

PASADENA LOCAL SHOCKS

International
Seismological
Centre

No. 1

JANUARY, FEBRUARY AND MARCH 1947

Date	P.S.T.	Lat.	Long.		M	Remarks
<u>January</u>						
6	04:19:13	34 40	117 40	G	2.3	Near Wilsona, Mojave Desert
6	13:05:47	35 51	120 29	C	3.6	South of Parkfield
7	09:28:39	37 10	118 07	C	3.3	Northeast of Tinemaha. Felt at Bigpine and Laws (CGS)
7	10:47:35	34 12	117 07	B	2.9	North of Lake Arrowhead
7	13:33:51	34 12	117 07	B	2.5	North of Lake Arrowhead. Aftershock
7	21:21:26	33 32	116 32	B	2.9	Near Santa Rosa Mt. San Jacinto fault.
7	23:24:13	33 05	116 04	E	2.4	Baileys well, San Jacinto fault
8	18:20:35	33 40	117 58	B	3.3	Inglewood fault. Felt at Huntington Beach
8	18:22:57	33 42	117 48	C	2.1	South of Tustin
9	05:24:44	33 58	117 14	B	3.0	East of Riverside. felt there (CGS)
9	14:28:17	33 53	115 51	C	2.6	Pinto Basin
11	03:57:48	37 36	118 26	C	4.4	North of Bishop; VI at Owens River Gorge, IV at Bigpine, Bishop, Tinemaha, Woodlake (CGS)
12	19:55:46	33 59	116 42	B	2.7	North of Cabazon
13	11:38:31	34 19	119 39	C	2.2	Off Santa Barbara
13	18:47:48	37 14	117 22	C	3.9	Near Gold Mt. East of Tinemaha
13	18:50:11	37 14	117 22	C	3.5	Aftershock
14	12:49:27	34 14	119 39	C	2.7	Off Santa Barbara
14	18:03:20	33 25	116 01	C	2.4	North end of Salton Sea
15	05:29:34	33 44	118 29	C	2.7	Off Point Vicente; felt, Palos Verdes
17	21:30:03	35.7	118.0	C	2.5	Near Walker Pass; felt, Sand Canyon (CGS)
18	04:00.7	34.2	121.5	D	3.3	Off Point Arguello
18	22:48:50	33 49	117 45	B	2.7	East of Olive
19	11:32.0	35.6	120.3	D	3.1	Felt at Paso Robles (CGS)
20	01:33:53	33 41	117 03	B	2.7	Southwest of Hemet
22	04:12:45	33 15	116 10	C	3.2	Borego Valley
29	02:06:56	32.3	115.5?	D	3.7	Laguna Salada
29	05:11:32	33 31	117 59	C	2.6	South of Balboa
30	03:03:35	34 00	116 44	B	3.5	North of Cabazon
31	03:10:21	33 44	116 59	C	2.8	Near Hemet and San Jacinto
31	17:45:17	35 55	119 03	C	2.8	South of Porterville
<u>February</u>						
1	03:47:25	35 20	118 13	C	2.1	Northeast of Tehachapi
1	05:30:48	35 12	118 21	B	3.5	Northeast of Tehachapi. Felt there and at Jawbone aqueduct sta. (CGS)
1	16:05:38	35 12	118 21	C	2.4	Aftershock
1	23:30:42	35 42	117 24	C	2.7	Searles Lake
2	06:01:23	35 42	117 24	C	2.9	Searles Lake? Felt at Sand Canyon (CGS)
3	02:11:49	34 59	118 49	C	3.0	East of Wheeler Ridge
4	17:51:33	34 25	116 27	B	2.5	Northwest of Twenty-nine Palms
4	22:14:23	36 13	120 37	C	5.0	Near Coalinga. VI at Lonoak, V at Coalinga, Idria and King City (CGS)
6	09:20:40	35 40	118 04	B	4.6	Near Walker Pass. VI at Jawbone aqueduct station; felt at Bakersfield and Visalia (CGS)
6	11:17:55	35 40	118 04	C	2.8	Near Walker Pass
6	13:18:13	35 40	118 04	C	3.3	Near Walker Pass; felt at Jawbone (CGS)
6	22:11:49	35 31	118 42	C	2.4	Kern River east of Bakersfield
7	04:19:58	35 28	118 43	C	3.1	Kern River east of Bakersfield. Felt, Kern River powerhouse No. 1 (CGS)
	21:29:31	34 42	118 47	C	2.5	San Andreas fault - Southeast of Gorman

(continued on other side)

Date	P.S.T.	Lat.	Long.	Q	M	Remarks
February (continued)						
9	22:25:24	35 28	118 43	C	3.0	Kern River east of Bakersfield
10	01:24:01	35 30	118 45	C	2.7	East of Bakersfield. Felt, Kern River No. 1 (CGS)
10	01:38:48	34 14	117 04	B	2.8	East of Lake Arrowhead
10	02:14:34	35 30	118 45	C	2.8	East of Bakersfield
10	03:40:52	35 42	117 51	C	2.7	Near Inyokern
10	20:43:08	35 40	118 04	C	2.7	Near Walker Pass
11	05:31:26	35 40	118 04	C	2.8	Near Walker Pass
12	01:07:19	33 45	118 18	C	2.2	Near San Pedro
12	05:32:59	35 27	118 25	C	3.2	East of Bakersfield. Felt; Kern River Powerhouse No. 1 (CGS)
12	06:21:50	34 00	116 40	B	2.9	North of Whitewater
12	09:02:35	34 14	117 04	C	2.7	East of Lake Arrowhead
16	13:56:43	35 40	118 04	C	3.0	Near Walker Pass. Felt at Onyx (CGS)
17	22:46:58	35 18	118 44	C	2.9	Near Caliente
17	23:44:45	37 09	117 23	C	3.4	North of Death Valley
18	01:25:57	35 40	118 04	C	2.8	Near Walker Pass
19	02:04:14	35 40	118 04	C	2.6	Near Walker Pass
20	11:44:58	37.7	119.2	D	3.7	East of Yosemite; felt near Leevinig (CGS)
22	14:18:46	33 16	118 20	C	3.0	Near south point of Santa Catalina Island
22	21:39:39	33 58	116 24	C	2.0	Little San Bernardino Mountains
23	10:02:25	34 46	116 32	C	2.6	Southeast of Newberry
24	17:52:20	33 00	115 52	C	3.0	Near Superstition Mt
24	18:58:34	33 08	115 53	C	3.0	North of Superstition Mt.
25	01:23:15	35 32	119 05	C	2.9	North of Bakersfield
25	03:45.3	36.2	120.5	D	4.2	Near Coalinga. Aftershock of Feb. 4 22
March						
1	02:40:21	35 40	118 04	C	3.7	Felt at Sany Canyon and Weldon; near Walker Pass
1	04:03:26	34 58	116 51	C	2.7	Northeast of Barstow - near Calico
2	03:21:52	34 22	116 25	C	2.7	East of Old Woman Springs
2	06:53:23	33 48	118 42	C	2.8	Santa Monica Bay
2	08:08:59	35 13	117 02	B	3.0	North of Barstow
2	13:32:32	35 13	117 02	B	2.7	North of Barstow
3	20:31:18	33 55	116 25	C	3.2	East of Garnet.
3	20:33:47	33 28	116 55	C	2.7	Near Palomar
4	16:05:53	34 43	119 05	C	2.7	Southwest of Frazier Mountain
5	08:38:50	33 31	117 06	B	2.7	Near Temecula
8	12:59:40	33 50	117 50	B	2.3	Near Olive
9	13:10:44	35 49	117 41	C	4.0	Northeast of Inyokern. IV at Trona, Weldon, and aqueduct stations.
10	04:04:37	33 23	116 53	C	2.4	North of Palomar
10	21:50:03	34 18	116 45	B	3.0	Near Baldwin Lake
11	14:47:40	34 21	118 12	C	2.3	Near Mt. Gleason
12	15:54:10	35.7	118.0	C	3.0	Near Walker Pass. Felt at Weldon (CGS)
13	13:15:08	34 23	117 52	B	1.8	South of Valyermo
14	15:05:32	35 43	118 05	C	3.0	Near Walker Pass. Felt at Weldon (CGS)
14	15:30:38	35 45	118 05	C	2.4	Near Walker Pass
15	18:12:50	34 24	118 57	D	2.3	Near Fillmore
17	21:41:14	34 00	117 14	C	2.6	East of Riverside
18	05:20:43	34 45	118 43	C	2.5	East of Gorman
18	15:04:51	33 50	116 17	C	3.3	Near Thousand Palms
19	22:53:03	33 51	118 11	C	1.8	Near Signal Hill

(continued on next page)

-3-

Date	P.S.T.	Lat.	Long.	Q	M	Remarks
March (Continued)						
20	07:41:17	33 30	116 57	C	2.5	Northwest of Aguanga
21	11:39:42	33 00	115 31	C	3.8	Felt in Imperial Valley (press)
21	11:56:12	32 58	115 30	D	3.1	Aftershock
22	14:38:40	34 03	119 10	D	2.5	Off Hueneme
23	01:40:13	33 26	116 52	C	2.5	North of Palomar
23	08:04:51	35 09	121 18	D	3.7	Off the Coast
24	10:43:01	34 15	116 12	C	2.5	Northwest of Twenty-nine Palms
26	08:27:04	33 57	116 49	B	2.5	Northwest of Banning
27	01:16:46	35.0	121.0	D	4.2	Off the west coast. Felt at Lompoc and Los Alamos
38	22:05			D	2.3	Near Walker Pass; imperfectly recorded. Felt at SandCanyon (CGS)
29	02:36:39	33 46	117 31	B	2.7	Near Glen Ivy
29	11:14:21	33 52	116 15	C	2.8	Near Thousand Palms
30	05:29			D	3.2	Near Walker Pass; imperfectly recorded. Felt at Weldon (CGS)

C.F. Richter
M.E. Denson

June 5, 1947

Manix earthquakes, April-June 1947

The shock on April 10, 1947, at 07:58:04, was the largest in the California region since 1940. Its epicenter is very near 33° 58' N. 116° 32' W. This is near the trace of the northeast-southwest Manix fault described by Buwalda in 1913. Evidence of strike-slip of a few inches was traced along this fault for about two miles. The epicenters of the aftershocks do not appear to follow this fault trace, but extend linearly from the principal epicenter toward the southeast. Those during April, May, and June, of magnitude 3.0 and over, are listed below with their origin times. A few during the first hour are too confused on the seismograms for exact timing.

April 10	07 58 04	6.8	April 10	14 12 06	3.0	April 15	00 13 33	3.0
	08 02 58	5.1		14 27 21	4.2	April 17	16 30 14	3.2
	08 06 --	3.6		14 36 16	3.3	April 18	18 29 08	4.7
	08 08 --	3.7		14 53 05	3.3		21 18 38	3.9
	08 09 --	3.9		15 06 11	3.3	April 20	09 42 00	3.4
	08 10 --	3.0		18 07 10	4.1		19 07 44	3.5
	08 12 --	3.6		18 41 42	3.3	April 21	11 15 28	4.4
	08 13 --	3.5		18 47 53	3.3		11 22 12	3.7
	08 15 --	3.8		19 15 09	3.0		14 02 05	3.7
	08 17 --	3.2		19 32 09	4.3	April 23	02 02 37	3.1
	08 19 --	3.3		20 50 58	3.7		05 08 31	3.1
	08 23 --	3.0		23 24 37	3.0		09 15 30	3.1
	08 43 57	3.0		23 47 08	5.0	April 26	12 22 45	3.2
	08 49 24	3.0	April 11	00 54 29	3.2	April 27	03 07 26	3.9
	08 51 01	3.7		02 27 40	3.2	April 29	03 08 29	3.0
	09 08 03	3.9		02 44 17	3.2	April 30	20 43 49	3.0
	09 12 16	4.4		03 08 34	3.9			
	09 13 23	4.3		03 40 04	3.4	May 3	18 50 37	4.0
	09 18 20	5.0		04 30 40	3.5	May 6	21 04 23	3.6
	09 29 26	3.6		05 52 58	3.3		22 21 07	3.1
	10 22 31	3.1		06 42 22	3.3	May 15	09 18 12	3.0
	10 32 07	3.0		07 43 17	3.2	May 18	04 38 06	3.2
	10 51 19	3.2		10 18 09	3.3	May 21	20 39 46	4.0
	10 51 24	3.2		10 43 48	4.1	May 25	22 13 35	3.5
	11 11 56	3.5		14 32 02	3.2	May 26	11 54 01	3.4
	11 22 38	3.2	April 12	00 02 55	3.4			
	11 25 04	3.0		04 56 42	3.2	June 4	13 31 08	3.2
	11 34 05	3.1		10 04 33	4.0	June 19	11 02 45	3.7
	11 49 03	3.1		12 01 13	3.1			
	12 08 10	3.2		13 44 20	3.2			
	12 50 54	3.2		13 50 57	3.6			
	13 01 58	3.0		14 31 40	3.0			
	13 20 00	3.0		15 49 50	4.2			
	13 24 13	3.3		20 00 10	3.9			
	13 30 15	3.1		21 17 41	3.0			
	13 46 37	3.0		21 38 02	3.6			
			April 13	18 33 49	3.0			
			April 14	01 12 28	3.7			
				23 50 50	3.5			

C. F. Richter
M. E. Denson, Jr.

August 19, 1947

PASADENA LOCAL SHOCKS

NO. 2

APRIL, MAY AND JUNE 1947

Date	P.S.T.	Lat.	Long.	Q	M	Remarks
<u>April</u>						
2	07:15:39	32 35	115 32	C	4.2	Near Mexicali, felt at El Centro, Calexico etc.
6	00:10:59	31 49	115 27	C	4.9	Lower California
6	04:15:02	33 48	115 58	C	2.9	Little San Bernardino Mts.
6	23:35:14	34 01	116 40	B	2.5	North of Whitewater
7	13:01:34	32.3	115.1	D	3.8	Lower California
9	21:56:10	34 19	116 43	C	2.5	Northeast of Baldwin Lake
9	22:26:43	32 53	116 17	C	3.2	Southeast of Vallecito
10	07:58:04	34 58	116 32	A	6.8	Manix fault, south of Manix and Field, Mojave Desert. Many aftershocks (see list on separate sheet). Main shock felt widely in southern California. Damage to houses within a few miles of the epicenter.
11	03:53:07	34 07	116 41	B	3.5	Northwest of Morongo Valley
14	18:35:23	32 51	115 49	C	3.7	Southwest of Brawley
20	22:08:18	33 12	116 08	C	3.4	East of Borego Springs
26	08:04:15	33 53	118 35	C	2.7	Santa Monica Bay
26	11:27:42	33 08	118 29	C	3.3	South of Catalina Island
28	23:44:49	34 20	119 33	C	3.2	Off Carpinteria
<u>May</u>						
1	18:25:32	33 51	117 57	C	2.4	Near Anaheim
3	14:39:21	33 53	118 00	B	2.6	Near Buena Park
3	15:35:22	33 53	118 00	C	2.1	Near Buena Park
6	00:45:51	34 14	116 20	B	3.3	Northwest of Twenty-nine Palms
7	04:56:36	35 45	118 02	B	3.6	Near Walker Pass
9	13:43:25	34 51	117 23	C	2.4	South of Riverside
10	21:06:20	34 14	116 20	B	4.9	Northwest of Twenty-nine Palms. Felt strongly there. (Press)
14	13:51:44	34 35	117 00	C	2.4	Near Lucerne Valley
15	12:42:00	34 30	118 32	C	2.6	East of Castaic
17	16:25:31	32.0	115.2	D	4.3	East of Laguna Salada
18	21:28:12	33 23	117 02	C	3.6	Near Pala. Felt at Poway, Lilac, Escondido
19	18:54:52	33 17	116 56	B	3.1	Near Palomar
20	21:17:15	34 09	117 31	B	3.1	Near Etiwanda
21	17:52:54	33 46	118 29	C	2.6	Off Point Vicente
23	03:58:15	33 07	116 25	C	3.5	East of Julian
25	16:22:23	35 47	118 02	C	3.0	Near Walker Pass
26	09:06:52	35 45	118 02	C	2.9	Near Walker Pass
27	13:00				5	Felt, Humboldt County
28	14:41:07	34 00	117 30	B	2.4	West of Riverside
30	09:31:19	33 21	116 52	B	2.6	East of Palomar
31	20:51:46	34 00	117 30	C	2.4	Near Mira Loma

-2-

Date	P.S.T.	Lat.	Long.	Q	M _a	Remarks
June						
1	23:20:06	34 00	116 28	C	2.5	East of Morongo Valley
3	08:19:40	34 02	116 31	B	3.3	Near Morongo Valley
4	14:33:33	34 14	117 29	C	1.8	Cajon Pass
6	22:41:44	32 50	116 00	C	2.8	Near Carrizo
7	06:39:03	34 05	116 30	C	2.6	Near Morongo Valley
9	07:29:18	33 23	118 33	C	2.5	Near Catalina Island
16	07:59:37	33 57	118 21	B	2.8	Near Inglewood. Felt in Los Angeles Area
17	15:32:43	33 52	116 31	C	3.8	Near Garnet
21	00:09:37	32.0	115.5	D	4.8	Near Laguna Salada
21	11:37:44	33 58	116 45	C	2.8	North of Cabazon
22	15:29				5	Felt at San Francisco etc.; Santa Cruz: broken windows
23	08:05:24	34 07	117 17	C	3.8	Cajon Pass
25	04:30:39	33 59	117 20	B	3.2	Very near Riverside
25	10:39:53	34 15	119 30	C	3.1	Felt slightly, near Carpinteria (telephone)
25	10:41:21	34 15	119 30	C	3.6	Felt slightly near Carpinteria (telephone)
25	10:48:26	34 15	119 30	C	2.5	
25	12:55:16	34 15	119 30	C	3.2	
25	12:55:54	34 15	119 30	C	3.8	Felt sharply near Carpinteria (telephone)
25	17:57:07	34 10	117 58	B	1.6	Near Monrovia
30	15:15:23	33 59	118 34	C	2.4	Santa Monica Bay
30	20:08:47	33 21	116 51	B	2.4	Near Palomar

Dupl



PASADENA LOCAL SHOCKS

JULY, AUGUST AND SEPTEMBER 1947

Date	P. S. T.	Lat.	Long.	Q	M	Remarks
<u>July</u>						
2	03:30:51	33 57	117 18	B	2.8	Near Riverside
4	11:23:22	34 58	116 32	C	2.8	Near Manix; aftershock of April 10
9	23:16:28	34 00	118 19	B	2.8	Near Inglewood
10	08:01:40	34 58	116 32	C	2.9	Aftershock, Manix
12	18:38:01	34 58	116 32	C	2.9	Aftershock, Manix
12	20:02:34	34 58	116 32	C	3.1	Aftershock, Manix
13	21:40:06	35 55	119 55	C	4.0	Near Kettleman Hills
14	22 :14:44	34 58	116 32	C	3.3	Aftershock, Manix
14	23:50:18	34 58	116 32	C	2.9	Aftershock, Manix
15	23:37:02	34 58	116 32	C	2.8	Aftershock, Manix
16	00:01:22	36 00	118 05	C	2.7	Near Haiwee
17	12:32:24	34 57	119 20	C	2.8	Near Pattiway
20	01:33:45	34 58	116 32	C	2.9	Aftershock, Manix
20	01:39:31	32.2	117.6	D	3.3	Near the Coronado Islands
21	03:23:12	34 58	116 32	C	2.9	Aftershock, Manix
21	12:04:44	34 58	116 32	C	2.8	Aftershock, Manix
23	01:41:00	33 55	119 00	C	3.6	Off Point Dume
23	22:12:00	34 58	116 32	C	3.0	Aftershock, Manix
24	08:54:02	33.4	119.4	D	4.3	West of Santa Barbara Island
24	10:30:21	34 01	116 30	B	3.5	Foreshock of 14h
24	12:00:03	34 01	116 30	B	3.0	Foreshock of 14h
24	14:10:46	34 01	116 30	A	5.5	Near Morongo Valley. Numerous after-shocks. Listed separately
25	17:18:11	34 58	116 32	C	3.4	Aftershock, Manix
26	20:17:15	34 07	118 48	C	2.8	North of Point Dume
28	04:56:39	33 28	116 35	C	3.0	Southeast of Anza
29	20:50:18	34 00	117 20	C	2.7	Near Riverside
30	00:24:40	34 01	117 25	C	2.5	Near Riverside
<u>August</u>						
1	07:42:30	35 00	117 00	B	4.0	North of Barstow
1	14:00:03	34 01	117 25	C	2.5	Near Riverside
2	23:11:02	34 15	118 40	C	2.5	Near Santa Susana
4	04:05:59	33 28	118 05	C	2.5	San Pedro Channel
5	22:49:58	33 20	116 30	C	2.6	West of Clark Lake
9	07:12:00	33 53	116 44	B	2.9	Near Cabazon
9	23:39:23	33 53	116 44	B	3.1	Near Cabazon
10	13:17:15	34 55	116 47	C	2.8	Near Yermo
10	13:58			E	5.0	Strong at Hollister
10	21:15:45	33 27	116 35	B	2.9	Near Santa Rosa Mountain
13	12:08:59	35 00	117 00	B	4.3	North of Barstow
13	12:23:03	35 00	117 00	C	2.8	Aftershock
15	23:53:18	35 40	116 23	C	2.7	Amargosa River
18	11:56:03	33 48	117 53	B	2.8	Near Orange
19	06:49:32	35 00	117 00	C	2.5	North of Barstow
21	01:46:33	34 37	116 52	B	2.8	North of Lucerne Valley
22	02:07:43	34 58	116 32	C	3.1	Near Manix

(continued on next page)

PASADENA LOCAL SHOCKS

(continued)

Date	P. S. T.	Lat.	Long.	Q	M	Remarks
<u>August</u>						
22	12:54:18	34 55	116 30	C	3.9	Near Manix
22	14:30:33	33 57	118 25	C	2.8	Santa Monica Bay
22	20:09:05	35 35	118 05	C	2.8	South of Walker Pass
26	23:48:35	33 55	116 25	C	3.9	Near Manix
27	02:54:42	34 58	116 32	C	3.4	Near Manix
28	06:05:16	34 58	116 32	C	2.8	Near Manix
27	23:59:38	33 37	116 57	C	3.2	Near Sage
28	13:51:37	33 58	116 32	D	2.8	Near Manix
29	11:09:49	34 15	116 41	C	3.4	East of Baldwin Lake
30	02:48:30	33 59	117 30	B	2.7	West of Riverside
30	17:58:39	34 55	116 33	C	3.1	Near Manix
30	18:20:16	32 45	116 15	C	3.9	North of Jacumba
31	04:39:32	35 03	116 25	C	3.3	Near Afton
31	17:46:15	35 40	118 05	C	3.1	Near Walker Pass
31	18:26:14	34 20	116 39	C	3.4	South of Old Woman Springs
<u>September</u>						
3	01:00:57	34 01	116 30	C	2.5	Aftershock of July 24, near Morongo Valley
3	02:07:05	34 15	116 41	C	2.9	East of Baldwin Lake
4	11:17:29	34 15	116 41	C	3.1	East of Baldwin Lake
6	08:48:45	33 25	117 20	B	2.9	Near Fallbrook
7	00:25:55	33 48	117 08	B	2.9	Near Lakeview
9	18:56:06	34 15	116 41	C	2.9	East of Baldwin Lake
9	19:08:33	34 15	116 41	C	2.9	East of Baldwin Lake
11	13:19:37	33 52	118 01	B	2.8	Near Buena Park
12	12:16:20	34 01	116 30	C	2.8	Near Morongo Valley
13	13:38:00	34 03	117 25	B	2.5	Near Riverside
14	16:15:25	34 58	116 32	C	3.1	Near Manix
16	11:37:26	34 00	117 25	B	2.5	Near Riverside
17	04:57:10	34 01	116 30	C	2.6	Near Morongo Valley
17	07:01:52	34 58	116 32	C	2.8	Near Manix
17	09:40:51	33 40	118 10	C	2.7	Off San Pedro
18	07:46:57	34 55	119 05	C	2.7	West of Tejon Pass
20	06:56:46	35 03	116 51	B	3.5	Northeast of Barstow
20	07:00:32	35 03	116 51	C	3.0	Northeast of Barstow
22	16:23:21	35 03	116 27	C	2.9	Near Manix
22	21:33:08	34 01	116 30	B	2.8	Near Morongo Valley
22	22:20:40	37 09	116 00		3.5	Nevada
23	05:55				5.6	Felt at Eureka, California
28	06:32:40	34 58	116 30	C	3.2	Near Manix
28	09:01:30	32 55	116 05	C	3.3	Near Carrizo
29	05:01:	33 54	116 20	C	2.9	Near thousand Palms
30	05 :06:43	32 55	115 15	C	3.3	Northeast of Holtville
30	05:32:57	32 55	115 15	C	3.5	Northeast of Holtville. Felt at Brawley

C. F. Richter

October 22, 1947

Morongo Valley earthquakes of July 24 and following, 1947

These shocks originated near $34^{\circ} 01' N.$ $116^{\circ} 30' W.$ Two immediate foreshocks have been identified. The principal earthquake, at 14:10 July 24, was felt widely in Southern California, including the Los Angeles metropolitan area. Other aftershocks, such as those at 14:54, 16:46, and 22:20 on July 24, and 18:49 July 25, were also felt to distances of over 100 km.

Of the numerous small aftershocks during July and August, those selected for measurement recorded with trace amplitude exceeding 2.5 mm. on the seismograms of the short-period vertical-component instrument at Pasadena. This selects shocks of magnitude about 2.8 and over. The complete list of origin times and magnitudes follows:

	P. S. T.	M		P. S. T.	M
July 24	10 31 20	3.5	July 26	04 01 10	2.7
	12 00 03	3.0		12 37 46	3.0
	14 10 46	5.5		15 04 25	4.5
	14 45 00	3.0		15 10 57	3.7
	14 53 41	4.3	July 27	15 13 51	4.1
	14 54 26	4.9		15 20 42	3.6
	15 00 20	3.0		16 15 50	3.1
	15 03 39	2.8		02 31 53	3.6
	15 07 58	2.7	July 28	03 53 38	3.7
	15 28 33	2.7		10 47 32	2.9
	16 46 31	5.0		22 38 53	2.8
	16 55 39	2.8		07 56 02	2.8
	17 05 22	3.0	July 29	10 33 32	3.4
	17 11 15	2.8		11 59 29	3.0
	17 56 47	4.6		08 34 59	3.1
	19 06 54	3.7		08 36 15	4.2
	19 09 34	3.1	July 30	08 57 00	3.0
	19 12 01	3.8		19 58 12	3.1
	19 21 51	3.9		21 22 17	4.2
	19 28 23	3.9		17 59 49	3.5
	19 30 18	2.8	July 31	16 29 50	3.4
	20 02 59	2.7		18 46 36	2.8
	21 17 52	4.3		06 20 50	3.2
	22 19 49	5.2		09 01 37	4.1
	22 35 44	3.0	Aug. 2	17 23 05	3.0
	22 37 18	3.0		19 22 40	3.0
	23 22 50	3.0		13 24 42	3.0
	23 57 30	4.2		05 29 31	2.7
July 25	00 19 40	3.0	Aug. 6	05 29 47	2.8
	02 17 04	3.0		00 51 03	2.9
	08 14 53	4.5		20 51 05	3.5
	08 52 12	3.9		22 47 45	4.0
	17 24 15	4.2	Aug. 9	01 28 10	3.0
	18 49 41	5.1		17 15 40	3.0
	18 52 42	3.8		18 06 22	3.1
	20 48 19	3.4		18 13 09	2.5
	21 01 09	3.3	Aug. 12	13 05 19	3.1
	22 44 46	3.0			

PASADENA LOCAL SHOCKS

OCTOBER, NOVEMBER AND DECEMBER 1947



Date	P. S. T.	Lat.	Long.	Q	M	Remarks
<u>October</u>						
2	14:20:00	34 58	116 46	C	2.9	North of Yermo
5	21:10:47	34 58	116 46	C	3.1	North of Yermo
6	06:18:37	33 47	116 50	B	2.6	East of San Jacinto
7	20:52:58	35 22	117 44	C	2.8	West of Randsburg
8	06:47:57	34 58	116 32	C	2.9	Near Manix
9	00:36:18	36.7	116.0	D	3.6	East of Beatty, Nevada
10	11:43:57	35 10	117 02	D	3.0	North of Barstow
11	20:51:36	35 10	117 02	C	2.9	North of Barstow
12	01:36:29	33 59	117 17	B	2.8	East of Riverside
12	23:25:07	33 51	118 43	C	3.7	Santa Monica Bay
13	06:06:48	33 56	116 42	B	3.4	Near Whitewater
14	15:04:24	33 07	118 21	B	2.7	Off San Clemente Island
15	02:57:09	34 11	117 10	B	2.5	North of Highlands
15	18:26:54	34 03	116 23	C	2.9	East of Morongo Valley
16	17:33:16	34 58	116 32	C	2.7	Near Manix
19	13:20:16	35 33	118 38	C	2.8	Near Democrat Springs, Kern River
20	16:16:22	34 58	116 46	C	2.9	North of Yermo
20	18:15:47	34 08	116 20	C	3.1	East of Morongo Valley
24	11:14:48	33 55	118 28	C	3.0	West of El Segundo
25	09:53:03	34 58	116 38	C	2.9	West of Manix
25	11:20:36	34 27	117 00	B	3.2	Lucerne Valley
26	10:35:31	35 01	117 06	C	2.8	Northwest of Barstow
26	11:16:41	35 01	117 06	C	2.8	Northwest of Barstow
26	17:50:11	32.8	115.3	D	3.4	East of El Centro
27	21:14:58	34 53	118 55	C	2.9	Near Tejon Pass
28	15:59:37	35 58	117 40	B	3.2	Argus Mountains
29	18:52:36	35 49	118 11	B	3.0	North of Onyx
<u>November</u>						
1	17 02 01	34 56	116 31	C	3.3	South of Manix
1	17:54:44	33 51	118 36	C	2.6	Santa Monica Bay
1	23 00.3	40	127		5.3	USCGS epicenter
3	05:50:27	33 01	116 28	C	2.7	Northwest of Vallecito
3	07:05:17	35 55	117 32	B	3.3	Northwest of Trona
3	17:49:24	33 50	117 51	B	2.1	Near Olive
4	15:28:12	35 44	118 14	B	3.3	Near Weldon
5	01:36:13	34 53	116 32		2.9	South of Manix
6	01:39:03	34 08	116 20	B	3.1	West of Twenty-nine Palms
6	07:25:48	34 08	116 21	D	2.8	West of Twenty-nine Palms
6	11:36:21	33 54	116 27	B	2.4	Southwest of Riverside
6	17:36:14	34 07	116 23	C	2.9	Near Morongo Valley
7	19:02:00	33 51	117 17	B	2.1	North of Perris
8	22:39:25	34 00	117 42	B	2.5	Near Ontario
9	04:30:44	34 58	116 32	C	2.8	Near Manix
9	18:22:55	34 24	116 25	B	4.5	East of Old Woman Springs
9	18:30:27	34 24	116 25	C	2.8	East of Old Woman Springs
10	05:01:46	34 01	116 30	C	2.7	East of Morongo Valley
11	08:44:14	33 38	118 33	C	2.7	Off San Pedro
11	10:06:53	33 38	118 33	C	2.3	Off San Pedro
11	13:50:22	34 01	116 30	C	2.7	East of Morongo Valley
11	17:39.8	29	114		5 1/2	USCGS epicenter
11	18:44.0	29	114		5 1/2	USCGS

(continued on next page)

PASADENA LOCAL SHOCKS

(continued)



Date	P. S. T.	Lat.	Lon.	Q	M	Remarks
<u>November</u>						
14	09:12:34	34 01	116 30	C	3.2	East of Morongo Valley
14	09:22:57	34 01	116 30	C	3.1	East of Morongo Valley
16	01:36:07	34 05	117 58	C	1.8	Near Monrovia
16	17:41:19	34 55	116 45	C	2.8	East of Yermo
17	06:07:08	34 58	116 30	B	4.3	Near Manix
18	13:59:05	33 16	119 27	B	5.0	North of San Nicolas Island. Roltin Los Angeles area.
18	14:32:24	33 16	119 27	C	3.3	Aftershock
18	16:19:58	33 09	115 59	C	3.0	West of Westmorland
20	00:45:36	35 48	117 00	C	3.2	Calico Mountains
22	06:13:41	33 23	117 00	B	2.7	West of Palomar
22	11:23:19	34 07	117 18	B	2.8	Near San Bernardino
23	02:51:32	34 04	116 45	C	3.1	West of Morongo Valley
25	09:09:14	34 01	116 38	B	3.0	Near Morongo Valley
25	10:09:00	40.2	118.2	D	4.5	Felt, Reno and vicinity; near Lovelock, Nevada
25	11:42:29	34 07	117 48	C	1.8	Near San Dimas
25	14:30:31	33 10	118 22	B	2.7	South of Santa Catalina Island
26	13:11:35	35 36	118 24	C	2.8	East of Bodfish? Ambiguous.
26	23:52:24	33 58	116 29	C	3.5	Near Seven Palms
28	02:44:52	35 07	116 38	C	3.1	North of Manix
28	02:56:38	35 07	116 38	C	3.3	North of Manix
30	22:58:40	30.8	115.6	D	4.2	Baja, California
<u>December</u>						
1	11:25:22	36 06	117 04	B	3.1	Near Haiwee
4	21:22:53	33 31	116 54	B	2.9	Northwest of Aguanga
5	08:07:19	34 56	116 31	C	3.2	South of Manix
6	01:43:52	33 55	118 36	C	2.7	Santa Monica Bay
6	17:40:33	34 30	117 30	C	2.6	West of Victorville
6	20:43:34	35 10	116 32	C	3.2	North of Manix
7	14:59:32	35 12	116 35	C	3.2	North of Manix
8	18:36:58	34 58	116 32	C	2.8	Near Manix
11	20:53:03	34 35	118 55	C	2.7	North of Piru
14	05:23:59	33 50	118 10	C	2.7	Near Long Beach. Possibly not seismic. Seismograms peculiar
16	01:02:49	34 00	118 19	B	2.7	Felt in southwestern Los Angeles
16	01:21:03	36.2	120.7	D	3.5	West of Coalinga
16	03:26.7	30	114		5.2	Epicenter by USCGS
16	06:18:27	35 12	116 35	C	2.6	North of Manix
16	15:08:43	35 45	117 30	D	2.7	Near Trona
17	00:34:25	34 58	116 32	D	2.7	Near Manix
17	06:36:10	35 02	116 49	C	2.5	West of Manix
18	08:26:37	34 06	117 02	B	2.5	East of Redlands
18	09:34:05	34 02	118 17	B	1.8	Southwest Los Angeles
18	11:50:06	36 07	120 54	C	3.6	Near San Lucas, also 16:42:50
18	18:36:41	36 18	116 38	C	3.5	Upper Tule River, Sierra Nevada
19	10:23:52	35 00	116 35	C	3.4	North of Manix
21	12:42:37	35 00	116 35	C	3.4	North of Manix
21	13:29:16	35 00	116 35	C	2.8	North of Manix
23	23:36:55	36 39	120 40	C	3.5	East of Panoche
26	02:14:45	34 25	118 29	C	2.4	Near Saugus
26	02:29:22	33 54	115 48	C	3.1	Pinto Basin
27	14:15:04	34 09	117 23	B	2.4	Near San Bernardino
30	11:19:14	34 58	116 56	B	4.0	Near Barstow
30	11:28:59	34 58	116 56	C	3.2	Near Barstow
30	12:48:11	34 05	117 30	B	2.4	Near Etiwanda
31	15:44:40	34 38	116 55	B	3.0	North of Lucerne Valley
31	22:06:36	35 42	117 43	C	2.6	East of Inyokern
31	23:30:14	34 50	116 31	C	2.6	Near Troy (California)