NOAA Technical Memorandum ERL ESL-16

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Environmental Research Laboratories

Earthquakes Recorded by a Seismograph Network Located in the Southern Nevada Region January 1 to December 22, 1971

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Earth Sciences
Laboratories
LAS VEGAS,
NEVADA
May 1972

RONMENTAL RESEARCH LABORATORIES

EARTH SCIENCES LABORATORIES

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Earth Sciences Laboratories
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ABSTRACT

A cooperative network of twenty seismic stations is operated in the southern Nevada area; the stations are recorded by the NOAA/ESL Special Projects Party located in Las Vegas, Nevada. Data from the stations are analyzed by the Special Projects Party staff.

Seismic data for the period January 1 to December 22, 1971 were processed by a CDC 6600 computer. The output is listed in the Hypocenter Summary. The listing includes solutions determined by a local epicenter location program and also solutions obtained by the National Earthquake Information Center (NEIC). More than 550 epicenters are listed. About 250 of these epicenters are located within 200 km from Station CPX, which is approximately in the center of the network.

Two earthquakes and several of their aftershocks were felt in southern Nevada during 1971. Maps showing the epicenters of the two earthquakes and their aftershocks are given in this memorandum.

1. INTRODUCTION

This report is a summary of earthquakes recorded by a network of twenty seismograph stations in the southern Nevada region for the period January 1, 1971 to December 22, 1971. A hypocenter summary was compiled from two sources: a hypocenter location program which utilized only data from the Nevada net to compute earthquake locations, and from the Preliminary Determination of Epicenters (PDE) file produced by the National Earthquake Information Center (NEIC) of the National Oceanic and Atmospheric Administration's Earth Sciences Laboratories (NOAA/ESL).

The southern Nevada seismograph network stations are shown in figure 1. This net is operated by the three cooperating stations listed in Appendix A. The data from all of the stations are recorded by the Special Projects Party of the NOAA/ESL.

Seismic data analysis and preliminary location of epicenters are performed in Las Vegas, Nevada by the Special Projects Party geophysics staff.

2. DISCUSSION

All of the earthquakes recorded by the seismograph net which were read during the year were prepared for processing by a CDC 6600 computer. The data were run through a local hypocenter program using a three layer model shown in figure 2. In order to obtain a hypocenter solution with the local station program, P Phase arrival times from at least three stations and one S Phase arrival time for a given earthquake must be present. No magnitudes were computed by the local program.

Those earthquakes which could not be located by the local station program but were located by the PDE program using world wide data are also listed in the Hypocenter Summary in Appendix B. The local program generally yields questionable or unsatisfactory solutions for earthquakes located further than 200 kilometers from Station CPX which approximates the center of the network. For this reason, most of the epicenters located outside of the circle shown in figure 3 were obtained from the PDE file.

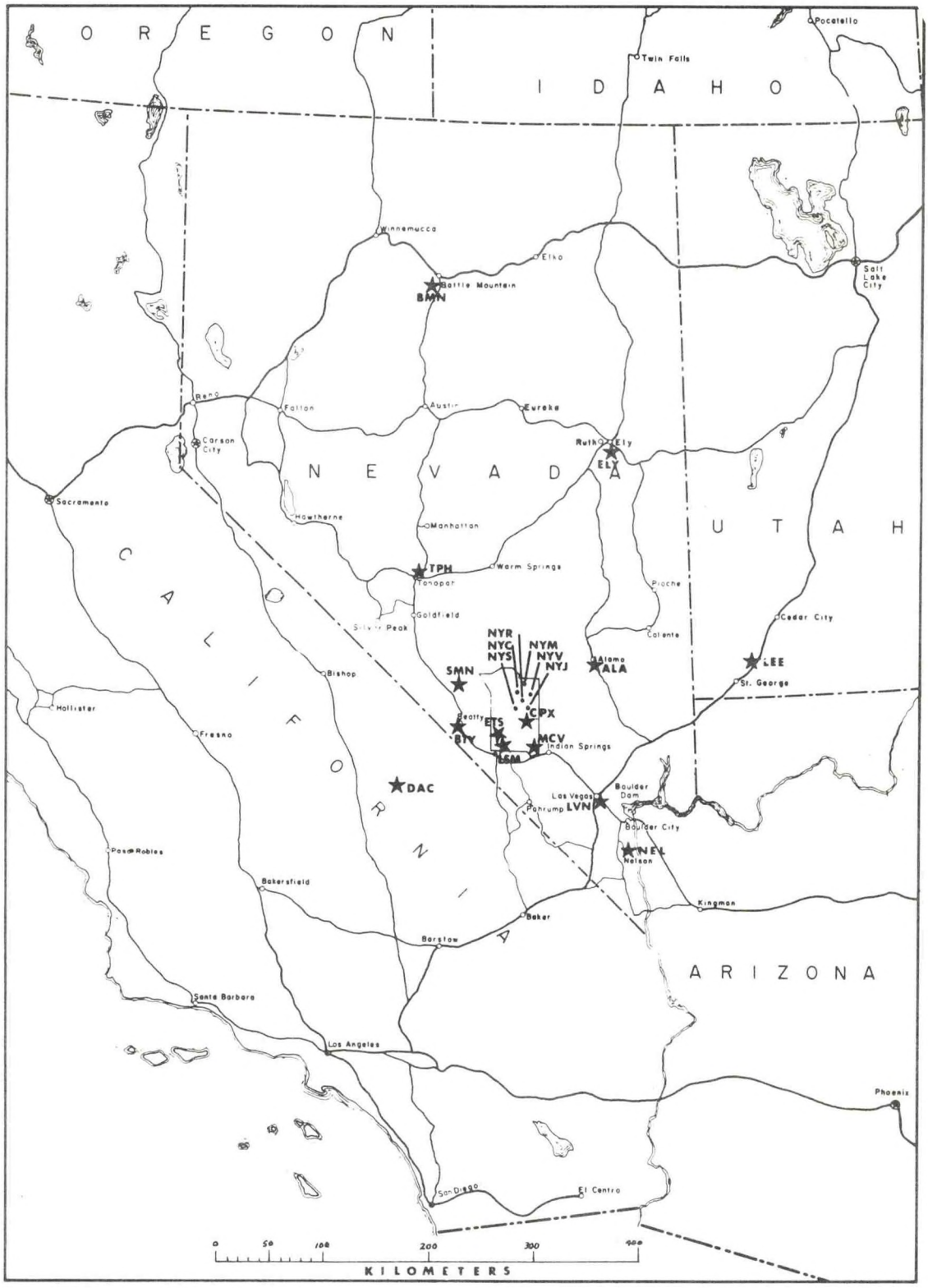

Figure 1. Seismograph station locations

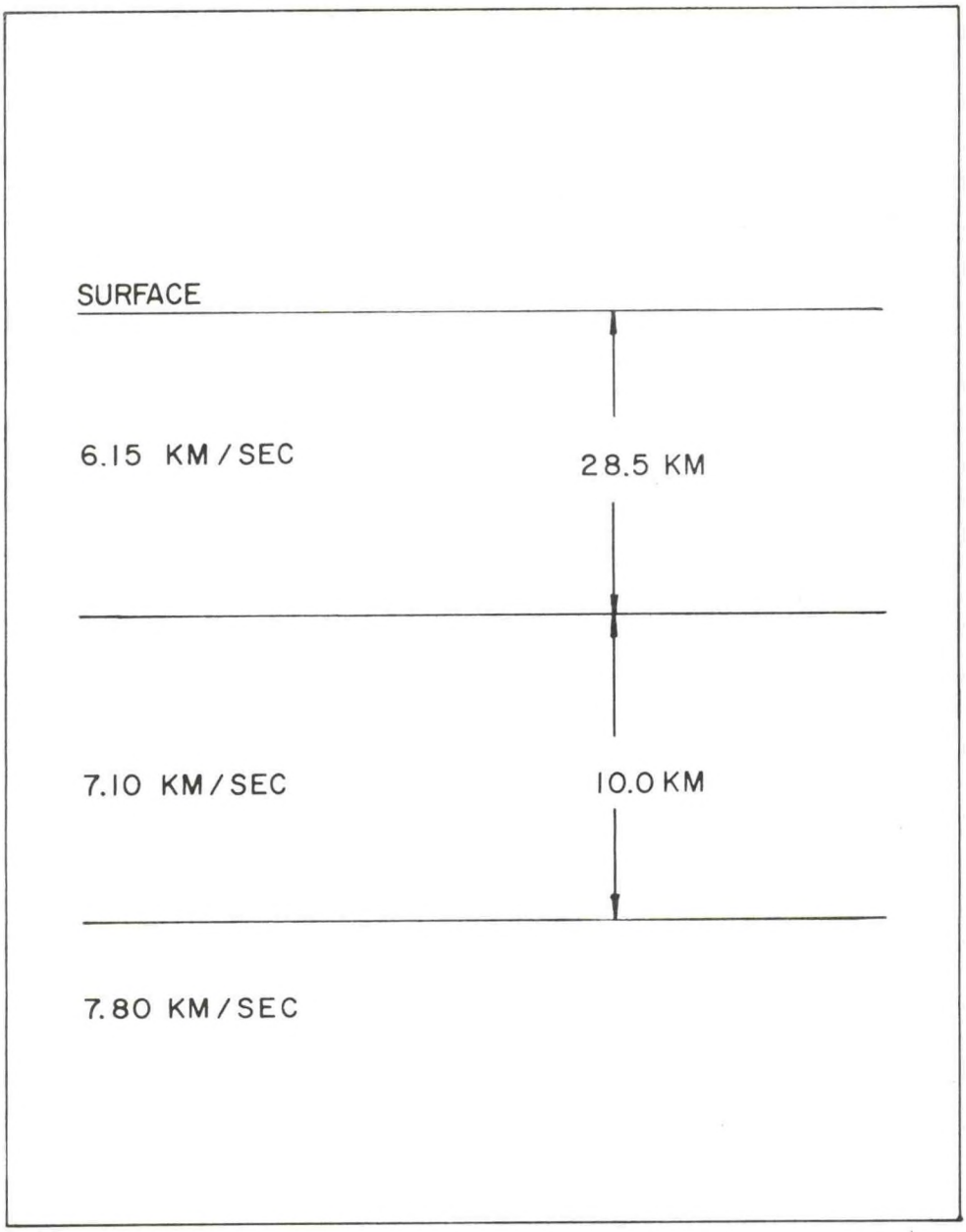

Figure 2. Three layer model used for earthquake locations

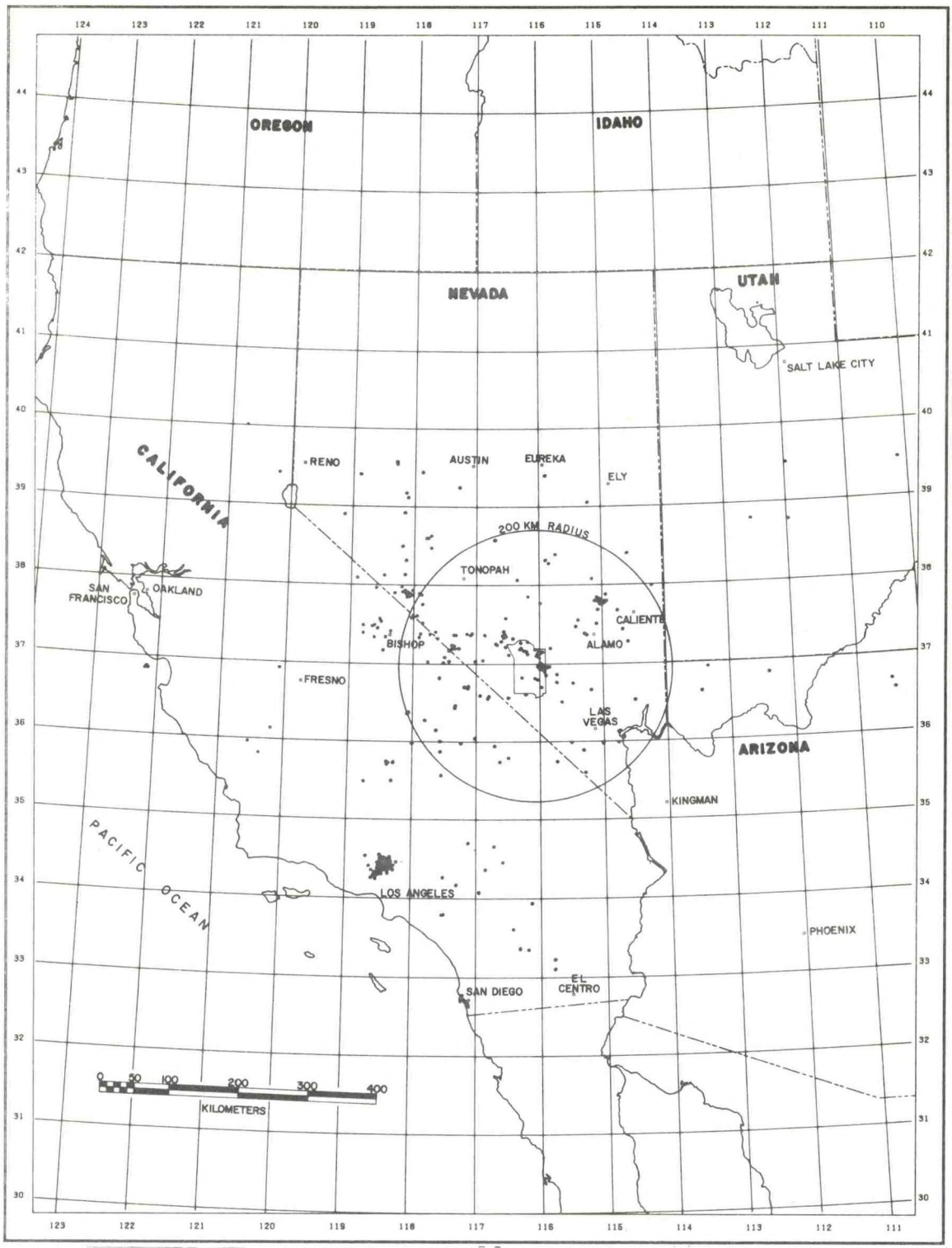

Figure 3. Seismicity map for Nevada and the surrounding states for the period January 1, 1971 to December 22, 1971. The solid circles are individual epicenter locations.

In the Hypocenter Summary, earthquakes which have a T following the depth are from the PDE file. If the depth is followed by a D, it is a fixed depth solution obtained by choosing the five kilometer interval that optimized the travel time residuals and standard error. An F following depth indicates that a convergent solution was found in less than seven iterations by permitting the depth to move freely.

All magnitudes shown are from the PDE program and are average body-wave magnitudes (m_b).

There were no large ($m_b \geq 6.0$) earthquakes in the southern Nevada area during the year. Two earthquakes were felt locally and were followed by numerous aftershocks. Neither caused any reported damage. These two earthquakes are discussed separately in sections 3 and 4.

3. MASSACHUSETTS MOUNTAIN EARTHQUAKE SERIES

The Massachusetts Mountain earthquake occurred on August 5 at 1758 GMT and had a magnitude of 4.3 (m_b). It was generally felt throughout the Test Site within a maximum Modified Mercalli (M.M.) intensity of IV; Mercury and Beatty, Nevada reported M.M. III. A map of the epicentral region (fig. 4) shows the epicenters of the main shock (solid star) and many of the aftershocks (solid dots). Eighty-four aftershocks have been located; the last event occurred on November 24. There was no apparent migration of the epicenters with time. Preliminary peak particle motions and other data associated with the Massa-

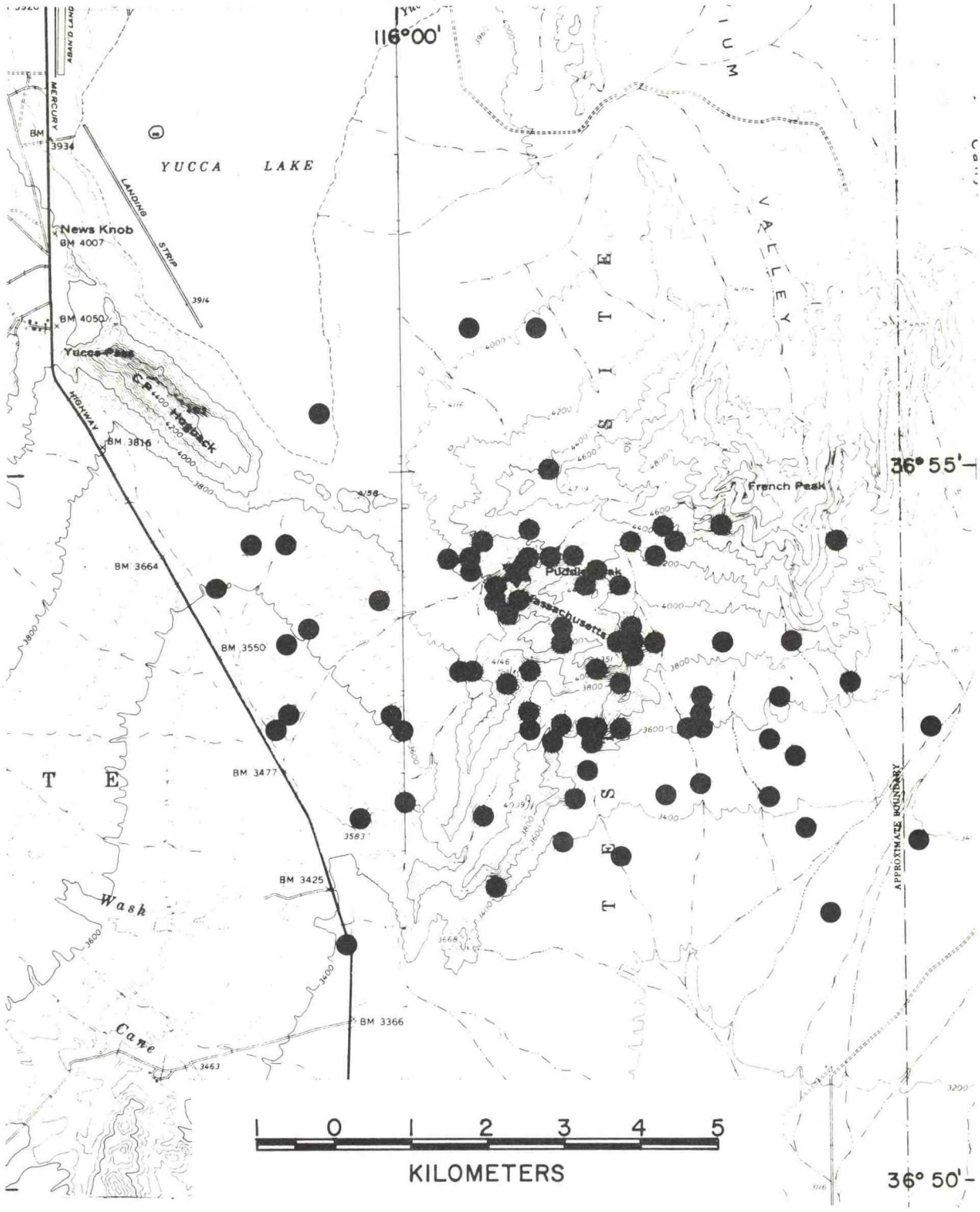

Figure 4. Massachusetts Mountain, Nevada earthquake series. Initial shock on August 5 shown by star. Circles are aftershock locations.

chusetts Mountain shock were included in a previous report, "Earthquakes On and Around the Nevada Test Site, 1950-1971" (CGS-746-12).

4. HIKO, NEVADA EARTHQUAKE SERIES

On December 8, at 1718 GMT the Hiko, Nevada earthquake occurred north of Alamo, Nevada. It had a magnitude of 4.8 (m_b) and was felt strongly in the epicentral region and was also felt in Caliente, Nevada (M.M. IV) and on upper floors in some Las Vegas high-rise structures. A number of foreshocks preceded the main earthquake. The epicenters of six foreshocks (asterisks) and twenty-six aftershocks (solid dots) are shown in figure 5. The main shock is indicated by a circled star. The last located aftershock occurred on December 19; however, the aftershocks continued through the end of the year. No migration of the epicenters was noted.

Preliminary peak particle motions were reported in Technical Memorandum SPP-71-19, "Hiko, Nevada Earthquake Series". This sequence will be the subject of a more extensive report at a later date after all the data have been processed.

5. SEISMIC HISTORY 1961 - 1970

The observed seismicity in the southern Nevada area for the 10-year interval 1961 through 1970 shows that 35 earthquakes were located within a 100 Km diameter circle using station CPX as the center of radius (fig. 6). Of the total, 7 earthquakes occurred within the boundaries of the Nevada Test Site

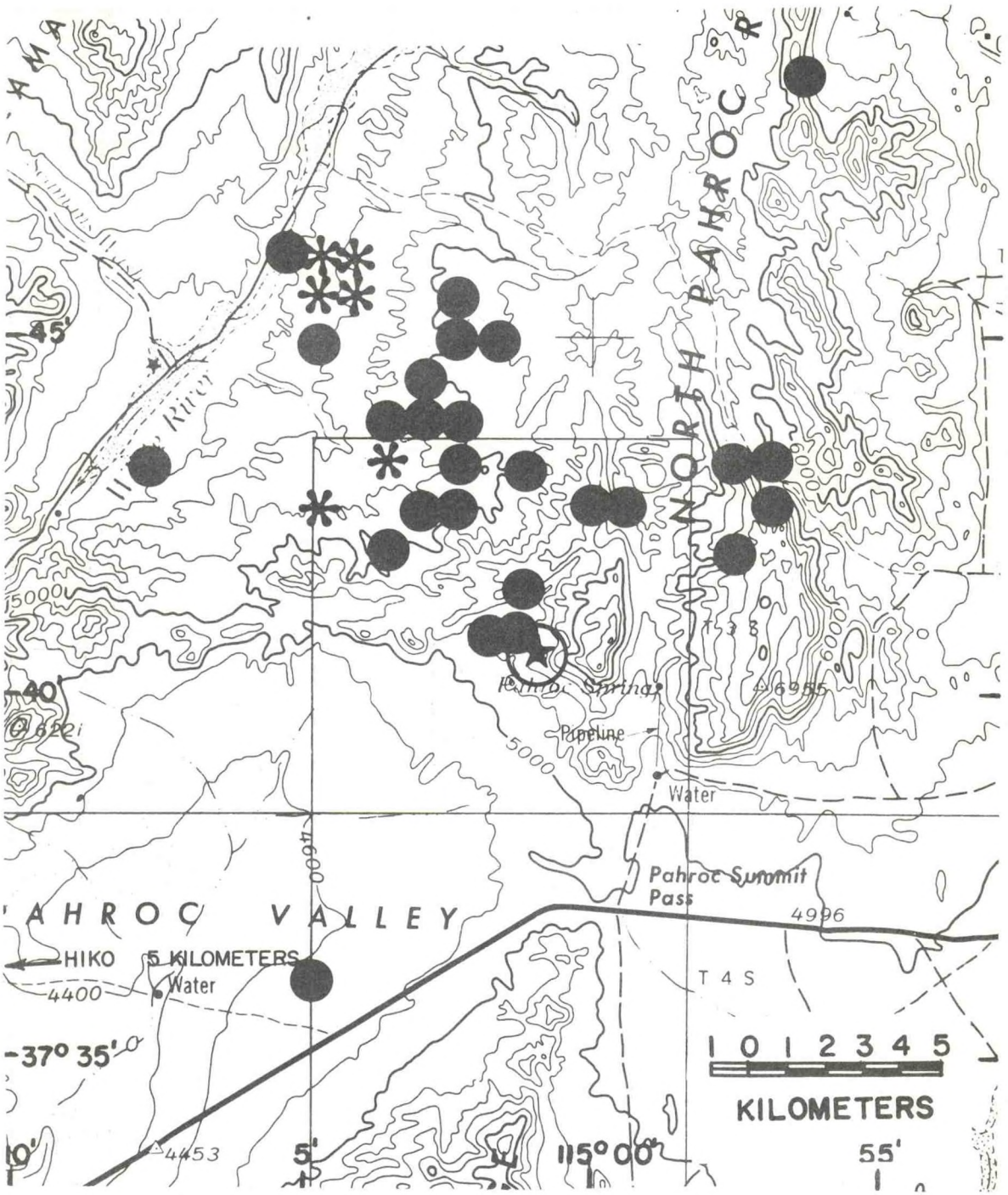

Figure 5. Hiko, Nevada earthquake series. Main shock on December 8 shown by circled star. Asterisks are foreshocks and circles are aftershocks.

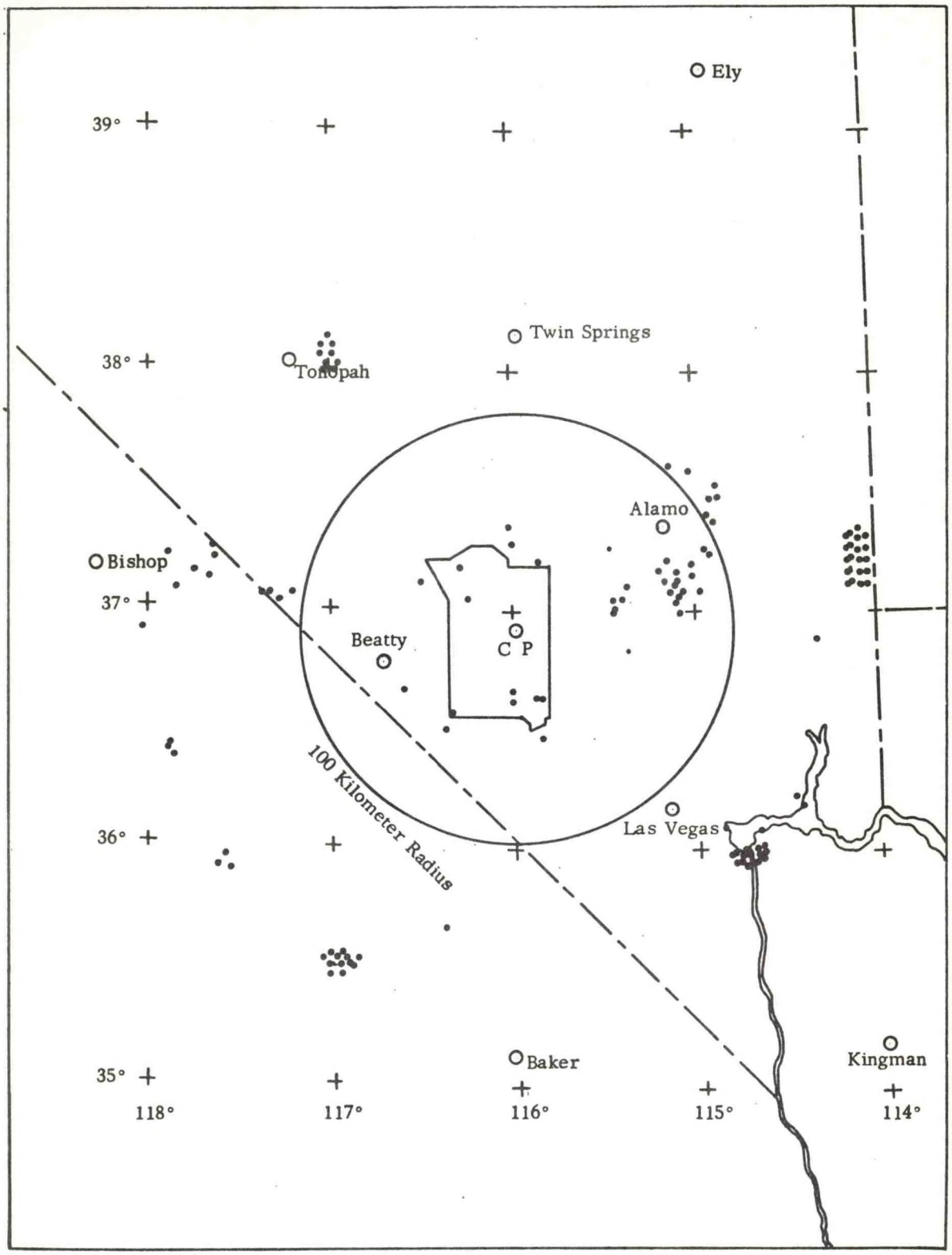

Figure 6. Earthquakes in the southern Nevada area, 1961-1970

(NTS). A cursory examination of seismic activity in the region reveals that most of the earthquakes were clustered in four areas. The Lake Mead seismic zone accounted for 17 located earthquakes. This zone has a seismic history dating back to the formation of Lake Mead in 1936. A series of earthquakes took place in a region to the north of the juncture of Nevada, Utah, and Arizona in 1966. This was apparently an isolated series as no earthquakes preceded or followed in the same area during the period. A seismic zone trending generally north-south and extending from south of Alamo, Nevada to north of Hiko, Nevada accounted for several events. Numerous earthquakes have been felt in this region during the period. The remaining area which accounted for a large percentage of the activity recorded during the period was the narrow zone of major activity that extends from the Owens Valley in California north past Dixie Valley, Nevada (Gumper, 1971).

It appears that none of the earthquakes reported here are related to nuclear explosions on the NTS. The activity recorded in 1971 generally follows the seismic pattern established during the previous decade.

6. ACKNOWLEDGMENT

The entire staff of the Special Projects Party participated in the operation and coordination of the NOAA/ESL seismograph network. Without the cooperation of the Sandia Corporation and the U. S. Geological Survey a large portion of the data that went into this report would not have been possible. The authors especially wish to thank Dr. E. R. Engdahl and Dr. A. C. Tarr for their time and assistance with the computer processing and plotting of the data, and the staff of the National Earthquake Information Center for making available the PDE data.

The operation of all of the seismograph stations and the interpretation of the data from these stations is made possible through the financial support of the Nevada Operations Office of the United States Atomic Energy Commission.

7. REFERENCES

Bayer, Kenneth C. (1971), A short treatise on the Massachusetts Mountain earthquake sequence of August 5, 1971 (classified) CGS-746-12, Sept.

Gumper, F. J. and C. Scholy (1971) Microseismicity and tectonics of the Nevada seismic zone, Bull. Seism. Soc. Am. 61, 1413-1432.

Hiko, Nevada earthquakes series, 1971, (1971), Nevada Field Party Technical Memorandum SPP-71-19.

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APPENDIX A

SEISMIC STATION CONSTANTS

APPENDIX A

SEISMIC STATION CONSTANTS

Station Name	Code	Latitude North	Longitude West	Elev. Meters	Inst. Comp.	Approx. Sens. @ 1 Hz
		NOAA/ESL SEISMOGRAPH STATIONS				
Alamo	ALA	37°16.15'	115°08.10'	1067	SPZ	100K
Beatty	BTY	36°53.63'	116°45.88'	1008	SPZ	100K
CP-1	CPX	36°55.92'	116°03.33'	1285	SPZ	110K
Engine Test Stand	ETS	36°49.95'	116°18.50'	1158	SPZ	100K
Las Vegas	LVN	36°06.55'	115°08.40'	670	SPZ	8K
Little Skull Mtn.	LSM	36°44.32'	116°16.68'	1146	SPZ	220K
Mercury	MCV	36°38.01'	115°59.99'	1158	SPZ	100K
Sleeping Mountain	SMN	37°08.60'	116°46.00'	1246	SPZ	100K
		SANDIA CORPORATION STATIONS				
Battle Mountain	BMN	40°25.90'	117°13.30'	1524	SPZ	
Darwin	DAC	36°16.62'	117°35.62'	1432	SPZ	
Ely	ELY	39°07.88'	114°53.52'	2012	SPZ	
Leeds	LEE	37°14.58'	113°22.60'	1067	SPZ	
Nelson	NEL	35°42.74'	114°50.61'	1052	SPZ	
Tonopah	TPH	38°04.29'	117°13.21'	1890	SPZ	
		U. S. GEOLOGICAL SURVEY STATIONS				
Charley	NYC	37°09.32'	116°09.32'	1574	SPZ	
Climax Mine	NYM	37°13.88'	116°03.14'	1489	SPZ	
Joshua Tree	NYJ	37°00.48'	115°58.48'	1195	SPZ	
Receiver Site	NYR	37°03.32'	116°05.50'	1188	SPZ	
Syncline Ridge	NYS	37°01.95'	116°10.13'	1402	SPZ	
Vern	NYV	37°06.77'	115°59.40'	1340	SPZ	

APPENDIX B

HYPOCENTER SUMMARY

HYPOCENTER SUMMARY

JAN 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
31	11 23 4.60	34.00 N	116.95 W	9.0 T			NEVADA REGION
31	12 22 48.60	35.89 N	120.55 W	16.0 T	4.0		NEVADA REGION

HYPOCENTER SUMMARY

FEB 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
09	14 0 41.60	34.40 N	118.40 W	13.0 T	6.2	6.5	NEVADA REGION
09	14 31 24.70	34.43 N	118.45 W	10.0 T			NEVADA REGION
09	14 34 36.10	34.34 N	118.64 W	0.0 T			NEVADA REGION
09	14 39 17.80	34.39 N	118.37 W	0.0 T			NEVADA REGION
09	14 43 46.70	34.31 N	118.45 W	6.0 T	4.7		NEVADA REGION
09	14 48 30.60	34.31 N	118.42 W	4.0 T			NEVADA REGION
09	14 52 44.40	34.33 N	118.41 W	9.0 T			NEVADA REGION
09	14 54 59.20	34.18 N	118.53 W	7.0 T			NEVADA REGION
09	14 57 24.30	34.35 N	118.49 W	3.0 T			NEVADA REGION
09	15 10 1.10	34.40 N	118.41 W	8.0 T			NEVADA REGION
09	15 26 .70	34.25 N	118.36 W	6.0 T			NEVADA REGION
09	15 28 25.80	34.24 N	118.45 W	15.0 T			NEVADA REGION
09	15 30 37.80	34.38 N	118.36 W	3.0 T			NEVADA REGION
09	15 35 41.50	34.38 N	118.39 W	5.0 T			NEVADA REGION
09	15 38 29.70	34.35 N	118.47 W	7.0 T			NEVADA REGION
09	15 45 57.50	34.35 N	118.42 W	0.0 T			NEVADA REGION
09	15 51 .90	34.27 N	118.49 W	0.0 T			NEVADA REGION
09	15 58 20.70	34.34 N	118.33 W	14.0 T	5.1		NEVADA REGION
09	16 19 26.00	34.28 N	118.60 W	8.0 T	4.6		NEVADA REGION
09	16 28 6.60	34.34 N	118.42 W	1.0 T			NEVADA REGION
09	16 32 37.20	34.36 N	118.49 W	11.0 T			NEVADA REGION
09	16 38 43.50	34.19 N	118.60 W	4.0 T			NEVADA REGION
09	16 47 3.70	34.34 N	118.49 W	8.0 T			NEVADA REGION
09	17 13 59.60	34.32 N	118.37 W	8.0 T			NEVADA REGION
09	17 19 15.70	34.39 N	118.44 W	8.0 T			NEVADA REGION
09	17 22 40.90	34.27 N	118.43 W	5.0 T			NEVADA REGION
09	17 39 50.20	34.32 N	118.41 W	0.0 T			NEVADA REGION
09	18 2 21.00	34.36 N	118.35 W	1.0 T			NEVADA REGION
09	18 27 36.60	34.29 N	118.39 W	7.0 T			NEVADA REGION
09	18 29 24.60	34.34 N	118.48 W	8.0 T			NEVADA REGION
09	19 41 2.20	34.40 N	118.42 W	10.0 T			NEVADA REGION

HYPOCENTER SUMMARY

FEB 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
09	20 11 34.30	34.42 N	118.32 W	6.0 T			NEVADA REGION
09	20 26 57.60	34.38 N	118.47 W	3.0 T			NEVADA REGION
09	20 30 31.50	34.33 N	118.35 W	10.0 T			NEVADA REGION
09	20 43 24.90	34.36 N	118.47 W	10.0 T			NEVADA REGION
09	20 46 11.90	34.39 N	118.44 W	12.0 T			NEVADA REGION
09	20 53 34.40	34.43 N	118.40 W	15.0 T			NEVADA REGION
09	20 56 2.10	34.39 N	118.34 W	8.0 T			NEVADA REGION
09	21 28 7.80	34.38 N	118.41 W	13.0 T			NEVADA REGION
09	21 29 8.10	34.34 N	118.45 W	8.0 T			NEVADA REGION
09	22 48 37.30	34.35 N	118.47 W	10.0 T			NEVADA REGION
10	0 13 55.10	34.31 N	118.31 W	11.0 T			NEVADA REGION
10	1 16 12.00	34.32 N	118.32 W	8.0 T			NEVADA REGION
10	1 32 21.97	38.40 N	117.72 W	20.0 D			NEVADA REGION
10	1 38 15.60	34.27 N	118.50 W	8.0 T			NEVADA REGION
10	2 30 13.50	34.33 N	118.49 W	8.0 T			NEVADA REGION
10	3 12 11.90	34.34 N	118.31 W	10.0 T			NEVADA REGION
10	5 6 35.80	34.37 N	118.35 W	8.0 T	4.6		NEVADA REGION
10	5 18 7.00	34.41 N	118.42 W	8.0 T	4.7		NEVADA REGION
10	5 41 41.70	34.32 N	118.31 W	8.0 T			NEVADA REGION
10	6 24 49.80	34.37 N	118.37 W	8.0 T			NEVADA REGION
10	6 54 33.00	34.37 N	118.45 W	8.0 T			NEVADA REGION
10	7 14 57.40	34.30 N	118.45 W	8.0 T			NEVADA REGION
10	7 27 3.20	34.35 N	118.44 W	11.0 T			NEVADA REGION
10	9 33 24.30	34.29 N	118.27 W	8.0 T			NEVADA REGION
10	10 0 6.30	34.43 N	118.46 W	11.0 T			NEVADA REGION
10	11 29 25.20	34.43 N	118.42 W	12.0 T			NEVADA REGION
10	11 31 34.50	34.36 N	118.45 W	8.0 T			NEVADA REGION
10	11 45 53.20	34.32 N	118.48 W	11.0 T			NEVADA REGION
10	12 9 58.90	34.33 N	118.45 W	7.0 T			NEVADA REGION
10	12 42 19.00	34.30 N	118.33 W	8.0 T			NEVADA REGION
10	13 49 53.60	34.38 N	118.43 W	8.0 T			NEVADA REGION

HYPOCENTER SUMMARY

FEB 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
10	14 35 26.50	34.35 N	118.48 W	8.0 T			NEVADA REGION
10	15 22 10.70	34.38 N	118.50 W	0.0 T			NEVADA REGION
10	15 48 11.30	34.31 N	118.29 W	8.0 T			NEVADA REGION
10	17 38 54.90	34.37 N	118.37 W	12.0 T			NEVADA REGION
10	18 54 41.50	34.39 N	118.45 W	8.0 T			NEVADA REGION
10	19 6 6.00	34.37 N	118.32 W	8.0 T			NEVADA REGION
10	23 42 28.50	34.37 N	118.35 W	8.0 T			NEVADA REGION
11	0 30 1.00	34.38 N	118.35 W	8.0 T			NEVADA REGION
11	3 43 11.90	34.42 N	118.36 W	8.0 T			NEVADA REGION
11	4 7 17.00	34.35 N	118.48 W	8.0 T			NEVADA REGION
11	7 33 59.50	34.47 N	118.47 W	8.0 T			NEVADA REGION
11	9 24 38.80	34.36 N	118.38 W	8.0 T			NEVADA REGION
11	11 32 56.30	34.34 N	118.27 W	8.0 T			NEVADA REGION
11	12 31 37.63	36.64 N	117.17 W	-0.0 D			NEVADA REGION
11	12 55 53.80	51.22 N	177.22 W	50.0 T	5.5	5.2	ANDREANOF ISLANDS, ALEUTIAN IS.
11	14 21 20.60	34.30 N	118.33 W	8.0 T			NEVADA REGION
11	16 43 31.80	34.23 N	118.51 W	8.0 T			NEVADA REGION
11	19 35 8.20	34.43 N	118.40 W	8.0 T			NEVADA REGION
11	23 28 21.10	34.46 N	118.44 W	8.0 T			NEVADA REGION
11	23 35 47.80	34.31 N	118.39 W	8.0 T			NEVADA REGION
12	8 9 31.30	34.39 N	118.31 W	8.0 T			NEVADA REGION
12	9 20 53.80	34.42 N	118.44 W	8.0 T			NEVADA REGION
12	9 52 20.70	34.29 N	118.50 W	8.0 T			NEVADA REGION
12	15 2 43.70	34.43 N	118.36 W	8.0 T			NEVADA REGION
12	16 22 44.60	34.42 N	118.43 W	8.0 T			NEVADA REGION
13	1 36 21.22	36.39 N	117.33 W	-0.0 D			NEVADA REGION
13	22 30 18.90	34.44 N	118.41 W	8.0 T			NEVADA REGION
13	23 35 9.10	22.78 S	170.92 E	30.0 T	5.0		LOYALTY ISLANDS REGION
14	3 38 39.90	34.32 N	118.42 W	8.0 T			NEVADA REGION
14	7 37 58.56	37.28 N	116.55 W	-0.0 D			NEVADA REGION
14	13 44 49.20	34.26 N	118.52 W	8.0 T			NEVADA REGION

HYPOCENTER SUMMARY

FEB 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
14	17 53 58.90	34.31 N	118.29 W	8.0 T			NEVADA REGION
15	8 4 49.70	34.45 N	118.42 W	15.0 T			NEVADA REGION
15	13 3 42.30	34.40 N	118.45 W	14.0 T			NEVADA REGION
16	4 37 4.40	34.24 N	118.55 W	13.0 T			NEVADA REGION
16	7 8 26.00	34.37 N	118.47 W	10.0 T			NEVADA REGION
16	9 11 49.57	36.53 N	116.22 W	-0.0 D			NEVADA REGION
16	14 39 19.10	34.30 N	118.31 W	10.0 T			NEVADA REGION
17	10 15 40.50	34.33 N	118.31 W	11.0 T			NEVADA REGION
18	3 55 18.10	35.43 N	118.32 W	8.0 T			NEVADA REGION
18	4 35 15.40	33.86 N	116.14 W	8.0 T	4.1		NEVADA REGION
18	7 47 30.10	36.78 S	73.21 E	31.0 T	5.6		NEAR COAST OF CENTRAL CHILE
18	11 28 13.70	36.22 N	105.71 W	5.0 T	3.7		NEW MEXICO
18	12 16 32.26	37.46 N	118.52 W	10.0 D			NEVADA REGION
18	15 45 22.50	34.40 N	118.34 W	12.0 T			NEVADA REGION
19	2 45 11.20	34.29 N	118.50 W	8.0 T			NEVADA REGION
19	8 7 57.10	34.45 N	118.33 W	2.0 T			NEVADA REGION
20	8 9 27.40	34.43 N	118.44 W	18.0 T			NEVADA REGION
20	10 48 49.20	38.50 N	116.71 W	8.0 T	4.2		NEVADA REGION
20	12 57 48.21	37.90 N	118.60 W	8.0 T	4.4		NEVADA REGION
20	23 15 57.90	34.26 N	118.54 W	7.0 T			NEVADA REGION
21	2 42 12.00	34.23 N	118.57 W	8.0 T			NEVADA REGION
21	5 50 52.30	34.37 N	118.47 W	13.0 T			NEVADA REGION
21	7 15 11.50	34.38 N	118.45 W	13.0 T			NEVADA REGION
21	7 43 3.10	34.38 N	118.44 W	9.0 T			NEVADA REGION
21	10 35 20.10	23.85 S	67.16 E	169.0 T	6.3		CHILE-ARGENTINA BORDER REGION
21	14 6 5.10	34.38 N	118.46 W	12.0 T			NEVADA REGION
22	13 57 10.34	35.91 N	118.01 W	-0.0 D			NEVADA REGION
23	0 7 39.00	33.53 N	116.43 W	8.0 T	4.3		NEVADA REGION
23	6 38 6.00	38.70 N	111.97 W	10.0 T			NEVADA REGION
24	5 31 38.00	34.36 N	118.35 W	10.0 T	3.2		NEVADA REGION
24	7 8 22.80	39.40 N	110.16 W	5.0 T			UTAH

HYPOCENTER SUMMARY

FEB 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
24	16 4 14.80	34.41 N	118.44 W	17.0 T	4.8		NEVADA REGION
25	11 27 33.20	34.38 N	118.46 W	11.0 T	4.5		NEVADA REGION
25	14 25 51.80	34.42 N	118.47 W	13.0 T	4.1		NEVADA REGION
25	15 54 6.10	34.34 N	118.33 W	10.0 T			NEVADA REGION
26	2 10 24.90	34.39 N	118.23 W	5.0 T	4.7		NEVADA REGION
26	3 33 1.00	34.36 N	118.44 W	14.0 T	4.0		NEVADA REGION
26	4 55 50.00	10.43 S	161.26 E	90.0 T	5.9		SOLOMON ISLANDS
26	18 58 4.60	18.00 S	167.08 E	11.0 T	5.6	5.0	NEW HEBRIDES ISLANDS
27	0 31 39.90	40.36 N	124.80 W	33.0 T	5.3	5.1	NEAR COAST OF NORTHERN CALIF.
27	5 40 4.00	34.58 N	116.72 W	8.0 T	4.2		NEVADA REGION

HYPOCENTER SUMMARY

MAR 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
01	3 47 18.96	37.33 N	117.64 W	-0.0 D			NEVADA REGION
01	4 28 20.90	34.36 N	118.45 W	11.0 T			NEVADA REGION
01	5 47 50.10	37.87 N	118.01 W	15.0 T	3.8		NEVADA REGION
01	5 51 33.70	37.81 N	118.01 W	10.0 D			NEVADA REGION
01	5 56 6.53	37.81 N	117.88 W	16.5 F			NEVADA REGION
01	6 18 58.56	37.68 N	117.86 W	10.0 D			NEVADA REGION
01	7 5 47.45	37.84 N	118.18 W	10.0 D			NEVADA REGION
01	8 15 22.62	37.79 N	118.06 W	10.0 D			NEVADA REGION
01	8 21 4.20	37.78 N	118.10 W	10.0 D			NEVADA REGION
01	8 28 2.42	37.90 N	118.20 W	15.0 T	4.2		NEVADA REGION
01	8 43 55.49	37.82 N	118.12 W	10.0 D			NEVADA REGION
01	8 54 36.97	37.83 N	118.30 W	10.0 D			NEVADA REGION
01	9 45 11.72	37.84 N	118.11 W	10.0 D			NEVADA REGION
01	9 54 36.35	37.82 N	118.08 W	20.0 D			NEVADA REGION
01	10 5 39.71	37.86 N	118.14 W	20.0 D			NEVADA REGION
01	10 16 11.22	37.83 N	117.91 W	20.0 F			NEVADA REGION
01	10 31 28.25	37.82 N	118.07 W	20.0 D			NEVADA REGION
03	3 27 44.30	37.01 N	117.50 W	10.8 F			NEVADA REGION
03	12 5 16.00	35.66 N	118.38 W	4.0 T			NEVADA REGION
03	14 46 30.70	25.91 N	109.93 W	34.0 T	5.3	5.4	GULF OF CALIFORNIA
05	1 27 41.24	37.39 N	115.42 W	20.0 D			NEVADA REGION
05	10 19 51.00	18.99 N	101.44 W	145.0 T	4.9		MICHOACAN, MEXICO
06	5 53 27.60	34.36 N	118.46 W	11.0 T			NEVADA REGION
06	22 13 21.40	21.29 S	68.27 E	71.0 T	5.4		CHILE-BOLIVIA BORDER REGION
07	1 33 40.10	34.33 N	118.47 W	9.0 T	4.4		NEVADA REGION
07	6 56 37.40	34.34 N	118.45 W	8.0 T			NEVADA REGION
07	7 11 15.90	34.37 N	118.43 W	9.0 T			NEVADA REGION
07	21 36 12.20	34.37 N	118.41 W	10.0 T			NEVADA REGION
08	13 24 23.77	35.92 N	114.78 W	-0.0 D			NEVADA REGION
08	18 31 46.10	36.79 N	122.14 W	5.0 T			CENTRAL CALIFORNIA
08	21 4 52.27	37.28 N	116.55 W	5.0 D			NEVADA REGION

HYPOCENTER SUMMARY

MAR 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
08	21 12 42.34	37.28 N	116.59 W	19.4 F			NEVADA REGION
08	23 8 7.70	35.67 N	118.40 W	6.0 T			NEVADA REGION
09	15 35 16.10	36.80 N	122.16 W	11.0 T	4.8		CENTRAL CALIFORNIA
09	17 41 48.85	35.67 N	115.73 W	-0.0 D			NEVADA REGION
10	1 42 2.80	35.65 N	118.40 W	0.0 T			NEVADA REGION
11	9 20 25.82	37.33 N	118.79 W	-0.0 D			NEVADA REGION
11	17 33 34.81	37.49 N	118.54 W	-0.0 D			NEVADA REGION
12	11 23 59.60	37.31 N	117.74 W	-0.0 D			NEVADA REGION
13	4 3 39.00	37.83 N	118.12 W	-0.0 D			NEVADA REGION
13	23 1 31.90	37.16 N	117.35 W	-0.0 D			NEVADA REGION
13	23 51 35.50	50.60 N	129.95 W	33.0 T	5.7	6.1	VANCOUVER ISLAND REGION
14	18 14 12.20	36.48 N	110.44 W	5.0 T			EASTERN ARIZONA
16	18 2 43.73	37.25 N	116.42 W	5.0 D			NEVADA REGION
17	9 27 34.70	37.27 N	116.58 W	1.0 T			NEVADA REGION
21	13 55 27.99	37.10 N	116.24 W	4.5 F			NEVADA REGION
22	9 45 51.80	39.38 N	117.88 W	10.0 T			NEVADA REGION
23	2 15 26.90	22.88 S	176.36 E	76.0 T	6.0		SOUTH OF FIJI ISLANDS
23	6 59 56.00	61.29 N	56.47 E	0.0 T	5.6		URAL MOUNTAINS REGION
23	9 26 29.30	70.99 N	7.03 W	33.0 T	6.0	6.3	JAN MAYEN ISLAND REGION
24	0 44 48.93	36.38 N	117.33 W	-0.0 D			NEVADA REGION
24	2 26 14.70	5.28 S	151.52 E	71.0 T	5.6		NEW BRITAIN REGION
25	0 34 35.80	22.12 S	68.45 E	114.0 T	4.4		NORTHERN CHILE
25	3 31 53.60	50.52 N	176.76 W	11.0 T	5.3		ANDREANOF ISLANDS, ALEUTIAN IS.
25	10 17 16.10	36.70 N	115.73 W	-0.0 D			NEVADA REGION
25	19 38 46.67	35.81 N	117.57 W	-0.0 D			NEVADA REGION
25	22 54 9.60	34.33 N	118.49 W	10.0 T	4.9		NEVADA REGION
26	16 45 0.00	37.00 N	116.00 W	5.0 D			NEVADA REGION
27	4 39 11.70	36.76 N	112.39 W	5.0 T			NEVADA REGION
27	17 9 52.30	52.55 N	174.53 W	138.0 T	5.6		ANDREANOF ISLANDS, ALEUTIAN IS.
27	17 32 37.02	36.67 N	115.48 W	-0.0 D			NEVADA REGION
27	20 18 26.26	35.91 N	117.24 W	14.2 F			NEVADA REGION

HYPOCENTER SUMMARY

MAR 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
28	17 16 24.80	34.31 N	118.50 W	11.0 T	4.8		NEVADA REGION
29	13 22 36.01	35.98 N	114.71 W	6.2 F			NEVADA REGION
29	18 47 27.67	37.91 N	114.22 W	10.0 D			NEVADA REGION
29	19 21 20.30	41.24 N	137.55 E	289.0 T	4.9		EASTERN SEA OF JAPAN
30	8 54 43.20	34.27 N	118.47 W	8.0 T	4.7		NEVADA REGION
30	11 30 38.90	51.19 N	177.48 W	20.0 T	5.7	5.4	ANDREANOF ISLANDS, ALEUTIAN IS.

HYPOCENTER SUMMARY

APR 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
01	19 38 18.80	29.84 S	179.26 E	214.0 T	5.3		KERMADEC ISLANDS REGION
02	0 2 56.15	35.96 N	117.03 W	20.6 F			NEVADA REGION
02	3 6 3.81	37.08 N	116.01 W	-0.0 D			NEVADA REGION
02	5 40 24.50	34.23 N	118.56 W	8.0 T			NEVADA REGION
02	19 15 21.70	6.88 S	154.49 E	41.0 T	5.2		SOLOMON ISLANDS
03	7 54 26.87	36.20 N	117.81 W	-0.0 D			NEVADA REGION
04	5 32 11.84	37.41 N	118.66 W	-0.0 D			NEVADA REGION
04	6 28 56.95	37.27 N	118.61 W	20.0 D			NEVADA REGION
04	18 39 39.20	38.37 N	142.09 E	52.0 T	5.8		NEAR EAST COAST OF HONSHU, JAPAN
05	9 4 42.80	53.36 N	170.55 W	153.0 T	5.8		FOX ISLANDS, ALEUTIAN ISLANDS
05	14 26 30.70	25.89 S	179.78 E	432.0 T	5.0		SOUTH OF FIJI ISLANDS
06	0 17 11.80	42.32 N	144.99 E	34.0 T	5.3		HOKKAIDO, JAPAN REGION
06	9 35 35.80	42.31 N	145.12 E	35.0 T	5.1		HOKKAIDO, JAPAN REGION
06	11 6 30.60	22.22 S	179.57 E	603.0 T	5.6		SOUTH OF FIJI ISLANDS
06	11 53 51.70	42.25 N	145.04 E	43.0 T	5.2		HOKKAIDO, JAPAN REGION
06	15 56 20.20	18.52 N	145.56 E	201.0 T	5.1		MARIANA ISLANDS
06	16 1 25.20	23.82 S	179.16 E	540.0 T	5.3		SOUTH OF FIJI ISLANDS
06	18 7 50.59	37.15 N	116.55 W	8.6 F			NEVADA REGION
08	3 49 30.70	38.99 N	115.21 W	-0.0 D			NEVADA REGION
08	7 45 57.80	4.33 S	102.40 E	75.0 T	6.3		SOUTHERN SUMATRA
08	12 38 15.60	.04 S	91.61 E	33.0 T	4.8		GALAPAGOS ISLANDS
09	0 51 13.40	51.52 N	178.78 E	55.0 T	4.9		RAT ISLANDS, ALEUTIAN ISLANDS
09	1 9 14.10	12.28 N	144.03 E	32.0 T	5.1		SOUTH OF MARIANA ISLANDS
09	6 8 33.00	44.42 N	139.06 E	33.0 T	5.6	5.3	EASTERN SEA OF JAPAN
09	13 13 41.68	37.42 N	118.79 W	-0.0 D			NEVADA REGION
09	19 25 21.95	35.94 N	117.57 W	-0.0 D			NEVADA REGION
09	22 28 47.39	37.48 N	115.40 W	10.0 D			NEVADA REGION
10	1 22 17.20	21.26 S	178.77 E	542.0 T	5.7		FIJI ISLANDS REGION
12	18 57 19.50	24.61 S	176.03 E	33.0 T	5.1		SOUTH OF FIJI ISLANDS
12	19 3 25.90	28.31 N	55.60 E	44.0 T	6.0	5.9	SOUTHERN IRAN
12	20 42 18.10	19.11 S	169.61 E	272.0 T	5.2		NEW HEBRIDES ISLANDS

HYPOCENTER SUMMARY

APR 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
12	21 0 37.30	17.89 S	178.19 E	612.0 T	5.3		FIJI ISLANDS REGION
13	3 54 42.24	37.38 N	118.56 W	-0.0 D			NEVADA REGION
13	5 57 34.50	15.86 S	173.99 E	73.0 T	5.5		TONGA ISLANDS
13	17 47 24.20	17.72 S	178.79 E	559.0 T	5.3		FIJI ISLANDS REGION
14	11 38 42.10	27.70 N	112.36 W	33.0 T	5.4	5.2	BAJA CALIFORNIA
14	19 35 5.30	27.68 N	112.20 W	33.0 T	5.2		BAJA CALIFORNIA
14	20 5 8.41	37.05 N	116.49 W	-0.0 D			NEVADA REGION
15	2 12 35.19	35.91 N	115.01 W	-0.0 D			NEVADA REGION
15	6 24 15.90	30.25 S	71.13 E	64.0 T	4.7		NEAR COAST OF CENTRAL CHILE
15	11 14 32.20	34.21 N	118.57 W	8.0 T	4.5		NEVADA REGION
15	18 4 16.20	34.26 N	118.56 W	8.0 T			NEVADA REGION
15	20 1 19.50	34.63 N	117.11 W	8.0 T			NEVADA REGION
16	12 58 31.40	36.78 N	122.19 W	6.0 T	4.8		CENTRAL CALIFORNIA
17	1 41 20.10	6.29 S	154.74 E	72.0 T	5.7		SOLOMON ISLANDS
17	17 19 12.80	.25 S	91.65 E	33.0 T	5.4	5.2	GALAPAGOS ISLANDS
18	17 41 27.90	.20 S	91.43 E	33.0 T	5.7	5.5	GALAPAGOS ISLANDS
18	22 27 28.40	34.46 N	118.68 W	20.0 T			NEVADA REGION
19	5 7 48.50	13.91 N	90.54 W	92.0 T	5.0		NEAR COAST OF GUATEMALA
19	10 41 6.40	33.27 N	116.21 W	8.0 T	4.4		NEVADA REGION
20	8 28 34.75	37.08 N	116.21 W	20.0 D			NEVADA REGION
20	13 41 2.10	52.91 N	158.81 E	83.0 T	5.1		NEAR EAST COAST OF KAMCHATKA
20	14 12 46.80	21.76 S	68.95 E	93.0 T	5.7		NORTHERN CHILE
21	6 42 16.30	53.85 N	161.52 W	21.0 T	5.1	5.4	SOUTH OF ALASKA
21	13 32 8.40	32.38 N	40.17 W	33.0 T	5.0		NORTH ATLANTIC RIDGE
22	6 35 7.70	6.48 S	154.38 E	50.0 T	5.1		SOLOMON ISLANDS
22	7 3 38.81	38.43 N	118.19 W	20.0 D			NEVADA REGION
22	23 1 3.20	39.42 N	111.98 W	5.0 T			NEVADA REGION
23	0 29 1.00	37.00 N	116.00 W	5.0 D			NEVADA REGION
23	10 49 29.40	44.60 N	129.11 W	33.0 T	4.9	4.5	OFF COAST OF OREGON
23	11 26 37.91	37.08 N	115.95 W	-0.0 D			NEVADA REGION
23	11 52 32.10	44.61 N	129.26 W	33.0 T	4.7		OFF COAST OF OREGON

HYPOCENTER SUMMARY

APR 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
23	12 32 46.00	6.27 S	154.74 E	67.0 T	5.3		SOLOMON ISLANDS
23	13 17 35.90	6.75 N	72.95 W	169.0 T	5.2		NORTHERN COLOMBIA
24	2 35 58.30	10.69 S	166.00 E	122.0 T	5.3		SANTA CRUZ ISLANDS
24	22 52 54.80	.03 N	91.14 W	33.0 T	4.9		GALAPAGOS ISLANDS
25	3 32 58.00	49.82 N	78.09 E	0.0 T	5.9		EASTERN KAZAKH SSR
25	9 58 34.06	37.30 N	117.90 W	9.0 F			NEVADA REGION
25	14 48 6.40	34.34 N	118.32 W	8.0 T	4.6		NEVADA REGION
25	19 21 12.33	37.22 N	116.60 W	6.5 F			NEVADA REGION
26	4 19 18.80	24.55 S	176.24 E	33.0 T	5.3	5.5	SOUTH OF FIJI ISLANDS
26	9 2 26.10	47.80 N	114.30 W	5.0 T	4.5		MONTANA
26	10 10 32.20	51.80 N	155.44 E	244.0 T	5.0		NORTHWEST OF KURIL ISLANDS
26	23 22 18.70	.01 S	91.27 E	33.0 T	4.9		GALAPAGOS ISLANDS
27	0 47 56.00	18.44 S	69.27 E	131.0 T	5.2		NORTHERN CHILE
27	5 1 47.40	39.35 N	120.19 W	7.0 T	4.8		NEVADA REGION
27	5 32 38.50	39.48 N	-841.75 E	12.0 T	4.2		NORTHERN CALIFORNIA
27	19 55 18.10	30.94 S	176.97 E	38.0 T	4.9		KERMADEC ISLANDS
27	20 55 8.83	37.10 N	117.44 W	-0.0 D			NEVADA REGION
28	2 10 49.60	22.30 N	142.80 E	204.0 T	5.1		VOLCANO ISLANDS REGION
29	14 21 37.67	38.07 N	118.15 W	10.0 D			NEVADA REGION
29	19 0 1.51	37.13 N	116.30 W	10.0 D			NEVADA REGION
30	14 5 49.00	51.70 N	179.93 E	93.0 T	5.2		RAT ISLANDS, ALEUTIAN ISLANDS
30	20 46 20.00	39.51 N	118.29 W	5.0 T			NEVADA REGION

HYPOCENTER SUMMARY

MAY 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
01	2 11 20.40	36.60 N	110.48 W	5.0 T			NEVADA REGION
01	3 11 22.02	36.55 N	113.46 W	10.0 D			NEVADA REGION
01	4 16 21.10	34.38 N	116.58 W	8.0 T			NEVADA REGION
01	4 25 26.30	34.40 N	118.42 W	8.0 T			NEVADA REGION
01	12 22 55.70	39.48 N	118.29 W	10.0 T	4.0		NEVADA REGION
01	14 15 36.20	22.29 S	171.61 E	147.0 T	5.8		LOYALTY ISLANDS REGION
01	14 32 12.80	13.26 N	88.50 W	93.0 T	5.4		EL SALVADOR
02	0 23 13.65	35.92 N	115.51 W	-0.0 D			NEVADA REGION
02	1 36 18.00	11.85 N	143.21 E	20.0 T	5.1		SOUTH OF MARIANA ISLANDS
02	6 8 27.30	51.43 N	177.21 W	43.0 T	6.0	7.1	ANDREANOF ISLANDS, ALEUTIAN IS.
02	9 8 59.20	51.54 N	177.21 W	47.0 T	5.3		ANDREANOF ISLANDS, ALEUTIAN IS.
02	18 59 17.36	39.05 N	118.11 W	20.0 D			NEVADA REGION
04	1 10 22.39	37.31 N	117.08 W	-0.0 D			NEVADA REGION
04	1 14 25.22	37.30 N	117.10 W	-0.0 D			NEVADA REGION
04	1 15 31.73	37.31 N	117.14 W	-0.0 D			NEVADA REGION
05	12 13 32.60	51.77 N	179.39 W	94.0 T	4.5		ANDREANOF ISLANDS, ALEUTIAN IS.
06	1 11 22.60	16.11 N	60.59 W	58.0 T	4.9		LEEWARD ISLANDS
06	5 18 29.70	.07 S	91.28 E	33.0 T	5.2		GALAPAGOS ISLANDS
06	6 12 55.83	37.14 N	117.35 W	-0.0 D			NEVADA REGION
06	6 20 7.90	.08 S	91.25 E	33.0 T	5.1		GALAPAGOS ISLANDS
06	21 22 30.28	35.52 N	115.30 W	-0.0 D			NEVADA REGION
06	22 32 39.35	36.45 N	114.50 W	5.0 T			NEVADA REGION
07	0 22 23.40	37.17 N	117.39 W	5.0 D			NEVADA REGION
07	1 39 8.40	35.51 S	104.81 E	33.0 T	4.9		SOUTHERN PACIFIC OCEAN
07	2 36 21.80	.19 S	91.44 E	33.0 T	4.8		GALAPAGOS ISLANDS
07	8 46 1.60	14.12 S	165.89 E	26.0 T	5.1	4.9	NEW HEBRIDES ISLANDS
08	0 49 45.60	42.22 S	71.69 E	151.0 T	5.9		S. CHILE-ARGENTINA BORDER REGION
08	20 56 31.93	36.44 N	115.66 W	-0.0 D			NEVADA REGION
09	3 6 37.70	42.55 N	144.96 E	70.0 T	5.2		HOKKAIDO, JAPAN REGION
09	8 29 29.08	37.13 N	117.38 W	0.0 T			NEVADA REGION
09	8 25 1.70	39.78 S	104.84 E	33.0 T	6.2	6.0	SOUTHERN PACIFIC OCEAN

HYPOCENTER SUMMARY

MAY 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
09	18 0 59.90	39.84 S	104.89 E	33.0 T	5.4		SOUTHERN PACIFIC OCEAN
09	18 35 9.80	39.72 S	104.98 E	33.0 T	5.4	5.4	EASTER ISLAND CORDILLERA
09	22 21 37.60	.21 S	91.35 E	33.0 T	4.8		GALAPAGOS ISLANDS
10	0 4 58.94	37.52 N	117.94 W	13.8 F			NEVADA REGION
10	0 11 53.30	.10 S	91.38 E	33.0 T	5.5	4.7	GALAPAGOS ISLANDS
10	2 47 21.17	37.54 N	117.94 W	13.1 F			NEVADA REGION
10	8 44 28.46	37.29 N	116.87 W	5.0 D			NEVADA REGION
22	15 44 31.26	37.26 N	117.61 W	-0.0 D			NEVADA REGION
23	19 13 26.88	36.48 N	116.81 W	-0.0 D			NEVADA REGION
23	19 49 34.03	36.51 N	116.79 W	-0.0 D			NEVADA REGION
24	4 10 31.15	36.08 N	117.64 W	5.0 D			NEVADA REGION
24	12 37 11.00	34.41 N	118.42 W	15.0 T	4.5		NEVADA REGION
25	10 2 54.10	33.29 N	116.33 W	8.0 T	4.6		NEVADA REGION
29	7 30 56.13	37.52 N	118.02 W	-0.0 D			NEVADA REGION

HYPOCENTER SUMMARY

JUN 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
03	6 58 56.30	34.48 N	118.47 W	13.0 T	3.4		NEVADA REGION
10	0 17 25.57	35.66 N	116.63 W	10.0 D			NEVADA REGION
11	7 18 31.30	37.27 N	117.90 W	10.0 D			NEVADA REGION
11	12 56 4.30	17.97 N	69.78 W	57.0 T	6.1		DOMINICAN REPUBLIC REGION
11	13 58 37.70	51.49 N	176.08 E	32.0 T	5.9	6.5	RAT ISLANDS, ALEUTIAN ISLANDS
13	11 4 32.29	39.18 N	117.28 W	10.0 D			NEVADA REGION
16	14 50 1.15	37.03 N	116.05 W	5.0 D			NEVADA REGION
17	18 17 4.84	37.11 N	118.48 W	10.0 D			NEVADA REGION
17	21 0 38.90	61.80 N	149.80 W	65.0 T			SOUTHERN ALASKA
19	7 54 58.98	36.62 N	115.98 W	8.3 F			NEVADA REGION
20	12 41 39.60	35.75 N	120.37 W	8.0 T	4.1		NEVADA REGION
21	16 1 8.40	34.27 N	118.51 W	12.0 T	3.9		NEVADA REGION
22	10 41 18.90	33.73 N	117.50 W	8.0 T			NEVADA REGION
23	1 34 0.00	34.10 N	117.30 W	10.0 T			NEVADA REGION
23	6 8 34.10	38.72 N	112.58 W	5.0 T	4.6		NEVADA REGION
23	15 29 .09	37.09 N	116.00 W	0.0 T	4.8		NEVADA REGION
24	10 30 16.90	37.27 N	118.44 W	10.0 D			NEVADA REGION
26	5 19 .30	35.87 N	116.72 W	8.0 T			NEVADA REGION
28	19 0 45.39	36.76 N	116.28 W	5.4 F			NEVADA REGION

HYPOCENTER SUMMARY

JUL 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
06	6 5 35.78	37.28 N	116.55 W	-0.0 D			NEVADA REGION
06	7 23 32.25	37.30 N	116.56 W	-0.0 D			NEVADA REGION
06	19 22 40.12	37.51 N	116.53 W	15.0 F	3.6		NEVADA REGION
07	4 8 10.62	36.73 N	116.04 W	6.2 F			NEVADA REGION
07	9 44 35.27	37.78 N	116.19 W	38.7 F			NEVADA REGION
08	14 0 .35	37.12 N	116.03 W	3.2 F	5.5		NEVADA REGION
09	3 3 18.70	32.54 S	71.15 E	58.0 T	6.6		NEAR COAST OF CENTRAL CHILE
14	22 29 39.43	37.21 N	116.20 W	9.0 F			NEVADA REGION
14	23 27 44.22	35.82 N	115.32 W	10.0 D			NEVADA REGION
17	20 2 8.63	37.12 N	115.83 W	12.9 F			NEVADA REGION
24	2 14 37.20	38.01 N	118.89 W	5.0 T	4.2		NEVADA REGION
25	23 47 59.29	36.96 N	117.76 W	7.5 F			NEVADA REGION
26	16 43 57.78	36.86 N	113.36 W	10.0 D			NEVADA REGION
27	2 11 52.28	36.84 N	115.92 W	10.0 D			NEVADA REGION
28	11 14 59.15	37.69 N	116.00 W	10.0 D			NEVADA REGION
29	5 40 9.50	35.71 N	116.49 W	15.4 F			NEVADA REGION
31	0 15 10.59	37.43 N	115.09 W	-0.0 D			NEVADA REGION

HYPOCENTER SUMMARY

AUG 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
02	4 44 43.80	36.86 N	120.10 W	8.0 T			NEVADA REGION
05	17 58 17.85	36.91 N	115.98 W	6.3 F	4.3		NEVADA REGION
05	18 13 25.62	36.91 N	115.99 W	-0.0 D			NEVADA REGION
05	18 18 11.80	36.90 N	116.02 W	-0.0 D			NEVADA REGION
05	18 41 40.78	36.91 N	115.97 W	-0.0 D			NEVADA REGION
05	18 43 9.14	36.91 N	115.98 W	2.9 F			NEVADA REGION
05	18 44 5.09	36.93 N	115.98 W	5.0 F			NEVADA REGION
05	18 53 13.09	36.91 N	115.98 W	0.0 D			NEVADA REGION
05	18 55 35.91	36.89 N	115.98 W	6.0 F			NEVADA REGION
05	19 8 13.00	36.91 N	115.96 W	4.3 F			NEVADA REGION
05	19 15 4.35	36.92 N	115.98 W	10.0 F			NEVADA REGION
05	19 16 13.43	36.90 N	115.95 W	2.8 F			NEVADA REGION
05	19 17 29.40	36.91 N	115.96 W	0.0 D			NEVADA REGION
05	19 24 9.88	36.91 N	115.99 W	5.9 F			NEVADA REGION
05	19 36 29.34	36.91 N	115.96 W	2.7 F			NEVADA REGION
05	20 2 16.90	36.89 N	115.99 W	-2.5 F			NEVADA REGION
05	20 8 2.48	36.92 N	116.01 W	0.0 D			NEVADA REGION
05	20 46 37.68	36.89 N	115.99 W	0.0 D	3.9		NEVADA REGION
05	20 47 38.03	36.93 N	115.99 W	0.0 D			NEVADA REGION
05	20 56 16.38	36.90 N	115.98 W	6.2 F			NEVADA REGION
05	21 41 36.09	36.91 N	115.97 W	-.1 F			NEVADA REGION
05	22 19 57.79	36.89 N	115.97 W	4.2 F			NEVADA REGION
05	22 41 42.49	36.89 N	115.97 W	1.9 F			NEVADA REGION
05	22 43 41.69	36.89 N	116.00 W	0.0 D			NEVADA REGION
05	22 56 16.85	36.90 N	115.99 W	0.0 D			NEVADA REGION
06	0 1 19.17	36.91 N	116.02 W	6.4 F			NEVADA REGION
06	0 6 54.20	36.90 N	115.97 W	0.0 D			NEVADA REGION
06	0 11 42.09	36.89 N	115.97 W	5.2 F			NEVADA REGION
06	0 27 47.56	36.91 N	116.01 W	5.9 F			NEVADA REGION
06	0 31 33.74	36.90 N	115.99 W	6.8 F			NEVADA REGION
06	0 56 50.21	36.89 N	115.98 W	6.6 F			NEVADA REGION

HYPOCENTER SUMMARY

AUG 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
06	1 31 26.03	36.90 N	116.03 W	6.7 F			NEVADA REGION
06	1 42 50.06	36.88 N	115.99 W	6.2 F			NEVADA REGION
06	1 47 4.01	36.89 N	115.99 W	10.0 F			NEVADA REGION
06	2 11 51.81	36.87 N	115.98 W	5.8 F			NEVADA REGION
06	2 41 46.56	36.89 N	115.98 W	4.5 F			NEVADA REGION
06	2 44 24.13	36.89 N	115.94 W	10.0 D			NEVADA REGION
06	3 15 4.82	36.88 N	115.98 W	9.2 F			NEVADA REGION
06	5 41 50.51	36.88 N	115.94 W	0.0 D			NEVADA REGION
06	6 19 31.12	36.90 N	115.97 W	10.0 F			NEVADA REGION
06	6 28 26.48	36.88 N	115.94 W	3.0 F			NEVADA REGION
06	6 33 52.36	36.88 N	115.97 W	4.4 F			NEVADA REGION
06	7 50 12.23	36.89 N	115.96 W	1.1 F			NEVADA REGION
06	8 39 .51	36.89 N	115.96 W	6.8 F			NEVADA REGION
06	9 8 12.72	36.89 N	115.98 W	8.0 F			NEVADA REGION
06	10 6 42.35	36.90 N	115.97 W	8.0 F			NEVADA REGION
06	11 6 46.89	36.89 N	115.92 W	0.0 D			NEVADA REGION
06	21 11 27.60	36.90 N	115.98 W	.1 F			NEVADA REGION
06	22 38 35.06	36.89 N	115.95 W	0.0 D			NEVADA REGION
07	1 26 36.82	36.88 N	115.95 W	0.0 D			NEVADA REGION
07	2 21 12.73	36.89 N	115.98 W	10.0 D			NEVADA REGION
07	15 36 1.67	36.89 N	115.96 W	10.0 D			NEVADA REGION
08	2 32 7.16	36.86 N	116.01 W	0.0 D	3.7		NEVADA REGION
09	1 52 17.01	36.90 N	115.94 W	0.0 D			NEVADA REGION
09	10 0 25.58	37.43 N	118.62 W	20.0 D			NEVADA REGION
10	0 2 23.37	36.90 N	116.00 W	6.3 F			NEVADA REGION
10	6 21 39.02	36.89 N	115.85 W	0.0 D			NEVADA REGION
10	8 16 50.75	36.89 N	115.87 W	0.0 D			NEVADA REGION
11	11 35 47.17	36.88 N	115.96 W	0.0 D			NEVADA REGION
11	14 20 52.71	36.89 N	115.97 W	0.0 D			NEVADA REGION
12	0 36 8.42	36.91 N	115.99 W	5.2 F			NEVADA REGION
12	19 53 6.65	36.89 N	115.97 W	9.6 F			NEVADA REGION

HYPOCENTER SUMMARY

AUG 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
15	7 51 41.71	36.90 N	115.99 W	6.3 F			NEVADA REGION
15	17 0 40.99	36.91 N	115.99 W	10.0 F			NEVADA REGION
15	17 43 23.56	36.87 N	115.93 W	0.0 D			NEVADA REGION
16	4 1 15.92	37.36 N	114.68 W	20.0 D			NEVADA REGION
16	10 41 52.52	36.91 N	115.98 W	3.6 F			NEVADA REGION
18	4 23 8.81	39.33 N	115.90 W	20.0 D			NEVADA REGION
18	14 0 .58	37.06 N	116.04 W	0.0 D	5.4		NEVADA REGION
18	14 38 8.85	36.73 N	116.08 W	10.4 F			NEVADA REGION
18	15 46 56.46	36.90 N	115.97 W	9.9 F			NEVADA REGION
18	22 30 38.37	37.98 N	116.36 W	10.0 D			NEVADA REGION
20	0 32 50.60	38.84 N	119.13 W	5.0 T	4.4		NEVADA REGION
21	20 27 6.26	36.78 N	115.90 W	0.0 D			NEVADA REGION
22	6 23 47.08	36.91 N	115.94 W	0.0 D			NEVADA REGION
28	17 49 53.71	38.24 N	115.90 W	11.3 F			NEVADA REGION
28	18 16 .12	38.21 N	115.84 W	8.9 F			NEVADA REGION
29	11 31 15.11	36.97 N	117.43 W	0.0 D			NEVADA REGION
31	3 9 26.12	38.55 N	117.73 W	0.0 D			NEVADA REGION
31	5 57 24.65	38.53 N	117.79 W	0.0 D			NEVADA REGION
31	7 11 20.46	38.53 N	117.79 W	0.0 D			NEVADA REGION
31	7 24 20.20	36.87 N	115.94 W	0.0 D			NEVADA REGION
31	17 25 49.60	36.74 N	117.58 W	0.0 D			NEVADA REGION

HYPOCENTER SUMMARY

SEP 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
04	13 44 28.15	36.90 N	115.97 W	3.9 F			NEVADA REGION
04	14 28 1.53	36.90 N	115.97 W	1.6 F			NEVADA REGION
05	3 50 38.36	36.52 N	116.94 W	16.7 F			NEVADA REGION
05	7 41 42.64	38.25 N	118.13 W	10.0 D			NEVADA REGION
05	20 30 16.26	37.30 N	117.35 W	20.0 D			NEVADA REGION
07	8 53 11.58	37.06 N	116.19 W	3.3 F			NEVADA REGION
10	1 8 13.51	38.32 N	115.74 W	10.0 D			NEVADA REGION
10	6 34 20.19	36.90 N	115.98 W	8.1 F			NEVADA REGION
10	11 22 24.12	37.02 N	116.01 W	0.0 D			NEVADA REGION
10	13 39 20.84	37.02 N	116.02 W	0.0 D			NEVADA REGION
13	1 15 46.89	36.62 N	117.12 W	13.9 F			NEVADA REGION
13	1 24 32.16	36.62 N	117.13 W	10.0 D			NEVADA REGION
13	1 42 46.48	36.63 N	117.13 W	12.4 F			NEVADA REGION
15	8 50 29.16	35.50 N	117.54 W	0.0 D			NEVADA REGION
18	2 12 39.30	51.89 N	178.63 E	112.0 T	4.6		RAT ISLANDS, ALEUTIAN ISLANDS
18	13 53 33.64	38.05 N	118.48 W	0.0 D			NEVADA REGION
19	0 58 35.90	39.35 N	118.88 W	10.0 T	4.5		NEVADA REGION
19	15 39 38.59	36.79 N	115.73 W	0.0 D			NEVADA REGION
22	10 29 50.00	36.50 N	116.50 W	5.0 D			NEVADA REGION
22	14 46 40.30	37.30 N	117.34 W	0.0 D			NEVADA REGION
23	11 12 53.66	36.88 N	115.94 W	0.0 D			NEVADA REGION
26	3 32 43.77	37.34 N	116.57 W	0.0 D			NEVADA REGION
27	5 59 55.20	73.39 N	55.10 E	0.0 T	6.4	5.2	NOVAYA ZEMLYA
28	3 53 19.70	33.96 N	-818.67 E	6.0 T	3.3		SOUTHERN CALIFORNIA
30	8 17 54.60	26.76 N	110.78 W	33.0 T	5.6	6.6	GULF OF CALIFORNIA
30	11 52 36.60	51.31 N	178.77 E	41.0 T	5.0		RAT ISLANDS, ALEUTIAN ISLANDS
30	22 46 11.70	33.15 N	115.78 W	8.0 T	4.9		NEVADA REGION

HYPOCENTER SUMMARY

OCT 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
02	8 54 45.16	39.11 N	118.15 W	5.0 D			NEVADA REGION
02	19 38 55.00	36.07 N	120.19 W	10.0 T			NEVADA REGION
03	3 3 52.80	37.35 N	118.35 W	5.0 D			NEVADA REGION
03	3 24 43.30	34.20 N	117.50 W	10.0 T			NEVADA REGION
06	6 49 15.40	33.03 N	115.80 W	10.0 T			NEVADA REGION
06	22 23 34.11	36.91 N	115.95 W	0.0 D			NEVADA REGION
06	22 34 39.75	36.29 N	118.09 W	0.0 D			NEVADA REGION
06	22 40 46.28	36.31 N	118.06 W	2.3 F			NEVADA REGION
07	5 51 20.17	36.90 N	115.96 W	6.1 F			NEVADA REGION
07	9 27 58.17	36.88 N	116.01 W	0.0 D	3.9		NEVADA REGION
07	9 55 22.31	36.89 N	115.96 W	9.3 F			NEVADA REGION
07	16 21 31.71	36.89 N	116.02 W	0.0 D			NEVADA REGION
07	21 28 49.84	36.89 N	116.02 W	0.0 D			NEVADA REGION
08	14 30 .99	37.11 N	116.04 W	0.0 D	4.7		NEVADA REGION
10	9 27 25.03	37.20 N	116.29 W	1.0 F			NEVADA REGION
10	15 26 37.80	33.73 N	117.52 W	9.0 T			NEVADA REGION
11	23 23 31.41	38.85 N	118.15 W	10.0 D			NEVADA REGION
12	11 2 1.80	36.87 N	115.97 W	0.0 D			NEVADA REGION
13	14 1 47.30	51.94 N	179.60 W	95.0 T	5.3		ANDREANOF ISLANDS, ALEUTIAN IS.
17	3 41 45.23	36.91 N	115.98 W	0.0 D			NEVADA REGION
19	21 20 12.60	37.45 N	117.86 W	17.5 F			NEVADA REGION
22	2 0 54.70	34.28 N	116.85 W	8.0 T			NEVADA REGION
22	7 31 19.79	36.88 N	115.96 W	0.0 D			NEVADA REGION
23	16 13 49.21	36.96 N	117.02 W	10.0 D			NEVADA REGION
23	20 0 53.63	37.13 N	117.29 W	10.0 D			NEVADA REGION
28	2 17 8.69	36.96 N	117.52 W	10.0 D			NEVADA REGION
30	17 11 22.72	36.89 N	115.97 W	5.0 D			NEVADA REGION
31	3 8 37.40	35.65 N	118.30 W	10.0 T			NEVADA REGION

HYPOCENTER SUMMARY

NOV 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
01	10 8 31.90	36.59 N	115.19 W	10.0 D			NEVADA REGION
01	17 28 43.92	36.89 N	115.95 W	1.5 F			NEVADA REGION
16	23 31 29.91	36.89 N	116.00 W	5.3 F			NEVADA REGION
17	4 23 31.18	36.90 N	116.01 W	10.0 D			NEVADA REGION
17	5 29 9.30	36.88 N	116.00 W	0.0 D			NEVADA REGION
17	12 50 49.45	37.20 N	114.60 W	10.0 D			NEVADA REGION
18	12 53 2.97	37.30 N	115.25 W	10.0 D			NEVADA REGION
22	10 50 31.54	37.32 N	115.29 W	18.2 F			NEVADA REGION
22	14 3 33.79	37.72 N	114.93 W	13.1 F			NEVADA REGION
23	0 44 50.01	36.87 N	115.99 W	5.0 D			NEVADA REGION
24	18 13 15.76	35.41 N	118.75 W	10.0 D			NEVADA REGION
24	20 15 1.10	36.90 N	115.97 W	5.0 D			NEVADA REGION
25	16 24 40.03	37.19 N	116.69 W	10.7 F			NEVADA REGION
28	6 0 6.58	37.17 N	116.67 W	0.0 D			NEVADA REGION

HYPOCENTER SUMMARY

DEC 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
08	15 23 52.91	37.71 N	115.08 W	10.1 F			NEVADA REGION
08	15 26 33.20	37.76 N	115.08 W	10.0 D			NEVADA REGION
08	15 33 44.73	37.72 N	115.06 W	9.8 F			NEVADA REGION
08	15 41 16.16	37.77 N	115.07 W	10.0 D			NEVADA REGION
08	15 43 55.25	37.76 N	115.07 W	0.0 F			NEVADA REGION
08	16 2 41.54	37.77 N	115.08 W	13.1 F			NEVADA REGION
08	17 18 40.91	38.33 N	114.60 W	0.0 D			NEVADA REGION
08	17 38 6.64	37.71 N	114.99 W	10.0 D			NEVADA REGION
08	18 15 12.02	37.73 N	115.05 W	0.0 D			NEVADA REGION
08	18 18 8.08	37.75 N	115.08 W	0.0 D			NEVADA REGION
08	18 27 4.57	37.81 N	114.94 W	0.0 D			NEVADA REGION
08	18 32 28.02	37.72 N	115.13 W	0.0 D			NEVADA REGION
08	19 45 30.92	37.60 N	114.76 W	20.0 D			NEVADA REGION
08	19 55 1.03	37.73 N	115.04 W	0.0 F			NEVADA REGION
08	21 35 12.91	37.71 N	115.04 W	0.0 F			NEVADA REGION
08	21 43 29.15	37.72 N	115.04 W	0.0 F			NEVADA REGION
08	22 46 10.54	37.72 N	115.05 W	0.0 F			NEVADA REGION
09	0 47 20.65	37.77 N	115.07 W	11.6 F			NEVADA REGION
09	0 53 20.41	37.70 N	114.96 W	16.5 F			NEVADA REGION
09	1 4 24.51	37.72 N	114.95 W	10.0 D			NEVADA REGION
09	2 1 59.78	37.75 N	115.03 W	0.0 F			NEVADA REGION
09	2 41 17.87	37.75 N	115.04 W	0.0 F			NEVADA REGION
09	4 6 1.61	37.71 N	115.00 W	0.0 F			NEVADA REGION
09	4 16 30.56	37.72 N	115.02 W	0.0 F			NEVADA REGION
09	6 51 11.81	37.76 N	115.04 W	13.8 F			NEVADA REGION
09	10 3 12.77	37.70 N	115.06 W	0.0 F			NEVADA REGION
09	15 7 23.74	37.77 N	115.09 W	8.8 F			NEVADA REGION
09	15 42 4.77	37.71 N	114.95 W	16.2 F			NEVADA REGION
09	23 40 18.46	37.74 N	115.05 W	17.8 F			NEVADA REGION
11	9 12 3.11	37.68 N	115.03 W	10.0 D			NEVADA REGION
12	9 40 17.41	37.72 N	114.96 W	13.2 F			NEVADA REGION

HYPOCENTER SUMMARY

DEC 1971	ORIGIN TIME (GMT)	LAT	LONG	DEPTH* (KM)	MB	MS	GEOGRAPHIC REGION
14	21 9 59.67	37.12 N	116.07 W	.9 F			NEVADA REGION
15	4 36 22.55	36.98 N	116.90 W	0.0 D			NEVADA REGION
15	20 28 39.98	37.12 N	116.32 W	5.0 D			NEVADA REGION
16	10 5 3.76	37.68 N	115.02 W	10.0 D			NEVADA REGION
17	18 21 32.63	37.69 N	115.02 W	10.0 D			NEVADA REGION
17	22 1 45.07	37.73 N	115.06 W	10.0 D			NEVADA REGION
18	1 34 47.93	36.05 N	114.76 W	0.0 F			NEVADA REGION
19	11 24 25.24	37.60 N	115.08 W	23.1 F			NEVADA REGION
19	18 15 54.20	38.00 N	115.17 W	23.0 F			NEVADA REGION

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