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BERKELEY—MOUNT HAMILTON—PALO ALTO
SAN FRANCISCO—FERNDAL—FRESNO
MINERAL—ARCATA—RENO—CORVALLIS—SHASTA

Earthquakes and the Registration of Earthquakes

From October 1, 1954 to December 31, 1954

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Map No.	Date 1954	Origin Time (G.C.T.)	M	Latitude North	Longitude West	Q	Remarks
35	Dec. 17	07-08-58	4.5	37° 43'	122° 08'	b	12 miles southeast of Berkeley. Felt over an area of 4500 square miles. Maximum intensity V in central area.
36	17	15-22-31	2.6	36° 44'	121° 20'	c	Southeast of Hollister. IV at Hollister.
37	19	19-26-35	3.2	38.3°	119.3°	d	California-Nevada border, south of Reno.
38	21	19-56-29	6.5	40° 49'	124° 05'	b	Between Eureka and Arcata. Felt over 50,000 square miles of northern California and Oregon. Maximum intensity VII at Arcata, Eureka, Ferndale.
38	22	19-33-02	3.5	40° 47'	123° 52'	c	Aftershock of #38. IV at Arcata.
39	22	21-12-24	3.7	36.0°	121.0°	d	Southeast of King City. III at King City.
40	23	19-04-59	3.4	36° 47'	121° 26'	c	South of Hollister. IV at Hollister.
41	24	09-10-11	3.5	40° 44'	124° 04'	c	Aftershock of #38. V at Eureka.
42	29	10-49-32	3.3	38° 59'	119° 54'	c	20 miles north of Markleeville. II at Markleeville.
38	30	09-16-13	4.7	40° 47'	123° 52'	b	9 miles southeast of Arcata. VI at Arcata, Eureka, Ferndale.
43	31	16-56-53	4.0	37.6°	118.5°	d	Northern Owens Valley. IV at Bishop.

THE REGISTRATION OF EARTHQUAKES

at

BERKELEY, MOUNT HAMILTON, PALO ALTO, SAN FRANCISCO, FERNDAL, E,

FRESNO, MINERAL, ARCATA, RENO, CORVALLIS, AND SHASTA

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. Communications regarding readings of seismograms should be addressed to Seismographic Station, University of California, Berkeley 4, California. Readings from the Corvallis Station are sent to the University of California by the courtesy of Dr. H. R. Vinyard, Oregon State College.

<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</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° 34.6'	124° 15.7'	15	50	Fe	City of Ferndale - 1933
Fresno	36° 46.1'	119° 47.8'	88.4	290	F	Fresno State College - 1935
Mineral	40° 20.8'	121° 36.1'	1195	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
Corvallis	44° 35.1'	123° 18.2'	133	405	C	Oregon State College - 1950
Shasta	40° 41.7'	122° 23.3'	312.4	1025	SH	Bureau of Reclamation - 1942

*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:

- 2 - Horizontal-component Wood-Anderson torsion.

Reno:

- 3 - Components short-period Sprengnether.

Corvallis:

- 3 - Components short-period Slichter.

Shasta:

- 3 - Components short-period Benioff.

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

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

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

Date	Sta.	Phase	Time (GCT)	Ground motion	Remarks
1954			h. m. s.		
Dec. 21	B	iPZ	19 57 18.4		Berk: 40°47'N 123°52'W O = 19 56 29 M = 6.5 9 miles south east of Arcata.
	M	iPZ	19 56 59.5		
	MH	iPZ	19 57 28.4		
	PA	iPZ	19 57 24.6		
	SH	iPZ	19 56 50.4		
	C	iP	19 57 26		
	A	iP	19 56 31.7		
	F	iPZ	19 57 47.1		
	R	iPZ	19 57 22.7		
Dec. 21	MH	iPZ	22 16 04		USCGS: 22-1/2°N 146°E O = 22 04 05 Marianas Islands region.
	M	eZ	22 15 59		
	SH	iPZ	22 15 57		
Dec. 21	B	ePZ	23 33 28.0		Nevada aftershock. O = 23 37 17
	MH	iPZ	23 33 22.8		
	PA	eS	23 33 48.9		
	F	eZ	23 33 21.5		
	M	eZ	23 33 06.8		
	R	iPZ	23 32 47.5		
Dec. 22	B	ePZ	01 45 27.5		Nevada aftershock. O = 01 44 19
	MH	iPZ	01 45 16.8		
	F	eZ	01 45 14.7		
	M	iPZ	01 45 10.8		
	SH	iPZ	01 45 21.8		
Dec. 22	R	iPZ	01 44 49.4		Nevada aftershock. O = 03 58 38
	B	ePZ	03 59 30.5		
	MH	iPZ	03 59 27.9		
	M	iPZ	03 59 14.1		
	SH	ePZ	03 59 26.8		
Dec. 22	R	iPZ	03 58 57.7		USCGS: 5-1/2°S 154-1/2°E O = 04 18 16 Solomon Islands.
	MH	eZ	04 31 12		
	M	iZ	04 31 18		
Dec. 22	B	iPZ	06 44 48.3		Nevada aftershock. O = 06 43 40
	MH	ePZ	06 44 17.3		
	F	eZ	06 44 33.7		
	M	iPZ	06 44 33.4		
	SH	iPZ	06 44 42.8		
Dec. 22	R	iPZ	06 44 10.0		Nevada aftershock. O = 07 14 12 M = 4.1
	B	ePZ	07 15 13.7		
	MH	iPZ	07 15 08.6		
	PA	eN	07 16 11.7		
	F	eZ	07 15 07.9		
	SH	iPZ	07 15 11.2		
	M	iPZ	07 15 00.7		
	R	iPZ	07 14 38.8		
Dec. 22	B	ePZ	10 40 13.7		Nevada aftershock. O = 10 39 18 M = 4.2
	MH	iPZ	10 40 09.7		
	C	ePE	10 41 07		
	PA	ePN	10 40 23.0		
	F	ePZ	10 40 01.6		
	SH	iPZ	10 40 17.2		

Date	Sta.	Phase	Time (GCT)	Ground motion	Remarks
1954			h. m. s.		
Dec. 22	M	ePZ	10 40 07.1		
(contd)	R	iPZ	10 39 44.0		
Dec. 22	B	ePZ	11 32 27.3		Nevada aftershock.
	MH	iPZ	11 32 18.4		0 = 11 31 18
	F	eZ	11 32 18.8		
	M	iPZ	11 32 09.9		
	R	ePZ	11 31 47.7		
Dec. 22	SH	iPZ	18 33 24.4		Berk: 40°47'N 123°52'W
	A	iNE	18 33 37.0		0 = 18 33 02 M = 3.5
	M	eNE	18 33 37.0		Eureka aftershock.
Dec. 22	B	ePZ	21 12 59.1		Berk: 36.0°N 121.0°W
	F	iPZ	21 12 47		0 = 21 12 24 M = 3.7
					Southeast of King City.
Dec. 23	SH	iPZ	10 41 23		
Dec. 23	M	eZ	16 41 44		USCGS: 38°N 21°E
					0 = 16 27 16
					Near west coast of Greece.
Dec. 23	B	iPZ	19 05 22.0		Berk: 36°47'N 121°26'W
	MH	iPZ	19 05 10.2		0 = 19 04 59 M = 3.4
	PA	ePE	19 05 14.9		South of Hollister, Calif.
	F	eSN	19 05 43.6		
	M	ePZ	19 06 01.0		
Dec. 23	B	iPZ	21 03 21.9		Nevada aftershock.
	MH	iPZ	21 03 10.8		0 = 21 02 12
	C	ePZ	21 03 52		
	F	eZ	21 03 10		
	SH	iPZ	21 03 14.4		
	M	iPZ	21 03 04.0		
	R	iPZ	21 02 41.5		
Dec. 23	B	ePZ	21 20 45.2		Nevada aftershock.
	MH	iPZ	21 20 43.7		0 = 21 19 44
	F	eZ	21 20 43.0		
	M	iPZ	21 20 36.0		
	SH	iPZ	21 20 45.9		
	R	iPZ	21 20 13.9		
Dec. 24	B	iPZ	01 08 25.1		USCGS: 0 = 00 56 17 d = 150 Km.
	MH	iPZ	01 08 27.4		Santa Cruz Islands.
	F	eN	01 08 35		
	M	iPZ	01 08 31.7		
	R	iPZ	01 08 38.2		
Dec. 24	M	eZ	02 46 49.3		USCGS: 0 = 02 34 53
					Bonin Islands.
Dec. 24	SH	ePZ	09 10 34.8		Berk: 40°44'N 124°04'W
	A	iN	09 10 13.6		0 = 09 10 11 M = 3.5
	M	ePZ	09 10 42.7		Eureka aftershock.
	R	eZ	09 11 15.7		
Dec. 24	B	ePZ	18 19 59.7		Nevada aftershock.
	MH	iPZ	18 19 50.8		0 = 18 18 53
	M	iPZ	18 19 45.6		
	R	iPZ	18 19 23.5		

Date	Sta.	Phase	Time (GCT)	Ground motion	Remarks
1954			h. m. s.		
Dec. 27 (contd)	SH	eZ	07 06 07		
Dec. 27	M	eZ	07 32 08		USCGS: 30-1/2°N 141°E 0 = 07 19 16 Japan.
Dec. 27	F	eZ	19 15 15		USCGS: 12°N 146-1/2°E
	M	iZ	19 14 25		0 = 19 03 06
	R	iZ	19 13 59		Marianas Islands.
	SH	iZ	19 15 38		
Dec. 28	B	eZ	01 14 04.9		USCGS: 5°S 152-1/2°E
		eNE	01 24 17		0 = 01 00 37
	MH	ePZ	01 13 43		New Britain region.
	F	eZ	01 13 54		
	M	eZ	01 14 04		
	R	eZ	01 13 50		
	SH	eZ	01 13 21		
Dec. 28	MH	eZ	02 27 15		USCGS: 0 = 02 14 13
	M	iZ	02 27 38		New Britain aftershock.
Dec. 28	MH	iPZ	07 18 23		
	M	eZ	07 18 35		
Dec. 28	MH	eZ	22 25 00		USCGS: 0 = 22 18 20
	M	eZ	22 25 23		100 miles off coast of Chiapas, Mexico.
Dec. 29	MH	ePZ	09 49 24		USCGS: 0 = 09 39 59
	F	eZ	09 49 36		56°N 160-1/2°E
	M	eZ	09 50 07		Kamchatka.
	R	eZ	09 49 20		
	SH	ePZ	09 49 03		
Dec. 29	MH	eZ	10 15 54		
	M	eZ	10 16 04		
	SH	eZ	10 16 04		
Dec. 29	B	iPZ	10 50 23.6		Berk: 38°59'N 119°54'W
	MH	iPZ	10 50 11.8		0 = 10 49 32
	F	ePZ	10 50 11.4		20 miles north of Markleeville.
	R	ePZ	10 49 42.7		
	SH	ePZ	10 50 13.1		
	M	iPZ	10 50 04.1		
Dec. 30	B	iPZ	09 17 01.4		Berk: 40°47'N 123°52'W
	MH	iPZ	09 17 11.5		0 = 09 16 13 M = 4.7
	C	iPZ	09 17 07		9 miles south east of Arcata.
	PA	ePN	09 17 05		
	SH	iPZ	09 16 33.8		
	F	eZ	09 17 36.4		
	Fe	iNE	09 16 20		
	SF	eE	09 17 03.7		
	R	eZ	09 17 09.4		
	M	iPZ	09 16 43.9		
Dec. 30	B	iPZ	10 48 36		USCGS: 15°S 174°W
	MH	iPZ	10 49 38		0 = 10 37 13
	F	eZ	10 48 02		Tonga Islands.
	M	eZ	10 48 48		
	SH	ePZ	10 48 57		