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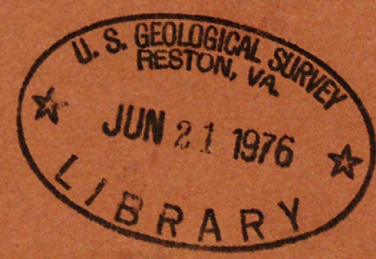
CATALOG OF EARTHQUAKES IN THE
LAKE MEAD AREA, NEVADA - ARIZONA, FOR THE PERIOD
JULY 10, 1972 TO DECEMBER 6, 1973*

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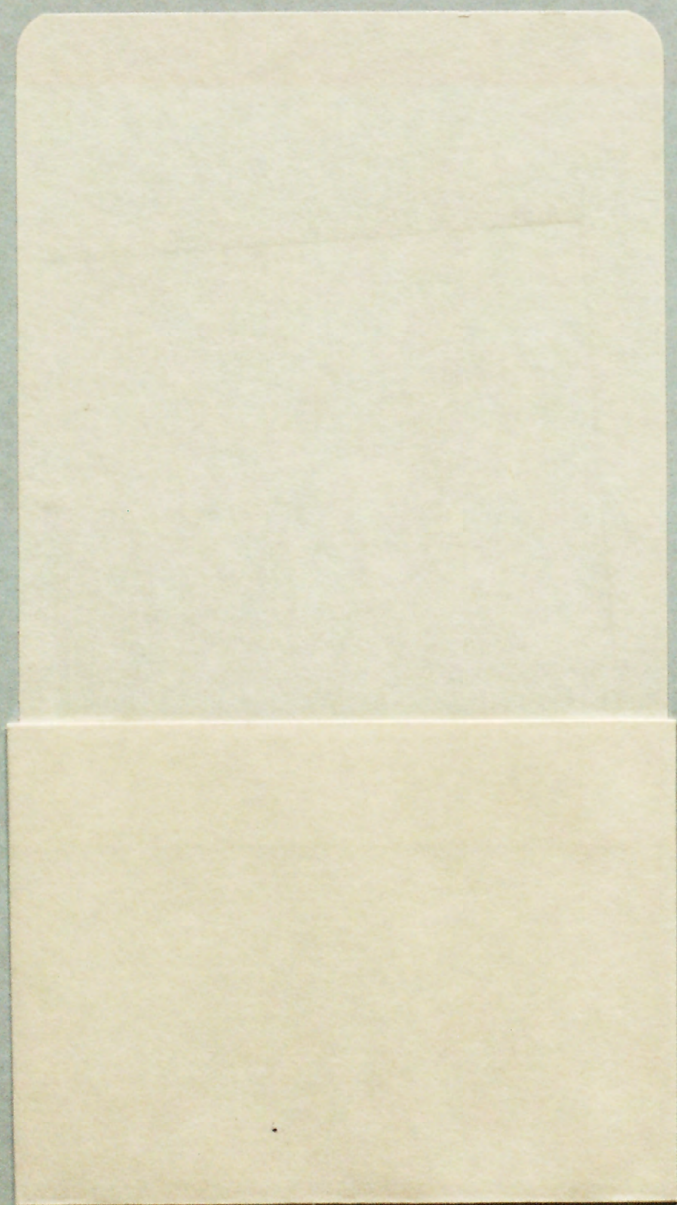
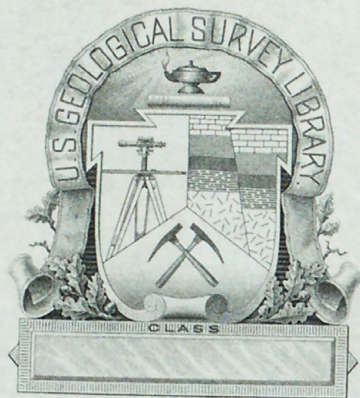
W.H.K. Lee and E. E. Matamoros

Open-file Report 75-15
January, 1975



*This report is preliminary and has
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INTRODUCTION

Lake Mead is one of the world's largest reservoirs and was created by the construction of Hoover (formerly Boulder) Dam in the 1930's. Earthquakes were felt in September 1936, a few weeks after Lake Mead had reached its annual peak of about 100 m in maximum water depth. At the request of the Bureau of Reclamation, the Coast and Geodetic Survey began seismic investigations in 1937. A quadripartite net of short-period seismographs was installed in 1942 and operated until the early 1950's. Results of these investigations were reported by Mead and Carder (1941), Jones (1944), Carder (1945), Carder and Small (1948), and Carder (1970).

In late 1960's, the question of whether man has inadvertently generated earthquakes by reservoir loading and fluid injection was raised (Healy et al., 1968; Rothe, 1970). A broad program to investigate this problem was undertaken by the U. S. Geological Survey during 1970-1973 with the financial support of ARPA. One element of this program is to investigate the seismicity of the Lake Mead area in detail, and to determine if a relation exists between the microearthquakes, geological structure and water load. A contract was awarded to the Environmental Research Corporation for this project in cooperation with the U.S. Geological Survey.

A nine-station network of short-period seismographs was installed around the Boulder basin of Lake Mead. Seismic signals were radioed to a central collecting point and were recorded on magnetic tapes at the Las Vegas Wash Ranger Station (near station LVV shown in Figure 1). Data recorded during the period of July 6, 1972 to June 8, 1973 have been processed and analyzed by Rogers and Gallanthine (1974). In order to reduce the cost, 8 of the 9 stations in this network were telemetered to Menlo

Park via telephone line starting on June 20, 1973 and terminating on December 5, 1973. The present authors took the responsibility of processing and analyzing the data for this latter period.

The purpose of this data report is to present the results of earthquake location from the Lake Mead seismic network for the period of June 20 to December 5, 1973. In addition, we have relocated all the earthquakes reported by Rogers and Gallanthine (1974), and presented the results here also. Interpretation of the combined earthquake data will be published elsewhere (Rogers and Lee, in preparation).

SEISMOGRAPH STATIONS

The Lake Mead network of seismographs consisted of 8 stations. The equipment at each station included a vertical component, 1 Hz seismometer (Model L-4C by Mark Products), a preamp voltage-controlled oscillator (Model 6202 by Develco), and batteries. The frequency-modulated signal produced at each station was transmitted by radio (Model SP3153421 by Motorola) to a terminal where it was combined with signals from the other 7 stations. The resulting multiplexed signal was then transmitted by a voice-grade telephone circuit to the NCER office in Menlo Park, California. There, the eight channels of data on the telephone line were separated and demodulated by discriminators (Model 6243 by Develco) and recorded on 16 mm films using a Develocorder (Model RF-400 by Geotech). In addition, two timing signals (WWVB on two traces, and a chronometer) were recorded simultaneously with the seismic signals. Magnification for individual stations was adjusted according to the background noise level in steps of 6 db. Most stations were operated at magnification of about 100,000 at 1 Hz. A film viewer with 20x magnification (made by Geotech) was used to display the 16 mm films for data processing.

In locating some earthquakes in the Lake Mead area we have supplemented our readings with those from the Southern Nevada Network operated by the Las Vegas office of the U. S. Geological Survey. All stations used are listed in Table 1 and plotted in Figure 1.

DATA PROCESSING AND ANALYSIS

The telemetered seismic data recorded on 16 mm films were processed manually to yield information on first P-arrivals, first motions, S-arrivals whenever readable, and signal durations. These data were then processed by computer to give origin time, hypocenter location, magnitude, and fault-plane solution of the earthquakes. Each roll of film contained about 24 hours' recording, and was processed in the following steps:

- (1) scanning, (2) timing, (3) checking, (4) preparing punched cards,
- (5) batch processing by computer program HYP071, (6) correcting errors,
- (7) adding data from the Southern Nevada Net, and (8) rerunning HYP071.

In the data processing, local events with signal duration of 10 seconds or more were always timed. This corresponded to a cutoff at about magnitude 1 for earthquakes within the Lake Mead Net. Events with S-P time greater than about 5 seconds were noted but not timed. This corresponded to a cutoff of earthquakes beyond about 50 km from the center of the Lake Mead Net. For events near the Lake Mead Net, they were included in this report only if their locations were within the boundaries of Figure 1.

Location of earthquakes was based mainly on first P-arrivals from well recorded events in the region. S-arrivals were used to supplement the P-arrivals whenever possible. The HYP071 computer program

Table 1. STATION DATA

<u>Station Code</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>	<u>Station Correction (sec)</u>	<u>Operating Period**</u>
<u>I. LAKE MEAD NET</u>				
BDR	35° 56.68'	114° 45.37'	+0.03	Jul 10, 1972 to Nov 26, 1973
BKC	35° 56.91'	114° 39.30'	+0.05	Jul 10, 1972 to Nov 24, 1973
BNL	36° 01.16'	114° 30.90'	+0.02	Jul 10, 1972 to Dec 5, 1973
CVB	36° 08.48'	114° 43.90'	+0.06	Jul 10, 1972 to Dec 5, 1973
FTH	36° 02.06'	114° 42.04'	-0.18	Jul 10, 1972 to Dec 5, 1973
L1V*	56° 07.10'	114° 52.23'	+0.06	Jul 10, 1972 to Sep 30, 1972
LVV*	36° 07.00'	114° 52.29'	+0.06	Oct 1, 1972 to Jun 8, 1973
MDP	36° 09.47'	114° 28.11'	0.00	Jul 10, 1972 to Oct 13, 1972
OPM	36° 04.54'	114° 38.15'	-0.08	Jul 10, 1972 to Dec 5, 1973
PTV	36° 10.81'	114° 36.10'	0.00	Jul 10, 1972 to Nov 26, 1973
RVM	36° 00.95'	114° 50.06'	-0.04	Jul 10, 1972 to Nov 26, 1973

* 3-component station

** Lake Mead Net was not operating from June 9, 1973 to June 19, 1973 due to change of recording.

II. SOUTHERN NEVADA NET

CPX	36° 55.92'	116° 03.33'
LSM	36° 44.32'	116° 16.68'
LVW	36° 10.20'	115° 11.25'
MCV	36° 38.01'	115° 59.99'
NEL	35° 42.74'	114° 50.61'
PRN	37° 26.50'	115° 04.00'

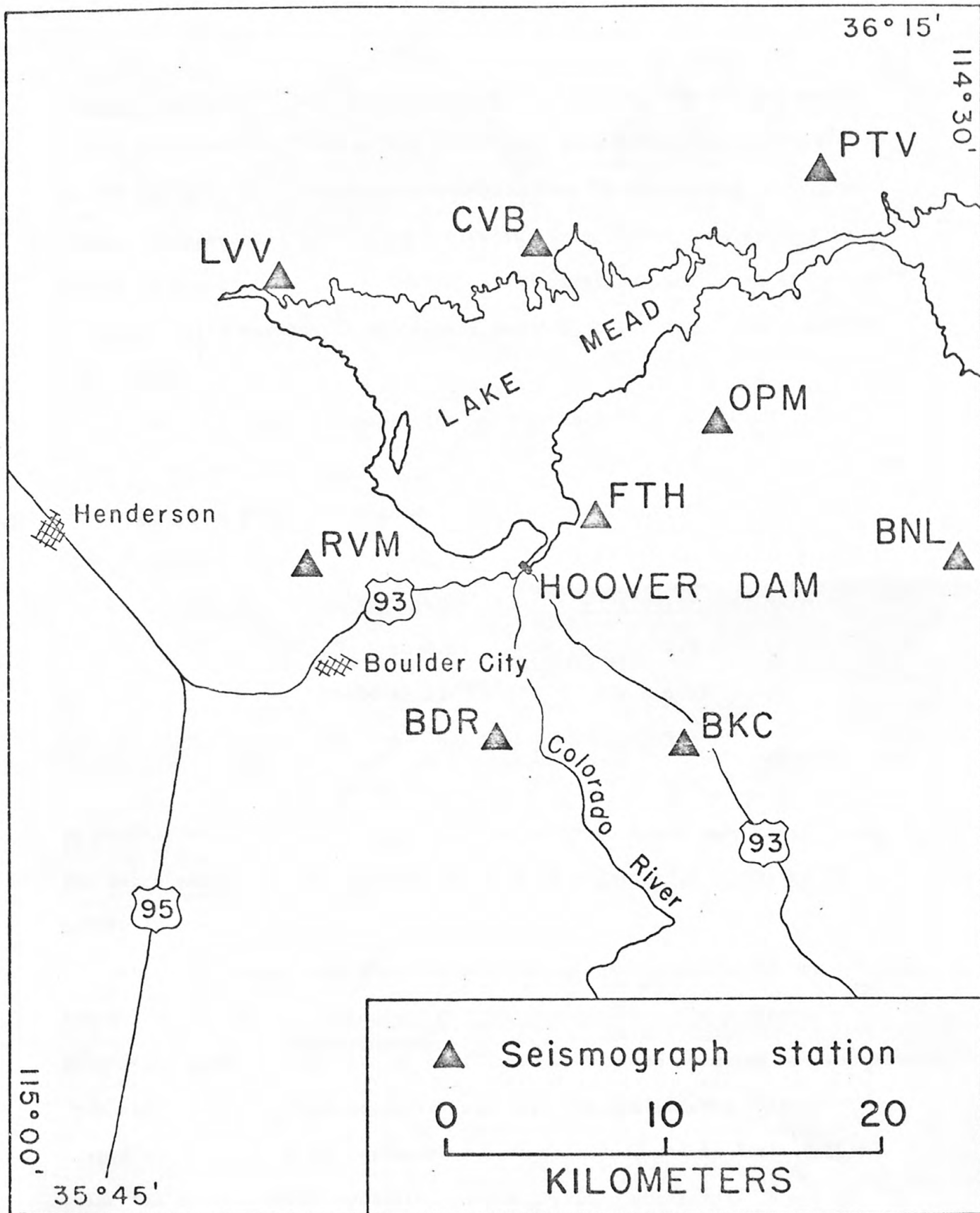


Figure 1. Map showing seismograph stations of the Lake Mead Net. LIV, which is located near LVV, is not shown; MDP is outside this map.

(Lee and Lahr, 1972) was used to locate hypocenters, compute the magnitudes, and plot the first motion patterns. This program uses Geiger's method (Geiger, 1912) to determine hypocenters by minimizing the residuals between observed and calculated arrivals. Traveltimes from a trial hypocenter to the stations and their partial derivatives are computed on the assumption of a horizontal multilayer model by a technique introduced by Eaton (1969).

A number of seismic refraction surveys have been conducted in the vicinity of Lake Mead (Diment et al., 1961; Roller and Healy, 1963; Roller, 1964; Johnson, 1965). From these data, we have adopted the following crustal model:

<u>Layer</u>	<u>Depth (km)</u>	<u>P-velocity (km/sec)</u>
1	0 to 0.65	2.8
2	0.65 to 20	6.15
3	20 to 28	7.0
4	below 28	7.8

We further assume that the ratio of P velocity to S velocity is constant, and has a value of 1.70 based on the work of Rogers and Gallanthine (1974, p.21).

All earthquakes were first located using the crustal model and station corrections adopted by Rogers and Gallanthine (1974). The earthquake epicenters were divided into 1' by 1' areas. We then selected one earthquake from each 1' area on the basis of best solution quality and seismic arrivals. A total of 51 earthquakes were selected, and we located them using the crustal model specified in the previous paragraph. A set of station corrections were obtained by averaging the station residuals for each station. We then relocated the 51 selected earthquakes using the same

crustal model but with the station corrections. The revised station corrections were then used to locate all earthquakes. Their values were shown in Table 1.

The method used for estimating the earthquake magnitude follows that of Lee et al. (1972), in which the magnitude is based on the average magnitudes estimated at various stations. Local magnitude (M) is derived from its recorded signal duration (τ) according to:

$$M = -0.87 + 2.00 \log (\tau) + 0.0035 \Delta \quad (1)$$

where Δ is the epicentral distance in kilometers. The signal duration is defined as the duration time in seconds from the onset of the first P arrival to the point where the trace amplitude (peak to peak) falls below 1 cm as it appears on the Geotech film viewer (x 20 magnification).

For earthquakes during the first period which were processed by Rogers and Gallanthine (1974), the signal durations were measured from playback of magnetic tapes because 16 mm film recording was not used. We have made a test for some 20 earthquakes where we have both film and playback. Signal durations were measured from both, and we found that their values generally agree within $\pm 20\%$ for the same earthquake. Therefore, we have re-computed the magnitudes for all earthquakes processed by Rogers and Gallanthine (1974) using equation (1). These magnitudes differ systematically from those reported by Rogers and Gallanthine (1974) because they used a different formula to derive the local magnitudes from signal duration.

RESULTS

A total of 678 earthquakes were located following the procedure described in the previous section. These include 307 earthquakes processed by us, and 371 earthquakes which were originally processed by Rogers and

Gallanthine (1974). The results are tabulated in Table 2, and shown in Figure 2. Interpretation of these results, however, will be published elsewhere.

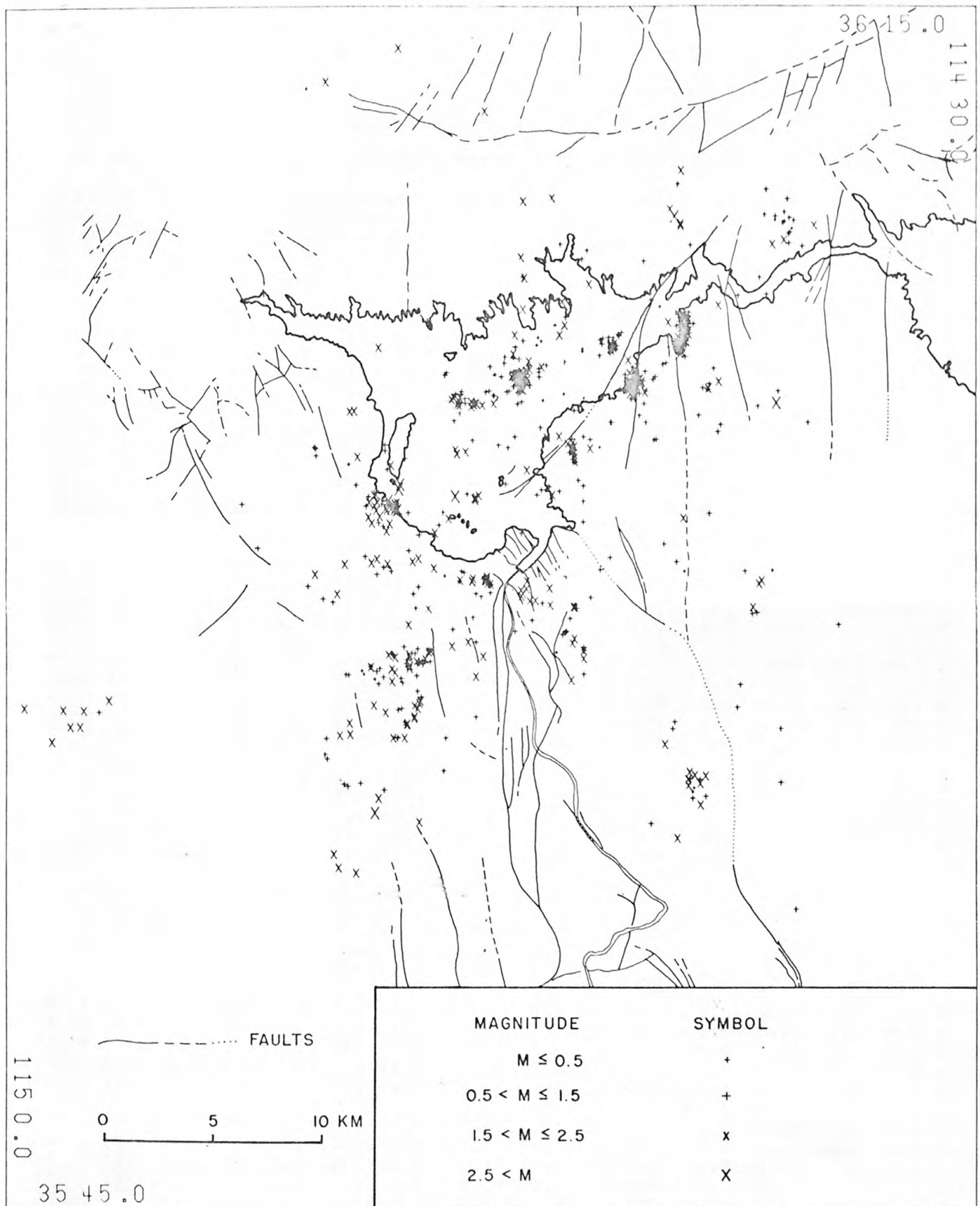


Figure 2. Map showing earthquake epicenters reported in Table 2. Faults are based on Longwell (1963) and Longwell, et al. (1965).

TABLE 2. EARTHQUAKES IN THE LAKE MEAD AREA*

DATE	HR	MN	SEC	LAT N	LONG W	DEPTH	MAG	NO	GAP	DMIN	RMS	ERH	ERZ	Q
JUL	10	23	59	56.5	35-58.9	114-46.9	5.8	1.6	5	158	4.8	0.03	1.6	3.8 C
	12	22	10	38.1	36- 5.2	114-40.6	5.0	1.4	6	149	3.8	0.11	1.0	2.8 C
	16	7	56	7.8	36- 6.5	114-48.5	7.3	1.6	7	229	7.8	0.06	0.6	0.9 C
	21	3	53	37.9	36- 5.6	114-38.3	3.6	1.3	5	166	2.0	0.11	3.7	2.8 D
	21	17	52	40.3	36- 0.0	114-47.3	4.3	1.4	7	138	4.5	0.08	0.6	1.5 B
	22	12	59	55.3	36- 0.2	114-49.9	9.3	1.4	6	215	1.4	0.03	0.4	0.7 C
	24	18	32	28.1	35-54.6	114-40.0	6.9	1.4	5	280	4.3	0.02	0.7	0.4 C
	25	16	47	12.8	36- 5.1	114-45.8	13.0	1.2	5	207	6.8	0.09	2.5	2.7 D
	25	20	50	17.2	36- 2.8	114-43.1	9.5	2.3	7	103	8.1	0.04	0.3	0.9 B
	27	11	35	39.4	36- 4.0	114-44.5	7.1	1.5	7	180	8.3	0.12	1.0	2.2 C
AUG	28	2	36	43.8	35-56.6	114-39.6	4.7	2.1	6	230	0.7	0.02	0.3	0.4 C
	29	9	49	39.7	36- 6.8	114-41.1	6.4	1.5	6	179	5.2	0.02	0.3	0.3 B
	1	22	40	8.0	36- 2.8	114-46.1	4.0	2.5	4	236	11.0	0.00		C
	1	22	50	8.2	36- 1.0	114-46.8	8.7	2.1	5	261	13.9	0.12	3.1	9.2 D
	3	12	53	30.4	36- 7.8	114-37.4	0.7	1.0	4	173	5.9	0.02		C
	3	23	28	18.1	36- 3.1	114-44.5	9.3	1.1	4	220	10.0	0.04		C
	23	2	14	53.9	36- 0.4	114-47.4	6.4	1.4	6	223	7.5	0.03	0.4	1.0 C
	24	23	41	12.1	35-58.7	114-47.3	8.4	1.5	4	173	4.7	0.00		C
	25	22	20	42.4	35-58.1	114-37.3	4.7	1.1	6	240	3.7	0.03	0.5	0.5 C
	2	14	7	51.4	36- 8.0	114-38.3	0.7	0.8	4	116	6.1	0.01		C
SEP	4	14	35	0.1	36- 3.0	114-43.4	8.5	1.2	6	162	8.4	0.01	0.2	0.3 B
	4	17	20	34.2	36- 2.9	114-42.9	7.4	1.1	6	153	7.7	0.05	0.5	1.0 B
	6	2	54	22.8	36- 4.1	114-42.5	7.8	1.6	6	148	6.5	0.01	0.1	0.1 B
	6	20	7	47.6	36- 1.2	114-39.3	6.6	1.1	7	105	6.5	0.05	0.4	1.0 B
	7	4	39	47.8	36- 2.8	114-43.6	8.3	1.4	6	164	8.7	0.02	0.2	0.3 B
	7	7	55	40.1	36- 4.2	114-41.9	6.7	1.2	7	139	5.7	0.09	0.6	1.1 B
	7	18	27	20.1	36- 3.7	114-42.4	4.9	1.8	7	147	6.6	0.06	0.5	0.9 B
	7	21	26	25.5	36- 0.4	114-49.7	8.8	1.6	5	254	9.5	0.02	0.6	0.9 C
	14	7	11	51.7	36- 1.9	114-47.2	9.6	1.3	7	218	10.0	0.05	0.7	0.8 C
	14	14	1	49.4	36- 4.0	114-41.9	6.6	1.8	7	140	5.8	0.10	0.8	1.2 B
	19	5	28	48.7	36- 6.2	114-40.8	4.4	1.6	7	110	5.0	0.04	0.3	0.5 B
	19	8	36	17.8	36- 5.9	114-40.2	5.3	1.0	6	182	4.0	0.11	1.0	1.5 C
	21	4	41	18.8	36- 6.0	114-40.5	6.3	1.7	9	110	4.4	0.12	0.8	1.8 B
	22	9	11	40.6	36- 1.1	114-48.2	8.8	1.8	9	232	9.2	0.08	0.7	0.9 C
	22	16	13	50.6	36- 1.2	114-47.4	8.4	1.6	6	222	8.9	0.06	1.2	1.6 C
	23	1	29	51.6	36- 5.7	114-40.0	5.0	1.5	7	105	3.5	0.13	1.0	2.7 B
	23	13	14	31.7	36- 3.9	114-42.5	5.1	1.2	6	148	6.6	0.03	0.3	0.6 B
	24	8	50	48.9	36- 1.3	114-47.2	8.6	1.6	5	219	8.9	0.03	1.0	1.3 C
	24	20	42	0.7	36- 3.0	114-43.2	6.8	1.4	7	159	8.1	0.07	0.5	1.0 B
	26	2	14	5.5	36- 5.1	114-40.3	4.6	1.1	5	211	3.3	0.01	0.1	0.2 C
	26	6	27	25.3	36- 1.3	114-48.5	8.5	1.8	10	236	9.7	0.07	0.8	1.3 C
	26	6	28	31.8	36- 1.1	114-48.7	9.0	1.9	9	239	9.6	0.07	0.8	1.4 C
	26	8	14	6.7	36- 0.9	114-48.1	9.4	0.9	5	156	3.0	0.05	0.8	1.1 C
	29	0	43	25.4	36- 4.6	114-41.3	5.0*	0.5	3	219	4.7	0.11		C
	29	5	23	53.1	36- 0.6	114-47.2	6.6	1.3	4	220	7.7	0.00		C

TABLE 2: (CONTINUED)

DATE	HR	MM	SEC	LAT N	LONG W	DEPTH	MAG	NO	GAP	DMIN	RMS	ERH	ERZ	Q
1972 SEP	29	10	34	24.0	36- 5.7	114-40.4	5.0	1.7	8	110	4.0	0.11	0.8	2.2 B
OCT	2	17	55	16.4	36- 4.6	114-41.3	5.0*	1.1	3	219	4.7	0.11		C
	6	12	28	23.2	36- 1.6	114-39.6	7.3	0.9	6	110	5.9	0.02	0.2	0.3 B
	10	15	45	58.1	35-57.0	114-39.4	13.6	1.2	4	153	0.2	0.07		C
	10	18	6	28.6	35-56.8	114-46.4	1.7	1.1	4	228	1.6	0.01		C
	12	13	28	54.4	36- 4.2	114-42.5	8.0	1.4	8	103	8.1	0.04	0.3	0.8 B
	13	1	30	57.7	36- 1.3	114-41.3	9.3	0.9	6	183	8.6	0.02	0.3	0.4 C
	14	0	59	4.6	36- 0.1	114-43.4	7.6	1.2	6	121	7.0	0.04	0.7	1.4 B
	15	14	3	2.6	35-53.6	114-49.7	3.8	1.9	8	289	8.7	0.07	1.6	2.4 C
	17	3	35	14.9	36- 4.3	114-44.3	8.1	1.4	4	258	7.8	0.01		C
	18	0	18	56.7	36- 0.9	114-48.5	7.2	1.0	4	125	2.3	0.00		C
	20	23	16	6.8	36- 5.6	114-40.7	4.6	1.6	6	161	4.3	0.04	0.5	0.6 B
	22	0	5	59.8	36- 7.1	114-39.5	5.1	1.8	5	200	5.2	0.03	0.6	1.3 C
	24	21	2	2.9	36- 6.8	114-44.3	7.3	1.6	4	210	3.1	0.01		C
NOV	3	12	11	13.3	36-10.2	114-43.1	5.9	1.9	4	246	3.5	0.00		C
	10	18	40	2.4	35-59.1	114-42.5	5.4	2.4	6	146	6.3	0.02	0.2	0.7 B
	10	18	58	57.9	35-58.2	114-42.5	9.8	1.7	6	164	5.1	0.08	1.0	2.4 C
	12	22	22	16.4	35-55.1	114-38.5	8.4	2.3	6	240	10.7	0.05	0.6	1.8 C
	13	14	13	59.5	36- 8.2	114-44.0	9.0	2.2	4	224	12.7	0.04		C
	14	15	39	30.6	36- 8.3	114-44.1	9.6	2.2	4	230	12.8	0.00		C
	16	13	57	48.8	35-55.3	114-48.5	5.8	1.8	4	284	5.3	0.02		C
	21	13	35	58.4	36- 0.6	114-50.6	8.0	1.3	4	297	1.1	0.00		C
	21	13	57	15.0	36- 1.4	114-47.5	6.8	0.7	4	234	3.9	0.00		C
	24	16	22	46.9	36- 2.8	114-48.8	5.0	1.1	5	131	3.9	0.08	2.0	5.3 D
	30	15	51	2.3	36- 2.8	114-45.4	7.2	1.6	6	146	7.7	0.04	0.4	0.9 B
	30	23	38	55.0	36- 2.7	114-45.5	7.1	1.7	6	147	7.6	0.04	0.4	0.9 B
DEC	1	7	42	4.7	36- 9.1	114-38.8	0.8	1.2	4	239	7.7	0.01		C
	1	21	54	31.7	36- 2.8	114-45.4	5.5	2.0	6	146	7.9	0.03	0.4	1.0 B
	1	22	38	49.9	36- 2.9	114-45.7	7.5	1.5	5	144	7.4	0.01	0.1	0.2 C
	2	21	45	58.0	36- 2.7	114-45.5	7.4	1.7	6	147	7.6	0.04	0.5	0.9 B
	6	1	22	20.7	36- 2.3	114-48.8	5.9	2.1	6	174	3.1	0.02	0.2	0.4 B
	8	19	56	13.2	36- 2.1	114-48.7	6.5	1.6	4	168	3.0	0.00		C
	9	3	30	46.5	36- 2.5	114-48.0	2.6	2.0	8	95	4.2	0.04	0.4	1.8 B
	9	3	31	10.8	36- 2.5	114-47.9	3.2	2.8	7	161	8.8	0.03	0.3	1.9 B
	9	3	34	23.0	36- 2.7	114-48.5	4.4	2.1	7	176	3.9	0.03	0.3	0.8 B
	9	3	43	27.1	36- 2.5	114-48.2	3.1	2.2	6	167	4.0	0.02	0.4	1.5 B
	9	3	45	35.4	36- 2.5	114-48.5	4.1	1.8	6	172	3.6	0.04	0.5	1.4 B
	9	4	22	50.1	36- 2.6	114-48.4	2.8	1.5	6	172	4.0	0.03	0.5	1.8 B
	9	6	46	40.7	36- 2.5	114-48.1	3.1	2.6	8	97	4.1	0.04	0.4	1.6 B
	9	7	3	10.1	36- 2.4	114-48.2	3.2	2.1	8	165	3.9	0.03	0.3	0.9 B
	9	10	57	51.8	36- 2.6	114-48.6	4.9	1.7	7	176	3.7	0.03	0.3	0.6 B
	9	15	26	43.1	36- 2.3	114-48.4	3.8	1.8	8	166	3.5	0.04	0.4	1.1 B
	10	22	0	23.0	36- 2.4	114-47.9	5.0	1.2	8	91	4.2	0.10	0.6	1.6 B
	11	14	29	14.3	36- 2.1	114-48.4	5.0	0.9	5	137	3.3	0.06	1.5	3.3 C
	12	4	42	49.0	36- 1.3	114-48.9	5.0*	1.4	3	167	1.9	0.00		C

TABLE 2. (CONTINUED)

DATE	HR	MIN	SEC	LAT N	LONG W	DEPTH	MAG	NO	GAP	DMIN	PMS	ERH	ERZ	Q
1972 DEC	16	23	3	23.7	36- 1.9	114-48.2	2.6	1.6	4	148	3.3	0.02		C
	18	6	30	4.2	36- 5.0	114-45.6	0.9	1.6	4	154	6.9	0.00		C
	18	23	30	25.3	36- 5.2	114-45.5	0.5	1.4	4	151	6.6	0.01		C
	19	5	20	25.3	36- 3.1	114-47.8	1.0	2.8	10	84	5.2	0.30	0.9	2.8 B
	19	5	21	51.4	36- 2.5	114-47.9	1.0	2.6	5	133	4.3	0.04	0.5	14.8 D
	19	5	22	8.7	36- 2.7	114-48.2	1.7	2.6	5	124	4.3	0.06	1.4	13.6 D
	19	5	26	0.0	36- 3.0	114-47.8	1.1	2.9	10	85	5.0	0.28	0.8	2.7 B
	19	5	43	48.0	36- 2.6	114-47.9	0.6	1.6	5	129	4.5	0.06	0.8	D
	19	6	45	30.2	36- 5.1	114-45.4	4.3	1.8	4	151	6.6	0.00		C
	19	9	57	5.2	36- 2.1	114-48.3	3.5	1.5	4	142	3.3	0.01		C
	20	2	18	5.6	36- 6.3	114-39.0	5.9	1.3	4	220	3.4	0.00		C
	22	3	13	3.4	36- 2.1	114-48.1	2.1	1.7	6	92	3.6	0.02	0.3	1.4 B
	23	2	37	0.1	35-57.2	114-39.3	4.5	1.4	5	204	9.1	0.02	0.4	1.8 C
	23	8	24	27.7	36- 6.8	114-42.9	5.0	1.9	4	147	3.4	0.01		C
	25	7	21	10.6	36- 5.1	114-45.5	4.3	1.8	4	152	6.7	0.00		C
	26	10	36	18.2	36- 5.1	114-45.4	4.3	2.0	4	151	6.6	0.00		C
	26	11	20	5.0	36- 5.1	114-45.4	4.3	1.5	4	151	6.6	0.00		C
	30	18	50	53.0	35-59.0	114-42.1	5.0*	1.3	3	199	5.7	0.05		C
	31	4	31	21.1	35-59.3	114-42.4	4.9	2.3	8	145	5.2	0.03	0.3	0.7 B
	31	13	20	10.3	36- 8.1	114-42.0	3.4	1.5	4	204	3.0	0.00		C
1973 JAN	3	3	59	13.2	35-57.7	114-47.2	7.4	1.7	5	199	3.3	0.00	0.1	0.1 C
	3	6	48	13.4	35-57.6	114-47.2	7.6	2.0	5	202	3.3	0.00	0.0	0.0 C
	3	16	54	44.6	35-57.8	114-47.1	6.5	1.2	4	195	3.4	0.02		C
	4	1	40	47.4	35-57.9	114-47.3	5.0*	1.4	3	194	3.7	0.00		C
	7	15	45	3.5	35-57.5	114-47.3	7.8	2.0	5	208	3.2	0.00	0.1	0.2 C
	10	12	13	38.3	36- 6.6	114-39.1	5.2	1.9	6	99	4.1	0.02	0.2	0.5 B
	11	13	25	42.1	36- 4.8	114-38.6	5.0*	1.2	3	255	0.8	0.00		C
	12	2	30	47.2	35-58.9	114-42.1	7.3	1.8	4	203	6.1	0.12		C
	13	1	28	18.5	35-57.3	114-47.4	8.9	2.3	7	219	3.2	0.03	0.6	0.7 C
	13	1	29	0.7	35-56.8	114-48.0	9.1	1.9	4	245	4.0	0.05		C
	13	6	55	11.9	36- 0.0	114-46.9	2.5	1.6	4	131	5.0	0.01		C
	13	10	0	18.9	35-57.3	114-47.4	8.8	2.5	7	217	3.2	0.03	0.5	0.7 C
	13	10	12	21.3	35-57.6	114-47.4	7.9	1.8	5	208	3.4	0.02	0.8	1.3 C
	13	11	3	52.4	35-57.1	114-47.6	9.5	1.8	4	229	3.5	0.01		C
	13	11	38	39.3	35-56.8	114-47.7	9.8	2.1	5	242	3.5	0.09	3.5	4.6 D
	13	14	1	33.9	35-57.1	114-47.6	9.5	1.5	4	228	3.4	0.01		C
	18	4	26	23.9	35-55.8	114-38.7	3.9	2.0	6	229	10.2	0.03	0.7	2.4 C
	18	15	54	32.0	35-55.6	114-38.9	3.4	2.0	6	232	9.9	0.04	0.8	3.4 C
	19	4	2	32.7	35-53.4	114-49.2	0.5	1.7	5	287	8.3	0.03	2.2	D
	21	22	28	14.0	36- 2.6	114-47.9	0.4	2.0	7	95	4.4	0.06	0.5	C
	22	3	2	57.0	36- 3.7	114-42.5	6.3	1.3	4	191	3.1	0.00		C
	22	3	19	5.4	36- 3.7	114-42.4	6.7	1.4	4	189	3.0	0.00		C
	22	3	32	3.6	36- 3.7	114-42.4	6.7	1.8	4	189	3.0	0.00		C
	22	9	24	57.7	36- 4.0	114-42.5	6.8	2.0	5	102	3.6	0.02	0.3	0.5 C
	23	19	28	3.5	36- 5.5	114-38.3	5.0*	1.7	3	264	1.7	0.00		C

TABLE 2. (CONTINUED)

	DATE	HR	MIN	SEC	LAT N	LONG W	DEPTH	MAG	NO	GAP	DMIN	RMS	EPH	ERZ	Q	
1973	JAN	26	7	57	58.3	36- 2.6	114-48.8	3.8	1.5	5	116	3.5	0.01	0.2	0.5	C
		26	13	3	17.7	36- 2.7	114-48.8	3.1	1.7	5	115	3.7	0.00	0.1	0.2	C
		26	15	41	51.2	36- 2.8	114-48.6	2.2	1.9	6	112	4.1	0.04	0.5	3.1	B
		26	18	17	3.3	35-57.1	114-47.6	9.5	1.4	4	229	3.5	0.01			C
		26	20	42	19.3	35-56.8	114-47.9	10.8	1.2	4	243	3.8	0.00			C
	FEB	27	0	27	5.7	35-57.2	114-47.6	9.6	1.0	4	228	3.5	0.02			C
		31	23	56	57.2	36- 4.9	114-49.4	2.0	2.0	4	123	5.8	0.13			C
		2	0	10	30.7	36- 4.9	114-49.2	2.0	1.7	4	120	6.0	0.14			C
		2	23	24	15.4	36- 1.9	114-46.7	8.5	1.9	5	231	7.0	0.06	2.0	3.0	C
		3	7	2	23.6	36- 4.1	114-42.6	5.0*	1.6	3	180	3.9	0.00			C
		4	2	22	13.4	35-53.3	114-45.5	5.0*	2.1	3	219	3.0	0.00			C
		6	13	43	5.4	36- 0.7	114-45.9	2.6	2.0	7	100	6.2	0.02	0.2	0.9	B
		6	18	7	17.3	36- 0.7	114-46.0	1.0	1.5	4	246	6.4	0.01			C
		7	7	12	8.0	35-53.3	114-47.8	4.3	1.2	4	196	4.7	0.02			C
		8	0	18	4.3	36- 0.9	114-45.9	5.2	1.2	4	150	6.2	0.00			C
		8	7	58	40.6	36- 2.2	114-46.3	9.3	2.3	9	75	6.1	0.03	0.3	0.8	A
		11	21	43	12.0	36- 3.4	114-43.9	5.0*	1.9	3	165	3.8	0.25			C
		14	3	52	11.2	36- 4.3	114-42.9	1.0	2.1	4	127	4.3	0.00			C
		15	0	30	55.5	36-12.9	114-50.7	0.1	2.8	4	297	11.3	0.13			C
		15	17	56	48.5	36- 7.6	114-38.0	5.0*	1.6	3	262	5.6	0.02			C
		15	21	21	52.6	35-59.5	114-46.2	2.9	1.1	4	128	5.3	0.01			C
		16	10	59	33.5	35-56.8	114-47.9	5.0*	1.4	3	244	3.8	0.10			C
		16	13	15	23.6	35-53.9	114-49.9	2.2	1.8	7	281	8.5	0.09	3.7	6.8	D
		17	4	1	20.9	36- 7.8	114-43.1	7.3	1.1	4	166	1.8	0.03			C
		17	10	56	42.1	35-56.0	114-46.5	5.0*	1.4	3	249	2.1	0.13			C
	17	18	30	49.9	36- 4.1	114-48.3	5.0*	1.0	3	267	6.4	0.02			C	
	20	8	55	35.5	36- 5.3	114-40.6	6.3	1.9	10	77	4.0	0.06	0.4	0.9	A	
	20	13	19	21.5	36- 5.4	114-40.2	0.1	1.6	4	160	3.5	0.00			C	
	20	14	24	9.9	35-58.9	114-42.1	6.6	1.9	7	98	5.7	0.11	0.9	3.2	B	
	21	7	59	48.1	36- 0.2	114-43.6	0.0	1.6	4	156	4.2	0.05			C	
	21	17	0	2.3	35-59.4	114-42.7	3.5	1.1	5	97	4.9	0.01	0.2	0.8	C	
	22	11	36	31.9	36- 6.6	114-41.3	6.6	1.8	6	171	5.2	0.01	0.1	0.2	B	
	23	12	13	33.2	36- 6.9	114-41.0	6.0	1.3	4	181	5.3	0.00			C	
	23	12	30	35.6	36- 6.8	114-41.4	6.9	1.5	5	174	5.0	0.02	0.4	0.8	C	
	23	18	53	12.5	36- 5.6	114-40.6	2.9	2.1	6	113	4.1	0.10	1.0	3.2	B	
	24	17	51	24.4	36- 2.2	114-39.1	5.3	2.0	8	83	4.5	0.02	0.2	0.4	A	
	25	2	4	27.9	36- 6.0	114-38.1	5.0	1.5	4	191	2.7	0.00			C	
	25	6	49	23.6	35-55.7	114-36.1	5.0*	1.4	3	258	5.4	0.00			C	
	26	20	51	28.9	35-57.5	114-37.4	4.1	1.5	4	192	3.1	0.04			C	
	27	4	10	54.2	35-58.6	114-48.7	8.0	1.2	4	211	4.9	0.03			C	
	MAR	27	5	38	6.4	35-59.6	114-47.5	3.7	2.1	8	154	4.5	0.03	0.3	1.0	B
		27	10	2	11.3	36- 2.6	114-47.9	0.5	1.8	7	95	4.4	0.04	0.3		C
		27	11	45	32.5	36- 2.6	114-48.0	1.6	1.8	7	96	4.4	0.04	0.4	4.3	B
		1	4	14	27.9	36- 5.6	114-44.1	5.1	1.9	7	99	5.3	0.04	0.3	0.9	B
		2	8	14	42.4	36- 5.5	114-44.1	5.9	1.7	6	179	7.1	0.03	0.4	1.1	B

TABLE 2. (CONTINUED)

	DATE	HR	MIN	SEC	LAT N	LONG W	DEPTH	MAG	NO	GAP	DMIN	RMS	ERH	ERZ	Q	
1973	MAR	2	14	11	1.6	36- 5.6	114-44.1	5.1	2.3	8	99	5.4	0.04	0.3	1.0	B
		2	18	21	36.4	36- 5.7	114-44.1	5.2	1.8	7	99	5.2	0.03	0.3	0.9	B
		3	1	18	44.1	36- 2.1	114-46.6	9.6	1.5	6	131	5.6	0.08	1.2	3.1	B
		3	1	23	29.1	36- 5.6	114-44.2	5.6	1.6	6	97	5.4	0.04	0.5	1.3	B
		3	3	19	31.6	36- 5.7	114-44.1	5.4	2.0	8	99	5.2	0.04	0.3	0.9	B
		3	9	50	9.1	35-57.5	114-47.9	5.2	1.3	5	221	4.0	0.03	1.2	1.8	C
		4	14	45	16.6	36- 5.7	114-44.1	5.5	1.7	7	100	5.1	0.05	0.5	1.4	B
		4	19	43	5.4	36- 5.7	114-44.0	5.0	1.9	8	102	5.1	0.06	0.5	1.5	B
		4	19	44	52.0	36- 5.5	114-44.1	5.6	1.9	5	128	5.5	0.01	0.1	0.2	C
		4	20	27	21.7	36- 5.5	114-44.1	5.5	1.6	6	98	5.5	0.03	0.3	0.9	B
		5	9	24	17.6	36- 5.7	114-44.1	5.3	2.6	9	83	5.1	0.03	0.2	0.5	A
		5	9	25	11.8	36- 5.6	114-43.9	6.0	1.9	7	103	5.3	0.07	0.7	1.7	B
		5	9	33	2.4	36- 5.7	114-44.1	5.1	2.8	9	82	5.2	0.03	0.2	0.7	B
		5	9	37	47.6	36- 5.7	114-44.1	5.2	2.3	8	100	5.2	0.04	0.3	0.9	B
		5	9	39	39.0	36- 5.8	114-44.4	6.2	1.5	5	144	5.1	0.03	0.5	1.1	C
		5	9	41	26.6	36- 5.7	114-44.1	5.0	2.0	8	82	5.2	0.03	0.2	0.7	B
		5	13	18	47.1	36- 5.8	114-44.3	6.1	1.5	5	144	4.9	0.03	0.5	1.2	C
		5	16	52	17.0	36- 5.6	114-44.1	5.1	1.9	6	99	5.3	0.04	0.5	1.4	B
		5	23	58	8.4	36- 5.7	114-44.1	5.1	2.4	9	82	5.1	0.03	0.2	0.6	B
		6	7	48	57.4	35-54.3	114-39.2	5.8	1.7	6	251	4.9	0.05	1.3	1.2	C
		6	9	57	25.9	36- 5.7	114-43.9	5.9	1.6	8	105	5.1	0.07	0.6	1.6	B
		6	10	37	41.5	36- 5.8	114-44.7	5.0*	1.2	3	223	5.1	0.00			C
		6	12	11	36.2	36- 7.7	114-38.6	6.0	1.2	4	290	5.9	0.00			C
		6	15	44	22.4	36- 5.8	114-44.1	5.3	2.4	9	83	5.1	0.03	0.2	0.6	A
		6	20	11	44.9	36- 5.1	114-44.2	6.8	1.5	4	227	6.5	0.00			C
		7	8	13	4.5	36- 2.9	114-48.5	5.1	2.4	8	111	4.2	0.05	0.5	1.5	B
		7	9	31	50.1	36- 5.9	114-44.0	5.1	2.0	8	104	4.8	0.03	0.3	0.8	B
		8	11	12	16.5	36- 5.5	114-53.4	5.0*	2.4	3	281	3.2	0.10			C
		8	23	11	54.2	36- 5.9	114-43.9	5.1	1.8	5	120	4.7	0.02	0.3	0.7	C
		9	6	17	3.2	35-59.4	114-44.3	0.3	1.5	4	154	5.4	0.01			C
		9	7	50	34.4	36- 5.5	114-44.0	6.5	1.4	5	178	7.0	0.01	0.1	0.3	C
		9	14	35	49.4	35-58.8	114-47.0	5.3	1.6	5	165	4.6	0.02	0.6	1.5	C
		11	2	6	54.0	36- 5.7	114-44.0	5.3	1.6	6	102	5.2	0.04	0.5	1.3	B
		11	5	37	57.1	36- 5.8	114-44.1	5.3	2.8	9	83	5.0	0.03	0.2	0.5	A
		11	5	39	0.9	36- 5.8	114-43.9	5.4	1.7	4	123	5.0	0.00			C
		11	6	13	59.0	36- 5.4	114-44.1	5.4	1.3	6	97	5.7	0.03	0.4	1.0	B
		11	6	43	49.5	36- 5.4	114-44.2	6.9	1.1	4	188	6.9	0.00			C
		11	6	43	59.6	36- 5.5	114-44.1	7.1	1.8	4	189	7.1	0.00			C
		11	7	26	55.4	35-54.9	114-48.6	1.1	2.9	8	271	5.8	0.04	1.2	5.0	C
		11	7	28	3.1	36- 5.6	114-38.0	6.9	1.6	5	112	2.1	0.01	0.2	0.3	C
		11	9	41	26.8	36- 5.6	114-44.0	5.9	1.4	5	180	7.1	0.01	0.3	0.7	C
		11	10	36	13.9	36- 7.6	114-42.6	0.4	1.5	4	218	8.7	0.20			C
		11	11	17	44.0	36- 4.1	114-44.8	6.0	1.5	5	135	5.5	0.02	0.4	0.8	C
		12	4	2	15.0	36- 5.7	114-44.0	6.6	1.4	5	182	7.3	0.02	0.3	0.7	C
		12	6	38	29.5	35-57.0	114-36.1	4.0	0.7	4	222	4.9	0.03			C

TABLE 2. (CONTINUED)

DATE	HR	MN	SEC	LAT N	LONG W	DEPTH	MAG	NO	GAP	DMIN	RMS	ERH	ERZ	Q
1973 MAR	12	12	7	57.6	36- 6.1	114-40.5	4.4	1.3	4	172	4.5	0.00		C
	12	13	15	12.1	36- 5.5	114-44.1	4.4	1.9	9	81	5.5	0.07	0.4	1.6 B
	12	13	57	53.0	35-50.4	114-42.8	4.1	1.1	4	155	5.1	0.00		C
	12	14	29	3.3	36- 5.8	114-44.0	5.6	1.6	7	104	4.9	0.06	0.6	1.6 B
	13	5	25	51.9	36- 7.7	114-40.1	4.8	1.3	4	207	6.0	0.00		C
	13	7	4	12.4	36- 6.1	114-39.6	5.0*	0.9	3	279	3.6	0.01		C
	13	7	43	40.5	36- 6.1	114-39.7	5.0*	0.6	3	279	3.7	0.01		C
	14	18	51	14.6	36- 5.8	114-44.0	5.3	1.9	7	103	5.0	0.04	0.3	1.0 B
	15	16	11	10.5	36- 2.2	114-42.1	5.0*	1.4	3	154	0.2	0.27		C
	16	7	40	7.7	36- 5.2	114-44.0	6.6	1.2	4	228	6.5	0.00		C
	17	17	18	39.6	36- 5.7	114-44.3	5.0*	1.4	3	214	5.2	0.00		C
	18	19	40	25.9	36- 5.7	114-44.1	5.0*	1.4	3	183	7.4	0.01		C
	20	13	22	17.9	36- 6.8	114-41.0	6.1	1.4	4	178	5.3	0.00		C
	20	21	34	7.4	36- 0.6	114-45.1	1.6	1.9	6	141	5.3	0.04	0.3	3.6 C
	22	3	49	10.8	36- 5.5	114-44.3	0.1	1.1	4	131	5.5	0.01		C
	22	22	59	50.8	36- 5.8	114-44.2	6.1	1.6	5	142	4.9	0.01	0.2	0.4 C
	23	18	9	49.7	36- 0.5	114-43.2	4.2	2.1	6	116	3.3	0.02	0.3	0.7 B
	23	19	44	35.5	35-58.4	114-42.1	5.0*	1.5	3	210	5.8	0.07		C
	24	9	21	6.2	36- 4.2	114-40.0	5.0*	0.9	3	219	2.8	0.00		C
	25	6	56	12.5	36- 5.5	114-38.3	5.1	1.4	4	157	1.7	0.00		C
APR	26	1	9	27.4	36- 5.7	114-44.0	3.7	2.3	4	124	5.1	0.01		C
	26	13	9	17.7	36- 5.9	114-44.0	5.4	1.5	7	104	4.8	0.04	0.4	1.1 B
	26	20	52	45.2	36- 5.7	114-44.2	5.4	1.9	7	99	5.1	0.03	0.3	0.8 B
	27	1	1	59.8	36- 4.2	114-39.9	5.0*	1.3	3	218	2.7	0.01		C
	27	5	3	21.7	36- 5.7	114-44.0	5.1	2.4	9	81	5.1	0.04	0.2	0.7 B
	27	14	58	6.7	36- 5.6	114-44.1	5.1	2.2	9	82	5.3	0.03	0.2	0.6 B
	28	8	54	58.9	35-59.6	114-34.3	8.6	1.4	4	176	5.8	0.07		C
	6	18	13	8.2	36- 7.1	114-42.7	6.8	1.8	6	146	8.3	0.01	0.1	0.3 B
	8	10	48	3.4	36- 3.1	114-49.2	5.0	1.4	5	199	4.2	0.03	0.9	2.1 C
	8	11	56	13.3	36- 0.8	114-42.7	5.0	1.4	4	174	2.5	0.11		C
	9	10	19	20.9	36- 0.0	114-42.4	4.2	1.2	5	88	3.8	0.03	0.4	1.2 C
	9	10	46	57.2	36- 5.8	114-44.1	6.2	1.3	5	139	5.0	0.01	0.2	0.4 C
	9	14	45	51.3	36- 0.8	114-45.1	2.3	1.1	5	144	5.2	0.02	0.3	1.8 C
	10	4	27	35.5	36- 7.3	114-42.7	6.0	1.4	5	161	2.9	0.01	0.2	0.3 C
	10	16	18	40.9	36- 0.0	114-42.4	3.4	1.7	6	90	3.8	0.03	0.3	0.9 A
	10	16	19	54.3	36- 0.1	114-42.4	3.2	2.1	8	74	3.8	0.02	0.2	0.5 A
	10	20	1	10.4	36- 5.1	114-45.3	10.1	1.9	8	89	6.6	0.04	0.4	0.9 A
	10	21	54	58.7	36- 1.9	114-44.1	8.8	1.3	6	170	3.0	0.09	1.2	2.2 C
	11	15	43	56.2	36- 3.8	114-49.1	1.1	1.7	5	126	5.4	0.04	0.4	8.7 D
	12	8	55	11.3	36- 5.4	114-45.1	10.9	1.2	5	143	6.0	0.04	1.0	1.7 C
	12	14	19	34.4	36- 5.5	114-40.7	6.0	1.6	7	116	4.3	0.02	0.2	0.3 B
	13	18	11	5.9	35-59.0	114-46.9	5.1	1.5	4	157	4.8	0.00		C
	14	1	21	9.1	36- 5.9	114-44.3	6.8	1.5	4	213	4.8	0.00		C
	14	12	31	58.0	35-58.5	114-48.1	5.6	1.7	6	196	5.3	0.05	0.9	1.7 C
	14	13	26	29.5	36- 4.8	114-40.4	5.0*	1.1	3	253	3.4	0.00		C

TABLE 2. (CONTINUED)

	DATE	HR	MIN	SEC	LAT N	LONG W	DEPTH	MAG	NO	GAP	DMIN	RMS	ERH	FRZ	Q		
1973	APR	15	6	29	12.4	36- 3.6	114-49.4	1.6	1.7	8 133	5.0	0.06	0.6	6.4	C		
		15	7	22	32.0	35-55.6	114-38.5	3.4	1.6	5 232	2.6	0.05	1.5	1.2	C		
		16	1	25	21.7	35-56.4	114-50.1	5.0*	1.4	3 275	7.2	0.06			C		
		16	17	26	9.4	36- 0.6	114-45.0	3.9	1.5	6 140	5.2	0.03	0.3	1.0	B		
		16	17	28	32.2	36- 0.8	114-45.2	2.6	1.4	5 144	5.4	0.01	0.2	1.0	C		
		16	17	40	58.5	36- 0.7	114-45.1	2.5	1.0	5 142	5.3	0.01	0.2	1.1	C		
		17	6	55	30.8	36- 0.6	114-45.0	1.4	1.2	5 140	5.2	0.01	0.1	2.0	C		
		18	5	31	57.7	36- 5.1	114-36.2	4.2	2.8	9 132	3.1	0.01	0.1	0.2	B		
		18	12	45	0.0	36- 2.4	114-47.5	9.5	1.3	6 151	4.6	0.04	0.8	1.7	B		
		18	18	26	45.3	36- 0.7	114-45.2	4.1	1.7	8 91	5.3	0.03	0.2	0.7	B		
		19	3	46	35.4	36- 2.4	114-47.8	6.9	1.3	4 227	8.7	0.00			C		
		20	0	0	34.1	36- 5.5	114-40.8	5.9	1.6	6 122	4.3	0.01	0.1	0.1	B		
		20	3	13	7.8	36- 2.6	114-48.0	1.3	1.3	7 96	4.3	0.04	0.4	5.6	C		
		21	23	41	19.8	36- 4.4	114-38.0	5.2	1.5	7 106	0.3	0.03	0.2	0.4	B		
		22	0	11	9.4	36- 5.5	114-40.7	6.2	1.1	5 157	4.2	0.01	0.2	0.3	C		
		22	0	19	13.0	36- 0.7	114-45.1	2.7	1.3	5 142	5.3	0.01	0.1	0.7	C		
		22	13	5	0.3	36- 5.9	114-43.8	5.6	1.6	7 109	4.7	0.04	0.4	1.0	B		
		22	21	13	9.1	36- 5.5	114-38.4	5.0	1.1	5 106	1.8	0.02	0.2	0.5	C		
		23	17	47	13.1	35-56.9	114-49.7	1.7	1.8	6 255	6.5	0.01	0.3	1.2	C		
		24	8	43	58.1	36- 5.4	114-44.0	5.1	1.9	8 79	5.6	0.05	0.4	1.1	B		
		24	12	15	59.7	36- 5.7	114-44.0	5.9	1.5	7 102	5.2	0.03	0.3	0.7	B		
		25	0	11	3.7	36- 0.1	114-43.2	0.3	2.0	6 106	4.0	0.06	0.5		C		
		25	0	12	21.1	36- 0.2	114-43.8	0.5	1.6	4 197	4.3	0.02			C		
		25	0	59	41.2	36- 5.5	114-40.8	6.0	1.6	7 116	4.3	0.01	0.1	0.3	B		
		25	16	26	12.8	36- 0.1	114-42.4	4.2	1.2	5 91	3.7	0.03	0.4	1.1	C		
		25	20	52	15.7	36- 0.3	114-44.1	0.5	1.5	4 206	4.4	0.02			C		
		26	17	47	25.2	35-58.7	114-46.9	4.5	1.3	4 162	4.4	0.00			C		
		27	2	27	27.8	36- 1.1	114-48.3	12.8	1.4	4 173	2.7	0.10			C		
		28	1	0	1.2	35-58.9	114-46.8	4.6	1.7	5 156	4.7	0.03	0.8	2.3	C		
		29	11	12	42.9	35-58.7	114-47.1	5.0	1.0	4 169	4.6	0.00			C		
		29	13	29	38.4	36- 0.9	114-50.4	7.6	1.7	5 259	0.6	0.01	0.7	0.9	C		
		30	16	46	21.1	36- 0.7	114-45.6	7.6	1.3	7 97	5.9	0.03	0.3	0.8	B		
		30	18	46	25.7	36- 0.4	114-45.4	5.0	1.3	4 140	6.0	0.00			C		
		30	20	35	5.4	36- 3.9	114-42.6	5.9	1.4	4 195	3.5	0.00			C		
		30	20	42	54.3	36- 3.1	114-42.1	5.0*	1.2	3 174	1.9	0.08			C		
			MAY	1	0	15	7.2	36- 4.0	114-42.5	6.5	2.1	9 55	3.6	0.03	0.2	0.4	A
		1		0	20	33.7	36- 5.6	114-40.7	6.1	1.4	6 115	4.2	0.02	0.2	0.5	B	
		1		0	36	46.8	35-56.9	114-49.3	4.4	2.0	8 253	6.0	0.08	1.8	2.2	C	
		1		0	49	58.8	36- 3.8	114-42.4	6.4	1.3	5 194	3.4	0.02	0.3	0.5	C	
		1		2	0	0.9	36- 4.6	114-40.2	4.3	1.1	4 243	3.1	0.02			C	
		1		13	0	35.5	36- 6.4	114-41.3	6.0	1.5	5 167	5.5	0.00	0.1	0.2	C	
		2		1	58	36.6	36- 5.9	114-44.1	5.4	1.3	6 140	4.7	0.02	0.3	0.8	B	
		2		3	25	17.6	35-58.6	114-47.1	5.0	1.3	4 170	4.4	0.01			C	
		2		18	58	14.8	36- 0.7	114-45.6	8.4	1.9	7 97	5.9	0.04	0.5	1.3	B	
		2		22	14	23.7	36- 4.0	114-42.5	6.7	1.7	8 102	3.7	0.02	0.2	0.4	B	

TABLE 2. (CONTINUED)

DATE	HR	MIN	SEC	LAT N	LONG W	DEPTH	MAG	NO	GAP	DMIN	RMS	ERH	ERZ	Q
1973 MAY	2	22	14	51.1	36- 3.9	114-42.5	6.3	1.4	5	101	3.5	0.02	0.4	0.7 C
	2	3	52	50.2	36- 6.4	114-41.3	6.0	1.6	6	126	5.4	0.01	0.1	0.2 B
	3	15	27	29.1	35-58.5	114-48.4	5.6	1.1	4	205	5.1	0.00		C
	3	16	52	5.3	36- 3.9	114-42.5	6.4	1.7	6	102	3.5	0.02	0.2	0.4 B
	2	23	54	43.4	35-58.6	114-48.7	6.2	1.7	6	211	4.9	0.06	1.7	2.9 C
	4	1	22	56.3	36- 5.1	114-46.0	1.3	1.6	7	96	7.0	0.05	0.4	10.2 C
	4	2	1	11.0	36- 5.2	114-46.0	3.4	2.4	9	98	6.9	0.05	0.3	1.8 B
	4	2	2	42.4	35-54.7	114-47.2	0.9	1.7	6	269	4.6	0.07	1.7	8.5 D
	4	9	4	1.1	36- 7.8	114-36.5	0.2	1.0	4	148	5.6	0.00		C
	5	3	25	1.1	36- 0.8	114-45.1	3.5	1.9	7	95	5.2	0.03	0.3	1.0 B
	5	13	17	51.4	35-58.9	114-48.0	3.8	1.0	5	186	4.9	0.02	0.7	1.9 C
	5	21	13	57.9	36- 6.2	114-43.8	5.9	1.8	6	134	4.3	0.02	0.3	0.6 B
	6	6	17	2.5	36- 5.9	114-43.5	5.2	1.5	7	114	4.8	0.03	0.3	0.8 B
	6	14	23	41.8	36- 4.6	114-35.2	5.0*	1.1	3	227	4.4	0.03		C
	6	17	40	56.2	36- 5.2	114-46.2	3.1	1.8	7	100	7.0	0.05	0.5	3.2 B
	6	21	13	19.3	36- 6.5	114-39.1	5.4	1.5	6	99	3.9	0.02	0.2	0.5 B
	7	16	53	56.6	36- 0.6	114-45.0	2.3	1.3	4	140	5.2	0.00		C
	7	17	27	35.8	36- 0.7	114-45.1	4.1	1.4	6	141	5.2	0.04	0.4	1.2 B
	7	18	54	51.5	36- 0.8	114-45.1	3.5	1.8	7	95	5.2	0.03	0.3	1.0 B
	7	19	0	21.5	36- 5.3	114-46.1	4.1	1.9	7	173	6.8	0.04	0.5	1.8 B
	8	11	15	53.1	36- 4.9	114-42.4	5.0*	1.4	3	298	5.3	0.03		C
	8	11	28	27.9	36- 5.3	114-45.9	4.3	1.7	8	99	6.7	0.05	0.4	1.8 B
	8	14	10	29.7	36- 0.7	114-45.1	3.1	1.6	6	143	5.3	0.03	0.3	1.1 B
	8	16	33	59.1	35-58.9	114-48.2	4.3	1.7	5	190	4.8	0.02	0.8	2.1 C
	8	17	30	59.3	36- 5.1	114-46.0	4.3	2.1	8	96	7.0	0.05	0.4	1.6 B
	8	22	17	47.1	36- 6.6	114-41.6	6.7	1.3	4	167	4.9	0.00		C
	9	4	7	12.5	36- 6.0	114-43.4	5.3	1.7	5	187	4.6	0.02	0.4	0.9 C
	9	21	0	27.4	35-59.8	114-42.6	5.6	1.4	5	89	4.3	0.01	0.1	0.2 C
	9	21	25	22.3	36- 6.5	114-41.3	6.0	1.6	5	169	5.4	0.01	0.1	0.3 C
	10	0	35	12.0	35-58.6	114-47.3	5.0*	1.3	3	174	4.6	0.00		C
	10	17	1	50.3	36- 0.7	114-45.2	1.6	1.5	5	143	5.4	0.02	0.2	2.8 C
	10	22	26	21.8	35-58.9	114-48.0	3.9	1.4	5	186	5.0	0.01	0.6	1.5 C
	10	23	34	1.1	36- 6.7	114-41.6	7.0	1.2	4	169	4.8	0.00		C
	11	2	43	38.7	35-59.0	114-42.1	5.0*	1.0	3	198	5.6	0.15		C
	11	5	35	11.9	36- 7.5	114-44.0	7.2	1.6	4	201	1.9	0.01		C
	11	21	38	28.0	36- 0.5	114-43.9	1.9	1.7	6	129	4.0	0.08	0.4	2.3 B
	12	2	33	46.1	36- 6.6	114-41.3	6.4	1.5	5	171	5.3	0.01	0.2	0.4 C
	12	5	53	4.5	36- 6.6	114-41.3	6.3	1.9	7	170	5.3	0.01	0.2	0.3 B
	12	6	5	7.1	36- 6.5	114-41.3	6.4	1.4	5	169	5.3	0.00	0.0	0.1 C
	23	19	3	23.9	36- 6.5	114-41.1	5.4	0.9	4	171	5.6	0.00		C
	24	0	25	33.8	36- 0.5	114-44.1	0.6	1.7	6	130	4.2	0.08	0.7	C
	24	5	41	41.5	36- 6.6	114-41.3	5.9	1.8	8	93	5.3	0.01	0.1	0.2 B
	24	9	21	11.4	36- 6.5	114-41.2	5.6	1.4	5	172	5.5	0.00	0.1	0.1 C
	24	9	45	26.1	36- 6.5	114-41.2	5.6	1.4	5	170	5.4	0.00	0.1	0.2 C
	24	21	19	36.1	36- 0.4	114-44.0	0.7	2.0	6	127	4.3	0.07	0.7	C

TABLE 2. (CONTINUED)

DATE	HR	MN	SEC	LAT N	LONG W	DEPTH	MAG	NO GAP	DMIN	RMS	ERH	ERZ	Q
MAY	25	8	30	51.5	36- 8.3	114-36.7	4.3	1.0	4 156	4.8	0.02		C
	25	10	36	1.5	35-59.7	114-43.7	2.9	1.5	5 107	5.0	0.03	0.4	2.2 C
	25	12	14	34.9	35-58.2	114-48.1	8.7	1.7	6 205	4.9	0.04	1.3	2.1 C
	25	19	45	41.9	35-58.7	114-47.2	5.0	1.4	4 171	4.6	0.01		C
	25	19	52	35.5	36- 6.6	114-41.2	5.8	1.7	6 122	5.4	0.01	0.1	0.2 B
	26	22	40	17.6	36- 4.0	114-42.4	7.7	1.7	7 101	6.5	0.03	0.2	0.8 B
JUN	6	22	38	9.5	36- 3.9	114-46.0	9.5	1.8	8 79	6.9	0.04	0.4	1.1 A
	6	22	52	48.7	36- 3.9	114-46.1	9.7	2.1	8 79	6.9	0.04	0.3	0.9 A
	7	15	23	59.6	36- 6.3	114-44.6	5.0	1.5	4 220	4.2	0.01		C
	8	15	7	44.4	36- 6.3	114-41.6	6.7	1.1	4 161	5.3	0.00		C
	7	23	41	49.0	36- 7.6	114-42.8	5.5	2.1	5 171	2.3	0.00	0.1	0.2 C
	20	10	29	36.2	36- 6.5	114-42.2	7.8	0.5	8 156	4.5	0.09	1.2	1.0 C
	20	12	54	9.1	36- 6.6	114-41.1	4.6	1.3	7 121	5.5	0.08	0.9	1.7 B
	22	7	31	28.7	35-58.8	114-47.9	4.7	1.7	8 191	5.5	0.06	0.7	1.3 C
	22	15	57	11.4	36- 5.9	114-44.1	1.4	1.7	8 178	4.9	0.06	0.6	6.0 C
	23	9	21	10.2	36- 6.0	114-45.0	5.1	1.1	7 227	4.8	0.10	1.3	2.9 C
	23	11	48	13.3	36- 5.3	114-44.8	7.8	1.3	7 190	6.1	0.07	1.0	1.5 C
	23	12	11	1.9	36- 5.4	114-45.1	7.3	1.2	8 195	5.9	0.06	0.8	1.3 C
	23	13	5	51.6	36- 5.1	114-45.6	8.1	1.8	7 204	6.7	0.04	0.6	1.1 C
	22	13	8	58.4	36- 5.3	114-44.9	7.8	1.3	9 192	6.0	0.06	0.6	0.9 C
	23	14	8	38.8	36- 5.3	114-44.9	7.8	0.4	7 192	6.0	0.07	1.1	1.3 C
	24	0	5	46.8	36- 0.8	114-45.5	8.2	2.4	6 192	5.8	0.03	0.5	0.9 C
	24	2	23	2.4	36- 5.5	114-41.0	6.5	1.1	9 120	4.6	0.07	0.5	1.1 B
	25	21	32	51.7	36- 3.8	114-47.6	5.9	1.1	6 227	9.0	0.04	0.8	2.0 C
	26	14	40	3.9	36- 6.7	114-44.0	6.4	1.0	8 176	3.3	0.09	1.1	2.4 C
	26	23	32	13.9	35-58.9	114-43.0	7.9	0.3	7 97	5.5	0.10	1.0	2.1 B
	27	0	16	33.4	36- 0.6	114-45.0	0.6	1.3	6 91	5.2	0.04	0.3	C
JUL	1	0	23	39.1	35-55.7	114-49.0	9.6	1.4	6 320	5.8	0.09	1.8	2.5 C
	1	14	15	14.0	35-58.3	114-47.3	7.7	1.0	7 238	4.2	0.07	1.0	1.8 C
	1	15	58	34.0	36- 9.6	114-35.0	3.9	1.5	7 194	2.8	0.07	1.3	2.3 C
	1	18	11	60.0	36-12.4	114-45.2	6.2	2.4	6 198	7.5	0.12	2.0	3.4 C
	4	23	3	19.9	35-59.8	114-45.6	7.6	0.8	6 235	5.8	0.09	1.4	1.8 C
	5	13	37	31.9	36- 6.5	114-44.2	6.9	0.7	5 210	3.7	0.05	1.6	2.6 C
	5	16	0	21.6	36-10.1	114-44.0	5.0	2.1	4 267	3.1	0.13		C
	6	3	14	23.6	35-58.4	114-49.4	6.5	0.8	5 299	6.8	0.02	0.6	1.1 C
	6	3	52	15.3	36- 6.0	114-44.0	0.4	1.4	6 175	4.7	0.01	0.2	17.9 C
	7	16	32	24.6	36- 6.1	114-42.7	6.7	1.2	8 145	4.7	0.07	0.6	1.5 B
	7	23	30	6.7	36- 3.9	114-48.3	0.7	1.3	6 253	14.1	0.05	0.8	D
	8	2	19	53.6	36- 3.6	114-48.1	5.0	1.8	6 232	11.0	0.05	1.1	3.9 C
	9	0	4	7.3	36- 6.1	114-44.6	0.6	1.4	5 232	10.1	0.06	0.2	0.1 C
	11	13	41	4.7	36- 1.1	114-49.5	0.8	1.8	5 265	10.3	0.08	4.2	D
	14	7	51	54.9	36- 6.1	114-43.3	7.0	1.2	12 121	4.6	0.08	0.4	0.8 B
	17	9	3	44.3	36- 9.4	114-35.8	3.5	1.0	6 166	2.7	0.07	1.1	2.3 C
	17	10	2	40.4	36- 9.8	114-36.2	6.0	0.9	7 153	1.9	0.06	0.9	1.5 B
	17	21	9	4.0	36- 8.9	114-42.0	8.2	0.8	6 175	2.9	0.05	0.8	0.9 B

TABLE 2: (CONTINUED)

	DATE	HR	MIN	SEC	LAT N	LONG W	DEPTH	MAG	NO	GAP	DMIN	PMS	ERH	ERZ	Q
973	JUL	18	3	9	37.9	36- 5.8	114-39.9	7.4	1.1	6	109	3.5	0.14	1.4	3.0 B
		19	3	47	52.8	36- 7.9	114-35.9	5.9	0.9	8	164	1.7	0.05	0.6	1.0 B
		20	20	34	12.0	36- 0.9	114-37.2	1.1	1.5	10	116	6.8	0.07	0.3	11.2 C
		20	21	1	43.8	36- 2.4	114-38.3	8.1	1.1	6	99	4.0	0.09	1.7	4.0 B
		22	12	26	39.6	35-55.7	114-38.5	5.1	0.9	8	231	2.4	0.07	0.6	1.1 C
		22	17	5	52.9	36- 5.4	114-45.9	4.6	1.5	7	171	6.4	0.02	0.3	0.9 B
		23	8	19	42.2	36- 6.5	114-39.5	6.6	0.4	7	188	4.2	0.03	0.4	0.6 C
		23	10	2	1.8	36- 5.8	114-46.4	5.8	1.2	10	186	6.2	0.04	0.3	0.5 C
		24	17	21	58.9	36- 9.5	114-39.1	0.4	1.7	6	163	5.1	0.11	1.1	C
		24	23	49	38.7	36- 5.4	114-46.1	2.9	1.5	8	174	6.7	0.03	0.3	1.4 B
		25	3	36	26.7	36- 5.9	114-46.4	5.9	0.7	11	186	6.1	0.09	0.5	1.1 C
		25	8	56	45.7	36- 9.6	114-39.1	0.9	1.8	8	170	5.1	0.07	0.7	14.8 C
		25	10	6	19.9	36- 9.8	114-39.3	1.0	2.6	8	177	5.2	0.07	0.9	13.0 C
		25	10	27	11.3	36- 9.9	114-39.5	1.1	1.9	8	185	5.3	0.06	0.7	8.9 D
		25	10	31	5.2	35-10.6	114-39.2	5.5	1.5	10	204	4.7	0.10	0.9	1.9 C
		25	20	52	27.1	36- 0.9	114-45.8	8.8	1.3	9	101	6.1	0.10	0.8	2.2 B
		26	5	4	48.3	36-10.9	114-39.1	5.9	1.7	9	214	4.5	0.12	1.5	2.8 C
		28	20	32	58.6	36-13.1	114-50.1	5.0	2.1	7	308	12.6	0.14	4.7	3.1 D
		29	4	10	12.0	36- 6.2	114-44.1	4.4	0.9	8	142	4.2	0.04	0.4	1.1 B
		29	12	7	53.9	36- 1.5	114-52.2	6.8	0.8	11	304	3.4	0.05	0.4	0.3 C
		29	16	51	35.8	36- 9.8	114-36.2	6.0	0.6	6	153	1.9	0.05	1.1	1.1 C
		29	16	51	43.1	36-10.4	114-36.5	6.8	1.1	6	149	0.9	0.03	0.6	0.8 B
		31	22	16	24.4	36- 9.7	114-35.9	4.9	0.6	7	161	2.1	0.04	0.6	0.7 B
	AUG	1	2	22	36.2	36- 9.8	114-35.8	5.2	0.9	7	169	2.0	0.03	0.4	0.7 B
		1	14	27	11.6	36- 5.6	114-43.8	6.1	0.6	7	131	5.4	0.19	1.4	3.5 B
		3	9	34	6.1	36- 4.0	114-50.4	5.9	1.0	11	235	5.7	0.06	0.4	0.9 C
		4	2	19	47.0	35-58.9	114-47.3	6.6	0.9	8	169	5.1	0.04	0.4	1.0 B
		4	3	32	22.9	35-55.8	114-38.8	5.0	1.2	8	230	2.2	0.08	0.9	1.1 C
		4	19	9	3.7	36- 6.7	114-41.5	6.6	0.8	11	95	4.8	0.05	0.3	0.6 B
		4	19	18	16.0	36- 4.5	114-43.5	6.4	1.0	12	119	5.0	0.07	0.3	1.0 B
		6	9	2	35.9	35-55.5	114-38.7	4.1	0.4	8	233	2.7	0.04	0.4	0.4 C
		6	10	9	54.1	36- 4.9	114-42.1	7.0	0.2	6	159	5.4	0.07	1.0	1.2 B
		6	22	24	58.8	36- 5.3	114-42.7	7.1	0.4	8	110	6.1	0.15	1.0	2.2 B
		7	11	57	0.0	36- 6.2	114-44.3	3.7	0.3	7	147	4.2	0.03	0.3	0.8 B
		9	4	12	14.1	35-56.3	114-50.0	5.5	0.9	8	274	7.1	0.06	0.6	1.1 C
		9	18	28	49.0	35-55.9	114-38.9	5.0	1.7	7	165	2.0	0.05	0.5	0.8 B
		9	20	5	41.6	35-55.3	114-38.4	4.9	0.5	8	282	3.3	0.05	0.5	0.4 C
		9	20	5	47.0	35-55.8	114-38.4	5.0	1.3	9	210	2.5	0.05	0.5	0.6 C
		10	2	50	43.6	36- 5.8	114-43.5	3.3	0.5	8	125	5.0	0.16	1.2	4.1 B
		10	8	43	28.2	36- 5.4	114-40.2	1.7	1.3	11	85	3.5	0.10	0.5	2.8 B
		11	13	5	14.5	35-57.4	114-57.1	5.0	1.3	9	324	12.4	0.10	1.2	4.0 C
		13	1	50	55.0	35-59.4	114-42.7	3.9	0.6	6	87	5.0	0.00	0.0	0.2 B
		14	11	42	20.5	36- 8.7	114-42.2	5.0	0.8	8	229	2.6	0.03	0.3	0.5 C
		14	23	48	41.5	36- 6.0	114-43.5	5.2	0.6	7	127	4.7	0.05	0.5	1.5 B
		15	9	15	1.7	36- 6.8	114-43.5	6.2	0.4	9	128	3.2	0.04	0.3	0.7 B

TABLE 2. (CONTINUED)

	DATE	HR	MIN	SEC	LAT N	LONG W	DEPTH	MAG	NO	GAP	DMIN	RMS	ERH	ERZ	Q
973	AUG	22	8	4	50.8	36- 9.1	114-42.9	7.1	0.8	9 198	1.9	0.14	1.5	2.3	C
		22	15	43	30.4	36- 3.3	114-44.0	5.0	0.5	5 215	0.4	0.03	0.2	0.2	C
		24	1	10	8.1	35-58.4	114-49.5	7.8	0.7	6 299	6.9	0.03	0.7	1.3	C
		24	8	15	21.6	36- 0.8	114-46.4	7.2	0.5	8 149	5.5	0.08	0.7	1.0	B
		26	10	31	40.0	36- 9.1	114-36.3	3.0	1.6	7 247	8.8	0.03	0.7	2.0	C
		26	13	51	25.5	36- 7.4	114-39.0	3.3	0.4	8 208	5.4	0.03	0.2	0.6	C
		26	15	27	33.5	36- 4.0	114-41.6	8.3	0.5	6 102	3.7	0.04	0.6	1.0	B
		26	18	58	27.2	36- 5.0	114-36.8	5.0	1.1	4 243	2.3	0.07			C
		27	1	53	38.8	36- 3.2	114-42.3	8.0	0.9	6 227	2.1	0.02	0.4	0.5	C
		27	4	50	22.3	36- 9.7	114-35.6	4.1	1.4	8 282	10.2	0.07	0.8	3.1	C
		27	4	50	51.4	36- 9.0	114-35.4	7.0	1.2	10 250	9.3	0.12	1.1	2.4	C
		27	5	9	6.0	36- 9.6	114-36.0	8.2	1.4	6 301	10.0	0.09	1.9	3.7	C
		27	6	44	6.4	36- 9.1	114-35.8	3.7	1.4	9 249	9.2	0.02	0.2	0.9	C
		27	16	46	6.7	36- 4.3	114-42.1	7.0	1.4	7 104	4.1	0.04	0.4	0.8	B
		28	13	5	56.2	35-58.5	114-49.0	7.3	0.1	9 219	4.9	0.03	0.3	0.3	C
		29	14	41	44.6	36- 6.4	114-42.2	8.3	0.3	9 154	4.6	0.04	0.4	0.5	B
		29	20	41	2.8	36- 0.9	114-39.0	4.4	0.4	6 95	5.0	0.04	0.5	1.5	B
		31	11	42	38.3	35-57.1	114-58.0	1.9	1.7	9 313	13.9	0.09	1.5	12.6	D
SEP		1	2	3	24.2	36- 7.4	114-39.3	4.0	0.8	6 206	5.5	0.03	0.4	1.1	C
		1	5	2	41.3	36- 3.8	114-50.4	5.7	0.9	7 234	5.3	0.03	0.5	1.0	C
		1	7	38	55.1	36- 4.0	114-50.4	6.1	1.1	9 236	5.8	0.05	0.4	0.9	C
		1	8	40	18.8	36- 7.1	114-39.2	1.7	1.2	7 203	5.1	0.04	0.4	2.4	C
		2	6	13	43.1	36- 7.2	114-39.1	2.9	1.1	7 204	5.2	0.02	0.2	0.8	C
		2	19	6	10.4	36- 5.3	114-40.7	5.6	1.7	7 151	4.1	0.03	0.3	0.7	B
		2	20	54	35.7	36- 5.7	114-40.3	7.5	0.8	9 167	3.8	0.09	0.6	1.3	B
		3	8	13	51.4	36- 5.3	114-40.6	5.7	1.7	8 150	3.9	0.03	0.3	0.6	B
		5	8	57	0.6	36- 4.0	114-46.1	7.8	1.6	7 155	7.0	0.02	0.3	0.7	B
		5	16	16	6.2	35-59.1	114-47.7	6.8	1.2	6 173	5.0	0.03	0.7	1.4	B
		5	20	44	57.4	36- 3.9	114-45.8	7.4	1.6	7 149	6.6	0.02	0.2	0.5	B
		6	4	19	53.0	35-57.2	114-49.4	3.5	1.7	9 168	6.1	0.05	0.3	1.0	B
		6	23	41	23.2	35-57.7	114-56.8	5.0	1.6	6 258	11.7	0.17	4.4	9.2	D
		8	8	3	24.5	36- 9.5	114-35.7	5.1	0.4	7 169	2.6	0.07	1.0	1.1	C
		8	12	57	50.6	36- 5.4	114-36.1	3.0	1.4	7 135	3.4	0.08	0.6	2.0	B
		8	23	28	55.9	35-56.7	114-58.6	3.4	1.8	8 322	15.0	0.02	0.4	1.7	C
		9	6	8	43.0	35-55.3	114-38.8	4.2	0.8	7 237	3.1	0.04	0.3	0.7	C
		9	7	9	25.0	36- 1.1	114-48.1	8.0	0.4	8 160	2.9	0.05	0.4	0.7	B
		10	6	14	0.5	36- 0.7	114-43.9	0.4	1.6	7 119	3.8	0.06	0.5		C
		10	11	29	35.8	36- 3.5	114-48.2	9.3	1.3	8 202	5.5	0.03	0.3	0.6	C
		10	16	20	28.4	35-58.1	114-48.5	6.9	0.6	9 215	5.4	0.06	0.5	0.6	C
		12	9	52	37.9	35-55.7	114-38.9	4.1	1.6	8 230	2.2	0.05	0.6	0.8	C
		12	16	33	5.8	36-14.0	114-47.9	9.5	1.8	6 295	18.6	0.05	1.3	1.6	C
		12	11	37	5.3	36- 7.1	114-43.0	6.8	0.5	6 310	8.7	0.03	0.9	0.8	C
		14	11	37	20.0	36- 7.1	114-39.1	4.2	0.6	6 187	4.9	0.06	0.9	2.1	C
		14	23	45	18.2	36-10.2	114-35.8	6.9	1.0	6 177	1.2	0.05	0.9	1.3	B
		14	23	45	44.1	36- 9.7	114-36.2	5.9	0.4	7 152	2.1	0.06	0.9	0.8	B

TABLE 2. (CONTINUED)

DATE	HR	MIN	SEC	LAT N	LONG W	DEPTH	MAG	NO GAP	DMIN	RMS	FRH	FRZ Q
1973 SEP	15	4	56	53.7	36- 9.3	114-35.8	4.7	0.9	7 163	2.7	0.08	1.0 2.2 C
	15	11	14	3.4	36- 6.6	114-43.6	4.1	0.1	8 164	3.6	0.05	0.4 0.8 B
	16	2	22	0.6	36- 0.9	114-36.3	4.7	0.1	6 124	7.2	0.10	0.8 3.4 B
	17	9	13	33.6	35-58.3	114-48.6	6.5	0.2	9 215	5.5	0.04	0.3 0.4 C
	18	0	55	3.8	36- 5.8	114-44.9	6.2	0.1	7 156	5.1	0.04	0.4 0.7 B
	18	22	17	44.3	36- 9.2	114-35.9	2.2	2.3	8 158	3.0	0.06	1.0 3.8 C
	19	0	9	9.1	36- 6.8	114-41.2	6.5	0.3	10 97	5.1	0.05	0.3 0.6 B
	19	16	59	3.4	36- 4.6	114-37.9	4.5	1.1	7 108	0.4	0.02	0.2 0.3 B
	20	1	47	30.3	36- 9.8	114-36.5	4.3	1.2	6 170	2.0	0.04	1.0 1.7 B
	20	3	40	4.1	35-57.5	114-58.2	6.7	1.8	7 312	13.8	0.05	1.3 2.0 C
	20	4	37	34.5	35-55.6	114-49.4	5.6	0.6	7 274	6.4	0.04	0.6 1.1 C
	20	10	43	41.7	35-58.4	114-48.5	8.1	0.6	6 209	5.2	0.03	0.5 0.8 C
	20	15	7	50.4	36- 5.3	114-42.1	4.9	0.3	6 157	5.9	0.08	1.1 2.4 C
	21	18	48	34.4	36- 5.2	114-43.4	8.8	0.2	8 121	6.1	0.07	0.7 0.9 B
	28	2	43	36.3	35-58.3	114-48.3	8.2	1.3	6 208	5.3	0.03	1.0 1.7 C
OCT	1	14	49	9.0	35-57.1	114-57.7	6.9	1.9	7 312	13.5	0.05	1.2 2.0 C
	2	1	39	53.8	35-58.4	114-48.9	7.2	0.2	8 219	5.1	0.09	0.8 0.9 C
	2	13	49	54.6	35-55.4	114-38.8	4.5	0.3	7 235	2.9	0.05	0.4 0.9 C
	3	14	22	30.7	35-52.5	114-35.6	0.8	0.6	8 274	9.9	0.08	0.8 D
	3	22	35	36.2	36- 6.7	114-43.4	7.1	0.4	6 182	3.4	0.01	0.1 0.1 C
	4	7	51	42.5	36- 2.7	114-42.1	7.6	0.6	5 91	1.1	0.08	2.2 2.7 C
	4	10	14	3.7	36- 0.3	114-41.9	4.1	0.7	6 81	3.3	0.02	0.2 0.9 A
	4	17	54	59.2	36- 7.3	114-39.2	2.2	1.4	7 109	5.4	0.03	0.3 1.4 B
	5	3	11	37.7	36- 7.1	114-39.1	2.5	1.8	8 105	5.0	0.03	0.2 1.2 B
	5	10	50	22.4	36- 4.3	114-43.3	9.5	1.8	7 114	4.5	0.02	0.2 0.5 B
	9	14	32	36.9	36- 5.9	114-44.3	9.2	1.1	7 143	4.8	0.06	0.7 1.6 B
	9	20	13	32.8	36- 7.2	114-39.1	4.4	1.8	7 106	5.1	0.05	0.5 1.3 B
	9	20	14	2.0	36- 7.4	114-38.9	3.5	1.2	7 108	5.4	0.09	0.7 2.9 B
	9	20	16	6.6	36- 7.3	114-39.0	3.3	1.1	6 108	5.3	0.01	0.1 0.5 B
	9	23	43	0.2	36- 7.0	114-39.0	3.2	1.5	8 101	4.7	0.02	0.1 0.5 B
	10	7	43	28.1	36- 6.9	114-39.0	4.0	1.6	6 100	4.6	0.03	0.3 0.8 B
	11	18	37	17.2	36- 1.0	114-41.6	7.8	1.2	5 183	8.3	0.14	2.3 2.7 C
	12	21	19	22.6	36- 5.5	114-40.8	5.3	0.8	6 116	4.3	0.03	0.4 0.8 B
	12	22	15	53.6	36- 5.6	114-40.7	5.8	0.4	5 114	4.3	0.03	0.4 0.9 C
	12	6	57	15.6	36- 7.5	114-39.8	4.8	0.4	6 116	6.0	0.09	0.9 3.3 B
	14	11	53	2.0	36- 0.0	114-36.9	0.4	1.9	7 135	6.8	0.04	0.3 C
	14	12	7	25.1	35-59.9	114-36.9	3.6	1.1	5 137	6.5	0.03	0.3 0.9 C
	14	19	18	3.2	35-59.9	114-36.8	3.3	0.9	8 139	6.7	0.09	0.7 2.4 C
	16	7	43	27.3	35-57.3	114-45.5	4.0	1.3	8 142	1.2	0.08	0.8 1.4 B
	19	0	22	32.7	36- 6.4	114-39.1	6.3	1.1	8 99	3.8	0.08	0.6 1.4 B
	22	15	35	4.7	36- 7.2	114-39.0	4.5	1.7	8 105	5.1	0.04	0.3 0.7 B
	22	15	40	39.0	36- 7.3	114-39.0	3.5	1.3	7 108	5.3	0.06	0.5 1.8 B
	22	17	1	23.3	35-55.5	114-48.3	5.0	1.3	8 266	4.9	0.07	0.8 1.4 C
	26	18	36	39.5	36- 8.7	114-40.3	5.0	1.4	6 151	5.5	0.04	0.6 1.5 B
	28	7	56	45.4	35-55.6	114-49.5	6.0	1.3	8 274	6.5	0.04	0.5 0.8 C

TABLE 2. (CONTINUED)

DATE	HR	MN	SEC	LAT N	LONG W	DEPTH	MAG	NO	GAP	DMIN	RMS	ERH	ERZ	Q
1973	OCT	28	18	2	0.3	36- 5.2	114-45.8	10.3	0.6	9 167	6.6	0.04	0.3	0.4 B
		30	3	14	0.6	35-57.5	114-57.6	3.7	2.0	7 311	13.0	0.04	1.1	3.0 C
		30	13	33	15.2	36- 5.6	114-40.4	7.2	0.7	9 86	4.0	0.08	0.5	1.3 A
		30	15	2	10.3	36- 5.4	114-40.6	6.3	1.5	7 80	4.1	0.02	0.1	0.3 A
		30	15	47	40.1	36- 5.5	114-40.8	6.4	1.6	8 81	4.3	0.02	0.2	0.4 A
		30	17	41	52.7	36- 5.7	114-40.6	7.4	1.0	9 112	4.2	0.06	0.5	0.9 B
		30	17	51	48.5	36- 5.6	114-40.7	6.1	2.6	8 81	4.4	0.04	0.3	0.6 A
		30	18	11	22.9	36- 5.6	114-40.8	5.7	1.8	8 80	4.4	0.03	0.2	0.5 A
		30	19	52	46.8	36- 5.6	114-40.6	6.0	1.6	10 82	4.2	0.05	0.3	0.7 A
		30	20	15	47.6	36- 5.6	114-40.6	6.3	1.2	10 83	4.2	0.04	0.3	0.6 A
		30	21	19	52.1	36- 5.7	114-40.6	6.3	1.5	11 85	4.2	0.04	0.2	0.6 A
		30	23	32	41.7	36- 5.6	114-40.6	6.3	1.2	8 82	4.2	0.03	0.3	0.6 A
		31	4	22	8.0	36- 5.6	114-40.6	5.4	0.7	7 114	4.2	0.05	0.4	1.0 B
		31	5	3	40.6	36- 5.6	114-40.8	5.8	2.5	8 81	4.4	0.02	0.2	0.4 A
		31	5	5	19.9	36- 5.8	114-40.5	6.8	0.5	7 115	4.2	0.04	0.4	1.0 B
		31	5	12	4.2	36- 5.8	114-40.4	5.5	0.6	8 110	4.1	0.07	0.5	1.4 B
		31	5	30	37.5	36- 5.7	114-40.6	6.3	1.4	10 84	4.3	0.03	0.2	0.4 A
		31	5	32	12.2	36- 5.6	114-40.6	6.0	0.9	7 118	4.1	0.04	0.3	0.7 B
		31	5	32	29.6	36- 5.6	114-40.7	6.0	1.7	8 81	4.3	0.03	0.2	0.5 A
		31	6	12	47.6	36- 5.4	114-40.6	5.4	0.6	7 115	4.0	0.03	0.2	0.6 B
		31	6	24	8.1	36- 5.9	114-40.7	6.7	1.7	11 83	4.6	0.05	0.3	0.7 A
		31	9	0	5.3	36- 5.6	114-40.6	5.9	0.5	6 114	4.2	0.01	0.1	0.2 B
		31	9	7	16.5	36- 5.7	114-40.6	6.2	0.9	7 113	4.3	0.03	0.3	0.7 B
		31	12	36	38.8	36- 5.6	114-40.8	5.9	1.6	8 81	4.4	0.05	0.4	0.8 A
		31	13	38	16.6	36- 5.5	114-40.5	6.2	1.3	9 84	3.9	0.05	0.3	0.8 A
		31	20	44	16.6	36- 5.5	114-40.6	6.1	2.3	8 82	4.1	0.03	0.2	0.5 A
		31	22	45	30.7	36- 5.7	114-40.6	7.6	0.9	12 84	4.3	0.07	0.3	0.7 A
	NOV	1	5	17	26.9	36- 5.4	114-40.4	6.4	1.2	11 81	3.7	0.08	0.4	1.0 A
		1	5	35	21.1	36- 5.4	114-40.7	6.0	0.2	7 116	4.1	0.03	0.2	0.5 B
		1	9	17	5.0	36- 5.6	114-40.3	7.8	1.6	12 87	3.9	0.09	0.4	1.0 A
		2	3	6	7.5	36- 5.6	114-40.6	5.8	1.5	7 82	4.2	0.03	0.3	0.6 A
		2	7	20	58.1	36- 5.6	114-40.7	6.2	1.8	8 82	4.4	0.03	0.3	0.6 A
		2	8	53	51.9	36- 5.5	114-40.8	6.2	2.1	8 81	4.3	0.02	0.2	0.4 A
		2	11	26	38.2	36- 5.6	114-40.5	6.6	0.8	5 113	4.1	0.02	0.4	0.8 C
		3	15	49	29.0	35-57.4	114-48.3	9.6	1.8	6 230	4.5	0.02	0.7	1.0 C
		4	8	36	41.4	36- 5.4	114-40.5	6.1	0.8	6 114	3.9	0.02	0.2	0.5 B
		5	10	3	17.8	36- 7.1	114-39.1	4.9	2.6	7 104	5.0	0.04	0.3	0.9 B
		5	10	15	45.0	36- 7.1	114-39.1	4.0	1.4	6 103	4.9	0.03	0.3	1.0 B
		5	19	39	5.1	36- 7.2	114-38.9	4.3	1.6	6 134	5.0	0.01	0.1	0.3 B
		5	20	6	41.9	36- 7.0	114-39.1	4.0	0.8	7 102	4.7	0.03	0.3	0.8 B
		5	20	9	11.5	36- 7.3	114-39.1	3.0	2.4	7 108	5.4	0.02	0.2	0.8 B
		7	1	11	42.7	36- 2.4	114-46.5	9.9	1.2	5 136	6.0	0.04	1.0	2.6 C
		7	7	13	30.3	36- 7.2	114-38.9	5.1	2.2	7 105	5.0	0.03	0.2	0.6 B
		7	7	26	47.9	36- 7.0	114-39.0	4.6	1.7	7 101	4.7	0.03	0.3	0.7 B
		7	7	27	25.4	36- 6.9	114-38.9	4.0	1.5	7 101	4.5	0.04	0.3	0.9 B

TABLE 2. (CONTINUED)

DATE	HR	MM	SEC	LAT N	LONG W	DEPTH	MAG	NO	GAP	DMIN	PMS	ERH	ERZ	Q
1973 NOV	7	7	27	6.5	36- 7.1	114-38.9	4.6	1.9	7	102	4.8	0.02	0.2	0.4 B
	7	13	11	43.2	36- 6.9	114-38.9	3.4	1.2	6	102	4.4	0.03	0.3	0.9 B
	7	15	15	46.8	36- 0.3	114-50.2	11.1	1.3	6	234	1.3	0.05	1.3	1.9 C
	8	18	58	51.1	36- 7.1	114-38.7	3.2	1.2	6	139	4.8	0.02	0.3	0.8 B
	9	17	1	32.3	36- 5.6	114-40.6	6.0	1.5	7	84	4.2	0.03	0.3	0.6 A
	9	20	27	33.7	36- 5.6	114-40.4	6.9	1.3	6	111	3.9	0.03	0.3	0.6 B
	10	16	45	38.9	36- 6.4	114-44.3	4.6	1.7	6	148	4.0	0.03	0.5	1.2 B
	10	19	12	17.8	36- 6.5	114-39.0	6.6	1.5	7	100	3.8	0.03	0.3	0.5 B
	11	19	12	37.8	36- 5.4	114-40.7	5.4	1.8	7	80	4.2	0.05	0.4	0.9 A
	11	21	32	50.8	36- 5.6	114-40.6	5.8	0.5	6	114	4.2	0.00	0.0	0.1 B
	11	21	39	38.8	36- 0.3	114-45.3	3.5	0.9	5	134	5.9	0.03	0.5	2.1 C
	12	2	56	52.4	36- 0.4	114-45.0	2.5	0.8	5	136	5.4	0.01	0.2	1.1 C
	13	0	47	15.9	36- 5.4	114-40.5	6.1	0.8	8	82	3.8	0.06	0.4	0.9 A
	13	7	4	13.3	36- 2.6	114-52.7	4.7	1.5	8	276	5.0	0.09	1.2	2.1 C
	13	8	29	37.2	35-59.1	114-46.2	7.5	1.9	7	137	4.6	0.05	0.8	1.6 B
	13	20	38	5.2	35-57.6	114-48.6	8.3	1.7	8	232	5.2	0.06	0.8	1.3 C
	14	12	50	31.0	36- 5.8	114-40.8	5.4	1.1	6	115	4.7	0.01	0.1	0.3 B
	14	18	26	17.0	36- 5.6	114-40.7	6.1	1.2	3	82	4.4	0.03	0.3	0.6 A
	14	22	20	16.2	35-56.8	114-50.1	2.4	1.4	6	269	7.1	0.06	0.8	3.6 C
	15	7	37	11.4	36- 7.0	114-39.1	3.8	1.9	7	101	4.7	0.03	0.3	0.9 B
	15	15	31	34.9	35-57.5	114-47.8	8.9	1.5	8	218	3.9	0.05	0.5	0.8 C
	16	5	14	47.0	35-58.6	114-47.1	6.5	1.4	9	169	4.5	0.03	0.2	0.4 B
	16	18	53	12.2	35-58.6	114-47.5	7.6	1.6	9	181	4.8	0.04	0.4	0.5 C
	17	7	49	0.2	35-58.7	114-47.1	7.3	1.0	8	168	4.5	0.04	0.3	0.4 B
	17	8	7	5.6	35-59.2	114-45.7	6.9	1.7	8	123	4.6	0.05	0.5	1.1 B
	17	14	43	34.9	35-59.2	114-45.5	7.0	1.4	7	117	4.6	0.05	0.7	1.6 B
	17	19	20	34.4	35-58.6	114-47.6	7.8	1.3	7	183	5.0	0.01	0.1	0.1 C
	17	19	39	24.9	35-58.6	114-47.6	7.5	1.5	7	184	4.8	0.01	0.2	0.4 C
	17	22	54	42.3	35-59.0	114-47.3	5.0	1.4	6	164	5.1	0.11	2.3	6.1 C
	19	1	2	37.6	35-58.5	114-47.5	8.6	1.8	9	183	4.7	0.05	0.5	0.8 C
	19	2	21	2.2	35-57.5	114-59.4	6.7	1.9	9	315	15.4	0.08	1.3	3.0 C
	20	8	20	16.3	36- 5.6	114-40.8	5.4	2.0	7	80	4.4	0.04	0.3	0.7 A
	20	10	5	9.6	36- 5.5	114-40.5	6.3	0.5	7	160	3.9	0.03	0.3	0.3 B
	20	10	46	30.5	36- 5.5	114-40.9	5.4	0.4	7	152	4.5	0.03	0.3	0.4 B
	20	11	58	22.8	36- 5.6	114-40.4	6.5	1.7	10	87	3.9	0.07	0.4	1.0 A
	20	23	22	3.2	36- 5.6	114-40.6	5.7	1.8	8	83	4.1	0.03	0.2	0.5 A
	20	23	58	13.3	35-58.4	114-47.7	10.3	1.9	8	196	5.0	0.05	1.1	1.7 C
	21	12	58	3.6	35-58.9	114-47.5	8.4	1.8	10	174	5.2	0.04	0.3	0.6 B
	21	14	36	35.4	36- 5.9	114-40.5	8.1	1.8	12	85	4.4	0.06	0.3	0.8 A
	21	14	42	9.7	35-58.8	114-47.5	8.3	2.1	8	176	5.0	0.07	1.4	2.4 C
	22	5	46	20.7	36- 6.9	114-39.0	3.3	1.6	9	100	4.6	0.03	0.2	0.7 B
	22	13	50	43.8	36- 6.9	114-39.1	4.4	1.4	10	100	4.6	0.05	0.3	0.9 B
	23	15	47	2.0	35-58.7	114-47.6	8.4	1.5	10	178	5.0	0.04	0.3	0.6 B
	24	1	32	57.8	35-58.6	114-47.5	7.1	1.2	10	181	4.8	0.06	0.4	0.6 C
	24	4	58	32.2	36- 6.9	114-38.9	4.7	2.7	8	101	4.5	0.03	0.2	0.5 B

TABLE 2. (CONTINUED)

DATE	HR	MIN	SEC	LAT N	LONG W	DEPTH	MAG	NO	GAP	DMIN	RMS	ERH	ERZ	Q
1973 NOV	24	9	29	55.5	35-58.8	114-47.5	7.6	1.4	11	176	5.0	0.07	0.4	0.6 B
	24	12	1	5.9	36- 5.6	114-40.4	7.9	1.6	11	86	3.9	0.07	0.3	0.8 A
	24	21	20	34.6	36- 5.6	114-44.2	5.9	1.0	7	139	5.4	0.03	0.3	0.8 B
	25	4	19	5.4	36- 5.9	114-40.6	7.6	1.7	11	85	4.5	0.08	0.4	1.0 A
	25	9	59	29.7	36- 4.9	114-46.0	7.9	0.6	9	165	7.3	0.14	0.9	1.4 B
	25	22	32	9.6	36- 0.7	114-36.6	3.7	2.0	7	156	7.5	0.03	0.3	1.2 B
	26	3	50	26.6	36- 0.6	114-36.7	3.7	2.0	7	157	7.6	0.04	0.3	1.5 B
	26	6	43	37.3	35-58.2	114-47.7	9.6	1.5	7	198	4.5	0.05	0.6	1.1 C
	26	8	33	4.9	36- 6.8	114-39.1	4.1	2.2	7	99	4.4	0.03	0.2	0.6 B
	26	12	42	33.7	36- 6.8	114-39.0	3.9	2.4	7	101	4.3	0.02	0.2	0.5 B
	26	13	42	41.3	35-58.8	114-45.2	6.5	1.6	10	116	3.9	0.09	0.6	1.9 B
	27	18	47	19.5	36- 5.3	114-40.6	5.0	1.9	4	153	4.0	0.00		C
	27	19	47	4.6	36- 5.3	114-45.9	8.6	0.9	6	252	6.6	0.08	1.6	1.8 C
	28	1	44	20.0	36- 6.6	114-39.1	3.5	1.8	4	194	4.1	0.00		C
	28	1	55	49.4	36- 6.8	114-39.2	4.0	1.6	5	195	4.4	0.03	0.4	0.9 C
	28	5	12	38.4	36- 6.1	114-43.8	7.5	1.3	6	199	4.5	0.01	0.3	0.2 C
	28	6	24	26.7	36- 6.6	114-39.2	3.1	2.6	4	193	4.1	0.00		C
	28	7	15	34.4	36- 6.6	114-39.3	3.9	2.2	4	192	4.2	0.00		C
	28	9	46	32.1	36- 6.6	114-39.1	6.0	1.6	6	192	4.0	0.08	1.2	1.9 C
	28	10	2	3.9	36- 6.6	114-39.3	4.4	2.2	4	192	4.2	0.00		C
	28	10	40	40.4	36- 5.1	114-45.5	9.0	0.8	7	243	6.7	0.08	1.0	0.8 C
	28	10	44	16.7	36- 4.7	114-46.1	8.4	1.1	7	257	7.8	0.11	1.6	1.2 C
	28	17	37	4.5	36- 7.0	114-39.3	4.3	1.2	5	200	4.9	0.02	0.5	1.0 C
	29	6	12	46.3	36- 6.5	114-39.2	3.1	2.7	4	191	3.9	0.00		C
	29	6	13	36.5	36- 6.6	114-39.0	1.3	2.4	4	195	4.1	0.00		C
	29	6	14	28.0	36- 6.9	114-39.0	3.7	1.3	5	199	4.5	0.02	0.3	0.7 C
	29	6	18	31.3	36- 6.4	114-39.1	3.4	1.3	5	191	3.8	0.01	0.2	0.5 C
	29	6	21	46.6	36- 6.6	114-39.1	5.0	1.6	5	194	4.1	0.03	0.6	1.3 C
	29	6	23	3.3	36- 6.6	114-39.3	3.1	1.7	5	192	4.1	0.01	0.3	0.6 C
	29	7	23	39.0	36- 6.8	114-39.0	4.8	1.2	5	197	4.3	0.03	0.5	1.1 C
	29	8	7	47.7	36- 6.6	114-39.2	3.1	1.5	4	193	4.1	0.00		C
	29	23	30	27.1	36- 5.2	114-45.5	9.5	1.2	6	243	6.5	0.07	1.3	1.2 C
	30	6	19	28.1	36- 7.3	114-39.1	4.1	1.1	6	206	5.3	0.05	0.6	1.0 C
	30	6	55	16.5	36- 6.6	114-39.1	3.5	1.9	4	194	4.1	0.00		C
DEC	1	3	38	24.0	36- 6.6	114-39.3	3.9	1.8	4	192	4.2	0.00		C
	1	5	4	17.9	36- 6.4	114-39.1	3.1	2.3	4	189	3.7	0.00		C
	1	8	50	37.1	36- 6.6	114-39.0	4.6	1.1	5	194	3.9	0.02	0.4	0.9 C
	1	8	52	43.3	36- 6.5	114-39.1	4.3	1.5	4	192	3.9	0.00		C
	1	11	6	49.2	36- 6.4	114-39.2	3.8	1.3	4	189	3.7	0.00		C
	2	7	37	13.2	36- 4.2	114-45.6	11.5	1.1	7	251	6.6	0.12	1.8	1.4 C
	3	18	8	32.0	36- 5.4	114-44.4	7.9	1.3	6	218	5.7	0.06	1.3	0.8 C
	3	20	33	15.4	36- 6.5	114-39.2	3.9	1.8	4	190	3.9	0.00		C
	4	0	26	27.4	36- 5.4	114-44.5	8.1	1.1	6	220	5.8	0.05	1.2	0.8 C
	4	15	48	41.4	36- 5.7	114-44.0	8.4	1.8	5	205	5.2	0.06	1.9	2.1 C
	4	17	30	23.1	36- 6.9	114-39.0	3.7	1.1	5	199	4.5	0.01	0.2	0.7 C

TABLE 2. (CONTINUED)

DATE	HR	MIN	SEC	LAT N	LONG W	DEPTH	MAG	NO	GAP	DMIN	PMS	FRH	ERZ	Q
1973 DEC	4	17	35	1.5	36- 5.1	114-46.0	10.2	0.9	7	254	7.1	0.09	1.3	0.9 C
	5	5	47	20.4	36- 5.4	114-40.9	6.7	0.9	6	150	4.4	0.02	0.2	0.2 B
	5	15	25	39.2	36- 5.1	114-44.9	9.1	2.0	4	231	6.4	0.06		C

*The following data are given for each event:

- (1) Origin time in Greenwich Civil Time: date, hour (HR), minute (MN), and second (SEC). Date is given in year, month, and day.
- (2) Epicenter in degrees and minutes of north latitude (LAT N) and west longitude (LONG W).
- (3) DEPTH, depth of focus in kilometers.
- (4) MAG, Richter magnitude of the earthquake.
- (5) NO, number of stations used in locating earthquake.
- (6) GAP, largest azimuthal separation in degrees between stations.
- (7) DMIN, epicentral distance in kilometers to the nearest station.
- (8) RMS, root-mean-square error of the time residuals:

$$RMS = \sqrt{\frac{\sum_i R_i^2}{NO}}$$

where R_i is the observed seismic-wave arrival time minus the computed time at the i^{th} station.

- (9) ERH, standard error of the epicenter in kilometers:

$$ERH = \sqrt{SDX^2 + SDY^2}$$

SDX and SDY are the standard errors in latitude and longitude, respectively, of the epicenter. When $NO \leq 4$, ERH cannot be computed and is left blank.

- (10) ERZ, standard error of the ^{focal}/depth in kilometers. When $NO \leq 4$, ERZ cannot be computed and is left blank. If $ERZ \geq 20$ km, it is also left blank.
- (11) Q, solution quality of the hypocenter. This measure is intended to indicate the general reliability of each solution.

<u>Q</u>	<u>Epicenter</u>	<u>Focal Depth</u>
A	excellent	good
B	good	fair
C	fair	poor
D	poor	poor

Q is based on both the nature of the station distribution with respect to the earthquake and the statistical measure of the solution. These two factors are each rated independently according to the following schemes:

Station Distribution

	<u>NO</u>	<u>GAP</u>	<u>DMIN</u>
A	≥ 6	$\leq 90^\circ$	$\leq \text{DEPTH or } 5 \text{ km}$
B	≥ 6	$\leq 135^\circ$	$\leq 2 \times \text{DEPTH or } 10 \text{ km}$
C	≥ 6	$\leq 180^\circ$	$\leq 50 \text{ km}$

Statistical Measures

	<u>RMS (sec)</u>	<u>ERH (km)</u>	<u>ERZ (km)</u>
A	< 0.15	< 1.0	< 2.0
B	< 0.30	< 2.5	< 5.0
C	< 0.50	< 5.0	
D	Others		

Q is taken as the average of the ratings from the two schemes, i.e., an A and a C yield a B, and two B's yield a B. When the two ratings are only one level apart the lower one is used, i.e., an A and a B yield a B.

REFERENCES

- Carder, D. S. (1945). Seismic investigation in the Boulder Dam area, 1940-1944, and the influence of reservoir loading on earthquake activity, Bull. Seism. Soc., 35, 175-192.
- Carder, D. S. (1970). Reservoir loading and local earthquakes, in engineering seismology - the works of man. Geol. Soc. of Am. Eng. Geo. Case Histories, 8, 51.
- Carder, D. S. and J. B. Small (1948). Level divergencies, seismic activity and reservoir loading in the Lake Mead area, Nevada, and Arizona. Tran. Am. Geophys. Un., 29, 767-771.
- Diment, W. H., S. W. Stewart and J. C. Roller (1961). Crustal structure from the Nevada test site to Kingman, Arizona, from seismic and gravity observations. Jour. Geophys. Res., 66, 201-214.
- Eaton, J. P. (1969). HYPOLAYR - a computer program for determining hypocenters of local earthquakes in an earth consisting of uniform flat layers over a half-space. U.S. Geol. Survey Open-File Report, 155 pp.
- Geiger, L. (1912). Probability method for the determination of earthquake epicenters from the arrival time only (translated from Geiger's 1910 German article), Bull. St. Louis Univ. 8, 56-71.
- Healy, J. H., W. W. Rubey, D. T. Griggs, and C. B. Raleigh (1968). The Denver earthquakes. Sciences, 161, 1301-1310.
- Johnson, L. R. (1965). Crustal structure between Lake Mead, Nevada, and Mono Lake, California. Jour. Geophys. Res., 70, 2863.
- Jones, A. E. (1944). Earthquake magnitudes, efficiency of stations, and perceptibility of local earthquakes in the Lake Mead area. Bull. Seism. Soc. Am., 34, 161-174.
- Lee, W. H. K. and J. C. Lahr (1972). HYP071: A computer program for determining hypocenter, magnitude, and first motion pattern of local earthquakes. U.S. Geol. Survey, Open-File Report, 100 pp.
- Lee, W. H. K., R. E. Bennett, and K. L. Meagher (1972). A method of estimating magnitude of local earthquakes from signal duration. U.S. Geol. Survey, Open-File Report, 28 pp.
- Longwell, C. R. (1963). Reconnaissance geology between Lake Mead and Davis Dam, Arizona-Nevada. U.S. Geol. Survey Prof. Paper, 374-E, Plate 1.
- Longwell, C. R., E. H. Pampeyan, B. Bowyer, and R. J. Roberts (1965). Geology and mineral deposits of Clark County, Nevada. Nev. Bureau Mine Bull., 62, Plate 1.
- Mead, T. C. and D. S. Carder (1941). Seismic investigation in the Boulder Dam area in 1940. Bull. Seism. Soc. Am., 31, 321-324.

- Rogers, A. M., and S. K. Gallanthine (1974). Seismic study of earthquakes in the Lake Mead region. Final Report, Environ. Res. Corp., 74 pp.
- Roller, J. C. (1964). Crustal structure in the vicinity of Las Vegas, Nevada, from seismic and gravity observations. U.S. Geol. Surv. Professional Paper 475-D, 108.
- Roller, J. C. and J. H. Healy (1963). Seismic refraction measurements of crustal structure between Santa Monica Bay and Lake Mead. Jour. Geophys. Res., 68, 5837-5849.
- Rothe, J. P. (1970). Seismic artificiels, Tectonophys., 9, 215-238.

