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BERKELEY—MOUNT HAMILTON—PALO ALTO  
SAN FRANCISCO—FERNDALE—FRESNO  
MINERAL—ARCATA—RENO

Earthquakes and the Registration of Earthquakes

From January 1, 1951, to March 31, 1951

BY  
DON TOCHER

UNIVERSITY OF CALIFORNIA PRESS  
BERKELEY AND LOS ANGELES  
1952

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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,  
AND RENO FROM JANUARY 1, 1951 TO MARCH 31, 1951

VOLUME 21 NUMBER 1

By Don Tocher

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Intensities are given by Roman numerals in the list of California, Nevada, and Oregon earthquakes on the following page, when sufficient information on the effects of the shock is available. Criteria of the Modified Mercalli Scale which are used to rate the intensity are:

Intensity

- 
- II Felt by a few people only. Duration or direction not appreciable.
- III Duration or direction appreciable.
- IV Rattling of doors and windows; swinging of suspended objects.
- V Disturbance of movable objects; plaster cracked.
- VI Overthrow of movable objects; cracking of chimneys and other brickwork.
- VII Fall of some chimneys; some damage to buildings.

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**EARTHQUAKE MAGNITUDE SCALE**

Richter magnitudes given in the list of epicenters on the next page are found from the Wood-Anderson amplitudes, using the program given by Hordquist, "Bulletin of the Seismological Society of America", 32:164.

Latitude and Longitude are given for most epicenters in the following list. Only those earthquakes are given for which epicenters were located. The letter represents the excellence with which the epicenter has been located, a indicating excellent, b good, c fair, d poor.

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## EARTHQUAKES IN NORTHERN CALIFORNIA, NEVADA, AND OREGON

Times are given in Greenwich Civil Time. Subtract 8 hours to get Pacific Standard Time

<u>Date</u> 1951	<u>G.C.T.</u>	<u>Richter</u> <u>Magnitude</u>	<u>Latitude</u> <u>North</u>	<u>Longitude</u> <u>West</u>	<u>Quality</u>	<u>Remarks</u>
Jan. 2	23-31-21	4.4	39.9°	119.3°	d	
Jan. 2	23-49-00	3.4			d	Northwestern Nevada
Jan. 4	14-03-58	4.2			d	Southern Tulare County, California
Jan. 4	14-06-06	3.8			d	Southern Tulare County, California
Jan. 4	20-43-45	3.0	40° 05'	120° 04'	c	Herlong aftershock
Jan. 4	21-45-42	3.1			d	Southern Washoe County, Nevada
Jan. 6	00-31-00	1.7	38° 00'	122° 33'	c	
Jan. 6	19-06-56	2.6	37° 53'	122° 10'	c	
Jan. 7	08-56-57	3.4	40° 08'	120° 07'	c	Herlong aftershock
Jan. 7	17-30-35	3.8	40° 05'	120° 04'	c	Herlong aftershock
Jan. 8	13-20-07	3.2	40° 05'	120° 04'	c	Herlong aftershock
Jan. 13	20-31-32	4.8	40.4°	125.0°	d	IV at Arcata, Eureka, and Ferndale. III at Trinidad
Jan. 13	21-49-49	3.0			d	North of Reno, Nevada
Jan. 21	06-28-27	4.1	39° 37'	119° 48'	b	Felt at Reno, Nevada
Jan. 22	15-14-53	4.8	39° 05'	119° 57'	b	V at Marlette Lake, Nevada, and at Phillips and Tahoe City. IV at Camino, Grizzly Flats, Las Plumas, Soda Springs, and Truckee. III at Norden, Vallecito and Woodfords. Also reported felt at Carson City and Reno, Nevada
Jan. 22	16-29-16	3.3	40.2°	124.2°	d	
Jan. 22	21-04-26	2.8			d	Near Reno, Nevada

<u>Date</u> <u>1951</u>	<u>G.C.T.</u>	<u>Richter</u> <u>Magnitude</u>	<u>Latitude</u> <u>North</u>	<u>Longitude</u> <u>West</u>	<u>Quality</u>	<u>Remarks</u>
Jan. 23	12-19-23	2.6	36.6°	121.3°	d	
Jan. 23	19-06-42	2.6	36° 58'	121° 34'	c	Sharp earthquake felt over a small area of
Jan. 25	21-00-18	2.9	37° 45'	122° 11'	b	Sharp shock felt over a small area of the San Francisco East Bay region. VI at San Leandro and Oakland. IV at Pleasanton. III at Hayward and Moraga.
Jan. 28	00-35-25	1.5	38° 04'	122° 32'	c	Portola, Carlsbad, Miramonte, Petrolia, and West.
Jan. 29	05-43-47	5.0	43°	128°	c	Epicenter and origin time by U.S.C.&G.S.
Feb. 2	20-02-31	2.6	37° 09'	122° 11'	b	
Feb. 3	01-29-57	2.0	38° 03'	122° 30'	c	
Feb. 3	21-29-50	2.4	37° 31'	121° 57'	a	
Feb. 6	16-33-12	4.8	40° 14'	126° 49'	b	
Feb. 6	17-06-35	4.4	40° 14'	126° 49'	c	
Feb. 6	17-15-49	2.5	36° 55'	121° 36'	c	
Feb. 9	00-36-29	1.8	38° 03'	122° 32'	c	
Feb. 14	00-51-48		44°	127°		Epicenter and origin time by U.S.C.&G.S.
Feb. 19	22-36-07	4.2	40° 04'	120° 42'	b	VI at Spring Garden. IV at Butte Valley, Caribou, and Quincy
Feb. 20	06-52-47	2.2	38° 25'	122° 39'	c	
Feb. 20	14-38-57	2.3	37° 44'	123° 32'	c	
Feb. 21	12-52-17	2.9	39.0°	122.5°	d	
Feb. 22	09-08-06	2.5	37° 22'	122° 16'	a	
Feb. 22	09-50-36	2.5	36° 44'	121° 14'	c	
Mar. 1	01-11-03	3.4	38.6°	119.2°	d	
Mar. 2	02-13-44	3.1	36.1°	120.6°	d	
Mar. 3	23-05-29	2.2	38° 47'	122° 10'	b	



Date 1951	G.C.T.	Richter Magnitude	Latitude North	Longitude West	Quality	Remarks
Mar. 7	22-35-53	2.5	37.5°	121.6°	d	
Mar. 10	08-10-17	4.1	40.3°	124.3°	d	Sharp earthquake felt over a small area of Humboldt County, California. Maximum intensity of VI at Bridgeville and Ferndale. V at Carlotta, Fields Landing, Loleta, and Scotia. IV at Arcata, Fortuna, Garberville, Miranda, Petrolia, and Weott.

All large regional shocks and all distant earthquakes following pages. Earthquakes in the Northern California region are included only if of magnitude 5 or greater, or those of distant shocks are not normally included for Palo or Ferndale except in cases of defective records at Mount Arcata, respectively.

All determinations are reduced to Greenwich Civil Time (G.C.T.). G.C.T. (20th Meridian). Communications regarding readings or observations should be addressed to Seismographic Station, Berkeley 4, California.

Mar. 11	19-28-29	2.3	38° 01'	122° 17'	c	
Mar. 12	11-20-32	3.1	36° 41'	121° 11'	c	
Mar. 13	20-05-27	3.0	37° 56'	121° 52'	b	
Mar. 13	22-17-02	3.0	37° 14'	121° 26'	c	
Mar. 24	00-02-17	2.2	37° 20'	121° 44'	b	

Station	North Latitude	West Longitude	Altitude Feet	East	Station Symbol	Station and Date Established
Berkeley	37° 52.3'	122° 15.6'	51	266	B, BG	University of California - 1887
Mt. Hamilton	37° 20.4'	121° 30.6'	1251.7	4205	MH	Lick Observatory - 1887
Palo Alto	37° 25.1'	122° 10.6'	83	272	PA	Stanford University - 1927
San Francisco	37° 45.4'	122° 27.2'	100	328	SF	University of San Francisco - 1931
Ferndale	40° 34'	124° 16'	17	55	Fa	City of Ferndale - 1933
Fresno	39° 46.1'	119° 47.8'	28.4	290	F	Fresno State College - 1935
Mineral	40° 21'	121° 15'	1495	4906	M	National Park Service, Lassen Volcanic National Park - 1938
Arcata	40° 52.6'	124° 01.5'	80	195	A	Humboldt State College - 1948
Reno	39° 32.3'	119° 48.8'	1386	4546	R	University of Nevada - 1948

48 denotes readings of short period instruments, 80 of long period instruments (12 sec. ball-tin-tilip).



## THE REGISTRATION OF EARTHQUAKES

at

BERKELEY, MOUNT HAMILTON, PALO ALTO, SAN FRANCISCO, FERNDALE,

FRESNO, MINERAL, ARCATA, AND RENO

All large regional shocks and all distant earthquakes are tabulated on the following pages. Earthquakes in the Northern California, Nevada and Oregon region are included only if of magnitude 5 or greater, or if of special interest. Times of distant shocks are not normally included for Palo Alto, San Francisco, or Ferndale except in cases of defective records at Mount Hamilton, Berkeley, or Arcata, respectively.

All determinations are reduced to Greenwich Civil Time (G.C.T.). G.C.T. is 8 hours greater than Pacific Standard Time (120th Meridian). Communications regarding readings or seismograms should be addressed to:

Seismographic Station  
 University of California  
 Berkeley 4, California.

<u>Station</u>	<u>North Latitude</u>	<u>West Longitude</u>	<u>Altitude Meters</u>	<u>Feet</u>	<u>Station Symbol</u>	<u>Present Auspices and Date Established</u>
Berkeley	37° 52.3'	122° 15.6'	81	266	B, BG*	University of California - 1887
Mt. Hamilton	37° 20.4'	121° 38.6'	1281.7	4205	MH	Lick Observatory - 1887
Palo Alto	37° 25.1'	122° 10.8'	83	272	PA	Stanford University - 1927
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Reno	39° 32.3'	119° 48.8'	1386	4546	R	University of Nevada - 1948

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



Date	Sta.	Phase	Time	STATION EQUIPMENT	Remarks
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Berkeley:

- 2 - Horizontal-component Wood-Anderson torsion.
- 1 - Short-period vertical-component Benioff.
- 3 - Long-period Galitzin-Wilip.
- 2 - Horizontal-component 100 kg. Bosch-Omori.

Mt. Hamilton:

- 2 - Horizontal-component Wood-Anderson torsion.
- 1 - Short-period vertical-component Benioff.

Palo Alto:

- 2 - Horizontal-component Wood-Anderson torsion.
- 1 - Short-period vertical-component Benioff.

San Francisco:

- 2 - Horizontal-component Wood-Anderson torsion.

Ferndale:

- 2 - Horizontal-component 25 kg. Bosch-Omori.

Fresno:

- 3 Components short-period Sprengnether.

Mineral:

- 2 - Horizontal-component Wood-Anderson torsion.
- 1 - Short-period vertical-component Benioff.

Arcata:

- 3 Components short-period Sprengnether.

Reno:

- 3 Components short-period Sprengnether.

For all stations, the three components are indicated by N, E, Z. When no letter appears, the phase is read from the vertical component only.

"c" or "d" following a recorded phase indicates compression or dilatation of the ground as indicated by the vertical component instrument.

"i" (impetus) preceding a phase designates sudden beginning of the motion; "e" (emersio) designates gradual beginning.

Maximum amplitude of earth displacement in microns and period in seconds of the indicated phases are given for the Berkeley station in the columns headed A and T. Combined horizontal amplitude of N and E components are designated by H.

Date 1951	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
			h. m. s.		
Jan. 1	M	eP	03 20 08	d	USCGS: Eastern Mongolia. 0 = 03-07-40.
		iPcP	12	c	
Jan. 1	MH	eP	03 34 46	c	USCGS: 5°S, 151°E. 0 = 03-21-40.
	M	eP	46	d	
		i	51	c	
		i	55	c	
	R	eP	53	c	
Jan. 1	R	e	17 52 31	d	
Jan. 1	B	iP	20 28 59.4	d	USCGS: 18°S, 169°E. 0 = 20-16-20. 18°N, 105°W. 0 = 23-04-21. PAS. MAG.: 6.7.
		e	29 13.2		
		i	24.9		
		ePP	32 43		
	BG	eSKSN	39 27		
		eE	41 30		
		eLN	52.4		
	MH	iP	29 02.3	d	
		i	10		
		e	25		
		ePP	32 43		
	F	eP	29 07	c	
		e	31		
		e	30 58		
		ePP	32 54		
	M	iP	29 08.3	d	
		i	34.3	c	
		ePP	32 56	c	
	R	eP	29 13	c	
Jan. 2	BG	e(L)E	01 15.7		
Jan. 2	MH	eP	23 22 00	d	USCGS: 11°S, 79°W, h = 200. 0 = 23-11-56.
		e	11		
Jan. 3	F	eP	17 21 54	d	South America.
	M	iP	22 24.1	d	
		i	34.4	d	
Jan. 3	BG	e(L)	02 54.9		
Jan. 3	MH	eP	23 55	d	
Jan. 3		e	58		USCGS: New Hebrides Islands Region. 0 = 23-45-40.
Jan. 3	F	eP	24 00	c	
		e	10		
		e	33		
Jan. 3	R	e	10		
		e	55		
Jan. 3	M	eP	08 24 42	d	
Jan. 3	B	eP	12 26 50.6	d	USCGS: 18°N, 106°W. 0 = 21-21-31. h = 100. PAS. MAG.: 6 $\frac{1}{4}$ -6 $\frac{1}{2}$ . PAS. MAG.: 6.7.
		e	28 28		
	BG	eSE	31 28		
		eL	34.2		
			Mic. sec.		
		SH	13 9		
	MH	iP	12 26 43.8	c	
		e	49		
		eSN	31.3		
		eN	32 35		
		e	37.7		



Date 1951	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
			h. m. s.		
	F	eP	12 26 28	d	
		e(L)	33.3		
	M	eP	27 07.4	c	
		i	11.4	d	
		e	25	d	
	R	eP	26 54	d	
		eSN	31.5		
		e	35 36		
		e	37 47		
Jan. 3	B	iP	13 09 43.8	c	USCGS: Aftershock-18°N, 106°W. O = 13-04-24. PAS. MAG.: 6 $\frac{1}{4}$ .
		i	49.8		
	BG	eSN	14 20		
		eLEZ	17.2		
			Mic. sec.		
		SH	13 8		
Jan. 5	MH	ePNEZ	13 09 36	d	
		e	10 34		
		e	20.0		
Jan. 5	F	eP	09 22	d	
		e	10 00		
		e	18.9		
Jan. 5	M	eP	09 57.9	d	
		i	10 24.3	c	
Jan. 5	R	eP	09 46		
		eN	10 26		
		eN	11 48		
		e	18.0		
Jan. 3	MH	eP	16 05 00.7	d	
Jan. 3	F	eP	05 05.5	c	
	R	eP	28.5	d	
Jan. 3	MH	iP	17 40 10.8	c	South America.
	F	eP	39 56		
	R	eP	40 33	d	
		e	50		
Jan. 4	MH	iP	09 51 12.4	c	
Jan. 4	MH	eP	12 58 24.0	d	USCGS: New Hebrides Islands Region. O = 12-45-40.
		e	33.5		
	F	eP	30	c	
	M	iP	30.3	c	
	R	eP	35	d	
Jan. 5	MH	eP	00 31 38.8	d	
		i	41.9		
		e	46		
Jan. 5	B	iP	01 01 18.7	c	USCGS: 7°N, 81°W, h = 100. O = 00-52-40. PAS. MAG.: 6.7.
		i	22.1		
		e	30		
		ePcP	02 48		
	BG	ePP	57		
		eSN	08 19		
		eScSE	11 24		
		e(P'P')N	33 59		
			Mic. sec.		

Date 1951	Sta.	Phase	Time (GCT)		Ground Motion	Remarks
			h.	m. s.		
		PPZ	3	6		
		SH	8 $\frac{1}{2}$	8		
	MH	eP	01 01	13.5	d	
		ipP		44.3		
		ePcP	02	30		
		e	04	16		
	F	eP	01	09		
		e		22		
		eSE	07	48		
	M	eP	01	24.4	d	
		i		27.0	d	
		i		35.4	d	
	A	eP		55	d	
	R	eP		13.0	d	
		eSN	07	56		
Jan. 5	MH	eP	01 15	55.0	d	
	M	iP	16	04.3		
		i		09.3		
	R	eP		08.0	d	
Jan. 5	M	eP	08 19	24	d	USCGS: Samoa Islands Region. O = 08-07-58.
Jan. 5	BG	eLE	14	05.3		USCGS: 12°S, 165°E, h = 100. O = 13-25-18.
	MH	eP	13 37	43.5	c	
	M	eP		49.0	d	
Jan. 5	F	eP	18 48	53.5		USCGS: Gulf of California.
	M	eP		49 40.5	c	
Jan. 6	M	eP	02 03	26.3	c	
		e		34	c	
Jan. 6	B	e	05 32	08		USCGS: 36 $\frac{1}{2}$ °N, 70 $\frac{1}{2}$ °E, h = 250. O = 05-17-19. PAS. MAG.: 6.8.
		e		52		
		iP'		35 25		
	BG	e(pPPP)		38 24		
		eSKSN		43 00		
		epSNZ		45 19		
			Mic. sec.			
		P'Z	3 $\frac{1}{2}$	3		
		SKSH	2	8		
	MH	eP	05 31	12	c	
		e		34 35		
		eP'		35 18		
		eP'P'		55.5		
	F	eP	31	10	c	
		e		32 05		
		eP'		35 27		
		eE		37 12		
		eSKSN		43 09		
		eN		45 49		
	R	eP	30	59	c	
		e		33 56		
		e(P')		35 04		
		e		36 06		



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Jan. 7	M	eP	05	30	53	c	
		i			59.6	d	
		i	32	20.8		c	
Jan. 7		i(P')	15	35	47	c	USCGS: Southern Panama.
		i(PP)		36	04	d	Aftershock. O = 14-3-41.
Jan. 6	B	eP	08	00	06	c	USCGS: 7 $\frac{1}{2}$ °N, 81°W, h = 100.
		i			13	d	O = 07-51-31. PAS. MAG.: 7.
Jan. 7		ipP	18		24	c	Felt in Panama and Canal Zone.
		esP			38		
		ePcP	01	34			
	BG	iSE	07	07			
		eSS			10.9	c	
		eG			13.8	d	
			Mic. sec.				
		SH	35	13			
Jan. 7		G	100	38			
		MAXH	350	20			
	MH	eP	08	00	02	d	
		eNE			13	d	
		epP			21	c	
Jan. 8		esP	09	17	34	c	
Jan. 8		e(PPP)	12	03	00	c	USCGS: Bermuda Islands Region
		eSN			07 10	c	O = 11-55-30.
	F	eP	07	59	49.5	c	
		epP	08	00	10	d	
		e(pPP)N			02 02		
		e(PPP)E			26		
		e			03 14		
Jan. 8		eN	15	04	09	d	
		eSN			06 28	c	
		e			09 34	d	
Jan. 8		e	15	11.1		c	
		eE			15.0		
		eNZ			17.7		
Jan. 8	M	eP	18	00	02.3	d	USCGS: 35°N, 140°E. O = 18-32-18.
		i(sP)			32.6	c	
		eLE			16.6		
		e			20.5	d	
	A	eP	01	38		c	
		epP	02	00		d	
		e			29	c	
		eL	19	19.0			
	R	eP	18	00	01.3	c	
		epP			20	d	
		e			55		
		eNE	01	05		d	
		eS	06	57			
		eE	10	07			
		e			14.1		
Jan. 6	MH	eP	15	07	22.9	d	USCGS: Southern Panama.
	M	eP			30.5	d	Aftershock. O = 14-58-48.
		i			37.4	c	
		epP	09	00		c	



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Jan. 7	MH	eP	05	35	30.0	c	
	M	e(P)			57.3	c	
	R	e(P)			40.0	c	
Jan. 7	MH	eP	15	07	22.5	c	USCGS: Southern Panama.
		epP			53.5	c	Aftershock. O = 14-58-41.
	M	eP			30.1	c	
	R	eP			23.0	c	
Jan. 7	MH	eP	18	40	54.0	d	
		e			41 01.0	d	
		e			19.5	c	USCGS: Off West Coast of Greece.
	F	eP			40 55	c	O = 00-27-55.
Jan. 9	M	eP	16		29.5	c	USCGS: 31°N, 122°E, O = 16-00-24.
		i			41 11.3	d	
	R	eP			40 43.5	c	
		e			58.5	c	
Jan. 7	MH	eP	20	10	42.1	c	
		e			48.8	c	
		e			53.7	d	
	M	eP			11 26.4	d	
		i			50.6	c	
Jan. 8	M	iP	09	17	35.7	d	USCGS: 23°S, 176°W, h = 100.
Jan. 8	MH	eP	12	08	00.0	d	USCGS: Kermadec Islands Region
		e			21.5	d	O = 11-55-20.
	F	eP			07 52	c	
		e			08 04	d	
		e			11 48	c	
Jan. 10	M	eP	10	08	10.8	c	USCGS: 28°S, 177°W, h = 50.
	R	eP			11	c	O = 10-12-48.
Jan. 8	MH	eP	15	08	58.0	d	
Jan. 10	F	eP	19		59.5	c	USCGS: Aleutian Islands Region.
	R	eP			09 10.0	d	h = 100, O = 19-03-35.
Jan. 8	MH	eP	15	47	07.7	c	
		e			11.4	c	
	F	e			04	c	
Jan. 8	B	iP	18	44	01	d	USCGS: 35°N, 140°E. O = 18-32-18.
		i			15	d	
		e			24	d	
Jan. 13	MH	iPNZ	20		05.2	d	40.4°N, 125.0°W. O = 20-31-32.
		e			16.1	d	Mag. 4.8.
	F	eP			14.0	d	
		e			23.5	c	
		e	19	08.0		c	
	M	iP	18	43	55.8	d	
		i			44 06.7	d	
		i			45 16.1	d	
	R	ePNEZ			44 05.6	d	
		eE			19.0	c	
		eE			49.0	c	
Jan. 8	B	eP	21	52	33	c	
		e			43	c	

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
	MH	eP	21	52	35.4	c	
		e			55.5	c	
	F	eP			42	c	
Jan. 12	M	ePP	01	56	12	c	USCGS: Solomon Islands Region. O = 01-50-35.
Jan. 12		eP		52	36.4	c	
		i			45.3	d	USCGS: 23°S, 176°W, h = 200. O = 12-19-24.
		i		53	06.5	c	
	R	ePNEZ		52	44	c	
Jan. 9	M	e	04	44	28	c	USCGS: Off West Coast of Greece. O = 00-27-55.
	R	eP		41	53	c	
Jan. 9	MH	eP	16	10	13.5	d	USCGS: 81°N, 122°E, O = 16-00-24.
		e			22	c	
		e			34	c	
	F	eP			20	c	
		e			28	c	
		eE			52	c	
	M	iP	09	46	0	d	
		i			55.2	c	
	R	eP		10	00	d	
Jan. 10	BG	eL	09	06	8	d	USCGS: 23°S, 176°W, h = 100. O = 08-26-56.
Jan. 15	MH	eP	08	38	56.0	c	O = 08-12-44.
		epP		39	10.0	c	
	F	eP		38	59.5	d	
	M	iP		39	05.8	d	
		ipP			19.4	c	
Jan. 10	MH	eP	10	25	12.6	c	USCGS: 28°S, 177 $\frac{1}{2}$ °W, h = 50. O = 10-12-48.
		e			22	c	
	M	iP			35.0	c	
Jan. 10	B	iP	19	11	42	c	USCGS: Aleutian Islands Region. h = 100, O = 19-03-35.
	MH	eP			46.7	c	
	F	eP		12	00	c	
	M	eP		11	31.5	c	
		i		12	06.7	c	
Jan. 11	MH	e(P)	04	44	36.1	c	
	M	iP			28.4	d	
		i			32.2	c	
Jan. 13	B	iPEZ	20	32	23.6	c	40.4°N, 125.0°W. O = 20-31-32. MAG.: 4.8.
		i		33	00.4	d	
		e(S)NE			01.5	d	
	MH	eP		32	33.0	c	
		eSNE		33	21.5	c	
	SF	ePNE		32	24.0	c	
Jan. 15		eSNE		33	12.6	c	USCGS: New Hebrides Islands Region. O = 22-31-30.
Jan. 16	M	iPNEZ		32	13.7	c	USCGS: About 250 miles east of New Hebrides Islands. O = 13-14-01.
		iE			21.4	c	
		iSE			45.6	c	
	F	ePEZ			55.5	c	
		eSN		33	57.0	d	
	A	ePNZ		31	48.0	c	
		e			55.3	c	
		e(S)N			58.5	c	



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
	Fe	iPNE	20	31	45		
		eSNE			55		
	R	eP		32	35	c	
		e(S)E		33	06		
Jan. 14	MH	e	01	24	29		USCGS: Solomon Islands Region.
	R	eP		23	54		0 = 01-10-35.
Jan. 14	B	eP	10	31	25.0	c	USCGS: 23°S, 176°W, h = 200.
		e(pP)			40.5		0 = 10-19-24.
	BG	eSNE		41	24		
		eLN			51.7		
	MH	eP		31	24.5	c	
		e		32	19.1		
	F	ePEZ		31	30	c	USCGS: 52°N, 177°W, 0 = 21-15-50.
		epP			53		MAG: 6.3/A
		e		33	50		
	R	ePNZ		31	32		
		epPE			53		
		ePPE		34	32		
		eSN		41	57		
Jan. 15	MH	eP	01	58	56	c	USCGS: 51°N, 178½°E, 0 = 01-50-36.
	R	eP		59	00	d	
Jan. 15	B	iP	04	24	36.1	d	USCGS: 15°S, 167°E, h = 150.
		epP		25	02.9		0 = 04-12-14.
		esP			14.5		
		e			35.5		
		epPP		28	18		
		e(sSP)		36	21		
	BG	eSKSE		34	50		
		e(SS)		40	44		
		eL			46.8		
	MH	eP		24	36.1	c	
		epP		25	07.5		
Jan. 15	F	eP	01	24	42	d	USCGS: Solomon Islands Region.
		epP		25	10		0 = 01-08-55.
Jan. 20	F	e	13	26	54	c	USCGS: Near Mexico-Guatemala Border.
		e		36	46		0 = 13-12-50.
		eP'P'		50	44		
	M	iP		24	42.1	d	
		ipP		25	09.5	d	
Jan. 21	R	ePNZ	07	24	48	d	USCGS: Fiji Islands Region.
		epP		25	14		h = 500, 0 = 07-27-28.
		eN			32		
		eSE		35	06		
Jan. 15	MH	eP	22	44	17.0	c	USCGS: New Hebrides Islands Region.
		e			29.8		0 = 22-31-30.
Jan. 16	MH	eP	13	26	30.5	c	USCGS: About 250 miles east of New
		e			34.0		Hebrides Islands.
	F	ePEZ			36	d	0 = 13-14-01.
	M	iP			37.9	d	
		i		27	04.2	c	



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Jan. 22	R	e(P)	13	26	44	d	USCGS: 33°S, 178°W, 0 = 10-30-55.
		eN		27	14		
		eE			40		
		eN		28	24		
Jan. 16	BG	eLEZ	23	17.4		d	USCGS: 17½°S, 41°E, 0 = 12-16-02.
	R	e(P)	22	50	22		
Jan. 17	MH	e	06	00	42.5	c	
	M	i			12.6	d	
		i			20.6		
Jan. 17	MH	iP	19	22	13.3	c	
		i			17.8		
	M	i(P)			04.2	d	
		i			11.8		
Jan. 18	B	iP	21	23	27		USCGS: 52°N, 177°W, 0 = 21-15-50.
	BG	iSE		29	42		MAG.: 6 3/4
		eLqNE			32.9		
		eLr			34.7		
			Mic. sec.				
		SH	18		12		
	MH	eP	21	23	32.5	c	
		ePP		25	13.7		
		e			54.5		
	F	eP		23	46.0	c	
		eN		24	54		
		e		25	52		
Jan. 22		eS	13	30	11		USCGS: Tonga Islands Region.
	M	iP		23	19.1	c	h = 100, 0 = 13-16-30.
		i			38.1	d	
		iPP		25	40.2		
Jan. 22	R	eP	23	23	32	c	
Jan. 23	B	eE	07	24	38	d	USCGS: 55°S, 136°W, 0 = 06-53-42.
		eSE		29	42		
Jan. 19	M	i	04	22	55.0	c	USCGS: Solomon Islands Region.
							0 = 04-08-55.
Jan. 20	F	eP	13	18	52	c	USCGS: Near Mexico-Guatemala Border.
		ePP		20	19		0 = 13-12-20.
	M	eP		19	27.3	d	
	R	eP			14.0	c	
		ePP		20	43		
		eE		21	51		
Jan. 21	B	eP	07	38	23.7		USCGS: Fiji Islands Region.
	MH	eP			24.0	c	h = 500, 0 = 07-27-28.
		e			26.5		
	M	iP			33.2		
Jan. 21	MH	eP	09	23	33.0	c	
	M	eP			42.7	d	
Jan. 21	MH	e(P)	12	51	34.0		These readings may apply to previous
		e			48.4		events. USCGS: Southwestern Alaska.
	M	iP			50.8	c	0 = 07-00-10.
Jan. 21	B	i	00	54	06.2	c	USCGS: 12°S, 167°E, h = 100.
		i(P)			59.13.8		0 = 00-16-02.

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Jan. 22	F	eP	10	43	38.5	d	USCGS: 33°S, 178°W. 0 = 10-30-45.
		e		44	03.0		
	M	e			00.5	c	
Jan. 22	B	i	12	45	43.8		USCGS: 17½°S, 41°E. 0 = 12-16-02.
		eP'	12	36	01.3	d	
		i			09.5		
	MH	eP'			17.9		
		e			02.3	c	
		e			08.7		
		e			21.0		
		e			55.5		
Jan. 22	F	ePP		39	56.5		USCGS: Sandwich Islands 0 = 02-13-30.
		eP'		36	00	d	
		e			09		
		e			22		
		e(P)		39	22		
	M	eP'		35	57.0	d	
		i		36	04.2	c	
		i			26.3	d	
		ePP		39	44	c	
		i			57.4	c	
	A	eP'EZ		35	58	d	
		i			04	d	
		eE		38	54		
Jan. 22	R	eP'EZ		35	58	d	USCGS: 33°W, 115 3/4°W. 0 = 07-17-02. MAG: 6-6.2.
	MH	eP	13	58	18.0	c	
		e			50.0		
	F	eP			22.5	c	
Jan. 22	M	iP			28.5	d	
Jan. 23	M	iP	23	26	50.2	d	
Jan. 23	B	eP	07	06	06.0	d	USCGS: 55°S, 136°W. 0 = 06-52-42.
		e			13		
	BG	eNE		17	31		
		eLN			36.3		
	MH	eP		05	56.0	c	
		e		06	04.5		
	F	eP		05	56.5		
		e		06	04.5		
		ePP		09	49		
		e			37.0		
	M	iP		06	16.9	d	
		i			44.4	d	
	R	eP			14.0		
		eEZ			45.5		
		eN		07	34		
		e			37.7		
Jan. 23	MH	e(P)	07	06	40.8	d	These readings may apply to previous quake. USCGS: Southwestern Alaska. 0 = 07-00-10.
	M	i(P)			32.4		
Jan. 24	B	iP	00	58	20.4	d	USCGS: 12°S, 167°E, h = 100. 0 = 00-46-02.
		i(pP)		59	13.4		



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
	MH	iP	00	58	21.7	d	
		i(pP)		59	14.3	c	
	F	eP		58	28	d	
		e(pP)		59	22		
		e	01	00	02		
		eN		02	34		USCGS: Northern Chile, O = 12-22-40.
	M	iP	00	59	26.9	d	
		i	01	00	20.4	d	
		i		13	24.1	d	USCGS: 18°S, 179°W, h = 600. O = 14-25-33.
	R	ePE	00	58	31		
		e		59	16		
Jan. 24	B	iP'	05	08	31.4		USCGS: Sandwich Islands O = 04-49-28.
	MH	iP'		08	29.9	d	
		i		55	5.9	d	
	F	eP		27	0	d	
		ePP		10	14.0		
	M	eP	16	08	33.3	d	
		i		46	9	d	
		e	10	38	8	d	
	R	ePNZ	08	32	2	d	
		e		53	5		
		ePP	15	10	23.5		
Jan. 24	M	iP	06	17	48.8	c	USCGS: 33°N, 115 3/4°W. O = 07-17-01. MAG.: 6-6 1/4.
Jan. 24	B	eP	07	18	49		
		e		19	05		
		eNZ		19			
		e(S)NE	20	10			
		e		47			USCGS: Southeastern Argentina. h = 500, O = 00-36-12.
	MH	iP	18	37	8	c	
		iN	19	02	8		
		iN		20	8		
		eE	20	10			
		i		25	3		
	F	eP	18	18	5	d	
		iE		27	5		
		iNEZ		35			
		eSN	19	23			
	M	iP		13	6	c	
		eE	20	59			
	R	ePN	18	54			
		e		55		c	
	Fe	eE	22	09			
		eNE		23			
		eNE		37			
		eNE		56			
Jan. 24	MH	eP	07	35	01.7	d	
		i(S)		36	36.6		
	F	e(P)		34	42		
		eEZ		35	46		
	M	e		47			
	R	eN	37	18			

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Jan. 24	B	eP	19	55	05		
	MH	iP	03	54	59.0	d	
		i		55	05.6	d	
	M	e(P)			24.1	d	
	R	eP	13	33	05		
Jan. 25	MH	eP	12	34	46	c	USCGS: Northern Chile.
		e		35	19	c	0 = 12-22-40.
	M	i			31.3	d	
Jan. 25	MH	eP	15	06	34.6	d	USCGS: 18°S, 179°W, h = 600.
		i			49.4	d	0 = 14-55-33.
	F	eP	03	51	37.0	c	
		epP		08	49.0		
	M	iP		06	44.1	c	
		i			49.7	d	
		i			57.2	d	
		ipP	04	08	57.8	c	
Jan. 25	MH	iP	16	55	00.3	d	
		e	05	04	10.6	c	USCGS: Earthquake - Off Cape Mendocino,
	M	e			57.8	d	California.
		e		57	47.5	c	0 = 05-02-03.
Jan. 26	MH	iP	14	59	16.9	d	
Jan. 26	MH	eP	15	20	17.9	d	
		e			25.0	c	
	F	eP			40.0	c	
	M	eP	05	19	42.5	d	USCGS: 43°N, 128°W.
		i			57.6	d	0 = 05-13-47.
	R	eP		20	02.5	c	
Jan. 27	B	iP	00	48	12.4	d	USCGS: Southeastern Argentina.
		e	100		19		h = 500, 0 = 00-36-12.
		e	05	45	25		
	MH	iP			09.1	d	
		i			19.5	d	
		epP		50	08.4	c	
	F	eP		48	00	d	
	M	eP			17	d	
	R	eP			12	d	
		e			34		
		e			56		
		epPN		50	08	d	
		eSN		57	58		
Jan. 27	MH	iP	07	42	30.6	d	
		i			33.1	c	
Jan. 27	MH	eP	11	29	59	c	USCGS: 15°N, 92°W, h = 100.
		i		30	04.8	c	0 = 10-27-59.
	M	iP		39	55.2	c	
		i		30	00.4	c	
	R	eP			03	d	
Jan. 27	MH	iP	13	27	56.4	d	
Jan. 27	MH	eP	13	37	13	c	
	M	eP			09	d	
	R	e	10	50	33	d	



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Jan. 27	MH	iP	18	44	59.1	d	USCGS: Foreshock. 15 $\frac{1}{2}$ °N, 99°W.
Jan. 28	MH	eP	03	48	42	c	0 = 21-18-43.
	M	eP			42	d	
	R	eP			53		
Jan. 28	B	eP	13	39	48	d	
	MH	eP			52	d	
		e			40 09	c	
Jan. 30	M	eP	19	39	39	d	USCGS: 15 $\frac{1}{2}$ °N, 99°W. 0 = 19-00-30.
		i			43	c	
Jan. 29	R	e(P)			45		
	MH	eP	03	54	27	c	
		e			55 08	c	
	F	eP			54 34	c	
	M	eP			30	c	
		e			55 09	d	
Jan. 29	MH	e(P)	04	41	42	c	
	M	iP			40 58.0	d	
Jan. 29	MH	iP	05	04	08.5	c	USCGS: Foreshock - Off Cape Mendocino, California.
		i			15.3	d	0 = 05-02-03.
	F	eP			28	c	
	M	eP			03 36	d	
		i			43.5	c	
		i			04 39.5	c	
	R	e			24		
Jan. 29	B	eP	05	45	25		USCGS: 43°N, 128°W.
		e			40		0 = 05-43-47.
	BG	eSNE			46 50		
					mic. sec.		
		SH	100		10	d	
	MH	eP	05	45	35	c	
		i			47.3	d	
		eN			49 04	d	
	F	eP			46 00	c	
		eEZ			13		
		eE			49 26		
Jan. 30	M	eP	23	45	07	c	USCGS: 34°N, 33°E, h = 100.
		i			20	c	0 = 23-07-40.
		e			46 37		
Jan. 31	R	ePEZ			45 31	d	
	PA	ePN			50	d	
	SF	eE			46 12	c	
Jan. 31	Fe	eE	12	45	26	c	USCGS: 21°N, 16°W. 0 = 21-51-46.
Jan. 29	MH	eP	10	34	35	c	USCGS: 15 $\frac{1}{2}$ °N, 92°W, h = 100.
		e(pP)			57	c	0 = 10-27-59.
Jan. 31	M	iP	15	38	49.7	d	
		i			54.1	d	
Feb. 1	R	eP	16	34	36	d	
		e(pP)			58	c	
Jan. 29	MH	eN	17	35	24		USCGS: 17°S, 173°W.
		iP	10	50	54.2	c	0 = 16-50-02.
		i			56.5	c	

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Jan. 30	BG	eLE	11	33.0			USCGS: Foreshock, $15\frac{1}{2}^{\circ}\text{N}$ , $99^{\circ}\text{W}$ . O = 11-16-43.
	MH	iP	22	51.8	d		
		i		56.0	d		
	F	ePE		34			
		e		38	d		
Jan. 30		e	23	20			USCGS: $15\frac{1}{2}^{\circ}\text{N}$ , $99^{\circ}\text{W}$ . O = 19-00-30.
	R	ePNZ	22	56			
	B	eP	19	06 31			
		e		51			
	BG	eSNE	11	52			
Feb. 2		eE	11	14.3	d		USCGS: About 100 miles east of Adak, Aleutian Islands. O = 11-25-30.
		eLqNE		15.5	d		
Feb. 2		PZ	4	6	d		USCGS: Sakhalin Islands, North of Japan, O = 11-11-32.
		SH	5	9			
		MAXH	15	20			
Feb. 2	MH	e	19	06 58			
		i		07 14.7			
Feb. 2		e	17	16 32			
	F	eP	06	24	c		
		e		46			
		e	21	11 45			
		eSE		59			
		e	15	33			
		eE	16	32			
		eL	18.0				
		eE	21.2				
	M	eP	06	58	d		
Feb. 2		eE	18	18			USCGS: $17^{\circ}\text{S}$ , $176^{\circ}\text{W}$ , h = 250. O = 15-37-38.
	R	ePNZ	06	44	d		
		e	15	12 07			
		eSE		14			
		eL	16.5				
Jan. 30	M	eP'	23	25 08			USCGS: $34^{\circ}\text{N}$ , $33^{\circ}\text{E}$ , h = 100. O = 23-07-40.
		i(SKPP')	49	27	c		
	R	eP'N	25	03			
Jan. 31		e	18	04			USCGS: $18^{\circ}\text{S}$ , $164^{\circ}\text{W}$ , O = 11-00-35.
	MH	iP	11	03 20.9	d		
Jan. 31	M	eP	12	02 26	c		USCGS: $21^{\circ}\text{N}$ , $146^{\circ}\text{W}$ , O = 11-51-46.
	MH	eP	12	02 42	c		
	M	eP		36	c		
		e		48	d		
		iP	15	38 28.6	d		
Jan. 31		i		35.6	c		
	M	eP		35	d		
Feb. 1	R	eN	16	21 16			
		e		34			
Feb. 1	B	eP	17	01 31			USCGS: $17^{\circ}\text{S}$ , $173^{\circ}\text{W}$ . O = 16-50-02.
		e		42			
		e		50			



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
	MH	iP	17	01	31.6	d	
		i			44.0	c	
Feb. 6		e	11	11	51	c	
	F	eP			36	d	
		e			54		
		e	02	48			
Feb. 6	M	iP	16	01	43.0	c	40°14'N, 126°49'W. 0 = 16-33-12.
		e			54	d	Mag. 4.8.
	R	eP			46	d	
		eE	04	24			
		e			32		
Feb. 2	MH	eP	11	32	42	d	USCGS: About 100 miles east of
		i		33	02.0	d	Adak, Aleutian Islands.
	M	eP		32	36	c	0 = 11-25-10.
		i		34	12.3	d	
Feb. 2	F	eP	16	55	36		USCGS: Sakhalin Islands, North of
	M	iP			17.3		Japan. 0 = 16-44-32.
		i			24.9		
	R	eP			28		
Feb. 2	B	eP	17	55	25	d	40°14'N, 126°49'W. 0 = 17-05-35.
	MH	e			28	c	Mag. 4.4.
		i			44.1	c	
Feb. 2	F	e(P)	21	14	37	d	
		e			48		
		e		15	16		
		e		16	52		
	M	eP		14	17	c	
		i			21.4	c	
		i			28.0	c	
	R	eP			33		
		e			40		
Feb. 3	MH	iP	04	27	13.8	d	USCGS: Bonin Islands Region.
Feb. 4	F	eP	15	48	48	c	h = 100. 0 = 03-38-37.
	M	iP			54.4	d	USCGS: 19°S, 176°W, h = 250.
		e		49	50	c	0 = 15-37-18.
	R	ePNEZ		48	58	c	
		eE		49	39		
		eN			50		
Feb. 4	MH	i?	16	48	44.0	c	
		i		49	40.8	c	
Feb. 4	MH	eP	19	19	13	d	USCGS: 18°S, 169°E. 0 = 19-06-35.
	M	eP			20	d	
Feb. 5	MH	iP	22	45	50.0	d	
		i			57.2	d	
		i		46	49.8	d	
	M	iP			23.7	d	
		i			27.4	c	
Feb. 6	R	e(P)	04	50	24		
		eNZ			40		
Feb. 6	MH	e	06	12	22		USCGS: Off East Coast of Alaskan
Feb. 8	M	iP		11	54.5	c	Peninsula.
		i		12	18.3	c	0 = 06-06-04.

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
	R	eP	06	12	08		
		e			16		
Feb. 6	R	eP	14	14	26		
		e			36		
		eE			50		
		e			16 04		
Feb. 6	B	ePNEZ	16	34	16.2	d	40°14'N, 126°49'W. 0 = 16-33-12.
		i			21.6		MAG.: 4.8.
		iEZ			35 08		
	MH	eP			34 25.8	d	
		i			35 19.9		
		i			24.9		
	SF	ePN			34 16.7		
		eSN			35 08		
	M	ePE			34 13		
		e(S)E			56		
	A	eP			33 47	c	
		eSN			34 12		
Feb. 6	R	eP			45.3		
	B	eP	17	07	39	d	40°14'N, 126°49'W. 0 = 17-06-35.
		e(S)			08 34		MAG.: 4.4.
	BG	eE			10.2		
	MH	iP			07 49.6	c	
		iS			08 48		
	PA	ePN			07 44		
		eSN			08 41		
	SF	ePN			07 40		
		eSN			08 30		
	A	e(S)N			07 45		
Feb. 7	R	ePE			08 16		
	B	eiP	03	50	29.4	c	USCGS: Bonin Islands Region.
		i			37.1	c	h = 100. 0 = 03-38-37.
		i			50.2		
		ipP			57.8		
		ePP			53 26		
	BG	e	04	13.8			
	MH	iP	03	50	32.6	c	
		i			39.6	d	
		ipP			51 01.8	c	
	F	eP			50 42	c	
		e			54		
		e			51 26		
	M	iP			50 25.4	c	
		i			46.5	c	
	R	eP			35	c	
		e			52		
		epP			51 04		
		eN			44		
		eE			52 08		
		eE			53 11		
Feb. 8	MH	iP	03	30	59.5	c	
		i			31 03.3	d	



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Feb. 8	B	eP e e	10	50	06.2 20 42		USCGS: 23°S, 176°W, h = 60. O = 10-38-05.
Feb. 10	BG	e(ScS)E eLr	11	00	14 18.2		USCGS: 43°N, 146°E, h = 100. O = 08-38-09.
	MH	eP i	10	50	05.6 34.0	d c	
	F	eP e eE			10 32 51 38	c d	
	R	eP eE eN	50	20	44 51 41	d c	
Feb. 8	MH	eP	11	16	05	c	
Feb. 8	MH	eP	12	40	20	c	
	F	eP			25	c	
	R	e			59		
Feb. 9	B	iP e	01	31	21.7 26		USCGS: 22°S, 179°W, h = 650. O = 01-20-10.
Feb. 10	MH	iP i ipP	11	29	21.6 27.0 33 25.2	d c c	USCGS: About 150 miles east of Guam. O = 11-16-30.
	F	eP e	31	26	44	d	
	M	ePN			31		
	R	eP e eE eN eE			34 32 00 55 33 56 34 08	d d d d	
Feb. 9	MH	iP	03	30	39.2	d	
Feb. 10	MH	i			53.1		
	F	e			31 00	d	
Feb. 9	MH	iP	04	47	00.6	c	
Feb. 10	F	i eP			20.7 01	d d	USCGS: Fiji Islands region, h = 500. O = 14-45-02.
Feb. 10	R	eP e			04 24	d d	
Feb. 9	B	eP	22	21	57		
	MH	iP	22	02	02.3	c	
	M	e			17.5		
	R	eP			12	c	
Feb. 10	B	eP	03	41	24		
Feb. 10	BG	e e(SKs)NE eLNE	22	52	45 04 12.8		USCGS: Off northeast coast of New Guinea. O = 21-52-19.
Feb. 12	MH	eP e ePP	03	41	24.4 31.5 45 16.2	d	USCGS: 52°N, 179°E, h = 200. O = 03-31-50.
	F	eP e ePP	41	27	00 31.5 45 22	d	

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
	M	e(P)	03	41	34.3		
		e(PP)		45	34.5		
	R	eP		41	45	c	
		ePPN		45	40		
Feb. 10	B	iP	08	48	53		USCGS: $43\frac{1}{2}^{\circ}\text{N}$ , $146^{\circ}\text{E}$ , $h = 100$ .
		e		49	02		0 = 08-38-09.
		epP			24		
	MH	iP		48	57.2	d	
		epP		49	26.6	c	
	F	eP	17	32	06	d	USCGS: $66^{\circ}\text{N}$ , $136^{\circ}\text{E}$ , 0 = 17-22-02.
		e			28		
	M	iP		48	45.4	d	
		i			58.2	d	
	R	eP			56	d	
Feb. 10	M	eP	09	22	46.4	d	
Feb. 10	MH	eP	10	56	21.4	d	
		e			29.9	c	
	M	eP			47.7	c	
	R	eP			08	c	
		e			52		
Feb. 10	B	eP	11	29	10		USCGS: About 150 miles east of Guam.
		i			22	d	0 = 11-16-30.
	MH	iP			12.3	d	
		i			21.5	d	
		i			29.9	d	
	F	eP			20.5	c	
	M	eP			09.4	c	
		i			21.1	d	
	R	eP			18	d	
		e			46	d	
		e		30	00		
Feb. 10	MH	eP	14	51	40.9	d	
		e			56.0		
	M	eP			31.2	c	
		e			49.7	d	
Feb. 10	MH	iP	14	56	19.8	d	USCGS: Fiji Islands region, $h = 500$ .
	M	e			29.5	c	0 = 14-45-02.
Feb. 10	MH	iP	15	34	54.2	d	
		i			02.4	c	
		i			26.7	c	
	F	e(P)		34	58.0	d	
	M	iP			51.5	d	
		i			56.5	c	
	R	eP			55	d	
Feb. 10	BG	eLE	22	46.9			USCGS: Off northeast coast of New
	MH	eP		06	01.5	d	Guinea. 0 = 21-52-19.
	M	eP			04.3	c	
Feb. 12	B	iP	03	39	34.5		USCGS: $52^{\circ}\text{N}$ , $179^{\circ}\text{E}$ , $h = 200$ .
		e			46		0 = 03-31-50.
		e			58		
	BG	eLE			52.4		



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Feb. 12	MH	eP	08	39	40.0	c	USCGS: Off Coast of Guatemala, h = 100, 0 = 28-52-10.
		i			53.5	d	
		iPcP	41		12.1	c	
		i			44.2	d	
	F	eP	39		50.5	c	
	M	iP			26.1	c	
		i	40		08.5	d	
		i			16.1	c	
	R	eP	39		40	d	
Feb. 12	B	eP	17	32	15.8		
Feb. 13	BG	e	12	08	35	d	MAG.: 6 3/4 ± USCGS: 15°S, 175°W, h = 250. 0 = 21-55-30.
		eS	40		37	c	
		eSS			44.8	c	
		eL			53.4	c	
	MH	iP	32		21.3	d	
		i			26.1	d	
		i			37.3	d	
		i			46.7	c	
		i(PcP)	33		06.4	c	
		e	36		15.3	c	
	F	eP	32		28.4	c	
		e			47.0	c	
		eE	33		17.5	d	
		e(PP)E	35		01.0	d	
		eE	36		56.5	d	
		eSE	40		57.5	c	
	M	iP	32		02.7	c	
		i			07.9	d	
		i(PcP)			49.2	c	
		i	33		58.0	c	
		i	34		53.6	c	
		i	35		45.2	c	
Feb. 12	A	eP	31		54.5	c	
	MH	iP	18	52	23.8	d	
		i			53 12.1	d	
Feb. 13	M	e(P)			52 35.3	c	
	BG	e	06	22	54	c	USCGS: Near Southern coast of Lower California. 0 = 06-16-30. MAG.: 5-5 1/4.
		eSNE			24 18	d	
		eNE			25.6	d	
					mic. sec.	c	
	MH	MAXH	10		20	c	
		eP	06	20	40.7	c	
		e			52.6	c	
	F	eP			20.5	c	
	M	eP	21		04.0	d	
		i			18.5	d	
		i(PP)			31.0	d	
	R	ePE	20		45	d	
		e			47	d	
		eLN			28.6	d	

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Feb. 13	MH	iP	08	57	13.5	c	USCGS: Off Coast of Guatemala. h = 100, 0 = 08-50-10.
		ipP			30.0	c	
		iPcP	59	38.5	c		
	F	eP	56	58.5	d		
		M	iP	57	27.8	d	
	R	ipP			43.9	c	
		ePcP	59	46	c		
		eP	57	15.0	c		
		epP			32.5	d	
		eE			52.5	d	
Feb. 13	B	iP	12	06	52.7	d	MAG.: 6 3/4 ± USCGS: 15°S, 175°W, h = 250. 0 = 11-55-50.
	BG	epP	07	44	d		
	B	epPP	10	24	d		
	BG	e	15	56	d		
		iSNEZ	16	00	d		
		epSNE	16	42	d		
		eNE	19	54	d		
		eNEZ	26.8		d		
			mic. sec.				
		PZ	8	4	d		
	PH	2 1/2	4	d			
	SZ	12	12	d			
	SH	12	12	d			
MH	iP	12	06	53.4	d		
	ipP	07	53.7	d			
	i	08	53.2	c			
	i	10	34.6	d			
	eSN	16	01.5	d			
	eP'P'	34	28.6	d			
	F	iP	06	57.5	c		
		epP	07	52	d		
		ePPN	09	44	d		
		eSN	16	26	d		
e(SKS)		17	00	d			
M	eNE	10		d			
	eP'P'	34	25	d			
	iP	07	02.6	d			
	iE	10.4		d			
	i	16.7		d			
	i	31.7		c			
	e	13.7		d			
	eSE	18.0		d			
	e	33	32.5	d			
	e	35	39.9	d			
A	eP	06	49	d			
	eN	07	09	d			
	e	15	56	d			
R	iPNEZ	07	08.0	d	USCGS: 14°N, 127°W. 0 = 00-51-48.		
	i	12.7		d			
	iE	22.0		d			
	epP	08	09.0	d			



Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks	
Feb. 13	BG	eSEZ	16 26	d	MAG.: $5\frac{1}{2}$ -5 $\frac{3}{4}$ . USCGS: Off coast of Guatemala. O = 16-28-00.	
		eP'P'N	34 09			
		e	17			
		eLqNE	16 47.3			
		eLrNZ	51.9			
			mic. sec.			
Feb. 13	MH	MAXH	12 20		MAG.: 7. USCGS: $56^{\circ}$ N, $155\frac{1}{2}^{\circ}$ W. O = 22-12-58.	
		iP	16 34 31.7	d		
		e	35 29.0	d		
		e	36 08.6	d		
		R	e	47		
		B	eP	22 18 55.4		d
Feb. 13	BG	e	19 03.4		MAG.: 7. USCGS: $56^{\circ}$ N, $155\frac{1}{2}^{\circ}$ W. O = 22-12-58.	
		iSNE	23 51.4			
		iLrEZ	26.6			
			mic. sec.			
			PZ	50 16		
			PZ	$2\frac{1}{2}$ $3\frac{1}{2}$		
Feb. 13	MH	SH	100 14		USCGS: Off coast of Colima, Mexico.	
		MAXH	280 20			
		iP	22 19 04.0	d		
		i	12.9	d		
		i	31 36.1	c		
		eS	24 17.2			
Feb. 13	F	eLrNZ	27.1		USCGS: Off coast of Colima, Mexico.	
		ePNZ	19 15	d		
		eN	53			
		e(PcP)	21 35			
		eLr	27.0			
		eP	18 43.6	c		
Feb. 13	M	i	44.7	d	USCGS: Off coast of Colima, Mexico.	
		i	19 30.1	d		
		eSEZ	23 37			
		eLqN	25.0			
		eLrNEZ	26.4			
		A	eP	18 32.0		c
Feb. 13	R	e	46.0	d	USCGS: Off coast of Colima, Mexico.	
		eSN	22 38.0			
		eLrNZ	25.0			
		eScSN	28 19.5			
		eP	18 57.5	d		
		eE	19 17.0			
Feb. 13	A	e	46.0		USCGS: Off coast of Colima, Mexico.	
		eE	20 32.5			
		eLrNEZ	26.9			
		eNEZ	29.6			
		B	eP	00 53 23.9		c
		i	25.8	c		
Feb. 13	MH	i	41.3		Southern California.	
		iP	36.9	c		
		i	54.7	d		

Date 1951	Sta.	Phase	Time (GCT)		Ground Motion	Remarks
			h.	m. s.		
	F	eP		55.5	d	
		eSE	55	50	d	
		e	59	45		
	M	eP	53	08.4	c	
		i		50.7	d	
		i(S)	54	06.1		
	A	eP	52	32.0	c	
		e	53	10		
		eSN		40		
		e		45		
		eN	54	26		
	R	ePNZ	53	28.5		
		eE		49.5		
		eN	54	20		
		eN		54		
		e	19	55 04		USCGS: 173°S, 167°E. 0 - 19-07-53.
Feb. 14	MH	eP	04	58 32.6	d	
	F	eP		23.5		
	M	eP		49.2	c	
	R	eP		43.5		
Feb. 14	MH	eP	10	03 49.9	c	
	M	eP		13.0	d	
		i		21.4	d	
		i		30.5	c	
	R	eP		32.0		
Feb. 14	M	e	11	23 20.9	c	
		i		31.3	d	
Feb. 14	M	e	14	01 21.5	c	MAG: 7.5
		i		37.6		USCGS: 7°S, 116°E, h = 100.
Feb. 15	M	iP	02	13 17.9	d	0 - 21-06-58.
		i		20.1	d	
Feb. 15	B	iP	05	25 40.8		USCGS: Off coast of Colima, Mexico.
		e		49		
		e	27	18		
	MH	iP	25	33.0	d	
		i		35.7	c	
		i		42.7	c	
	F	eP		19.0	c	
		eNE		23.0		
		e	28	06		
		e(S)	29	50		
	M	eP	25	53.8	c	
		i		57.2	c	
		e	26	09	d	
Feb. 15	B	iP	07	23 47.5		
	MH	eP		53.7	c	
	F	eP		59.0	c	
	M	eP		42.5	c	
Feb. 15	B	iP	10	49 37.1		Southern California.
		e		50 53.6		
		e		51 31		



Date 1951	Sta.	Phase	Time (GCT)		Ground Motion	Remarks
			h.	m. s.		
	MH	e(P)	49	24.7	c	
		i		27.2	d	
		i		43.7		
	M	e(S)E	50	28.8		
		eP		03.0	c	
		i		15.9	c	
		i		29.7	d	
		i(S)	51	42.4		
		eE	52	02		
	F	eP	49	07.5		
		e		16.1		
		eNE		17.4		
		eN		51.0		
		eE	50	00.0		
		eNZ		08.5		
Feb. 16	B	eP	19	20 37		USCGS: 17 $\frac{1}{2}$ °S, 167°E. 0 = 19-07-53.
		e		47		
		e		21 03		
	MH	eP		20 39.2	c	
Feb. 18		i		02 52.3	d	
	F	eP		42.0	c	
Feb. 18		eN		21 28		USCGS: 13°N, 82°W, 0 = 18-07-58.
		e		23 33		
	M	eP		20 44.8	c	
Feb. 19		i		03 54.4	d	
		i		21 12.3	d	
Feb. 17	M	iP	05	05 08.2	d	
Feb. 17	B	iP!	21	20 16.7	d	MAG.: 7 $\frac{1}{4}$ .
		i		21 01		USCGS: 7°S, 146°E, h = 100.
		ipP		06		0 = 21-06-58.
	BG	e		19		
		iPP		24 07		
		i		18		
		iSKSNE		30 35		
		iN		31 27		
		iPSE		32 42		
Feb. 19			mic. sec.			
		PZ	4 $\frac{1}{2}$	3 $\frac{1}{2}$		
		PH	2	3		
		PPZ	8	4		
		PPH	5	5		
		SKSH	26	10		
Feb. 19	MH	iP	21	20 18.6	d	USCGS: 17 $\frac{1}{2}$ °S, 179°W, h = 600.
		ipP		21 09.1	d	0 = 19-03-55.
		ePPN		24 10		
		i		14.4	c	
		eSN		30 37.3		
		i(PKKP)		37 06.1	c	
		e		37.8	c	
	F	iP		20 24.8	d	
		e		58		
		epP		21 10.6		

Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
		e	38.5		
Feb. 19		e	23 02		
		ePPNZ	24 23		
		eE	26 40		
		eSKSE	30 46		
	M	iP	20 19.1	d	
		i	24.8	d	
		ipP	21 09.1	c	
		e	23 05.9		
		iPP	24 13.8	d	
		eSKSNE	30 38		
		i(PKKP)	37 04.8	d	
		i	17.8	d	
		e	37 34	c	
	A	iPNZ	20 14.1	d	
		e	50		
		epP	21 02		
		e	19		
		iPP	23 58.8		
Feb. 18	MH	eP	02 07 23	c	
		e	50	c	
Feb. 18	MH	eP	07 18 50.0	d	USCGS: 17 $\frac{1}{2}$ °N, 82°W. 0 = 07-09-48.
	M	eP	19 05.6	d	
		i	21.6	c	
Feb. 19	MH	e	03 30 01.3	d	
		e	06.7	d	
	F	eP	15 28 58.0	c	USCGS: 22°N, 114°W. 0 = 15-24-48.
		e	29 30.0		
		e	30 06		
	M	eP	29 03.6	d	
		i	10.5	c	
		e	30 11.3	d	
	R	eP	29 06	d	
		e	30 16	d	
		eE	28		
		eN	48		
Feb. 19	F	eP	10 19 19.6	d	USCGS: 172 East Coast of Hokkaido, Japan. 0 = 15-41-20.
		e	31		
		e	52.6		
	M	eP	27.2	c	
	R	eP	29	d	
		e	20 17		
Feb. 19	B	eP	17 54 49		USCGS: 17 $\frac{1}{2}$ °S, 179°W, h = 600. 0 = 17-43-55.
		epP	56 48		
	MH	iP	54 49.2	c	
		epP	56 54.6	c	
	F	eP	54 54.0	c	
		e	56 33		
	M	iP	54 58.8	d	
		iPcP	55 03.7		
		ipP	56 59.4	c	



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Feb. 19	R	ePEZ	55	04		d	MAG.: $6\frac{1}{2}$ . USCGS: 25°S, 117°W. 0 = 22-11-54.
		epP	57	02		d	
	B	eP	22	22	23		
		ePcP	23	03			
	BG	eSN	31	14			
		eLrNE	41.4				
			mic. sec.				
		MAXH	26	20			
	MH	iP	22	22	19.4	d	
		i			28.1	d	
Feb. 20	F	eP			12.0		USCGS: 18½°N, 69°W, h = 100. 0 = 20-10-39.
		e	24	38			
		eS	31.4				
		eL	41.5				
	M	eP	22	38.7		d	
		i	20	24	58.6	d	
	R	eP	22	34		d	
		ePP	24	40		d	
	M	eP	01	37	31.5	c	
	MH	eP	13	25	00.7	d	
Feb. 20		i			13.1	c	USCGS: North Central New Guinea. 0 = 01-15-11.
	M	eP	01	59	00.0	c	
	MH	iP	13	34	53.1	c	
		e	11	35	17.0	c	
	F	e(P)	34	47.0			
	R	eP	35	03		d	
	MH	iP	15	34	22.1	c	
		e	35	27.0		c	
		e	43	33			
	F	eP	34	16.5		d	
Feb. 20		e			28		USCGS: 22°S, 114°W. 0 = 15-24-18.
		eN			40		
		e	00	35	40		
		eSN	42	38			
	M	eP	34	46.3		d	
	R	eP			37	d	
		eNE	35	05			
	MH	eP	15	52	01.7	d	
		i			15.2	d	
		i			32.1		
Feb. 20	M	eP	51	57.0		d	USCGS: Oregon Forehook. 0 = 02-06-26.
		e	52	03		d	
	R	eP			08		
	B	eP	07	32	23		
		e			35		
		e			47		
	MH	eP			22.1	d	
		i			48.8	c	
	F	eP	03	02	26.0	d	
		e	00		50.0		
Feb. 21			02	21			USCGS: Kermadec Islands Region. 0 = 07-19-23.
			03	38			
			03	38			
Feb. 21			03	02	26.0	d	USCGS: 41½°N, 129°W. About 300 miles off coast of Oregon. 0 = 02-56-12.
			00		50.0		
			02	21			

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Feb. 24	M	eP			32.0	c	
		i			57.6	d	
	R	eP			24		
	MH	e	17	12	42	d	USCGS: 43°N, 110°W. 0 = 17-09-56.
		e		15	36.7		
	F	eE			17.0		
Feb. 24		eNZ			19.0		
	M	e		12	19	c	
		i			42.9	c	
		i			56.5	d	
	R	eP			40	d	
		e		14	06		
Feb. 24		eNE			19		USCGS: Oregon Aftershock.
		e			28		0 = 01-15-36.
		e			52		
Feb. 21	MH	iP	20	49	27.0	c	USCGS: 18½°N, 69°W, h = 100.
Feb. 24		i			39.3	c	0 = 20-40-39.
		i		50	11.4	d	
Feb. 25	M	iP		49	29.8	d	
		e			35.8	c	
Feb. 25	R	eP			47		
	M	eP	01	59	16.6	d	USCGS: North Central New Guinea. 0 = 01-45-41.
Feb. 22	MH	eP	18	08	44.7	c	USCGS: Near Northern Argentina - Chile Border. 0 = 17-56-42.
		epP		09	18.1	c	
		ePPP		13	41.8	c	
	F	eP		08	35.5	c	
		e			45		
		eE		09	33		
Feb. 26		eN			10 00		
	M	eP		08	49.4	c	
Feb. 27	R	eP			47	d	
	F	eP	00	03	47.0	c	USCGS: Oregon Foreshock. 0 = 00-01-09.
Feb. 23		e			05 25		
	M	eP			03 00	c	
Mar. 1	R	eP			24	d	
		e			04 15		
Feb. 23	F	eP	00	16	00	d	Oregon Foreshock.
	M	iP		15	18.1	c	
Mar. 2	R	eP			40	d	
	MH	eP	02	08	44	c	USCGS: Oregon Foreshock. 0 = 02-06-26.
Feb. 23		i		09	04	c	
	F	eP		08	01	c	
		eN			09		
		eN			32		
	M	eP			15	c	
		i			17.4	d	
Feb. 23	R	eP			38	d	
	B	e	03	02	38		USCGS: 44½°N, 129½°W. About 300 miles off coast of Oregon.
	BG	eSNE		00	40		0 = 02-56-42.
		iLqNE		02	24		
		iLrZ		03	38		



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
	MH	eP	02	58	58	c	
		e		59	14	c	
	F	eP	03	03	42		
	M	eP	02	59	17	d	
		e		58	33		
	A	eNZ	03	00	27		
		e	02	59	24		
	R	ePNEZ	03	01	48		
		e	02	58	54	d	
		e	03	01	18		
		eNE			21		
		eN		02	05		
Feb. 23	F	eP	04	19	06	d	USCGS: Oregon Aftershock.
	M	eP		18	21	d	0 = 04-16-34.
	R	eP			44		
Feb. 24	R	eP	03	57	59	c	
Feb. 24	M	eP	06	14	30	d	
		e		15	07	c	
Feb. 25	M	iP	08	31	50	c	
		i		32	07	d	
Feb. 25	B	eP	13	02	38		USCGS: Off east coast of Honshu,
		e			47		Japan. 0 = 12-51-09.
		e		04	05		
	MH	eP		02	44	d	
	F	eP			50	c	
	M	eP			33	d	
		i			38	d	
	R	eP			44	c	
		e		03	10	d	
Feb. 26	M	eP	08	45	34	c	
Feb. 27	MH	i	23	52	11.8	d	
	M	eP			24.1	c	
Feb. 28	B	e(P)	05	51	17		
Feb. 28	MH	iP	16	28	36.6	c	
Mar. 1	R	e(P)	23	41	08		
		e			29		
Mar. 2	MH	iP	01	10	47.0	c	
	M	e(P)			44	c	
	R	eP			48	d	
Mar. 2	F	eP	01	42	37	c	USCGS: 53°N, 35°W. 0 = 01-32-39.
	M	eP			25	d	
		i			31.4	c	
	R	eP			24	d	
Mar. 3	BG	eN	18	31	01		
		eN			42 58		
		e			43.2		
		eE			45.7		
Mar. 4	B	iPNEZ	11	28	32.6	d	USCGS: 16°S, 74°W, h = 50. 0=11-17-33.
		iPcP			50.9		PAS. MAG.: 6 3/4-7.
		ipPNZ			59.7		
		isP		29	18.7		

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
	BG	e			29.5		
	B	e	30	46			
	BG	e	31	45			
	B	e	33	46			
	BG	eSN	37	42			USCGS: 6°S, 151°E, h = 40. O = 15-12-11.
		eScSNE	38	12			
		esS			26		
		eNEZ			52.2		
			mic. sec.				
		PZ	6		5		
	MH	iP	11	28	28.2	d	
		iPcP			48.7	d	
		ipP			55.3	d	
	F	eP			17	c	
		e(P'P')	56	32			
	M	iP	28	38.3		d	
		i			50.7	c	
Mar. 5	MH	iP	00	57	33.2	c	USCGS: Near coast of Guatemala. O = 00-50-35.
Mar. 5	B	eP	14	52	28.0	d	USCGS: 53°N, 163°W. O = 14-46-00.
		e			38.5		
	MH	eP			34.8	d	
		i			45.4	c	
	F	ePEZ			48	d	
	R	eP			32	d	
Mar. 5	B	iP	20	24	15.7	d	USCGS: 29°N, 128°E, h = 150. O = 20-11-45. PAS. MAG.: 7.
		eE			29		
		ipP			58.2		
		esP			25 22		
		ePP			27 34		
	BG	eSKSNE	34	39			
		e	35	32			
		e(sS)N			44		
		eE	36	20			
		eN	47.4				
Mar. 5	MH	iP	24	18.6		d	
		ePP	27	39		d	
		eSKSN	34	47			
	F	ePEZ	24	26		d	USCGS: Fiji Islands Region, h = 600. O = 03-28-28.
		eE			40		
		e	26	38			
		ePP	27	50			
		e	31	26			
		e(SKSE)	34	40			USCGS: 38°N, 5°W. O = 10-35-33.
Mar. 10		eE			58		USCGS: Solomon Islands Region. O = 12-27-50.
Mar. 10	R	eP	24	19		d	
		eNZ			56		
Mar. 10		ePP	27	43			USCGS: 15°S, 167°E, h = 200. O = 21-57-37. PAS. MAG.: 7.2-7.3.
		eSKS	34	26			
		eE			32		



Date 1951	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
			h. m. s.		
Mar. 6	MH	iP	08 58 01.8	d	
		i	04.1	d	
		e	46.5	d	
Mar. 8	B	eP	15 25 00	c	USCGS: 6°S, 154°E, h = 60.
		i	01.4	d	0 = 15-12-11.
		e(pP)	13		
	BG	eNE	33 04		
		eEZ	53.5		
	MH	eP	25 03	c	
		i	36.8	d	
		ePP	28 39		
	F	eP	25 10	d	
		eE	12		
		e(pP)	21		
	R	ePNEZ	12	c	
		e(pP)	25		
Mar. 9	B	iP	16 21 01.4	d	USCGS: 20°S, 179°W, h = 600.
	MH	iP	01.9	d	0 = 16-09-57.
		i	22 01.4	c	
		epP	24 08.6	d	
	F	eP	21 06	d	
		eE	23 28		
	R	eP	21 14		
Mar. 9	B	eP'	20 03 15		USCGS: 8°S, 124½°E. 0 = 19-44-16.
		e	21		
Mar. 10		e	22 06 49		Reported on preceding sheet.
	BG	i(S)N	11 47		USCGS: Off Northwestern Coast of
		e(PS)E	13.5		Sumatra, Japan. 0 = 21-03-37.
		e(SS)N	19.7		
Mar. 12		iLqN	32.1		USCGS: Azores. 0 = 14-27-14.
Mar. 13		(S)H	3½ 14	d	USCGS: Central Peru. 0 = 00-20-50.
		MAXH	120 24		
	MH	iP'	20 03 02.8	d	
		iPP	04 03.4	d	
	F	eP	03 06		
Mar. 13		e	04 28		
		e	04 22		
		e	50		
Mar. 10	B	eP	02 15 31		USCGS: Fiji Islands Region, h = 600.
		e	37		0 = 02-04-28.
Mar. 13	F	eP	37	d	
	R	eP	45	d	
Mar. 13		epP	17 48	d	
Mar. 10	F	eP	10 51 06	d	USCGS: 38°N, 5°W. 0 = 10-38-33.
Mar. 10	R	eP	12 30 54	c	USCGS: Solomon Islands Region.
		e	31 08		0 = 12-17-50.
Mar. 10	B	iP	22 09 52.3		USCGS: 15½°S, 167½°E, h = 200.
		e	10 25		0 = 21-57-37. PAS. MAG.: 7¼-7½.
		iPP	13 09		
		e	14 58		

Date 1951	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
			h. m. s.		
	BG	i(SKS)E	17 20 07		
		iNE	21 05		
		iSSN	26.7		
Mar. 14	F	iN	09 32.1		USCGS: 51°N, 7°E, Minor damage in in western Germany. O = 09-46-55.
Mar. 14	B	eP'P'	36 04		
			mic. sec.		
		PZ	9½ 6		
Mar. 15	MH	PH	7 12		
Mar. 16	B	(SKS)H	30 15		USCGS: 52½°E, 167½°W. O = 19-35-31.
	MH	ePNE	22 09 54.3		
		eN	12 42		
		e(SKS)E	20 18		
	F	eP	09 58	c	
		e	10 34		
		e	13 22		
		e(SKS)E	20 26		
		e	21 16		
	A	ePN	09 35		
		eN	54		
		e(SKS)N	19 46		
		eN	20 05		
Mar. 17	R	ePNZ	05 10 04	c	USCGS: 30°E, 97°E. O = 04-27-35.
		e	56		
		e(SKS)E	20 22		
		eN	21 32		
Mar. 10	B	e(P)	22 14 58		Superimposed on preceding shock.
	M	e(P)	41	d	USCGS: Off Northeastern Coast of Honshu, Japan. O = 22-03-37.
	R	e(P)	15 04		
Mar. 17	BG	e(S)	24 20		
Mar. 12	F	eP'	15 11 02		USCGS: Assam. O = 14-52-16.
	R	eP'	10 47	d	
Mar. 13	MH	iP	03 31 34.4	c	USCGS: Central Peru. O = 00-20-50.
Mar. 13		i	39.2	c	USCGS: 35°S, 35°W. O = 03-07-34.
Mar. 13		i	47.6	c	
Mar. 13	F	eP	07 34 23	d	
	M	iP	45.1	c	
Mar. 13	MH	eP	04 14 46	c	
Mar. 13		epP	15 21	c	USCGS: 21½°S, 33°E. O = 09-29-35.
	M	eP	14 56	c	
		epP	15 31	c	
Mar. 13	BG	eE	09 45 39		
		eNE	47.8		
Mar. 13	M	eP	35 15		USCGS: 57°E, 160°E. O = 20-28-45.
Mar. 13	MH	eP	17 56 10	c	USCGS: 20½°S, 180°, h = 600. O = 17-45-00.
		i	26.0	d	
	F	eP	15		
		epP	59 30		
		eS	18 05 34	d	
		eNE	40		
			39 23.1	d	
			40 30.4	d	



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
	M	eP	17	56	19	c	
		i			24.5	d	
		i			51.0	d	
Mar. 14	F	eP	09	59	16		USCGS: 51°N, 7°E, Minor damage in in western Germany. 0 = 09-46-55.
	M	eP			02	d	
Mar. 14	M	eP	12	33	51	c	
		e			35 01		
Mar. 15	MH	e	20	27	13	d	
Mar. 16	B	iP	19	42	23.8	c	USCGS: 52½°N, 167½°W. 0 = 19-35-31.
		i			50.1		
Mar. 22	BG	eN			50 10		
Mar. 22		e			52 37		
		eE			53 04		
Mar. 22		e			55 28		
	MH	iP			42 29.2	d	
		i			32.1	d	
		i			55.8	d	
	F	ePNEZ			43		
	M	iP			12.5	c	
		i			18.8	d	
Mar. 23		i			29.0	c	
Mar. 17	BG	eN	05	20	6		USCGS: 32°N, 97°E. 0 = 04-27-35.
		eE			22.5		
		e			25.5		
	F	eP'	04	45	49		
	M	eP'			41 22	c	
		eP'			45 13	d	
Mar. 23		i			29.8	d	
Mar. 17	BG	eN	10	34	1		USCGS: 31°S, 180°, h = 300. 0 = 21-36-54, PAS. MAG. 7.1.
		eE			34.5		
		e			35.0		
Mar. 17	BG	eE	16	46	1		
Mar. 19	MH	eP	03	18	29	d	USCGS: 35½°N, 35°W. 0 = 03-07-31.
		e			19 10		
Mar. 19	MH	iP	07	34	55.5	d	
		i			59.0	d	
	F	eP			49	d	
Mar. 19	MH	eP'	09	49	37	d	USCGS: 21½°S, 33°E. 0 = 09-29-35.
		e			53	c	
		e			52 12	d	
	F	eP'			49 30	d	
		e			52 37		
Mar. 19	B	iP	20	38	12.9	d	USCGS: 57°N, 160°E. 0 = 20-28-55.
		e			30		
	BG	eSNE			46 02		
		eSSE			49.7		
		eLqNE			51.8		
	MH	iP			38 17.7	d	
		i			24.8	c	
		i			39 23.1	d	
		iPP			40 10.4		

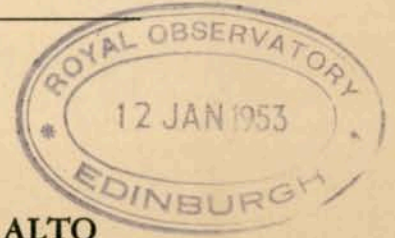
Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
	F	iP	00	38	28.5	d	USCGS: 11°S, 166°E, h = 150.
		eE		40	57		0 = 00-17-38.
	M	iP		38	01.8	d	
		i			15.4	c	
		i			30.5	d	
Mar. 20	BG	eLN	00	46.1			
Mar. 21	M	eP	14	23	05	d	
Mar. 21	F	eP	16	28	09		USCGS: Fox Island, Aleutian Islands.
	M	eP		27	38	c	0 = 16-21-10.
		i			58.3	d	
Mar. 22	M	eP	04	59	33	d	
Mar. 22	M	e	10	52	13	d	
		e		53	44	c	
Mar. 22	B	iP	19	48	01.2	c	USCGS: 13°S, 172 $\frac{1}{2}$ °W.
	MH	iP			02.0	d	0 = 19-36-52.
		i			13.9	c	
		i			28.6	c	
	F	ePNZ			06	d	
	M	eP			11	d	
		i			14.9	d	USCGS: 13°S, 180°W, h = 100, 0-20-52-36.
Mar. 23	B	iP	09	08	50.5	d	
		i			57.6	d	
	MH	iP			45.0	d	
		i			49.6	c	
		i	09	05.8		d	
	M	eP	08	53.2		d	
		i			59.9	d	
Mar. 23	B	iPNZ	21	51	10.7	d	USCGS: 31°S, 180°, h = 300.
		i			27.4	c	0 = 21-38-54. PAS. MAG.: 7.1.
		e		52	43	c	
		ePP		54	32	d	
		e		55	32	d	
	BG	eSKSNE		01	17	d	
		eSNE			38	d	
		ePS		02	55	d	
		eN			14.7	d	
		eE			14.9	d	
		e			20.8	d	
			mic. sec.				
		PZ		9	8	d	
		SH		13	9	d	
		PSH		10	10	d	
	MH	iP	21	51	11.6	d	
		i		52	46.8	d	
	F	eP		51	14	d	
		i			17.3	d	
		e		52	44	d	
Mar. 25	M	eE		53	30	c	
		eP		51	18.8	c	
Mar. 25	B	i			33.2	c	USCGS: Fiji Islands Region, h = 600.
		i		52	30.9	c	0 = 20-09-52.



Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
	F	eP	26 42		
		epP	27 21		
		eN	28 00		
	M	iP	26 08.1	c	
		i	12.2	d	
		ipP	50.1	c	
		i	29 14.5	d	
		i(ScP)	32 41.6	c	
	R	ePNEZ	26 22	d	

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BERKELEY—MOUNT HAMILTON—PALO ALTO  
SAN FRANCISCO—FERNDALE—FRESNO  
MINERAL—ARCATA—RENO

Earthquakes and the Registration of Earthquakes

From April 1, 1951, to June 30, 1951

BY  
DON TOCHER

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BERKELEY AND LOS ANGELES  
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SEISMOGRAPHIC STATIONS OF THE UNIVERSITY OF CALIFORNIA

Perry Byerly, Director

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and

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PALO ALTO, SAN FRANCISCO, FERNDALE, FRESNO, MINERAL, ARCATA  
AND RENO FROM APRIL 1, 1951 TO JUNE 30, 1951

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Berkeley and Los Angeles, California

1952

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## BERKELEY AND LOS ANGELES

Intensities are given by Roman numerals in the list of California, Nevada, and Oregon earthquakes following page, when sufficient information on the effects of the shock is available. Criteria of the Modified Mercalli Scale which are used to rate the intensity are:

Intensity

- 
- II Felt by a few people only. Duration or direction not appreciable.
- III Duration or direction appreciable.
- IV Rattling of doors and windows; swinging of suspended objects.
- V Disturbance of movable objects; plaster cracked.
- VI Overthrow of movable objects; cracking of chimneys and other brickwork.
- VII Fall of some chimneys; some damage to buildings.

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EARTHQUAKE MAGNITUDE SCALE

Richter magnitudes given in the list of epicenters on the next page are found from the Wood Anderson amplitudes, using the nomogram given by Woodquist, "Bulletin of the Seismological Society of America", 32:161.

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Latitude and longitude are given for most epicenters in the following list. Only those earthquakes are given for which epicenters were located. The letter represents the excellence with which the epicenter has been located, a indicating excellent, b good, c fair, d poor.

Issued May 16, 1952

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MADE IN THE UNITED STATES OF AMERICA



EARTHQUAKES IN NORTHERN CALIFORNIA, NEVADA, AND OREGON

EARTHQUAKE INTENSITY SCALE

Times are given in Greenwich Civil Time. Subtract 8 hours to get local (Pacific Standard) Time.

Intensities are given by Roman numerals in the list of California, Nevada, and Oregon earthquakes on the following page, when sufficient information on the effects of the shock is available. Criteria of the Modified Mercalli Scale which are used to rate the intensity are:

Intensity

Date	Time	Magnitude	North	West	Quality	Remarks
Apr. 1	01-21-58	2.5	38° 50'	119° 16'	a	III at Fountain
Apr. 4	07-46-58	2.7	37°	119.8°	d	
Apr. 5	09-36-58	2.5			a	
Apr. 6	06-40-58	2.5			a	
Apr. 7	09-02-58	2.5	38° 50'	121° 33'	a	
Apr. 7	10-19-58	2.8	38.3°	122°	a	
Apr. 7	23-52-58	2.5	38°	122° 28'	a	
Apr. 11	06-25-58	2.5			a	
Apr. 14	23-58-58	3.2	39.5°	120.1°	d	
Apr. 15	01-49-58	3.0			d	

EARTHQUAKE MAGNITUDE SCALE

Richter magnitudes given in the list of epicenters on the next page are found from the Wood Anderson amplitudes, using the nomogram given by Nordquist, "Bulletin of the Seismological Society of America", 32:164.

Apr. 26	15-21-58	3.6	40.1°	120.5°	a	
Apr. 27	11-34-58	3.0	38° 40'	121° 10'	a	7.7 miles south of

Latitude and Longitude are given for most epicenters in the following list. Only those earthquakes are given for which epicenters were located. The letter represents the excellence with which the epicenter has been located, a indicating excellent, b good, c fair, d poor.

May 2	03-00-58	3.4	38° 17'	119° 33'	a	
May 3	20-27-58	3.6	38° 40'	119° 28'	b	
May 4	03-28-58	3.1	38.2°	120.2°	d	Fore shock
May 4	20-05-58	3.2	38.2°	120.2°	d	
May 5	12-11-58	2.9	38° 45'	121° 28'	b	
May 5	11-07-58	2.5	38° 48'	121° 28'	c	After shock
May 6	03-18-58	2.8	38.4°	120.4°	d	

### EARTHQUAKES IN NORTHERN CALIFORNIA, NEVADA, AND OREGON

Times are given in Greenwich Civil Time. Subtract 8 hours to get local  
 (Pacific Standard) time, or 7 hours to get Pacific Daylight Time (P.D.T.)  
 in effect in California after 0200, April 29, 1951).

<u>Date</u> 1951	<u>G.C.T.</u>	<u>Richter</u> <u>Magnitude</u>	<u>Latitude</u> <u>North</u>	<u>Longitude</u> <u>West</u>	<u>Quality</u>	<u>Remarks</u>
Apr. 1	19-21-08	5.0	40° 28'	125° 18'	c	III at Ferndale
Apr. 4	02-46-35	3.0	39° 7'	119.8°	d	
Apr. 5	11-19-38	2.7	39° 26'	120° 06'	c	
Apr. 6	15-36-40	1.5	37° 51'	122° 14'	b	
Apr. 7	09-02-58	2.5	36° 50'	121° 33'	c	
Apr. 7	19-19-21	2.6	38.3°	122.7°	d	
Apr. 9	23-52-50	2.5	37° 09'	122° 22'	c	
Apr. 11	15-06-25	4.0	39.3°	117.2°	d	
Apr. 14	21-59-03	3.2	39.5°	120.1°	d	
Apr. 15	01-19-32	3.0	41.2°	121.2°	d	
Apr. 16	16-42-23	3.7	41.7°	120.9°	d	
Apr. 24	05-37-28	2.0	37° 09'	121° 40'	b	
Apr. 26	15-21-26	3.6	40.1°	121.5°	d	
Apr. 27	11-34-53	3.8	36° 40'	121° 10'	a	V 7 miles south of Hollister
Apr. 27	11-43-07	3.1	36° 40'	121° 10'	b	Aftershock
May 1	10-13-27	3.1	39° 13'	119° 37'	c	
May 2	01-00-18	3.4	39° 17'	119° 33'	c	
May 3	20-27-58	3.6	38° 40'	119° 24'	b	Near Cape Mendocino
May 4	03-28-36	3.1	36.2°	120.2°	d	Foreshock
May 4	20-08-10	3.2	36.2°	120.2°	d	
May 5	13-13-07	2.9	36° 49'	121° 28'	b	
May 5	14-07-42	2.5	36° 48'	121° 28'	c	Aftershock
May 6	03-18-03	2.8	36.4°	120.4°	d	



<u>Date</u> <u>1951</u>	<u>G.C.T.</u>	<u>Richter</u> <u>Magnitude</u>	<u>Latitude</u> <u>North</u>	<u>Longitude</u> <u>West</u>	<u>Quality</u>	<u>Remarks</u>
May 8	13-35-54	3.3	39.4°	119.3°	d	Epicenter and origin time by U.S.C.G.S.
May 11	05-31-54	1.9	38° 07'	122° 03'	c	
May 12	20-15-45	2.4	36° 41'	121° 05'	c	
May 12	23-28-11	2.6	36° 42'	121° 28'	c	
May 15	22-50-26	2.1	37° 13'	122° 11'	b	Blast?
May 17	07-29-00	3.5	40.2°	124.6°	d	
May 18	01-15-00	2.3	36° 58'	121° 46'	c	
May 19	03-02-53	4.0	40.5°	125.0°	d	
May 21	02-47-43	2.4	36° 58'	121° 13'	c	Foreshock
May 23	11-02-17	2.6	38.1°	122.7°	d	
May 24	17-58-38	2.3	37° 12'	122° 13'	b	Blast?
May 25	05-11-18	3.1	36.3°	120.3°	d	
May 25	12-00-05	3.2	40° 31'	121° 16'	c	
May 25	17-52-06	3.0	39.0°	120.9°	d	Afternoon
May 25	19-02-47	2.4	37° 10'	122° 17'	a	
May 27	05-56-14	2.6	36° 52'	121° 36'	b	
May 31	06-28-42	2.7	36.3°	120.2°	d	
May 31	18-59-09	1.7	38° 00'	122° 35'	b	
June 1	20-36-01	2.7	36° 47'	121° 20'	c	
June 3	01-36-12	2.7	36.8°	121.2°	d	
June 5	08-54-43	3.4	40.5°	121.4°	d	
June 8	11-33-55	3.3			d	Near Cape Mendocino
June 9	10-14-05	1.7	37° 35'	122° 22'	b	
June 9	22-31-16	2.5	38.0°	122.5°	d	
June 16	23-46-58	5½	44½°	130°		Epicenter and origin time by U.S.C.G.S.
June 17	09-40-15	6	44½°	130°		Epicenter and origin time by U.S.C.G.S.

Date 1951	G.C.T.	Richter Magnitude	Latitude North	Longitude West	Quality	Remarks
June 17	10-58-43		44 $\frac{1}{2}$ °	130°		Epicenter and origin time by U.S.C.G.S.
June 18	21-03-10	3.7	40° 31'	121° 12'	c	
June 19	06-13-47	3.6	35° 58'	120° 25'	c	
June 21	14-45-24	2.2	37° 15'	122° 15'	a	
June 21	22-44-56	2.8	36° 43'	121° 14'	c	
June 23	19-42-01	2.5	36° 46'	121° 26'	c	
June 23	22-48-29	2.4	38° 24'	122° 27'	c	
June 27	01-24-23	2.6	36° 48'	121° 32'	c	Foreshock
June 27	01-29-48	3.3	36° 46'	121° 30'	c	
June 28	05-52-51	3.2	36° 49'	121° 25'	b	IV at Hollister
June 30	02-54-32	3.3	39.4°	119.8°	d	
June 30	10-46-57	2.7	36.6°	121.1°	d	
June 30	12-38-33	2.5	36.6°	121.1°	d	Aftershock

\*S denotes readings of short period instruments, B of long period instruments (10 sec, Gillies-Wilip).



## THE REGISTRATION OF EARTHQUAKES

at

BERKELEY, MOUNT HAMILTON, PALO ALTO, SAN FRANCISCO, FERNDALE,

FRESNO, MINERAL, ARCATA, AND RENO

All large regional shocks and all distant earthquakes are tabulated on the following pages. Earthquakes in the Northern California, Nevada and Oregon region are included only if of magnitude 5 or greater, or if of special interest. Times of distant shocks are not normally included for Palo Alto, San Francisco, or Ferndale except in cases of defective records at Mount Hamilton, Berkeley, or Arcata, respectively.

All determinations are reduced to Greenwich Civil Time (G.C.T.). G.C.T. is 8 hours greater than Pacific Standard Time (120th Meridian), or 7 hours greater than Pacific Daylight Time (105th Meridian). P.D.T. was in use in California after 0200, April 29, 1951. Communications regarding readings of seismograms should be addressed to:

Seismographic Station  
 University of California  
 Berkeley 4, California.

<u>Station</u>	<u>North Latitude</u>	<u>West Longitude</u>	<u>Altitude Meters</u>	<u>Feet</u>	<u>Station Symbol</u>	<u>Present Auspices and Date Established</u>
Berkeley	37° 52.3'	122° 15.6'	81	266	B, BG*	University of California - 1887
Mt. Hamilton	37° 20.4'	121° 38.6'	1281.7	4205	MH	Lick Observatory - 1887
Palo Alto	37° 25.1'	122° 10.8'	83	272	PA	Stanford University - 1927
San Francisco	37° 46.4'	122° 27.2'	100	328	SF	University of San Francisco - 1931
Ferndale	40° 34'	124° 16'	17	55	Fe	City of Ferndale - 1933
Fresno	36° 46.1'	119° 47.8'	88.4	290	F	Fresno State College - 1935
Mineral	40° 21'	121° 35'	1495	4906	M	National Park Service, Lassen Volcanic National Park - 1938
Arcata	40° 52.6'	124° 04.5'	60	195	A	Humboldt State College - 1948
Reno	39° 32.3'	119° 48.8'	1386	4546	R	University of Nevada - 1948

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



## STATION EQUIPMENT

Berkeley:

- 2 - Horizontal-component Wood-Anderson torsion.
- 1 - Short-period vertical-component Benioff.
- 3 - Long-period Galitzin-Wilip.
- 2 - Horizontal-component 100 kg. Bosch-Omori.

Mt. Hamilton:

- 2 - Horizontal-component Wood-Anderson torsion.
- 1 - Short-period vertical-component Benioff.

Palo Alto:

- 2 - Horizontal-component Wood-Anderson torsion.
- 1 - Short-period vertical-component Benioff.

San Francisco:

- 2 - Horizontal-component Wood-Anderson torsion.

Ferndale:

- 2 - Horizontal-component 25 kg. Bosch-Omori.

Fresno:

- 3 - Components short-period Sprengnether.

Mineral:

- 2 - Horizontal-component Wood-Anderson torsion.
- 1 - Short-period vertical-component Benioff.

Arcata:

- 3 - Components short-period Sprengnether.

Reno:

- 3 - Components short-period Sprengnether.

For all stations, the three components are indicated by N, E, Z. When no letter appears, the phase is read from the vertical component only.

"c" or "d" following a recorded phase indicates compression or dilitation of the ground as indicated by the vertical component instrument.

"i" (impetus) preceding a phase designates sudden beginning of the motion;  
 "e" (emersio) designates gradual beginning.

Maximum amplitude of earth displacement in microns and period in seconds of the indicated phases are given for the Berkeley station in the columns headed A and T. Combined horizontal amplitude of N and E components are designated by H.



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks	
			h.	m.	s.			
Apr. 1	B	eP	20	58	28.2	c	USCGS: 42°S, 76 $\frac{1}{2}$ °W, h = 500. O = 20-45-28.	
		e			41			
	F	eP			18.2	c		
Apr. 1	M	eP		59	07	c	USCGS: Off Northeast coast, Honshu, Japan, O = 18-55-40.	
		e			49.8	c		
	R	eP		19	07	30.5		c
Apr. 2	PA	eP		10	58	26.8	d	USCGS: 13°N, 90°W, O = 00-13-34. PAS: Mag. 6 $\frac{1}{4}$ -6 $\frac{1}{2}$ .
	B	iP	00	20	52.8	c		
	F	eP			32.5	c		
Apr. 2		eSN		27	27		USCGS: 45°W, 142°E, O = 22-53-30.	
		e		23	35	36		
		eE			37	28		
Apr. 2	M	eP		20	59.9	c	USCGS: 11°S, 163°E, O = 19-27-35.	
		e		22	35.7			
		e			37	57		
Apr. 2	A	e(P)NE		21	17		USCGS: Pacific Ocean - Off coast of Panama, O = 01-27-34.	
		eSE		09	27	32		
	R	eP		21	47.5	c		
Apr. 2		eE		22	58		USCGS: 10°S, 163°E, h = 200, USCGS: 6°S, 149°E, O = 22-09-29.	
		eN			33.7			
	R	eP	01	36	03	d		
Apr. 2	F	eP	14	53	07		USCGS: 37°W, 35°E, h = 100, O = 21-38-20.	
	M	eP			02.6	d		
	R	e			49.5			
Apr. 2	B	eP	22	22	44.3		USCGS: 15°S, 173°W, O = 10-55-41.	
		e			23	51		
	BG	eLE			52.9			
Apr. 2	F	eP		22	53	d	USCGS: 8°S, 74°W, h = 250. O = 04-59-37.	
		e			23	32		
	M	eP		22	47.0	d		
Apr. 2		i		06	48	54.1	c	USCGS: Tonga Islands Region, O = 03-13-25.
	R	eP		13	13	52.5		
		eN		18	23	12		
Apr. 2		eE		21	34	01		USCGS: 15°S, 173°W, O = 10-55-41.
		e			47			
	B	eP	03	25	06			
Apr. 3	F	eP			00	c	USCGS: 15°S, 173°W, O = 10-55-41.	
	M	iP		20	47	06.1		d
		i			18.1			
Apr. 3		i			29.0	c	USCGS: 8°S, 74°W, h = 250. O = 04-59-37.	
	R	eP			09.5	c		
	M	eP	04	51	06.1	c		
Apr. 3	R	eP			12	d	USCGS: 8°S, 74°W, h = 250. O = 04-59-37.	
	M	eP	05	09	53.3	c		
	R	eP			44	d		
Apr. 4	M	eP	10	56	30.8	d		

Date 1951	Sta.	Phase	Time (GCT)		Ground Motion	Remarks
			h.	m. s.		
Apr. 4	MH	iP	17	25 24.6	d	USCGS: 21°S, 179°E. h = 600. O = 17-14-09.
	F	eP		29.1	c	
	M	eP		32.7	d	
		e	26	08.6	e	
	R	eP	25	37.0	c	
Apr. 4	F	eP	19	07 22.5	c	USCGS: Off Northeast coast, Honshu, Japan. O = 18-55-40.
	R	eP		04.0	c	
Apr. 5	M	iP	10	28 24.9	d	USCGS: West Central Argentina.
Apr. 6	F	eP	20	40 44.5	c	USCGS: North Atlantic Ocean, about 450 miles north of Azores. O = 20-29-51.
	R	eP		35.5	d	
Apr. 6	B	eP	23	04 29.1	c	USCGS: 46°N, 142°E. O = 22-53-30.
	MH	iP		33.2	c	
Apr. 11	F	eP		42.5	c	Arizona-Mexico Border. PAS: Mag. 4 3/4.
	M	iP	22	21 20.8	c	
Apr. 7		i		06 11.9	d	USCGS: 11°S, 163°E. O = 19-27-35.
	R	eP		04 32.0	c	
	B	iP	09	40 10.7	c	
		e		13.2	d	
	MH	iP		11.8	d	
Apr. 12		i		15.3	c	Arizona-Mexico Border. PAS: Mag. 4 1/2.
	F	eP		18.4	c	
		e	04	44 20	e	
	M	iP		40 16.1	d	
		i		28.1	c	
Apr. 8	R	eP		23.2	c	USCGS: 10°S, 163°E. h = 200. O = 04-36-52.
	B	eP	04	49 06.5	c	
	F	eP		14.0	c	
	M	iP		11.8	c	
		i		21.7	d	
Apr. 13		eP		18.5	c	USCGS: 37°N, 35°E. h = 100. O = 21-38-20.
		e	05	23 26.7	c	
		epPE		58.6	e	
	M	iP	06	40 18.9	c	
		eP	13	13 21.0	c	
Apr. 8	F	eP		21.0	c	USCGS: 32°N, 113°W. O = 06-20-10. PAS: Mag. 4 1/2.
Apr. 8	M	iP	18	07 15.4	c	
Apr. 8	M	eP	21	51 57.9	d	
	iPP		55 58.7	d		
	eP	06	51 58.5	d		
Apr. 9		e(PP)		56 07.0	d	USCGS: 15°S, 173 1/2°W. O = 10-55-41. PAS: Mag. 6 3/4.
	MH	iP	20	47 25.6	c	
		i		35.8	c	
	M	eP		35.0	d	
	R	eP		23.0	c	
Apr. 10	B	eP	11	07 04.0	d	USCGS: 15°S, 173 1/2°W. O = 10-55-41. PAS: Mag. 6 3/4.
		ePP		09 41	d	
	BG	eSNE	08	16 27	d	
		eRNEZ		28.1	d	
			A	T	e	
	PZ		1	3	e	
	MAXH		25	22	e	



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
	MH	iP	11	07	01.6	c	
		ePP		09	41.7	c	
Apr. 11		e			48.6	c	USCGS: 10°S, 119°E. O = 10-11-38.
	F	eP		07	06.5	c	
		ePPE		09	37		
	M	iP		07	11.9	c	
		iPP		09	57.4	d	
	R	eP		07	15.0	d	
Apr. 11	MH	eP	07	57	52.7	d	USCGS: West Central Argentina. O = 07-45-03.
		i		58	00.1	c	South America?
Apr. 11	MH	iP	19	00	38.0	c	
		i		01	09.9	d	
	R	eP		00	40.5	d	
Apr. 11	F	eP	21	33	09.5	d	
	R	e		34	14		
Apr. 11	BG	e(S)E	22	51.	2		USCGS: 52°N, 118°W, h = 150. Arizona-Mexico Border. PAS: Mag. 4 3/4.
	MH	e		50	36.7		
	F	e(P)		48	18		
Apr. 12	MH	eP	04	18	55.7	d	
		i		19	14.1	c	
	F	ePN		18	35.7		
	M	e(P)		19	13.3		
		e		20	35		
Apr. 12	BG	e(S)	04	50.	2		Arizona-Mexico Border.
	MH	e(P)		46	43.9	c	PAS: Mag. 4 1/2.
		e		49	35		
	F	eN		46	45		
	M	e		50	18	c	
	R	e(P)		46	59	c	
Apr. 12	MH	e	05	18	39.3	c	
	F	e			28		
	M	e			44.8	d	
Apr. 12	MH	e	05	23	23.7	d	
	M	e			24.6	d	
Apr. 12	MH	e	05	57	36.0		
	F	eP			05.5	c	
		e		06	01 37		
	M	e		05	58 55.8		
	R	eN			26.0		
Apr. 12	BG	e(S)E	06	25.	5		USCGS: 32°N, 113°W. O = 06-20-10.
	MH	e(P)		21	51.6	d	PAS: Mag. 4 1/2.
		e		24	45		
	F	e		22	21		
		e		24	00		
	M	e		25	57.9	d	
	R	e		22	49		
Apr. 13	MH	iP	08	23	57.1	d	
	F	eP		24	01.5	d	
	M	iP		01	05.8	c	
		i			16.2		
		e(PP)		26	14.3		

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Apr. 13	A	e(P)	00	23	58	d	USCGS: 10°S, 119°E. O = 10-14-38.
	R	eP		24	10.0	d	
	BG	e(PP)EZ	10	34	45		
		eSKSN		42	45		
		eSE		44	37		
		e			51		
		eN		50	55		
	MH	e(PP)		34	50.4		
	F	e(PP)		35	04	c	
	M	eP'		33	30.0	d	
	ePP		34	46.6			
Apr. 13	R	eP'		33	46		
		eE		34	08		
		ePP			57		
	B	iP	13	01	53.4	c	USCGS: 52°N, 178°W. h = 150. O = 12-54-20.
		i		02	08.1		
		i			17.9		
	MH	iP		01	58.7	c	USCGS: southwestern Turkistan, O = 01-10-05.
		i		02	07.9	d	
		i			13.8	c	
	F	eP			10.7	c	
M	iP		01	43.9	c	May be part of preceding quake.	
	i			57.2	d		
	i		02	17.0	c		
	iS		07	20.4	c		
Apr. 14	A	eP	05	01	29	c	USCGS: 61°W, 136°E. O = 13-32-59.
	R	eP			57.0	c	
Apr. 13	BG	e	13	02	11		PAS: Mag. 6 3/4.
		e			25		
		eE	15	45	30		
		eN		46	02		
		e		49	42		
	MH	iP		38	46.6	d	
		e		39	12.0	d	
	M	eP		38	18.8	d	
		i		41	16.3	d	
	Apr. 14	B	iP	00	57	15.8	d
BG		ipP		58	10.7	d	
		ePP	01	00	22.5		
		eSE		07	06		
BG		ipSE		08	00		
		isSN			38		
		i		09	35		
		eE		10	29		
		isPSNE		12	16		
		iE		14	02		
MH	iP	00	57	12.0	d		
	i			20.8	d		
	i		58	29.7	c		
	eSNE	01	07	01			



Date 1951	Sta.	Phase	Time (GCT)		Ground Motion	Remarks
			h.	m. s.		
Apr. 14	F	iP	00	57 03.0	d	USCGS: 20°N, 94°E.
		eE		59 45	e	O = 23-40-51.
		e	01	02 23	e	
Apr. 15		eSE	05	06 43	e	USCGS: Kurile Islands Region.
		epSNZ		07 34	e	h = 100, O = 01-56-43.
Apr. 15	M	iP	00	57 20.7	d	
		i		30.6	d	
		i		58 24.9	d	
		i		59 18.3	c	
		eSNE	01	07 20	e	
Apr. 15	A	eP	00	57 31.3	d	
		eSNE	01	07 41	e	
	R	ePNEZ	00	57 15	d	
Apr. 15		e		58 36	d	USCGS: Fiji Islands Region.
		ePP	01	00 20	e	h = 500, O = 12-39-21.
Apr. 16		eS		07 01	e	
Apr. 16		eSNE	15	07 04	e	
Apr. 16		eP'P'NZ	20	23 58	e	USCGS: 13°N, 137°E. h = 500.
Apr. 14	M	eP	04	23 53.1	c	USCGS: Southeastern Turkistan.
		ePP		27 45.6	c	PAS: O = 04-10-05.
		e		28 15.7	d	
	R	eP		23 56	d	
Apr. 14	B	e	04	32 08.5	c	May be part of preceding quake.
	R	e		56.0	c	
		e		33 40	c	
Apr. 14	M	iP	05	53 04.0	c	
		i		39.0	d	
Apr. 14	B	iP	13	43 25.9	c	USCGS: 61°N, 136°E.
	BG	eS		51 44	e	O = 13-32-59.
		iE		58	e	PAS: Mag. 6 3/4.
		eSS		55 32	e	
		eNE		59 10	d	
		e	14	00 00	d	
		eLNE		01.6	e	
		e		04.0	e	
	MH	iP	13	43 30.4	c	
		iPP		45 42.1	c	
		e		51 01	e	
Apr. 16	F	eP	20	43 39.0	c	
		e		48 20	e	
		e		53 37	e	
	M	iP		43 02.6	c	
Apr. 16		i	20	27.1	d	USCGS: Off Southern coast of
		i		44 04.4	c	Kamchatka, O = 20-32-40.
		i		45 32.6	c	
		e		47 24	d	
		eL	14	07.6	e	
	R	eP	13	43 23.4	c	
Apr. 17		eSNEZ		51 55	d	
		eE	14	04.6	d	

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Apr. 14	M	eP	23	55	13.5	d	USCGS: 28 $\frac{1}{2}$ °N, 94°E. Aleutian O = 23-40-51.
		e		59	02	d	
		i			52.0	c	
Apr. 15	M	iP	05	06	33.3	c	USCGS: Kurile Islands Region.
		epP		07	05.2	d	h = 100. O = 04-56-43.
Apr. 15	MH	iP	05	50	38.7	d	(O given as 23-47-44 by USCGS.)
		i		52	51.7	d	
	M	eP		50	50.9	d	
		e		52	55.9	d	
	R	e		51	51	d	
Apr. 15	F	e	09	20	58	c	
	R	e		19	00	c	USCGS: 51°N, 175°W. O = 20-25-11.
		eN		21	08	c	USCGS: 17°S, 177°W. h = 100.
Apr. 15	R	eP	12	50	36	d	USCGS: Fiji Islands Region.
		eSN		59	52	c	h = 500. O = 12-39-24.
Apr. 16	M	e	12	13	25.9	c	
Apr. 16	M	e	15	01	12.8	d	
Apr. 16	B	eiP	20	04	09.5	c	USCGS: 31°N, 137°E. h = 500.
		ipP		05	49	d	O = 19-52-56.
		ePP		07	13	c	PAS: Mag. 7.
	BG	eSNE		13	40	d	
	MH	iP		04	13.5	c	
		i			52.6	d	
Apr. 21		ipP	17	05	56.3	d	USCGS: 7°S, 155°E.
		iPP		07	15.9	c	O = 17-00-43.
	F	iP		04	21.2	c	
		e		06	32	c	
		eSN		13	51	c	
		e		16	6	e	
	M	eP		04	04.9	c	
		i			21.7	d	
		iPP		07	12.7	d	
Apr. 22	A	ePNEZ	02	03	56	c	
		epP		05	42	c	
	R	eP		04	04	c	
		e			52	c	
Apr. 22		e	03	07	22	d	USCGS: Southeastern Tibet.
		eSEZ		13	42	d	O = 03-37-45.
Apr. 16	MH	e	20	33	37	d	
	F	e			31	c	
Apr. 22	M	e	12	34	34.6	c	USCGS: 76°N, 73°W.
	R	e			44	c	O = 12-36-16.
Apr. 16	MH	eP	20	42	33.1	c	USCGS: Off Southern coast of
		i			42.8	c	Kamchatka. O = 20-32-40.
	F	e(P)			44.5	c	
	M	iP			20.0	c	
		i			36.1	c	
	R	eP			33.5	d	
Apr. 17	M	e	11	14	42.9	d	
		e		18	52.2	d	



Date 1951	Sta.	Phase	Time (GCT) h, m, s.	Ground Motion	Remarks
Apr. 18	M	eP	12 32 53.9	d	USCGS: Near Fox Islands, Aleutian Islands. 0 = 12-26-00.
Apr. 19	MH	iP	14 51 12.1	d	
		i	18.7	c	
Apr. 19	MH	iP	24 10 42.3	d	USCGS: 2°S, 151½°E. 0 = 23-57-44.
	M	iP	42.7	c	(0 given as 23-47-44 by USCGS.)
	R	eP	48.5	c	
Apr. 20	MH	iP	05 56 30.0	c	
	F	eP	34.0	d	
	M	iP	38.3	d	
	R	eP	43.5	d	
Apr. 20	M	eP	20 32 37.1	c	USCGS: 51½°N, 175°W. 0 = 20-25-14.
Apr. 20	B	eP	21 15 22.5	c	USCGS: 17°S, 177°W. h = 100.
	MH	iP	25.1	d	0 = 21-03-50.
		i	33.6	c	
	F	eP	29.5	d	
	M	eP	34.0	d	
	R	eP	39.0	d	
Apr. 20	MH	iP	23 04 33.4	d	USCGS: 10°N, 62°W.
		i	53.9	c	0 = 22-54-30.
		i	05 01.1	d	MAG. 6. Felt on Island of Hawaii.
	M	iP	04 40.1	d	USCGS: 19°N, 155°W. 0 = 00-52-21.
		i	05 04.5	c	
Apr. 21	B	eP	17 13 38		USCGS: 7°S, 155°E.
		e	14 08		0 = 17-00-43.
	MH	iP	13 41.2	d	
	F	eP	45.5	c	
		e	15 38.5		
	M	eP	13 42.2	c	
		e	55.6	c	
	R	eP	49.0	c	
		eN	14 16		
Apr. 22	MH	e	02 17 37.6	d	
		e	18 33	c	
	M	e	17 47.2	d	
		e	18 43		
Apr. 22	F	e(PP)	03 55 39		USCGS: Southeastern Tibet.
	M	e(PP)	29	d	0 = 03-37-45.
		e	58		
	R	e(PP)	55		
Apr. 22	B	iP	12 44 27.6		USCGS: 76°N, 73°W.
		ePP	46 19		0 = 12-36-16.
	BG	eLE	59.3		
		A	T		
		16	20		
	MH	iP	12 44 30.8	c	
		i	48.3	d	
		iPP	46 22.6	c	
		e	13 00 13		
Apr. 23	F	eP	12 44 31.5	c	USCGS: Off Northwestern coast of North Island, New Zealand.
		e	44		0 = 06-30-15.
			21.3		MAG: 6.2?

Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
		e	45 25		
		eE	13 00 03		
		e	53		
	M	eP	12 44 06.0	c	
		i	45 27.2		
		e	57 40		
	A	e	45 08		
		eE	58 00		
	R	eP	44 09	d	
Apr. 23		eN	07 45 16		
		e	58 32		
		eE	59 07		
Apr. 22	B	eP	13 00 15		
Apr. 23		e	17 27 08		USCGS: Near East coast of Kamchatka. h = 100. 0 = 17-18-12.
		e	11 16		
		e	12 19		
Apr. 23	MH	iP	08 27 13.8	d	
		i	28 22.6		
	F	eP	19 24.0	d	
Apr. 23	M	eP	12 26 57.7	d	
	R	eP	27 10.0	c	
Apr. 23	B	iP	00 59 12.7	d	MAG. 6. Felt on Island of Hawaii.
		i	18.6	d	USCGS: 19°N, 155½°W. 0 = 00-52-21.
Apr. 23		iPcP	01 01 49.4		
	BG	eS	04 33		
		iNE	48		
		eQNE	06.7		
		eT	33 55		
		A	T		
		PZ	1 4		
		SH	5 9		
	F	eP	00 59 24.5	d	
		e(PP)	01 00 49		
		eSN	04 51		
		e	08.7		
		eN	09.3		
	M	iP	00 59 25.9	c	
		i	30.8		
Apr. 24		i	10 21 40.7	d	USCGS: Fiji Islands Region. h = 600.
		i	54.1	d	0 = 10-13-54.
		iPP	01 00 45.2	c	
Apr. 25		e	10 50		
	A	ePEZ	00 59 14	c	
		e	20		
		eE	01 08.0		
Apr. 25		eE	09.6		USCGS: New Britain.
Apr. 25	R	eP	00 59 34.5	c	0 = 01-48-15.
		eN	51		
		eN	01 00 32		
		e	05 27		
Apr. 25		e	05 27		USCGS: Fiji Islands Region. h = 600.
Apr. 23	B	eP	07 03 28.6		Depth about 150 km.
		epP	59		USCGS: Off Northeastern coast of
	BG	eSKSN	13 55		North Island, New Zealand.
		eSNE	14 33		0 = 06-50-15.
		eSSN	21.3		PAS: Mag. 6½?



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
	MH	iP	03	28	.5	c	
		i		50	.4	c	
Apr. 25		ipP	04	02	.6	c	
		i		45	.8	c	
	F	eP	03	30	.5	c	
		epP	04	03		c	
Apr. 26		e	06	45		c	
		eSE	14	33		c	
Apr. 26	M	iP	03	37	.5	d	USCGS: Near East coast of Kamchatka.
Apr. 23	MH	eP	07	20	22.6	c	O = 17-57-30.
		i		38	.0	d	
	M	eP		30	.8	c	
		e	21	03	.8	c	
Apr. 23	M	iP	08	11	48.8	c	
		e	12	09	.4	d	
Apr. 23	F	e	08	27	51	c	
	M	e	28	35	.0	d	
Apr. 26		i	30	04	.7	d	
Apr. 23	MH	iP	12	01	42.4	d	
Apr. 23	F	eP	00	49	.0	c	USCGS: 52°S, 151°W.
		e	01	31		c	O = 21-19-38.
Apr. 23	M	eP		23	.6	c	
	B	eP	13	28	34	c	USCGS: 20 $\frac{1}{2}$ °S, 67°W. h = 250.
		epP	29	35		c	O = 13-17-00.
	BG	eSN	38	12		d	PAS: Mag. 6 $\frac{1}{4}$ -6 $\frac{1}{2}$ .
		esS	39	53		d	
	MH	iP	28	30	.9	d	
		ipP	29	31	.8	d	
Apr. 29	F	eP	28	20	.0	d	USCGS: 21°S, 179°W. h = 600.
		epP	29	22	.5	d	O = 10-14-11.
		e	30	16		d	
		e(PP)	31	04		d	
		eSEZ	37	43		c	
	M	eP	28	38	.9	d	
		ipP	29	41	.8	c	
Apr. 30	A	eP	28	48	.5	c	
		epP	29	52		c	
Apr. 24	MH	eP	10	24	45.3	c	USCGS: Fiji Islands Region. h = 600.
	M	iP		54	.6	d	O = 10-13-54.
	R	eP		58		d	
Apr. 25	MH	eP	02	51	29.1	c	
		e		48	.4	d	
	F	eP		33	.5	c	
Apr. 25	M	eP		39	.1	d	
	M	eP	05	01	26.9	c	USCGS: New Britain.
	R	eP		32	.1	c	O = 04-48-15.
Apr. 25	MH	iP	10	22	31.5	c	
	M	e		45	.7	d	
Apr. 25	B	iP	15	24	04.2	d	USCGS: Fiji Islands Region. h = 600.
	MH	eP		04	.9	c	O = 15-13-18.
	F	eP		09	.5	c	

Date 1951	Sta.	Phase	Time (GCT)		Ground Motion	Remarks
			h.	m. s.		
Apr. 25	M	iP		14.2	d	
	R	eP		19	d	
	MH	iP	23 16	11.1	c	
Apr. 26	M	i		20.4	c	
	M	iP	15	51.5	d	USCGS: 50°S, 110°E. O = 05-02-11.
	M	iP	02 53	06.6	d	PAS: Mag. 7.
Apr. 26	B	e		19.5	d	
		eP	18 07	03		USCGS: Near East coast of Kamchatka. O = 17-57-30.
	MH	i		15.1	d	
Apr. 26		eP		09.5	d	
		i		18.1	c	
		i		50.3	c	
	M	iP	06	53.0	d	
		i		58.2	c	
		i	07	04.3	d	
Apr. 26	R	eP		06.5	d	
	MH	eP	20 49	39.9	c	
Apr. 28	M	iP		41.0	d	
	BG	eLE	22 02	.3		USCGS: 5½°S, 151°E. O = 21-19-38.
Apr. 29		e		04.2		
	M	eP	21 32	46.1	d	
	R	eP		53.0	c	
Apr. 29	F	eP	07 45	38		USCGS: 80½°N, 121°E. O = 07-35-46.
	M	eP		05.5	d	
		i		22.7	d	
Apr. 29		ePP		47 33.9	d	
	R	eP		45 26.0	d	
	F	eP	10 25	25.5	d	USCGS: 21°S, 179°W. h = 600. O = 10-14-11.
		epP		27 35.5		
	M	iP		25 30.4	d	
		e		26 31.7	d	
Apr. 29		epP		27 35.2	c	
	R	eP		25 33.5	c	
		epP		27 38.5	c	USCGS: 47°N, 80°E. O = 16-17-01.
Apr. 29	M	eP	21 09	01.0	d	
Apr. 30	M	e	06 23	27.2	c	
Apr. 30	BG	iP	15 41	10	d	USCGS: 8°S, 153°E. O = 15-28-00. PAS: Mag. 6½-6⅓.
		eSKSE		51 46		
		eLN	16 05	.0		
May 1				A T		
		PZ		3½ 7		
		MAXH	35	20		
May 2	MH	iP	15 41	09.7	c	
		i		25.9	c	
May 3	F	eP	19 57	14.0	c	
		e		35.0	d	
	M	e	44	19.5		
May 3		eP	41	12.0	c	USCGS: 15°N, 61°W. h = 150. O = 01-02-43.
		i	44	46.8	c	





Date 1951	Sta.	Phase	Time (GCT)		Ground Motion	Remarks
			h.	m. s.		
May 6	MH	iP	23	18 25.8	c	USCGS: 13 1/2°N, 88°W. h = 150. O = 23-03-35. Many killed and extensive property damage in Eastern El Salvador.
		i		30.8	d	
	F	i	19	21.5	d	
		eP	18	13.5	c	
		eN	10	48	d	
		e		57	c	
	M	ePP	20	23	c	
		eS	25	56	c	
		eP	18	26.5	c	
	A R	i		36.2	c	
		i		48.7	c	
		ePNEZ		41	c	
eP			17.0	c		
eE			44	c		
May 3	MH	e	23	00		
		eE		18	d	
May 4	F	iP	05	14 59.8	c	USCGS: 44°N, 142°E. h = 200. O = 11-53-05.
		i		15 09.8	c	
May 4	M	eP	12	04 02.0	c	
		ePP	06	23	c	
	eSN	12	58	c		
	R	iP	03	39.8	c	
		i		45.4	d	
		i	04	35.0	d	
eP		03	51.5	c		
May 4	M	eE	04	46.5	c	
		e		48.5	c	
		eSEZ	12	35	c	
May 5	M	eP	19	39 52	c	USCGS: El Salvador Aftershock. USCGS: 7°N, 34°W. O = 19-27-15.
		eP		39.7	c	
May 5	R	iP	03	43 01.5	c	USCGS: 6°S, 145 1/2°E. h = 100. O = 03-29-41.
		i		11.8	c	
May 5	MH	eP		07.5	c	
		eP	04	47 29.2	d	
May 5	M	eP		40	d	
		eP	08	26 52.7	c	
May 5	MH	e		57.6	c	
		e	09	56 25.6	c	
May 6	B	eP	21	50 20	d	USCGS: 17°S, 174°W. h = 100. O = 09-59-25. USCGS: 24°S, 141°W. h = 600. USCGS: 11°N, 85 1/2°W. O = 21-42-20.
		e		30	d	
	MH	iP		14.6	c	
		i		23.7	d	
		i		31.3	c	
	F	eP	20	00.5	c	
		eNE		08	c	
		e		35.5	c	
		e		26.9	d	
	M	eP		35.0	c	
		e		26.9	d	
		e		35.0	c	
R	ePP	52	14.2	c		
	eP	50	15.0	c		



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
May 6	B	eP	23	10	56	d	USCGS: 13 $\frac{1}{2}$ °N, 88°W. h = 150. O = 23-03-35.
	BG	eSNE			17.0	d	
		eQNE	07	23	0	d	Many killed and extensive property damage in Eastern El Salvador.
		iNEZ			25.4	d	
	MH	eP	10	45	6	d	
		i			56.7	d	
		ipP	09	11	28.8	c	
		eNE	20	25	2	d	USCGS: 7 $\frac{1}{2}$ °S, 80°W. h = 200. O = 20-01-06.
		e			25.7	d	
		eP'P'		44	36.1	c	
	F	eP	10	36	5	c	
		ePP	12	00		d	
		eSN	16	20		d	
		e			25.2	d	
		eP'P'	15	44	39	d	USCGS: Fiji Islands Region. h = 600. O = 15-04-13.
	M	eP	10	56	7	d	
		i			11 07.6	d	
		ePP	12	36	2	d	
		e(S)	09	17	03	d	
		e	09	30	40	d	USCGS: 21°S, 33°E. O = 09-12-25.
		eP'P'		44	46.5	c	
	A	eP	11	17	0	c	
	R	eP	10	43	0	c	
		e			51.0	d	
		ePP	10	12	21	d	
		eN	09	25	2	d	
		eE			26.0	d	
May 6	B	eP	23	15	21	d	USCGS: El Salvador Aftershock. O = 23-08-04.
	BG	eS			21.6	d	
	MH	eP	15	12	0	c	
		i			17.1	c	
	F	eP	38	01		d	
	M	eP			27.5	c	
	A	eP	52	41	0	d	
	R	eP	38	13	5	d	
May 7	M	eP	10	11	02.1	c	USCGS: 17°S, 174°W. h = 100. O = 09-59-25.
May 7	M	eP	11	30	43.8	d	USCGS: 20°S, 179 $\frac{1}{2}$ °W. h = 600. O = 11-19-29.
		epP			32 54.8	d	
May 7	MH	iP	19	38	57.2	d	
May 7	M	iP	11	39	00.4	d	USCGS: New Hebrides. O = 11-26-32.
May 7	B	iP	19	52	37.8	d	
May 7	BG	eQNE	20	42	0	d	USCGS: El Salvador Aftershock. O = 20-22-37. O = 19-04-52.
		eR			44.6	d	
	MH	iP	20	29	47.3	c	
		i			51.4	c	
		ipP	30	33	4	d	
	F	eP	19	29	36.0	d	
		eE	30	03		d	
		ePP	31	01		d	
		e	33	00		d	

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
May 8	M	eP	30	00	.7	c	
	A	eP		18		c	
	MH	iP	07	54	11.7	d	USCGS: 17 $\frac{1}{2}$ °S, 178°W. h = 600.
		i		20.0			0 = 07-43-20.
	M	eP			10.8	c	USCGS: Aleutian Aftershock.
		i			26.5	d	0 = 20-28-17.
May 8	M	iP	09	34	49.8	d	
May 8	BG	eLE	20	33	.7		USCGS: 7 $\frac{1}{2}$ °S, 80°W. h = 200.
	MH	eP		10	51.3	d	0 = 20-01-08.
		i		11	11.1	d	
	M	eP			09.6	d	
		e(pP)			42.5	d	
	R	eP		10	55.5	d	
		e		11	04.5	d	
May 9	MH	iP	15	15	17.5	d	USCGS: Fiji Islands Region.
	M	iP			27.4	c	h = 600. 0 = 15-04-13.
		e			40.3	c	
	R	eP			41.0	c	
May 10	M	iP	09	26	36.1	c	
May 10	B	eP'	09	38	25	c	USCGS: 21°S, 33°E.
		i			31.4	c	0 = 09-18-25.
		e		40	56		
		e		41	35		USCGS: 13°N, 87°W. h = 100.
		ePP		42	11	d	0 = 22-15-51.
	BG	eLE	10	39	.0		
	MH	eP	09	38	24.3	d	
		i			30.8	d	
	F	eP			21.5	d	
		e			29.5		
		eE		40	55		
		e(SKSN)		45	24		
	M	iP		38	11.5	d	
		i			25.8	c	
		eSKSP		52	09.3	c	
	A	eP		38	24.0	c	
		eE			50	c	
		e		41	08	c	
	R	eP'		38	21.0	c	
		e		39	12		
		e		41	56		
May 10	M	eP	11	49	28.3	c	USCGS: New Hebrides.
							0 = 11-36-32.
May 10	B	iP	19	52	44.9	c	USCGS: 51°N, 180°. h = 60.
	BG	eSE		59	01		(Aleutian Islands). 0 = 19-44-52.
		eN	20	00	.0		
		e			05.1		
		eE			05.7		
	MH	iP	19	52	50.4	d	
		ipP		53	03.3	d	
	F	eP		53	08.0	d	
		eE			55		



Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
May 10	M	iP	10 52 41.4	d	USCGS: 20°N, 75°W. h = 100.
	R	eP	55.5	c	O = 10-00-10.
May 10	F	eP	19 55 31.0	d	USCGS: Aleutian Aftershock.
					O = 19-47-14.
May 10	MH	eP	20 36 12.0	d	USCGS: Aleutian Aftershock.
					O = 20-28-17.
	F	eP	39.4	c	
	R	eP	13	c	
May 10	B	iP	21 45 32.9	c	USCGS: 34°S, 72°W. h = 100.
		i	44.5	d	O = 21-33-02.
		e	59.0	c	
		e	46 41.0	c	
	BG	eLN	22 07.9	d	
		eNZ	14.3	c	
May 11	MH	iP	21 45 29.1	c	USCGS: South Central Alaska.
		i	35.0	c	h = 100. O = 02-43-45.
May 11		i	04 39 43.7	c	USCGS: 15°S, 170°E.
	F	eP	21 0	c	O = 01-30-11.
	M	iP	40.1	d	
		i	52.1	c	
	R	eP	11 03.5	c	
		e	13 46 02.5	d	USCGS: 7°N, 86°W. h = 100.
May 11	B	eP	02 23 17.5	c	USCGS: 13°N, 87½°W. h = 100.
		e	22.5	d	O = 02-15-51.
	BG	eSN	29 35	c	
		eSSN	32 37	d	
		eE	49	d	
		eQNE	38.9	c	
		eR	40.2	c	
	MH	iP	23 11.9	d	
		i(pP)	32.7	d	
		i	24 15.0	d	
	F	eP	23 05	c	
		e	47	c	
May 11	M	eP	22 12 24.5	d	USCGS: 6°S, 149°E. O = 21-59-00.
May 11		i(pP)	03 20 42.1	c	USCGS: Fiji Islands Region.
		i	52.8	c	h = 600. O = 03-13-10.
May 11	A	e	28 00	c	
		eE	28.4	c	Mag. 6.1 (PAS: 6.4-6.3/A).
	R	eP	23 12.5	d	USCGS: 21°S, 69°W. h = 100.
		eN	53	d	O = 05-18-40.
		e	24 20	c	
May 11	MH	iP	03 23 48.6	d	USCGS: 7°N, 83°W. h = 100.
		i	55.8	d	O = 03-15-25.
	M	eP	59.5	c	
May 11	MH	iP	23 07 49.6	d	
		i	56.2	c	
	F	eP	41.5	c	
May 13	M	eP	08 50 00.4	c	
		e	05.9	d	
	R	eP	06.5	d	

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
May 13	F	eP	10	08	01	c	USCGS: 20°N, 75°W. h = 100. 0 = 10-00-10.
	M	eP			18.1	d	
May 13	BG	i(pP)			37.5	d	USCGS: New Hebrides Region. 0 = 17-02-03.
		eLNE	17	42	5		
	MH	eP	14	45	4	c	
		e	15	14	8	c	
	F	eP	14	53	0	c	
May 14	MH	M			53.4		USCGS: New Hebrides. h = 100. 0 = 00-29-10.
		R			58.0	d	
	eP	00	41	48.2	c		
	iP		42	06.4	d		
	i(pP)		41	52.5	c		
May 14	M	eP			55.3	d	USCGS: South Central Alaska. h = 100. 0 = 02-43-45.
		eP			58.5	c	
		iP	02	49	30.8	c	
May 14	BG	i			41.3	c	USCGS: 19°S, 170°E. 0 = 03-58-11.
		eE	04	39	0		
	MH	eP	10	50	4	c	
	F	eP			55.0		
	M	eP			56.3	c	
May 14	B	R			11 12	c	USCGS: 9°N, 86°W. h = 100. 0 = 13-02-40.
		eP	13	10	36.0	d	
	e		13	50			
	eSNE		17	12			
	MH	iP	10	30	9	c	
May 15	F	i			38.8	d	USCGS: 6°S, 149°E. 0 = 21-59-00. USCGS: Fiji Islands Region. h = 600. 0 = 03-13-10.
		eP	11	10	17.5	c	
	e			35.0	c		
	e	12	38	5			
	M	eP	10	43	3	c	
May 14	R	i			58.4	d	USCGS: 21°S, 69½°W. h = 100. 0 = 05-18-46.
		eP			29.5	d	
	eE			50.5			
	R	eP	22	12	29.5	c	
	May 15	F	eP	03	24	17.3	
May 15	M	iP			22.8	c	Mag. 6¼ (PAS: 6½-6¾). USCGS: 21°S, 69½°W. h = 100. 0 = 05-18-46.
		e			35.5	c	
	B	iP	05	30	27.8	c	
	ipP			41.9	d		
	isP			48.0	d		
May 16	BG	i			57.0		USCGS: 24°S, 177°W. 0 = 02-16-45. USCGS: Northern Italy Aftershock. 0 = 02-16-55.
		e			31 12		
	ePP			33 32			
	eSN			40 10			
	PZ	A	T				
May 16	MH	SH	1½		6		USCGS: 15°S, 69½°W. h = 100. 0 = 13-23-10.
		iP	4		9		
	ipP	05	30	23.6	c		
				38.0	d		



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
	F	eP			13.3	c	
		epPNZ			27.8	c	
		eN	32		43	c	
		eS	39		56	c	
		eE	40		01	c	
	M	iP	30		33.4	c	
		ipP			47.5	d	
		i	31		08.7	c	
		e	32		26.6	c	
	R	eP	30		26.2	c	
		ipP			40.8	d	
May 15	B	iP	10	00	11.2	c	USCGS: 19°N, 146°E, h = 200.
		e			21	c	0 = 09-48-20.
		e			38	c	
		ipP	01		03.2	c	
		e			09	c	
	BG	eSE	09		43	d	
	MH	iP	00		14.3	c	
		i			25.2	c	
		ipP	01		03.8	c	
	F	eP	00		22.8	c	
		epP	01		14.8	c	
		eN			32.5	c	
	M	iP	00		09.7	c	
		i			15.9	c	
		i			51.0	c	
	R	iP			18.6	c	
May 15	BG	eP	11	35	53	c	
		e(SKS)N		46	14	c	
		eREZ	12		07.9	c	
	F	eP			36 06	c	
	M	eP			35 59.6	d	
	R	eP			36 09.5	d	
May 15	F	eP	23	07	08.5	d	USCGS: 45°N, 9°E. 0 = 22-54-23.
	M	iP		06	57.0	c	Felt in Northern Italy.
		i		07	10.3	d	
	R	eP		06	57.5	c	
		eN		07	11.2	c	
May 16	MH	iP	00	14	39.6	d	USCGS: 15°S, 172 $\frac{1}{2}$ °W, h = 100.
		i(pP)		15	02.6	c	0 = 00-03-30.
	F	eP		14	44.0	d	
		e		15	23.5	c	
	M	eP		14	50.6	c	
	R	eP			54.0	d	
May 16	F	eP	02	31	01.5	c	USCGS: 24°S, 177°W. 0 = 02-18-45.
May 16	M	iP	02	39	28.9	c	USCGS: Northern Italy Aftershock.
	R	eP			29.7	d	0 = 02-26-55.
May 16	M	e	05	55	27.9	d	
		e			51.4	d	
May 16	MH	iP	13	34	12.9	c	USCGS: 15°S, 69 $\frac{1}{2}$ °W, h = 200.
		i			30.6	d	0 = 13-23-10.

Date 1951	Sta.	Phase	Time (GCT)		Ground Motion	Remarks
			h.	m. s.		
May 15	F	ipP	16	35 08.4	d	USCGS: 38°N, 11°W, 0 = 15-21-25.
		eP	34	03.0	c	Felt in South Central Spain.
		e		17.5	c	
		epP		55.3	d	
		eS	42	58	c	
	M	iP	34	22.6	d	
May 19		ipP	22	35 18.4	d	
May 20	R	eP	08	34 14.0	c	USCGS: West Coast of Costa Rica.
May 16	M	e	14	16 07.4	d	0 = 01-02-55.
May 16	M	e	14	34 09.4	d	
		e		42.1	c	
May 17	MH	eP	01	54 17.5	c	USCGS: 19°S, 170°E.
		e		36.8	c	0 = 01-41-38.
	F	eP		24.0	c	
		e	56	10	c	
	M	e(P)	54	24.6	c	
	R	eP		26.0	d	
May 17	BG	eRNEZ	05	22.0	c	
May 17	B	iP	12	34 50	c	
		e		35 02	d	
	MH	iP	34	46.1	d	
May 20		i	14	35 03.5	d	Mag. 6-6.5.
	F	eP	34	54.5	d	Central America?
	M	eP	34	56.5	d	
		e	35	15.3	d	
		i		23.3	c	
	R	eP		01.1	c	
		eE		18.0	c	
May 17	BG	e(S)NE	15	40 51	c	
		eE		43.8	c	
		eLE		51.4	c	
	F	e	14	41 02	c	
		e		19	c	
May 17	MH	eP	16	58 43.8	d	
		e		53.5	d	
	M	eP		53.9	d	
		e	59	04.8	c	
May 20	R	eP	14	58 48.5	d	Possibly aftershock of quake at
May 17	MH	eP	22	36 14.9	d	USCGS: 5°S, 151°E. h = 100.
	F	eP		25.0	c	0 = 22-23-05.
May 18	MH	iP	17	49 14.1	c	
		i		50 00.7	c	
	F	eP		49 04.5	c	
	R	eP		15.5	c	
		e		50 00	c	
May 18	R	eP	20	18 17.0	c	
May 19	F	eP	07	35 39.7	c	
	M	eP		46.2	d	
		e		36 03.2	d	
May 21	R	eP	04	35 49.4	d	Possibly aftershock of quake of
		e		37 26.0	c	May 20 at 1440.
		e		40 03.3	c	



Date 1951	Sta.	Phase	Time (GCT)		Ground Motion	Remarks
			h.	m. s.		
May 19	F	eP	16	06 59.5	d	USCGS: 38°N, 4°W. 0 = 15-54-25. Felt in South Central Spain.
		eE		07 28		
		eN		40	d	
May 20	M	iP	00	06 41.6	d	USCGS: 6°S, 154°W. h = 150. 0 = 00-06-27-21. PAS: Mag. 7.
		i		07 23.7	d	
	R	e(P)		06 51.5	c	
May 19	F	eP	22	17 59.1	c	USCGS: Near Coast of Costa Rica. 0 = 04-02-55.
May 20	MH	iP	04	10 52.6	d	
		i		11 02.6	c	
	F	eP		10 38.5		
	M	eP		11 02.5	c	
	R	eP		10 52.0	c	
May 20	MH	eP	12	24 50.7	d	
		i		25 02.8	d	
		i		09.9	c	
	F	eP		24 42.5	c	
	M	eP		39.8	d	
		i		45.0	c	
		i		25 00.1	c	
	R	eP		24 40.8	d	
		eN		25 04		
May 20	B	eP	14	40 15		Mag. 6-6½. Central America?
		e		22		
		e		36	c	
	BG	eSN		47 02		
		iN		33		
		eQN		52.4		
		eREZ		53.5		
		A		T		
		SH		2½ 10	c	
		MAXH		15 20	c	
	MH	eP	14	40 10.1	d	
		i		16.7	c	
	F	eP		01.0	c	
	M	e(P)		42.1	c	
		i		41 39.1		
	R	eP		40 21.5	d	
May 20	BG	e(S)N	16	33 52		Possibly aftershock of quake at 1440.
		eLN		39.2	c	
	MH	eP	16	26 56.2	c	
		i		27 01.8	c	
	F	eP		26 52	c	
		e		27 56		
		e		29 01		
	M	eP		27 24.2	d	
		e		45.8	d	
	R	eP	05	07 06.0		
		e		28 13	c	
		e		43.0	c	
May 21	BG	eLN	04	53.0		Possibly aftershock of quake of May 20 at 1440.
	MH	eP		39 54.0	c	
		i		40 03.3	d	

Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
	F	eP	39 44.5	d	
		eN	40 14	c	
May 21	M	eP	22.5	d	
	B	iP	08 40 01	c	USCGS: 6°S, 154½°E. h = 150.
		epP	39	c	O = 08-27-21.
		eSKSE	49 47	d	PAS: Mag. 7.
		eSE	50 16	d	
		eN	07 20	d	
		isS	00 51 41	c	
		eSSE	08 56.5	c	
		eN	57.4	c	
		eREZ	09 15.3	d	
		A	T		
		PZ	5½ 7	c	
		pPZ	7½ 9	d	
		SKSH	2 9	d	
May 21	MH	iP	08 40 05.4	c	
		ipP	44.5	c	
		ePP	43 33.3	d	
May 25		e	00 50 45.2	c	USCGS: 10°N, 70°W. O = 00-02-50.
		ePKKP	57 38.9	d	
	F	iP	40 09.8	c	
		epPEZ	48.7	c	
		e	41 42.1	c	
May 25		eN	21 43 56.0	d	USCGS: 17°S, 179°W. h = 600. O = 21-47-31.
		e	50 51	d	
		eE	53	c	
	M	eP	40 04.7	c	
		i	16.3	d	
		i	23.9	c	
		ePKKP	57 42.5	c	
May 26	A	eP	39 59.5	d	
		epP	40 39.5	d	USCGS: 51°N, 173°W. O = 04-09-03.
	R	eP	11.7	c	
		eN	50 26	c	
May 26		esS	21 52 01	c	
		ePKKP	57 40	c	
May 21	B	iP	11 33 18	d	USCGS: Fiji Islands. h = 600.
	MH	iP	05 16.9	c	O = 11-22-22.
		i	21.3	c	
	F	eP	21.0	c	
		e	34 11	d	
	M	eP	33 25.6	c	
		i	39.7	d	
	R	eP	30.0	c	
		e	45	c	
May 22	MH	iP	05 07 30.5	d	USCGS: 29°N, 86°E. USCGS: Tonga Islands Region. h = 100.
		i	08 17.5	c	O = 04-55-30.
	F	eP	07 35.0	c	
	M	iP	40.7	c	
		e	54.7	d	
		i	08 18.1	d	



Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
	R	eP	07 44.0	d	
May 22	MH	iP	08 36 45.8	c	
		i	59.1	c	
May 22	MH	iP	17 54 51.6	d	USCGS: 13°S, 169°W. h = 300. O = 17-57-21.
		i	55 04.5	d	
	M	iP	54 43.1	d	
	R	e	42		
May 23	M	i	07 34 48.3	d	
May 24	MH	eP	00 02 35.1	c	
May 24	MH	eP	08 25 54.4	c	
	F	e	26 22		
	M	eP	14.5	d	
	R	eP	18.5		
May 24	F	eP	09 18 28.5	c	
	M	eP	01 11 35.0	d	
	R	eP	42		
May 24	MH	eP	16 02 59.5	d	
	F	eP	06 14 59.5		
	M	e(P)	03 02.9		
May 25	MH	iP	00 12 17.4	c	USCGS: 10°N, 70°W. O = 00-02-50.
		e	21.4	d	
	F	eP	30 05.0	c	
	M	eP	34 23.0	d	
	R	eP	12.5		
May 25	B	iP	21 58 23.6	d	USCGS: 17°S, 179°W. h = 600. O = 21-47-31.
	MH	iP	24.5	d	
		e	56.1	c	
	F	eP	17 28.5	d	
	M	iP	13 46 33.8	c	
	R	eP	01 02 38.0	d	USCGS: 52°N, 178°W. h = 150. O = 00-21-46.
		e	53.0		
		eSNEZ	22 07 59		
May 26	F	eP	04 16 58.0	c	USCGS: 51°N, 173°W. O = 04-09-03.
	M	e	16.7	d	
	R	eP	45.5	c	
May 26	BG	eNE	21 51.3		
		e	53.9		
May 27	MH	e	19 12.1	d	
	BG	eN	05 02.6		USCGS: 23½°N, 45°W. O = 04-30-55.
		eEZ	07.2		
	MH	eP	04 41 44.5	c	
		i	53.3	d	
	M	eP	38.9	d	
		i	48.2	d	
May 28	R	eP	37.5	c	
	M	eP	16 17 16.9		USCGS: 29°N, 86½°E. O = 15-59-20.
May 28	MH	iP	17 35 21.2	d	USCGS: Northern Argentina. O = 17-23-00.
		i	56.8	c	
		e	36 07.2	d	
	F	eP	35 11.5	c	

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
May 28	M	eP			30.6	c	USCGS: 18 $\frac{1}{2}$ °S, 169°E. h = 300. O = 19-57-21.
		e		36	24.8	c	
	B	iP	20	09	29.4	c	
		i			38.1		
	MH	iP			30.5	c	
		ipP	10		13.4	c	
		ePP	12		51.5		
May 28	F	eP	09		35.5	c	USCGS: 19°S, 121°E. h = 100. O = 20-58-00. Slight property damage in Northern Island.
		epP	10		19.5		
		e(sP)			40.5		
		e	11		57.5		
May 28	M	eP	09		46.9	c	USCGS: 19°S, 121°E. h = 100. O = 20-58-00.
		i			52.2	c	
May 28	MH	iP	23	00	35.2	d	Slight property damage in Northern Island.
May 29	B	iP	01	14	32.7	c	
May 29	MH	iP			35.3	c	USCGS: 3°S, 138 $\frac{1}{2}$ °E. O = 06-03-06. PAS: Mag. 6 $\frac{1}{2}$ -6 3/4.
		i			40.8	d	
	B	iP	06	16	49.5	d	
		i			59.9		
		i	17		04.4		
	BG	eSKSE	27		50		
		ePSN	30		16		
	e(SS)N	34		50			
May 29	MH	eP		16	51.4	d	USCGS: 52°N, 178 $\frac{1}{2}$ °W. h = 150. O = 00-54-46.
	F	eP			58.0	d	
May 29	M	iP			51.3	d	USCGS: 52°N, 178 $\frac{1}{2}$ °W. h = 150. O = 00-54-46.
		i	17		07.2	c	
May 29	M	e	13	46	18.3	d	USCGS: 52°N, 178 $\frac{1}{2}$ °W. h = 150. O = 00-54-46. Felt in Aleutian Islands.
May 30	B	iP	01	02	21.0	c	
		i			30.4	d	
		iPP	04		15.8		
	MH	iP	02		26.7	c	
		i			36.4	d	
		i	03		11.8	d	
		i	04		18.4	c	
		iPP			22.5	c	
		i	07		53.6	c	
	F	eP	02		38.8	c	
		e			54.5		
May 30		eE	03		06		USCGS: 3°S, 126 $\frac{1}{2}$ °E. O = 19-57-01.
	M	iP	02		12.4	c	
		i			18.6	d	
		iPP	04		11.9	d	
May 30	R	iPEZ	02		26.5	c	USCGS: 3°S, 126 $\frac{1}{2}$ °E. O = 19-57-01.
		eE	03		03		
		e	07		53		
	BG	eP'	20	15	15	c	
	e(PP)N		17	04			
	eE		21	31			
	e(S)		23	15			
	eN			40			



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
		ePSE	25	08			
		eEZ		48.7			
		eEZ		56.6			
		eN		57.6			
	MH	e	16	01.7		c	
	F	eP'	15	11.5		c	
		e	16	04			
		e(PP)	17	09			
	M	e	15	56		d	
	R	e	16	00			
May 30	M	eP	23	13 29.1		d	
May 31	BG	ePP	21	14 05			USCGS: 19°N, 121°E. h = 100. O = 20-56-00.
		iSKSNE	20	02			
		e(SS)E	26	57			Slight property damage in Northern Luzon.
		eEZ		41.8			
	MH	eP	09	29.5		d	
		e	13	14.9		d	
	F	e	09	56		c	
	M	eP		25.4		d	
		i		50.5		d	
	R	eP		33.0		c	
		e		51			
		e	12	43			
		eSKSE	20	01			
		eNZ		04			
June 1	B	iP	16	36 05.7		c	USCGS: 14 $\frac{1}{2}$ °N, 145°E. O = 16-23-35.
		e		18.0		c	
		e		37 32		c	
	BG	eSE		46 15			
		eNE		56.5			USCGS: Off South Coast of Mexico. h = 100. O = 13-07-20.
		e	17	09.4			
	MH	iP	16	36 07.6		c	
		i		22.5		d	
		i		40.5		d	
	F	eP		18.5		c	
		e		28.0		c	
		e		51.5		c	
		e	37	22.3		d	
		ePP	39	28			
	M	eP	36	03.9		d	
		i		13.0		d	
	R	eP		12.5		c	
June 1	B	iP	20	09 21.3		c	USCGS: 52 $\frac{1}{2}$ °N, 172°W. h = 100. O = 20-04-14. Felt in Aleutian Islands.
		i		31.2		c	
		e(pP)		44.6		c	
		ePP	10	52			
	BG	eSE	15	07			
		eN	18.	4			
		eN	20.	8			
	MH	iP	09	27.2		c	
		i	10	50.3		d	
		i	11	38.7		c	
		iS	15	17.4		d	

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
	F	eP	09	39.5		c	
		eS	15	24		c	
	M	iP	09	11.3		c	
		i		37.3		c	
	A	eP	08	56		c	
June 5	R	eP	09	25.5		c	USCGS: 30°N, 127°E. h = 100.
		e		52		c	0 = 14-57-47.
		e	10	07		c	Felt in Southern Kyushu, Japan.
		ePP	11	02			
		eS	15	11			
		eN	19.3				
June 1	B	iP	20	11 57.8		c	USCGS: Aleutian Aftershock. 0=20-04-53.
	MH	iP	12	04.1		c	
	F	eP	12	16.5		d	
June 2	BG	eE	07	06 57		c	USCGS: 7°N, 117°E. 0 = 06-47-52.
		e	08	02		c	
		e(SKS)E	12	44		c	
		e(PS)N	16	06		c	
		eE		21		c	
		eN	26	40		c	
		eNEZ	38			c	
	M	eP'	06	14.4		c	
		e		55.4		c	
	R	e		50		c	
		e	07	08		c	
June 2	M	eP	08	05 44.4		c	
June 3	M	iP	06	00 20.1		c	USCGS: 37°N, 142°E. 0 = 05-42-45.
		i		33.9		c	Felt on Honshu, Japan.
June 3	M	eP	11	58 16.4		d	Mag. 6 3/4-7.
June 3	MH	eP	13	13 52.6		c	USCGS: Off South Coast of Mexico.
		i	14	06.8		c	h = 100. 0 = 13-07-20.
		i		29.4		c	
	M	eP		09.6		c	
		e		22.0		d	
June 3	F	eP	21	06 59.0		d	
		e	07	04		d	
	M	iP	06	03.9		d	
		i		14.7		c	
		i		20.2		c	
June 4	MH	iP	12	30 03.7		c	
	M	iP		12.3		c	
		i		21.5		d	
	R	eP		06.0		d	
June 5	B	eP	01	42 14.8		c	USCGS: 9 1/2°N, 86°W. h = 60.
		i		24.6		d	0 = 01-34-20.
		e		31		c	
	F	eP	41	58.0		c	
		e	42	17.5		c	
		eN	43	14			
		e		58			
		e	45	25			



Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
June 5	M	eP	42 24.3	c	USCGS: 30°N, 132°E. h = 100. O = 16-57-47. Felt in Southern Kyushu, Japan.
		i	35.9	d	
	A	eP	29	d	
		e	42.5	d	
	R	eP	13.5	d	
	B	iP	17 10 08.8	d	
		i	14.9	d	
		i	25.3	d	
		e	11 38		
		ePP	13 36		
		i(S)NE	20 52		
		eNE	21 30		
		eN	32.5		
	F	eP	10 19.5	d	
		e	31.0	c	
		e	11 04	c	
		e(S)	21 05		
M	iP	10 04.5	c		
	i	24.5	c		
	e	13 11.1	c		
A	eP	09 55.0	c		
	e	10 06	c		
	e	11	d		
R	iP	11.9	d		
	eN	20 29			
June 6	M	iP	05 54 03.8	c	USCGS: 37½°N, 142°E. O = 05-42-45. Felt on Honshu, Japan.
		e	42.5	d	
June 6	B	eP	16 21 04	c	Mag. 6 3/4-7.
June 7		ipP	19.5	d	USCGS: 71½°N, 8°W. h = 60.
June 7		ePcP	44.7		O = 16-10-52.
June 7		e	23 56		
June 7	BG	eN	24 53		
		eSNE	29 30		
		eSSN	33 36		
		eNE	35.9		
		eNE	39.9		
		A	T		
		PZ	5 39 6		
		PH	5½ 7		
		SH	13 11		
		MAXH	225 20		
	MH	iP	16 21 07.4	c	
		i	15.4	c	
		ipP	25.5	c	
i		22 22.5	c		
ipP		23 30.9	c		
eSE		29 44			
eE		40.5			
e	42.8				
	eN	44.3			

Date 1951	Sta.	Phase	Time (GCT)		Ground Motion	Remarks
			h.	m. s.		
	F	eP	21	07	c	
		epP		22		
		ePPE	23	31		
		eSE	29	41		
		eL	36.4			
		eN	41.6			
	M	eP	20	47.2	c	
		i	21	41.5	d	
June 8	H	eN	41	32	d	
		e	44	42		
	A	eP	20	48.4	c	
June 8	BG	e	22	56.5	c	USCGS: 26°S, 176°W, h = 100. O = 22-21-19.
		epP	21	07	c	
		eSE	29	06		
		e	22	17		
		eLE	37.4			
		e	43.4			
		e	47.0			
	R	eP	20	49.0	c	
		e		56.5		
June 9	MH	epP	21	06.5	c	USCGS: 20°S, 177°W, h = 500. O = 03-02-02.
		eE	21		d	
		eN	25	56	d	
		eSNE	29	09		
		eE	40.1			
June 9	M	eN	41	08	d	USCGS: Western Iran. O = 11-22-05.
		e	41.8		d	
June 10		eNE	43.0		d	USCGS: 31°W, 131°E. O = 00-08-07.
June 7	M	eP	09	22 23.1	d	
June 7	BG	eLEZ	12	15.8	c	USCGS: Near Southwest coast of Peru. Slightly deeper than normal.
June 7	R	eP	18	15 21	c	
June 7	B	eP	23	11 23.5	c	USCGS: 27½°S, 176°W. O = 22-59-00.
June 12	MH	i	08	08 29.2	d	
		i	09	43.3	d	
		e	12	48		
	BG	e(SKS)NE	21	53	d	
June 12	MH	eSSN	21	27 25	c	
		eQNE	34.6		c	
		eRNEZ	39.1		c	
June 12			A	T		USCGS: Alaska West, h = 200, O-22-40-40
June 13	MH	(SKS)H	5½	8	c	USCGS: 19°S, 63°W, h = 60. O = 01-00-40.
		MAXH	70	19	d	
	MH	eP	23	11 22.5	c	
June 13	MH	i	11	29.4	d	
		e	12	41.5	d	
	F	eP	11	27.0	c	
		e		33.2	c	
June 15	MH	e	09	12 46.5	d	
		eR		40.5	d	
	M	eP	11	34.8	c	
June 15	A	e(P)	20	36.0	d	
		i(pP)		17.3		



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
June 16	B	e	12	42.5		d	PAS: 37°05'N, 117°05'W. O = 05-52-56, Mag. 4.5.
		e	22	17			
		eN		20			
		eR	41	7			
	R	eP	11	38.5		c	
		e	12	42		d	
		e(SKS)	22	17			
		e	41	45			
June 8	M	iP	13	47 49.3		d	
		i		48 00.9		c	
	R	e		14.0		c	
June 8	BG	eLE	22	56.6			USCGS: 26°S, 176°W, h = 100. O = 22-21-19.
		eE	23	00.2			
		eNE		02.9			
June 16	MH	eP	22	33 28.0		c	USCGS: 144°W, 130°W. O = 23-46-56.
June 16	F	eP		31.0		c	
	M	eP		37.5		c	
	R	eP		41.5			
		eE		59.5			
		e	34	05			
June 9	MH	epP	04	05 16.0		c	USCGS: 20°S, 179½°W, h = 600. O = 03-52-02.
		i		23.2		d	
	F	epP		17.5		d	
	M	iP	03	19.1		c	
		epP	05	24.8		c	
June 9	M	e(PP)	11	40 27.7		d	USCGS: Western Iran. O = 11-22-05.
		e	41	15.4		d	
June 10	R	eP	00	20 33.5			USCGS: 31½°N, 131°E. O = 00-08-07.
		e		21 03			
June 12	MH	iP	05	53 20.9		c	USCGS: Near Southwest coast of Peru. Slightly deeper than normal. O = 05-42-20.
June 17	M	eP		23.0		d	
June 12	MH	eP	08	08 59.6		d	
	F	eP	09	02.0		c	
		e		22.5			
	M	eP	08	57.2		d	
June 12	MH	iP	21	45 28.8		c	
		i		43.7		c	
	M	iP		38.3		c	
June 12	M	eP'	22	58 33			USCGS: Hindu Kush, h = 200. O=22-40-40.
June 13	MH	eP	01	15 42.7		c	USCGS: 19½°N, 63°W, h = 60. O = 01-06-40.
		ePcP	16	03.1		d	
	M	i	15	59.6		d	
June 13	MH	iP	14	52 22.6		c	PAS: Mag. 6.
		i		27.3			
	F	eP		17.5		d	
		e	53	01		d	
June 15	MH	eP	09	07 07.9		d	
	F	eP		12.0		d	
	M	e		32.0			
June 15	MH	iP	20	54 06.4		d	
		i(pP)		17.3			

Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
June 16	B	iP	05 54 03.6	c	PAS: 37°05'N, 117°05'W. O = 05-52-56. Mag. 4.5.
		i	08.0	d	
		i	26.0	c	
	MH	e(S)E	46.0	c	
		iP	53 51.2	c	
		i	55.7	d	
PA	i(S)	54 41.3	d		
	eP	03.5	d		
June 17	F	ePNEZ	53 31.4	c	USCGS: 44½°N, 130°W. O = 10-58-43.
		i(S)E	54 01.2	c	
June 16	M	eP	08.6	c	USCGS: 44½°N, 130°W. O = 23-46-58. PAS: Mag. 5½.
		i	13.8	c	
		i	22.8	d	
	MH	eE	55 28.1	c	
		iP	12 56 08.7	c	
		eP	23 49 12.0	d	
June 16	B	e	22.9	c	
		eSN	51 08	c	
June 17	MH	iP	49 20.3	d	USCGS: Bonin Islands Region. O = 01-55-05.
		i	30.0	c	
June 17	F	eE	18 51 45	c	USCGS: 19½°N, 155°E. h = 100. O = 17-28-30.
		eP	49 38.5	d	
June 17	M	eP	21 48 54.8	d	USCGS: 16°N, 172°W. h = 100. O = 22-21-27.
		e	49 05.5	d	
June 17	M	i	20.5	c	USCGS: 35°S, 70°W. h = 100. O = 13-36-00.
		e	13 50 34	c	
June 17	A	eN	59	c	USCGS: 19½°N, 155°E. h = 100. O = 17-28-30.
		eE	49 40	d	
June 17	B	eE	50 03	c	USCGS: Near East Coast of Kamchatka. O = 03-48-35.
		iP	02 07 26.0	c	
June 17	MH	e	47.6	c	USCGS: 44½°N, 130°W. O = 09-40-15. PAS: Mag. 6.
		iP	29.9	c	
June 17	F	i	35.7	c	USCGS: 11°N, 85°W. h = 100. O = 17-44-27.
		i	17 52 45.5	c	
June 17	M	eP	46.5	c	USCGS: Near East Coast of Kamchatka. O = 03-48-35.
		iP	23.4	c	
June 17	MH	i	27.1	d	USCGS: 44½°N, 130°W. O = 09-40-15. PAS: Mag. 6.
		e	33.2	d	
June 17	MH	eP	03 57 57.3	c	USCGS: Near East Coast of Kamchatka. O = 03-48-35.
		e	33.2	d	
June 17	B	eP	09 42 28.2	c	USCGS: 44½°N, 130°W. O = 09-40-15. PAS: Mag. 6.
		eE	44 34	c	
June 17	BG	e	42	c	USCGS: 44½°N, 130°W. O = 09-40-15. PAS: Mag. 6.
		eP	42 36.6	c	
June 17	MH	i	44.1	c	USCGS: 44½°N, 130°W. O = 09-40-15. PAS: Mag. 6.
		e	45 59.2	c	
June 17	F	eN	46 25	c	USCGS: 44½°N, 130°W. O = 09-40-15. PAS: Mag. 6.
		eP	42 56.5	d	
June 17	F	eE	44 26.5	d	USCGS: 44½°N, 130°W. O = 09-40-15. PAS: Mag. 6.
		e	46 32	d	



Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
	M	eP	42 11.8	d	
		i	18.2	c	
		i	43 20	c	
		eE	59		
	A	ePE	42 09		
		eE	43 06		
		eE	44 04		
	R	eP	42 33.5	d	
		eEZ	45 00		
June 17	BG	eE	11 02 32		USCGS: $44\frac{1}{2}^{\circ}\text{N}$ , $130^{\circ}\text{W}$ .
	B	e	03 56		0 = 10-58-43.
	MH	eP	01 05.3	d	
		i	09.4	d	
	F	eP	26.5	c	
		e	56	d	
	M	iP	00 41.8	d	
		e	58.5		
		e	03 41.2		
	A	eE	02.4		
	R	eP	01 04.0		
June 17	MH	eP	18 11 27.6	c	USCGS: Southern Bolivia.
					0 = 17-59-30.
June 17	R	eP	21 39 00	c	
June 17	MH	iP	22 32 43.5	d	USCGS: $16^{\circ}\text{S}$ , $172^{\circ}\text{W}$ . h = 100.
	R	eP	55.5	d	0 = 22-21-27.
June 18	MH	eP	13 48 26.2	c	USCGS: $33^{\circ}\text{S}$ , $70\frac{1}{2}^{\circ}\text{W}$ . h = 100.
	F	eP	12.0	c	0 = 13-36-00.
	M	eP	34.3	d	
	R	eP	28.5	c	
June 18	MH	iP	15 37 39.8	c	USCGS: $19\frac{1}{2}^{\circ}\text{S}$ , $169^{\circ}\text{E}$ . h = 100.
		i	38 14.1	d	0 = 15-25-05.
	F	eP	37 24.0		
	M	eP	46.6	d	
	R	eP	16.0	c	
June 18	B	eP	17 52 22.1	d	USCGS: $11^{\circ}\text{N}$ , $85^{\circ}\text{W}$ . h = 100.
	MH	iP	16.2	c	0 = 17-44-27.
		i	42.1	c	
		iPP	54 08.5	d	
		e	57 11.2	c	
		eScP	51.5	c	
	F	eP	51 57.0	c	
		e	25	d	
		e(PP)	53 25		
		eN	54 04		
		eScP	57 39		
		eNE	42		
		eS	58 06		
		eNE	11		
		eScS	18 01 55		
		e	02 04		

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
	M	eP	17	52	27.8	d	
		e		53	21.2	d	
		ePP		54	13.3	c	
	R	eP		52	16.0	c	
		eE		54	18.5		
June 23	MH	eScP	09	57	51.0		USCGS: 14°S, 157°E. O = 09-32-33.
		eE		58	00		
		e			11		
June 24	MH	e	01	59			USCGS: 14°S, 157°E. Slightly deeper than normal. O = 01-44-25.
		e	18	01	03		
June 18	MH	iP	19	49	17.6	d	
		i			27.9	c	
	R	eP			13.5	c	
June 19	MH	iP	12	36	32.4	c	
June 19	B	eP	16	58	46		USCGS: Fiji Islands. h = 600. O = 16-47-40.
		e			55		
June 24	F	eP	02	37	48	c	USCGS: 11°S, 159°W. O = 02-25-40.
	R	eP		59	01	d	
June 20	F	e	18	44	12		USCGS: 35½°N, 103°W. O = 18-37-10.
		e			58		
	R	eP		40	27	c	Felt in Northern New Mexico-Texas Border Region.
June 20	MH	eP	22	03	45.6	d	USCGS: 25°N, 121°E. O = 21-50-20.
	F	eP			48.0	c	Felt in Northern Formosa.
		e		10	58.5		
	M	eP		03	37.2	d	
		e			44.9	d	
June 21	MH	eP	07	42	15.0	c	
June 21	F	eP	11	07	15.0	d	USCGS: 19°N, 116½°E. O = 10-55-20.
	M	eP			24.7	c	
		e		17	35.7	d	
	R	eP		23	31.0	c	
		e			53		
		e		43	15	d	
June 21	M	eP	10	41	13.2	d	
June 21	M	eP	12	02	39.5	d	
June 21	MH	iP	17	46	47.4	d	USCGS: Fiji Islands. h = 600. O = 17-35-50.
	F	eP			48.0	c	
	R	eP		47	09.0	d	
June 23	M	eP	01	26	07.1	d	USCGS: Off East Coast of Honshu, Japan. O = 01-14-15.
June 23	BG	e	03	37	35		USCGS: 31½°N, 113½°W. O = 03-32-40.
		eNEZ			38.8		
	MH	e		37	32.5	c	
		e		38	24.5	c	
	F	e		35	12	c	
June 24		e	11		55		
June 24	MH	e	15	36	32		
		eNE			37		
		eN		38.0			



Date 1951	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
			h. m. s.		
	M	e	38 38.2	d	
		e	57	d	
June 21	R	e(P)	15 35 00		
		eN	37 19		
		eE	38 12		
June 23	MH	eP	09 45 05.8	c	USCGS: 14°S, 167°E.
		e	28.9	c	0 = 09-32-33.
June 24	M	eP	17 11.3	d	
June 24	MH	eP	01 54 38.0	c	USCGS: 8½°S, 80°W. Slightly deeper
		i (PP)	51.5	d	than normal. 0 = 01-44-25.
		i	55 02.3	d	
	F	eP	54 21.0	c	
		e (PP)	55.5	d	
		e	58 06.5		
	M	e	55 02	c	
June 24	R	eP	54 41.0	c	
June 24	MH	eP	02 37 35.0	c	USCGS: 14°S, 76½°W.
	R	e	38 25		0 = 02-26-40.
June 24	BG	e(S)N	05 05.3		Southwest Pacific.
	MH	eP	04 55 08.6	c	
		e	25.5	d	
		ePP	59 00.9	c	
June 25	F	eP	55 12.0		
		ePP	59 10.0		
	M	eP	55 20.6	d	
June 25		i	05 30.0	d	
	R	eP	22		
		ePP	59 16		
June 24	B	eP	11 07 51		USCGS: 19°N, 146½°E.
June 25		ePP	11 15		0 = 10-55-40.
June 25	BG	eSNE	17 53		0 = 15-43-30.
		eQN	28.9		USCGS: 61°N, 150°W. h = 100.
		eREZ	33.4		0 = 16-12-32.
	MH	iP	07 52.3	d	Felt at Anchorage, Alaska.
		i	08 03.5	d	
		i	26.4	c	
		ePP	11 17.9	d	
		i	12 04.1	c	
	R	eP	08 00.5	d	
		ePP	11 22.5		
	M	iP	07 48.0	d	
		i	58.2	c	
		i	08 07.3	d	
		ePP	10 59.2	d	
		i	11 15.3	c	
		i (eP)	12 00.9	d	
June 24	M	i	11 20 40.8	c	Mag: 1.5, 0 = 19-45-41. Felt in
June 24	MH	eP	15 08 54.3	d	Southern Sierra Nevada Mountains
		e	09 28.9	c	of California.
	F	e	13.0	c	

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
	M	eP			10.8	d	
		e			33.6	c	
June 24	MH	eP	16	58	54.2	d	
		i		59	10.8	d	
	F	eP			03.0		
		e			19.0		
June 24	M	eP		58	55.1	d	
	MH	iP	17	02	12.4	d	USCGS: 5°S, 154°E.
		i			51.3	d	0 = 16-49-13.
		e(PP)		06	02.8	c	
June 25	F	e		02	09.0		
		e			40.9		
June 26		e(PP)		06	16.0		
June 26	M	iP		02	17.3	d	
		i			57.6	d	
June 24	MH	iP	18	10	51.3	d	USCGS: Loyalty Islands.
	M	eP			58.2	d	0 = 17-58-00.
June 25	BG	eLNZ	03	31.	3		USCGS: 56°N, 154°W.
	F	eP		24	44	c	0 = 03-18-23.
	M	eP			04.8	c	
		e			22.6	d	
June 27		iPP			59.1	c	
June 25	F	eP	05	45	35		
		e			46 07		
June 27		e			51 24		
June 25	MH	eP	08	20	08.0	c	
		i			18.2	c	
June 27	M	eP			03.4	c	
		e			13.4	c	
June 25	F	eP	15	56	46.5		USCGS: 3½°S, 149°E.
		ePP		16	00 29.5		0 = 15-43-30.
June 25	B	iP	16	18	29.5		USCGS: 61°N, 150°W. h = 100.
		ipP			42.2		0 = 16-12-32.
		i			52.4		Felt at Anchorage, Alaska.
June 28	BG	eSN		23	14		
	MH	iP		18	35.0	d	
		ipP			48.6	d	
		iPP		19	30.0	c	
		i		20	02.4	d	
June 28		i		21	37.8	c	
	F	eP		18	45.9	d	
June 28		epP		19	00.0	d	
		eE		21	08.5		
June 27	M	iP		18	11.9	d	
		ipP			24.1	c	
June 29		i(sp)		21	34.6	c	
June 25	B	iP	19	46	44.4	d	PAS: 35°47'N, 117°57'W.
		eS		47	26.6		Mag. 4.6. 0 = 19-45-41. Felt in
	MH	ePNE		46	33.9		Southern Sierra Nevada Mountains
		iSE		47	15.0		of California.



Date 1951	Sta.	Phase	Time (GCT) h, m, s.	Ground Motion	Remarks
	F	iPNEZ	46 12.3	c	
		i	34.2		
		iSNEZ	35.3		
	M	eP	47 07.5	c	
		iS	48 19.5		
		iN	21.0		
	SF	ePNE	46 48		
		e(S)E	47 35.7		
	PA	eP	46 39.1	d	
		e(S)E	47 24.0		
June 25	F	eP	20 24 49.5		USCGS: 1°N, 85°W.
		e	25 10.5		0 = 20-16-26.
June 26	M	iP	06 59 11.4	c	
June 26	F	eP	13 05 16.0	c	USCGS: Samoa Islands Region.
	M	eP	21.0		0 = 12-53-45.
June 27	M	iP	08 33 09.9	c	
June 27	MH	eP	09 13 08.0	d	USCGS: 52½°N, 31°W.
		e	23.6	d	0 = 09-02-49.
	F	eP	04		
	M	iP	12 52.7	d	
		e	13 01.1	d	
June 27	MH	e	10 53 56.8	c	
	F	eP	54 06.5	d	
	M	eP	53 14.9	d	
June 27	MH	eP	13 26 34.2	d	USCGS: 45°N, 57°W.
		e	48.3	c	0 = 13-17-50.
	M	iP	21.7	d	
June 27	MH	e	14 11 57.8	d	
		e	12 06.0	c	
June 27	MH	eP	21 50 21.5	d	
June 28	MH	iP	03 19 51.7	d	USCGS: 19°S, 64½°W, h = 60.
		i	20 18.9	d	0 = 03-07-55.
	F	eP	19 42.5	c	
	M	eP	20 00.7	c	
June 28	B	iP	03 48 21.8	c	USCGS: 16°S, 72°W.
	MH	eP	17.5	d	0 = 03-37-00.
		e	44.0	c	
	F	eP	07.0	c	
	M	eP	22.5	c	
June 28	M	eP	04 06 50.3	c	USCGS: 52°N, 175½°W.
		i	07 06.8	d	h about 60. 0 = 03-59-31.
June 28	MH	iP	16 49 12.1	d	
	M	iP	23.7	d	
June 29	M	e(P)	03 59 21.5	c	USCGS: 19½°N, 66°W.
					0 = 03-49-35.
June 29	F	e	21 32 29.5		
June 30	M	eP	17 24 11.5	d	USCGS: 6°S, 154½°E.
					0 = 17-11-13.

# Bulletin of the Seismographic Stations

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BERKELEY—MOUNT HAMILTON—PALO ALTO  
SAN FRANCISCO—FERNDALE—FRESNO  
MINERAL—ARCATA—RENO

Earthquakes and the Registration of Earthquakes

From July 1, 1951, to September 30, 1951

BY  
CHARLES HERRICK

UNIVERSITY OF CALIFORNIA PRESS  
BERKELEY AND LOS ANGELES  
1953



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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,  
AND RENO FROM JULY 1, 1951 TO SEPTEMBER 30, 1951

VOLUME 21 NUMBER 3

By Charles Herrick

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1953

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Intensities are given in the list of California, Nevada, and Oregon earthquakes on the following page, when sufficient information on the effects of CALIFORNIA is available. Criteria of the Modified Mercalli Scale which are used to rate the intensity are:

Intensity

- 
- II Felt by a few people only. Duration or direction not appreciable.
- III Duration or direction appreciable.
- IV Rattling of doors and windows; swinging of suspended objects.
- V Disturbance of movable objects; plaster cracked.
- VI Overthrow of movable objects; cracking of chimneys and other brickwork.
- VII Fall of some chimneys; some damage to buildings.

## EARTHQUAKE MAGNITUDE SCALE

Richter magnitudes given in the list of epicenters on the next page are found from the Wood Anderson seismographs, using the nomogram given by Hordowitz, "Bulletin of the Seismological Society of America", 32:164.

Latitude and Longitude are given for most epicenters in the following list. Only those earthquakes are given for which epicenters were located. The letter represents the excellence with which the epicenter has been located, a indicating excellent, b good, c fair, d poor.

Issued June 4, 1953

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EARTHQUAKES IN CALIFORNIA, NEVADA, AND OREGON

EARTHQUAKE INTENSITY SCALE

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Date	Magnitude	Latitude	Longitude	Quality	Remarks
July 21 06-01-06	2.6	36° 32'	121° 38'	c	
July 21 08-19-15	2.5	36° 50'	121° 32'	a	
July 21 03-03-34	3.9	37° 55'	122° 16'	a	Felt over an area of about 1500 square miles in the San Francisco Bay area. A maximum intensity of VI reported from Oakland; 7 at Alameda, Albany, Berkeley, El Cerrito, Orinda, Pinole, Richmond, Redwood, San Francisco and Sausalito;



## EARTHQUAKES IN NORTHERN CALIFORNIA, NEVADA, AND OREGON

Times are given in Greenwich Civil Time. Subtract 8 hours to get local  
 (Pacific Standard) time, or 7 hours to get Pacific Daylight Time (P.D.T.  
 in effect in California until 0200, Sept. 30, 1951).

<u>Date</u> 1951	<u>G.C.T.</u>	<u>Richter</u> <u>Magnitude</u>	<u>Latitude</u> <u>North</u>	<u>Longitude</u> <u>West</u>	<u>Quality</u>	<u>Remarks</u>
July 1	00-13-19	3.2	36° 12'	120° 57'	b	
July 3	11-49-18	3.8	38.1°	118.3°	d	
July 4	09-14-56	?	37° 53'	121° 43'	b	Foreshock July 25 0223.
July 6	18-35-50	1.5	38° 03'	122° 33'	b	
July 8	21-11-30	?	40.2°	124.5°	d	
July 9	05-00-08	3.8	36° 37'	121° 01'	c	Near Salinas.
July 9	08-18-50	2.6	37° 14'	122° 10'	b	2 1/2 km. southwest of Reno.
July 10	07-06-37	2.8	37° 12'	121° 38'	b	Depth about 10 km. Felt over an area of about 10,000 square miles of west central California.
July 17	22-53-14	2.2	37° 13'	122° 11'	b	About 13 km. west of Mt. Hamilton as far west as Mendota, and as far south as Shasta. A maximum intensity of VI.
July 20	08-25-14	1.6				About 20 km. south of Palo Alto near Guadalupe, San Benito and Colidad.
July 20	22-52-59	2.3	37° 17'	122° 12'	c	
July 21	01-55-29	2.0				
July 21	06-21-06	2.6	36° 32'	121° 38'	c	Aftershock.
July 24	02-25-23	3.2	37° 55'	122° 16'	a	V at Berkeley, Oakland; IV at Lafayette, Moraga, Pinole, Redwood City, Richmond, San Pablo, Vallejo; I to III at Concord, El Cerrito, Pescadero, Walnut Creek.
July 29	11-24-10	2.5	36.6°	121.2°	d	
July 29	11-24-51	2.7	36° 35'	121° 11'	c	
July 29	11-30-43	2.8	36° 35'	121° 11'	c	
July 29	12-13-50	2.3	36° 35'	121° 11'	c	
July 29	12-13-51	2.6	36° 35'	121° 11'	b	
July 29	12-13-52	2.4	36° 35'	121° 11'	b	
July 29	12-13-53	2.3	36° 35'	121° 11'	c	
July 29	12-13-54	2.3	36° 35'	121° 11'	c	
July 29	12-13-55	2.3	36° 35'	121° 11'	c	
July 29	12-13-56	2.3	36° 35'	121° 11'	c	
July 29	12-13-57	2.3	36° 35'	121° 11'	c	
July 29	12-13-58	2.3	36° 35'	121° 11'	c	
July 29	12-13-59	2.3	36° 35'	121° 11'	c	
July 29	12-14-00	2.3	36° 35'	121° 11'	c	
July 29	12-14-01	2.3	36° 35'	121° 11'	c	
July 29	12-14-02	2.3	36° 35'	121° 11'	c	
July 29	12-14-03	2.3	36° 35'	121° 11'	c	
July 29	12-14-04	2.3	36° 35'	121° 11'	c	
July 29	12-14-05	2.3	36° 35'	121° 11'	c	
July 29	12-14-06	2.3	36° 35'	121° 11'	c	
July 29	12-14-07	2.3	36° 35'	121° 11'	c	
July 29	12-14-08	2.3	36° 35'	121° 11'	c	
July 29	12-14-09	2.3	36° 35'	121° 11'	c	
July 29	12-14-10	2.3	36° 35'	121° 11'	c	
July 29	12-14-11	2.3	36° 35'	121° 11'	c	
July 29	12-14-12	2.3	36° 35'	121° 11'	c	
July 29	12-14-13	2.3	36° 35'	121° 11'	c	
July 29	12-14-14	2.3	36° 35'	121° 11'	c	
July 29	12-14-15	2.3	36° 35'	121° 11'	c	
July 29	12-14-16	2.3	36° 35'	121° 11'	c	
July 29	12-14-17	2.3	36° 35'	121° 11'	c	
July 29	12-14-18	2.3	36° 35'	121° 11'	c	
July 29	12-14-19	2.3	36° 35'	121° 11'	c	
July 29	12-14-20	2.3	36° 35'	121° 11'	c	
July 29	12-14-21	2.3	36° 35'	121° 11'	c	
July 29	12-14-22	2.3	36° 35'	121° 11'	c	
July 29	12-14-23	2.3	36° 35'	121° 11'	c	
July 29	12-14-24	2.3	36° 35'	121° 11'	c	
July 29	12-14-25	2.3	36° 35'	121° 11'	c	
July 29	12-14-26	2.3	36° 35'	121° 11'	c	
July 29	12-14-27	2.3	36° 35'	121° 11'	c	
July 29	12-14-28	2.3	36° 35'	121° 11'	c	
July 29	12-14-29	2.3	36° 35'	121° 11'	c	
July 29	12-14-30	2.3	36° 35'	121° 11'	c	
July 29	12-14-31	2.3	36° 35'	121° 11'	c	
July 29	12-14-32	2.3	36° 35'	121° 11'	c	
July 29	12-14-33	2.3	36° 35'	121° 11'	c	
July 29	12-14-34	2.3	36° 35'	121° 11'	c	
July 29	12-14-35	2.3	36° 35'	121° 11'	c	
July 29	12-14-36	2.3	36° 35'	121° 11'	c	
July 29	12-14-37	2.3	36° 35'	121° 11'	c	
July 29	12-14-38	2.3	36° 35'	121° 11'	c	
July 29	12-14-39	2.3	36° 35'	121° 11'	c	
July 29	12-14-40	2.3	36° 35'	121° 11'	c	
July 29	12-14-41	2.3	36° 35'	121° 11'	c	
July 29	12-14-42	2.3	36° 35'	121° 11'	c	
July 29	12-14-43	2.3	36° 35'	121° 11'	c	
July 29	12-14-44	2.3	36° 35'	121° 11'	c	
July 29	12-14-45	2.3	36° 35'	121° 11'	c	
July 29	12-14-46	2.3	36° 35'	121° 11'	c	
July 29	12-14-47	2.3	36° 35'	121° 11'	c	
July 29	12-14-48	2.3	36° 35'	121° 11'	c	
July 29	12-14-49	2.3	36° 35'	121° 11'	c	
July 29	12-14-50	2.3	36° 35'	121° 11'	c	
July 29	12-14-51	2.3	36° 35'	121° 11'	c	
July 29	12-14-52	2.3	36° 35'	121° 11'	c	
July 29	12-14-53	2.3	36° 35'	121° 11'	c	
July 29	12-14-54	2.3	36° 35'	121° 11'	c	
July 29	12-14-55	2.3	36° 35'	121° 11'	c	
July 29	12-14-56	2.3	36° 35'	121° 11'	c	
July 29	12-14-57	2.3	36° 35'	121° 11'	c	
July 29	12-14-58	2.3	36° 35'	121° 11'	c	
July 29	12-14-59	2.3	36° 35'	121° 11'	c	
July 29	12-15-00	2.3	36° 35'	121° 11'	c	
July 29	12-15-01	2.3	36° 35'	121° 11'	c	
July 29	12-15-02	2.3	36° 35'	121° 11'	c	
July 29	12-15-03	2.3	36° 35'	121° 11'	c	
July 29	12-15-04	2.3	36° 35'	121° 11'	c	
July 29	12-15-05	2.3	36° 35'	121° 11'	c	
July 29	12-15-06	2.3	36° 35'	121° 11'	c	
July 29	12-15-07	2.3	36° 35'	121° 11'	c	
July 29	12-15-08	2.3	36° 35'	121° 11'	c	
July 29	12-15-09	2.3	36° 35'	121° 11'	c	
July 29	12-15-10	2.3	36° 35'	121° 11'	c	
July 29	12-15-11	2.3	36° 35'	121° 11'	c	
July 29	12-15-12	2.3	36° 35'	121° 11'	c	
July 29	12-15-13	2.3	36° 35'	121° 11'	c	
July 29	12-15-14	2.3	36° 35'	121° 11'	c	
July 29	12-15-15	2.3	36° 35'	121° 11'	c	
July 29	12-15-16	2.3	36° 35'	121° 11'	c	
July 29	12-15-17	2.3	36° 35'	121° 11'	c	
July 29	12-15-18	2.3	36° 35'	121° 11'	c	
July 29	12-15-19	2.3	36° 35'	121° 11'	c	
July 29	12-15-20	2.3	36° 35'	121° 11'	c	
July 29	12-15-21	2.3	36° 35'	121° 11'	c	
July 29	12-15-22	2.3	36° 35'	121° 11'	c	
July 29	12-15-23	2.3	36° 35'	121° 11'	c	
July 29	12-15-24	2.3	36° 35'	121° 11'	c	
July 29	12-15-25	2.3	36° 35'	121° 11'	c	
July 29	12-15-26	2.3	36° 35'	121° 11'	c	
July 29	12-15-27	2.3	36° 35'	121° 11'	c	
July 29	12-15-28	2.3	36° 35'	121° 11'	c	
July 29	12-15-29	2.3	36° 35'	121° 11'	c	
July 29	12-15-30	2.3	36° 35'	121° 11'	c	
July 29	12-15-31	2.3	36° 35'	121° 11'	c	
July 29	12-15-32	2.3	36° 35'	121° 11'	c	
July 29	12-15-33	2.3	36° 35'	121° 11'	c	
July 29	12-15-34	2.3	36° 35'	121° 11'	c	
July 29	12-15-35	2.3	36° 35'	121° 11'	c	
July 29	12-15-36	2.3	36° 35'	121° 11'	c	
July 29	12-15-37	2.3	36° 35'	121° 11'	c	
July 29	12-15-38	2.3	36° 35'	121° 11'	c	
July 29	12-15-39	2.3	36° 35'	121° 11'	c	
July 29	12-15-40	2.3	36° 35'	121° 11'	c	
July 29	12-15-41	2.3	36° 35'	121° 11'	c	
July 29	12-15-42	2.3	36° 35'	121° 11'	c	
July 29	12-15-43	2.3	36° 35'	121° 11'	c	
July 29	12-15-44	2.3	36° 35'	121° 11'	c	
July 29	12-15-45	2.3	36° 35'	121° 11'	c	
July 29	12-15-46	2.3	36° 35'	121° 11'	c	
July 29	12-15-47	2.3	36° 35'	121° 11'	c	
July 29	12-15-48	2.3	36° 35'	121° 11'	c	
July 29	12-15-49	2.3	36° 35'	121° 11'	c	
July 29	12-15-50	2.3	36° 35'	121° 11'	c	
July 29	12-15-51	2.3	36° 35'	121° 11'	c	
July 29	12-15-52	2.3	36° 35'	121° 11'	c	
July 29	12-15-53	2.3	36° 35'	121° 11'	c	
July 29	12-15-54	2.3	36° 35'	121° 11'	c	
July 29	12-15-55	2.3	36° 35'	121° 11'	c	
July 29	12-15-56	2.3	36° 35'	121° 11'	c	
July 29	12-15-57	2.3	36° 35'	121° 11'	c	
July 29	12-15-58	2.3	36° 35'	121° 11'	c	
July 29	12-15-59	2.3	36° 35'	121° 11'	c	
July 29	12-16-00	2.3	36° 35'	121° 11'	c	
July 29	12-16-01	2.3	36° 35'	121° 11'	c	
July 29	12-16-02	2.3	36° 35'	121° 11'	c	
July 29	12-16-03	2.3	36° 35'	121° 11'	c	
July 29	12-16-04	2.3	36° 35'	121° 11'	c	
July 29	12-16-05	2.3	36° 35'	121° 11'	c	
July 29	12-16-06	2.3	36° 35'	121° 11'	c	
July 29	12-16-07	2.3	36° 35'	121° 11'	c	
July 29	12-16-08	2.3	36° 35'	121° 11'	c	



Date 1951	G.C.T.	Richter Magnitude	Latitude North	Longitude West	Quality	Remarks
July 30	07-43-43	3.0	36° 35'	121° 11'	c	IV at Fairfax, Lafayette, Piedmont, Redwood City, St. Mary's College, South San Francisco, Vallejo; I to III at Concord, Walnut Creek.
July 30	08-08-10	2.7	36° 45'	121° 05'	c	
July 31	02-04-10	3.2	36° 35'	121° 11'	c	
July 25	01-00-04	2.6	37° 01'	121° 07'	b	Aftershock July 29 at 10-53.
July 25	09-12-44	3.8	40.4°	124.8°	d	
July 26	01-25-04	3.3	41° 02'	121° 42'	c	Foreshock July 25 0223.
July 26	03-58-18	2.6	37° 14'	121° 42'	a	Epicerter 35 km. west of Arcata.
July 26	20-14-34	3.2	39° 31'	120° 28'	c	
July 26	23-05 -36	2.6	36.7°	121.7°	d	Near Salinas.
July 28	21-34-20	3.0	39.4°	120.0°	d	24 km. southwest of Reno.
July 29	10-53-45	5.0	36° 35'	121° 11'	b	This earthquake was felt over an area of about 10,000 square miles of west central California. It was felt as far north as Santa Cruz, as far east as Mendota, and as far south as Shandon. A maximum intensity of VI was reported from Bitterwater, Pinnacles, San Benito and Soledad.
Aug. 4	15-29-08	2.5	36° 35'	121° 11'		
Aug. 4	09-05-02	4.9	36° 37'	121° 13'	b	
July 29	11-12-40	2.6	36° 35'	121° 11'	c	Aftershock.
July 29	11-14-10	2.5	36.6°	121.2°	d	Aftershock?
July 29	11-24-51	2.7	36° 35'	121° 11'	c	Aftershock.
July 29	11-30-43	2.8	36° 35'	121° 11'	c	Aftershock.
July 29	12-13-50	2.2	36° 35'	121° 11'	c	Aftershock.
July 29	12-18-48	2.7	36° 35'	121° 11'	b	Aftershock.
July 29	13-13-31	3.4	36° 35'	121° 11'	c	Aftershock.
July 29	13-50-00	2.8	36° 35'	121° 11'	b	Aftershock.
July 29	19-17-03	0.5	37° 56'	122° 15'	b	5 km. north of Berkeley Station.
July 29	22-40-26	3.5	36° 34'	121° 09'	c	

<u>Date</u> <u>1951</u>	<u>G.C.T.</u>	<u>Richter</u> <u>Magnitude</u>	<u>Latitude</u> <u>North</u>	<u>Longitude</u> <u>West</u>	<u>Quality</u>	<u>Remarks</u>
July 30	07-43-43	3.0	36° 35'	121° 11'	c	Aftershock July 29 at 10-53.
July 30	08-08-10	2.7	36° 45'	121° 05'	b	
July 31	02-04-10	3.2	36° 35'	121° 11'	c	Aftershock July 29 at 10-53.
July 31	11-47-30	2.6	36° 35'	121° 11'	c	Aftershock July 29 at 10-53.
Aug. 1	00-57-16	3.0	36° 38'	121° 05'	b	
Aug. 1	09-45-41					Epicenter 35 km. west of Arcata.
Aug. 2	05-09-25	3.9	36° 21'	121° 16'	b	Near Greenfield.
Aug. 3	03-59-02	2.8	36° 34'	121° 20'	c	
Aug. 3	15-17-01	3.1	36° 35'	121° 11'	c	Aftershock of July 29 at 10-53.
Aug. 4	15-29-08	2.5	36° 35'	121° 11'	c	Aftershock of July 29 at 10-53.
Aug. 6	09-05-02	4.9	36° 37'	121° 13'	b	This shock, the largest of a series of shocks, was felt over an area of approximately 2500 square miles of west central California. A maximum intensity of VI was reported from Hollister and 7 miles south of Hollister; V at Aptos, Gonzales, Monterey, Morgan Hill, Redwood City, Robles Del Rio, San Lucas, Santa Cruz; IV at Ben Lomond, Big Sur, Bitterwater, Capitola, Davenport, Milpitas, San Francisco, Salinas, Watsonville; I to III at Holy City, Moss Landing, Newark, Pacific Grove.
Aug. 6	09-54-28	3.8	36° 37'	121° 13'	b	Aftershock. Intensity V at Gilroy, 7 miles south of Hollister and Monterey. IV at Watsonville.



<u>Date</u> <u>1951</u>	<u>G.C.T.</u>	<u>Richter</u> <u>Magnitude</u>	<u>Latitude</u> <u>North</u>	<u>Longitude</u> <u>West</u>	<u>Quality</u>	<u>Remarks</u>
Aug. 6	10-26-21	2.8	36° 35'	121° 11'	b	
Aug. 6	17-21-45	3.9	36° 37'	121° 13'	b	Intensity IV at Hollister, Parkfield, San Lucas and Watsonville.
Sept. 6	18-59-41		36° 38'	121° 20'	c	
Aug. 8	01-47-02	4.4	40.5°	127.7°	d	
Aug. 8	16-55-27	3.6	36° 40'	121° 41'	b	
Aug. 8	19-15-33	2.0	37° 13'	121° 17'	c	
Aug. 8	19-56-26	2.3	36° 36'	121° 40'	c	Near Spreckels.
Aug. 8	19-57-24	2.6	36° 36'	121° 40'	c	Near Spreckels.
Aug. 8	21-54-36	3.0	36° 48'	121° 33'	c	Aftershock at 21-28-40.
Aug. 9	04-21-30	2.0	37° 05'	121° 30'	b	23 km. south of Mt. Hamilton.
Aug. 9	09-20-48	2.2	36° 09'	121° 45'	c	
Aug. 9	13-20-06	2.8	36° 33'	121° 18'	c	
Aug. 9	20-07-21	3.2	39° 40'	120° 17'	c	Foreshock at 20-05-55.
Aug. 9	20-40-43	2.7	36.8°	121.5°	d	
Aug. 10	05-51-22	2.5	37° 14'	121° 40'	a	
Aug. 11	10-37-45	2.9	36° 46'	121° 40'	a	
Aug. 11	11-38-00	2.8	36° 46'	121° 40'		Aftershock.
Aug. 11	14-15-59	2.8				Near Santa Rosa.
Aug. 15	18-06-28	2.0	37° 44'	122° 06'	b	In East Oakland.
Aug. 16	13-17-09	3	38° 30'	120° 18'	b	
Aug. 17	06-04-05	2.2	37° 19'	121° 30'		
Aug. 25	00-12-12	3.6	36° 38'	121° 13'	c	IV 7 miles south of Hollister.
Aug. 25	01-04-10	3.1	36° 28'	121° 09'	b	
Aug. 25	01-52-21	4 1/4	40.4°	125.3°	d	
Aug. 31	13-48-11	2.2	37° 34'	121° 56'	b	Foreshock
Aug. 31	15-35-35	2.5	37° 34'	121° 56'	a	Southeast of Niles.





## THE REGISTRATION OF EARTHQUAKES

at

BERKELEY, MOUNT HAMILTON, PALO ALTO, SAN FRANCISCO, FERNDALE,

FRESNO, MINERAL, ARCATA, AND RENO

All large regional shocks and all distant earthquakes are tabulated on the following pages. Earthquakes in the Northern California, Nevada and Oregon region are included only if of magnitude 5 or greater, or if of special interest. Times of distant shocks are not normally included for Palo Alto, San Francisco, or Ferndale except in cases of defective records at Mount Hamilton, Berkeley, or Arcata, respectively.

All determinations are reduced to Greenwich Civil Time (G.C.T.). G.C.T. is 8 hours greater than Pacific Standard Time (120th Meridian). Communications regarding readings of seismograms should be addressed to:

Seismographic Station  
 University of California  
 Berkeley 4, California.

<u>Station</u>	<u>North Latitude</u>	<u>West Longitude</u>	<u>Altitude Meters</u>	<u>Feet</u>	<u>Station Symbol</u>	<u>Present Auspices and Date Established</u>
Berkeley	37° 52.3'	122° 15.6'	81	266	B, BG*	University of California - 1887
Mt. Hamilton	37° 20.4'	121° 38.6'	1281.7	4205	MH	Lick Observatory - 1887
Palo Alto	37° 25.1'	122° 10.8'	83	272	PA	Stanford University - 1927
San Francisco	37° 46.4'	122° 27.2'	100	328	SF	University of San Francisco - 1931
Ferndale	40° 34'	124° 16'	17	55	Fe	City of Ferndale - 1933
Fresno	36° 46.1'	119° 47.8'	88.4	290	F	Fresno State College - 1935
Mineral	40° 21'	121° 35'	1495	4906	M	National Park Service, Lassen Volcanic National Park - 1938
Arcata	40° 52.6'	124° 04.5'	60	195	A	Humboldt State College - 1948
Reno	39° 32.3'	119° 48.8'	1386	4546	R	University of Nevada - 1948

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



## STATION EQUIPMENT

Berkeley:

- 2 - Horizontal-component Wood-Anderson torsion. USCGS: Fiji Islands, h = 600, O = 17-51-00.
- 1 - Short-period vertical-component Benioff.
- 3 - Long-period Galitzin-Wilip.
- 2 - Horizontal-component 100 kg. Bosch-Omori.
- 1 - Vertical-component 80 kg. Wiechert.

Mt. Hamilton:

- 2 - Horizontal-component Wood-Anderson torsion. USCGS: 6°N, 124°E, h = 100, O = 05-06-23.
- 1 - Short-period vertical-component Benioff. USCGS: Marile Islands, O = 07-26-20.

Palo Alto:

- 2 - Horizontal-component Wood-Anderson torsion. USCGS: Central Peru, h = 100, O = 18-13-10.
- 1 - Short-period vertical-component Benioff.

San Francisco:

- 2 - Horizontal-component Wood-Anderson torsion. USCGS: 21°S, 176°W, O = 21-16-30. Berkeley Magnitude 6-6½.

Ferndale:

- 2 - Horizontal-component 25 kg. Bosch-Omori.

Fresno:

- 3 - Components short-period Sprengnether.

Mineral:

- 2 - Horizontal-component Wood-Anderson torsion.
- 1 - Short-period vertical-component Benioff.

Arcata:

- 3 - Components short-period Sprengnether. USCGS: Near Southwest Coast of Peru, h = 150, O = 11-21-48.

Reno:

- 3 - Components short-period Sprengnether.

For all stations, the three components are indicated by N, E, Z. When no letter appears, the phase is read from the vertical component only.

"c" or "d" following a recorded phase indicates compression or dilatation of the ground as indicated by the vertical component instrument. N, S, E, or W following a recorded phase indicates that the ground motion was in that direction; e.g. W, ground motion was west.

"i" (impetus) preceding a phase designates sudden beginning of the motion; "e" (emersio) designates gradual beginning.

Maximum amplitude of earth displacement in microns and period in seconds of the indicated phases are given for the Berkeley station in the columns headed A and T. Combined horizontal amplitude of N and E components are designated by H.



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
July 1	B	eP	18	06	57.0	c	USCGS: Fiji Islands, h = 600, O = 17-54-00.
	MH	iP			57.9	c	
	F	eP	07	02	5	c	
	M	eP			05.5	d	
July 1	BG	eLNEZ	18	45	2		
July 2	M	e(P <sup>u</sup> )	05	24	04.8	d	USCGS: 6°N, 124 $\frac{1}{2}$ °E, h = 100, O = 05-06-23.
		ePP			53.4	d	
July 2	M	iP	07	36	21.4	c	USCGS: Kurile Islands, O = 07-26-20.
July 2	M	eP	07	45	06.9	d	USCGS: 4°N, 82 $\frac{1}{2}$ °W, h = 100,
July 2	MH	e(P)	14	02	07.6		O = 06-57-10.
	M	eP			13.7	d	
July 2	MH	i			18.0	c	
		iP	18	23	46.8	c	USCGS: Central Peru, h = 100, O = 18-13-10.
	B	eP	21	58	27.2	d	USCGS: 21°S, 176°W, O = 21-46-30, Berkeley Magnitude 6-6 $\frac{1}{4}$ .
July 2	BG	i			36.0	d	
		eSNE	22	08	17		
	eQN			17.8	d		
	eR			22.1			
July 2	MH	A			T		
		PZ	1		8		
	SH	2 $\frac{1}{2}$		10			
	iP	21	58	27.3	c		
July 2	F	i			37.3	c	
		i			50.6	d	
		eP	04	29	29.5	c	
July 3	M	eE			41		
	MH	eP	05	42	50	d	
July 3	MH	iP	11	35	42.2	d	USCGS: Near Southwest Coast of Peru, h = 150, O = 11-24-48.
		i			36	c	
	ipP			10.4	c		
	M	eP			35	d	
	i			36	d		
	ipP			19	d		
July 4	PA	eP	02	34	50.0	c	USCGS: Fox Islands, Aleutian
	M	iP			35	c	Islands, O = 02-28-00.
July 4	B	e			42	d	
		iP	07	18	10.6	c	USCGS: 19°S, 174 $\frac{1}{2}$ °W, h = 150, O = 07-06-41.
	e			18.3	c		
	epP			46			
	e			19	d		
	e(PP)			20	d		
	MH	iP	18	11	5	c	
	i			18.0	c		
	ipP			48.0	c		
	F	eP			15.0	c	
July 4	M	eN			45.5		
		eP			20	c	
	epP			56	c		
	B	eP	12	28	27.3	c	USCGS: 14°N, 143 $\frac{1}{2}$ °E, h = 150, O = 12-16-06.
epP			29	d			
e(sP)			20				

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
	MH	eP	28	30	6	d	
		ipP	29	04	8	d	
		i	29	09	6	d	
		i	29	19	4	d	
July 5	F	iP	01	12	0	d	USCGS: 32°N, 139°W, 0 = 01-12-00.
		epP		44	5		
	M	iP	28	59		d	
		i	29	04		d	
July 6	MH	eP	05	02	49.9	d	USCGS: Fiji Islands, h = 600,
	F	eP			59.5	d	0 = 04-51-50.
July 7	B	iP	03	48	44.2	c	USCGS: Kermadec Islands Region,
		ipP		49	00.7	c	0 = 03-36-10.
	MH	iP	48	44	0	c	
		i			51.8	c	
		ipP			59.8	d	
	F	eP			47.5	d	
		epP	10	49	02.5	d	USCGS: 11°N, 116°E, 0 = 10-19-37.
July 7	MH	eP	15	15	48.8	d	USCGS: Ryukyu Islands, 0 = 15-02-57.
		e			55.4	c	0 = 15-02-57.
		i	16	05	8	c	
July 7	B	iP	20	09	15.0	c	USCGS: 14°N, 145°E, 0 = 19-56-40.
	MH	iP			17.2	d	
		i			22.9	c	
July 7		i			28.6	c	
	F	eP	18	33	25.4	c	USCGS: 28°N, 139°W, h = 150,
July 8	BG	eLN	04	20	2	d	0 = 04-20-02.
July 8	BG	eP	05	58	22.5	d	USCGS: 11°N, 122°E, 0 = 05-44-20.
		eP"	06	02	29.5	d	
		eSKSN	08	43		d	
		eE			59	e	
		ePSE	11	38		e	
		eRNEZ			34.6	e	
	F	e(P")	02	29	5	d	
		e(PP)	03	06		d	
		eL			34.8	d	
July 8	BG	eLE	23	45	1	d	USCGS: 53°N, 167°W, 0 = 23-30-40.
July 9	B	eP	00	10	12.5	c	USCGS: 16°N, 96°W, h = 60,
		epP			28.5	d	0 = 00-03-54.
		e			39.5	c	
	BG	eSNE	15	26		e	
		eN			16 24	e	
		eE			18.1	e	
		eEZ			20.0	e	
	MH	iP	10	06	9	c	
		i			41.4	c	
July 11		i	11	00	9	c	USCGS: 18°N, 69°W, h = 100,
		i(PcP)	13	03	9	c	0 = 11-00-09.
July 13		eS	02	15	11	d	USCGS: 50°N, 130°W, 0 = 02-02-25.
		eScS			20 17	d	
		eEZ			20.7	d	
July 13	F	eP	15	09	52.3	c	
		epPE			10 08.5	c	



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
July 13		e	20	13	09.0	d	USCGS: 7°N, 156°E, h = 100, O = 19-24-00.
		eE		17	55		
July 14		e	07	19	29.5	e	USCGS: 47°N, 154°E, O = 07-18-12.
July 15		eP	09	10	40	d	
July 9	A	iP	01	42	33.5	c	USCGS: 32½°N, 139°E, O = 01-30-38.
	B	iP			37.4	c	
	MH	i			40.7	c	
		i		43	22.1	d	
	F	iP		42	45.8	c	
July 9	MH	iP	11	44	45.7	c	USCGS: 17°N, 85°W, O = 11-37-26.
		i			51.5		
July 9	B	eP	21	24	59.6	c	USCGS: 11°N, 85°W, O = 21-17-00.
		e		25	10.0	c	
	MH	eP	10	24	53.9	c	
		i		25	04.5	d	
	F	eP		24	40	c	
July 10	MH	iP	10	32	12.9	c	USCGS: 14½°N, 146°E, O = 10-19-39.
July 11	B	iP	13	04	13.1	c	USCGS: 52°N, 178°E, h = 150, O = 12-56-19.
		i			19.0	c	
		i			38.6	c	
	MH	iP	11	07	19.2	c	
		i		07	28.5	d	
		e		06	07.3	d	
	F	iP		04	31.3	c	
July 11	B	iP	18	33	11.3	c	USCGS: 28½°N, 139½°E, h = 150, O = 18-22-00.
		eNEZ			13.8	d	
		i			45.9	d	
		ipP		34	53.4	d	
		esP		35	50.8	d	
July 17	BG	eSNZ	09	42	25.5	e	USCGS: 1°N, 78°W, h = 200, O = 09-25-17.
July 17	MH	eP	15	33	14.9	c	USCGS: 11°S, 167°E, h = 150, O = 11-28-26.
		epP		35	04	e	
		esP			53	d	
		eS		42	35	e	
	F	eP		33	21.8	c	
		iPcP			29.1	d	
		epP		35	10.6	c	
July 17	MH	eSNE	19	42	52.5	d	
		eSKS			57.0	c	
July 18		esSNE	09	45	53.5	e	USCGS: 1°N, 27°W, O = 09-06-26.
		eP'P'		59	37		
	A	eP		33	00.0		
		i			09.7		
		ipP		34	44.7		
		eS		42	06.0		
July 11	F	eP	23	52	41.0	c	USCGS: 18°N, 69½°W, h = 100, O = 23-44-10.
July 13	F	eP	02	06	03.0	d	USCGS: 50°N, 130°W, O = 02-02-25.
		i			09.5	c	
		e		07	17		
July 13	F	eP	15	45	11.0	c	
		eE			41.5		

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
July 13	F	eP	20	07	38.0	d	USCGS: 7°S, 156°E, h = 100, O = 19-54-00.
July 14	F	eP	07	28	34.5	c	USCGS: 47°N, 154½°E, O = 07-18-12.
July 14	B	eP	09	57	21.8	d	
July 16	B	eP	10	53	33.2	c	USCGS: 6°S, 146°E, h = 200, O = 10-40-23.
		i			48.2		
		ipP		54	12.4		
		iPP		57	21.5	c	
	BG	iSKSNEZ	11	03	57		
		eSNE		04	54		
		iN		05	41		
		eSSE			11.1		
		eLE			23.6		
	PA	eP	10	53	32.8	c	
		ePP		57	20.5		
	F	eP		53	40.7	c	
		epP		54	36.0		
		eSKSE	11	04	06.0		
	A	eP	10	53	44.5	c	
		ePP		57	27.5		
		eSKSE	11	04	06		
	BG	eP	07	34	41	c	USCGS: 14°S, 173°W, O = 07-23-23.
		eNE		35	21		
		eSNE		43	55		
		eLNE			52.7		
	MH	iP		34	38.7	c	
		e			57.2	d	USCGS: 12½°S, 172°W, h = 100, O = 19-16-40.
	F	eP			44.0		
		e		36	21.5		
July 17	MH	iP	09	28	27.0	d	USCGS: 1°N, 78°W, h = 200, O = 09-19-17.
July 17	B	eP	15	01	04	c	USCGS: 14°S, 167°E, h = 150, O = 14-48-48.
		i		17	42.7	d	
		i		02	08.1	d	
	MH	iP		01	05.8	c	
		i			42.5	d	
		e		04	19.9	c	
July 17	MH	iP	19	45	50.6	d	
		i			59.0	c	
July 18	B	eP	09	19	36	c	USCGS: 1°N, 27°W, O = 09-06-16.
		ePP		23	07		
	BG	eSE		18	30 05		USCGS: 21°N, 90°W, h = 100, O = 18-42-34.
		iEZ		31	59		
		eNE			37.1		
		eLZ			51.1		
	MH	eP		19	36.7	d	
		ePP		10	23 16.4	c	USCGS: 41°N, 113°E, h = 100, O = 10-00-00.
		e		31	58.2		
	F	eP		19	30.0	c	
		ePP		22	55.0		
		eSE		30	41		
		eZ			50.2		



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
July 18	MH	iP	18	16	57.2	c	
		i		17	02.0	d	
July 19	M	iP	06	18	11.4	c	
		i			14.2	d	
	F	eP		19	14.5	c	
July 19	B	eP	20	49	03.8	d	USCGS: 51 $\frac{1}{2}$ °N, 177 $\frac{1}{2}$ °W, h = 60,
		ipP			17.5	c	0 = 20-41-25.
		e(PcP)		01	51 03	c	
	BG	eSNE		55	14	c	
		eNEZ			58.4	c	
		eZ	21	00	.1	d	
		p	A	T		c	
			1 $\frac{1}{4}$	7		c	
July 19	MH	iP	20	49	11.6	c	
		ipP		19	27 25.1	c	
		i		28	36.4	c	
	F	eP		37	23.5	d	
		epP			36.5	c	
		e(PcP)E		51	16.5	c	
July 19	MH	iP	23	55	38.4	c	Aftershock.
		i			50.0	c	
July 20	MH	iP	21	01	09.7	c	
July 21	MH	e(P')	01	50	57.3	c	USCGS: Northern Assam, 0 = 01-32-21.
	F	e(P')			58.5	c	
		e		51	11.0	d	
		e		21	54 40.0	c	
July 23	B	iP	19	27	41.2	c	USCGS: 12 $\frac{1}{2}$ °S, 172°W, h = 100,
		i			46.6	d	0 = 19-16-40.
		i (pP)			50.6	c	
		e		28	15.9	c	
	PA	eP		27	40.0	c	
	F	eP			46.5	c	
July 24	B	eP	17	51	20.0	c	USCGS: 18 $\frac{1}{2}$ °N, 101 $\frac{1}{2}$ °W, h = 100,
	BG	eSNE		56	34	c	0 = 17-45-40.
		eNE			58.8	c	
	MH	ePNE		23	51 07.1	c	
	F	eP		50	52.0	c	
		epP		51	16.0	c	
		eE		58	57.5	c	
July 25	F	eP	17	24	24.5	c	USCGS: 43 $\frac{1}{2}$ °N, 144°E, h = 200,
						c	0 = 17-13-30.
July 25	B	eP	18	49	19.7	c	USCGS: 14°N, 90 $\frac{1}{2}$ °W, h = 100,
	MH	ePNE			15.3	c	0 = 18-42-14.
	F	eP		48	59.0	c	
		epPN		49	18.0	c	
		eE			59.0	c	
July 26	B	eP	10	11	05.9	c	USCGS: 41°N, 143°E, h = 100,
		e			13.4	c	0 = 10-00-00.
		e		23	12 04	c	
	BG	eSNE		20	13	c	
		eNE			21 05	c	
		eLNE			32.2	c	

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
July 30	PA	eP	08	11	07.5	c	
		e	08	18	18.5		
		epP	08	15	35.0	d	
July 30		e	11	12	00.0	c	USCGS: 104°N, 85°W, h = 100, O = 10-21-25.
	F	eP	11	27	27.5	c	
		epP		54	40.0	d	
July 30		eSE	11	20	39	d	USCGS: Western Salta Province,
July 27	F	eP	01	11	20.0	c	USCGS: 250 miles off SE Coast Honshu, Japan, O = 00-59-23.
		e	09	48	59.0	d	
	R	eP		14	14.5	c	
		e		25	25.3	d	
July 27	BG	eN	16	25	43	d	USCGS: 33°N, 142½°E, O = 15-53-55.
	R	eP		05	39.5	c	
July 28	R	eP	08	55	38.0	d	USCGS: Off SE Coast Honshu, Japan, O = 19-15-10.
July 28	B	eP	19	27	05.5	d	
		e		28	53.0	d	
July 31	BG	eN	13		37.8	d	
		eNE			38.4	d	
	MH	iP	27	08	08.3	c	
		i		42	42.1	d	
		i	28	59	59.3	d	
		i	29	18	18.9	c	
	F	eP	27	18	18.5	c	
		e	29	06	06.0	d	
July 28	R	eP	03	27	11.0	c	USCGS: 35°N, 147°E, h = 200, O = 20-58-20.
	B	eP	21	09	43.9	d	
	BG	eSNE	19	19	19.5	d	
	MH	eP	09	47	47.7	d	
		i(pP)	10	23	23.9	d	
	F	eP	09	27	27.0	c	
		e(pP)		55	55.0	c	
		e	10	28	28.0	c	
	R	eP	09	20	20.0	d	
July 28		eNEZ	12	55	48.5	d	
		eN		14	15.0	d	
July 28	B	eP	23	15	59.0	c	USCGS: 37°N, 143°E, O = 23-04-33.
	BG	eSNE	25	17	17.5	d	USCGS: 4°S, 154°E, h = 500, O = 03-20-27.
		eQNE		34	34.6	d	
		eRNE		38	38.3	d	
	MH	iP	16	11	11.5	c	
		e		16	16.4	c	
		i		36	36.3	c	
	F	eP		09	09.0	d	
		ePP	19	03	03.0	d	
		eS	26	11	11.5	d	
July 29	M	iP	16	01	01.2	d	
		i		11	11.0	d	
July 29	R	ePN	15	36	36.6	d	
	B	eP	23	47	06.0	d	
		e		15	15.7	d	
	BG	e		51	06	d	
		eSE		57	11	d	
		e	00	00	49	d	



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
July 30	BG	eN	04	07.9			
		e		08.1			
	M	eP	03	42 05.0	d		
July 30	B	eP	16	59 20	c	USCGS: 10 $\frac{1}{2}$ °N, 85°W, h = 100,	
	F	eP		00.0	d	0 = 16-51-25.	
	M	eP		25.0	d		
July 30	F	eP	19	37 55.5	d	USCGS: Western Salta Province,	
		e		40.5		Argentina, 0 = 19-25-50.	
July 31	B	eP	09	44 43.8	c		
	MH	iP		38.8	d		
		i		46.2	c		
	M	eP		44.3	d		
	R	eP		49			
July 31	F	eP	10	06 49		USCGS: Near East Coast of Hokkaido,	
	M	iP		16.7	d	Japan, 0 = 09-55-33.	
	R	eP		37.2	d		
July 31	MH	iP	13	47 23.8	c		
		i		29.8	d		
	F	eP		48 01.5	c		
	M	eP		47 21.6	c		
		i		29.6	c		
		i		50 44.0	c		
	R	eP		47 27.5			
		e		50 45.6			
Aug. 1	B	eP	03	31 23	c	USCGS: 3°N, 84°W, h = 100,	
		ePcP		32 46	d	0 = 03-22-46.	
	BG	e(PP)NZ		33 38			
		eSNE		38 29			
	MH	iP		31 18.6	c		
		i		24.4	c		
	F	eP		31 04.5	c		
	M	eP		31 31.0	d		
		ePcP		32 49.6	c		
Aug. 1	MH	iP	12	55 04.8	d		
	F	eP		54 57.0	c		
	M	eP		55 19.8	d		
Aug. 2	B	epP	03	54 14	d	USCGS: 4°S, 154 $\frac{1}{2}$ °E, h = 500,	
	BG	e		55 05		0 = 03-40-27.	
		iSNE	04	02 05		Aftershock, USCGS: 0 = 03-38-10.	
		iEZ		03 26			
	MH	iP	03	52 27.5	c		
		i		53 08.1	d	Aftershock, USCGS: 0 = 03-25-45.	
		i		54 16.7	c		
		e		57 31.6	c		
Aug. 3	F	eP		52 33.0	d	USCGS: Fiji Islands Region,	
		epP		54 21.5		0 = 03-23-15.	
		eS	04	02 13.5			
		eP'P'		18.1			
Aug. 3	M	eP	03	51 33.7	d		
Aug. 3	MH	epP		54 19.5		USCGS: 28°S, 121°W, h = 200,	
						0 = 19-20-15.	

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Aug. 2	B	eP	10	28	54		USCGS: 1700 miles South of Easter Island, 0 = 10-16-03, Berkeley Magnitude 6 3/4.
	BG	e		30	36		
		eSNE		39	41		
		e(SP)		40	41		
		e(SS)N		45	4		
		eLrNEZ		56	8		
			A	T			USCGS: 13°S, 176°W, h = 300, 0 = 15-32-56.
		SH	4	11			
	MH	eP		28	46.7	c	
	F	eP			45.0		
		eS		39	38		
		eL		57	1		
	M	eP		29	03.3		
	R	eP		28	58.0		
Aug. 2	BG	e(S)NE	20	43	56		USCGS: 13°N, 87½°W, h = 100, 0 = 20-30-17, Pasadena Magnitude 5 3/4.
		e(ScS)N		47	2		
		eQNE		49	5		
		eR		52	7		
	MH	eP		37	31.0	d	
		epP		15	56.5	c	USCGS: 6°S, 152°E, 0 = 15-10-42.
	M	epP			56.2	c	
	R	eP		37	40.0		
Aug. 2	MH	iP	23	08	24.4	d	USCGS: Fiji Islands Region, 0 = 22-56-36.
	M	iP			33.7	c	
	R	eP			38		
Aug. 3	BG	eP	00	31	27	d	USCGS: 13°N, 87½°W, h = 100, 0 = 00-23-58, Berkeley, Mexico, Magnitude 6.
		eSN		37	35		
		eSSN		40	51		
		eQNE		43	5		
		eLr		45	7		
			A	T			
		SH	3	17			
	MH	iP	00	31	22.7	d	
	F	eP			10.0	d	
	M	eP			35.5	c	USCGS: 6½°S, 85°W, 0 = 01-06-51.
	A	eP			55	c	
	R	eP			17.5	d	
		eS		37	55		
Aug. 3	MH	iP	00	42	37.3	c	Aftershock, USCGS: 0 = 00-35-10.
	M	e			48.0		
	R	eP			37.5	c	USCGS: Off Coast of Central Peru, Aftershock, USCGS: 0 = 05-25-45.
Aug. 3	MH	iP	05	33	10.3	d	USCGS: 49°N, 129°W, 0 = 12-43-07.
		i		34	00.5	d	
	M	eP		33	20.0	d	
Aug. 3	MH	iP	13	34	32.1	d	USCGS: Fiji Islands Region, 0 = 13-22-15.
	F	eP			35.0	c	
	M	iP			40.7	d	
	R	eP			43.0	c	
		i			37.8	d	
Aug. 3	MH	iP	16	52	37.8	d	USCGS: 28°S, 121°W, h = 200, 0 = 19-20-15.
Aug. 3	MH	iP	19	30	34.2	c	
		i			38.3	d	



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks	
			h.	m.	s.			
		i			47.3	d		
		i		31	23.2			
	F	eP		30	30.8	c		
	R	eP			47.5	c		
Aug. 5	MH	iP	12	22	03.8	d		
		i			11.2	c		
Aug. 5	B	eP	15	43	56.4	d	USCGS: 13 $\frac{1}{2}$ °S, 176°W, h = 300,	
		e		44	07.0		0 = 15-32-56.	
		e		47	06			
	BG	eSNE		53	22			
		eQNE	16	02	.5			
Aug. 10	MH	eP	15	43	56.5	c	USCGS: 8 $\frac{1}{2}$ °N, 120°W, 0 = 05-32-33.	
		i		44	02.1	c		
		i			09.3	d		
	F	eP		43	51.5			
Aug. 6	MH	iP	08	16	21.5	c	USCGS: 13°N, 87 $\frac{1}{2}$ °W, h = 100,	
		i			25.4	c	0 = 08-08-56.	
		i			38.5	d		
	F	eP			10.5			
Aug. 6	B	eP	15	23	43.0		USCGS: 6°S, 152°E, 0 = 15-10-42.	
	MH	eP			48.1	d		
		i			53.9	c		
		i		24	26.6	d		
	F	eP		23	52.0	d		
	R	eP			54.3	c		
		e		24	51.5			
Aug. 6	MH	iP	17	00	41.1	d	USCGS: Near Coast of Colima, Mexico,	
		i			47.2	d	h = 100, 0 = 16-55-44.	
	F	eP			34.7	c		
	R	eP			48.5	c		
Aug. 6	MH	iP	19	39	12.4	d		
		i			24.8	c		
		i			50.8	c		
	R	eP			13.0			
Aug. 7	B	eP	04	18	33.5	c	USCGS: 6 $\frac{1}{2}$ °S, 85°W, 0 = 04-08-54.	
	MH	iP			29.5	c		
		i			33.6	d		
		i		21	23	41.9	c	USCGS: 11°S, 142°E, 0 = 21-10-00.
	F	eP			07.0	c		
	R	eP			33.9	c		
Aug. 7	R	eP	05	47	47		USCGS: Off Coast of Central Peru,	
							0 = 05-37-22.	
Aug. 8	MH	eP	12	46	14.2	d	USCGS: 49°N, 129°W, 0 = 12-43-07.	
	F	eP			29.7	c		
	M	eP		45	39.3			
Aug. 8	MH	iP	19	38	09.0	d	USCGS: Swan Island Region,	
		e			18.9		0 = 19-30-45.	
Aug. 8	B	e(P)	22	30	00.9	d	USCGS: 44°N, 128°W, 0 = 22-28-40.	
		e			40			
		e(S)		31	54			
		eRNZ		19	32.5			
	MH	i		30	41.1	d		

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
	F	e			53.0		
		e		31	48.0		
	A	e(P)		30	00.4		
		eN		31	35.5		
Aug. 9	MH	iP	05	42	21.6	d	
		i			24.0	d	
Aug. 9	MH	iP	00	16	16.8	c	USCGS: 14°S, 77½°W, 0 = 00-05-24.
		i			29.6	d	
	F	eP			03.5		
	M	eP			29.0		
	R	eP			20.0		
Aug. 10	B	eP	05	44	38.3	d	USCGS: 8½°N, 40°W, 0 = 05-32-33.
		i			46.0		
	BG	eSE		54	42		
	MH	eP		44	35.1	c	
		i			43.7	d	
	F	eP			25.0	d	
	M	eP			31	c	
	R	eP			27.0	c	
Aug. 10	B	iP	23	10	43.4	c	USCGS: 46°N, 143½°E, h = 300,
		ipP		11	59.9	d	0 = 23-00-21.
		e		12	26.7		
	MH	iP		10	47.9	c	
		i			56.3	c	
		i		11	13.4	d	
		i(pP)		12	04.7	c	
		i		13	08.8	c	
	F	eP		10	57.2	c	
		epP		12	14.4	d	
	A	eP		10	25.5	c	
	R	iP			45.9	c	
		epP		11	02.5	c	
		ePP		14	25.0		
		e(S)N		19	16.0		
Aug. 11	M	eP	10	03	20.0		USCGS: 55°N, 163°E, 0 = 09-54-20.
		e		07	27.7		
	R	eP		03	32.5		
Aug. 12	B	eP	21	23	35.8		USCGS: 3½°S, 141°E, 0 = 21-10-00.
		e		27	04		
	BG	eE			42.2		
		eNZ			54.5		
	MH	iP		23	38.5	d	
		i			43.6	d	
	F	eP			46		
		e			27 18		
Aug. 13	B	eP	18	47	23.0	d	USCGS: 43°N, 32½°E, 0 = 18-33-40,
	BG	e			48 26		Berkeley Magnitude 6½,
		e			50 26.1		Pasadena Magnitude 6 3/4.
		ePP			51 22		
		eSKSN			58 00		
		iPSN	19	00	10		
		eSSE			05.5		



Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
		eNE	18.6		
		A T			
		PZ	0.9 5		
		A T			
		PPZ	1 1/2 7		
	MH	eP	18 47 15.8	d	
		i	45.7	c	
		i	48 19.5	c	
		i	50 43.3	c	
	F	eP	47 15.3	c	
		e	50 52.5		
		e(PP)N	51 03.5		
		eSKSNZ	57 56.5		
		ePS	19 00 07.5		
		e	03 45.0		
		e(PKKP)	04 12.5		
		eSS	05 06.5		
		eLq	25.4		
Aug. 14	MH	iP	08 13 02.4	c	USCGS: 150 miles North of Guam
Aug. 14	MH	iP	13 10 28.1	d	0 = 08-00-28.
Aug. 16	MH	iP	16 15 34.8	c	
	F	eP	38.0	c	
	M	iP	43.8	d	
Aug. 20	B	eP	05 54 18.3		USCGS: 23 1/2°N, 108°W,
		i	21.4	d	0 = 05-49-58, Berkeley Magnitude
	BG	e	56 02		5 3/4, Pasadena Magnitude 5 1/2.
		iSNE	57 58		
		eLNEZ	59.2		
		A T			
		PZ	1 5		
		SH	7 11		
		MH	27 20		
	MH	eP	54 10.7	c	
	F	eP	53 53.0	c	
	M	iP	54 36.0	c	
Aug. 20	B	eP	06 03 34.5		USCGS: 23 1/2°N, 108°W, 0 = 05-59-14.
	MH	eP	26.5		
Aug. 20	F	eP	09 04 19.0	c	USCGS: 19°N, 69°W, h = 60,
		e	39.0		0 = 08-55-51.
	M	e	39.7		
Aug. 21	B	eP	11 03 48.7	c	USCGS: 19 3/4°N, 156°W,
		i	49.5	c	0 = 10-56-57.5, Berkeley
		e	04 23		Magnitude 7, Pasadena Magnitude
		iPcP	06 26.2		6 3/4.
		e	47		
	BG	iSNE	09 18		
		eQNE	11.3		
		eT	38 44		
		A T			
		PZ	18 8		
		PH	14 9		
		SH	30 10		

Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
Aug. 21	MH	iP	03 51.0	c	USCGS: 18°N, 161°E, 0 = 23-01-02.
		i	51.8	c	
Aug. 25		e	04 21	c	USCGS: New Hebrides Island, 0 = 02-35-47.
		ePcP	06 25	c	
Aug. 25		i	07 20.2	c	USCGS: 29°N, 112°W, 0 = 10-11-55.
		eSNE	09 24		
		eL	11.6		
		eT	38 46		
	F	eP	04 01.7	c	
	M	eP	01.6	c	
		eT	39 09.0		
Aug. 21	MH	eP	20 19 26.7		USCGS: 21°N, 100°W, 0 = 18-38-23.
	F	eP	37.5	d	Barkeley Magnitude 5.6,
	M	iP	37.2	d	
Aug. 22	MH	eP	04 39 14.0	c	
	F	eP	24.5		
	M	eP	24.7	c	
Aug. 22	BG	eLNE	06 04.5		USCGS: 10°N, 83°W, 0 = 05-41-31.
	MH	e(P)	05 49 38		
		e	50 13		
	M	e(P)	49 53.4	d	
		e	50 28.6	c	
Aug. 22	B	eP	08 54 41.6	c	USCGS: Hawaiian Aftershock, 0 = 08-47-51.
	MH	iP	44.0	c	
	F	eP	54.0	c	
	M	eP	54.4	c	
Aug. 23	B	i(P)	01 10 03.0	c	USCGS: 53°N, 169°W, 0 = 01-03-02.
		e	11 12.1	d	
	MH	iP	09 09.4	c	
		e	12 32.4	d	USCGS: 27°S, 178°E, h = 600, 0 = 16-31-11.
Aug. 23	M	iP	09 52.7	c	
	MH	eP	01 23 54		
	F	eP	58.0		
	M	eP	24 05.2	d	
Aug. 23	B	iP	03 22 12.8	d	
	MH	eP	15.6	d	
	M	eP	24.5	d	
Aug. 23	MH	eP	09 24 18.8	c	USCGS: New Hebrides Islands, 0 = 09-11-48.
	M	eP	24.6	d	
		e	33.4	c	
Aug. 23	F	eP	10 26 04.0	d	USCGS: 35½°N, 125°W, 0 = 10-23-17.
	M	e	36.4	c	
Aug. 23	B	iP	13 55 21.0	c	
	MH	iP	21.4	c	
	M	eP	30.7	c	
Aug. 24	B	eP	14 31 37.6	c	USCGS: 47°N, 151°E, 0 = 14-21-15.
		e	32 24.1	c	
	F	eP	31 52.0	c	
		e	32 35.5		
	M	iP	31 30.3	c	
		i	36.3	d	
		i	32 19.8	d	



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Aug. 30	B	iP	09	59	21.1	c	USCGS: About 400 miles southeast of Honshu, Japan. O = 09-47-40.
	MH	iP			24.5	d	
	F	eP			33		
Aug. 31	M	iP			06.5	c	USCGS: 19°S, 179°W, h = 600, O = 10-09-18.
	B	eP	10	20	17.9	d	
		i			31.1	d	
Sept. 1	BG	e(PP)	07	23	37		
		eSNE		29	27		
		eE			44		
Sept. 5		e(sS)			33.3		USCGS: 36½°N, 23°E, O = 12-29-42.
	MH	eP	08	20	18.4	d	
		i			31.5	d	
Sept. 5		i			21 48.6	c	USCGS: 33°S, 110°W, O = 04-40-40.
	F	eP			20 26.5	d	
		eS			29 35.0		
Aug. 31	M	iP			20 26.8	d	USCGS: 29°N, 43½°W, O = 06-52-40.
		i			43.4	d	
		i			56.4	c	
Sept. 1	F	eP	12	43	27	c	USCGS: 29°N, 43½°W, O = 11-47-23.
	M	eP			14.3	d	
	B	e(P)	04	50	51.0	d	
Sept. 1		e			51 09.2	c	USCGS: 29°N, 43½°W, O = 12-04-17.
		e			52 07.0		
		e(ScS)N	05	01	40.0	c	
Sept. 1		e(SS)			06 29.0	d	USCGS: 33°S, 110°W, O = 08-49-18.
		eLN			15 16.0	d	
	MH	i	04	52	00.3	d	
Sept. 1		i			04.6	c	USCGS: 31°N, 117°W, O = 16-27-32.
		e			12 28.2	c	
	F	e			51 53.5	d	
Sept. 1	M	e			52 13.4	c	USCGS: 25°S, 179½°W, h = 500, O = 16-15-27.
	B	eP	09	00	41.5	c	
	BG	eSNE			10 19.0	d	
Sept. 1		eE			14 11	c	USCGS: 10°S, 112°W, O = 04-43-00, Berkeley Magnitude 6½-6½, Parisian Magnitude 6½-6½.
		eNE			15 07.5	d	
		eE			20 27	d	
Sept. 1		eNZ			24.2	d	
	MH	iP	16	00	38.7	c	
		i			51.7	d	
Sept. 2	F	eP			25.5	c	
		eS			10 03.5	c	
		e			24.0	d	
Sept. 2	M	eP			00 54.2	c	
	B	eP	16	29	34.5	c	
	BG	e(S)E			31 04.5	c	
Sept. 2		eN			04 43.0	c	
		eZ			32 00.0	c	
	MH	eP	05	29	22.4	c	
Sept. 2		i			30 37.4		
		i			31 40.9		

Date 1951	Sta.	Phase	Time (GCT)		Ground Motion	Remarks
			h.	m. s.		
	M	i		30 10.0		
		i		31 56.1		
		i		32 51.1		
Sept. 3	MH	eP	18	49 51.8	c	USCGS: Mariana Islands, O = 18-37-00.
		i		50 13.5	c	
		i		51 42.3	c	
Sept. 5	B	eP	07	48 42.5	c	
Sept. 10	MH	eP	12	58 32.2	c	USCGS: Aleutian Islands, O = 12-58-30.
		e		36.6	c	
	M	e		48.4	d	
Sept. 5	B	eP	08	04 25.0	c	USCGS: Mariana Islands, O = 07-52-15.
	MH	eP		30.4	c	
		i		37.2	c	
		i	05	16.9	d	
Sept. 13	F	e(P)	15	04 40.0	d	USCGS: 150°W, 151°E, O = 15-10-18.
	M	eP		27.7	d	
		i		30.9	d	
		i		46.9	d	
Sept. 7	MH	iP	04	34 50.9	d	USCGS: Central Peru, O = 04-24-30.
		i		35 02.5	c	
	M	e		01.7	d	
Sept. 8	MH	eP	06	51 08.4	d	USCGS: 28½°N, 43°W, O = 06-40-23.
	M	e		50 55.5	c	
Sept. 8	MH	e	07	03 17.1	c	USCGS: 29°N, 43½°W, O = 06-52-40.
	M	i		10.2	d	
Sept. 8	MH	iP	11	58 02.2	d	USCGS: 28½°N, 43°W, O = 11-47-23.
		i		17.0	d	
	M	e		57 53.8	c	
Sept. 8	MH	eP	12	14 52.0	d	USCGS: 29°N, 44°W, O = 12-04-17.
		i		57.5	d	
	M	e		45.8	d	
		e		50.3	c	
Sept. 8	MH	iP	12	44 46.2	d	USCGS: Mid-Atlantic Ocean, O = 12-31-21.
Sept. 13		i		58.8	c	
		i		45 06.0	d	
	M	eP		44 37.2	c	
		e		50.3	d	
Sept. 8	B	iP	16	26 57.9	d	USCGS: 25°S, 179½°W, h = 500, O = 16-15-27.
	MH	iP		58.0	c	
		i		27 01.8	c	
Sept. 14		e	07	53.8	c	USCGS: 49°N, 175°W, O = 07-07-21.
		i		28 38.0	d	
	M	eP		27 05.8	d	
		i		14.2	c	
		e		28 57.2	c	
Sept. 9	B	iP	04	55 24.3	c	USCGS: 16°S, 173°W, O = 04-43-00, Berkeley Magnitude 6¼-6½, Pasadena Magnitude 6½-6¾.
	BG	ipP		43.3	c	
		eSNE	05	04 52	d	
		eNE		05 29	d	
		eRNEZ		17.0	d	



Date 1951	Sta.	Phase	Time (GCT)		Ground Motion	Remarks
			h. m. s.			
Sept. 11		PZ	A	T	d	
		SH	2	3 $\frac{1}{2}$	d	
Sept. 11		MaxH	2 $\frac{1}{2}$	10	c	
	M	iP	25	20	c	USCGS: Santa Cruz Island, O = 23-03-17.
		i		55 35.3	c	
		i		44.1	c	
Sept. 10	M	iP	12	56 24.2	d	
	R	eP		38.3	c	USCGS: Aleutian Islands, O = 13-54-30.
				56	c	
Sept. 12	MH	eP	14	02 15.9	c	
	F	eP		33.0	c	
Sept. 12	M	iP	13	02 03.6	c	
	R	eP		14.5	c	
		e		20.5	c	
Sept. 12	B	e	15	20 42.7	d	USCGS: 45 $\frac{1}{2}$ °N, 151°E, O = 15-10-18.
		e		52.7	d	
	BG	eN		24 57	c	
		e(S)NE		29 08	c	
		eLN		36.8	c	
	MH	i(P)		20 05.5	c	
		i		49.5	d	
		i		56.4	c	
		i		21 07.0	c	
	F	e		20 57.2	c	
		e		21 09.0	c	
		e		22 35.0	c	
Sept. 12	M	eP		20 13.0	c	USCGS: Marianne Islands, O = 01-43-02.
		i		35.4	c	
		e		44.5	c	
	R	eP		09.5	c	
		e		47.0	c	
		eEZ		57.5	c	
		eN		21 11.5	c	
Sept. 13	MH	iP	04	41 23.5	d	
	F	eP		27.0	d	
	M	iP		33.1	d	
Sept. 14	MH	eP	05	05 29.5	d	
		e		34.6	d	
	F	eP		36.0	c	
	M	eP		40.7	c	
Sept. 14	B	eP	07	10 16.4	c	USCGS: 49°N, 128 $\frac{1}{2}$ °W, O = 07-07-21.
		e		51.0	c	
	BG	eNZ		12 46	c	
	MH	eP		10 24.8	d	
		e		11 14.0	c	
		e		04 30.8	c	USCGS: 51 $\frac{1}{2}$ °N, 176°W, O = 01-00-43.
	F	eP		40.5	d	
	M	eP		09 50.2	d	
Sept. 14		i		11 10 01.6	c	USCGS: 20°N, 155 $\frac{1}{2}$ °W, O = 12-42-57.
		i		23.4	c	
		e(L)W		57 00	c	
		eEZ		58.0	c	

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Sept. 14	B	eP	15	48	06.5	d	
	MH	iP		47	59.9	d	
	F	eP			48.0	c	
Sept. 14	MH	iP	23	15	37.6	c	USCGS: Santa Cruz Island, O = 23-03-17.
		i			48.5	c	
	F	eP			47	c	
Sept. 15	M	eP			42.2	d	
	MH	iP	08	20	26.1	d	USCGS: Near San Juan, Puerto Rico, h = 100, O = 08-11-14.
		i			48.7	c	
M	eP			26.4	d		
Sept. 15	MH	i		21	22.1	d	USCGS: Fox Islands, Aleutian Islands, O = 14-57-50.
		iP	13	02	12.2	c	USCGS: 22°S, 177°W, h = 200, O = 14-12-03.
		i			15.4	d	
Sept. 16	B	eP	01	44	22.0		USCGS: 15°S, 67 $\frac{1}{2}$ °E, h = 100, O = 01-31-58.
		e			48.5		
		e			57.5		
Sept. 16	MH	eP			23.9	c	
		i			27.6	c	
		i		45	01.6	d	
Sept. 16	F	eP		44	28.0	c	
		e(PP)		47	50.0		USCGS: 18°S, 173°W, O = 11-57-39.
	M	eP		44	29.9	d	
Sept. 16	R	e		45	06.0	c	
		eP		44	35.5	c	
		e		45	29.5		
Sept. 16	B	iP	01	55	28.6	d	USCGS: Mariana Islands, O = 01-43-02.
		e			44.5		
		e		57	19.5		
Sept. 16	BG	eSNE	02	05	25	d	
		e(PPS)N		06	50		
		eN		18	35		
Sept. 16	MH	eNE		20	20		
		eLEZ		23	30		
		iP	01	55	31.2	d	
Sept. 16	F	i			41.2		
		i		56	16.3		
		i			39.2	d	
Sept. 16	M	i		58	42.2	c	
		eP		55	39.0	c	
		e		56	15.5		
Sept. 16	R	iP		55	26.8	d	USCGS: About 50 miles northwest of Bermuda, O = 07-07-00.
		i			32.4	c	
		eP			35.7	c	
Sept. 16	MH	eSNEZ	02	05	38.0		USCGS: 17°S, 71°W, h = 100, USCGS: 51 $\frac{1}{2}$ °N, 176°W, O = 04-00-43.
		eP	04	08	17.4	c	
		e			26.6	d	
Sept. 16	B	eP			07.3		
		e	11	49	20		USCGS: 20°N, 155 $\frac{1}{2}$ °W, O = 11-42-57.
		e			44.5		
Sept. 16	BG	e(L)N		57	00		
		eNEZ		58	6		



Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
Sept. 15	B MH	iT	12 24 37.0		
		e	11 49 43.7	c	
		i	58.1	c	
Sept. 15	M	i	50 07.5	d	
		eT	12 24 39.5		
		e	11 49 53.6	c	
Sept. 16	R M	i	57.4	c	
		eT	50 07.9	d	
		e	12 25 05.5		
Sept. 16	M	eP	11 50 09		
		e	15 04 39.0	c	USCGS: Fox Islands, Aleutian Islands, O = 14-57-50.
Sept. 16	MH	eP	16 49 48.6	c	USCGS: 22°S, 177°W, h = 200, O = 16-38-03.
		i	58.4	c	
Sept. 17	F	ipP	50 32.6	c	
		eP	01 49 52.0	c	
		epP	50 38.0	c	
Sept. 17	M	eP	49 58.4	d	
		ipP	50 44.9	c	
		eP	02.8	c	
Sept. 17	R	epP	47.2	c	
		iP	12 09 16.8	c	USCGS: 18°S, 173°W, O = 11-57-39.
		i(pP)	24.7	c	
Sept. 17	BG	eSN	18 43		
		eN	27.5		
		eNEZ	30 43		
Sept. 17	MH	iP	09 16.3	c	
		i(pP)	05 24.8	c	USCGS: 54°S, 81°W; O = 05-48-03.
		i	10 24.0	c	
Sept. 17	F	i	38.4	d	
		e	11 52.0	c	
		eP	20.0	c	
Sept. 17	M	epP	29.6	c	
		e	12 09.0	d	
		iP	09 26.5	c	
Sept. 17	M	i(pP)	08 35.0	c	
		i	08 43.8	c	
		i	10 42.6	c	
Sept. 17	R	e	12 19.1	c	
		eP	09 31.8	c	
		e(pP)	40.5	c	
Sept. 18	MH	iP	07 15 23.9	d	USCGS: About 50 miles northwest of Bermuda, O = 07-07-00.
		i	35.9	c	
Sept. 19	M	e	17.1	d	
		iP	04 25 28.0	d	USCGS: 17°S, 71°W, h = 100, O = 04-14-09.
		i	53.5		
Sept. 19	F	i	26 05.1		
		eP	25 17.0	d	
		eP	37.5	c	
Sept. 19	M	eP	30.0	d	
		eP			

Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
Sept. 19	F M	eP	06 08 42.0	c	USCGS: 52°N, 160°W, h = 100, O = 17-00-35.
		eP	06.7	c	
	i	19.6	c		
Sept. 19	R MH	eP	22.5	d	
		iP	13 20 22.7	d	
	i	28.6	d		
Sept. 19	F M	eP	34.0	c	
		e	47.1		
	R	eP	21.0		
Sept. 19	MH	iP	20 01 11.0	c	USCGS: Tonga Islands Region, O = 09-49-10.
		i	37.7	d	
	e	02 08.5	c		
Sept. 20	F M	eP	01 10.0		
		iP	02 21.0	c	
	R	eP	01 22.5	c	
Sept. 20	B	iP	01 23 33.1	d	USCGS: Kermadec Islands Region, O = 01-11-00.
		i	39.8		
	e	24 35			
Sept. 21	BG MH	eREZ	49.9		
		iP	23 33.0	c	
	i	43.2	d		
Sept. 21	F	eP	35.5	c	
		e	43.0	c	
	e	24 44.6			
Sept. 20	M	eP	23 43.4	c	
		e	49.3		
	B	iP	05 58 09.1	c	
i	08.3	d			
MH	iP	57 54.8	c		
Sept. 21	F	i	58 03.3	d	
		i	13.4	c	
	i	53.7	d		
Sept. 21	M	eP	57 42.9	d	USCGS: 15°N, 70°W, h = 100, O = 04-22-31.
		e	51.0		
	e(PP)	06 00 27.5			
Sept. 21	M	eP	05 58 06.6	c	USCGS: Aleutian Islands, h = 100, O = 08-48-33.
		i	15.2	d	
	i	25.3	c		
Sept. 21	R	i	41.6	c	USCGS: Kermadec Islands Region, O = 10-42-16.
		eP	57 57.0	d	
	e	58 05.0	c		
Sept. 20	MH	e(PP)	06 00 14.5		USCGS: 65°N, 154°W, O = 12-38-40.
		iP	12 45 23.3	c	
	i	25.7	d		
Sept. 21	F	i	32.4	c	USCGS: Aleutian Islands Admiral, h = 100, O = 16-16-08.
		eP	32.0		
	e	46 24			
Sept. 21	M	eP	44 58.2	c	USCGS: 28°N, 178°W, O = 18-44-57.
		i	45 03.1	d	
	i	46 15.6	c		
R	eP	45 11.5			



Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks	
Sept. 20	B	eP	17 07 23		USCGS: 52°N, 168°W, h = 100, 0 = 17-00-35.	
	MH	eP	31.4	d		
		e	36.5	d		
		e	45.0	c		
		e	08 10.0	d		
	F	eP	07 42			
Sept. 20		e	50.0	d	USCGS: 52½°N, 168°W, h = 100, 0 = 17-48-05.	
		e	08 06.0	d		
	M	eP	07 15.6	c		
		i	33.6	d		
	R	eP	32.0	c		
	MH	iP	17 54 59.1	c		
Sept. 20		i	55 08.2	d	USCGS: 18°N, 127°W, 0 = 10-17-00.	
		e	56 20.3			
	F	e(P)	55 21			
	M	eP	54 46.1	c		
		i	57.5	d		
	R	e(P)	55 04.0	d		
Sept. 21		e(pP)	28.0	c	USCGS: 24°S, 179½°W, 0 = 03-20-15.	
		e	50.5			
	B	iP	03 32 39.1	c		
	MH	eP	38.8	d		
		i	45.7	c		
		i	34 23.6	c		
Sept. 21	F	eP	32 43.0	d	USCGS: 19°N, 70°W, h = 100, 0 = 04-22-11.	
		e	56.0			
		e	33 12.0			
	M	eP	32 47.9	d		
		i	53.2	d		
		e	33 59.6	c		
Sept. 21	R	eP	32 52.0	d	USCGS: Aleutian Islands, h = 100, 0 = 08-48-03.	
		e	33 06.5			
		e	34 20.5			
	MH	iP	04 30 48.6	c		
		i	53.5			
	M	iP	49.7	c		
Sept. 21		i	52.8	c	USCGS: Kermadec Islands Region, 0 = 10-42-16.	
	F	eP	08 55 39.0			
	M	e(P)	54 47.8	d		
		e(pP)	55 08.0			
	MH	eP	10 54 49.5	c		
	F	eP	47.5			
Sept. 21	M	iP	54.0	d	USCGS: Aleutian Islands Aftershock, h = 100, 0 = 16-16-08.	
		e	55 14.1	d		
	M	iP	12 18 45.6	c		
	Sept. 21	F	e(pP)	16 23 33.0		d
		e	45.0			
	M	eP	22 55.0	d		
Sept. 21	B	iP	18 57 29.6	d	USCGS: 28½°S, 178°W, 0 = 18-44-57.	
		i	36.7	c		
		eP	06 12 20.9	d		
		eP	27.5			
		e	32.0	d		
		e				

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Sept. 21	BG	eSNE	19	08	04	SW	USCGS: Sea of Japan, h = 500, O = 07-26-00.
		eRNEZ			31.0		
	MH	iP	18	57	29.6	d	
		i			36.9	c	
		i	58	02.3		c	
	F	eP	57	31.5		c	
Sept. 27		e(PP)	19	01	04.0		USCGS: New Hebrides Islands, h = 200, O = 06-08-32.
	M	iP	18	57	38.7	d	
		e			46.1	c	
Sept. 21	B	iP	21	05	13.5	d	
	F	eP			24	c	
	M	iP			07.5	d	
	R	eP			16.5	c	
Sept. 21	PA	eP			15.3	c	USCGS: 17°S, 72°W, O = 09-08-32.
Sept. 22	B	iP	10	19	32.1	d	USCGS: 48°N, 127°W, O = 10-17-00.
		e			20 32.8		
	MH	iP	19		41.0	d	
		i			52.2	c	
		i	20		07.8	d	
	F	eP	19		57.0	c	
	M	eP			02.1	d	
		i			04.6	c	
		i			46.2	d	
		i	20		21.8	c	
Sept. 27	R	eP	18		24.5	c	USCGS: 16°N, 52°W,
Sept. 22	MH	iP	23	51	41.2	c	USCGS: 16½°N, 47°W, O = 23-40-37.
		i			46.2	d	
		i			50.7	d	
	M	iP			37.9	d	
		i			58.5	d	
	R	eP			30.0		
		e			52 02.0		
Sept. 24	B	i	13	21	00.3	d	USCGS: 49½°N, 156°E, h = 100, O = 13-10-41.
		i			32.7	d	
Sept. 21	BG	eSNE	28		43	c	USCGS: 17°S, 72°W, O = 09-08-32. Damping magnitude 5 3/4.
		eN			35.3		
	MH	eP	20		41.3	d	
		e			21 08.8	d	
	F	eP	20		54.5		
	M	eP			14.5	c	
		i			30.0	d	
		i			50.8	c	
		e	21		04.5	c	
Sept. 24	MH	eP	23	15	37.2	c	USCGS: Fox Islands, Aleutian Islands, O = 23-08-44.
	M	eP			19.5	c	
Sept. 26	MH	iP	01	59	03.1	d	
		i			25.2	c	
	F	eP	58		08.0	c	
	M	e	59		40.3		
	R	e			18.5	c	
Sept. 27	MH	eP	06	42	20.9	d	USCGS: New Hebrides, O = 06-29-33.
	M	eP			27.5		
		e			54.0	d	



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Sept. 27	MH	iP	07	37	01.6	c	USCGS: Sea of Japan, h = 500, 0 = 07-26-00.
		i			06.5	c	
Sept. 27	F	eP	19	45	09.0	c	USCGS: Vancouver Islands
	M	iP	36	50.1		c	McKean, 0 = 19-43-24.
		e		58.7		c	
	R	eP		59.5		c	
Sept. 27	B	eP	08	20	52.3	d	USCGS: New Hebrides Islands, h = 200, 0 = 08-08-32.
	MH	eP		53.7		d	
		e(pP)	21	23.4		d	
	F	eP	20	58.0		d	
		e(pP)	21	29.0		d	
	M	iP		00.5		c	
	R	e(P)	21	05.5		d	
Sept. 27	B	iP	09	19	59.3	d	USCGS: 17°S, 72°W, 0 = 09-08-32.
		e	20	05.8		d	
		e		30.2		d	
	MH	iP	19	55.5		d	
Sept. 28		i	20	09.5		d	
		e		26.6		c	
	F	eP	19	45.5		d	
	M	iP	20	04.7		d	
		i		13.7		d	
Sept. 28		i	07	42.9		d	USCGS: Near Coast of Guatemala, 0 = 07-15-55.
	R	eP	19	58.0		d	
Sept. 27	MH	iP	14	01	40.6	d	USCGS: 16°N, 62°W, 0 = 13-51-46.
		i		57.8		d	
		i	02	07.5		c	
Sept. 28	F	eP	12	01	29.3	d	USCGS: 11°N, 86°W, h = 200, 0 = 12-07-24.
		e	02	12.5		d	
	M	iP	01	41.2		d	
		i		50.3		d	
		i		56.2		c	
	R	eP		32.0		c	
Sept. 27	B	eP	19	27	12.8	d	USCGS: 49°N, 129°W, 0 = 19-24-12, Berkeley Magnitude 5 3/4.
		i		32.9		c	
		i		41.5		c	
		iPP		48.5		c	
	BG	i(S)	29	46		d	
		iN	30	04		d	
		eLN		30.8		d	
			A	T		d	
		PZ	6 1/2	9 1/2		d	
		SH	14	14		d	
	MH	iP	27	22.1		d	
Sept. 28		iPP	14	55.3		c	USCGS: Komador Islands Region, 0 = 14-37-32.
		eLN	30	36		d	
	M	iP	26	46.3		d	
		iPP	27	21.9		c	
		e(S)	29	25.5		d	
	F	eP	27	37.7		d	
	R	eP		05.0		d	
		eN		40.5		d	

Date 1951	Sta.	Phase	Time (GCT)	Ground Motion	Remarks
			h. m. s.		
Sept. 27	MH	e(S)N	19 29 09.0		
		eLN	30.3		
	F	iP	19 46 33.3	c	USCGS: Vancouver Islands
	M	eP	48.5	c	Aftershock, O = 19-43-24.
	R	iP	45 58.3	c	
		eP	46 16.5	c	
Sept. 28	B	e	01 35 57.2		USCGS: About 200 miles South of
		e	36 20.1		Fiji Islands, O = 01-25-22.
	BG	eN	48 10		
		eN	02 05.7		
		eNZ	07.4		
Sept. 28	MH	eP	01 37 44.0	d	
		i	54.6		
	F	eP	50		
		e	38 00.5		
Sept. 28	M	eP	17 37 51.1	d	USCGS: Kermadec Islands Region,
	R	eP	58		O = 17-24-30.
Sept. 28	MH	eP	03 50 46.2	d	
		i	51 03.2	c	
	F	eP	50 48.0	c	
	M	eP	44.9	c	
	R	eP	37.0		
Sept. 28	MH	e(P)	07 22 37.4	d	USCGS: Near Coast of Guatamala,
		i	23 08.2	c	O = 07-15-55.
		i	26.8	c	
	M	e	32.0	d	
		e	37.0	c	
Sept. 28	B	iP	12 14 58.3	d	USCGS: 11½°N, 86°W, h = 200,
		i	16 55.0		O = 12-07-24.
	BG	e(S)N	21 16		
		eLN	27.4		
		eRZ	30.5		
	MH	eP	14 51.7	c	
		i	15 01.6	c	
		i(PcP)	16 53.7	d	USCGS: Kermadec Islands Region,
	F	eP	14 28		O = 09-21-28.
		epP	15 10.0		
	M	e	24 51.5		
		eP	15 03.6	d	USCGS: 27°S, 178°W,
		i	13.5		O = 09-10-31.
		i(PcP)	16 53.7	d	
	R	eP	14 51.5	c	
		e(PcP)	16 43.5		USCGS: Kermadec Islands Region,
		e(S)	20 41.5		O = 16-26-19.
Sept. 28	MH	e	14 49 49.3		USCGS: Kermadec Islands Region,
		i	50 04.1	d	O = 14-37-30.
		i	26 15.5	c	
	F	e	25 02	d	
		e	23.5	c	
	R	e	26 26.0	c	
		eP	25 51.1	d	
		i	28 33.7	d	
		i	15.6	c	



Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
Sept. 28	BG	e	14 58 57.5	c	USCGS: 11 $\frac{1}{2}$ °N, 86°W, h = 200, O = 14-51-17.
		e(S)N	15 05 12		
	MH	eN	08 48	c	
		eN	12.8		
		eRNZ	14.4		
		iP	14 58 45.4		
		i	59 07.2		
		i	26.6		
		i	15 00 46.8		
		e	14 58 56.6		
M	e	15 00 49.6	d		
	eP	15 21 54.2	d		
Sept. 28	MH	eP	22 08.5	c	USCGS: 50 $\frac{1}{2}$ °N, 130°W, O = 15-18-27.
	F	eP	21 17.1	d	
Sept. 28	M	iP	35.5	c	
	R	eP	17 37 06.9	d	USCGS: Kermadec Islands Region, O = 17-24-30.
	MH	iP	06.5	d	
F	eP	18.5	c		
Sept. 28	B	eP	23 41 14.6	c	USCGS: 30°S, 178°W, O = 23-28-37, Pasadena Magnitude 6 $\frac{1}{2}$ .
		e	43		
	MH	i	42 59.3	d	
		e	43 46		
		eSN	51 44		
		eRNZ	24 11.2		
		eP	23 41 14.6		
		i	22.4		
		i	42 08.7		
		eP	41 17.5		
F	eN	48 04.0	c		
	eSN	51 34.0			
	eRZ	24 12.2			
	eP	23 41 26.0			
	eSNE	51 57.0			
	eP	00 34 04.2			
Sept. 29	MH	eP	46.1	d	USCGS: Kermadec Islands Region, O = 00-21-28.
	F	eP	06.0	c	
Sept. 29	B	e	09 22 58	c	USCGS: 27°S, 178°W, O = 09-10-31.
		eP	23 11		
	MH	eP	22 58.4		
Sept. 29	R	e(P)	23 11	d	
	MH	eP	16 48 43.3	c	USCGS: Kermadec Islands Region, O = 16-36-12.
Sept. 29	M	i	48.8	d	
		i	49 22.4		
		e	48 52.7		
	B	eP	18 25 38.5	d	USCGS: 26 $\frac{1}{2}$ °S, 120°W, O = 18-15-05.
		i	26 12.8		
		iP	25 35.8		
MH	i	54.8	d		
	i	26 31.9			
	eP	25 54.1			
	i	26 03.7			
M	i	16.8	c		

Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
	R	eP	25 50.5	c	
		eN	27 42.5		
		e	28 38		
Sept. 30	BG	eRNZ	05 04.7		USCGS: Kermadec Islands Region,
	MH	iP	04 33 56.2	d	0 = 04-21-28.
		i	34 28.6	c	
		i	34 28.6	c	
	F	eP	34 09.0	d	
	M	eP	05.4	d	
		i	21.1	d	
Sept. 30	R	eP	16.0	d	
	MH	eP	09 00 10.4	d	USCGS: Kermadec Islands Region,
		i	25.7	c	0 = 08-47-39.
	F	eP	14.5		
		e	25.0		
	M	eP	20.3	d	
		e	32.3	d	
Sept. 30	R	eP	22.5		
	MH	eP	17 19 56.8	c	USCGS: $36\frac{1}{2}^{\circ}$ N, $140^{\circ}$ E,
		i	20 13.2	d	0 = 17-08-16.
	R	eP	19 56.5	c	
		e	20 12.5		
Sept. 30	MH	eP	19 02 15.6	c	USCGS: Off South Coast of
	F	eP	03.9	c	Mexico, 0 = 18-56-00.
	R	eP	20.3	c	



# Bulletin of the Seismographic Stations

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BERKELEY—MOUNT HAMILTON—PALO ALTO  
SAN FRANCISCO—FERNDALE—FRESNO  
MINERAL—ARCATA—RENO

Earthquakes and the Registration of Earthquakes

From October 1, 1951, to December 31, 1951

BY  
CHARLES HERRICK

UNIVERSITY OF CALIFORNIA PRESS  
BERKELEY AND LOS ANGELES  
1953

UNIVERSITY OF CALIFORNIA PRESS  
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  
AND RENO FROM OCTOBER 1, 1951 TO DECEMBER 31, 1951

VOLUME 21 NUMBER 4

By Charles Herrick

SEISMOGRAMS READ BY:

Carolyn H. Pendery

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Nancy Vaaler

Issued June 4, 1953

UNIVERSITY OF CALIFORNIA PRESS

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1953



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CALIFORNIA

Intensities are given in the list of California, Nevada, and Oregon earthquakes on the following page, when sufficient information on the effects of the earthquake is available. Criteria of the Modified Mercalli Scale which are used to rate the intensity are:

Intensity

- 
- II Felt by a few people only. Duration or direction not appreciated.
- III Duration or direction not appreciated.
- IV Rattling of doors and windows; swinging of suspended objects.
- V Disturbance of movable objects; plaster cracked.
- VI Overthrow of movable objects; cracking of chimneys and other masonry.
- VII Fall of some chimneys; some damage to buildings.

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EARTHQUAKE MAGNITUDE SCALE

Magnitude magnitudes given in the list of epicenters on the next page are based on the Wood-Anderson amplitudes, using the magnitudes given by Gutenberg, "Bulletin of the Seismological Society of America", 32:1924.

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Latitude and Longitude are given for most epicenters in the following list. Only those earthquakes are given for which epicenters were located. The letter represents the excellence with which the epicenter has been located, a indicating excellent, b good, c fair, d poor.

Issued June 4, 1953

Price, 50 cents

MADE IN THE UNITED STATES OF AMERICA

EARTHQUAKES IN NORTHERN CALIFORNIA, NEVADA, AND OREGON

EARTHQUAKE INTENSITY SCALE

Times are given in Greenwich Civil Time. Subtract 8 hours to get local (Pacific Standard) time.

Intensities are given by Roman numerals in the list of California, Nevada, and Oregon earthquakes on the following page, when sufficient information on the effects of the shock is available. Criteria of the Modified Mercalli Scale which are used to rate the intensity are:

Intensity

- II Felt by a few people only. Duration or direction not appreciable.
- III Duration or direction appreciable.
- IV Rattling of doors and windows; swinging of suspended objects.
- V Disturbance of movable objects; plaster cracked.
- VI Overthrow of movable objects; cracking of chimneys and other brickwork.
- VII Fall of some chimneys; some damage to buildings.

EARTHQUAKE MAGNITUDE SCALE

Richter magnitudes given in the list of epicenters on the next page are found from the Wood Anderson amplitudes, using the nomogram given by Nordquist, "Bulletin of the Seismological Society of America", 32:164.

Latitude and Longitude are given for most epicenters in the following list. Only those earthquakes are given for which epicenters were located. The letter represents the excellence with which the epicenter has been located, a indicating excellent, b good, c fair, d poor.

11	Oct. 20	01-36-33	2.3	36° 35'	121° 21'	c	Northeast of Coalinga. Aftershock at 05-45-10.
12	Oct. 16	16-39-23	2.3	36° 50'	121° 05'	b	In foothills southwest of Los Angeles.
13	Oct. 21	01-19-24	2.3	37° 27'	121° 26'	c	Northeast of San Jose.
24	Oct. 23	15-47-21	3.6	36° 55'	121° 38'	c	Near Oriskany Junction. Aftershock at 18-15-43.
6	Oct. 24	01-51-40	1.4	37° 12'	121° 32'	b	Northwest of Los Angeles.



## EARTHQUAKES IN NORTHERN CALIFORNIA, NEVADA, AND OREGON

Times are given in Greenwich Civil Time. Subtract 8 hours to get local (Pacific Standard) time.

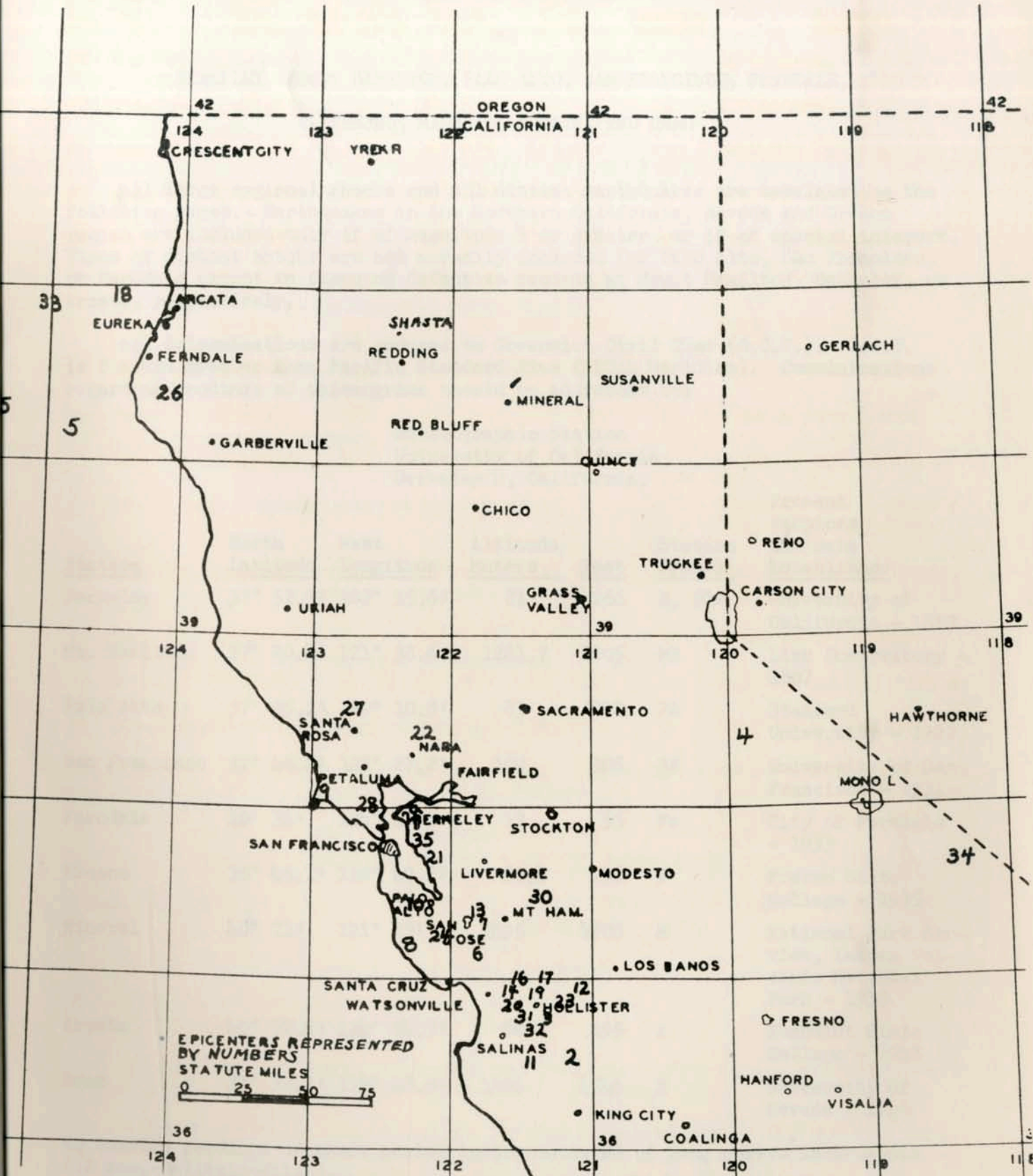
Map No.	Date 1951	Origin time	Richter Magnitude	Latitude North	Longitude West	Quality	Remarks
1	Oct. 1	18-19-59	4.0	38° 00'	118° 50'	c	
2	Oct. 3	13-09-19	3.3	36° 35'	121° 05'	c	
3	Oct. 3	14-45-14	3.7	36° 47'	121° 18'	c	IV at Hollister and 7 miles south of Hollister.
4	Oct. 4	19-20-23	3.0	38° 25'	119° 55'	d	10 km. northwest of Dardanelle.
5	Oct. 8	04-10-35	5 3/4-6	40° 17'	124° 48'	c	Felt widely in northern California. A maximum intensity of VII reported from Ferndale and Bridgeville, VI at Kneeland, Blocksburg, Alderpoint and Bell Springs. V at Hyampom, Hayfork, Red Bluff, Willows, Blue Lake, IV at Orick, Denny, Glenn, and Comptche, III at Tehama and Paskenta.
6	Oct. 10	23-52-05	2.5	37° 07'	121° 46'	c	
7	Oct. 12	13-22-40	2.1	37° 20'	121° 42'	b	Near Mt. Hamilton.
8	Oct. 12	19-59-09	2.4	37° 13'	122° 13'	b	Southeast of Pescadero.
9	Oct. 14	01-09-24	2.1	38° 05'	122° 54'	b	North of Pittsburg.
10	Oct. 14	05-00-04	3.0	37° 27'	122° 18'	a	West of Redwood City. Felt at Redwood City, San Mateo and San Carlos.
11	Oct. 16	04-36-12	2.9	36° 35'	121° 24'	c	Northeast of Gonzales. Aftershock at 05-05-16.
12	Oct. 16	16-39-23	2.9	36° 58'	121° 05'	b	In foothills southwest of Los Banos.
13	Oct. 21	01-19-24	2.3	37° 22'	121° 46'	c	Northeast of San Jose.
14	Oct. 23	15-47-21	3.6	36° 55'	121° 32'	c	Near Chittenden Junction. Aftershock at 16-15-43.
8	Oct. 24	01-51-40	1.4	37° 12'	122° 12'	b	Northwest of Los Gatos.



Map No.	Date 1951	Origin time	Richter Magnitude	Latitude North	Longitude West	Quality	Remarks
16	Oct. 24	04-43-22	2.1	37.0°	121.5°	d	Near Gilroy.
17	Oct. 25	11-46-18	2.5	37° 00'	121° 23'	b	East of Gilroy.
8	Oct. 26	01-55-04	2.2	37° 12'	122° 12'	b	Northwest of Los Gatos.
18	Oct. 26	10-41-33	3.9	41° 00'	124° 30'	c	Northwest of Arcata.
19	Oct. 30	19-55-14	4.0	36° 54'	121° 25'	a	Near Hollister. Felt in Hollister. Foreshock October 30 at 19-30-17.
19	Oct. 30	19-59-18	4.2	36° 54'	121° 25'	b	Near Hollister.
19	Oct. 30	21-08-46	3.9	36° 54'	121° 25'	a	West of Tres Pinos.
19	Oct. 31	16-59-50	3.4	36° 54'	121° 25'	a	West of Tres Pinos.
19	Oct. 31	20-58-19	4.8	36° 54'	121° 25'	a	VI at Hollister, V at Gilroy, IV at Santa Cruz, San Francisco, Vallejo and Tres Pinos.
20	Nov. 1	07-46-13	3.0	36° 52'	121° 30'	a	Northwest of Hollister.
19	Nov. 1	08-08-20	3.9	36° 54'	121° 25'	c	Northeast of Hollister. Aftershock magnitude 3.0 at 12-29-30.
17	Nov. 3	00-52-34	2.9	37° 00'	121° 25'	c	Near Gilroy.
21	Nov. 4	12-14-04	1.1	37° 44'	122° 08'	a	North of Hayward.
22	Nov. 9	23-57-04	1.9	38° 22'	122° 12'	c	Near Napa.
23	Nov. 12	13-15-10	2.5	36.9°	121.2°	d	East of Hollister.
24	Nov. 13	03-36-10	2	37° 15'	122° 00'	c	Southeast of San Jose.
25	Nov. 13	11-24-42	4.8	40.4°	125.3°	d	Off Cape Mendocino.
26	Nov. 14	08-39-53	4.7	40° 26'	124° 03'	b	VI at Eureka and Fortuna, V at Trinidad, Kneeland, Miranda and Garberville, IV at Hoopa, Alderpoint and Westport.
19	Nov. 14	09-06-54	2.6	36° 53'	121° 30'	c	North of Hollister.
19	Nov. 26	05-12-25	2 1/2	36° 56'	121° 30'	a	North of Hollister.
27	Nov. 26	07-21-53	3.4	38° 31'	122° 45'	b	North of Santa Rosa. Felt in Santa Rosa.



Map No.	Date 1951	Origin time	Richter Magnitude	Latitude North	Longitude West	Quality	Remarks
27	Nov. 26	08-53-30	3.2	38° 32'	122° 46'	b	Aftershock.
27	Nov. 26	13-21-26	2.1	38° 31'	122° 45'	c	Aftershock.
28	Nov. 28	00-46-52	2.4	38° 02'	122° 32'	b	Near San Rafael.
29	Nov. 29	13-05-09	2.5	37° 57'	122° 18'	a	Near El Cerrito.
30	Nov. 30	07-54-45	3.3	37° 25'	121° 20'	c	West of Patterson.
14	Nov. 30	10-51-25	2.7	36° 53'	121° 36'	b	East of Watsonville.
19	Dec. 1	16-08-36	2.6	36° 55'	121° 25'	b	North of Hollister.
31	Dec. 8	12-58-11	3.0	36° 47'	121° 25'	b	West of Tres Pinos.
31	Dec. 8	14-24-35	2.4	36° 47'	121° 28'	b	West of Tres Pinos.
31	Dec. 9	04-49-38	2.5	36° 47'	121° 35'	c	South of Hollister. Aftershocks Dec. 9 at 08-24-35 and 11-29-18; Dec. 10 at 06-18-42.
32	Dec. 13	20-42-23	3.2	36° 40'	121° 22'	c	Central Gabilan Range. Aftershock at 20-43-53.
19	Dec. 22	11-40-08	2.3	36° 55'	121° 29'	b	North of Hollister.
33	Dec. 23	17-19-26	3 1/2	40° 55'	125° 00'	c	Under ocean off Arcata.
34	Dec. 28	02-49-21	5.1	37.7° N	118.3° W	d	Near White Mountain.
35	Dec. 28	13-19-39	2.8	37° 50'	122° 12'	a	Near Montclair District, Oakland. Felt by many people in north and east Oakland.



MAP SHOWING EPICENTERS OCTOBER 1 TO DECEMBER 31, 1951



# THE REGISTRATION OF EARTHQUAKES

at

BERKELEY, MOUNT HAMILTON, PALO ALTO, SAN FRANCISCO, FERNDALE,

FRESNO, MINERAL, ARCATA, AND RENO

All large regional shocks and all distant earthquakes are tabulated on the following pages. Earthquakes in the Northern California, Nevada and Oregon region are included only if of magnitude 5 or greater, or if of special interest. Times of distant shocks are not normally included for Palo Alto, San Francisco, or Ferndale except in cases of defective records at Mount Hamilton, Berkeley, or Arcata, respectively.

All determinations are reduced to Greenwich Civil Time (G.C.T.). G.C.T. is 8 hours greater than Pacific Standard Time (120th Meridian). Communications regarding readings of seismograms should be addressed to:

Seismographic Station  
University of California  
Berkeley 4, California.

<u>Station</u>	<u>North Latitude</u>	<u>West Longitude</u>	<u>Altitude Meters</u>	<u>Feet</u>	<u>Station Symbol</u>	<u>Present Auspices and Date Established</u>
Berkeley	37° 52.3'	122° 15.6'	81	266	B, BG*	University of California - 1887
Mt. Hamilton	37° 20.4'	121° 38.6'	1281.7	4205	MH	Lick Observatory - 1887
Palo Alto	37° 25.1'	122° 10.8'	83	272	PA	Stanford University - 1927
San Francisco	37° 46.4'	122° 27.2'	100	328	SF	University of San Francisco - 1931
Ferndale	40° 34'	124° 16'	17	55	Fe	City of Ferndale - 1933
Fresno	36° 46.1'	119° 47.8'	88.4	290	F	Fresno State College - 1935
Mineral	40° 21'	121° 35'	1495	4906	M	National Park Service, Lassen Volcanic National Park - 1938
Arcata	40° 52.6'	124° 04.5'	60	195	A	Humboldt State College - 1948
Reno	39° 32.3'	119° 48.8'	1386	4546	R	University of Nevada - 1948

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



STATION EQUIPMENT

Berkeley:

- 2 - Horizontal-component Wood-Anderson torsion.
- 1 - Short-period vertical-component Benioff.
- 3 - Long-period Galitzin-Wilip.
- 2 - Horizontal-component 100 kg. Bosch-Omori.

Mt. Hamilton:

- 2 - Horizontal-component Wood-Anderson torsion.
- 1 - Short-period vertical-component Benioff.

Palo Alto:

- 2 - Horizontal-component Wood-Anderson torsion.
- 1 - Short-period vertical-component Benioff.

San Francisco:

- 2 - Horizontal-component Wood-Anderson torsion.

Ferndale:

- 2 - Horizontal-component 25 kg. Bosch-Omori.

Fresno:

- 3 - Components short-period Sprengnether.

Mineral:

- 2 - Horizontal-component Wood-Anderson torsion.
- 1 - Short-period vertical-component Benioff.

Arcata:

- 3 - Components short-period Sprengnether.

Reno:

- 3 - Components short-period Sprengnether.

Readings from the Oregon State Seismographic Station are sent to the University of California by the courtesy of Dr. H. R. Vinyard.

<u>Station</u>	<u>North Latitude</u>	<u>West Longitude</u>	<u>Station Symbol</u>	<u>Present auspices and date established:</u>
Corvallis	44° 35'	123° 18'	C	Oregon State College and University of California - 1950

Station Equipment

- 2 - short-period horizontal-component Slichter.
- 1 - short-period vertical-component Slichter.

For all stations, the three components are indicated by N, E, Z. When no letter appears, the phase is read from the vertical component only.

"c" or "d" following a recorded phase indicates compression or dilatation of the ground as indicated by the vertical component instrument. N, S, E or W following a recorded phase indicates that the ground motion was in that direction, e.g., W ground motion was west.



Station Equipment - continued

"i" (impetus) preceding a phase designates sudden beginning of the motion;  
 "e" (emersio) designates gradual beginning.

Maximum amplitude of earth displacement in microns and period in seconds of the indicated phases are given for the Berkeley station in the columns headed A and T. Combined horizontal amplitude of N and E components are designated by H.

Year	Month	Day	Time (UT)	Phase	Amplitude (microns)	Period (seconds)	Location
Oct. 3	1955	11	17	i	21.0	12.0	USCIS: 168°W, 61°N, 0 - 01-00-05.
			18	e	21.6	12.0	
			19	e	47.7	12.0	
			20	e	39.5	12.0	
Oct. 3	1955	11	18	i	40.2	11.0	USCIS: 177°W, 71°N, h - 100, 0 - 11-07-55.
			19	e	32.5	11.0	
			20	e	38.5	11.0	
			21	e	42.0	11.0	
Oct. 3	1955	13	13	i	27.7	13.0	About 200 miles South of Solomon Islands, h - 100, 0 - 13-30-55.
			14	e	51.0	13.0	
			15	e	32.0	13.0	
			16	e	51.0	13.0	
Oct. 3	1955	20	16	i	35.8	16.0	USCIS: Bermuda Islands Region, 0 - 20-31-00.
			17	e	43.3	16.0	
			18	e	39.0	16.0	
			19	e	51.5	16.0	
Oct. 5	1955	07	14.6	i	14.6	14.6	USCIS: Bermuda Islands Region, 0 - 05-30-55.
			15	e	43.0	14.6	
			16	e	35.5	14.6	
			17	e	45.0	14.6	
Oct. 5	1955	12	19	i	19.0	19.0	USCIS: 28½°E, 177°W 0 - 11-37-50.
			20	e	46.0	19.0	
			21	e	41.0	19.0	
			22	e	41.0	19.0	
Oct. 6	1955	01	07	i	12.0	12.0	USCIS: Bermuda Islands Region, 0 - 12-00-55.
			08	e	12.0	12.0	
			09	e	12.0	12.0	
			10	e	12.0	12.0	

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Oct. 1	M	e(PP)	01	44	23.3	c	USCGS: Near Crete, Mediterranean Sea, O = 01-26-36.
Oct. 1	B	iP	10	18	27.0	d	USCGS: 55°N, 166°W, O = 10-11-40.
		i			38.1	c	
	BG	eSN	26	46			
	MH	iP	18	33.9		c	
		i	19	00.5		c	
		e	20	00.2		d	
	F	eP	18	46.3			
		e			49.4	c	
	M	eP			15.6	d	
		i			57.2		
		i	24	54.4		d	
	R	e	18	29.5		d	
		e			50.0	c	
		eN	20	24.5			
Oct. 3	MH	iP	02	10	21.3	c	USCGS: 16½°N, 61°W, O = 02-00-06.
		i			24.6	c	
		i			49.7	d	
	F	eP			09.5	d	
	R	eP			14	c	
Oct. 3	MH	eP	11	18	40.2	d	USCGS: 17°S, 71°W, h = 100, O = 11-07-21.
		i			52.5	c	
		i			58.5	c	
	R	eP	06	31	42.0		
Oct. 3	MH	iP	13	43	27.7	d	About 200 miles South of Solomon Islands, h = 100, O = 13-30-55.
		i			54.6	c	
	F	eP			32.0	c	
		e			51.0		
	R	e	44	05.8			
Oct. 3	MH	iP	20	46	35.8	c	USCGS: Kermadec Islands Region, O = 20-34-00.
		i			43.3	c	
	F	eP			39.0	c	
		e			51.5	d	
	R	eP			48.5	d	
Oct. 5	BG	eLNZ	07	14.6			USCGS: Kermadec Islands Region, O = 06-30-48.
	MH	iP	06	43	32		
	F	eP			35.5		
	R	eP			45.0		
Oct. 5	BG	eSN	12	00	34		USCGS: 28½°S, 177°W O = 11-37-30.
		eSSN			06 10		
		eN			13.1		
		eR			18.4		
	F	e(P)	11	50	01.0		
	R	e(P)			27.0	c	
Oct. 6	BG	eN	04	04	58		USCGS: Kermadec Islands Region, O = 03-28-45.
		eN			07 53		
		eRNZ			10.3		
	MH	e(P)	03	41	13.0	c	
	F	e(P)			15.0	d	
	R	e(P)			24.5		



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks	
			h.	m.	s.			
Oct. 6	MH	eP	06	02	21.5	c	USCGS: Andreanof Island, Aleutian Islands, h = 100, O = 05-54-50.	
	F	e	03	02				
	R	eP	02	18.5				
Oct. 7	MH	eP	12	13	46.5	d	CGS: Northwestern Argentina, O = 12-01-21.	
	F	eP			39.0			
	R	eP			51.0			
Oct. 8	B	iPEZ	04	11	23.7	d	40° 17' N, 124° 48' W, O = 04-10-35, Magnitude 5 3/4 to 6.	
		iSZ	12	02.0				
		iZ	01		19.0			
	PA	eP	11	28.8	d	USCGS: 40° N, 125° W, O = 04-10-35, Pasadena Magnitude 5 3/4.		
		SF	ePN				23.2	
			eFNE		44.4			
			eSNE		58.2			
	F	ePNEZ			55.6	d		
	M	iPNEZ			14.7	c		
			iSZ		45.4			
A	iPNZ		10	55.6	d	USCGS: 40° N, 125° W, O = 22-21-06.		
		iSN		03.3				
	R	eP	11	37				
		e(S)N	12	26				
	C	ePN	11	28.1				
Oct. 8	B	e(S)N		15.0				
		eP	05	45	53.5	d	USCGS: Bolivia Argentina Border Region, O = 05-33-40.	
Oct. 9	B	eP	06	31	07.0	c		
		R			24.5	c		
Oct. 9	B	iP	10	22	39.9	c	USCGS: 9 1/2° N, 69° W, O = 10-13-05.	
		F			21.5	c		
Oct. 9	B	R			32.0	d	USCGS: Loyalty Islands, h = 100 km., O = 15-40-35.	
		eP	15	53	16.1	c		
		eP			18.5			
		R			26.0			
Oct. 10	MH	iP	04	27	31.7	c	USCGS: 33° N, 124° W, O = 21-01-51.	
		F			41.5			
		R			25.0	c		
Oct. 10	F	eP	22	22	16.0	c	USCGS: Solomon Islands, O = 22-09-11.	
		R			25.0	c		
Oct. 11	B	eP	01	50	33.9	c	USCGS: 5° S, 152° E, O = 01-37-31, Berkeley Magnitude 7, Pasadena Magnitude 6 3/4.	
		e			51			15.1
		ePP			54			04.4
	BG	iSNE	02	01	02			
		eREZ			18.3			
			A	T				
			9	8				
	MH	MaxH	65	22				
		eP	01	50	40.5	d		
		e			51	13.9	c	
ePP				54	11.0	d		
F	eP			50	42.0	c	USCGS: Andreanof Island, Aleutian Islands, O = 12-07-13.	
	ePP			54	09.0			
	eSE	02	01	10.0				



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks	
			h.	m.	s.			
Oct. 10	R	eP	01	50	44.0	c	USCGS: Kamoharui Islands Region, O = 07-40-05.	
		eSNEZ	02	01	16.0			
		e			20.4			
Oct. 11	MH	eP	05	04	03.1	c	USCGS: Hokkaido Japan, O = 04-53-00. O = 05-25-23.	
	F	eP			12.9			
Oct. 12	R	eP			02.0	c		
	MH	iP	18	32	37.4			
Oct. 13	MH	i			49.5	d	USCGS: Tonga Islands Region, h = 200 km, O = 01-15-54.	
		iP	01	27	20.2			
		i			34.0	d		
		ipP	28	24.3				
		F	eP	27	23.5	d		
		R	epP	28	26.0			
Oct. 13	B	eP	27	27.5	c	USCGS: 60°S, 19°W, O = 22-28-06.		
		epP	28	33.0				
		eP	22	47	12.7		c	
		e			19.1			
		F	eP				12.0	d
		R	eP	47	16.5			
Oct. 14	MH	e	49	13	d	USCGS: Java Sea, O = 09-29-39.		
		iP	09	48			44.1	
		i	09	49			02.5	
Oct. 14	F	e	15	50	21.9	c	USCGS: 11°N, 112°E, h = 100, O = 24-51-14.	
		eP	48	47.0				
		e	49	06.0	c			
		e	50	12.5				
		R	eP	48	43.0	c		
		B	eP	18	29			35.0
Oct. 14	MH	iP			37.0	c	USCGS: Fiji Islands, h = 600 km, O = 18-18-43.	
		i			46.8			
		eP	21	47	41.0			
Oct. 15	R	eP			40.0	c	USCGS: 24°N, 122°E, O = 21-34-13, Berkeley Magnitude 6 3/4 - 7.	
		iP	21	14	08.0			
		i			18.6	c		
		e	15	27				
		MH	iP	14	12.7	d		
			i		22.5			
Oct. 16	F	eP	23	00	20.2	c	USCGS: 76°N, 5°E, O = 06-54-33.	
		e			30.0			
		R	eP			12.5		c
			e			22.6		
		F	eP	07	05	04.5		c
		R	eP			04 40		
Oct. 17	B	eP	08	19	07.5	c		
		iP			08.1			
	MH	eP			12.0			
Oct. 17	R	eP			22.0	c	USCGS: Andreanof Island, Aleutian Islands, O = 12-29-13.	
		eP	12	37	01.8			
		R	eP			00.0		



Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
Oct. 18	MH	eP	07 52 51.2	c	USCGS: Kermadec Islands Region, O = 07-40-05.
		i	53 07.6		
	F	eP	52 54.0	c	
Oct. 18	B	iP	08 37 30.3	c	USCGS: 42°N, 142°E, h = 100, O = 08-26-25.
		ipP	47.8	d	
		esP	38 07.0	d	
		i	22 27.5	c	
Oct. 21		ePP	40 23.0	d	USCGS: Pasadena Aftershock, O = 22-55-54.
		epPP	43.2	d	
	BG	eSNE	46 37	d	
		eSSN	51.5	d	
Oct. 29		eN	05 56.1	(d)	USCGS: 24°N, 122°E, O = 03-29-26.
		eREZ	58.7	c	
	MH	iP	37 33.5	c	
		i	38 16.5	d	
		eP'P'	09 05 24.0		
	F	eP	08 37 43.3	d	
		epP	38 03.6	d	
		eSE	47 06.0		
	R	eP	37 33.5	c	
		epP	52.5	d	
		eSE	46 43.5		
		eP'P'	09 05 22.5		
Oct. 19	B	eP	15 02 36.7	d	USCGS: 41°N, 142°E, h = 100, O = 14-51-14.
		ipP	54.5	d	
	MH	eP	40.6	c	
		ipP	59.4	d	
Oct. 22	F	eP	04 48.5	d	USCGS: 24°N, 122°E, O = 01-28-05.
		ipP	03 07.5	c	
	R	eP	02 39.0	c	
		epP	57.0	d	
Oct. 21	B	eP	21 47 36.6	d	USCGS: 24°N, 122°E, O = 21-34-13, Berkeley Magnitude 6 3/4 - 7, Pasadena Magnitude 6 3/4.
		i	46.8		
		e	50 35.6		
		e	52.0		
Oct. 22		iPP	05 51 24.0		USCGS: 24°N, 122°E, O = 05-17-14.
	BG	eN	57 51	c	
		eSNE	58 17	d	
		iPSN	59 24	c	
Oct. 22		eNE	22 00.4	d	USCGS: 24°N, 122°E, O = 05-23-53.
		eNE	12.5	c	
		eREZ	17.2		
		A T	21.0		
Oct. 23		PZ	5 7 24.7		USCGS: 24°N, 122°E, O = 05-13-01, Pasadena Magnitude 6 1/4 - 6 1/2.
		PH	7 11 05.2		
		PPZ	4 9		
		SH	28 24		
	MH	iP	21 47 39.9	d	
		i	58.5	c	
		iPP	51 21.4	c	
		i	29.7	d	

Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
Oct. 21	F	eP	10 47 46.5	c	
		ePP	51 12.0		
		eSE	58 39.0		
Oct. 21	R	eP	13 47 38.0	c	
		ePPNEZ	51 41.0		
		eSE	58 18.5		
		e	22 00 42.5		
Oct. 21	B	eP	23 08 47.2	d	USCGS: Formosa Aftershock, O = 22-55-54.
	MH	eP	49.1	d	
Oct. 22	F	eP	13 08 56.4	d	
	R	eP	50.5	d	
Oct. 22	B	eP	03 42 47.4	(d)	USCGS: 24°N, 122°E, O = 03-29-26.
		i	56.2	c	
		e	46 27		
	BG	iSKSNE	53 40		
		eGNE	04 09.1		
		A T			
		PZ	2 $\frac{1}{2}$ 7		
		PH	1 $\frac{1}{4}$ 7		
		SKSH	15 9		
Oct. 22	MH	eP	03 42 45.2	c	
		i	59.0	c	
		i	43 12.8	c	
		e	44 25.1	c	
	F	eP	43 01.2	c	
		eSKSE	53 54.0		
	M	ePNE	42 48.3		
Oct. 22	B	iP	04 41 28.2	d	USCGS: 24°N, 122°E, O = 04-28-05.
		i	37.3	c	
Oct. 22	MH	iP	00 53 31.4	d	USCGS: Samoa Islands Region, O = 00-41-40.
		i	42.9	c	
	F	eP	41.5	d	
Oct. 22	R	eP	01 32 30.5		USCGS: 24°N, 122°E, O = 01-19-35.
		eN	45 06.0		
		eSKSN	52 05.0		
Oct. 22	B	eP	05 31 05		USCGS: 24°N, 122°E, O = 05-17-44.
	MH	iP	11.8	c	
	F	eP	17.5	d	
	R	eP	09.0	c	
Oct. 22	MH	iP	05 37 21.1	d	USCGS: 24°N, 122°E, O = 05-23-53.
		i	24.3	c	
	F	e(P)	27		
	R	eP	21.0		
Oct. 22	B	eP	05 56 24.7		USCGS: 24°N, 122°E, O = 05-43-01, Pasadena Magnitude 6 1/4 - 6 1/2.
		ePP	06 00 05.2		
	BG	e(SKS)E	07 03		
Oct. 22	MH	iP	05 56 24.4	c	
	F	eP	33.0	d	
	R	eP	27.5		
		eSKSN	06 07 06.5		



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Oct. 22	B	iP	10	12	29.8	c	USCGS: 2 $\frac{1}{2}$ °S, 76°W, h = 150 km, O = 10-02-47.
	MH	iP			23.0	d	
Oct. 22	R	eP	11	24	21.1	d	USCGS: 24°N, 122°E, O = 11-11-02.
	MH	eP			28.1	d	
	MH	iP	13	36	30.9	d	USCGS: 24°N, 122°E, O = 12-48-38.
	F	eP			36.5	c	
	R	eP	13	02	02.1	d	USCGS: 24°N, 122°E, O = 12-48-38.
	MH	eP			02.0	d	
Oct. 22	B	eP	15	43	09.2	c	USCGS: 24°N, 122°E, O = 15-29-47.
		i		45	00.7	c	
		e(SKS)E		53	38		
		eE		54	58		
	MH	iP		43	12.4	c	USCGS: 24°N, 122°E, O = 12-48-38.
		i		45	04.3	c	
	F	eP	16	20	20.0	c	USCGS: 24°N, 122°E, O = 15-29-47.
	R	eP			12.5	c	
Oct. 22	MH	eP	18	55	58.3	d	USCGS: 24°N, 122°E, O = 15-29-47.
	R	e		56	04.5	c	
Oct. 22	MH	iP	20	38	10.5	c	USCGS: 24°N, 122°E, O = 15-29-47.
		i			35.5	c	
	R	eP	21	05	13.0	c	USCGS: 24°N, 122°E, O = 15-29-47.
Oct. 22	MH	eP	21	05	05.2	d	
	F	eP			11.0	c	USCGS: 24°N, 122°E, O = 15-29-47.
	R	eP			03.5	c	
Oct. 23	MH	iP	00	53	04.6	d	USCGS: Samoa Islands Region, O = 00-41-40.
		i			15.7	c	
	R	e(P)			18.5	c	USCGS: 24°N, 122°E, O = 01-19-35.
Oct. 23	B	eP	01	32	57.9	c	
		e		36	48	c	
	BG	eE			43.3		
		eLE		02	03.4		
	MH	iP	01	33	00.8	c	USCGS: 24°N, 122°E, O = 01-19-35.
		i			15.9	c	
		i			20.4	d	USCGS: 24°N, 122°E, O = 01-19-35.
		i			37.3	c	
	F	eP			09.3	c	USCGS: 24°N, 122°E, O = 01-19-35.
	M	ePNE		32	54.0	c	
	R	eP		33	01.0	c	USCGS: 24°N, 122°E, O = 01-19-35.
Oct. 23	B	iP	06	24	34.6	c	
	MH	iP			35.3	c	USCGS: 17°S, 178°W, h = 200 km, O = 06-13-03.
	F	iP			39.6	c	
	R	e(P)			48.5	c	USCGS: 24°N, 122°E, O = 08-55-13.
Oct. 23	B	eP	09	08	34.8	c	
		eSKSE		19	13	c	
	MH	iP		08	38.8	c	USCGS: 24°N, 122°E, O = 08-55-13.
		i			50.7	d	
		i		09	05.2	c	





Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Oct. 29	MH	eP	12	27	31.2	c	USCGS: About 250 miles off Coast of Ecuador, 0 = 12-27-47.
	M	e			58.8	d	
	R	eP			47.5	d	
Oct. 31	F	eP	05	38	17.2	c	USCGS: New Britain Island Region, 0 = 05-25-00.
	M	eP			11.0	d	
	R	eP			17.5	c	
Oct. 31	F	eP	06	26	51.5	c	USCGS: New Britain Island Region, 0 = 06-13-35.
	M	eP			45.8	c	
	R	eP			52.0	c	
Oct. 31	MH	iP	07	15	28.7	c	USCGS: 3°N, 101°E, 0 = 06-56-21, Pasadena Magnitude $6\frac{1}{2}$ - $6\frac{3}{4}$ .
		i			43.1	c	
		e			16 25.2		
Nov. 1	F	i	09	15	17 16.6	c	USCGS: Near Southern Coast of Colombia, h = 100, 0 = 08-51-07.
		eP			09 15 33.0	d	
		eP			27.2	c	
Nov. 1	M	i	09	07	39.5	d	USCGS: 52°N, 118°E, h = 200 km, 0 = 08-24-30.
		i			58.2	c	
		i			16 35.1	c	
Oct. 31	R	i			17 24.7	c	USCGS: 3°N, 101°E, 0 = 08-03-11, Pasadena Magnitude $6\frac{1}{4}$ .
		eP			15 29.5	c	
		e			17 25.0	d	
Oct. 31	F	eP	08	22	20.5	c	USCGS: Near West Coast of Sumatra, 0 = 10-22-17.
		iP			17.9	d	
		eP			16.5	c	
Oct. 31	MH	eP	10	41	25.0	c	USCGS: Near West Coast of Sumatra, 0 = 10-22-17.
		e			43 05.8	d	
		e			39.7	d	
Oct. 31	F	eP			41 28.0	d	USCGS: 11½°N, 125°E, 0 = 11-09-41.
		e			43 32.5	d	
		e			44 46.5	d	
Oct. 31	M	iP			41 21.0	d	USCGS: 6½°N, 117°W, 0 = 11-28-00.
		i			43 16.5	d	
		eP			41 24.0	c	
Oct. 31	MH	e			43 27.3	c	USCGS: 23°S, 179°E, h = 500 km, 0 = 11-25-37.
		eP	12	03	01.6	d	
		eP			02 59.5	d	
Nov. 1	MH	eP	08	01	06.5	c	USCGS: 47°N, 150°E, 0 = 11-27-35.
		i			40.7	c	
		e			25.5	c	
Nov. 1	B	eP	11	30	00.8	c	USCGS: 47°N, 150°E, 0 = 11-27-35.
		eP			11 30 00.1	d	
		e			32 16.7	d	
Nov. 1	MH	eP			29 59.0	d	USCGS: 23°S, 179°E, h = 500 km, 0 = 11-25-37.
		eP			52.6	c	
		iP	11	37	08.7	c	
Nov. 1	B	e			20.3	c	USCGS: 47°N, 150°E, 0 = 11-27-35.
		eP			05 45 09.0	d	
		i			15 07 23.3	c	
Nov. 1	MH	eP			15 07 23.3	c	USCGS: 47°N, 150°E, 0 = 11-27-35.
		i			15 07 23.3	c	
		e			15 07 19.3	c	
Nov. 1	F	eP			15 07 19.3	c	USCGS: 47°N, 150°E, 0 = 11-27-35.
		e			28.4	c	
		e			28.4	c	

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Nov. 1	B	eP	19	21	45.3	c	USCGS: About 250 miles off Coast of Ecuador, O = 19-12-45.
	MH	eP			41.1	c	
Nov. 2		e	22	11	11	d	USCGS: 47°N, 154°E, O = 22-11-11, Bodywave Magnitude 7.1, Surface Magnitude 7 - 7.5.
	M	iP	21	52	3	d	
Nov. 2	R	eP			41.0	c	USCGS: 47°N, 154°E, O = 22-11-11, Bodywave Magnitude 7.1, Surface Magnitude 7 - 7.5.
	B	eP	04	11	19.5	d	
Nov. 2	MH	eP			16.6	d	USCGS: 47°N, 154°E, O = 22-11-11, Bodywave Magnitude 7.1, Surface Magnitude 7 - 7.5.
	F	eP			24.0	c	
Nov. 2		e	14	55	5	d	USCGS: 47°N, 154°E, O = 22-11-11, Bodywave Magnitude 7.1, Surface Magnitude 7 - 7.5.
	M	iP	11	08	0	d	
Nov. 2		i			47.5	d	USCGS: 47°N, 154°E, O = 22-11-11, Bodywave Magnitude 7.1, Surface Magnitude 7 - 7.5.
		i	12	13	5	d	
Nov. 2	R	eP			16.0	c	USCGS: 47°N, 154°E, O = 22-11-11, Bodywave Magnitude 7.1, Surface Magnitude 7 - 7.5.
	MH	eP	09	00	37.7	c	
Nov. 3	R	eP			48.5	c	USCGS: Near Southern Coast of Colombia, h = 100, O = 08-51-02.
	B	eP	09	07	30.9	c	
Nov. 4		ePP	11	17	6	d	USCGS: 5 1/2°S, 146°E, h = 200 km, O = 08-54-30.
	MH	eP	07	33	7	c	
Nov. 4		ipP	17	08	08.7	c	USCGS: 5 1/2°S, 146°E, h = 200 km, O = 08-54-30.
		e	16		30.0	d	
Nov. 4		e	09	10	5	d	USCGS: 5 1/2°S, 146°E, h = 200 km, O = 08-54-30.
		iPP	11	17	5	c	
Nov. 4		e	12	11	0	c	USCGS: 47°N, 154°E, O = 12-11-00.
	F	eP	07	41	0	d	
Nov. 4		e	08	37	0	c	USCGS: 47°N, 154°E, O = 12-11-00.
		ePP	11	34	0	c	
Nov. 4	M	eP	07	33	6	c	USCGS: 47°N, 154°E, O = 12-11-00.
		i	08	36	5	c	
Nov. 4		iPP	11	22	9	d	USCGS: 47°N, 154°E, O = 12-11-00.
	R	ePEZ	07	42	0	d	
Nov. 4		epP	08	21	5	c	USCGS: North Central Chile, O = 22-20-51.
		ePP	11	37	5	d	
Nov. 4		eSE	17	42	0	d	USCGS: North Central Chile, O = 22-20-51.
	BG	eE	11	42	1	d	
Nov. 4		eREZ			57.6	d	USCGS: North Central Chile, O = 22-20-51.
	MH	eP	23	32	4	d	
Nov. 4		e	26	46	9	d	USCGS: Southeast Yukon, Canada, O = 05-05-07.
	F	eP	23	38		c	
Nov. 4		eP			25.5	c	USCGS: Southeast Yukon, Canada, O = 05-05-07.
	R	eP			33.5	c	
Nov. 4		eSKSE	34	32	0	d	USCGS: 64°N, 147°W, O = 14-28-00.
	M	iP	14	33	48.3	c	
Nov. 4		i	34	09	2	d	USCGS: 64°N, 147°W, O = 14-28-00.
		i	37	03	8	d	
Nov. 4	MH	eP	22	32	51.0	d	USCGS: Mariana Island Region, O = 22-20-15.
		eP			45.5	d	
Nov. 5	R	eP			55.5	c	USCGS: Mariana Island Region, O = 22-20-15.
	B	eP	05	45	36.3	d	
Nov. 6		eP	15	07	22.4	d	USCGS: 47°N, 154°E, O = 14-57-15.
	B	e			10 06	d	
Nov. 6	MH	eP			07 25	d	USCGS: 47°N, 154°E, O = 14-57-15.
		i			35.5	d	



Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Nov. 6	F	e(P)		45.0		d	
	R	eP		24.5			
	B	eP	16	50	11.9	(d)	USCGS: 47°N, 154°E, O = 16-40-06, Berkeley Magnitude $7\frac{1}{2}$ , Pasadena Magnitude 7 - $7\frac{1}{2}$ .
		e		51	10.3		
	BG	iSNE		58	24		
		eSSNE	17	02.4			
		eQNE		05.2			
		eRZ		08.1			
		A	T				
		PZ		11	9		
		FH		6	9		
		SH		70	13		
	MaxH		200	20			
Nov. 6	MH	eP	16	50	17.3	c	
		eSN		58	32		
		eQN	17	05	08		
	F	eP	16	50	28.0	c	
		eS		58	54		
		eSSN	17	02	33.5		
Nov. 6	R	ePNEZ	16	50	17.5	d	
		eS		58	13.5		
		eQNE	17	05.0			
	B	eP	19	00	31.5		USCGS: 47°N, 154°E, O = 18-50-27.
	MH	eP		07	42.5	c	
Nov. 6		i		48.8		d	
		e		01	34.4		
	F	eP	00	52.5		c	
	R	eP		41.5			
		e	02	57.5			
Nov. 6	MH	eSNE		08	49		
		eP	22	32	59.1	c	USCGS: North Central Chile,
		i		33	57.2	d	O = 22-20-54.
Nov. 7	R	eP		03.0		d	
	MH	iP	04	46	25.5	d	USCGS: Fiji Islands, h = 600 km,
Nov. 7	F	eP		29.5			O = 04-35-20.
	R	eP		38.0			
Nov. 7	MH	iP	05	08	07.0	d	USCGS: Southeast Yukon, Canada,
		i		10	39.9	c	O = 05-05-07.
	F	e		36.0			
Nov. 8	R	e		22.5			
	B	e(P)	13	51	30		USCGS: $54\frac{1}{2}$ °N, 160°W, O = 13-45-09,
		i		34.9		c	Pasadena Magnitude $6\frac{1}{4}$ .
		i		52	00.0		
	BG	iSNE		56	36.0	SW	
		eN		57.7			
		e	14	00.0			
	MH	iP	13	51	29.3	c	
	F	eP		39.5		d	
		e		52	04.0		
Nov. 8		eL		59	42.5		
	M	eP		51	09.5	d	
		e		57	40.0		

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks
			h.	m.	s.		
Nov. 8	R	eP	51	25	0	d	
	Fe	eP		16			
	B	eP	19	41	05.2	(d)	USCGS: 19°N, 155 3/4°W,
		e		42	29.9	d	0 = 19-34-13.
	BG	eSNE		48	22		
		eNEZ		49	30		
	B	eT	20	16	13.2		
	MH	iP	19	41	07.5	d	
		i		42	11.6		
		iT	20	16	19.8		
Nov. 8	F	eP	19	41	18.5	c	
	M	iP			18.4	c	
		eT	20	16	37.0		
	R	eP	19	41	32		
	B	iP	24	03	32.5	d	USCGS: Fiji Islands, h = 500 km,
		e		04	45.4		0 = 23-52-27.
		e		07	16.4		
	MH	iP	03	33	1	c	
	F	eP			37.0	c	
	M	iP			42.4	d	
Nov. 9	R	eP			44.5	c	
		eE			04 02.0		
	B	e	08	08	39.2		
	MH	eP		07	38.4	d	USCGS: 46 1/2°N, 154°E, 0 = 07-57-28.
	F	e(P)			54.0	c	
	M	eP			27.7	d	
	R	e		07	55.0		
	B	iP	22	19	44.9	d	USCGS: 22°S, 68°W, h = 100,
		epP		20	19.5	d	0 = 22-07-53, Berkeley
	BG	ePP		22	54		Magnitude 6 1/2.
Nov. 9		eSNE		29	31		
		isSN		30	33		
		eSSN		34	7		
		A T					
		PZ		1	4		
		PPZ		1 1/4	7		
		SH		8 1/2	10		
	MH	iP	22	19	41.1	d	USCGS: 17°N, 61°W, h = 100 km,
	F	eP			31.3	d	0 = 09-36-36.
		ePP		22	05.0		
Nov. 10		eSN		29	04.8		USCGS: 53°N, 166°W, h = 100 km,
	M	i		20	01.6		0 = 19-34-50.
	R	eP		19	43.0	c	USCGS: 47 1/2°N, 155°E, 0 = 19-21-30.
		epPE			58.8		
		eSN		29	30.0		
	B	eP	05	43	51.8	d	USCGS: Fiji Islands Region,
	BG	eSNE		53	28		0 = 05-31-54.
		eSSN			58.6		
		eQNE	06	03	2		
	MH	eP	05	43	52.8	d	
F	eP			53.5	c		



Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
	M	eP	08 59.5		
	R	e(P)	44 06.0	d	
Nov. 11	B	iP	11 33 08.4	d	
Nov. 11	B	eP	12 25 42.1		USCGS: 47°N, 152°E, 0 = 12-15-28.
		i	51.6		
	MH	eP	48.0	c	
		i	53.2	d	
		i	26 11.6	d	
	F	eP	25 57.0	c	
	M	iP	35.9	c	
		i	26 09.7		
	R	eP	25 45.0	c	
Nov. 12	B	eP	08 19 34.4		USCGS: 47°N, 154°E, 0 = 08-09-26,
	BG	ePP	21 58		Berkeley Magnitude 6.6.
		iSNE	27 55		
		eSSNE	31.9		
		eQNE	34.7		
		eR	37.2		
		A T			
		SH	20 13		
		MaxH	40 20		
	MH	eP	08 19 40.0	c	
		eS	27 52		
	F	eP	19 48.5	c	
	M	iP	27.4	c	
	R	eP	37.5		
Nov. 12	B	iP	09 25 27.3	d	USCGS: 23 $\frac{1}{2}$ °S, 179°W, h = 400 km,
		ipP	26 49.9	d	0 = 09-13-50.
		ePP	29 08		
	MH	iP	25 27.7	d	
	F	eP	30.5	c	
		epP	26 57.0	d	
	M	iP	25 35.9	d	
		ipP	26 59.5	d	
	R	eP	25 40.0	d	
		epPEZ	27 03.4	d	
Nov. 12	MH	iP	09 46 12.0	c	USCGS: 17°N, 61°W, h = 100 km,
	F	eP	45 59.0	c	0 = 09-36-36.
	M	iP	46 12.9	c	
	R	eP	46 01.0	c	
Nov. 12	R	eP	19 22 15.0	c	USCGS: 53°N, 166°W, h = 100 km,
					0 = 19-14-50.
Nov. 12	MH	iP	19 31 39.8	c	USCGS: 47 $\frac{1}{2}$ °N, 155°E, 0 = 19-21-30.
	F	eP	31.0	d	
	M	iP	33.2	d	
	R	eP	44.0	c	
Nov. 13	B	eP	08 10 04.1	d	USCGS: Mariana Islands, 0 = 07-57-40.
	MH	iP	06.0	c	
	F	eP	17 13.5	c	
	M	iP	03.9	c	
	R	eP	18 12.1	c	



Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
Nov. 15	B	iP	08 35 19.6	c	USCGS: $52\frac{1}{2}^{\circ}$ N, $160\frac{1}{2}^{\circ}$ W, h = 60 km, 0 = 08-25-53.
	BG	eSNE	42 45	c	
Nov. 15		eQNE	48.7	c	
		eREZ	51.9	c	
Nov. 15	MH	iP	35 23.2	c	USCGS: $53^{\circ}$ N, $160\frac{1}{2}^{\circ}$ E, h = 60 km, 0 = 09-26-38.
	F	eP	31.5	c	
	R	eP	17.0	c	
	MH	e	09 36 05.0	c	
Nov. 15	M	eP	35 53.3	c	
	R	e	36 03.0	c	
Nov. 15	B	e	10 12 09.5	d	USCGS: $52\frac{1}{2}^{\circ}$ N, $160\frac{1}{2}^{\circ}$ E, h = 60 km, 0 = 10-02-42.
	BG	ePP	14 05.8	d	
		eSE	19 42	d	
		eLNE	28.0	d	
	MH	i	12 13.7	d	
Nov. 15	F	e	24.9	c	
		ePP	14 19.0	c	
	M	iP	11 52.9	c	
	R	e	12 05.5	c	
	B	i	10 41 07.4	d	
Nov. 15	BG	eSE	48 31	d	USCGS: $52\frac{1}{2}^{\circ}$ N, $160\frac{1}{2}^{\circ}$ E, h = 60 km, 0 = 10-31-33.
		eLE	57.5	d	
	MH	i	41 02.2	d	
	F	e	15.2	c	
	M	eP	40 50.9	c	
Nov. 15	R	e	57.0	c	USCGS: $53^{\circ}$ N, $161^{\circ}$ E, h = 60 km, 0 = 11-01-22.
	B	e	11 10 41.7	d	
	MH	e	45.0	d	
	F	e	58.3	d	
Nov. 15	M	eP	10 30.1	d	
	R	e	09 42.5	d	
	B	iP	19 51 32.3	c	
	BG	eSNE	59 07	c	
		eScSNE	20 01 15	c	
	eSSN	05.2	c	USCGS: $52\frac{1}{2}^{\circ}$ N, $160\frac{1}{2}^{\circ}$ E, h = 60 km, 0 = 19-42-12, Berkeley Magnitude 6.3, Pasadena Magnitude $6\frac{1}{2}$ - $6\frac{1}{2}$ .	
		A T			
		PZ	$1\frac{1}{2}$ 7		
		SH	11 18		
Nov. 15	MH	eP	19 51 36.0	c	USCGS: $63^{\circ}$ N, $177^{\circ}$ W, h = 60 km, 0 = 21-59-18.
	F	eP	48.1	d	
	M	eP	10 28.8	d	
	R	eP	21 31 35.5	d	
Nov. 15	MH	iP	22 08 43.0	c	
	F	eP	52.7	d	
	M	iP	35.6	d	
Nov. 16	R	eP	41.0	c	USCGS: $52\frac{1}{2}^{\circ}$ N, $160\frac{1}{2}^{\circ}$ E, h = 60 km, 0 = 15-03-26.
	MH	iP	15 11 50.8	c	
Nov. 16	R	eP	57.0	c	USCGS: $29\frac{1}{2}^{\circ}$ S, $178^{\circ}$ W, h = 60 km, 0 = 17-45-23.
	B	eP	17 45 53.8	d	
	BG	eSKSNE	56 31	d	
		eRNEZ	18 12.1	d	
	MH	iP	17 45 54.2	c	



Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
	F	eP	57.5	c	
	M	eP	46 03.2	c	
	R	eP	03.0	c	
Nov. 16	MH	eP	19 16 15.1	d	
	F	e	49.0	c	
	M	i	15 59.0	d	
	R	eP	17.7	c	
Nov. 17	B	eP	20 34 07.5	c	USCGS: $52\frac{1}{2}^{\circ}\text{N}$ , $160\frac{1}{2}^{\circ}\text{E}$ , h = 60 km, O = 20-24-50.
	MH	iP	13.3	c	
	F	eP	25.5	c	
	M	eP	33 59.3	c	
Nov. 18	B	iP	04 47 53.5	d	USCGS: $53^{\circ}\text{N}$ , $161^{\circ}\text{E}$ , h = 60 km, O = 04-38-35.
		i	48 03.3	d	
		i	49 09.8	c	
	MH	iP	47 52.8	c	
		i	48 18.6	d	
		i	49 21.4	c	
	F	e	48 07.5	c	
	M	eP	47 42.2	d	
		i	49.6	d	
		i	48 02.9	c	
Nov. 18	B	e(PP)	09 44 56	c	USCGS: $31^{\circ}\text{N}$ , $90\frac{1}{2}^{\circ}\text{E}$ , O = 09-26-33.
	MH	e(PP)	55.1	c	
	F	e(PP)	45 02	c	
	M	eP	40 37.7	c	
		i(PP)	44 48.3	c	
Nov. 18	B	eP	09 49 58.9	c	USCGS: $31^{\circ}\text{N}$ , $90\frac{1}{2}^{\circ}\text{E}$ , O = 09-35-43, Pasadena Magnitude $7\frac{1}{2}$ .
		ePP	54 11.7	c	
	BG	e	56 22	c	
		eSKSNE	10 00 51	c	
		eNE	09.1	c	
		eGNE	19.6	c	
	MH	eP	09 50 08.7	d	
		i(PP)	54 23.7	c	
		e	56 22.4	c	
	F	eP	50 04.0	c	
		e(PP)	53 44.6	c	
		e	54 28.5	c	
	M	iP	49 50.1	c	
		i	53 15.9	c	
		e	10 00 32	c	
Nov. 19	BG	e(S)E	21 24 24	c	USCGS: $6\frac{1}{2}^{\circ}\text{S}$ , $172^{\circ}\text{W}$ , h = 60 km, O = 21-03-35.
		eLNE	41.9	c	
	MH	iP	15 02.5	c	
	F	eP	08.0	c	
	M	eP	12.6	c	
Nov. 22	B	eP	02 17 46.1	c	USCGS: $5^{\circ}\text{S}$ , $151\frac{1}{2}^{\circ}\text{E}$ , O = 02-04-49, Berkeley Magnitude 6 - $6\frac{1}{4}$ , Pasadena Magnitude 6 - $6\frac{1}{4}$ .
		e(PP)	18 04.2	c	
	BG	eSE	28 39	c	
		eREZ	45.6	c	

Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
Nov. 22		PZ	A T 1 4		
		SH	1 7		
	F	eP	02 17 57.5	d	
	M	eP	54.7	c	
Nov. 22	B	iP	10 02 32.8		USCGS: Argentina-Chili-Bolivia Region, 0 = 23-35-02.
		e(PP)	05 59		
	F	eP	02 50.5	c	USCGS: 32°N, 11°W, 0 = 07-51-27.
		e(PP)	05 57.5		
	M	iP	02 35.5	d	
		e(PP)	05 51.2		
Nov. 22	F	eP	13 04 53.5	d	USCGS: 26°S, 177°W, 0 = 12-52-30.
	M	eP	55.9	d	
Nov. 24	B	iP	04 37 56.9	d	USCGS: 51½°N, 176½°W, h = 60 km, 0 = 04-30-24.
	F	eP	38 14.5	d	
	M	iP	37 48.0	d	
	PA	eP	38 00.0	d	
Nov. 24	B	eP	07 29 18.9		
	F	e(P)	38.0		
	M	iP	04.8		
Nov. 24	B	iP	19 00 39.7	c	USCGS: 23°N, 121½°E, 0 = 18-47-13, Pasadena Magnitude 6½.
	MH	e(P)N	49.5		
	F	e(P)	50.0		
	M	iP	34.9	c	
	PA	eP	35.0		
Nov. 24	B	eP	19 03 39.7		USCGS: 23°N, 121½°E, 0 = 18-50-19, Berkeley Magnitude 7, Pasadena Magnitude 7¼.
		ePP	07 31		
	BG	eSE	14 35		
		eSSN	21.4		
		eQE	31.8		
		eREZ	34.8		
		A T			
		PZ	5½ 9		
		PH	3½ 10		
		PPZ	6½ 9		
		SH	27 15		
		MaxH	59 22		
	PA	eP	19 03 44.0		
	F	e	54.0		
		eSN	14 46.5		
	M	eP	03 39.7		
	Fe	ePE	32		
		eSE	14 44		
Nov. 25	B	iP	10 05 12.6	d	USCGS: Bonin Islands Region, 0 = 09-53-10.
	PA	eP	13.5	d	
	F	eP	23.5	d	
	M	iP	10.9	d	
Nov. 26	B	e(P)	06 51 56		USCGS: 23°N, 121½°E, 0 = 06-38-29.
	BG	eLEZ	07 24.6		
	F	e(P)	06 52 06.0		
	M	i(P)	51 51.0	d	



Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
Nov. 29	B	e(P) e	05 04 16.5 50.5	c c	USCGS: 1°N, 121°E, 0 = 04-45-44.
	F	e	45.5		
	M	iP i	15.5 41.7	d d	
Nov. 29	MH	iP i	23 40 16.3 27.0	d	USCGS: Argentina-Chili-Bolivia Region, 0 = 23-28-02,
Nov. 30	MH	e(P)	08 02 00.6	c	USCGS: 32°N, 41°W, 0 = 07-51-17.
	F	eP	01 51.5	c	
	M	iP	51.7	c	
Dec. 2	M	iP i	07 40 31.5 48.9		USCGS: About 500 miles South Fiji Islands, h = 500 km, 0 = 07-29-03.
Dec. 6	B	e(P)	14 38 25.0		USCGS: 51½°N, 77½°W, 0 = 14-29-18.
	MH	e(P)	25.0	d	
	F	eP e	12.0 22.0	c d	
Dec. 8	M	e(P)	33.6		
Dec. 8	MH	eP	03 51 14.5	c	USCGS: 43½°N, 146°E, 0 = 03-40-25.
	F	e	46.0		
Dec. 8	B	iP eP'	04 34 23.6	d	USCGS: 34°S, 56½°E, h = 100 km, 0 = 04-14-20, Pasadena Magnitude 7 3/4.
		i(pP')	34.3	c	
		i	36 05.8	c	
		i	19.5	c	
	BG	e	39 41		
	B	e(PP)	58		
		e	40 04.0		
		e	43 14		
		eN	46.9		
		e(SS)NE	05 00.3		
		A T			
	MH	P'Z eP'	35 11 04 34 23.9	d	
		i(pP')	34.7	c	
		i	45.5	c	
		i	36 19.0	d	
		i(PP)	39 59.6		
		i	40 09.4		
		i	20.3		
		i	43 22.0		
		eN	46 58.5		
	M	eP'	04 34 21.5	d	
		i(pP')	32.3	c	
		i	43.3	c	
		iE	35 54.8		
		i	36 06.6		
		i	39 41.2		
		i(PP)	58.0		
		i	43 05.3		
		eNE	46 48.8		
		eNE	05 43.2		

Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
	F	eP <sup>1</sup>	04 34 23.5	d	
		i(pP <sup>1</sup> )	34.9	c	
		i	46.3	c	
		i	35 00.0	c	
		e	36 01.5	c	
		e	16.5	d	
		e(PP)	40 00.5	c	
		eE	43 25.0	c	
		eE	46 28.0	c	
		eSKS	05 41.2	c	
Dec. 8	B	iP	14 10 56.2	d	USCGS: 6°S, 154½°E, h = 100 km, O = 13-58-10.
		i	11 36.9	c	
	MH	eP	10 57.4	c	
		e	11 20.0	c	
		e	38.0	c	
	F	eP	04.7	d	
	M	eP	10 59.1	d	
Dec. 9	MH	eP	03 03 20.9	c	
	M	eP	31.4	d	
Dec. 12	B	iP	01 43 58	c	USCGS: 17°N, 94½°W, h = 100 km, O = 01-37-34, Berkeley
		ipP	44 17.3	d	Magnitude 6.6, Pasadena
	BG	ePPNE	45 20	c	Magnitude 7.
		iSNE	49 07	c	
		esSN	38	c	
		eGNE	52	c	
		A T			
		PZ	4½ 6	c	
		PH	3 7	c	
		pPZ	21 6	c	
		PPH	9 7	c	
		SH	27 10	c	
	MH	eP	01 43 49.6	c	USCGS: 11°N, 86½°W, h = 100 km, O = 17-51-34.
		epP	44 10.3	c	
		esP	21.2	c	
		eSE	48 57	c	USCGS: 19°S, 174½°W, h = 60 km, O = 14-02-43, Berkeley
	F	eP	43 36.5	c	Magnitude 6 3/4, Pasadena
		epPEZ	56.5	c	Magnitude 6 3/4.
	M	eP	44 05.0	c	
	Fe	epPE	42	c	
		eSN	49 52	c	
		iP	44 37.5	c	
Dec. 13	B	eP	01 28 17.7	d	
	MH	eP	14.4	d	
	F	eP	09.1	d	
	M	eP	30.4	d	
Dec. 14	MH	iP	02 26 51.3	d	
	F	eP	54.5	d	
	M	eP	48.6	d	
Dec. 15	B	iP	10 00 35.7	d	USCGS: 52°N, 173°W, O = 09-53-14.
		i	47.3	c	
		epP	20 28.3	c	
		epP	21 17.5	c	
		eSN	30 50	c	



Date 1951	Sta.	Phase	Time (GCT)		Ground Motion	Remarks		
			h.	m. s.				
Dec. 15	MH	iP	17	01 40.7	c	USCGS: 52°N, 172°W, 0 = 12-27-25.		
		e	02	47.1	d			
	i(PcP)	00	51.2	c				
Dec. 15	M	eP	10	00 25.9	c	USCGS: 15°N, 150°E, 0 = 12-27-25.		
		i	10	48.4	c			
	i(PcP)	02	45.0	d				
Dec. 16	R	eN	00	39.7	c	USCGS: 28½°S, 178°W, h = 60 km, 0 = 12-25-30.		
	B	iP	12	38 05.4	c			
	MH	epP		21.5	c			
		iP		05.4	c			
	F	epP		20.6	c			
		ePEZ		08.6	c			
	M	ePP		22.1	c			
		eP		14.8	c			
	Dec. 16	R	epP		30.3		c	USCGS: 18°S, 168½°E, 0 = 19-13-43. Magnitude 6.
			e(P)EZ		17.9		c	
B	eP	19	26 23	c				
BG	eSE		37 55	c				
	eE		53.4	c				
MH	eP	25	26 25.5	c				
	eP	20	33 30.5	c				
Dec. 17	M	eP		32.1	c	USCGS: 18°S, 173°W, 0 = 12-30-08.		
	R	ePEZ		36.8	c			
	MH	eP	12	41 47	c			
		F	eP		46.5		c	
	M	eE		42 06	c			
		iP		41 52.7	c			
	Dec. 17	R	i	07	42 04.0		c	USCGS: 15°N, 61°W, h = 100 km, 0 = 05-27-20.
			ePEZ		41 56.4		c	
	Dec. 17	MH	eN		42 09.0		c	USCGS: 11°N, 86½°W, h = 100 km, 0 = 17-51-34.
			iP	17	59 12.6		d	
M		eP		24.7	c			
Dec. 18	R	iP		11.9	c	USCGS: 19°S, 174½°W, h = 60 km, 0 = 14-09-03, Berkeley Magnitude 6 3/4, Pasadena Magnitude 6 3/4.		
		B	iP	14	20 43.8		c	
	BG	ipP		21 01.6	c			
		i		15.5	c			
	MH	eSNE		30 50	c			
		eNE		40.3	c			
Dec. 18	MH	A T				USCGS: 45°N, 155½°E, h = 60 km, 0 = 11-29-31.		
		SH	4½	9	c			
	MH	eP	14	20 43.5	c			
		i		56.7	c			
	Dec. 18	F	ipP	10	21 02.1		c	USCGS: Southern Hervey Islands, 0 = 12-28-42.
			i		15.5		c	
	Dec. 18	F	iP	06	20 48.7		c	USCGS: About 500 miles off Coast of Colima, Mexico, 0 = 05-30-21.
			e	05	21 01.8		c	
		M	epP		07.4		c	
			iP		20 54.4		c	
Dec. 21	R	e		21 07.0	d	USCGS: Western Samoa, 0 = 12-26-17.		
		ipP		12.7	d			
	ePEZ		20 58.3	c				
	epP		21 17.5	c				
	eSN		30 50	c				



Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
Dec. 18	MH	iP	17 01 03.1	c	USCGS: 52°N, 174½°W, 0 = 16-53-26.
	F	iP	15.4	d	
	M	iP	00 48.3	c	
	R	iPNEZ	01 01.6	c	
Dec. 21	MH	eP	18 17 05.6	c	USCGS: 49°N, 156°E, 0 = 18-07-06.
	M	iP	16 51.1	d	
	R	eP	17 05.8	d	
Dec. 22	B	e(P)	15 00 15		USCGS: 1°S, 155°E, 0 = 14-47-36.
		i	25.5	d	
		eSNE	10 43		
	MH	eLE	27.2		
		eP	00 24.4	c	
	M	i	32.9	d	
	R	iP	18.0	c	
Dec. 23	B	ePNE	26.7	d	USCGS: 24½°S, 177°W, h = 100 km, 0 = 00-21-06, Berkeley Magnitude 6½.
		eP	00 33 10.2		
		eSN	43 24		
	eNE	54.6			
	MH	SH	2½ 11		
iP		00 33 10.0	d		
Dec. 23	F	eP	14.1	d	
	R	eP	24.0	d	
	B	e	06 49 17		
	MH	e	19		
	M	e	22.8		
Dec. 23	B	e	10.7		USCGS: 15°N, 61°W, h = 100 km, 0 = 06-57-20.
		iP	07 06 58.0	c	
		i	07 14.1	c	
	e	59.5			
	MH	e(SS)E	22.4		
Dec. 23	MH	iP	06 54.5	c	USCGS: 49°N, 155½°E, h = 60 km, 0 = 11-29-31.
		F	ePEZ	42.6	
	M	e	07 21.2		
		iP	06 56.0		
		i	07 02.0	d	
	R	i	04.9	c	
		i	38.6	c	
		eP	06 46		
Dec. 23	M	eP	11 39 13.2	c	
	R	i	26.3	d	
Dec. 23	R	e	29.6		USCGS: Southern Kurile Islands, 0 = 18-28-42.
	M	e	18 38 07.3		
Dec. 24	R	e(P)E	37 38.8		USCGS: About 200 miles off Coast of Colima, Mexico, 0 = 05-50-41.
	BG	eSNE	06 00 05		
	MH	eP	05 55 50.5		
	F	eP	23.0		
Dec. 24	M	eP	56 09.0		USCGS: Western Panama, 0 = 10-26-17.
		R	eP	01.7	
	MH	eP	10 34 29.7		
		e	41.0		
	i	52.4			



Date 1951	Sta.	Phase	Time (GCT)		Ground Motion	Remarks
			h.	m. s.		
Dec. 24	M	eP		41.9		
	B	eP	14 53	54.6		USCGS: Mariana Islands, 0 = 14-41-26.
	MH	eP		57.5	c	
	M	iP		54.1	c	
Dec. 25	R	ePEZ		54 02		
	B	iP	00 34	32.0	c	USCGS: About 200 miles off East Coast of Kamchatka, 0 = 00-25-30.
	MH	iP		37.5	c	
		e		48.5		
Dec. 25		i		35 34.1	d	
	M	iP		34 23.4	c	
	R	ePN		29.1		
	MH	e	06 11	16		
		e		15 06		
	F	e(P)		09 37.5	c	
		e		11 15.5		
		e		15 07.4		
	M	i		11 03.6	c	
		e		14 54.2	d	
Dec. 25	R	eNZ		11 05.9	c	
		e		14 51.5		
	MH	iP	14 40	26.4	c	
	M	iP		37.9	d	
Dec. 25	R	eP		28.4	c	
	B	eP	15 44	46.7	d	USCGS: 8°S, 158°E, h = 600 km, 0 = 15-32-59.
		e		46 44.2		
	MH	iP		44 48.8	d	
		e		46 46.0		
	M	eP		44 41.0	d	
Dec. 25		i		46 47.6	d	
	R	eP		44 58.1	d	
		eEZ		46 59.7	d	
	B	i(P)	16 08	23.1	c	USCGS: 49°N, 155 $\frac{1}{2}$ °E, h = 60 km, 0 = 15-58-28.
	BG	eSNE		16 18		
		eN		22.9		
Dec. 25		eREZ		26.7		
	MH	e(P)		08 28.4	c	
	M	iP		08.4	d	
		i		14.7	d	
		i		12.6	c	
		eP		09.5	c	
Dec. 26	R	e(P)		20.6		
	MH	iP	03 16	10.0	c	USCGS: Fox Islands, Aleutian Islands, 0 = 03-08-48.
Dec. 26	M	eP		15 53.7	d	
	F	eP	16 44	27.0	d	USCGS: Northern Kansu Province, China, 0 = 16-30-51.
Dec. 26	M	eP		09.4	d	
	F	eP	17 03	28.0	c	USCGS: 49 $\frac{1}{2}$ °N, 156°E, 0 = 16-53-23.
Dec. 27	M	eP		09.9	c	
	F	e(P)	02 32	04.5	c	USCGS: 49°N, 156°E, 0 = 02-21-46.
	M	iP		31 33.7		
	R	e(P)		41.4	c	

Date 1951	Sta.	Phase	Time (GCT)			Ground Motion	Remarks	
			h.	m.	s.			
Dec. 28	B BG	eP	09	26	29		USCGS: 17°N, 98½°W, 0 = 09-20-25, Berkeley Magnitude 6 3/4 - 7, Pasadena Magnitude 7½ - 7½.	
		iSNE		31	30			
		eQNE		34.2				
		eR		36.2				
			A T					
			PZ	14	7			
			PH	10	8			
			SH	25	9			
			MaxH	385	20			
		MH	eP		26	22	c	
			i			36.7	c	
			e		29	37		
			eSE		31.0			
	eN			34.3				
	F M A R C	eP		26	07.5			
		eP			38.8	c		
		e		27	01.0			
		eP		26	26.2	c		
Dec. 28	B	iP		27	13			
		eS		32	37			
	MH	eP	16	09	02.5	c	USCGS: 10°S, 71½°W, h = 650 km, 0 = 15-59-06.	
		i			05.4			
		eP		08	58.5	c		
		i		09	12.7	c		
F M	eP		08	48.5	c			
	iP		09	08.7				
Dec. 29	B MH	eP	10	49	34.5	c		
		iP			29.3	c		
	F M R	eP			22.5	d		
		iP			46.4	d		
		eP		48	38.8	c		
Dec. 29	MH	iP	12	59	28.8	c	USCGS: 18½°N, 101°W, 0 = 12-53-55.	
		eP			16.0	d		
Dec. 30	R MH	eP			34.5	d		
		iP	17	48	24.2	c	USCGS: 62½°N, 146°W, h = 100 km, 0 = 17-42-28.	
	i			32.0	c			
	i		49	33.1	d			
	eP		48	35.5	c			
F M R	iP			01.4	d			
Dec. 30	B MH	eP	22	28	39.0	d	USCGS: 28°S, 114½°W, 0 = 22-17-51, Pasadena Magnitude 6½.	
		iP			32.1	d		
	eP			30.4	e			
	ePEZ			44.5	d			
Dec. 30	B MH	eP	22	33	51.5	c	USCGS: 28°S, 114½°W, 0 = 22-23-05, Pasadena Magnitude 6½.	
		eP			42.0	c		
		e			46.0			
		i	34	05.8				



Date 1951	Sta.	Phase	Time (GCT) h. m. s.	Ground Motion	Remarks
	F	eP	33 43.0	c	
	R	ePEZ	34 00.6	d	
		i	02.6		
	C	e	32		
Dec. 31	MH	eP	20 12 52.8	c	USCGS: 13°N, 90½°W, 0 = 20-05-40.
	F	eP	40.5	c	
	M	e(P)	13 08.5	c	
	R	iPEZ	12 56.3	c	
	C	eP	13 36		