iSE	55.3			
A	iN	56.1			
	iPNE	00.5			
R	iP	50.9	c		
	iP	48.2	d		
SH	iP	20.1			

USCGS: 14½°N, 91°W, 0 = 09 34 58.  
h about 200 km. Central  
Guatemala.

40°49'N, 124°53'W, 0 = 01 17 48.  
West of Arcata. Felt Humboldt  
and Del Norte Counties,  
California.  
Magnitude 5.7.

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
June 6 (Cont.)	V	iPNEZ	20 01.7	c	
	PA	iSE	21 01.8		
eNE		18 49			
iE		19 30.3			
SF	iN	37.1			
	iP	18 42.4	d		
	iSE	19 25.2			
June 6	B	ePNZ	06 09 08	Sd	USCGS: 45½°S, 73½°W, 0 = 05 55 44. Near coast of Chile. Magnitude 6-3/4 - 7.
		ePP	12 53		
	eSKSN	19 37			
	iSE	20 17			
	eGNE	37			
BG	eRNEZ	42			
		mu sec			
	PZ	2.9 7			
	PH	1.2 9			
MH	SH	15 13			
	MaxH	200 19			
	eP	06 09 07	(c)		
F	ePP	12 52			
	eP	09 02	(d)		
M	eP	17			
	ePP	13 09			
R	iP	09 13.2	c		
	iPP	13 03.7			
C	iPP	43.1			
	SH	eP	09 20		
V	eP	07			
	Ru	eP	08 36		
June 6	B	eSE	19 46		
		eE	20 16		
MH	eP	23 41 35	(c)		
	e	47			
M	iP	36.7	d		
	iP	44.5	d		
R	iP	48.8	d		
	e(P)	54			
June 7	SH	iP	44.3	c	
		eP	05 35 42		
B	eRNZ	06 05.8			
	R from S				
MH	iP	05 35 39.6	d		
	eP	32			
F	e	47	c		
	eP	45			
M	iP	37.1	d		
	eP	07 11 25	d		
V	eP	42			
	iP	48.0	c		
June 7	B	eP'	11 13 27		
		iP'	25.6	c	

USCGS: 23½°S, 180°, 0 = 23 30 08.  
h about 600 km. South of Fiji  
Islands.

USCGS: 40½°S, 72°W, 0 = 05 22 34.  
Southern Chile.

USCGS: 16°S, 174½°W, 0 = 07 00 17.  
h about 150 km. Tonga Islands  
region.

USCGS: 56°S, 27°W, 0 = 10 54 31.  
Sandwich Islands.



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
June 7 (Cont.)	M	eP'	14 28	d	
	R	eP'	13 28		
	SH	eP'	30		
	V	eP'	25		
June 7	B	eP	13 06 48	d	USCGS: 53°N, 158½°E, 0 = 12 57 15. Near east coast of Kamchatka.
	MH	iP	53.5	d	
		i	07 51.5	c	
	F	eP	03		
	M	iP	06 38.5	d	
		i	07 39.7		
	R	iP	06 50.4	d	
	C	iP	11.1	d	
	SH	iP	33.5	c	
	V	iPNEZ	57.7	c	
June 7	B	eP	13 08 51		USCGS: 40½°S, 77°W, 0 = 12 55 58. Off coast of southern Chile.
	BP	e(S)NE	19 41		
		eRNZ	37.8		
	MH	iP	08 48.5		
	M	eP	56		
	R	iP	52.9		
	SH	iP	09 01.8		
	Ru	eP	08 42		
		eR	37.7		
		R from E			
June 7	B	eP	13 39 01		USCGS: 20°S, 177½°W, 0 = 13 27 49. h about 500 km. Fiji Islands.
	MH	iP	01.4	c	
	M	iP	10.3	c	
	R	eP	15		
	SH	iP	10.3	d	
June 8	F	eP	16 30 40		USCGS: 35°N, 35°W, 0 = 16 19 48. North Atlantic Ocean.
	R	e	34		
	C	iP	39.4	d	
	SH	e	54		
June 9	M	eP	05 05 45.2	d	USCGS: 9°S, 112½°E, 0 = 05 05 01. h about 350 km. Near south coast of Java.
June 9	MH	iP	05 23 29.5	d	
	M	iP	27.2	c	
	R	eP	32		
June 9	BP	ePP	11 25.7		USCGS: 45°N, 111½°W, 0 = 11 19 10. Hebgen Lake, Montana. Felt: Butte.
	MH	iP	21 53.8	c	
		ePP	24 54		
	F	eP	21 42		
	M	eP	17	d	
		i	44.9		
		iPP	23 35.9		
	R	eP	21 36		
		iE	23 38.4		
	Ru	ePEZ	22.5		
June 9	B	eP	11 36 39		USCGS: 18°S, 169°E, 0 = 11 23 51. New Hebrides Islands. Felt: Port Vila. Magnitude 5-3/4 - 6.
		e	37 30		
	BP	e(S)NE	46 39		
		eNE	47 07		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
June 9 (Cont.)		eNE	48 28		
		eGN	59.3		
		eRNEZ	12 02.8		
		R from WSW			
		mu sec			
		PZ	1.1 13		
		PH	0.4 15		
		MaxH	3.8 17		
	MH	iP	11 36 39.8	c	
		i	45.1	c	
	F	eP	45		
	M	eP	44		
		i	49.7		
	R	iP	52.0	c	
	SH	iP	44.1	d	
	Ru	e(P)EZ	37 07		
		iSEZ	47 43		
June 9	B	eP	17 59 07		USCGS: 38°N, 26°W, 0 = 17 47 41. Azores Islands. Felt: San Miguel Island.
	MH	eP	06		
	M	eP	06		
	R	iP	58 52.8	c	
June 10	B	eP	09 19 28		USCGS: 15½°S, 174°W, 0 = 09 08 02. Samoa Islands region.
	MH	eP	29	c	
	F	eP	34		
	M	iP	39.7	c	
	R	eP	45		
June 10	BP	iP	21 23 32		USCGS: 15½°S, 174°W, 0 = 21 12 05. Samoa Islands region. Magnitude 5½.
		eSN	32 57		
		eQNE	42.1		
		eR	44.7		
		R from SW			
		mu sec			
		PZ	0.7 8		
		SH	2.6 13		
		MaxH	3.3 18		
	MH	iP	21 23 32.6	d	
	F	eP	36		
	M	eP	40	d	
	R	eP	49		
	SH	eP	41		
	Ru	ePEZ	24 03		
		e(S)EZ	33 47		
June 11	B	iP	00 46 27.0	d	USCGS: 21°S, 64½°W, 0 = 00 34 48. h about 300 km. Southern Bolivia. PAS: Magnitude 6¼.
		epP	47 36		
		esP	48 25		
	BP	iSE	56 04		
		ePSNE	57 28		
		eSSNE	01 01.6		
		esSSNE	03.4		
	MH	iP	00 46 23.5	d	
		ipP	47 33.4		
	F	eP	04 46 15		



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
June 11 (Cont.)	M	epP	47 22		
		iP	00 46 31.9	d	
		i	49.8	d	
		iP	25.3	d	
		iP	51.0	d	
	R	iP	35.3		
		eS	56 21		
	C	iP	46 20.1	d	
		e	49		
	SH	iPEZ	08		
iP		25.5	d		
June 11	V	eP	15 27 21		USCGS: 9°S, 152½°E, 0 = 15 14 07. D'Entrecasteaux Islands. Magnitude 6¼.
		e	28 13		
	BP	ePP	31 20		
		iSKSEZ	37 17		
		iSNE	37 59		
		eSSE	44.2		
		eGN	51		
	MH	iREZ	55.5		
		R from W			
		mu	sec		
PZ		2.3 10			
PH		0.8 10			
F	SKSH	1.3 20			
	SH	4.6 15			
	iP	15 27 24.0	c		
	ePP	31 03			
	eP	27 30			
M	eP	25			
	iP	31.3	c		
	eP	24			
	eP	24			
	eP	27			
R	eP	50			
	iSE	38 32			
	eP	27 21			
	eP	16 50 54			
	eP	17 03.1			
C	eSSE	08.0			
	eGN	15			
	eRE	18			
	R from WSW				
	iP	16 50 55.5	c		
SH	eP	51 01			
	eP	50 56	c		
	iP	51 03.5	c		
	iP	50 54.7	c		
	eP	55			
V	eP	17 21 06			
	iP	07.8	d		
	eP	10	c		
	USCGS: 9½°S, 152½°E, 0 = 17 07 57. D'Entrecasteaux Islands.				

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
June 11 (Cont.)	R	iP	16.5	c	
	SH	eP	08		
June 12	MH	iP	04 08 04.4	c	USCGS: 22½°S, 179°E, 0 = 03 56 44. South of Fiji Islands. BCIS: h about 600 km.
		iPP	10 09.6	c	
	F	eP	08 08	d	
		ePP	10 16		
	M	eP	08 13	d	
		ePP	10 17		
	R	eP	08 17		
		iP	12.9	d	
	SH	ePP	10 17		
		iP	07 10 30.8	c	
June 12	MH	iP	25.8	d	USCGS: 29½°S, 179°W, 0 = 06 58 12. h about 250 km. Kermadec Islands.
		eP	34		
	F	eP	40	c	
	M	iP	42.8	c	
	C	iP	49.1	c	
June 12	SH	eP	40		USCGS: 36°S, 98°W, 0 = 07 19 43. South Pacific Ocean. Magnitude 6½.
		eP	07 31 40		
	B	i(PcP)	32 04.6		
		iSNEZ	41 34		
	BP	eN	45.2		
		eNE	46.2		
	MH	iGNE	52 28		
		eRNZ	55 32		
	R from SE				
	mu	sec			
SH	2.6 30				
MaxH	24 42				
June 12	MH	iP	07 31 40.9	c	
		eP	34		
	F	e	55	c	
		iP	49.6	c	
	R	eP	32 17		
eP		31 46			
SH	e	32 00			
	eP	31 38			
Ru	iSE	41 29			
	eP	07 50 54			
June 12	B	iP	50.6	c	USCGS: 36½°S, 99½°W, 0 = 07 38 59. South Pacific Ocean.
		eP	45		
	F	eP	04		
		eP	59		
	C	iP	51 29.9	d	
SH	eP	09			
	eP	12 41 19	d		
June 13	M	eP	12 41 19	d	USCGS: 45°N, 111°W, 0 = 12 38 45. Hebgen Lake, Montana.
June 14	MH	iP	03 07 22.6	c	USCGS: 43°S, 73°W, 0 = 02 54 13. Near coast of southern Chile.
		iP	14.7	d	
	R	e(P)	38		



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
June 14	MH M R C SH Ru	eP eP iP eP eP eREZ	23 51 25 28 34.2 37 26 00 26.7	c c	USCGS: 9°S, 152½°E, O = 23 38 13. D'Entrecasteaux Islands.
June 15	R	eP	R from W 12 28 18		USCGS: 19°N, 105°W, O = 12 23 02. Southwest coast of Mexico.
June 15	SH	eP	14 58 20		USCGS: 12½°N, 142½°E, O = 13 45 46. h about 100 km. About 250 km. southwest of Guam.
June 15	B BP	eP iSEZ eNE eGNE eR	15 48 13 57 17 16 00.4 05 08.9		USCGS: 41°N, 142½°E, O = 15 36 51. Near north coast of Honshu, Japan Magnitude 5¼-5½.
			R from WNW mu sec		
	SH		0.75 16		
	Max H		1.1 24		
	MH	iP	15 48 17.8	d	
	F	eP	20		
	R	eP	13		
	C	iP	47 38.8	c	
	SH	eP	56		
	Ru	iP	48 37		
		iS	57 59		
June 15	R	eP	23 02 40		BCIS: 8°S, 158°E, O = 22 50 47. USCGS: Solomon Islands.
June 15	B BP	eP e eSNE eE eQNE eRNEZ	23 44 11 32 54 40 59.1 00 07 12	(d)	USCGS: ½°S, 133°E, O = 23 27 40. Western New Guinea. Magnitude 5-3¼.
			R from SW mu sec		
	SH		1.2 18		
	MaxH		4.5 19		
	F	eP	23 44 15		
	A	e(P)	45 27		
	R	iP	44 23.8	c	
	C	i(P)	31.8	c	
	SH	e(P)	22		
June 16	C	e(P)	03 37 07		USCGS: 12°N, 143½°E, O = 03 24 42. h about 150 km. Mariana Islands.
June 16	SH	eP	14		USCGS: 11½°N, 144°E, O = 09 55 28. Mariana Islands.
June 16	R	e(P)	10 08 34		
	SH	eP	09		
June 16	F	e(P)	10 39 38		USCGS: 2°S, 69°E, O = 10 20 04. Indian Ocean.

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
June 17	B MH F M R C SH	iP iP eP iP iP iP iP	05 13 29.8 30.9 37 39.4 44.0 49.5 39.0	d d c c d d	USCGS: 18°S, 178°W, O = 05 02 34. h about 600 km. Fiji Islands.
June 17	B BP	eP iSEZ iGNE eREZ	16 42 56 48 49 51.7 53.2	c	USCGS: 52½°N, 173½°W, O = 16 35 32. Andreanof Islands, Aleutian Islands. PAS: Magnitude 6-6¼.
			R from WNW		
	MH	iP	16 43 01.7	c	
	F	eP	15		
	M	eP	42 45	d	
		i	46.1	c	
		i	43 05.3		
	A	e(P)	42 46		
	R	i(P)	43 0.9	c	
	C	iP	42 18.8	c	
	SH	eP	32		
		e	41		
		e	46 50		
	Ru	e(P)	43 45		
		e(S)	49 32		
June 17	M	e	17 00 06		BCIS: O = 16 51.4. Andreanof Islands, Aleutian Islands.
	SH	e	16 59 53		
		e	17 00 09		
June 17	M	e	17 23 34		USCGS: 51½°N, 174½°W, O = 17 16 16. Andreanof Islands, Aleutian Islands.
	R	iP	24 02.8	d	
	C	iP	23 08.8	c	
	SH	eP	32		
June 19	R	iP	05 38 14.6	c	BCIS: 42½°S, 75°W, O = 05 25 12. Off coast of Chile. BCIS: Insufficient data.
June 19	B MH M	eP iP eP	08 45 13 13.6 24	c c	
	SH	iP	21.7	d	
June 19	M	e	08 59 17	d	
	SH	eP	12		
		e	21		
June 19	B	iP	09 56 22.0	d	USCGS: 10°S, 161°E, O = 09 43 38. Solomon Islands.
	MH	iP	23.6	d	
	M	eP	27		
	R	eP	34		
	SH	eP	25		
June 19	B	iP	12 32 49.3	c	USCGS: 15°S, 178½°W, O = 12 21 53. h about 500 km. Fiji Islands region.
	MH	iP	50.9	c	
	F	iP	55.2	c	
	M	iP	58.8	d	
	R	iP	33 02.6	c	
	C	ePN	11		



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
June 19 (Cont.)	SH	iP	32 57.2	c	USCGS: 44½°N, 149°E, 0 = 12 34 34. Kurile Islands. BCIS: Felt: Nemuro-Ima. USCGS: 38°N, 142½°E, 0 = 17 17 25 Bonin Islands.
	V	iP	49.5	c	
June 19		iNE	33 07.2		
	M	eP	12 45 04	d	
	R	iP	15.5	c	
June 19	SH	iP	00.1	d	
	B	eP	17 29 43		
	MH	iP	44.9	d	
	F	eP	36		
	M	eP	20		
		i	37.8	d	
	R	iP	30.7	c	
June 20	SH	eP	17		
		e	35		
	V	eP	45		
	BP	iPNZ	02 14 04	Nc	
		iPP	17 39		
		iSNE	24 32	SE	
		eSSN	30.5		
		eSSSNE	34.4		
		eRNEZ	43.1		
			R from S		
		mu sec			
BG	PZ		19 10		
	PH		5.5 8		
	R		110 16		
MH	iP		02 14 02.1	d	
	ePP		17 33		
F	iP		13 54.2	d	
	eP		14 12	d	
M	e		17 49		
	iP		14 06.3	d	
C	i		15 19.6	d	
	eP		14 15		
SH	e		22		
	eP		00		
V	iPNEZ		13 54	NWc	
	iSN(Z)		24 17		
SF	e(P)		14 10		
	eP		13 12 40	c	
B	iPP		16 19	Sd	
	iSNE		23 08	SE	
June 20		iN	30		
		eSSNE	29.5		
		eRNEZ	41.4		
			R from S		
			mu sec		
	BG	PZ		6.7 5½	
		PH		3.1 8	
SH			9.2 8		
MaxH			58 16		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
June 20 (Cont.)	MH	iP	13 12 37.3	c	USCGS: 2°S, 80½°W, 0 = 14 05 57. Near coast of Ecuador.
		i	47.3		
June 21	F	eP	29	c	
	M	eP	46	c	
	R	iP	40.2	c	
June 21	SH	eP	50		
		i	13 00.0		
	V	eP	12 35		
	Ru	iPNEZ	30	NWc	
		iSNEZ	22 54	NEd	
	SF	e(P)	12 41		
	B	ePNZ	08 49 48	Sc	
June 21		eSE	53 15		
		eRNZ	55.6		
		R from SSE			
June 21	B	iP	14 15 34.0	c	USCGS: 61°S, 21°W, 0 = 21 33 45. Sandwich Islands region.
	MH	iP	32.1	c	
	M	iP	42.8	c	
June 21	R	eP	33		
	B	eP	21 52 50		
June 21	MH	iP	53 05.7	d	
	R	iP	56.3	d	
June 22	B	eP	06 53 08		
	MH	iP	04.9	c	
June 22	M	eP	18		
	F	eP	12 42 05		
June 22	M	iP	41 14.9	c	
	R	eP	34		
June 22	SH	e	56		
	B	iP	23 36 09.8		
June 22	BP	eR	44.8		
			R from WNW		
June 22	MH	iP	23 36 15.9	c	USCGS: 52°N, 173°W, 0 = 23 28 50. Andreanof Islands, Aleutian Islands.
	F	eP	29		
June 22	M	iP	01.4	d	
	R	eP	16		
June 22	SH	iP	35 56.2		
	PA	iP	26 12.9	d	
June 24	MH	iP	14 35 36.5	d	
	M	eP	08	c	
June 24	C	eP	34 30		
		e(S)NZ	35 18		
June 25	B	eP	01 30 36		
	BP	e(G)NE	32.8		
June 25	BG	eR	34.6		
	MH	eP	30 25		
June 25		e	33 29		
	F	eP	30 17		
June 25	M	eP	31 22		
		e	34 42		
June 25	R	i(P)	30 40.4	c	
		i	33 54.2		



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
June 25	BP	eP e(S)NZ eRNEZ	02 15 18 25 45 41.5	c	USCGS: 30½°S, 177°W, 0 = 02 02 35. Kermadec Islands.
	MH	eP	R from SW 02 15 17		
		i	31.7		
	M	eP	27	c	
	R	iP	30.2	d	
	SH	eP	27		
June 25	B	iP	14 03 09.0	c	USCGS: 6½°N, 72½°W, 0 = 13 53 37. Colombia.
		i	14.4		
		ipP	45.2	c	BCIS: Felt: Caldas, Antioquia and Santander.
		e	52		
	MH	iP	04.0	d	
		ipP	41.7	d	
	M	iP	12.1	d	
		ipP	49.0		
	A	e(P)	27		
	R	iP	02.0	d	
	C	iP	32.0		
		epP	04 10		
	SH	iP	03 16.1	d	
		e	36		
	PA	iP	07.8	d	
		ipP	43.3	d	
June 25	B	eP	14 54 30	(c)	USCGS: 30½°S, 177°W, 0 = 14 41 42. Kermadec Islands.
		i	55.7		
	BP	iSNEZ	15 04 55		BCIS: h about 200 km. Magnitude 6.
		eSSNEZ	09 59		
		eGNE	16 49		
		eRNEZ	20 37		
			R from SW		
			mu sec		
		PZ	1.2 9.6		
		SH	5.1 19		
		GH	3.8 33		
		MaxZ	4.7 17		
		MaxH	6.2 17		
	MH	iP	14 54 28.9	d	
	F	eP	32		
	M	e	16		
		e	38		
	R	iP	42.7	d	
	C	iP	49.2	d	
	SH	eP	23		
		e	40		
	Ru	eP	59		
		iSEZ	15 05 27		
	PA	iP	14 54 29.1	d	
	SF	eP	29		

Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
June 25	B	iP epP e	19 47 41.7 48 07 19	c	USCGS: 28°S, 68°W, 0 = 19 35 27. h about 100 km. Catamarca Province, Argentina.
	MH	iP ipP i	47 38.7 48 04.3 15.3	c c d	
	M	eP	47 48	c	
	R	iP	41.7	c	
		ipP	48 08.5		
	C	iP	07.4	c	
		ipP	33.5		
	SH	iP	47 50.9		
		epP	38 14		
	V	eP	47 36		
June 27	M	eP	06 21 16		BCIS: 0 = 06 08.6. Chile.
	SH	eP	18		
June 27	B	e(P)	17 03 14		USCGS: 32½°S, 178°W, 0 = 16 50 24. Kermadec Islands.
	BP	e	53		
		eGNE	27.3		
		eR	32		
			R from SSW		
	MH	eP	17 03 12		
	F	eP	14		
	M	eP	21	d	
	SH	e(P)	20		
June 28	MH	eP	08 32 50		USCGS: 22½°N, 144½°E, 0 = 08 20 45. h about 150 km. South of Volcano Islands.
	SH	eP	53		
June 29	MH	eP	02 10 25	c	USCGS: 43°S, 74°W, 0 = 01 57 16. Near coast of southern Chile.
	F	eP	16		
	SH	eP	36		
June 29	B	eP	04 41 48		USCGS: 30°S, 177½°W, 0 = 04 29 12. Kermadec Islands.
	BG	eP	51		
		i	59		
		iSNE	52.4		
		iNE	05 08.1		
		eRN	10		
			R from SSW		
	MH	iP	04 41 53.0	c	
	F	eP	55		
	M	eP	42 03	d	
	R	eP	05		
	SH	eP	03		
	V	eP	41 51		
	Ru	eP	42 20		
		eSNE	52 49		
June 29	B	iP	05 26 13.6	d	USCGS: 30°N, 139°E, 0 = 05 14 56. h about 500 km. South of Honshu, Japan.
	MH	iP	17.2	c	
	M	eP	11	c	
	R	eP	18		
	C	iP	25 52.5	c	
	SH	iP	26 06.3	c	



Date	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
1960			h. m. s.		
June 29	B	eP	09 56 47		USCGS: 36½°S, 98°W, O = 09 44 53. South Pacific Ocean.
		e	57 11		
		e	35		
	BG	eSN	10 06 43		
		eGE	17.6		
	BP	eRN	21.1		
			R from S		
	MH	iP	09 56 45.8	c	
	M	eP	59	d	
	R	eP	54		
C	iP	57 21.7			
SH	eP	03			
June 29	B	eP	10 33 51		USCGS: 47½°N, 27°W, O = 10 23 02. Atlantic Ocean.
	MH	iP	53.7	c	
	F	eP	49		
	M	eP	38	d	
	R	eP	37		
	SH	eP	40		
June 29	B	eP	17 13 51		USCGS: 53°N, 168½°W, O = 17 07 00. Fox Islands, Aleutian Islands.
		eSN	19 31		
		eQN	22.0		
		eR	23.1		
			R from W		
	MH	iP	17 13 57.2	d	
		i	14 09.6	d	
	F	eP	13		
	M	eP	13 42		
		i	44.1		
R	eP	58			
C	iP	12.5	(d)		
SH	eP	37			
June 30	B	iP	20 04 33.9		USCGS: 60°N, 151°W, O = 19 58 33. Kenai Peninsula, Alaska.
		i	47.1		
		e	05 02		
	BP	eR	11.7		
	MH	iP	04 40.1	d	
		i	07 43.3		
	F	iP	04 51.7		
		iP	17.7	d	
		i	31.6	c	
		i	51.4	c	
	R	iP	30.2	(d)	
	C	iP	03 38.1	d	
		i	50.3		
	SH	iP	04 11.9	d	
i		25.7			