



SEISMOLOGICAL LABORATORY

California Institute of Technology
Pasadena, California

BULLETIN ON LOCAL SHOCKS

July - September, 1961

Date	G.C.T.	Lat.	N.	Long.	W.	Q.	M.	Index	Remarks
1961 July 4	04:56:04	40.9		118.5				5.5✓	Western Nevada. Epicenter and magnitude by Berkeley. Felt at Winnemucca, etc. V at Imlay, Mill City, Tungsten (CGS).
4	11:09:11	40.9		118.5				5.2✓	Western Nevada. Aftershock. Magnitude by Berkeley. Felt at Winnemucca, Lovelock etc.
5	22:53:45	34	13	118	34	B	2.4	H5	Near Canoga Park.
5	23:46:10	33	02	116	14	B	3.4	N3	South of Ocotillo.
10	23:25:46	35	14	118	35	B	3.9	H7	South of Caliente. IV at Kern Canyon powerhouse (CGS).
11	01:42:21	35	14	118	35	B	3.3	H7	South of Caliente. Aftershock of above.
12	20:31:25	33	04	116	34	B	3.4	M3	South of Banner.
14	20:48:23	35	13	118	34	B	3.0	H7	South of Caliente. IV at Keene (CGS).
19	15:30:30	34	21	117	14	B	3.0	L5	South of Hesperia.
20	01:42:04	35	03	119	05	B	3.4	G7	Near Wheeler Ridge.
21	22:39:03	34	11	118	39	C	2.9	H5	West of Woodland Hills.
28	13:12:30	35	44	118	00	B	3.3	J8	Walker Pass.
28	22:19:40	34	39	117	06	C	2.7	L6	Southwest of Daggett.
28	22:21:06	35	03	117	47	C	2.6	K7	Southwest of Boron.
29	02:58:15	34	00	118	27	C	2.7	J5	Near Santa Monica. Felt in Inglewood, Lennox, and Hawthorne (press).
31	00:07:07	35	47	120	19	C	4.5	E8	Near Shandon. Felt principally in San Luis Obispo and Monterey Counties. V at Atascadero, Cholame, Creston, Parkfield, San Ardo, San Luis Obispo, Templeton (CGS).
31	21:28:58	31	39	115	47	C	4.0	P0	Baja California.

Date	G.C.T.	Lat.	N.	Long. W.	Q.	M.	Index	Remarks
1961								
August								
4	08:03:13	33	24	116	28	B	2.9	N3 North of Warner Springs
6	13:57:14	35	58	116	54	C	3.3	M8 Near Warm Springs (Death Valley).
8	11:44:36	35	17	117	37	C	3.2	K7 South of Johannesburg.
9	18:09:06	35	02	118	22	B	2.6	J7 South of Tehachapi (near Garlock Fault).
12	07:12:23	35	10	116	36	C	3.2	M7 South of Camp Irwin.
12	16:34:19	36	13	118	22	B	3.1	J9 East of Camp Nelson (Kern Fault?).
13	04:21:14	35	20	118	33	B	3.2	H7 South of Caliente.
13	13:30:45	33	09	116	22	B	2.9	N3 South of Borrego Springs.
17	17:14:40	36	46	120	50	D	3.6	D10 Near Dos Palos.
20	04:28:43	32	02	116	25	C	4.6	N1 Northwest of Ensenada.
20	05:00:22	33	28	116	31	B	2.8	M3 South of Anza.
20	12:52:46	32	00	116	22	C	4.0	N0 Northwest of Ensenada.
22	01:30:45	33	57	117	35	B	2.8	K4 South of Ontario. Felt at Riverside (Riverside Press).
22	22:39:08	34	30	118	16	B	2.5	J5 Southwest of Palmdale.
22	23:19:34	33	03	116	16	B	4.4	N3 Northeast of Vallecito. Felt? (San Diego).
22	23:31:48	33	01	116	12	B	3.3	N3 Northeast of Vallecito.
23	00:22:10	33	02	116	12	B	3.9	N3 Northeast of Vallecito.
23	00:25:08	33	04	116	15	B	3.7	N3 Northeast of Vallecito.
23	01:00:48	33	03	116	14	B	4.7	N3 Northeast of Vallecito. Felt, San Diego and Imperial Valley (press) V at Descanso and Pine Valley; IV at Alpine, Boulevard, Escondido, La Mesa, Jacumba, Palomar, San Diego, Santa Ysabel (CGS).
23	08:44:02	33	00	116	10	C	2.9	N3 Near Vallecito.
23	12:50:23	33	01	116	15	C	3.1	N3 Northeast of Vallecito.
26	21:47:46	33	17	116	48	B	3.3	M3 Near Palomar.
26	23:50:04	32	59	116	14	C	3.0	N2 Northeast of Vallecito.
31	04:31:21	35	19	118	32	B	3.3	H7 South of Caliente.

Date	G.C.T.	Lat	N.	Long. W.	Q.	M.	Index	Remarks
1961 September								
✓ 1	16:51:49	35	12	118	32	B	4.0	H7 Northwest of Tehachapi. V at Tehachapi and Keene; IV at Caliente and Monolith (CGS).
2	10:44:29	35	13	118	29	B	2.9	J7 Northwest of Tehachapi.
3	14:21:03	33	06	116	17	C	3.2	N3 Northeast of Vallecito.
4	20:38:50	34	07	117	28	B	2.6	L5 Near Etiwanda.
5	08:41:44	32	48	115	29	C	3.6	Q2 East of El Centro.
7	20:50:43	35	02	119	03	B	3.3	G7 Near Wheeler Ridge.
✓ 12	19:18:46	32	34	115	27	C	4.8	Q2 South of Mexicali. Felt by residents of El Centro and San Diego (press). Felt, Calexico and Holtville. <u>Gey-sers 30 miles south of Mexicali (BSSA)</u> . V at El Centro, Heber, Yuma; IV at Calexico, Imperial, Holtville, and in Arizona at San Luis, Somerton, Tacna (CGS).
✓ 12	19:20:38	32	34	115	27	C	4.1	Q2 South of Mexicali. Lost in preceding shock.
12	19:38:47	32	34	115	27	C	3.0	Q2 South of Mexicali.
12	20:29:33	32	34	115	27	C	2.8	Q2 South of Mexicali.
13	04:33:12	32	34	115	27	C	3.0	Q2 South of Mexicali.
13	11:26:21	32	34	115	27	C	3.2	Q2 South of Mexicali.
14	15:12:20	34	19	119	38	C	2.7	F5 South of Santa Barbara.
14	15:14:38	34	19	119	38	C	2.8	F5 South of Santa Barbara.
14	15:59:06	33	36	116	47	B	2.8	M4 North of Anza.
15	22:31:13	34	22	118	25	C	2.0	J5 East of Newhall.
16	17:02:05	32	21	115	45	D	3.9	P1 Northwest of Laguna Salada.
✓ 16	19:49:40	33	02	116	14	C	4.4	N3 Northeast of Vallecito. Felt in Anza-Borrego Desert State Park; III at San Diego (CGS).
18	19:15:13	33	03	116	16	C	3.1	N3 Northeast of Vallecito.
✓ 20	05:04:10	33	02	116	14	C	4.0	N3 Northeast of Vallecito. Reported felt in Descanso.
✓ 20	10:36:03	32	02	116	19	C	4.2	N1 Northeast of Ensenada.

Date	G.C.T.	Lat.	N.	Long.	W.	Q.	M.	Index	Remarks
1961									
September (continued)									
21	11:02:37	33	58	116	48	B	2.7	M4	North of Banning.
23	06:47:45	33	14	116	14	B	3.6	N3	Northeast of Vallecito.
23	08:06:19	36	35	121	35	D	3.6	B10	Near Salinas.
26	21:46:20	37	40	114	20	D	4.3	S12	South of Pioche (Nevada)
28	01:15:42	33	14	119	07	C	3.1	G3	East of San Nicolas Island.
✓ 28	08:28:29	35	47	117	25	B	3.9	L8	Near Trona. Felt at China Lake by Pierre St. Amand.
29	09:32:53	33	43	116	51	C	2.7	M4	East of Hemet.
30	08:43:03	32	25	115	35	D	3.4	P1	East of Laguna Salada.
30	17:46:41	34	00	117	18	B	2.7	L5	South of Colton.

August 22, 1962

C. F. Richter
John K. Gardner

LOCAL SHOCKS
August - September 1961
Supplementary List

Beginning on 22 August 1961 there was a long series of earthquakes northeast of Vallecito near 33 02 N 116 14 W. The following list is complete for shocks of magnitude greater than 3.0, but not complete for the lesser magnitudes.

Location of these shocks was hampered by the failure of Palomar during September. Apparently there are three different epicenters quite close together; however, separation of the earthquakes into these groups was not attempted.

<u>Date</u>	<u>Origin Time</u>	<u>M</u>
August 22	Dup 23:19:34	4.4
	Dup 23:31:48	3.3
23	Dup 00:22:10	3.9
	Dup 00:25:08	3.7
	Dup 01:00:48	4.7
	01:29:37	2.8
	Dup 08:44:02	2.9
	Dup 12:50:23	3.1
26	Dup 23:50:04	3.0
28	18:22:19	2.8
September 3	14:21:03	3.2
16	05:14:23	3.2
	05:51:38	3.6
	12:00:49	2.8
	12:51:05	2.8
	15:23:35	2.9
	Dup 19:49:40	4.4
	20:09:11	3.3
17	00:52:16	3.1
	01:53:29	3.2
	02:13:24	3.3
	03:36:36	2.9
	04:03:16	3.2
18	Dup 19:15:14	3.1
	20:39:15	2.9
19	06:10:13	3.4
	13:18:23	2.7
	20:54:35	3.4
20	Dup 05:04:10	4.0
21	18:07:53	3.1
	19:00:16	3.2

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 Box 87



SEISMOLOGICAL LABORATORY
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BULLETIN ON LOCAL SHOCKS

Addenda and corrections to previous report
 (Data mainly from U.S. Coast and Geodetic Survey)

October - December 1961

Date	G.C.T.	Lat. N.	Long. W.	Q.	M.	Index	Remarks
1961 October							
4	02:21:32	33	51	117	45		Reported felt throughout Orange County, and at Long Beach, Covina, Corona, Pomona and Riverside.
19	05:09:44	35	50	117	46	Maximum VII	about 5 miles east and 2 miles north of Brown (heavy machinery etc. shifted). V in the southern Sierra Nevada and the Tehachapi Mountains, from Springville south to Tehachapi, and on the Mojave Desert from Mojave to Trona. IV at Bakersfield, Arvin, and other points in the southeastern San Joaquin Valley, and at additional points in the southern Sierra Nevada and northwestern Mojave Desert. Felt in Antelope Valley, and at a few points south of the mountains (San Bernardino, Fontana Colton). Felt as far as Taft, Stratford, Independence, Shoshone, Barstow, Newberry, Mt. Wilson; not felt in the Los Angeles area. etc.
20	19:19:12/	33	40	117	59		Several of these shocks were felt widely in Orange County and the Los Angeles metropolitan area. The largest, at 19:49:51, reached intensity VI at Atwood, Costa Mesa, Garden Grove, Midway City, Newport Beach, Santa Ana, Stanton, Westminster. Felt as far westward as Los Angeles International Airport, east and southeast as far as Pomona, Alberhill, and South Laguna. The shocks of this group listed in our bulletin are only those of magnitude 3.0 or over; many smaller ones were recorded, and a large number of these were undoubtedly felt by persons.
21	08:47:59	33	39	117	57		Reported felt at Westminster, together with three similar but smaller shocks at 08:29, 09:03, 09:25, recorded but not otherwise listed here.
31	12:17:54	and	12:18:01;	35	13	118	37. V at Keene.
31	12:31:17	35	14	118	37		Noticed (sounds heard) at Keene.
31	12:38:04	35	14	118	35		V at Keene.

(Addenda continued)
October - December 1961

Date	G.C.T.	Lat.	N.	Long.	W.	Q.	M.	Index	Remarks
<u>1961</u>									
<u>November</u>									
6	23:28:24	35	22	117	56				Southwest of Garlock, toward Cantil. IV at Cantil.
7	06:12:55	33	38	118	03				Felt in Orange County; reported particularly sharp at Garden Grove.
9	13:11:25,	13:24:43;	33	39	117	59.	Both felt		at Garden Grove.
10	07:49:16	33	39	117	59				Reported felt at San Pedro.
13	18:39:54	34	01	118	51				IV at Manhattan Beach. Press reports felt on Pico Boulevard, Los Angeles; at Long Beach; at Thousand Oaks, Ventura County.
15	05:38:55	34	56	118	59				V at Buttonwillow, Caliente, Castaic, Cummings Valley, Frazier Park, Gorman, Keene, Lebec, Maricopa, Moorpark, Santa Ynez, Taft, Tehachapi, Tupman, Ventucopa. Felt as far as Santa Barbara, Devils Den, Visalia, Mojave, Cantil, Los Angeles.
18	03:18:36	35	24	117	46				USCGS reports V at Randsburg, Red Mountain and Johannesburg.
20	08:53:35	33	41	118	00				V at Buena Park and Long Beach. Felt: Hollywood, Los Angeles, Norwalk, Santa Ana, et
20	11:33:20	33	54	118	11				Felt in West Los Angeles, not in Orange County.
<u>December</u>									
18	07:35:05	32	50	115	27				Felt at El Centro. V (broke glass) at Holtville.
28	04:38:06	34	08	119	04				Felt sharply, Oxnard and vicinity (telephone report).