EARTHQUAKES IN THE OIL FIELD AT RANGELY, COLORADO

by

James F. Gibbs, John H. Healy, C. Barry Raleigh and John Coakley

National Center for Earthquake Research
345 Middlefield Road
Menlo Park, California 94025

U. S. Geological Survey
OPEN FILE REPORT

Open-File Report 72-130

1972

This page intentionally left blank

EARTHQUAKES IN THE OIL FIELD AT RANGELY, COLORADO

by

James F. Gibbs, John H. Healy, C. Barry Raleigh and John Coakley

National Center for Earthquake Research
345 Middlefield Road
Menlo Park, California 94025

U. S. Geological Survey
OPEN FILE REPORT

Open File Report

1972

This page intentionally left blank

EARTHQUAKES IN THE OIL FIELD AT RANGELY, COLORADO

BY

James F. Gibbs, John H. Healy, C. Barry Raleigh and John Coakley

ABSTRACT

Seven years of seismic data recorded at the Uinta Basin Observatory were searched for earthquakes originating near an oil field at Rangely, Colorado, located 65 km ESE of the observatory. Changes in the number of earthquakes recorded per year appear to correlate with changes in the quantity of fluid injected per year. Between November 1962 and January 1970, 976 earthquakes were detected near the oil field by the UBO station; 320 earthquakes were larger than magnitude 1.

Richter magnitudes are estimated from both S-wave and P-wave measurements and a method based on the duration of the seismic signal is used to estimate the magnitude of the larger shocks. The two largest shocks had magnitudes of 3.4 and 3.3. The total seismic energy released was 10^{17} ergs. During this same period the energy used for water injection, measured at the wellhead, was 10^{21} ergs.

INTRODUCTION

Interest in triggering of earthquakes by injection of fluid into the crust of the earth has increased since Evans (1966) found a relationship between injection of chemical waste material into a deep disposal well near Denver, Colorado and earthquake activity in the Denver area. At least one study is now underway in an area where earthquakes and injection are found together to determine if man is, in fact, inadvertently triggering earthquakes. This study is being conducted at Rangely, Colorado where the U. S. Geological Survey in cooperation with Chevron Oil Company is attempting to control the seismic activity by changing the fluid pressure in a small fault zone. Prior to this detailed study no seismographs were located in the Rangely area. The nearest instruments were those of the Uinta Basin Seismological Observatory located 65 km to the WNW. In this paper we examined the seismic data available before this earthquake experiment began.

Seismograph records recorded between November 1962 and January 1970 at the Uinta Basin Seismological Observatory (UBO) have been searched for earthquakes originating near the oil field. The number of earthquakes are compared to the quantity of water injected to see if a correlation between these two parameters can be established. Changes in the amount of water injected per year follow changes in the number of earthquakes per year, for 6 out of the 7 years studied. Estimates of earthquake magnitude were calculated from S-wave, P-wave and signal-duration measurements to provide a magnitude cutoff, below which earthquakes would not be counted, and also to compare magnitudes to new data being recorded by the U. S. Geological Survey. The magnitudes of the larger earthquakes were determined by a method based on duration of the seismic signal. Energy calculations show

that total seismic energy released is four orders of magnitude less than the energy used to inject water into the reservoir.

UINTA BASIN OBSERVATORY

UBO is located approximately 16 km south of Vernal, Utah (Figure 1) and 65 km WNW of the Rangely oilfield. UBO was the closest seismograph station operating continuously during this period. Nine short-period vertical seismometers are arranged in triangular patterns (Figure 2) with a 3-component station located at the center of the array. Initially the high gain seismographs were operated at a magnification of 300,000 (R. A. Hartenberger, Dec. 1970, written communications). On November 14, 1962 the gain was increased to 400,000 and on July 3, 1963 it was again increased to 600,000 where it remained for the rest of the study period. The data are recorded on 16 mm photographic film and magnifications reported by UBO are measured on a viewing screen that magnifies the data 10 times.

RANGELY OILFIELD

The Rangely oilfied is located (Figure 1) in Rio Blanco County, Colorado, and surrounds the town of Rangely, Colorado. Oil was discovered in 1932 but the field was not developed until 1943. Water flooding of the Rangely field was started in late 1957 shortly after the operators had agreed to unitize the field. The water injection wells are being fed by a centrally located pumping station that maintains a pressure of approximately 1200 psi. Wells near the periphery of the field were initially converted to water injection and by September 1965, 97 wells had been converted (Figure 3). By September 1969, water was being pumped into 202 wells. Most of these additional water injection wells were added to the central position of the field (Figure 4).

USGS NETWORK

In November 1967 the U. S. Geological Survey installed four temporary

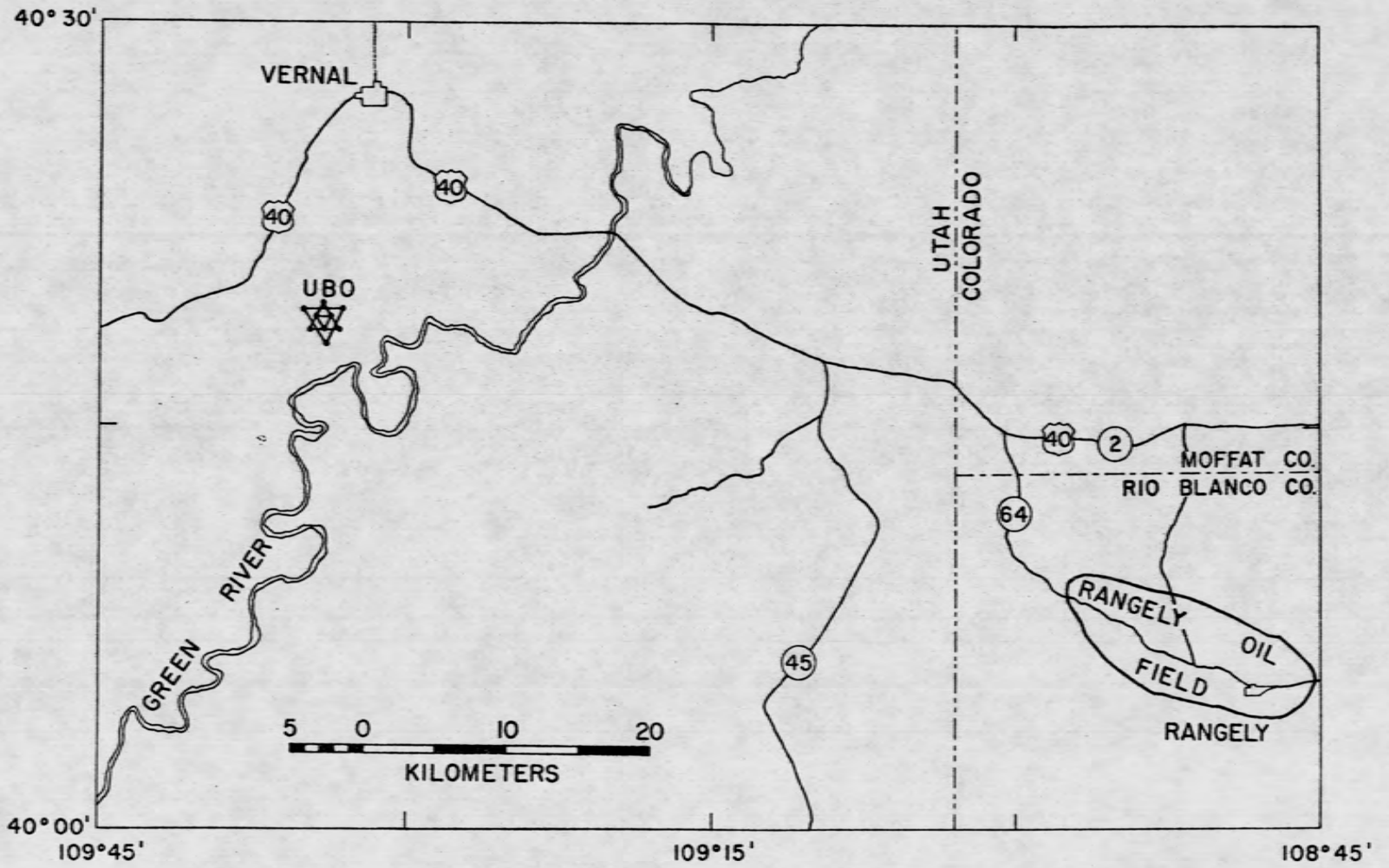

Figure 1.--Location map showing the location of the Uinta Basin Observatory and the Rangely Oilfield.

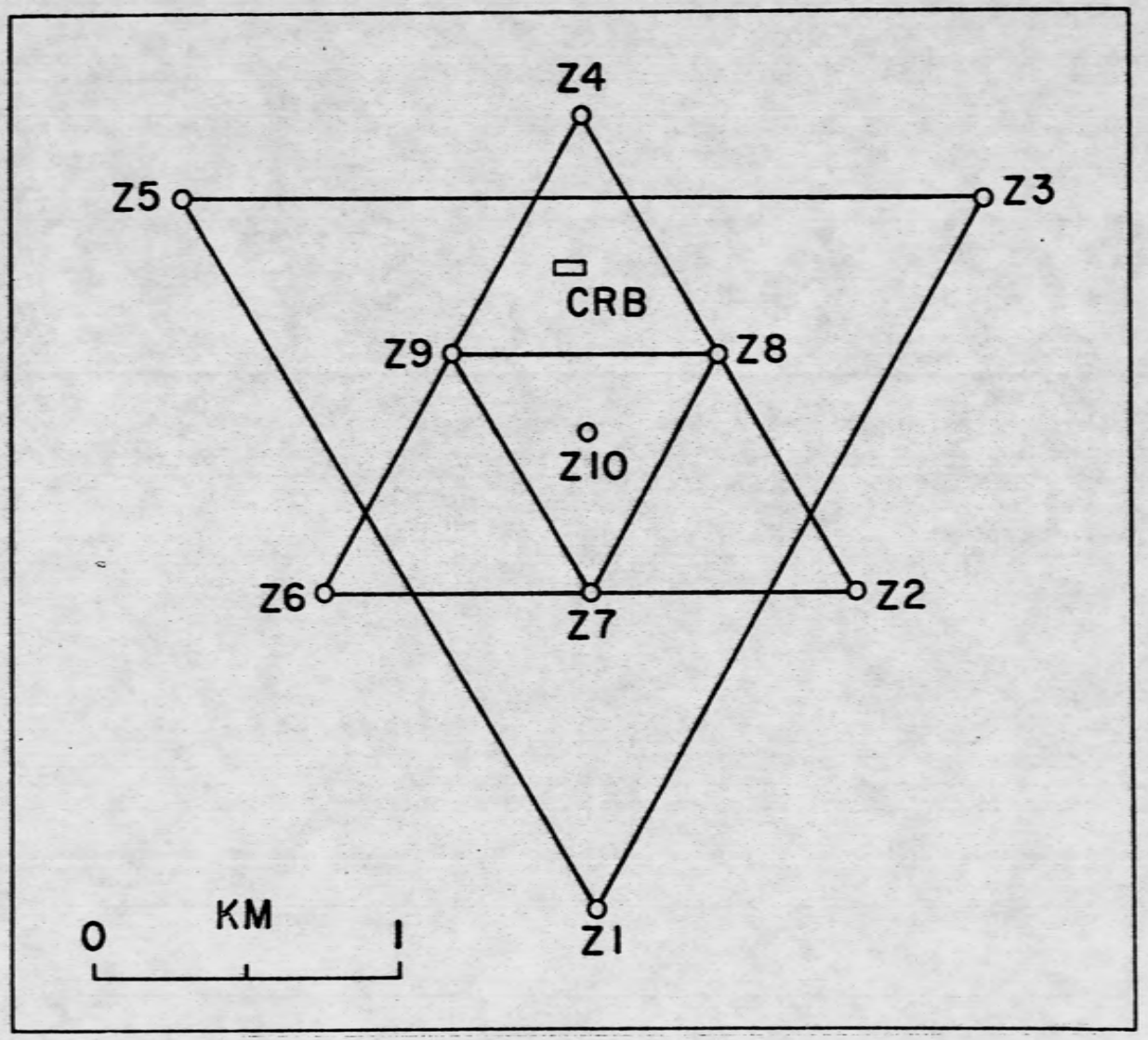

Figure 2.--Geometry of the UBO seismometer Array. Z 1 through Z 10 are the location of the short period vertical seismometers. Two short period horizontal seismometers are also located at Z 10.

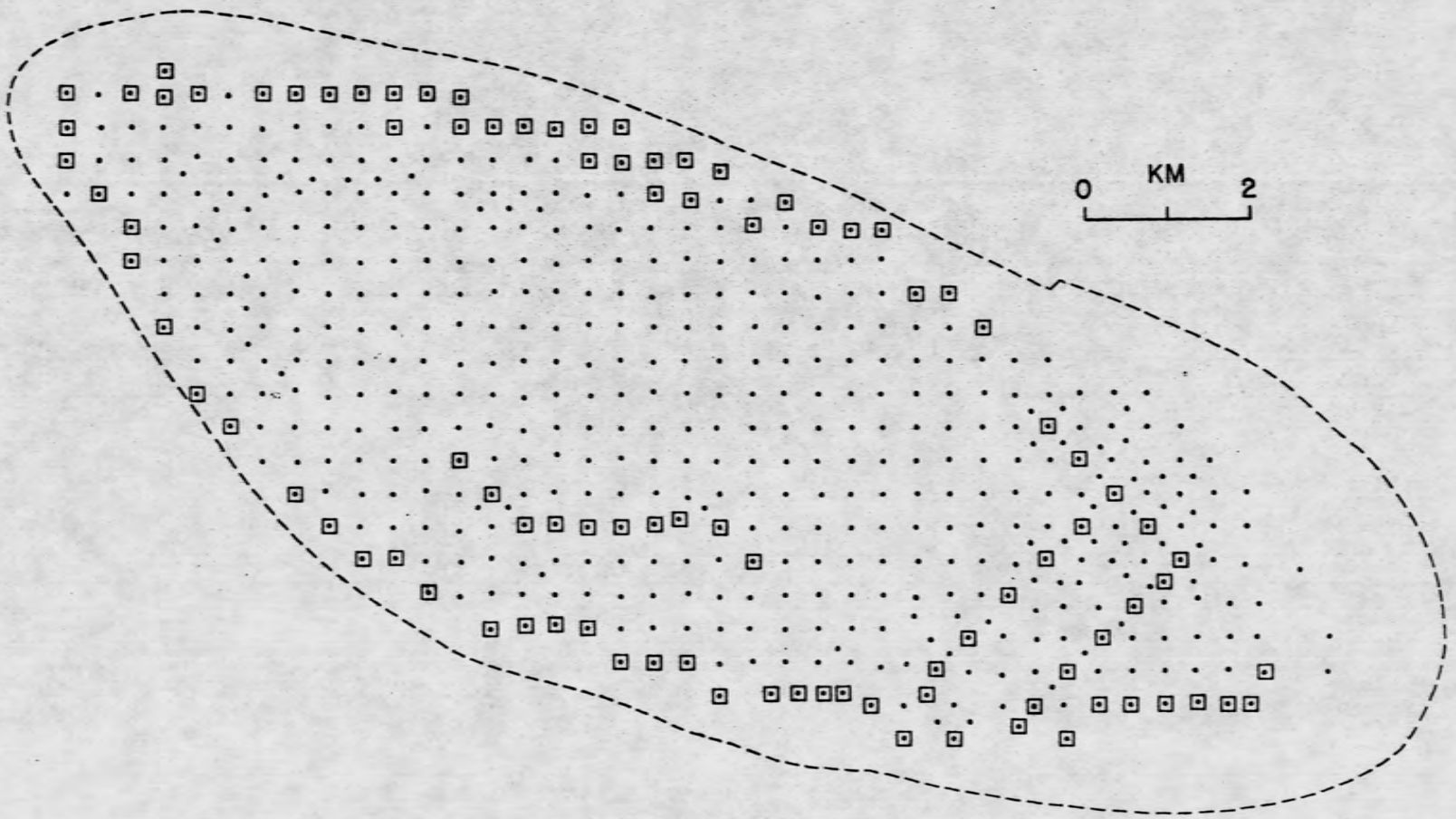

Figure 3.--Water injection wells (squares) in the Rangely Oilfield in Sept. 1965.

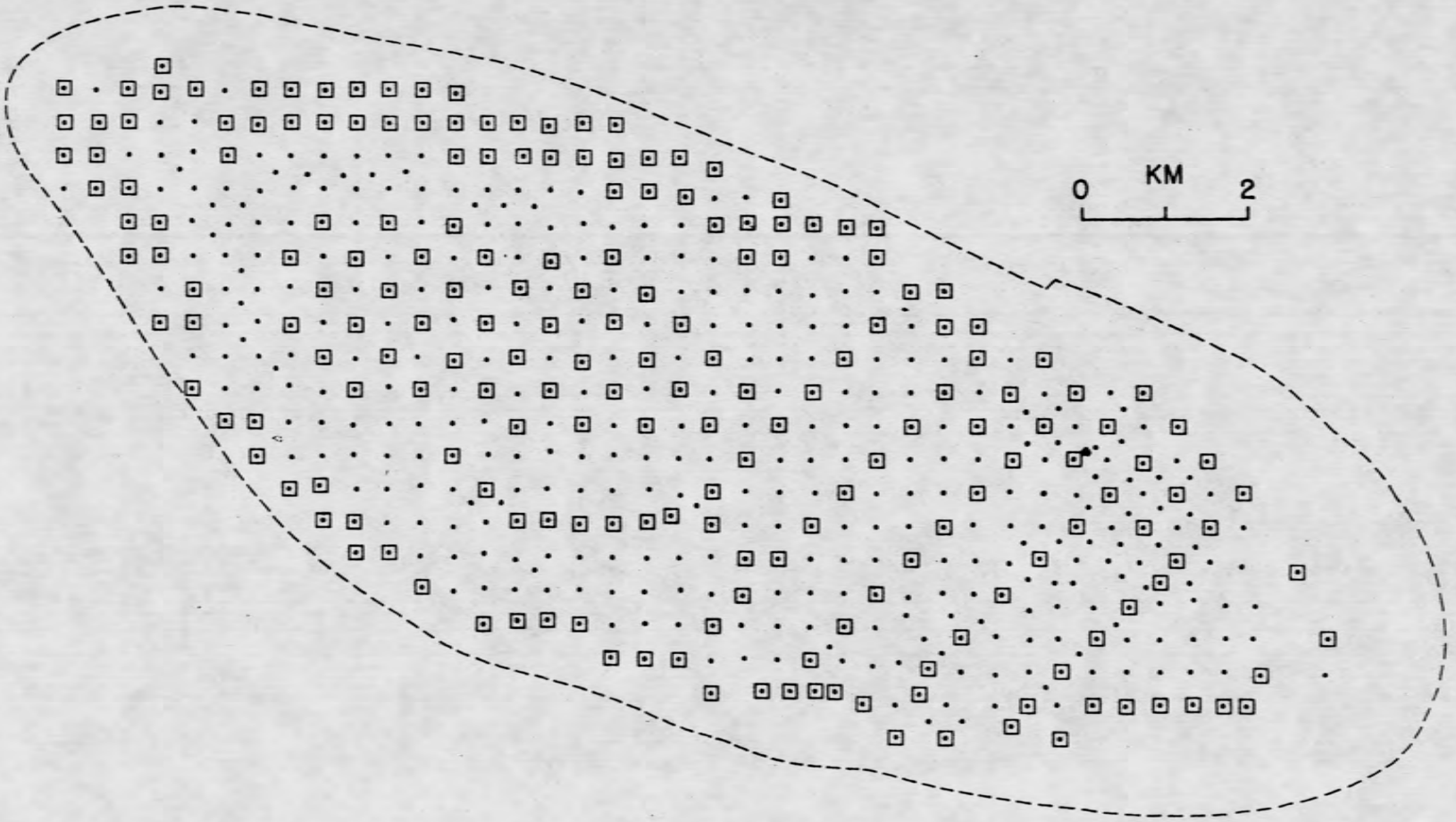

Figure 4.--Water injection wells (squares) in the Rangely Oilfield in Sept. 1969.

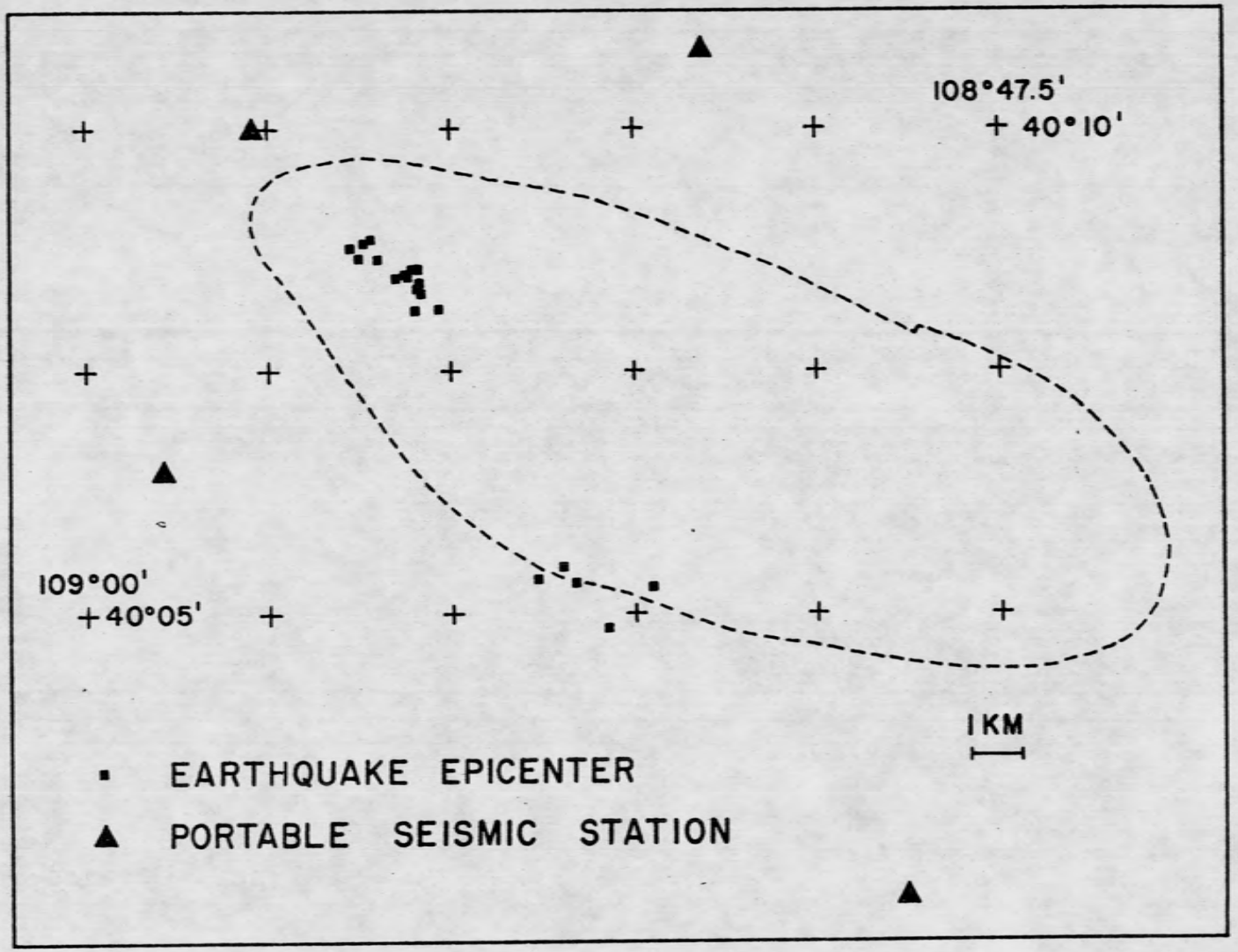

Figure 5.--Location of portable recording instruments and earthquake epicenters for an 8-day recording period in November 1967.

portable seismographs (Figure 5) around the Rangely oilfield in an effort to locate the active earthquake areas. These instruments recorded continuously for an 8-day period and revealed a pattern of seismic activity that was related to the areas of the field where fluid pressure was high. In September 1969 a 16-station seismograph network was installed around the Rangely oilfield. The data are transmitted via telephone line from the oilfield to the Menlo Park, California office, where it is recorded on 16 mm photographic film.

SEISMIC INTERPRETATION

Earthquakes occurring in the vicinity of Rangely, Colorado were identified from UBO data by the characteristic P-wave arrival pattern and the S-P time. The outer triangle of stations (1, 3, 5; Figure 2) were used to determine the azimuth from UBO to the epicenter (110 ± 4°). The distance was determined by reading the time interval between the P-wave and S-wave arrivals, using the 3-component station at the center of the array. If the S-P time was between five and ten seconds (Figure 6) the earthquake was included in the bulletin (Appendix 1). This corresponds to an epicentral distance of from about 40 to 85 km. Those earthquakes with an S-P time near the extremes of 5 and 10 seconds are probably outside the boundary of the oilfield. The distinctive character of the S-wave arrival on the NS horizontal seismometer together with the P-wave arrival sequence on the outer triangle of stations made Rangely earthquakes easy to identify.

The plot of magnitude vs frequency (Figure 7) shows that most earthquakes greater than magnitude 1 were read from the UBO records.

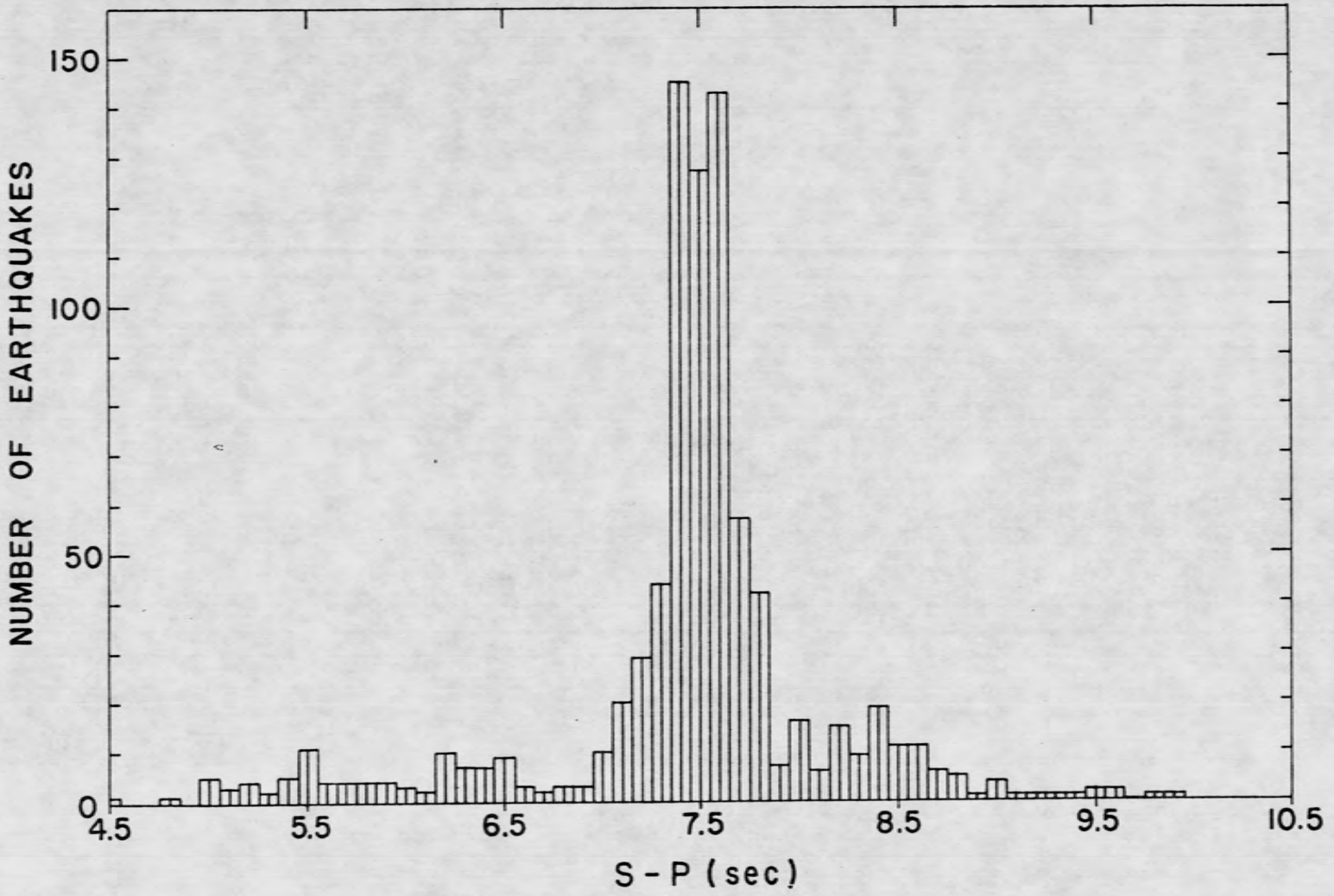

Figure 6.--S-P interval for earthquakes recorded at UBO and arriving at azimuths of from 106 to 114°.

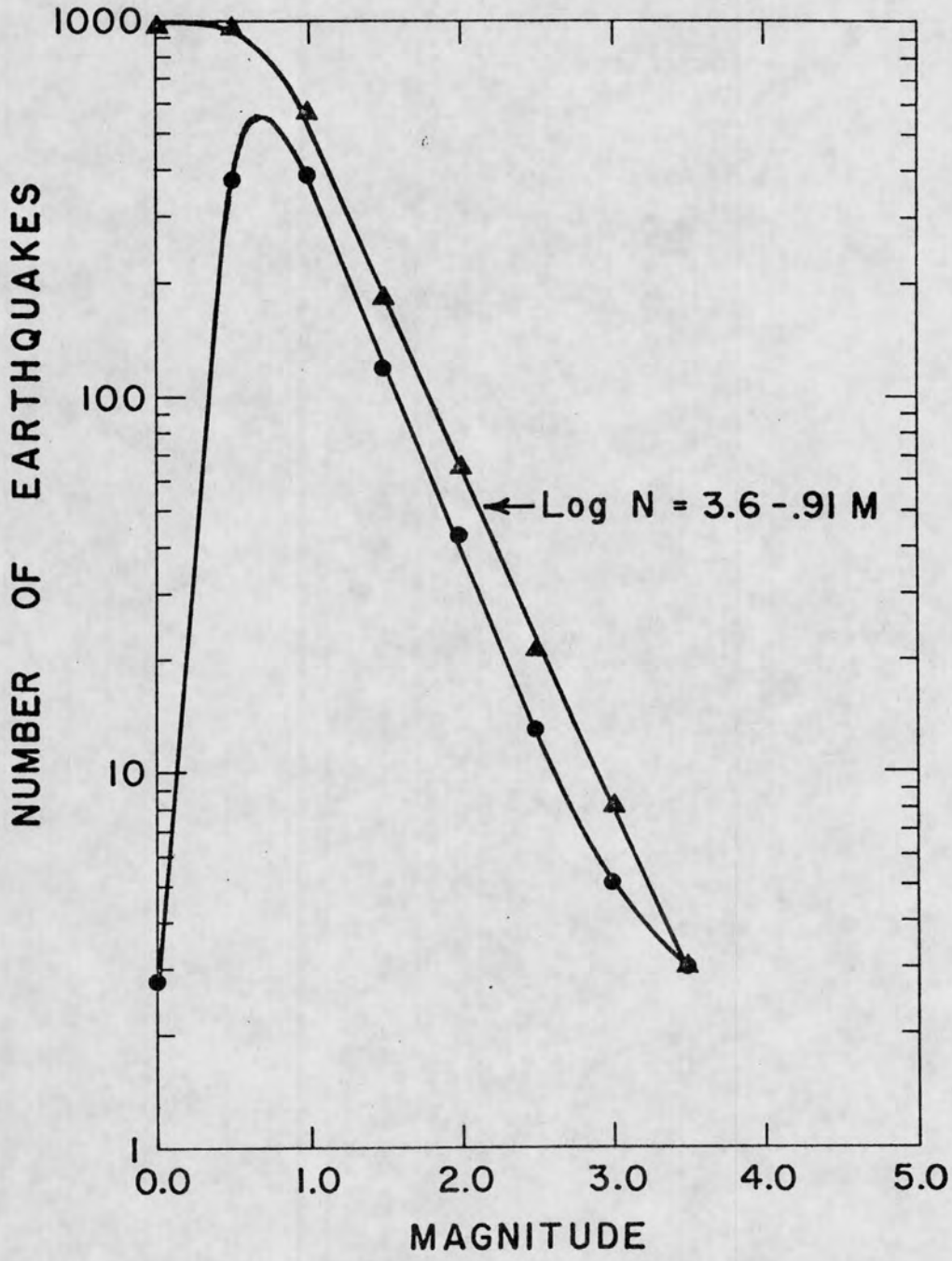

Figure 7.--Frequency vs. magnitude curves for Rangely earthquakes recorded between Nov. 1962 and Jan. 1970 at UBO. The lower curve shows the number of events in a one-half-magnitude interval. The upper curve shows all events greater than or equal to a given one-half-magnitude interval.

MAGNITUDE DETERMINATIONS

Richter magnitude (M_L) was estimated from Rangely earthquakes using amplitude and period measurements of the S-wave arrival which was usually the largest arrival on the seismogram. The amplitudes were measured peak-to-peak in millimeters on a viewing screen that magnifies the film strip 20 times. These values (A_{jm}) together with the period and trace number are recorded in Appendix 1. Trace numbers 1, 2 and 3 are low-gain, 60k magnification, and 4, 5 and 6 are low-low gains operating at 4.7k magnification. The measured amplitude values have been multiplied by 10 or 128 respectively for these traces. Several gain changes occurred prior to July 3, 1963, and the amplitudes were adjusted in the computer program to compensate for these changes. The estimated Wood-Anderson amplitude, A_{wa}, was calculated from

$$A_{wa} = \frac{A_{jm}}{4} \times R(W) \qquad (1)$$

The factor 1/4 is necessary to reduce the measured amplitude to center-to-peak and to account for amplitudes being measured on a 20 power viewing screen (UBO reports magnifications for a 10 power viewing screen). R(W) is the ratio of the magnification of the standard Wood-Anderson to the standard Johnson-Matheson as a function of frequency (Figure 8).

The Richter magnitude is obtained from

$$M_L = \text{Log } A_{wa} - \text{Log } A_o \qquad (2)$$

where $-\text{Log } A_o = 2.8$ at 65 km (Richter, 1958, page 342).

Estimate of M_L from P-wave amplitude (A_{jmp}) was also calculated. The largest P-wave amplitude in the first second of the record was measured.

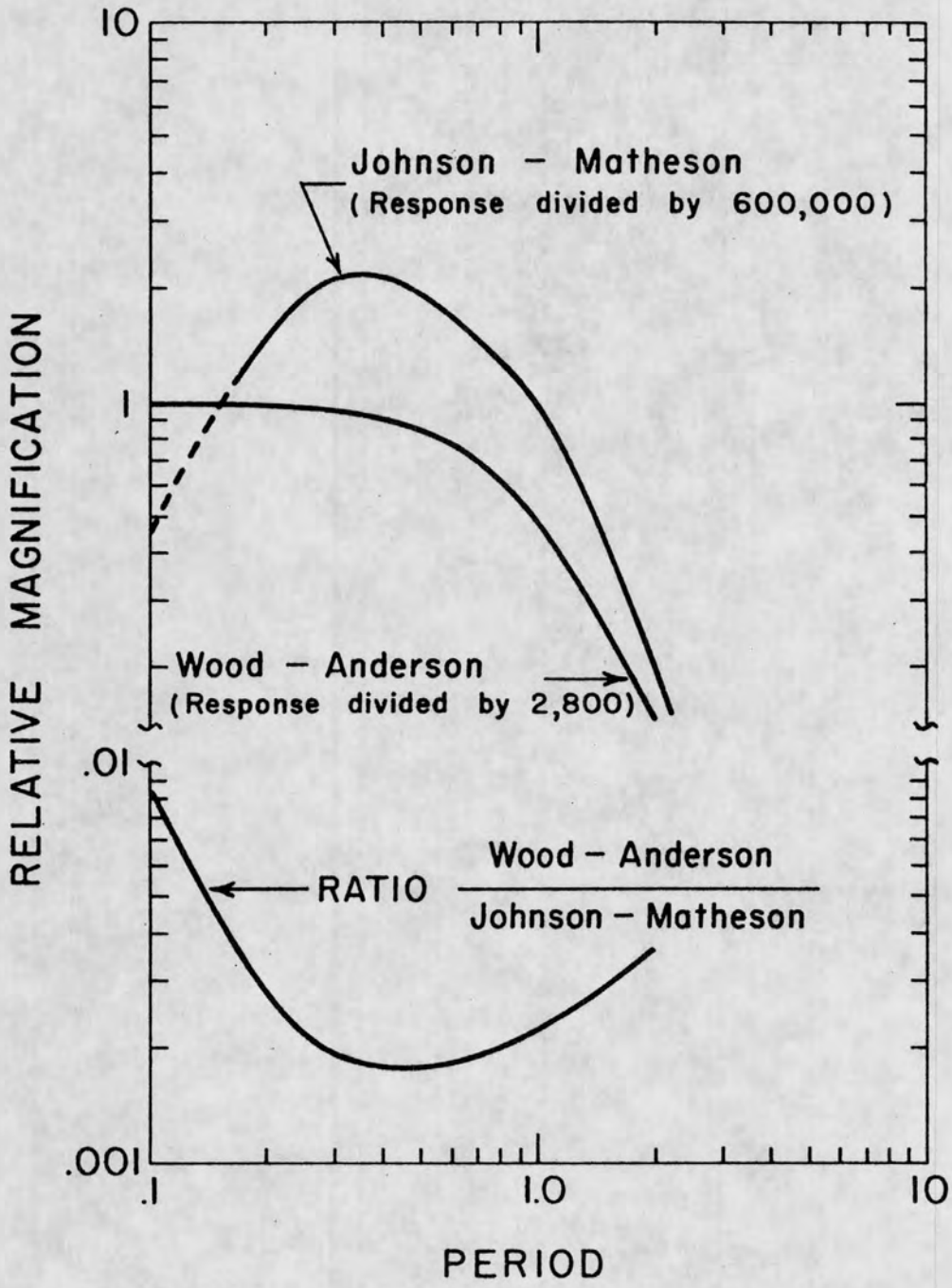

Figure 8.--The upper two curves show the seismometer response for the Wood-Anderson and Johnson-Matheson systems. The lower curve is the ratio of Wood-Anderson magnification to the Johnson-Matheson magnification.

Estimates of M_L were obtained from

$$M_{LP} = \text{Log} \frac{A_{imp}}{4} R(W) + 2.8 + 0.71 \qquad (3)$$

Equation (3) includes the empirical constant 0.71 which corrects for the average amplitude difference between P and S-waves. The graph of M_L vs M_{LP} shows a reasonable agreement between the two sets of magnitudes (Figure 9). Thus, a comparable magnitude could be determined for those earthquakes when the S-wave could not be measured.

MAGNITUDES REPORTED BY UBO

We also calculated Unified Magnitude as described by the staff at the Uinta Basin Observatory.

$$M = \text{Log } (A/T) + B \qquad (4)$$

Where: A = peak-to-peak ground motion in millimicrons determined from P-wave amplitude measurements.

T = signal period in seconds

B = depth, distance factor

B in this special case was extrapolated from the Table (Carl F. Romney, AFTAC, written communications) for 65 km and has the value 0.726. M_L versus M is plotted in Figure 10.

M_L ESTIMATED FROM CODA LENGTH

Data from the U.S. Geological network (Rangely, Colorado) of 16 stations operating since mid-September 1969 was used in conjunction with data recorded simultaneously at UBO, to determine a magnitude scheme based on signal duration (Figure 11). The coda length is defined as the time in seconds that the amplitude of a seismic trace remains above an arbitrary level (one centimeter was chosen on the viewer screen). The sensitive seismographs of the

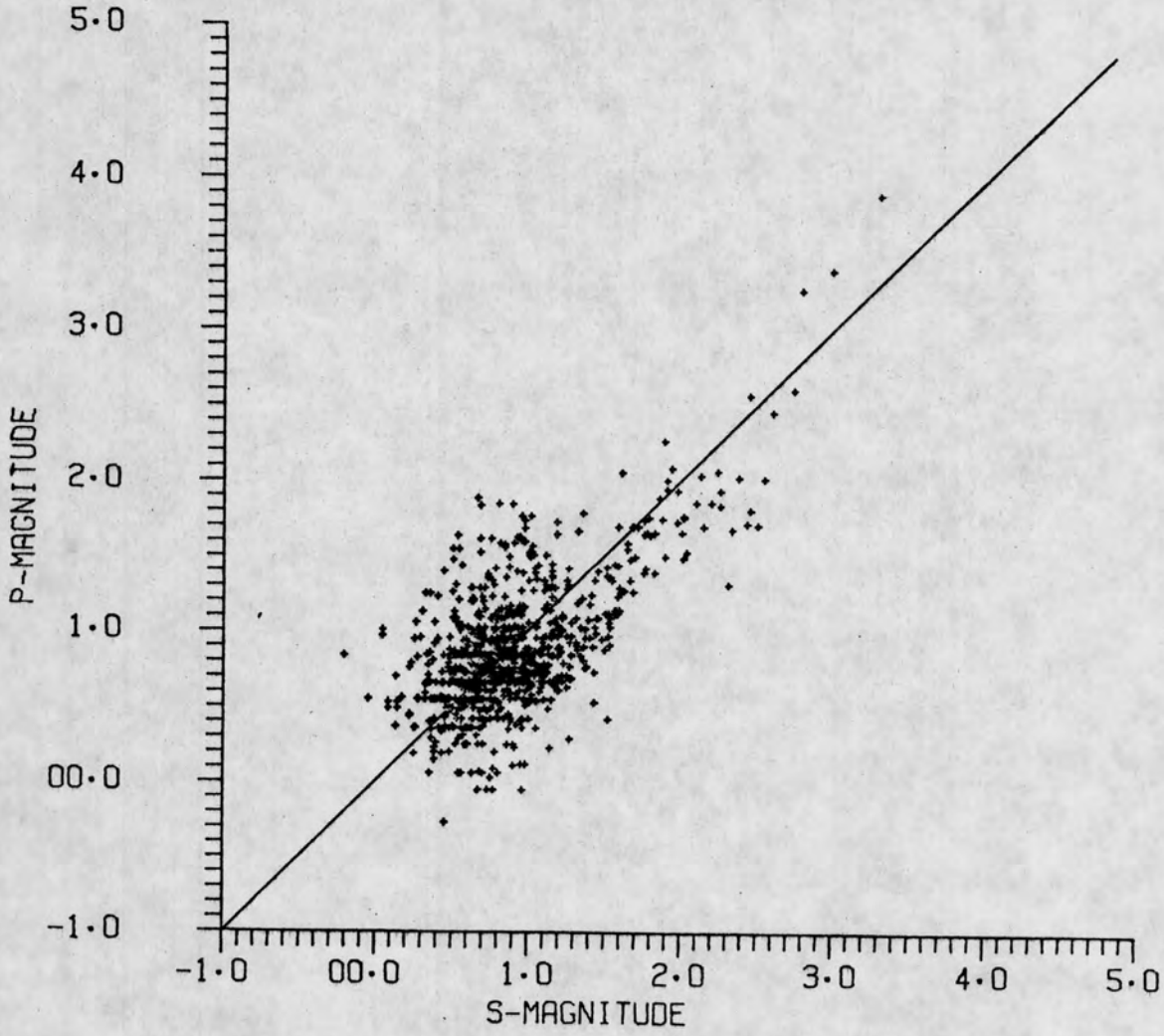

Figure 9. Relationship between P-magnitude and S-magnitude. A constant (0.71) has been added to P-magnitude and a line with a slope of 1 is drawn through the points.

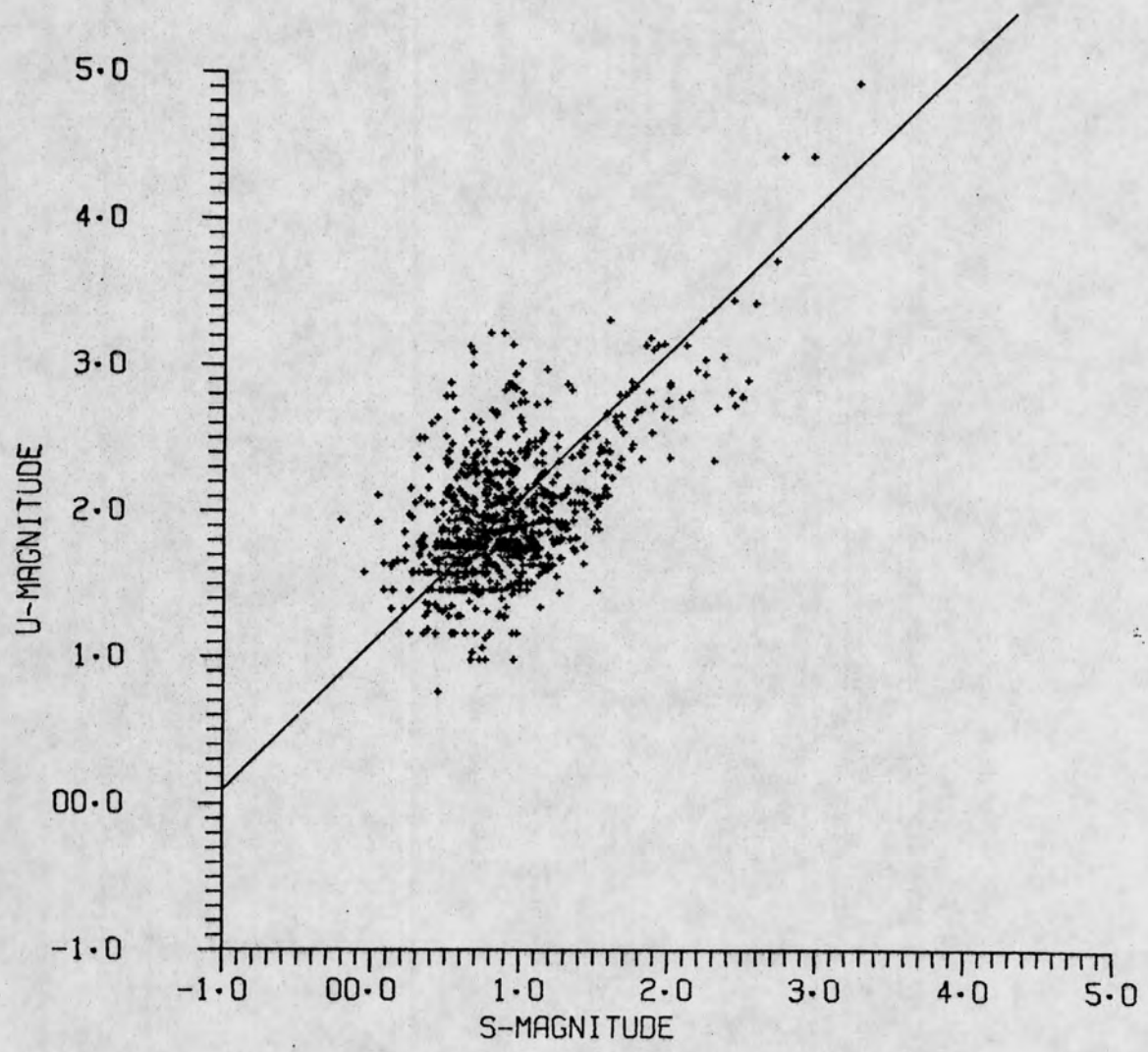

Figure 10. Relationship between Unified Magnitude and S-Magnitude (M_L). A line with a slope of 1 drawn through the points intercepts the U-Magnitude zero axis at approximately 1.1.

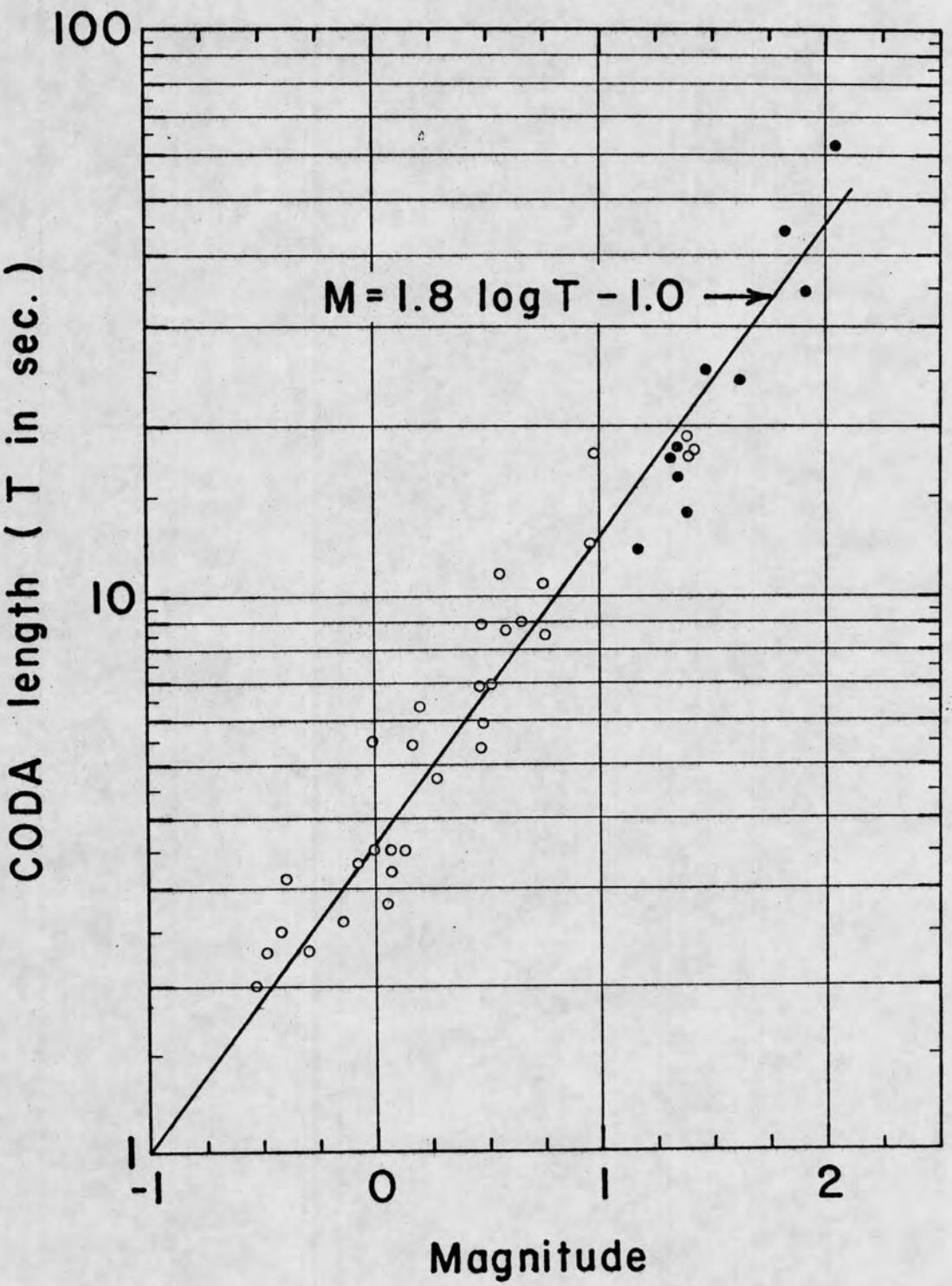

Figure 11.--Coda length magnitude curve determined from Rangely Earthquakes.

U.S. Geological Survey network at Rangely are driven off scale by local earthquakes of about magnitude 1. Figure 11 was constructed from coda length measured from the Rangely seismographs and magnitudes determined for the smaller earthquakes (open circles) from Rangely measurements and the larger magnitudes (solid circles) from UBO measurements. Thus, we have a magnitude determined from either Rangely or UBO and a signal duration measurement obtained from the Rangely network which allowed us to plot coda-length magnitude curve (Figure 11). By a straight line extrapolation an estimate of larger magnitude earthquakes can be read directly from the graph, simply by measuring signal duration from the Rangely seismograph. Magnitudes between 2.5 and 5.0 can be estimated with an accuracy of about ± 0.5 magnitude unit using this scheme.

The largest earthquake recorded at Rangely occurred on August 5, 1964, and had a Richter magnitude estimated from codalength of 3.4. This earthquake caused minor damage in the town of Rangely, Colorado.

ENERGY

The energy radiated as elastic waves from each earthquake was calculated from the Guterburg-Richter (Richter, 1958, p. 366) formula

$$\text{Log } E = 9.9 + 1.9\ M_L - 0.024\ M_L^2 \qquad (5)$$

The largest shock August 5, 1964 has an energy of 12×10^{15} ergs. The total seismic energy released per year is plotted together with the number of earthquakes greater than magnitude 1, Figure 12. Total seismic energy released was 10^{17} ergs which is equivalent to the energy of one earthquake of magnitude 3.9. Water is injected into the wells at Rangely at a constant pressure of approximately 1200 psi. The energy necessary to inject each barrel of water can be approximated by multiplying the volume of water

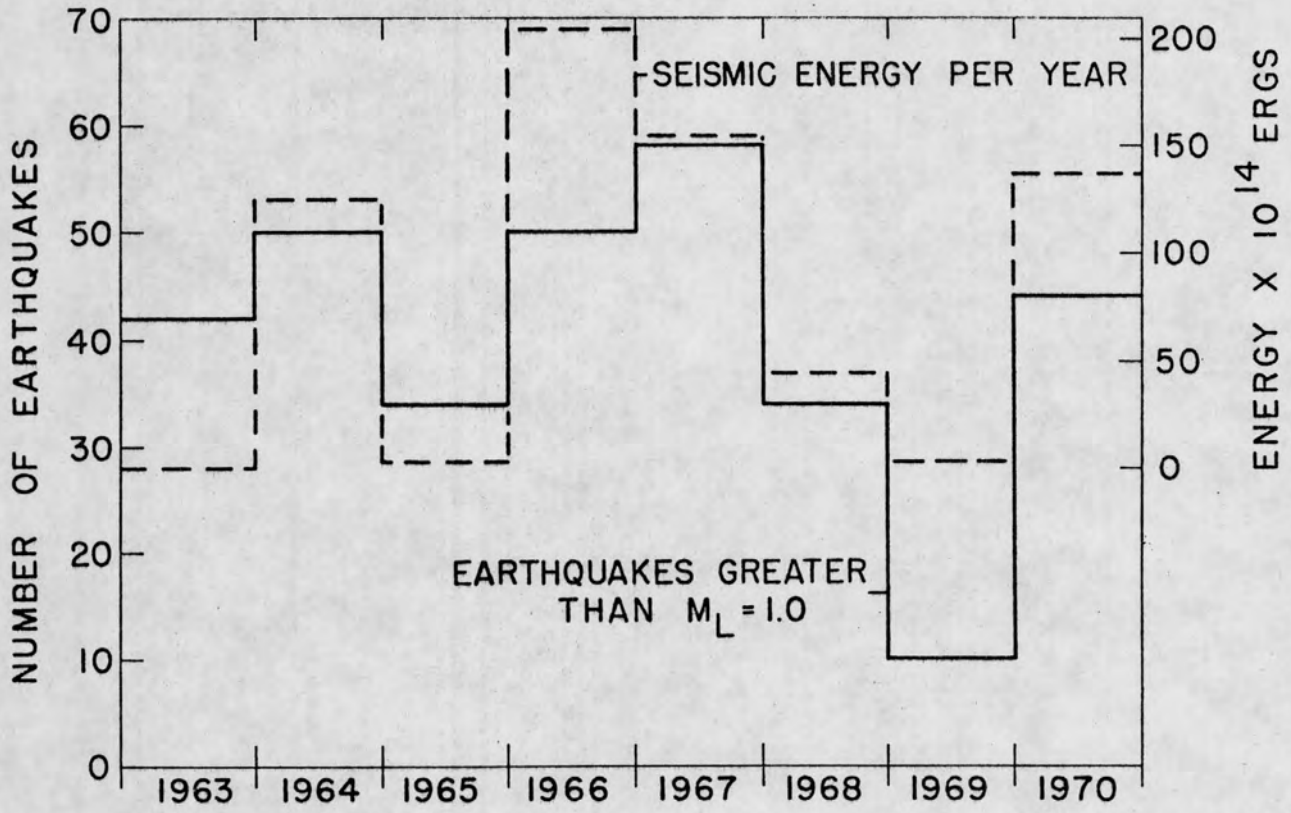

Figure 12.--Total number of earthquakes per year (greater than magnitude 1.0) and total energy released per year for earthquakes occurring in the Rangely Oilfield.

times the pressure of injection. A straight forward calculation of this energy is 1.4×10^{13} ergs per barrel of water passing through the well head. From Nov. 1962 to Jan. 1970 the volume of water injected is 4.8×10^{6} barrels and the energy of injection is approximately 6.7×10^{21} ergs. The energy used to inject the water is 10^{4} times the energy released as seismic waves. Although the number of earthquakes occurring in the oilfield is quite large (approximately 1000) during this period, the energy released as seismic waves is quite small.

Discussion

The number of earthquakes recorded per month do not appear to correlate with the net fluid injection per month (Figure 13); but, if the number of earthquakes are plotted on a yearly basis and compared with the fluid injected per year, there is an apparent correlation (Figure 14). The absolute value of fluid injection does not seem to affect the seismic activity but rather changes in the quantity of fluid injected are related to changes in the number of earthquakes recorded; if fluid injection increases, there is a corresponding increase in seismic activity. This relationship holds true for all years except for 1969 when a modest increase in fluid injection is accompanied by a dramatic decrease in earthquake activity.

It is probable that a correlation could be developed if earthquake hypocenters could be accurately located within the oilfield and compared with fluid injected into wells near the active areas. It appears that portions of the field without natural faults do not produce earthquakes even when the fluid pressures are quite high, and the inclusion of data from the stable parts of the oil field tends to degrade the correlation. There are other factors that tend to mask the relationship between fluid

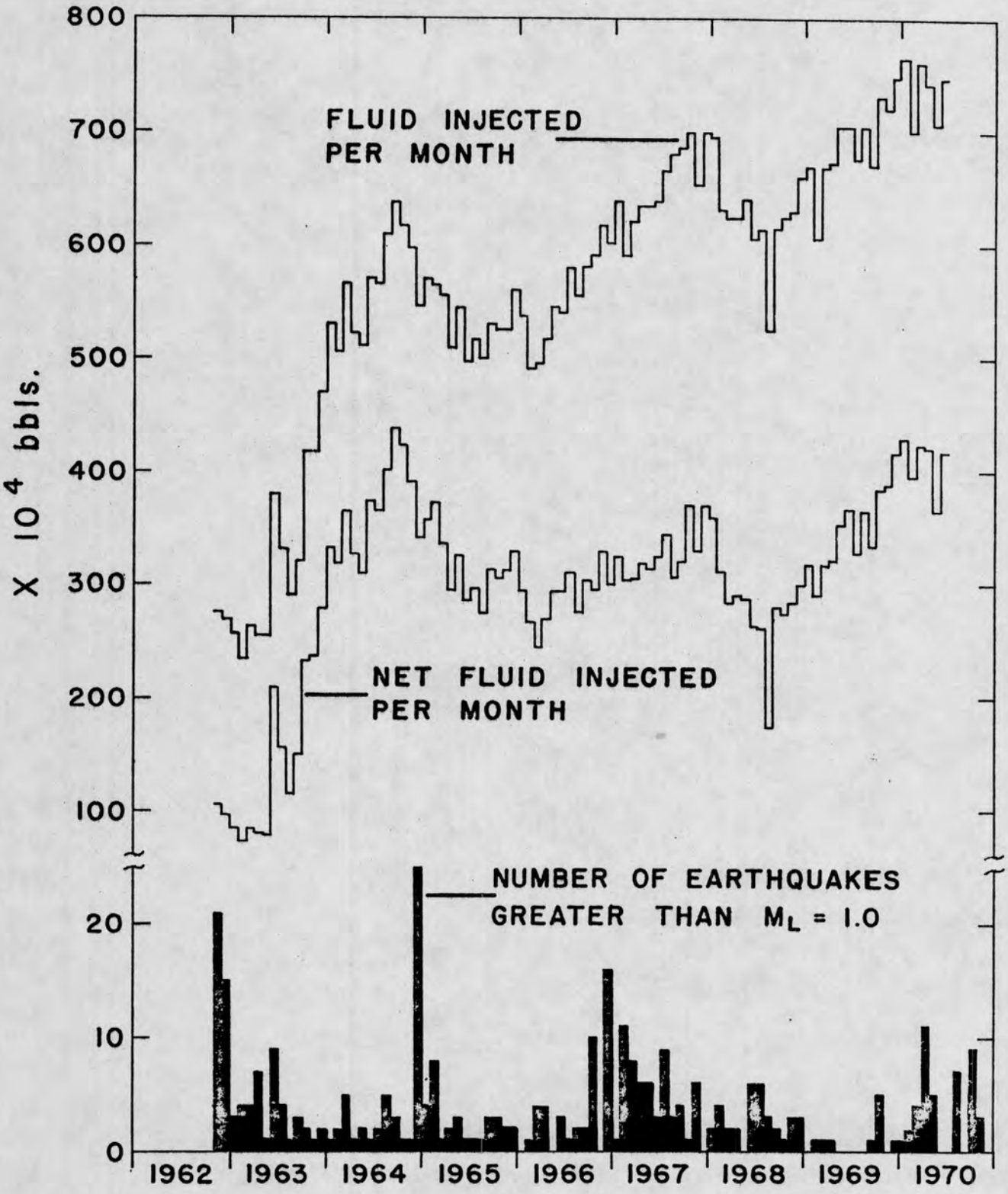

Figure 13.--Total and Net fluid injected per month is shown along with the number of earthquakes per month. The net fluid injected is the total fluid injected minus the oil and water produced.

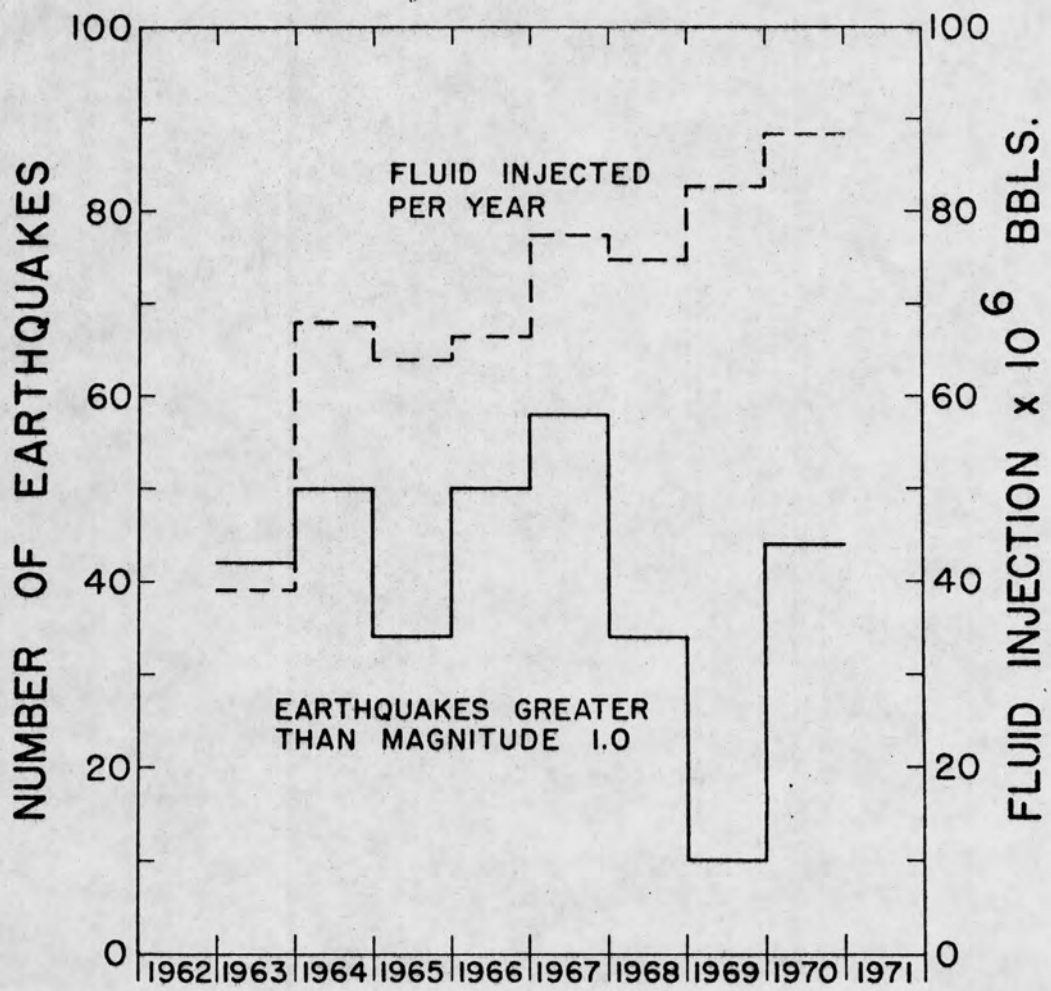

Figure 14.--Total yearly fluid injection is shown by the top line and number of earthquakes per year occurring in the Rangely Oilfield by the lower line.

injection and earthquakes. Changes in the pattern of injection wells can redistribute the water available for injection so that zones that are near their critical pressure will receive less water as new wells are initiated in zones that are far below their critical pressure. Thus, even though there may be a substantial increase in fluid injection, as these new wells are introduced, less water is injected into the zones that could produce earthquakes.

A comparison of the injection wells as of 1965 (Figure 3) with the injection wells as of 1969 (Figure 4) shows the development of new wells in the low pressure parts of the field that may account for the apparent decrease of seismic activity during the latter part of this period. The development of a complete pressure history of this oil field would be a major undertaking; and though we believe it would improve apparent correlations between fluid pressures and earthquakes, we doubt that this improvement would warrant the effort required to obtain a complete pressure history of this large field. The data we now have strongly suggest that a correlation exists, and new data being developed in a restricted portion of the field will adequately test the hypothesis relating fluid pressure to seismic activity.

Acknowledgment

This work was performed under a grant funded by the Advanced Research Projects Agency, Contract No. 1469. The Uinta Basin Observatory data films were borrowed from the Seismic Data Laboratory (SDL), Alexandria, Virginia. We extend our appreciation to Col. H. E. Wakitsch (Air Force Tactical Air Command) for approving the release of the data and Mr. R. A. Hartenberger and Mr. Donald Clark (SDL) for their generous help in keeping us supplied with data. We also acknowledge work done by James Asea, Juan Richardson, Mary Schwenn and Melody Williams in helping to search seven years of earthquake data.

REFERENCES

Bleakley, W. B. (1964). Colorado's biggest field engineered for maximum recover, The Oil and Gas Jour., Mar. 2, 1964, p. 108.

Evans, David M. (1966). The Denver area earthquakes and the Rocky Mountain Arsenal Disposal Well, The Mountain Geologist, v. 3, no. 1, p. 23-26.

Healy, J. H., W. W. Rubey, D. T. Griggs and C. B. Raleigh (1968). The Denver Earthquakes, Science, 27 Sept. 1968, v. 161, p. 301-1310.

Munson, Robert C. (1968). An investigation of the seismicity in the vicinity of Rangely, Colorado, unpublished M.S. Thesis, Colorado School of Mines, Golden, Colorado.

Richter, Charles F. (1958). Elementary Seismology, W. H. Freeman and Co., San Francisco and London, 768.

Tsumura, Kenshiro (1967). Determination of earthquake magnitude from total duration of oscillation, Bulletin of the Earthquake Research Institute, Vol. 15, pp. 7-18.

APPENDIX I

The earthquakes contained in the following bulletin have epicenters originating in or near the Rangely Oilfield and were recorded by the UBO Station between Nov. 1962 and Jan. 1970. The earthquake list begins with the latest event and goes backward in time. Most of the column headings are self explanatory but a few need clarification. Amplitude (AMP) is measured peak-to-peak in millimeters. When the amplitude is measured on a low-gain trace it is multiplied by a constant which is determined from the ratio of the normal operating magnification (600k) to the lower gain magnification. The amplitudes measured on low gain traces have been corrected to measure what a seismograph operating at normal magnification would record given the dynamic range.

MOT is the first motion of the P-phase as recorded on the vertical seismometer, U (up), D (down), or undetermined (blank). When an L appears in this column it signifies a large earthquake that has driven the instruments off scale. For these earthquakes the magnitude and energy were determined from coda-length measurements.

The MAG column is the magnitude calculated from S-wave measurements unless it could not be measured, in which case the P-wave magnitude is listed. UMAG column is the "Unified Magnitude" calculated as described in the text. The output in the energy column is in exponential form, 9.52E 11 means 9.52×10^{11}. Although the energy is shown to three digits only the first two are significant.

DATE YR MO DA	TIME HR MIN	P-WAVE AMP MM	MOT U D	PER SEC	TR	S-WAVE AMP MM	PER SEC	TR	S-P SEC	MAGNITUDE SMAG	PMAG	MAG	UMAG	ENERGY ERGS
691222	21:50	8.0	D	0.25	7	45.0	0.35	3	8.2	1.11	1.16	1.11	2.20	9.52E 11
691031	18:18	19.0	D	0.25	8	35.0	0.30	2	6.2	1.03	1.54	1.03	2.57	6.91E 11
691026	14:48	4.5	D	0.25	12	20.0	0.30	13	7.3	0.79	0.91	0.79	1.95	2.45E 11
691024	15:32	3.5	D	0.20	7	11.5	0.25	13	7.7	0.61	0.91	0.61	2.01	1.12E 11
691023	18:11	11.0	D	0.25	7	14.0	0.25	13	7.1	0.69	1.30	0.69	2.33	1.61E 11
691023	17:47	22.0	D	0.20	12	170.0	0.30	2	7.0	1.72	1.71	1.72	2.81	1.25E 13
691023	16:36	6.0	D	0.25	7	17.0	0.40	14	7.7	0.68	1.04	0.68	2.07	1.53E 11
691023	16: 1	6.0	D	0.30	12	22.5	0.60	14	7.7	0.83	0.98	0.83	1.94	2.90E 11
691023	15:20	5.5	D	0.20	7	22.0	0.55	14	7.5	0.81	1.11	0.81	2.21	2.61E 11
691023	11:50	60.0	D	0.25	1	768.0	0.30	5	7.2	2.38	2.04	2.38	3.07	1.90E 14
691023	11:47	18.0	D	0.25	9	280.0	0.45	2	7.1	1.90	1.51	1.90	2.55	2.60E 13
691022	22:16	6.5	D	0.20	7	30.0	0.30	2	8.1	0.97	1.18	0.97	2.28	5.19E 11
691022	20:10	4.5	D	0.20	7	21.0	0.35	13	8.2	0.78	1.02	0.78	2.12	2.32E 11
691022	17:49	4.5	D	0.17	7	17.0	0.25	13	7.9	0.78	1.10	0.78	2.29	2.32E 11
691022	16:39	0.0		0.00	0	16.5	0.30	14	7.6	0.71	0.00	0.71	1.61	1.71E 11
691021	22:21	4.5	D	0.20	8	14.0	0.30	13	8.1	0.64	1.02	0.64	2.12	1.26E 11
691021	21:28	2.5	D	0.20	7	10.5	0.35	13	8.2	0.48	0.77	0.48	1.87	6.34E 10
691021	20:48	5.0	U	0.15	7	6.5	0.25	13	7.4	0.36	1.26	0.36	2.50	3.83E 10
691021	19:56	3.5	U	0.15	7	0.0	0.00	0	8.2	0.00	1.10	1.10	2.35	9.33E 11
691021	17:20	4.5	U	0.30	7	13.0	0.28	14	8.0	0.63	0.85	0.63	1.82	1.20E 11
691020	20:51	3.0	D	0.25	7	19.0	0.30	14	8.4	0.77	0.74	0.77	1.77	2.22E 11
691019	20:46	6.0	D	0.30	8	4.0	0.50	13	9.2	0.05	0.98	0.05	1.94	9.80E 09
691017	3: 2	1.5		0.20	7	4.0	0.25	13	8.4	0.15	0.54	0.15	1.65	1.53E 10
690909	20:53	32.5	D	0.30	8	110.0	0.25	2	8.8	1.59	1.71	1.59	2.68	7.24E 12
690926	11: 4	0.5	D	0.25	8	30.5	0.30	13	7.4	0.97	-0.04	0.97	0.99	5.35E 11
690802	4:50	9.0	D	0.25	8	15.0	0.40	14	7.6	0.63	1.21	0.63	2.25	1.21E 11
690626	13:59	6.5	D	0.30	8	30.0	0.30	3	9.0	0.97	1.01	0.97	1.98	5.19E 11
690529	16:46	9.0	D	0.40	8	20.0	0.20	3	8.3	0.96	1.12	0.96	2.00	5.03E 11
690527	18:13	8.6	D	0.20	8	14.9	0.25	14	7.2	0.72	1.30	0.72	2.41	1.81E 11
690406	2:59	24.0	D	0.20	8	200.0	0.40	3	7.3	1.75	1.75	1.75	2.85	1.44E 13
690302	6: 6	37.6	D	0.35	8	341.0	0.45	3	7.1	1.98	1.74	1.98	2.66	3.72E 13
690301	4:39	3.5	D	0.30	7	16.5	0.30	14	7.5	0.71	0.74	0.71	1.71	1.71E 11
690214	15:29	6.0	D	0.25	8	24.5	0.65	14	7.1	0.88	1.04	0.88	2.07	3.58E 11
690214	7:50	7.0	D	0.25	8	19.0	0.30	13	7.4	0.77	1.10	0.77	2.14	2.22E 11
690204	17:36	11.5	D	0.25	9	60.0	0.30	3	8.0	1.27	1.32	1.27	2.35	1.87E 12
681229	4: 5	4.0	D	0.25	7	30.0	0.30	14	7.0	0.97	0.86	0.97	1.89	5.19E 11
681228	13:11	11.0	D	0.30	9	21.0	0.50	14	6.7	0.77	1.24	0.77	2.21	2.21E 11
681221	17:42	15.0	U	0.20	7	33.0	0.30	14	7.4	1.01	1.54	1.01	2.65	6.20E 11
681220	20:29	5.5	D	0.20	9	55.0	0.30	3	8.4	1.23	1.11	1.23	2.21	1.59E 12
681220	20:15	5.0	D	0.20	9	11.0	0.30	14	7.8	0.53	1.07	0.53	2.17	8.00E 10
681220	20: 7	7.5	D	0.20	9	18.0	0.50	14	8.4	0.70	1.24	0.70	2.35	1.66E 11
681219	5:31	15.0	U	0.30	8	115.0	0.35	2	7.8	1.52	1.38	1.52	2.34	5.33E 12
681126	21:54	21.9	D	0.20	7	154.0	0.30	3	8.4	1.68	1.71	1.68	2.81	1.05E 13
681126	19:40	27.6	D	0.35	8	33.0	0.55	14	8.1	0.98	1.61	0.98	2.52	5.55E 11
681123	21:50	11.6	D	0.25	8	588.8	0.25	5	8.4	2.32	1.32	2.32	2.36	1.50E 14
681111	7:35	1.5	D	0.20	8	90.0	0.30	2	7.3	1.44	0.54	1.44	1.65	3.93E 12
681013	14:21	1.5	D	0.25	7	95.0	0.25	2	9.5	1.53	0.43	1.53	1.47	5.54E 12
680930	3:12	3.2	U	0.20	8	18.6	0.30	13	7.4	0.76	0.87	0.76	1.98	2.14E 11
680911	14: 1	14.8	D	0.20	7	358.4	0.30	2	7.8	2.04	1.54	2.04	2.64	4.83E 13
680910	10:52	2.5	D	0.20	8	13.4	0.23	14	7.8	0.72	0.77	0.72	1.87	1.78E 11

DATE YR MO DA	TIME HR MIN	P-WAVE AMP MM	MOT U D	PER SEC	TR	S-WAVE AMP MM	PER SEC	TR	S-P SEC	MAGNITUDE SMAG	PMAG	MAG	UMAG	ENERGY ERGS
680909	4:36	5.4	D	0.25	7	9.9	0.20	14	7.8	0.65	0.99	0.65	2.02	1.36E 11
680909	4:15	17.7	D	0.22	8	35.6	0.35	14	7.5	1.01	1.35	1.01	2.42	6.17E 11
680829	3:58	15.0	D	0.25	9	190.0	0.30	2	7.4	1.77	1.43	1.77	2.47	1.53E 13
680829	3:50	3.0	D	0.25	9	15.0	0.25	14	5.1	0.72	0.74	0.72	1.77	1.83E 11
680821	19:55	9.0	D	0.25	7	14.5	0.25	14	7.6	0.71	1.21	0.71	2.25	1.72E 11
680807	4:13	5.0	D	0.25	7	14.0	0.35	14	7.4	0.60	0.96	0.60	1.99	1.09E 11
680807	3:42	12.5	D	0.15	7	200.0	0.35	3	7.3	1.76	1.66	1.76	2.90	1.46E 13
680807	3:33	1408.0	D	0.25	4	3136.0	0.30	5	7.3	2.99	3.41	2.99	4.44	2.29E 15
680728	21:32	4.5	D	0.25	8	45.0	0.30	2	5.1	1.14	0.91	1.14	1.95	1.10E 12
680728	19:36	32.0	D	0.20	8	512.0	0.30	5	7.4	2.20	1.87	2.20	2.98	9.18E 13
680728	18:17	26.0	D	0.20	8	335.0	0.30	2	7.4	2.02	1.78	2.02	2.89	4.28E 13
680725	10:25	2.0	D	0.20	7	30.0	0.30	2	7.4	0.97	0.67	0.97	1.77	5.19E 11
680725	3:32	180.0	D	0.20	1	1792.0	0.30	5	7.2	2.74	2.62	2.74	3.73	8.55E 14
680725	3:31	73.0	D	0.40	7	1152.0	0.30	5	7.4	2.55	2.03	2.55	2.91	3.91E 14
680723	6: 7	6.0	D	0.19	7	29.9	0.29	14	7.5	0.98	1.17	0.98	2.30	5.40E 11
680703	9:39	3.0	D	0.30	8	36.0	0.25	13	7.5	1.10	0.68	1.10	1.64	9.32E 11
680624	22:24	8.7	D	0.20	7	31.9	0.20	14	7.4	1.16	1.31	1.16	2.41	1.19E 12
680624	22: 2	10.9	D	0.22	7	32.4	0.25	14	7.4	1.06	1.36	1.06	2.43	7.67E 11
680615	0:53	11.0	D	0.35	9	50.0	0.30	2	5.5	1.19	1.21	1.19	2.13	1.33E 12
680611	16:37	4.0	D	0.20	7	25.0	0.20	2	7.7	1.06	0.97	1.06	2.07	7.60E 11
680606	13:17	22.0	D	0.25	8	125.0	0.25	2	7.7	1.65	1.60	1.65	2.63	9.14E 12
680605	4:38	7.0	D	0.25	9	100.0	0.35	2	7.6	1.46	1.10	1.46	2.14	4.13E 12
680527	19:46	4.0	D	0.20	7	30.0	0.30	2	7.7	0.97	0.97	0.97	2.07	5.19E 11
680416	8:26	32.0	U	0.30	9	160.0	0.30	2	8.4	1.69	1.71	1.69	2.67	1.12E 13
680409	1: 1	3.0	D	0.35	8	35.0	0.35	2	7.4	1.00	0.64	1.00	1.56	5.98E 11
680401	1: 1	3.5	D	0.30	7	32.0	0.35	13	7.5	0.96	0.74	0.96	1.71	5.06E 11
680330	13:19	8.0	U	0.30	8	60.0	0.35	2	7.8	1.23	1.10	1.23	2.07	1.62E 12
680309	20:57	26.0	U	0.25	8	235.0	0.35	2	7.4	1.83	1.67	1.83	2.71	1.96E 13
680227	5:36	5.0	D	0.23	7	14.3	0.25	14	7.2	0.70	1.00	0.70	2.05	1.68E 11
680226	22:49	4.5	D	0.26	8	28.5	0.25	13	6.7	1.00	0.90	1.00	1.92	6.05E 11
680226	9: 8	3.3	D	0.25	8	39.2	0.31	14	7.4	1.07	0.78	1.07	1.81	8.16E 11
680217	12:59	2.5	U	0.20	7	21.4	0.30	14	7.5	0.82	0.77	0.82	1.87	2.77E 11
680210	0:42	19.8	D	0.20	7	359.0	0.40	2	7.5	2.01	1.67	2.01	2.77	4.14E 13
680203	6:52	6.0	U	0.30	8	110.0	0.30	2	7.5	1.53	0.98	1.53	1.94	5.67E 12
680118	23:28	13.3	D	0.20	7	166.0	0.37	2	7.4	1.67	1.49	1.67	2.59	1.03E 13
680112	20:44	7.0	U	0.18	7	89.0	0.20	2	7.8	1.61	1.27	1.61	2.42	7.83E 12
680106	7:55	8.7	U	0.30	8	22.4	0.23	14	5.7	0.94	1.14	0.94	2.11	4.63E 11
680105	1:11	3.5	D	0.28	8	31.5	0.33	13	6.2	0.96	0.77	0.96	1.76	5.02E 11
680102	5: 6	3.9	D	0.30	8	15.4	0.25	14	8.3	0.74	0.79	0.74	1.76	1.93E 11
680101	20:12	7.9	U	0.25	7	25.6	0.35	14	7.5	0.86	1.16	0.86	2.19	3.35E 11
671231	14:24	4.0	D	0.20	8	17.0	0.35	14	7.5	0.69	0.97	0.69	2.07	1.56E 11
671231	5: 4	5.5	D	0.30	8	16.0	0.25	14	7.8	0.75	0.94	0.75	1.91	2.07E 11
671226	11: 8	1.5	D	0.25	8	20.0	0.25	13	7.8	0.85	0.43	0.85	1.47	3.13E 11
671218	17:11	17.5	D	0.35	8	30.0	0.35	2	7.3	0.93	1.41	0.93	2.33	4.49E 11
671212	22:13	16.0	D	0.30	8	30.0	0.30	2	6.0	0.97	1.40	0.97	2.37	5.19E 11
671125	14:38	5.0	D	0.25	9	100.0	0.30	2	7.7	1.49	0.96	1.49	1.99	4.77E 12
671125	13: 7	1.5	D	0.25	7	22.0	0.25	13	7.6	0.89	0.43	0.89	1.47	3.74E 11
671125	13: 3	3.8	D	0.25	8	35.0	0.30	2	7.8	1.03	0.84	1.03	1.87	6.91E 11
671125	12:53	3.8		0.30	9	35.0	0.30	2	0.0	1.03	0.00	1.03	1.94	6.91E 11
671119	13:23	6.1	D	0.20	7	122.0	0.30	2	7.4	1.58	1.15	1.58	2.26	6.85E 12

DATE	TIME	P-WAVE				S-WAVE			S-P	MAGNITUDE				ENERGY
YR MO DA	HR MIN	AMP MM	MOT U D	PER SEC	TR	AMP MM	PER SEC	TR	SEC	SMAG	PMAG	MAG	UMAG	ERGS
671115	7:11	14.1	D	0.30	9	168.0	0.45	3	8.4	1.67	1.35	1.67	2.32	1.03E 13
671112	13:36	8.4	D	0.30	7	27.8	0.40	13	6.1	0.90	1.12	0.90	2.09	3.83E 11
671109	18:54	4.0	D	0.30	8	27.0	0.30	13	8.0	0.92	0.80	0.92	1.77	4.27E 11
671103	22:35	4.0	D	0.25	7	16.5	0.20	13	9.3	0.88	0.86	0.88	1.89	3.52E 11
671103	21:47	6.0	D	0.25	7	19.5	0.25	13	8.6	0.84	1.04	0.84	2.07	2.99E 11
671102	17:30	3.0	D	0.35	9	40.0	0.20	2	8.7	1.26	0.64	1.26	1.56	1.81E 12
671014	18: 0	0.0		0.00	0	45.0	0.30	2	0.0	1.14	0.00	1.14	2.05	1.10E 12
670923	17:17	22.8		0.20	8	883.2	0.30	5	7.6	2.44	1.73	2.44	2.83	2.43E 14
670921	10:49	24.9	D	0.25	7	206.0	0.30	2	7.4	1.80	1.65	1.80	2.69	1.78E 13
670914	12:41	6.0	D	0.30	8	56.0	0.40	2	7.8	1.20	0.98	1.20	1.94	1.40E 12
670913	22:16	38.0	D	0.20	7	576.0	0.30	5	7.5	2.25	1.95	2.25	3.05	1.13E 14
670903	5:46	0.0		0.00	0	16.0	0.30	13	7.5	0.69	0.00	0.69	1.60	1.61E 11
670903	4: 7	5.8	D	0.20	7	19.9	0.30	14	8.2	0.79	1.13	0.79	2.23	2.42E 11
670830	5:40	3.0	D	0.20	8	11.0	0.30	13	5.0	0.53	0.85	0.53	1.95	8.00E 10
670823	7:32	15.5	D	0.20	8	125.0	0.25	2	7.6	1.65	1.56	1.65	2.66	9.14E 12
670823	10:28	3.0	U	0.30	8	20.0	0.35	13	6.5	0.76	0.68	0.76	1.64	2.11E 11
670819	16:50	4.4	D	0.20	7	19.6	0.25	14	7.6	0.84	1.01	0.84	2.11	3.02E 11
670819	8:27	2.6	U	0.25	8	21.1	0.35	13	7.5	0.78	0.67	0.78	1.71	2.34E 11
670813	11: 7	2.2	D	0.20	7	27.6	0.40	13	7.7	0.89	0.71	0.89	1.81	3.78E 11
670804	2: 3	16.0	D	0.30	8	150.0	0.20	2	9.9	1.83	1.40	1.83	2.37	2.02E 13
670802	2:50	3.0	D	0.20	8	35.0	0.20	2	7.4	1.20	0.85	1.20	1.95	1.42E 12
670728	20:51	260.0	U	0.40	1	1011.2	0.45	6	5.3	2.45	2.58	2.45	3.46	2.61E 14
670727	17:55	5.0	D	0.30	7	23.7	0.45	14	8.4	0.82	0.90	0.82	1.87	2.81E 11
670727	15:56	11.9	D	0.30	9	150.0	0.35	2	7.5	1.63	1.28	1.63	2.24	8.66E 12
670727	4: 5	3.9	D	0.30	8	15.4	0.25	14	7.7	0.74	0.79	0.74	1.76	1.93E 11
670727	2:22	4.6	D	0.30	8	63.0	0.30	2	7.5	1.29	0.86	1.29	1.83	2.04E 12
670727	2:34	45.0	U	0.35	1	1024.0	0.40	5	7.5	2.46	1.82	2.46	2.74	2.71E 14
670727	3: 9	8.0	U	0.30	8	120.0	0.35	2	7.5	1.54	1.10	1.54	2.07	5.77E 12
670720	9:24	27.0	U	0.25	8	704.0	0.30	5	7.8	2.34	1.69	2.34	2.72	1.62E 14
670720	9:13	9.0	D	0.30	8	140.0	0.35	2	7.5	1.60	1.15	1.60	2.12	7.64E 12
670719	21:34	21.7	D	0.40	8	294.0	0.25	3	7.8	2.02	1.50	2.02	2.38	4.30E 13
670719	8:19	4.5	D	0.30	8	21.0	0.25	13	7.8	0.87	0.85	0.87	1.82	3.43E 11
670714	15:33	188.0	D	0.30	1	1280.0	0.30	6	7.8	2.60	2.47	2.60	3.44	4.71E 14
670710	23:12	6.3	U	0.30	7	15.0	0.40	14	7.8	0.63	1.00	0.63	1.97	1.21E 11
670703	23: 4	7.9	D	0.30	7	20.4	0.30	14	7.7	0.80	1.10	0.80	2.06	2.54E 11
670628	21:55	6.9	D	0.30	9	12.4	0.40	13	7.7	0.55	1.04	0.55	2.00	8.50E 10
670621	19:41	9.5	D	0.20	7	46.0	0.40	2	7.4	1.11	1.35	1.11	2.45	9.73E 11
670618	20:19	2.3	D	0.17	8	33.0	0.30	2	6.8	1.01	0.81	1.01	2.00	6.20E 11
670609	13:57	10.3	D	0.25	8	158.0	0.30	2	7.7	1.69	1.27	1.69	2.31	1.10E 13
670605	11:49	3.8	D	0.15	8	6.6	0.30	13	7.8	0.31	1.14	0.31	2.38	3.06E 10
670605	11:39	4.9	D	0.17	7	10.8	0.30	13	7.7	0.52	1.14	0.52	2.33	7.73E 10
670524	8:17	25.0	D	0.20	7	200.0	0.30	2	7.4	1.79	1.77	1.79	2.87	1.68E 13
670524	8:41	1.5	D	0.20	7	3.5	0.25	13	7.3	0.09	0.54	0.09	1.65	1.19E 10
670522	15:24	11.5	D	0.20	7	60.0	0.30	2	7.4	1.27	1.43	1.27	2.53	1.87E 12
670522	11:30	2.5	U	0.20	8	30.0	0.30	2	7.5	0.97	0.77	0.97	1.87	5.19E 11
670520	22:23	3.5	D	0.20	8	45.0	0.35	2	7.6	1.11	0.91	1.11	2.01	9.52E 11
670520	16:21	3.0	D	0.25	8	25.0	0.30	2	6.6	0.89	0.74	0.89	1.77	3.70E 11
670520	3: 0	9.5	U	0.20	8	60.0	0.20	2	8.5	1.44	1.35	1.44	2.45	3.81E 12
670516	11:23	2.0	D	0.25	8	2.5	0.25	13	7.7	-0.05	0.56	-0.05	1.59	6.27E 09
670504	8:47	10.0	D	0.30	9	60.0	0.25	2	8.5	1.33	1.20	1.33	2.17	2.39E 12

DATE YR MO DA	TIME HR MIN	P-WAVE AMP MM	MOT U D	P-WAVE PER SEC	TR	S-WAVE AMP MM	S-WAVE PER SEC	TR	S-P SEC	MAGNITUDE SMAG	MAGNITUDE PMAG	MAGNITUDE MAG	MAGNITUDE UMAG	ENERGY ERGS
670504	8: 3	11.0	D	0.20	8	50.0	0.35	3	8.3	1.16	1.41	1.16	2.51	1.16E 12
670504	4:27	7.0	D	0.25	7	9.0	0.25	13	8.6	0.50	1.10	0.50	2.14	7.06E 10
670429	13:41	15.5	D	0.25	8	110.0	0.25	2	7.7	1.59	1.45	1.59	2.48	7.24E 12
670429	13:18	25.0	D	0.20	8	230.0	0.20	2	7.6	2.02	1.77	2.02	2.87	4.38E 13
670427	4:59	2.0	D	0.20	8	15.0	0.30	2	7.4	0.67	0.67	0.67	1.77	1.43E 11
670426	13:35	15.0	D	0.30	7	50.0	0.35	2	7.5	1.16	1.38	1.16	2.34	1.16E 12
670418	20:32	58.0	D	0.65	9	260.0	0.30	2	7.3	1.91	1.96	1.91	2.73	2.71E 13
670417	11:47	2.5	D	0.20	7	8.0	0.20	13	8.3	0.56	0.77	0.56	1.87	9.12E 10
670408	15:47	4.0	D	0.25	7	15.0	0.30	13	7.2	0.67	0.86	0.67	1.89	1.43E 11
670407	4:31	3.5	D	0.35	7	4.5	0.30	14	8.0	0.14	0.71	0.14	1.63	1.49E 10
670406	13:36	3.0	D	0.30	7	8.0	0.40	13	8.3	0.36	0.68	0.36	1.64	3.73E 10
670406	3:44	3.0	D	0.15	7	9.0	0.20	13	7.5	0.61	1.04	0.61	2.28	1.14E 11
670405	13:55	30.0	D	0.20	7	250.0	0.15	2	7.5	2.25	1.85	2.25	2.95	1.13E 14
670403	17:30	5.0	D	0.15	7	6.0	0.25	13	8.7	0.33	1.26	0.33	2.50	3.29E 10
670403	5:17	10.5	D	0.20	7	12.0	0.20	14	8.8	0.74	1.39	0.74	2.49	1.95E 11
670401	13:45	3.0	D	0.25	9	7.0	0.20	13	5.4	0.50	0.74	0.50	1.77	7.10E 10
670401	3:17	22.0	D	0.15	7	160.0	0.20	3	7.7	1.86	1.90	1.86	3.15	2.27E 13
670328	20:40	5.1	D	0.16	7	15.4	0.38	14	7.8	0.64	1.21	0.64	2.42	1.28E 11
670329	10:35	1.5	D	0.25	8	15.0	0.33	2	7.4	0.64	0.43	0.64	1.47	1.26E 11
670329	8:49	7.1	D	0.17	7	46.0	0.30	2	7.4	1.15	1.30	1.15	2.49	1.14E 12
670319	0:30	2.5	D	0.20	7	6.0	0.35	13	7.6	0.23	0.77	0.23	1.87	2.21E 10
670309	9:55	9.6	D	0.20	7	59.0	0.30	2	7.4	1.26	1.35	1.26	2.45	1.81E 12
670312	2:50	27.9	D	0.16	7	306.0	0.30	3	7.4	1.98	1.95	1.98	3.16	3.64E 13
670315	2:54	16.6	D	0.15	7	23.0	0.20	2	7.3	1.02	1.78	1.02	3.02	6.52E 11
670301	14:41	7.0	D	0.25	8	68.0	0.30	2	7.2	1.32	1.10	1.32	2.14	2.35E 12
670303	8:30	33.0	D	0.15	8	614.4	0.37	5	7.5	2.24	2.08	2.24	3.32	1.10E 14
670304	23:16	9.6	U	0.20	8	123.0	0.35	2	7.6	1.55	1.35	1.55	2.45	6.03E 12
670306	7:22	44.5	D	0.20	8	289.0	0.50	3	7.5	1.91	2.02	1.91	3.12	2.73E 13
670228	5:47	4.0	D	0.20	7	30.0	0.30	2	8.5	0.97	0.97	0.97	2.07	5.19E 11
670227	14:51	21.7	D	0.20	7	460.8	0.30	5	7.4	2.15	1.71	2.15	2.81	7.60E 13
670226	2:48	48.0	D	0.20	7	294.4	0.20	5	7.6	2.13	2.05	2.13	3.15	6.83E 13
670221	0:31	6.4	U	0.18	7	79.0	0.33	2	7.1	1.36	1.23	1.36	2.38	2.74E 12
670218	19:49	2.6	U	0.11	7	7.2	0.25	13	7.6	0.41	1.24	0.41	2.61	4.64E 10
670218	19:40	17.2	D	0.17	7	61.0	0.25	2	7.6	1.33	1.68	1.33	2.88	2.46E 12
670218	15:47	6.7	D	0.18	7	92.0	0.38	2	7.5	1.42	1.25	1.42	2.40	3.51E 12
670217	5:52	3.0	D	0.20	7	2.0	0.30	13	7.1	-0.21	0.85	-0.21	1.95	3.18E 09
670216	7:24	1.8	D	0.15	7	6.8	0.25	13	8.8	0.38	0.82	0.38	2.06	4.17E 10
670215	4:35	63.0	D	0.23	1	312.0	0.50	3	6.8	1.94	2.10	1.94	3.15	3.13E 13
670215	4:33	729.6	D	0.18	4	1984.0	0.30	5	7.4	2.79	3.28	2.79	4.44	1.02E 15
670215	3:28	4480.0	D	0.25	4	6310.4	0.71	6	5.6	3.30	3.91	3.30	4.94	8.20E 15
670213	22:36	12.4	U	0.30	8	63.0	0.37	2	8.0	1.25	1.29	1.25	2.26	1.76E 12
670213	19:40	29.5	U	0.30	7	211.0	0.38	2	8.0	1.78	1.67	1.78	2.64	1.59E 13
670213	5:13	13.9	D	0.15	7	31.0	0.30	2	7.4	0.98	1.70	0.98	2.95	5.52E 11
670210	0:57	4.5	D	0.20	7	4.0	0.40	13	7.4	0.05	1.02	0.05	2.12	1.01E 10
670204	4:14	8.5	U	0.30	8	75.0	0.20	2	8.6	1.53	1.13	1.53	2.10	5.73E 12
670128	3:58	5.0	D	0.18	7	15.0	0.30	2	7.5	0.67	1.12	0.67	2.28	1.43E 11
670117	7:40	2.0	D	0.20	7	16.0	0.30	13	7.1	0.69	0.67	0.69	1.77	1.61E 11
670113	2:26	5.0	D	0.20	7	6.5	0.35	13	7.4	0.27	1.07	0.27	2.17	2.57E 10
670110	6:46	2.0	D	0.20	7	25.0	0.30	2	7.5	0.89	0.67	0.89	1.77	3.70E 11
670110	6:58	5.0	D	0.20	8	40.0	0.25	2	7.3	1.15	1.07	1.15	2.17	1.13E 12

DATE YR MO DA	TIME HR MIN	P-WAVE AMP MM	P-WAVE MOT U D	P-WAVE PER SEC	P-WAVE TR	S-WAVE AMP MM	S-WAVE PER SEC	S-WAVE TR	S-P SEC	MAGNITUDE SMAG	MAGNITUDE PMAG	MAGNITUDE MAG	MAGNITUDE UMAG	ENERGY ERGS
670110	2:35	2.0	U	0.25	9	6.0	0.70	13	8.0	0.28	0.56	0.28	1.59	2.68E 10
670108	1: 7	5.0	D	0.20	7	20.0	0.30	2	7.3	0.79	1.07	0.79	2.17	2.45E 11
661229	14:40	32.6	D	0.15	7	142.0	0.35	2	7.4	1.61	2.07	1.61	3.32	7.84E 12
661228	10: 7	10.6	D	0.16	7	45.0	0.32	2	7.3	1.12	1.52	1.12	2.74	1.01E 12
661227	5:45	3.1	D	0.16	7	19.0	0.20	2	7.1	0.94	0.99	0.94	2.21	4.57E 11
661227	2:49	2.4	D	0.15	7	22.0	0.28	2	7.4	0.85	0.94	0.85	2.18	3.20E 11
661226	12:16	8.8	D	0.18	7	22.4	0.28	14	7.5	0.86	1.37	0.86	2.52	3.31E 11
661225	22: 3	3.1	D	0.24	8	22.0	0.24	2	7.3	0.91	0.77	0.91	1.81	4.09E 11
661225	4: 1	2.7	D	0.18	7	23.0	0.24	2	7.5	0.93	0.85	0.93	2.01	4.44E 11
661224	20:34	4.4	U	0.19	8	30.0	0.30	2	7.7	0.97	1.04	0.97	2.16	5.19E 11
661224	19:58	1.9	D	0.30	7	12.0	0.20	2	7.7	0.74	0.48	0.74	1.44	1.95E 11
661224	5:48	6.2	D	0.25	7	13.0	0.40	2	6.0	0.57	1.05	0.57	2.08	9.28E 10
661223	5:11	2.2	U	0.20	8	25.0	0.32	2	6.4	0.87	0.71	0.87	1.81	3.40E 11
661222	8: 3	19.6	D	0.15	7	17.0	0.33	2	7.4	0.69	1.85	0.69	3.13	1.59E 11
661219	16:46	5.5	U	0.27	7	16.4	0.23	14	8.5	0.80	0.97	0.80	1.98	2.59E 11
661219	16: 0	18.2	D	0.30	7	119.0	0.30	2	7.2	1.57	1.46	1.57	2.43	6.55E 12
661219	15:27	27.5	D	0.22	7	267.0	0.36	2	7.3	1.88	1.76	1.88	2.83	2.46E 13
661219	14:42	0.0		0.00	0	8.9	0.18	14	0.0	0.66	0.00	0.66	1.76	1.39E 11
661219	10:30	1.4	U	0.12	8	12.7	0.31	14	7.0	0.58	0.90	0.58	2.24	1.00E 11
661219	9:56	4.2	D	0.26	7	26.8	0.32	15	7.2	0.90	0.87	0.90	1.89	3.87E 11
661219	9:54	7.3	D	0.29	7	116.0	0.33	2	7.5	1.53	1.07	1.53	2.05	5.53E 12
661219	9:53	4.9	D	0.16	7	63.0	0.22	2	7.4	1.41	1.19	1.41	2.41	3.42E 12
661219	9:34	3.6	D	0.18	7	43.0	0.30	2	7.5	1.12	0.98	1.12	2.13	1.01E 12
661219	9:33	2.9	D	0.23	8	43.0	0.35	2	7.4	1.09	0.76	1.09	1.82	8.75E 11
661219	9: 5	2.8	D	0.22	8	34.0	0.25	2	7.5	1.08	0.77	1.08	1.84	8.38E 11
661219	8:18	5.5	D	0.25	8	89.0	0.29	2	7.4	1.45	1.00	1.45	2.03	4.03E 12
661219	4:17	0.0		0.00	0	5.2	0.32	14	0.0	0.19	0.00	0.19	1.07	1.79E 10
661219	4: 9	0.0		0.00	0	5.7	0.22	14	0.0	0.37	0.00	0.37	1.38	3.94E 10
661219	4: 8	0.0		0.00	0	5.3	0.30	14	0.0	0.21	0.00	0.21	1.12	2.02E 10
661219	3:52	5.2	D	0.28	8	41.0	0.18	2	7.6	1.32	0.94	1.32	1.93	2.36E 12
661219	3:49	3.3	U	0.21	8	27.0	0.24	2	7.6	1.00	0.86	1.00	1.95	5.97E 11
661219	2:11	4.0	U	0.30	8	5.6	0.30	14	7.7	0.24	0.80	0.24	1.77	2.25E 10
661219	2: 1	3.2	D	0.29	8	23.0	0.21	2	7.6	1.00	0.72	1.00	1.69	5.89E 11
661219	1:24	7.9	D	0.28	8	53.0	0.29	3	7.5	1.23	1.12	1.23	2.11	1.55E 12
661219	1:22	2.7	D	0.28	8	17.0	0.25	2	7.2	0.78	0.65	0.78	1.64	2.32E 11
661218	17: 4	5.9	D	0.22	7	87.0	0.33	3	7.3	1.40	1.09	1.40	2.16	3.27E 12
661218	16:21	23.6	D	0.21	8	1100.8	0.33	5	7.4	2.50	1.72	2.50	2.80	3.20E 14
661218	6:59	1.5	U	0.30	8	7.1	0.22	14	7.4	0.46	0.38	0.46	1.34	5.96E 10
661218	4:55	1.4	U	0.22	8	6.7	0.20	14	7.7	0.48	0.47	0.48	1.54	6.54E 10
661218	4:53	2.7	D	0.17	7	12.9	0.33	14	7.7	0.57	0.88	0.57	2.07	9.51E 10
661218	4:34	12.5	D	0.21	7	96.0	0.26	3	7.4	1.52	1.44	1.52	2.53	5.35E 12
661219	6: 5	0.0		0.00	0	6.4	0.40	14	0.0	0.26	0.00	0.26	1.08	2.45E 10
661219	9:28	0.0		0.00	0	4.4	0.17	14	0.0	0.38	0.00	0.38	1.51	4.19E 10
661219	9:38	0.0		0.00	0	4.8	0.19	14	0.0	0.37	0.00	0.37	1.43	3.90E 10
661212	12: 3	3.4	D	0.20	7	9.4	0.22	14	8.7	0.59	0.90	0.59	2.00	1.01E 11
661212	9:53	2.5	D	0.19	8	9.0	0.17	14	9.0	0.69	0.79	0.69	1.92	1.60E 11
661212	9:17	1.4	D	0.13	8	13.9	0.32	14	7.0	0.61	0.84	0.61	2.14	1.14E 11
661210	5: 4	2.4	U	0.12	7	10.0	0.19	14	7.8	0.68	1.14	0.68	2.48	1.54E 11
661207	20:36	1.6	D	0.20	9	3.3	0.20	14	7.5	0.18	0.57	0.18	1.67	1.72E 10
661207	20: 2	3.4	U	0.26	8	10.6	0.19	14	7.6	0.71	0.78	0.71	1.80	1.72E 11

DATE	TIME	P-WAVE				S-WAVE			S-P	MAGNITUDE				ENERGY
YR MO DA	HR MIN	AMP MM	MOT U D	PER SEC	TR	AMP MM	PER SEC	TR	SEC	SMAG	PMAG	MAG	UMAG	ERGS
661206	21: 9	0.0		0.00	0	6.7	0.40	14	0.0	0.28	0.00	0.28	1.10	2.67E 10
661203	18:55	0.0		0.00	0	13.4	0.30	14	0.0	0.62	0.00	0.62	1.52	1.16E 11
661203	12:39	1.8	D	0.25	8	12.6	0.30	14	7.3	0.59	0.51	0.59	1.55	1.03E 11
661129	14:31	1.5	D	0.20	7	12.5	0.25	14	8.2	0.65	0.54	0.65	1.65	1.31E 11
661124	4:41	6.5	D	0.20	7	17.0	0.20	14	8.8	0.89	1.18	0.89	2.28	3.72E 11
661121	0: 5	4.0	D	0.30	8	15.0	0.40	14	7.6	0.63	0.80	0.63	1.77	1.21E 11
661109	13:14	2.0	D	0.25	7	20.0	0.30	14	6.2	0.79	0.56	0.79	1.59	2.45E 11
661109	0:18	1.5		0.15	7	11.0	0.25	14	6.2	0.59	0.74	0.59	1.98	1.03E 11
661107	14:58	3.5	D	0.20	7	13.0	0.25	14	7.2	0.66	0.91	0.66	2.01	1.40E 11
661030	8: 5	1.5	D	0.20	7	10.0	0.35	14	6.5	0.46	0.54	0.46	1.65	5.78E 10
661029	12:34	1.0	D	0.15	7	7.5	0.35	14	7.5	0.33	0.56	0.33	1.80	3.36E 10
661029	9:21	2.0	D	0.30	9	12.0	0.35	14	6.4	0.54	0.50	0.54	1.47	8.14E 10
661026	7:14	3.5	D	0.15	8	20.0	0.25	14	7.5	0.85	1.10	0.85	2.35	3.13E 11
661025	15:48	1.5	D	0.20	8	10.0	0.25	14	7.4	0.55	0.54	0.55	1.65	8.60E 10
661025	12: 3	2.0	D	0.30	7	3.5	0.25	14	8.4	0.09	0.50	0.09	1.47	1.19E 10
661024	19:13	2.0	D	0.20	8	7.0	0.30	14	7.6	0.34	0.67	0.34	1.77	3.42E 10
661020	21:33	3.0	D	0.20	8	8.0	0.25	14	7.5	0.45	0.85	0.45	1.95	5.66E 10
661020	19:34	1.6	D	0.20	7	9.7	0.35	14	7.1	0.44	0.57	0.44	1.67	5.46E 10
661020	12: 5	13.0	D	0.25	7	120.0	0.35	2	7.5	1.54	1.37	1.54	2.41	5.77E 12
661020	9: 8	3.0	D	0.25	8	60.0	0.20	2	7.7	1.44	0.74	1.44	1.77	3.81E 12
661020	8:47	11.0	D	0.25	8	140.0	0.35	2	7.6	1.60	1.30	1.60	2.33	7.64E 12
661020	1:53	18.0	D	0.25	9	110.0	0.20	2	7.5	1.70	1.51	1.70	2.55	1.15E 13
661019	19:25	4.5	D	0.20	7	60.0	0.35	2	7.1	1.23	1.02	1.23	2.12	1.62E 12
661019	17:41	4.0	D	0.20	8	90.0	0.35	2	7.5	1.41	0.97	1.41	2.07	3.41E 12
661019	15:28	2.0	D	0.25	8	18.0	0.35	14	7.0	0.71	0.56	0.71	1.59	1.74E 11
661017	6:23	2.0	D	0.25	8	6.0	0.25	14	8.4	0.33	0.56	0.33	1.59	3.29E 10
661010	9:30	2.0	D	0.25	8	16.0	0.30	15	7.6	0.69	0.56	0.69	1.59	1.61E 11
661010	6:56	6.0	D	0.25	7	60.0	0.20	2	8.3	1.44	1.04	1.44	2.07	3.81E 12
661009	1:17	3.0	D	0.25	8	26.0	0.30	14	7.5	0.91	0.74	0.91	1.77	3.98E 11
661006	21: 2	1.8	D	0.20	7	13.8	0.35	14	7.7	0.60	0.62	0.60	1.73	1.06E 11
661003	19: 2	35.0	D	0.25	7	80.0	0.35	2	7.5	1.36	1.80	1.36	2.84	2.74E 12
661003	10:34	4.0	D	0.25	7	0.0	0.00	0	7.8	0.00	0.86	0.86	1.89	3.29E 11
661003	8:37	130.0	D	0.35	1	220.0	0.25	2	7.5	1.89	2.28	1.89	3.20	2.55E 13
661002	23: 8	8.5	D	0.20	7	15.0	0.25	14	8.6	0.72	1.30	0.72	2.40	1.83E 11
661002	22:59	8.5	D	0.20	7	14.0	0.30	14	8.7	0.64	1.30	0.64	2.40	1.26E 11
661002	22:52	2.0	U	0.30	9	20.0	0.35	14	6.4	0.76	0.50	0.76	1.47	2.11E 11
661002	16:33	2.5	D	0.25	8	13.0	0.30	14	6.5	0.60	0.66	0.60	1.69	1.09E 11
661002	16:19	50.0	U	0.35	1	410.0	0.30	2	7.4	2.10	1.87	2.10	2.78	6.16E 13
661001	9:54	2.0	D	0.20	7	6.5	0.25	14	8.7	0.36	0.67	0.36	1.77	3.83E 10
660919	19:46	3.0	D	0.20	8	35.0	0.35	2	7.5	1.00	0.85	1.00	1.95	5.98E 11
660919	2: 7	0.0		0.00	0	17.0	0.20	14	0.0	0.89	0.00	0.89	1.93	3.72E 11
660919	0: 6	0.0		0.00	0	10.0	0.30	14	0.0	0.49	0.00	0.49	1.40	6.69E 10
660914	10:58	0.0		0.00	0	6.0	0.50	14	0.0	0.22	0.00	0.22	0.98	2.11E 10
660912	14:26	256.0	D	0.50	4	0.0	0.00	0	7.4	0.00	2.56	2.56	3.38	4.11E 14
660919	2: 0	2.0	D	0.40	9	6.0	0.40	14	7.3	0.23	0.46	0.23	1.34	2.17E 10
660909	1:53	2.0	D	0.30	7	5.0	0.40	14	8.2	0.15	0.50	0.15	1.47	1.54E 10
660906	11:19	4.6	U	0.20	7	20.0	0.30	14	7.5	0.79	1.03	0.79	2.13	2.45E 11
660901	7:55	4.8	D	0.25	8	13.1	0.30	14	7.7	0.61	0.94	0.61	1.97	1.11E 11
660831	8: 5	1.0	D	0.20	8	12.5	0.30	14	7.6	0.59	0.37	0.59	1.47	1.02E 11
660830	9:48	1.5	D	0.30	8	11.0	0.35	14	7.6	0.50	0.38	0.50	1.34	6.91E 10

DATE YR MO DA	TIME HR MIN	P-WAVE AMP MM	P-WAVE MOT U D	P-WAVE PER SEC	P-WAVE TR	S-WAVE AMP MM	S-WAVE PER SEC	S-WAVE TR	S-P SEC	MAGNITUDE SMAG	MAGNITUDE PMAG	MAGNITUDE MAG	MAGNITUDE UMAG	ENERGY ERGS
660823	11:53	2.0	D	0.25	7	7.5	0.30	14	7.6	0.37	0.56	0.37	1.59	3.90E 10
660823	9:17	0.0		0.00	0	6.5	0.35	14	0.0	0.27	0.00	0.27	1.13	2.57E 10
660821	20:46	3.0	D	0.25	8	12.5	0.30	14	7.5	0.59	0.74	0.59	1.77	1.02E 11
660821	13:37	3.0	D	0.20	8	19.0	0.30	14	7.6	0.77	0.68	0.77	1.64	2.22E 11
660821	13:23	1.2	D	0.28	8	7.5	0.30	14	7.8	0.37	0.30	0.37	1.29	3.90E 10
660821	13:22	1.5	D	0.25	8	12.0	0.30	14	7.6	0.57	0.43	0.57	1.47	9.42E 10
660821	13: 4	2.0	D	0.30	8	10.0	0.30	14	7.6	0.49	0.50	0.49	1.47	6.69E 10
660821	11:14	0.8	D	0.25	8	8.0	0.30	14	7.6	0.39	0.16	0.39	1.20	4.40E 10
660821	11:12	1.0	D	0.30	9	9.0	0.30	14	7.6	0.44	0.20	0.44	1.17	5.49E 10
660821	6:44	2.0	D	0.25	8	8.5	0.35	14	8.0	0.39	0.56	0.39	1.59	4.26E 10
660811	14:55	8.0	D	0.20	7	160.0	0.30	2	7.4	1.69	1.27	1.69	2.37	1.12E 13
660807	9:34	1.5	D	0.25	8	16.0	0.30	14	6.9	0.69	0.43	0.69	1.47	1.61E 11
660805	19:33	2.5	U	0.20	8	18.5	0.30	14	6.3	0.76	0.77	0.76	1.87	2.11E 11
660805	16:59	4.5	D	0.25	8	28.0	0.32	14	6.2	0.92	0.91	0.92	1.95	4.20E 11
660805	15:35	1.5	D	0.25	8	12.5	0.32	14	5.8	0.57	0.43	0.57	1.47	9.33E 10
660805	12:59	2.5	D	0.25	8	16.5	0.35	14	7.6	0.67	0.66	0.67	1.69	1.48E 11
660805	11: 9	14.0	D	0.25	8	200.0	0.35	2	7.5	1.76	1.40	1.76	2.44	1.46E 13
660805	10:33	2.0	U	0.20	8	12.5	0.35	14	6.3	0.55	0.67	0.55	1.77	8.79E 10
660727	14:26	0.0		0.00	0	10.0	0.30	14	0.0	0.49	0.00	0.49	1.40	6.69E 10
660727	2:48	0.0		0.00	0	5.0	0.30	14	0.0	0.19	0.00	0.19	1.09	1.81E 10
660719	20:26	5.0	U	0.40	7	30.0	0.35	14	7.5	0.93	0.86	0.93	1.74	4.49E 11
660713	1:14	9.0	D	0.30	7	0.0	0.00	0	8.3	0.00	1.15	1.15	2.12	1.15E 12
660709	7:36	1.5	D	0.30	7	5.0	0.30	14	9.8	0.14	0.38	0.14	1.34	1.50E 10
660707	23:28	6.0	D	0.30	7	15.0	0.30	14	7.3	0.67	0.98	0.67	1.94	1.43E 11
660707	23:19	24.0	D	0.40	7	0.0	0.00	0	0.0	0.00	1.54	1.54	2.42	5.93E 12
660705	5:47	0.0	L	0.00	0	0.0	0.00	0	0.0	0.00	0.00	3.3 *	3.00	8.10E 15
660705	20: 2	0.0	L	0.00	0	0.0	0.00	0	0.0	0.00	0.00	3.1 *	3.00	3.62E 15
660705	18:26	0.0	L	0.00	0	0.0	0.00	0	0.0	0.00	0.00	3.1 *	3.00	3.62E 15
660706	18:49	9.0	D	0.30	7	0.0	0.00	0	8.0	0.00	1.15	1.15	2.12	1.15E 12
660703	20:48	2.0	D	0.15	8	16.0	0.30	14	7.2	0.69	0.86	0.69	2.10	1.61E 11
660703	6:38	3.5	D	0.15	7	18.0	0.30	14	7.5	0.75	1.10	0.75	2.35	2.01E 11
660627	18:53	0.0		0.00	0	14.0	0.30	14	0.0	0.64	0.00	0.64	1.54	1.26E 11
660627	1:14	0.0		0.00	0	19.0	0.35	14	0.0	0.74	0.00	0.74	1.59	1.92E 11
660622	10: 3	0.0		0.00	0	11.0	0.30	14	0.0	0.53	0.00	0.53	1.44	8.00E 10
660622	10: 2	0.0		0.00	0	11.0	0.30	14	0.0	0.53	0.00	0.53	1.44	8.00E 10
660618	22: 8	3.0	U	0.30	8	7.2	0.30	14	7.2	0.35	0.79	0.35	1.76	3.61E 10
660618	20:36	3.9	D	0.20	8	5.6	0.20	14	6.3	0.41	0.96	0.41	2.06	4.67E 10
660618	20:36	6.3	D	0.30	8	46.6	0.30	14	7.5	1.16	1.00	1.16	1.97	1.17E 12
660618	18:55	0.0		0.00	0	10.9	0.30	14	0.0	0.53	0.00	0.53	1.43	7.87E 10
660618	15:13	0.0		0.00	0	10.2	0.25	14	0.0	0.56	0.00	0.56	1.53	8.92E 10
660618	8:49	3.7	D	0.25	8	18.6	0.30	14	7.6	0.76	0.83	0.76	1.85	2.14E 11
660618	5:11	2.4	D	0.20	8	16.4	0.35	14	7.6	0.67	0.75	0.67	1.85	1.46E 11
660615	9:10	2.7	D	0.25	8	11.3	0.35	14	7.5	0.51	0.69	0.51	1.72	7.27E 10
660615	13:16	3.1	D	0.20	8	22.4	0.35	14	7.4	0.81	0.85	0.81	1.96	2.61E 11
660618	3:52	0.0		0.00	0	5.9	0.20	14	0.0	0.43	0.00	0.43	1.47	5.15E 10
660615	19:46	3.2	U	0.25	8	10.6	0.30	14	9.4	0.52	0.76	0.52	1.80	7.47E 10
660614	9:34	4.6	U	0.30	8	8.3	0.20	15	7.2	0.58	0.86	0.58	1.83	9.77E 10
660613	14:43	9.6	U	0.25	8	43.8	0.30	14	7.7	1.13	1.19	1.13	2.23	1.05E 12
660613	10:44	3.8	D	0.20	7	13.4	0.35	14	7.5	0.58	0.95	0.58	2.05	1.00E 11
660613	10:40	3.7	D	0.25	8	22.6	0.30	14	8.0	0.84	0.83	0.84	1.86	3.07E 11

* Magnitude determined by coda-length method.

DATE YR MO DA	TIME HR MIN	P-WAVE AMP MM	P-WAVE MOT U D	P-WAVE PER SEC	P-WAVE TR	S-WAVE AMP MM	S-WAVE PER SEC	S-WAVE TK	S-P SEC	MAGNITUDE SMAG	MAGNITUDE PMAG	MAGNITUDE MAG	MAGNITUDE UMAG	ENERGY ERGS
66 512	23:25	4.7	D	0.30	8	7.4	0.30	14	9.5	0.36	0.87	0.36	1.84	3.80E 10
66 6 8	22:22	2.8	U	0.30	7	48.4	0.30	14	7.8	1.18	0.65	1.18	1.61	1.26E 12
66 6 6	19:58	8.3	U	0.30	8	23.2	0.25	15	9.6	0.91	1.12	0.91	2.39	4.13E 11
66 621	10:42	0.0		0.00	0	7.6	0.30	14	0.0	0.37	0.00	0.37	1.28	4.00E 10
66 525	5:31	3.0	D	0.20	7	11.6	0.30	0	7.2	0.53	0.85	0.53	1.95	8.00E 10
66 515	10:27	0.0	D	0.00	0	16.0	0.35	14	7.4	0.66	0.00	0.66	1.52	1.39E 11
66 514	3:46	1.0	D	0.20	8	17.0	0.35	15	7.3	0.69	0.37	0.69	1.47	1.56E 11
66 514	8:37	3.0	U	0.20	8	13.0	0.35	14	7.4	0.57	0.85	0.57	1.95	9.46E 10
66 514	11: 4	3.0	D	0.25	8	18.0	0.35	15	7.4	0.71	0.74	0.71	1.77	1.74E 11
66 514	13:30	2.0	D	0.20	8	17.0	0.30	14	7.4	0.72	0.67	0.72	1.77	1.81E 11
66 512	21:41	0.0		0.00	0	6.0	0.45	14	0.0	0.23	0.00	0.23	1.01	2.14E 10
66 5 1	1: 7	3.5	U	0.50	8	29.0	0.30	14	6.6	0.95	0.70	0.95	1.51	4.88E 11
66 429	12:21	2.5	D	0.25	9	15.0	0.30	14	6.0	0.67	0.66	0.67	1.69	1.43E 11
66 428	11: 1	11.5	D	0.25	9	43.0	0.30	15	8.0	1.12	1.32	1.12	2.35	1.01E 12
66 425	11:37	1.0	D	0.20	8	12.0	0.30	14	7.5	0.57	0.37	0.57	1.47	9.42E 10
66 425	1: 1	3.0	D	0.25	8	0.0	0.00	0	0.0	0.00	0.74	0.74	1.77	1.92E 11
66 424	14:50	1.0	D	0.25	8	11.0	0.25	14	7.5	0.59	0.26	0.59	1.29	1.03E 11
66 424	11:10	16.5	U	0.25	7	0.0	0.00	0	0.0	0.00	1.48	1.48	2.51	4.48E 12
66 423	15:26	1.0	D	0.15	8	8.5	0.25	14	6.9	0.48	0.56	0.48	1.80	6.34E 10
66 423	9:49	1.0	D	0.15	8	11.0	0.25	14	7.1	0.59	0.56	0.59	1.80	1.03E 11
66 420	8:57	10.5	D	0.25	8	32.0	0.35	15	8.4	0.96	1.28	0.96	2.31	5.06E 11
66 419	18:24	33.0	D	0.25	0	0.0	0.00	0	0.0	0.00	1.78	1.78	2.81	1.58E 13
66 419	12:15	0.0	D	0.00	0	14.5	0.25	14	7.5	0.71	0.00	0.71	1.68	1.72E 11
66 412	13:35	1.5	D	0.15	7	16.5	0.25	14	7.4	0.77	0.74	0.77	1.98	2.19E 11
66 412	13:16	1.9	D	0.25	8	17.0	0.25	14	7.3	0.78	0.54	0.78	1.57	2.32E 11
66 412	7: 2	3.5	D	0.25	8	35.0	0.30	14	7.3	1.03	0.80	1.03	1.84	6.91E 11
66 411	12: 7	2.0	D	0.25	8	27.0	0.25	14	7.7	0.98	0.56	0.98	1.59	5.47E 11
66 41	8:37	0.5	U	0.20	7	6.5	0.25	14	7.6	0.36	0.07	0.36	1.17	3.83E 10
66 4 7	9:18	0.5	D	0.20	8	11.5	0.30	14	7.8	0.55	0.07	0.55	1.17	8.70E 10
66 4 4	21: 3	1.2	D	0.25	8	9.0	0.30	14	7.5	0.44	0.34	0.44	1.37	5.49E 10
66 330	16:31	2.5	U	0.30	8	22.0	0.25	14	7.6	0.89	0.60	0.89	1.56	3.74E 11
66 330	15:40	3.5	U	0.30	8	26.5	0.25	14	7.6	0.97	0.74	0.97	1.71	5.29E 11
66 329	5: 7	2.0	D	0.20	8	41.0	0.30	14	7.5	1.10	0.67	1.10	1.77	9.26E 11
66 327	4:40	0.7	D	0.20	8	20.0	0.30	14	7.6	0.79	0.21	0.79	1.32	2.45E 11
66 325	23:17	0.5	D	0.25	8	15.5	0.25	14	7.6	0.74	-0.04	0.74	0.99	1.95E 11
66 325	22:59	1.5	D	0.25	8	29.0	0.25	14	7.5	1.01	0.43	1.01	1.47	6.25E 11
66 325	22:56	0.0		0.00	0	9.0	0.25	14	0.0	0.50	0.00	0.50	1.48	7.06E 10
66 325	22:47	2.0	D	0.25	8	12.5	0.25	14	7.5	0.65	0.56	0.65	1.59	1.31E 11
66 325	22:39	0.0	L	0.00	0	0.0	0.00	0	0.0	0.00	0.00	3.1 *	0.00	3.62E 15
66 325	5:29	3.0	D	0.25	8	15.0	0.30	14	7.4	0.67	0.74	0.67	1.77	1.43E 11
66 324	1:39	2.0	D	0.25	8	5.5	0.25	14	7.6	0.29	0.56	0.29	1.59	2.79E 10
66 324	1:31	14.0	D	0.25	8	36.0	0.30	14	7.0	1.05	1.40	1.05	2.44	7.28E 11
66 324	1:15	1.5	D	0.25	8	8.0	0.30	14	7.5	0.39	0.43	0.39	1.47	4.40E 10
66 324	0:59	4.0	D	0.20	8	6.5	0.30	14	7.5	0.30	0.97	0.30	2.07	2.98E 10
66 323	12:33	1.0	D	0.30	8	5.0	0.25	14	7.7	0.25	0.20	0.25	1.17	2.33E 10
66 323	11:41	1.0	D	0.20	8	4.0	0.20	14	7.5	0.26	0.37	0.26	1.47	2.48E 10
66 323	11:36	3.0	D	0.20	8	12.0	0.20	14	7.4	0.74	0.85	0.74	1.95	1.95E 11
66 323	11: 4	4.5	D	0.25	8	13.0	0.25	14	7.5	0.66	0.91	0.66	1.95	1.40E 11
66 322	5:13	7.5	D	0.30	8	0.0	0.00	0	7.5	0.90	1.08	1.08	2.04	8.23E 11
66 321	11:40	3.5	D	0.25	8	31.5	0.25	14	7.5	1.05	0.80	1.05	1.84	7.28E 11

* Magnitude determined by coda-length method.

DATE	TIME	P-WAVE				S-WAVE			S-P	MAGNITUDE				ENERGY
YR MO DA	HR MIN	AMP MM	MOT U D	PER SEC	TR	AMP MM	PER SEC	TR	SEC	SMAG	PMAG	MAG	UMAG	ERGS
660320	20:52	5.5	D	0.30	8	23.0	0.25	14	8.7	0.91	0.94	0.91	1.91	4.06E 11
660317	7: 3	4.5	D	0.20	8	8.0	0.20	14	6.8	0.56	1.02	0.56	2.12	9.12E 10
660316	11:45	1.0	D	0.20	7	11.5	0.25	14	7.8	0.61	0.37	0.61	1.47	1.12E 11
660310	14:57	4.0	D	0.20	8	14.0	0.20	14	7.8	0.80	0.97	0.80	2.07	2.59E 11
660309	12:58	1.5	D	0.30	8	16.5	0.30	14	6.5	0.71	0.38	0.71	1.34	1.71E 11
660219	2:19	2.5	D	0.25	7	0.0	0.00	0	7.8	0.00	0.66	0.66	1.69	1.37E 11
660212	17:55	0.0		0.00	0	10.0	0.30	14	0.0	0.49	0.00	0.49	1.40	6.69E 10
660209	7:50	4.0	D	0.20	7	10.0	0.30	14	8.6	0.49	0.97	0.49	2.07	6.69E 10
660205	17:15	0.0		0.00	0	9.0	0.30	14	0.0	0.44	0.00	0.44	1.35	5.49E 10
660204	14:40	0.0	D	0.00	0	19.0	0.30	14	7.6	0.77	0.00	0.77	1.67	2.22E 11
660204	11:57	3.0	D	0.40	7	13.0	0.40	14	8.7	0.57	0.64	0.57	1.52	9.28E 10
660202	12:24	3.0	D	0.40	7	27.0	0.20	14	7.6	1.09	0.64	1.09	1.52	8.77E 11
660202	11:29	0.0		0.00	0	15.0	0.30	14	7.4	0.67	0.00	0.67	1.57	1.43E 11
660201	9:34	0.0		0.00	0	14.0	0.35	14	0.0	0.60	0.00	0.60	1.46	1.09E 11
660119	6:52	2.0	D	0.25	8	11.0	0.25	14	7.6	0.59	0.56	0.59	1.59	1.03E 11
660118	22: 1	0.0		0.00	0	8.0	0.35	14	0.0	0.36	0.00	0.36	1.22	3.80E 10
660104	7:13	6.0	D	0.25	8	27.0	0.40	14	8.6	0.88	1.04	0.88	2.07	3.63E 11
651220	5:25	0.5	D	0.25	8	13.5	0.25	14	7.4	0.68	-0.04	0.68	0.99	1.51E 11
651220	10:41	7.0	D	0.25	8	0.0	0.00	14	7.6	0.00	1.10	1.10	2.14	9.27E 11
651219	1:43	2.0	D	0.30	8	15.0	0.25	14	8.5	0.72	0.50	0.72	1.47	1.83E 11
651217	13: 7	13.0	D	0.25	8	0.0	0.00	14	7.6	0.00	1.37	1.37	2.41	2.90E 12
651205	11:20	2.0	D	0.30	8	19.0	0.25	14	8.6	0.83	0.50	0.83	1.47	2.85E 11
651204	4: 4	6.0	U	0.30	8	68.5	0.35	14	7.9	1.29	0.98	1.29	1.94	2.06E 12
651130	5:54	3.0	D	0.25	8	9.0	0.30	14	7.2	0.44	0.74	0.44	1.77	5.49E 10
651126	14:26	9.0	D	0.30	8	0.0	0.00	14	8.2	0.00	1.15	1.15	2.12	1.15E 12
651126	14:22	6.0	D	0.25	7	37.0	0.30	14	8.4	1.06	1.04	1.06	2.07	7.66E 11
651123	6:15	1.0	D	0.20	7	10.0	0.30	14	7.4	0.49	0.37	0.49	1.47	6.69E 10
651123	6:56	0.0		0.00	0	11.0	0.30	14	0.0	0.53	0.00	0.53	1.44	8.00E 10
651123	8:28	1.0	D	0.10	7	16.0	0.35	14	7.4	0.66	0.93	0.66	2.30	1.39E 11
651122	13:26	5.0	D	0.25	8	5.0	0.25	14	7.4	0.25	0.96	0.25	1.99	2.33E 10
651117	0:37	0.0		0.00	0	17.0	0.30	14	0.0	0.72	0.00	0.72	1.63	1.81E 11
651114	10:54	2.0	D	0.25	8	10.0	0.35	14	7.5	0.46	0.56	0.46	1.59	5.78E 10
651114	9:17	4.0	D	0.25	8	17.0	0.30	15	7.3	0.72	0.86	0.72	1.89	1.81E 11
651113	7: 5	4.0	U	0.25	8	10.0	0.30	14	7.2	0.49	0.86	0.49	1.89	6.69E 10
651107	15:34	3.0	U	0.30	8	20.0	0.30	14	8.1	0.79	0.68	0.79	1.64	2.45E 11
651106	1:20	19.0	U	0.30	9	0.0	0.00	15	7.3	0.00	1.48	1.48	2.44	4.54E 12
651022	13:10	2.0	D	0.15	8	16.0	0.45	14	8.5	0.65	0.86	0.65	2.10	1.35E 11
651012	3:41	1.0	D	0.15	7	8.0	0.25	14	9.1	0.45	0.56	0.45	1.80	5.66E 10
651007	21:25	0.0		0.00	0	6.0	0.20	14	0.0	0.44	0.00	0.44	1.48	5.32E 10
651007	14: 8	4.0	D	0.15	7	28.0	0.30	14	7.5	0.94	1.16	0.94	2.41	4.57E 11
651007	13:58	2.0	D	0.20	7	9.0	0.30	14	7.4	0.44	0.67	0.44	1.77	5.49E 10
651007	13:18	2.0	D	0.15	7	40.0	0.30	14	7.5	1.09	0.86	1.09	2.10	8.84E 11
651007	11: 4	0.0		0.00	0	10.0	0.30	14	0.0	0.49	0.00	0.49	1.40	6.69E 10
651007	10:50	5.0	D	0.30	8	51.0	0.30	14	7.5	1.20	0.90	1.20	1.87	1.38E 12
651007	7: 7	0.0		0.00	0	9.0	0.30	14	0.0	0.44	0.00	0.44	1.35	5.49E 10
651007	7: 0	0.0		0.00	0	15.0	0.30	14	0.0	0.67	0.00	0.67	1.57	1.43E 11
651007	6:33	1.0	D	0.25	8	11.0	0.30	14	7.5	0.53	0.26	0.53	1.29	8.00E 10
651007	6:23	2.0	D	0.20	8	33.0	0.30	14	7.6	1.01	0.67	1.01	1.77	6.20E 11
651007	6:19	0.0		0.00	0	9.0	0.30	14	0.0	0.44	0.00	0.44	1.35	5.49E 10
651007	6:13	0.0	D	0.30	0	28.0	0.30	14	7.4	0.94	0.00	0.94	1.84	4.57E 11

DATE	TIME	P-WAVE				S-WAVE			S-P	MAGNITUDE				ENERGY
YR MO DA	HR MIN	AMP MM	MOT U D	PER SEC	TR	AMP MM	PER SEC	TR	SEC	SMAG	PMAG	MAG	UMAG	ERGS
651007	5:47	0.0		0.00	0	12.0	0.30	14	0.0	0.57	0.00	0.57	1.48	9.42E 10
651007	5:23	1.0	D	0.25	8	13.0	0.30	14	7.6	0.60	0.26	0.60	1.29	1.09E 11
651003	3: 1	0.0		0.00	0	10.0	0.30	14	0.0	0.49	0.00	0.49	1.40	6.69E 10
650930	10: 9	3.5	D	0.15	8	19.3	0.25	14	7.5	0.83	1.10	0.83	2.35	2.93E 11
650929	11:12	2.5	D	0.20	7	24.3	0.30	14	6.0	0.88	0.77	0.88	1.87	3.51E 11
650927	10:35	9.2	D	0.25	8	9.7	0.20	14	8.9	0.65	1.22	0.65	2.26	1.31E 11
650923	20:53	13.0	D	0.20	8	0.0	0.00	0	7.4	0.00	1.48	1.48	2.58	4.62E 12
650921	9: 0	1.6	D	0.25	8	9.5	0.25	14	7.1	0.53	0.46	0.53	1.50	7.81E 10
650920	16:40	1.8	D	0.15	8	16.1	0.30	14	7.5	0.70	0.82	0.70	2.06	1.63E 11
650920	13: 5	3.7	D	0.30	8	42.1	0.30	14	7.6	1.11	0.77	1.11	1.73	9.72E 11
650915	0:17	5.5	D	0.15	8	9.1	0.10	14	8.1	1.18	1.30	1.18	2.54	1.30E 12
650919	11: 4	2.8	D	0.19	8	5.6	0.26	14	7.5	0.28	0.84	0.28	1.97	2.74E 10
650914	4:15	1.7	D	0.15	7	15.4	0.40	14	7.4	0.64	0.79	0.64	2.03	1.27E 11
650909	3:14	2.1	D	0.15	9	7.3	0.20	14	7.6	0.52	0.88	0.52	2.13	7.68E 10
650830	17:26	0.0		0.00	0	20.0	0.30	14	0.0	0.79	0.00	0.79	1.70	2.45E 11
650816	5:31	2.0	D	0.25	9	5.5	0.25	14	8.2	0.29	0.56	0.29	1.59	2.79E 10
650814	12:33	3.0	D	0.30	8	9.0	0.25	14	8.3	0.50	0.68	0.50	1.64	7.06E 10
650812	14: 1	11.0	D	0.25	8	12.0	0.25	14	7.2	0.63	1.30	0.63	2.33	1.21E 11
650812	4:37	1.5	D	0.20	7	11.0	0.25	14	5.9	0.59	0.54	0.59	1.65	1.03E 11
650810	19:19	5.0	D	0.35	9	12.5	0.30	15	6.9	0.59	0.87	0.59	1.78	1.02E 11
650807	0:15	2.0	D	0.30	8	14.5	0.30	14	7.1	0.65	0.50	0.65	1.47	1.34E 11
650804	20:35	5.0	D	0.20	9	40.0	0.35	14	8.5	1.06	1.07	1.06	2.17	7.66E 11
650728	1:52	3.5	D	0.25	8	17.0	0.30	14	8.4	0.72	0.80	0.72	1.84	1.81E 11
650729	12:37	4.0	D	0.25	8	11.0	0.25	14	8.2	0.59	0.86	0.59	1.89	1.03E 11
650714	1:18	2.0	D	0.15	7	11.5	0.30	14	7.6	0.55	0.86	0.55	2.10	8.70E 10
650714	2:50	1.5	D	0.20	7	4.0	0.25	14	7.6	0.15	0.54	0.15	1.65	1.53E 10
650714	2:51	1.0	D	0.20	7	7.5	0.25	14	7.6	0.42	0.37	0.42	1.47	5.01E 10
650713	15:48	11.0	D	0.20	8	93.0	0.30	14	7.6	1.46	1.41	1.46	2.51	4.17E 12
651704	23:33	3.5		0.25	8	18.0	0.30	14	8.6	0.75	0.80	0.75	1.84	2.01E 11
650627	23:46	3.0	D	0.25	8	39.0	0.30	14	8.4	1.08	0.74	1.08	1.77	8.44E 11
650614	11:55	5.5	D	0.30	8	27.0	0.30	15	8.6	0.92	0.94	0.92	1.91	4.27E 11
650614	7: 6	1.0	D	0.25	8	11.5	0.25	14	7.5	0.61	0.26	0.61	1.29	1.12E 11
650603	19:10	0.0		0.00	0	21.0	0.30	14	7.5	0.81	0.00	0.81	1.72	2.68E 11
650530	17:31	63.7	U	0.30	8	0.0	0.00	0	0.0	0.00	2.00	2.00	2.97	4.09E 13
650530	0:56	2.6	D	0.25	7	8.2	0.30	14	7.3	0.40	0.67	0.40	1.71	4.61E 10
650516	21:54	17.1	D	0.30	7	39.2	0.35	15	6.5	1.05	1.43	1.05	2.40	7.38E 11
650509	19:59	3.6	D	0.30	7	30.7	0.30	14	7.7	0.98	0.76	0.98	1.72	5.42E 11
650508	9:44	43.7	D	0.20	8	0.0	0.00	0	0.0	0.00	2.01	2.01	3.11	4.18E 13
650507	0:23	3.0		0.30	8	10.7	0.23	14	9.6	0.62	0.68	0.62	1.64	1.17E 11
650430	10:27	3.0	D	0.30	8	19.0	0.25	14	8.5	0.83	0.68	0.83	1.64	2.85E 11
650426	4:26	6.0	D	0.30	8	58.0	0.30	14	8.4	1.25	0.98	1.25	1.94	1.75E 12
650424	13:31	0.8	D	0.15	8	27.0	0.50	15	6.1	0.88	0.46	0.88	1.71	3.53E 11
650422	13:34	5.0	D	0.30	8	25.0	0.45	15	7.1	0.85	0.90	0.85	1.87	3.10E 11
650408	11:42	3.0	D	0.25	7	11.0	0.25	14	8.6	0.59	0.74	0.59	1.77	1.03E 11
650405	23:52	12.0	D	0.30	7	0.0	0.00	0	7.5	0.00	1.28	1.28	2.25	1.96E 12
650404	6: 8	2.0	D	0.20	9	0.0	0.30	14	7.6	0.00	0.67	0.67	1.77	1.45E 11
650331	12:46	3.0	D	0.25	8	18.0	0.30	14	7.4	0.75	0.74	0.75	1.77	2.01E 11
650331	8:48	8.0	D	0.25	8	28.0	0.30	14	7.4	0.94	1.16	0.94	2.20	4.57E 11
650331	7:36	3.0	D	0.20	8	0.0	0.00	14	7.4	0.00	0.85	0.85	1.95	3.09E 11
650331	7:20	7.0	D	0.30	8	29.0	0.35	14	7.4	0.92	1.05	0.92	2.01	4.22E 11

DATE YR MO DA	TIME HR MIN	P-WAVE AMP MM	MOT U D	PER SEC	TR	S-WAVE AMP MM	PER SEC	TR	S-P SEC	MAGNITUDE SMAG	PMAG	MAG	UMAG	ENERGY ERGS
650331	7: 6	4.0	C	0.25	8	12.0	0.30	14	7.6	0.57	0.86	0.57	1.89	9.42E 10
650331	5:10	4.0	D	0.20	8	41.0	0.30	14	7.4	1.10	0.97	1.10	2.07	9.26E 11
650331	3:13	0.0	C	0.00	0	8.0	0.30	14	0.0	0.39	0.00	0.39	1.30	4.40E 10
650331	1:23	6.0	D	0.20	7	25.0	0.30	14	7.6	0.89	1.15	0.89	2.25	3.70E 11
650329	21:10	0.0		0.00	0	15.0	0.30	14	0.0	0.67	0.00	0.67	1.57	1.43E 11
650324	19: 0	2.0	D	0.20	8	31.0	0.30	14	0.0	0.98	0.67	0.98	1.77	5.52E 11
650322	13: 9	6.0	D	0.30	8	0.0	0.00	14	8.4	0.00	0.98	0.98	1.94	5.44E 11
650319	15:28	8.0	D	0.20	7	11.5	0.50	14	7.0	0.51	1.27	0.51	2.37	7.18E 10
650319	16:30	5.0	D	0.20	7	8.0	0.30	14	7.4	0.39	1.07	0.39	2.17	4.40E 10
650314	1:58	6.0	C	0.25	8	0.0	0.00	0	7.3	0.00	1.04	1.04	2.07	6.97E 11
650306	22:16	3.0	D	0.25	8	20.0	0.25	14	8.2	0.85	0.74	0.85	1.77	3.13E 11
650305	18:47	0.0		0.00	0	15.0	0.25	14	7.5	0.72	0.00	0.72	1.70	1.83E 11
650304	22:50	8.0	U	0.20	7	9.0	0.25	14	7.4	0.50	1.27	0.50	2.37	7.06E 10
650301	20:51	4.0	D	0.25	8	27.0	0.30	14	7.7	0.92	0.86	0.92	1.89	4.27E 11
650228	1:22	7.5	D	0.20	8	0.0	0.00	0	7.5	0.00	1.24	1.24	2.35	1.68E 12
650228	2:45	2.7	D	0.20	8	31.0	0.30	14	7.7	0.98	0.80	0.98	1.90	5.52E 11
650228	4:10	2.0	D	0.25	8	46.5	0.30	14	7.4	1.16	0.56	1.16	1.59	1.17E 12
650226	2:13	2.0	U	0.20	8	30.0	0.35	14	7.6	0.93	0.67	0.93	1.77	4.49E 11
650222	22:49	2.5	U	0.20	8	20.0	0.20	14	7.3	0.96	0.77	0.96	1.87	5.03E 11
650217	11:16	40.0	D	0.20	7	0.0	0.00	0	8.8	0.00	1.97	1.97	3.07	3.56E 13
650217	11:48	0.6	D	0.25	8	18.5	0.30	14	7.5	0.76	0.04	0.76	1.07	2.11E 11
650214	9:19	9.5	D	0.30	8	31.0	0.35	15	8.2	0.95	1.18	0.95	2.14	4.78E 11
650210	16:25	9.5	D	0.20	8	0.0	0.00	0	0.0	0.00	1.35	1.35	2.45	2.60E 12
650209	9:39	2.5	D	0.20	7	16.0	0.35	14	6.3	0.66	0.77	0.66	1.87	1.39E 11
650205	2:13	2.5	D	0.20	8	16.5	0.20	14	7.6	0.88	0.77	0.88	1.87	3.52E 11
650204	3:51	4.0	D	0.30	7	16.5	0.25	14	8.6	0.77	0.80	0.77	1.77	2.19E 11
650204	8:42	3.0	D	0.30	8	28.5	0.30	14	7.1	0.95	0.68	0.95	1.64	4.72E 11
650202	19: 9	15.5	U	0.10	0	0.0	0.00	0	4.8	0.00	2.12	2.12	3.49	6.71E 13
650202	20:11	20.0	U	0.15	8	0.0	0.00	15	4.5	0.00	1.86	1.86	3.10	2.26E 13
650202	21:19	16.0	D	0.20	8	20.0	0.25	15	5.0	0.85	1.57	0.85	2.67	3.13E 11
650202	22:24	16.0	D	0.25	8	52.0	0.50	15	5.0	1.16	1.46	1.16	2.50	1.19E 12
650202	23:22	17.5	D	0.20	8	0.0	0.00	0	5.5	0.00	1.61	1.61	2.71	7.95E 12
650201	3:59	2.0	D	0.25	9	9.0	0.35	14	7.6	0.41	0.56	0.41	1.59	4.74E 10
650128	5:24	3.0	U	0.30	8	34.0	0.25	14	6.2	1.08	0.68	1.08	1.64	8.38E 11
650128	7:57	15.0	D	0.20	7	16.0	0.30	14	6.1	0.69	1.54	0.69	2.65	1.61E 11
650121	5:53	1.0	D	0.20	7	6.0	0.30	14	7.5	0.27	0.37	0.27	1.47	2.56E 10
650221	6:39	2.0	D	0.25	8	18.0	0.30	14	7.4	0.75	0.56	0.75	1.59	2.01E 11
650121	17:31	2.0	D	0.15	8	7.0	0.30	14	7.1	0.34	0.86	0.34	2.10	3.42E 10
650120	21:34	2.0	D	0.20	7	8.0	0.25	14	7.5	0.45	0.67	0.45	1.77	5.66E 10
650119	2: 8	2.0	D	0.25	8	14.0	0.30	14	7.4	0.64	0.56	0.64	1.59	1.26E 11
650118	8: 9	2.0	D	0.20	7	10.0	0.30	14	0.0	0.49	0.67	0.49	1.77	6.69E 10
650112	14:28	18.0	D	0.45	8	0.0	0.00	14	7.4	0.00	1.41	1.41	2.26	3.45E 12
650112	15:34	3.0	D	0.15	7	17.0	0.30	14	7.4	0.72	1.04	0.72	2.28	1.81E 11
650112	17:28	5.0	D	0.20	8	11.0	0.30	14	9.4	0.53	1.07	0.53	2.17	8.00E 10
650111	20:21	6.0	D	0.20	8	21.0	0.30	14	7.5	0.81	1.15	0.81	2.25	2.68E 11
650110	18:47	0.0		0.00	0	21.0	0.35	14	0.0	0.78	0.00	0.78	1.64	2.32E 11
650110	20:21	7.0	D	0.15	8	8.0	0.25	14	7.4	0.45	1.41	0.45	2.65	5.66E 10
650109	9: 5	25.0	D	0.15	8	0.0	0.00	15	7.5	0.00	1.96	1.96	3.20	3.39E 13
650106	8:27	2.0	D	0.20	9	14.0	0.30	14	7.6	0.64	0.67	0.64	1.77	1.26E 11
650105	18:32	20.0	D	0.25	0	0.0	0.00	14	7.2	0.00	1.56	1.56	2.59	6.37E 12

DATE YR MO DA	TIME HR MIN	P-WAVE AMP MM	MOT U D	PER SEC	TR	S-WAVE AMP MM	PER SEC	TR	S-P SEC	MAGNITUDE SMAG	PMAG	MAG	UMAG	ENERGY ERGS
641201	16:29	12.5	D	0.20	8	0.0	0.00	0	0.0	0.00	1.47	1.47	2.57	4.30E 12
641201	17:17	4.5	D	0.20	8	17.0	0.20	14	5.4	0.89	1.02	0.89	2.12	3.72E 11
641201	18:14	12.5	D	0.30	8	0.0	0.00	0	0.0	0.00	1.30	1.30	2.26	2.11E 12
641201	21:32	19.0	U	0.20	8	0.0	0.00	0	0.0	0.00	1.65	1.65	2.75	9.23E 12
641202	21:51	14.0	U	0.20	8	0.0	0.00	0	6.5	0.00	1.51	1.51	2.62	5.29E 12
641203	21: 7	11.0	U	0.10	8	0.0	0.00	0	5.0	0.00	1.97	1.97	3.35	3.62E 13
641203	23:34	13.0	U	0.20	7	0.0	0.00	0	7.0	0.00	1.48	1.48	2.58	4.62E 12
641205	19:24	3.5	D	0.15	9	11.0	0.30	15	5.8	0.53	1.10	0.53	2.35	8.00E 10
641205	14:42	21.5	D	0.20	8	0.0	0.00	15	6.3	0.00	1.70	1.70	2.80	1.16E 13
641206	1:20	5.0	D	0.20	7	12.0	0.35	15	8.2	0.54	1.07	0.54	2.17	8.14E 10
641208	22:52	14.0	U	0.20	8	23.0	0.20	15	7.2	1.02	1.51	1.02	2.62	6.52E 11
641208	22:12	6.5	U	0.15	7	19.0	0.35	15	6.0	0.74	1.37	0.74	2.62	1.92E 11
641208	21:10	7.5	U	0.20	8	23.0	0.30	15	7.3	0.85	1.24	0.85	2.35	3.17E 11
641208	20: 4	12.5	U	0.20	8	0.0	0.00	0	0.0	0.00	1.47	1.47	2.57	4.30E 12
641208	18:44	11.5	U	0.15	8	26.0	0.25	15	8.6	0.96	1.62	0.96	2.86	5.10E 11
641208	17:31	8.5	U	0.10	8	21.0	0.30	15	6.2	0.81	1.86	0.81	3.23	2.68E 11
641208	16:21	11.0	U	0.15	8	23.0	0.25	15	5.9	0.91	1.60	0.91	2.84	4.06E 11
641208	13:28	9.0	D	0.20	8	0.0	0.00	15	7.4	0.00	1.32	1.32	2.42	2.35E 12
641208	11:28	6.5	D	0.25	8	63.5	0.30	15	7.4	1.29	1.07	1.29	2.11	2.07E 12
641208	0: 8	9.0	U	0.20	7	11.0	0.30	15	5.9	0.53	1.32	0.53	2.42	8.00E 10
641209	22:59	15.0	U	0.15	7	34.0	0.20	15	5.2	1.19	1.74	1.19	2.98	1.34E 12
641209	21:42	5.0	D	0.10	8	14.0	0.25	15	5.6	0.69	1.63	0.69	3.00	1.61E 11
641209	19:25	8.5	U	0.10	8	22.5	0.25	15	5.5	0.90	1.86	0.90	3.23	3.90E 11
641209	17:53	7.0	U	0.10	8	32.0	0.35	15	5.2	0.96	1.78	0.96	3.15	5.06E 11
641211	5:37	17.5	D	0.20	7	0.0	0.00	14	7.4	0.00	1.61	1.61	2.71	7.95E 12
641211	5:29	35.0	D	0.20	8	0.0	0.00	0	8.2	0.00	1.91	1.91	3.01	2.80E 13
641211	16:27	12.0	U	0.15	8	31.5	0.35	15	5.8	0.95	1.64	0.95	2.88	4.92E 11
641211	17:35	19.5	D	0.20	8	0.0	0.00	0	6.5	0.00	1.66	1.66	2.76	9.68E 12
641211	23:45	18.5	D	0.25	7	0.0	0.00	14	7.9	0.00	1.53	1.53	2.56	5.53E 12
641212	21:43	17.5	U	0.30	8	21.5	0.25	15	6.2	0.88	1.44	0.88	2.41	3.59E 11
641213	21:20	38.0	D	0.25	8	0.0	0.00	0	9.0	0.00	1.84	1.84	2.87	2.05E 13
641213	22:42	7.5	D	0.15	8	0.0	0.00	0	8.0	0.00	1.44	1.44	2.68	3.79E 12
641214	0:14	2.5	D	0.25	8	8.0	0.20	15	5.2	0.56	0.66	0.56	1.69	9.12E 10
641214	20:22	11.5	D	0.30	8	0.0	0.00	0	7.5	0.00	1.26	1.26	2.23	1.81E 12
641214	23:34	18.0	U	0.25	8	27.0	0.40	14	5.1	0.88	1.51	0.88	2.55	3.63E 11
641215	16:25	29.0	D	0.35	7	19.5	0.35	14	5.5	0.75	1.63	0.75	2.55	2.02E 11
641215	17:44	37.0	U	0.25	8	0.0	0.00	0	5.5	0.00	1.83	1.83	2.86	1.95E 13
641215	20:11	30.0	D	0.30	8	0.0	0.00	0	5.5	0.00	1.68	1.68	2.64	1.05E 13
641215	21:43	19.5	D	0.20	9	55.0	0.40	15	5.5	1.19	1.65	1.19	2.76	1.35E 12
641215	22:47	15.0	D	0.25	8	21.5	0.35	14	5.5	0.79	1.43	0.79	2.47	2.42E 11
641215	23:37	15.5	D	0.25	8	25.5	0.20	15	5.7	1.07	1.45	1.07	2.48	7.89E 11
641216	16:23	17.0	D	0.25	8	11.0	0.35	15	5.7	0.50	1.49	0.50	2.52	6.91E 10
641216	16:27	1.0	D	0.25	7	18.0	0.20	15	3.2	0.91	0.26	0.91	1.29	4.14E 11
641216	17:36	16.5	D	0.20	8	23.0	0.30	15	5.8	0.85	1.59	0.85	2.69	3.17E 11
641216	18:31	24.0	U	0.20	8	34.5	0.50	15	6.2	0.98	1.75	0.98	2.85	5.57E 11
641216	21:23	9.5	U	0.20	8	19.0	0.30	15	5.4	0.77	1.35	0.77	2.45	2.22E 11
641216	22:31	19.0	U	0.20	8	26.0	0.25	15	5.4	0.96	1.62	0.96	2.73	5.10E 11
641216	23:46	17.0	U	0.20	8	21.5	0.30	15	5.6	0.82	1.60	0.82	2.79	2.80E 11
641217	16:24	9.0	U	0.20	7	0.0	0.00	0	5.5	0.00	1.32	1.32	2.42	2.35E 12
641217	18:27	15.0	D	0.20	8	0.0	0.00	0	5.2	0.00	1.54	1.54	2.65	6.00E 12

DATE YR MO DA	TIME HR MIN	P-WAVE AMP MM	PCT U D	PER SEC	TR	S-WAVE AMP MM	PER SEC	TR	S-P SEC	MAGNITUDE SMAG	PMAG	MAG	UMAG	ENERGY ERGS
641218	0: 2	7.5	U	0.25	7	21.0	0.25	15	6.6	0.87	1.13	0.87	2.17	3.43E 11
641219	9:57	8.0	D	0.25	8	22.0	0.30	14	7.4	0.83	1.16	0.83	2.20	2.92E 11
641227	19:28	3.0	D	0.15	7	19.5	0.30	14	7.6	0.78	1.04	0.78	2.28	2.33E 11
641230	8:43	3.5	D	0.30	9	9.5	0.25	14	8.3	0.53	0.74	0.53	1.71	7.81E 10
641206	14:59	7.0	D	0.25	8	44.0	0.25	14	8.4	1.19	1.19	1.19	2.14	1.35E 12
641125	19:47	7.8	D	0.15	9	12.1	0.30	15	7.9	0.57	1.45	0.57	2.70	9.57E 10
641124	17:48	10.0	D	0.15	7	11.3	0.40	15	5.3	0.51	1.56	0.51	2.80	7.14E 10
641124	19:50	21.7	D	0.15	7	16.6	0.40	15	5.9	0.67	1.90	0.67	3.14	1.47E 11
641124	20:49	12.2	D	0.15	7	12.1	0.35	14	5.7	0.54	1.65	0.54	2.89	8.27E 10
641124	21:27	9.9	D	0.15	7	11.4	0.30	14	5.5	0.55	1.56	0.55	2.80	8.56E 10
641201	12:35	9.0	D	0.20	7	17.0	0.25	14	7.4	0.78	1.32	0.78	2.42	2.32E 11
641213	9:52	1.0	D	0.15	8	15.0	0.30	14	5.5	0.67	0.56	0.67	1.80	1.43E 11
641217	3:44	2.0	D	0.20	7	27.0	0.30	14	7.4	0.92	0.67	0.92	1.77	4.27E 11
641222	13:37	2.0	D	0.20	8	14.0	0.35	14	7.4	0.60	0.67	0.60	1.77	1.09E 11
641223	5:40	4.5	D	0.15	7	0.0	0.00	0	7.3	0.00	1.21	1.21	2.46	1.48E 12
641223	6:16	2.5	D	0.25	9	10.0	0.25	14	7.9	0.55	0.66	0.55	1.69	8.60E 10
641229	12:48	2.5	D	0.20	7	19.5	0.30	14	7.6	0.78	0.77	0.78	1.87	2.33E 11
641230	13:20	4.0	D	0.25	7	12.5	0.30	14	7.5	0.59	0.86	0.59	1.89	1.02E 11
641231	5:25	6.0	D	0.30	7	22.0	0.25	14	8.4	0.89	0.98	0.89	1.94	3.74E 11
640927	13:49	1.5	D	0.15	7	22.0	0.30	14	7.5	0.83	0.74	0.83	1.98	2.92E 11
640927	8:45	2.5	D	0.30	8	14.0	0.30	14	7.4	0.64	0.60	0.64	1.56	1.26E 11
640924	19:49	5.0	D	0.25	8	18.5	0.30	15	6.2	0.76	0.96	0.76	1.99	2.11E 11
640911	7:49	30.0	D	0.30	8	0.0	0.00	0	8.5	0.00	1.68	1.68	2.64	1.05E 13
640911	7:39	70.0	D	0.15	0	0.0	0.00	0	8.5	0.00	2.41	2.41	3.65	2.15E 14
640906	4:59	36.0	D	0.20	8	0.0	0.00	0	8.5	0.00	1.93	1.93	3.03	2.94E 13
640823	1:52	4.6	D	0.15	7	11.6	0.30	14	7.4	0.55	1.22	0.55	2.47	8.84E 10
640830	3:25	2.3	D	0.25	8	13.7	0.30	14	7.1	0.63	0.62	0.63	1.65	1.21E 11
640824	8: 7	8.2	D	0.20	8	35.2	0.30	14	7.4	1.04	1.28	1.04	2.38	6.98E 11
640810	2:59	3.5	D	0.25	8	16.5	0.25	14	7.6	0.77	0.80	0.77	1.84	2.19E 11
640810	14:10	3.0	D	0.15	8	19.0	0.20	15	7.4	0.94	1.04	0.94	2.28	4.57E 11
640811	17: 6	6.0	D	0.20	7	31.0	0.20	15	7.6	1.15	1.15	1.15	2.25	1.13E 12
640809	14: 6	6.0	D	0.20	8	26.0	0.25	14	7.4	0.96	1.15	0.96	2.25	5.10E 11
640809	14: 5	2.0	D	0.25	9	30.0	0.25	14	8.4	1.03	0.56	1.03	1.59	6.65E 11
640808	3:47	7.0	D	0.30	8	35.0	0.20	14	7.4	1.20	1.05	1.20	2.01	1.42E 12
640808	19:14	1.6	D	0.20	8	15.1	0.35	14	7.6	0.64	0.57	0.64	1.67	1.25E 11
640805	17:18	0.0	L	0.00	0	0.0	0.00	0	0.0	0.00	0.00	3.4 *	0.00	1.21E 16
640804	17:58	3.3	D	0.20	7	10.0	0.30	14	7.5	0.49	0.39	0.49	1.99	6.69E 10
640804	17:12	3.0	D	0.35	8	15.0	0.35	14	7.5	0.63	0.64	0.63	1.56	1.24E 11
640824	14:40	2.0	D	0.30	8	9.6	0.30	14	7.6	0.47	0.50	0.47	1.47	6.20E 10
640804	14: 9	3.2	U	0.22	9	9.9	0.30	14	7.9	0.49	0.83	0.49	1.90	6.57E 10
640804	14: 5	9.5	D	0.25	8	47.0	0.30	14	7.5	1.16	1.24	1.16	2.27	1.19E 12
640814	10:35	2.0	D	0.20	7	12.0	0.30	14	7.5	0.57	0.67	0.57	1.77	9.42E 10
640804	9:26	1.0	D	0.15	7	11.0	0.30	14	7.5	0.53	0.56	0.53	1.80	8.00E 10
640731	3:21	2.0	D	0.20	7	24.0	0.30	14	6.3	0.87	0.67	0.87	1.77	3.43E 11
640727	1:21	1.0	D	0.10	7	8.0	0.30	14	7.2	0.39	0.93	0.39	2.30	4.40E 10
640718	13:41	3.0	D	0.20	7	23.0	0.35	14	7.3	0.82	0.85	0.82	1.95	2.74E 11
640713	6:27	3.0	D	0.25	8	16.0	0.30	14	7.2	0.69	0.74	0.69	1.77	1.61E 11
640709	3:43	35.0	U	0.40	8	0.0	0.00	0	8.4	0.00	1.72	1.72	2.60	1.24E 13
640708	7: 8	3.0	D	0.25	8	14.0	0.35	14	7.3	0.60	0.74	0.60	1.77	1.09E 11
640705	8: 9	2.5	D	0.25	8	34.0	0.30	14	7.6	1.02	0.66	1.02	1.69	6.55E 11

* Magnitude determined by coda-length method.

DATE YR MO DA	TIME HR MIN	P-WAVE AMP MM	MOT U D	PER SEC	TR	S-WAVE AMP MM	PER SEC	TR	S-P SEC	MAGNITUDE SMAG	PMAG	MAG	UMAG	ENERGY ERGS
640702	2: 8	2.5	D	0.20	8	15.0	0.30	14	7.5	0.67	0.77	0.67	1.87	1.43E 11
640601	4:33	1.0	U	0.15	8	41.5	0.30	15	8.3	1.11	0.56	1.11	1.80	9.47E 11
640523	4:19	5.0	D	0.25	7	72.5	0.30	14	7.6	1.35	1.04	1.35	2.07	2.64E 12
640518	9:32	4.0	D	0.15	7	17.0	0.30	14	7.4	0.72	1.16	0.72	2.41	1.81E 11
640517	9:57	0.5	D	0.15	8	16.5	0.30	14	7.2	0.71	0.26	0.71	1.50	1.71E 11
640516	10:58	2.3	D	0.25	8	12.5	0.30	14	7.6	0.59	0.62	0.59	1.65	1.02E 11
640516	10:13	2.8	D	0.25	8	21.5	0.30	14	7.7	0.82	0.71	0.82	1.74	2.80E 11
640516	8:52	1.5	D	0.25	8	14.5	0.30	14	6.5	0.65	0.43	0.65	1.47	1.34E 11
640516	7: 5	1.0	D	0.15	7	13.0	0.30	14	7.6	0.60	0.56	0.60	1.80	1.09E 11
640516	6:47	3.0	D	0.15	8	23.0	0.30	14	7.6	0.85	1.04	0.85	2.28	3.17E 11
640516	3:58	2.5	U	0.25	8	20.0	0.30	14	7.7	0.79	0.66	0.79	1.69	2.45E 11
640516	3:27	2.5	D	0.25	8	10.0	0.30	14	0.0	0.49	0.66	0.49	1.69	6.69E 10
640515	2:51	2.5	U	0.25	8	20.0	0.30	14	7.6	0.79	0.66	0.79	1.69	2.45E 11
640513	6:59	5.0	D	0.25	8	20.5	0.35	15	5.0	0.77	0.96	0.77	1.99	2.21E 11
640507	12:58	3.0	D	0.20	8	25.0	0.30	14	7.6	0.89	0.85	0.89	1.95	3.70E 11
640501	4:30	6.5	D	0.25	8	28.5	0.25	14	7.3	1.00	1.07	1.00	2.11	6.05E 11
640429	5:20	4.4	D	0.25	8	31.3	0.30	14	7.5	0.99	0.90	0.99	1.94	5.62E 11
640427	8:19	0.7	D	0.19	8	6.9	0.25	14	8.1	0.39	0.24	0.39	1.37	4.28E 10
640426	4:56	0.3	D	0.25	8	8.2	0.25	14	7.8	0.46	-0.26	0.46	0.77	5.92E 10
640424	9: 6	0.9	D	0.16	7	3.5	0.19	14	8.0	0.23	0.45	0.23	1.67	2.15E 10
640408	9:38	4.6	D	0.17	7	17.0	0.35	14	7.4	0.69	1.11	0.69	2.30	1.56E 11
640408	9:36	7.1	D	0.25	7	21.8	0.35	14	7.4	0.79	1.11	0.79	2.14	2.48E 11
640406	7:31	1.3	D	0.26	7	7.5	0.30	14	7.6	0.37	0.36	0.37	1.38	3.90E 10
640406	7:30	0.0		0.00	0	6.3	0.37	14	7.2	0.25	0.00	0.25	1.10	2.40E 10
640406	7:29	0.0		0.00	0	6.3	0.32	14	7.4	0.27	0.00	0.27	1.15	2.57E 10
640406	7:27	0.8	D	0.20	0	6.8	0.24	14	7.6	0.40	0.27	0.40	1.37	4.55E 10
640406	5:51	0.0		0.00	0	6.3	0.26	14	6.2	0.33	0.00	0.33	1.29	3.42E 10
640405	7:13	4.8	D	0.25	8	26.0	0.30	14	7.5	0.91	0.94	0.91	1.97	3.98E 11
640405	5:29	1.7	D	0.20	8	6.0	0.25	15	7.5	0.33	0.60	0.33	1.70	3.29E 10
640405	5: 6	4.2	D	0.25	8	36.2	0.30	14	7.6	1.05	0.88	1.05	1.92	7.35E 11
640405	8:57	4.5	D	0.25	8	14.2	0.30	14	6.2	0.64	0.91	0.64	1.95	1.29E 11
640405	15:49	3.2	D	0.25	8	31.4	0.30	14	7.4	0.99	0.76	0.99	1.90	5.65E 11
640405	18:14	2.0	D	0.20	8	9.5	0.25	14	7.1	0.53	0.67	0.53	1.77	7.81E 10
640329	11: 7	0.3	D	0.10	7	8.0	0.35	14	5.4	0.36	0.41	0.36	1.78	3.80E 10
640329	15:54	9.0	D	0.15	7	38.5	0.35	14	7.5	1.04	1.52	1.04	2.76	7.13E 11
640329	16:37	2.0	U	0.20	7	36.5	0.35	15	7.1	1.02	0.67	1.02	1.77	6.46E 11
640318	7:59	2.0	D	0.15	7	16.0	0.30	14	7.5	0.69	0.86	0.69	2.10	1.61E 11
640327	8:19	0.7	D	0.20	8	6.9	0.25	14	8.1	0.39	0.21	0.39	1.32	4.28E 10
640309	1: 0	0.5	D	0.15	8	13.5	0.25	14	7.4	0.68	0.26	0.68	1.50	1.51E 11
640309	1:32	1.5	D	0.20	7	21.0	0.30	14	7.6	0.81	0.54	0.81	1.65	2.68E 11
640307	1:36	2.0	D	0.25	8	18.0	0.30	14	7.6	0.75	0.56	0.75	1.59	2.01E 11
640301	21:55	4.5	D	0.25	8	52.0	0.30	14	7.6	1.21	0.91	1.21	1.95	1.44E 12
640301	19: 4	1.5	U	0.25	8	16.5	0.30	14	7.5	0.71	0.43	0.71	1.47	1.71E 11
640301	19: 2	4.0	U	0.30	7	19.0	0.30	14	6.2	0.77	0.80	0.77	1.77	2.22E 11
640301	18:31	5.0	U	0.25	8	23.0	0.30	14	7.6	0.85	0.96	0.85	1.99	3.17E 11
640301	18:27	5.5	U	0.30	8	62.0	0.30	14	7.7	1.28	0.94	1.28	1.91	1.98E 12
640301	18:11	4.0	D	0.20	9	23.0	0.30	15	5.6	0.85	0.97	0.85	2.07	3.17E 11
640301	18: 7	3.0	U	0.25	8	33.0	0.30	14	7.4	1.01	0.74	1.01	1.77	6.20E 11
640301	17:34	1.0	D	0.15	7	10.0	0.30	14	7.1	0.49	0.56	0.49	1.80	5.69E 10
640301	17: 3	4.0	U	0.25	8	12.5	0.30	14	7.6	0.59	0.86	0.59	1.89	1.02E 11

DATE	TIME	P-WAVE				S-WAVE			S-P	MAGNITUDE				ENERGY
YR MO DA	HR MIN	AMP MM	MOT U D	PER SEC	TR	AMP MM	PER SEC	TR	SEC	SMAG	PMAG	MAG	UMAG	ERGS
640301	15:40	2.0	D	0.20	8	16.0	0.30	14	7.7	0.69	0.67	0.69	1.77	1.61E 11
640301	15:19	1.7	U	0.20	7	10.0	0.30	14	7.6	0.49	0.21	0.49	1.32	6.69E 10
640301	13:41	3.0	U	0.30	7	12.0	0.30	14	7.7	0.57	0.68	0.57	1.64	9.42E 10
640214	5: 5	3.0	U	0.25	8	19.5	0.30	14	7.6	0.78	0.74	0.78	1.77	2.33E 11
640214	4:14	4.5	U	0.20	8	53.0	0.30	14	7.4	1.21	1.02	1.21	2.12	1.49E 12
640202	5:41	4.0	U	0.25	8	29.5	0.30	14	7.8	0.96	0.86	0.96	1.89	5.03E 11
640202	5:28	3.0	D	0.25	8	10.0	0.30	14	7.7	0.49	0.74	0.49	1.77	6.69E 10
640202	4: 3	4.0	D	0.30	8	42.0	0.30	14	7.1	1.11	0.80	1.11	1.77	9.68E 11
640201	0:35	1.6	D	0.20	8	8.7	0.30	14	7.7	0.43	0.57	0.43	1.67	5.15E 10
640131	8:21	1.3	D	0.20	8	15.7	0.30	14	7.6	0.69	0.48	0.69	1.58	1.56E 11
640116	19:51	3.5	D	0.20	7	26.0	0.30	14	7.5	0.91	0.91	0.91	2.01	3.98E 11
640107	7:19	1.0	D	0.15	9	25.0	0.30	14	7.2	0.89	0.56	0.89	1.30	3.70E 11
640105	7:51	3.5	U	0.20	7	42.0	0.30	14	7.3	1.11	0.91	1.11	2.01	9.68E 11
640102	9:16	2.0	D	0.19	7	22.0	0.35	14	7.6	0.80	0.70	0.80	1.82	2.53E 11
631229	23:53	2.5	U	0.20	7	11.0	0.30	14	7.8	0.53	0.77	0.53	1.87	8.00E 10
631226	3:22	4.0	U	0.31	8	45.0	0.30	15	7.4	1.14	0.79	1.14	1.75	1.10E 12
631225	1:55	2.5	U	0.26	9	15.5	0.32	14	6.4	0.66	0.64	0.66	1.66	1.40E 11
631225	2:35	1.0	U	0.20	9	15.0	0.35	14	7.4	0.63	0.37	0.63	1.47	1.24E 11
631223	5:21	4.0	D	0.20	8	77.0	0.30	14	7.3	1.38	0.97	1.38	2.07	2.95E 12
631214	6:49	3.5	U	0.20	8	12.0	0.22	14	7.4	0.69	0.91	0.69	2.01	1.59E 11
631209	7:54	2.5	D	0.15	7	15.5	0.27	14	7.4	0.71	0.96	0.71	2.20	1.75E 11
631204	12:16	2.0	D	0.17	7	16.0	0.27	14	7.4	0.73	0.75	0.73	1.94	1.86E 11
631125	19:51	0.5	D	0.20	7	12.0	0.30	14	7.5	0.57	0.07	0.57	1.17	9.42E 10
631125	16:10	2.0	D	0.20	7	19.0	0.30	14	7.5	0.77	0.67	0.77	1.77	2.22E 11
631123	19:50	11.0	D	0.20	8	0.0	0.00	0	9.0	0.00	1.41	1.41	2.51	3.49E 12
631123	9:38	2.0	U	0.25	8	15.0	0.35	14	7.2	0.63	0.56	0.63	1.59	1.24E 11
631124	2:33	1.0	D	0.20	7	11.0	0.31	14	7.5	0.52	0.37	0.52	1.47	7.66E 10
631124	19:30	1.0	D	0.16	7	16.0	0.28	14	7.6	0.72	0.50	0.72	1.72	1.77E 11
631125	14:17	0.0	D	0.00	0	7.0	0.30	14	7.4	0.34	0.00	0.34	1.24	3.42E 10
631119	5:28	2.3	D	0.23	8	7.5	0.35	14	7.6	0.33	0.66	0.33	1.72	3.36E 10
631117	18:49	1.5	U	0.22	8	11.0	0.28	14	7.4	0.55	0.50	0.55	1.57	8.78E 10
631103	13:50	1.0	U	0.20	7	14.0	0.30	14	7.6	0.64	0.37	0.64	1.47	1.26E 11
631103	5:42	1.5	U	0.25	9	0.0	0.30	14	7.6	0.00	0.43	0.43	1.47	5.26E 10
631103	5:40	1.0	U	0.22	8	15.0	0.30	14	7.6	0.67	0.32	0.67	1.39	1.43E 11
631103	5:34	0.0		0.00	0	16.0	0.30	14	0.0	0.69	0.00	0.69	1.60	1.61E 11
631103	5:30	1.5	U	0.27	8	25.0	0.30	14	7.7	0.89	0.41	0.89	1.41	3.70E 11
631103	2:54	0.0		0.00	0	21.0	0.28	14	0.0	0.83	0.00	0.83	1.76	2.94E 11
631103	2:32	0.5	D	0.20	7	16.5	0.30	14	7.7	0.71	0.07	0.71	1.17	1.71E 11
631103	2:27	0.7	D	0.25	8	19.5	0.30	14	7.6	0.78	0.10	0.78	1.14	2.33E 11
631103	2: 2	1.5	U	0.32	7	24.5	0.30	14	7.6	0.88	0.36	0.88	1.30	3.57E 11
631103	1:52	8.0	U	0.27	9	0.0	0.00	0	0.0	0.00	1.14	1.14	2.14	1.07E 12
631105	12: 6	2.5	U	0.28	8	51.0	0.30	14	7.3	1.20	0.62	1.20	1.61	1.38E 12
631105	11:37	2.2	U	0.20	8	31.5	0.30	14	7.6	0.99	0.71	0.99	1.81	5.68E 11
631105	2:29	1.0	U	0.20	8	28.5	0.28	14	7.8	0.97	0.37	0.97	1.47	5.18E 11
631111	0:43	4.5	U	0.33	8	76.5	0.30	14	7.6	1.37	0.82	1.37	1.76	2.92E 12
631111	1:41	0.5	U	0.20	8	19.5	0.27	14	7.5	0.81	0.07	0.81	1.17	2.69E 11
631114	21: 3	5.0	U	0.23	8	0.0	0.00	14	7.3	0.00	1.00	1.00	2.05	5.94E 11
630929	19: 9	2.0	D	0.19	8	14.0	0.28	14	7.4	0.66	0.70	0.66	1.82	1.38E 11
630929	14:52	1.0	D	0.20	7	39.0	0.32	14	7.8	1.06	0.37	1.06	1.47	7.76E 11
630929	11:48	1.0	U	0.23	9	12.0	0.32	14	7.6	0.55	0.39	0.55	1.36	8.65E 10

DATE YR MO DA	TIME HR MN	P-WAVE AMP MM	P-WAVE MOT U D	P-WAVE PER SEC	P-WAVE TP	S-WAVE AMP MM	S-WAVE PER SEC	S-WAVE TS	S-P SEC	MAGNITUDE SMAG	MAGNITUDE PMAG	MAGNITUDE MAG	MAGNITUDE LMAG	ENERGY ERGS
630925	15:21	2.0	D	0.15	7	23.0	0.30	14	7.4	0.85	0.86	0.85	2.10	3.17E 11
630924	16:37	2.0	D	0.22	7	50.0	0.28	14	7.8	1.21	0.62	1.21	1.69	1.46E 12
630908	22:39	2.5	D	0.29	7	15.0	0.34	14	7.5	0.63	0.61	0.63	1.59	1.24E 11
630902	17:32	0.5	U	0.18	7	26.5	0.30	14	7.7	0.91	0.12	0.91	1.28	4.13E 11
630901	0:38	3.0	D	0.18	7	33.0	0.24	14	7.6	1.09	0.90	1.09	2.05	8.66E 11
630901	4: 0	0.0		0.00	0	19.0	0.30	14	7.4	0.77	0.00	0.77	1.67	2.22E 11
630831	21:55	2.5	D	0.17	7	50.0	0.32	14	7.4	1.17	0.85	1.17	2.04	1.23E 12
630826	6:51	1.5	D	0.25	9	20.0	0.28	14	7.6	0.81	0.43	0.81	1.47	2.68E 11
630821	1:37	1.5	D	0.25	8	28.0	0.27	14	7.3	0.97	0.43	0.97	1.47	5.26E 11
630730	10:12	0.0		0.00	0	12.5	0.30	14	0.0	0.59	0.00	0.59	1.49	1.02E 11
630729	15: 1	1.0	D	0.25	7	23.0	0.28	14	7.3	0.87	0.26	0.87	1.29	3.48E 11
630722	17:39	4.0	D	0.25	8	0.0	0.00	14	7.6	0.00	0.86	0.86	1.89	3.29E 11
630722	13:28	2.0	D	0.25	8	11.5	0.32	15	7.4	0.53	0.56	0.53	1.59	7.98E 10
630722	11:29	1.0	D	0.20	7	13.0	0.30	15	7.4	0.60	0.37	0.60	1.47	1.09E 11
630719	13:36	2.5	D	0.25	8	0.0	0.00	14	7.8	0.00	0.66	0.66	1.69	1.37E 11
630718	8: 5	0.5	D	0.20	8	15.0	0.33	14	7.4	0.64	0.07	0.64	1.17	1.26E 11
630717	5:22	1.9	D	0.23	9	23.0	0.30	14	7.5	0.85	0.58	0.85	1.63	3.17E 11
630715	4:14	2.0	D	0.23	8	26.0	0.28	14	7.4	0.93	0.60	0.93	1.66	4.37E 11
630714	23:25	0.0		0.00	0	31.5	0.34	14	0.0	0.96	0.00	0.96	1.82	4.94E 11
630714	8:10	0.5	D	0.25	8	19.5	0.30	14	7.8	0.78	-0.04	0.78	0.99	2.33E 11
630711	1:50	3.7	U	0.25	8	0.0	0.30	14	7.7	0.00	0.83	0.83	1.86	2.84E 11
630710	8: 6	1.5	D	0.22	9	11.0	0.32	14	7.8	0.51	0.50	0.51	1.57	7.35E 10
630710	7:55	0.0		0.00	0	20.0	0.29	14	0.0	0.80	0.00	0.80	1.72	2.56E 11
630709	5: 6	3.0	U	0.30	8	0.0	0.30	14	7.4	0.00	0.68	0.68	1.64	1.50E 11
630708	12:39	0.0		0.00	0	17.5	0.29	14	0.0	0.74	0.00	0.74	1.66	2.00E 11
630705	9:53	0.0		0.00	0	11.5	0.30	14	0.0	0.55	0.00	0.55	1.46	8.70E 10
630705	9: 4	2.5	D	0.28	8	9.0	0.17	14	7.4	0.59	0.62	0.69	1.61	1.60E 11
630705	3:35	0.0		0.00	0	16.0	0.33	14	0.0	0.67	0.00	0.67	1.54	1.42E 11
630704	6:39	0.0		0.00	0	8.0	0.30	14	0.0	0.39	0.00	0.39	1.30	4.40E 10
630704	6:36	0.0	D	0.00	0	9.0	0.32	14	7.9	0.42	0.00	0.42	1.31	5.04E 10
630704	6:34	1.5	D	0.30	8	22.0	0.30	14	7.6	0.83	0.38	0.83	1.34	2.92E 11
630704	3:57	1.5	D	0.30	8	22.5	0.30	14	7.6	0.84	0.38	0.84	1.34	3.04E 11
630704	3:52	1.5	D	0.25	8	15.0	0.30	14	7.5	0.67	0.43	0.67	1.47	1.43E 11
630704	3:45	2.5	U	0.28	8	33.0	0.25	14	7.6	1.07	0.62	1.07	1.61	7.93E 11
630704	3:43	0.0		0.00	0	16.0	0.30	14	0.0	0.69	0.00	0.69	1.60	1.61E 11
630704	3:34	1.0	U	0.25	8	7.5	0.30	14	7.6	0.37	0.26	0.37	1.29	3.90E 10
630704	3:30	1.0	D	0.18	8	10.0	0.30	14	7.6	0.49	0.42	0.49	1.58	6.69E 10
630704	3:23	1.0	D	0.26	9	11.5	0.30	14	7.6	0.55	0.25	0.55	1.26	8.70E 10
630704	2:54	0.0		0.00	0	13.5	0.30	14	0.0	0.62	0.00	0.62	1.53	1.17E 11
630704	2:53	0.0		0.00	0	6.0	0.30	14	0.0	0.27	0.00	0.27	1.17	2.56E 10
630704	2:20	0.0		0.00	0	8.0	0.30	14	0.0	0.39	0.00	0.39	1.30	4.40E 10
630704	1:35	0.0		0.00	0	22.0	0.30	14	0.0	0.83	0.00	0.83	1.74	2.92E 11
630704	8:32	1.5	D	0.30	9	0.0	0.00	14	7.3	0.00	0.38	0.38	1.34	4.09E 10
630704	23:53	3.5	D	0.30	8	45.0	0.30	14	7.4	1.14	0.74	1.14	1.71	1.10E 12

DATE	TIME	P-WAVE				S-WAVE			S-P	MAGNITUDE				ENERGY
YR MO DA	HR MIN	AMP MM	MOT U D	PER SEC	TR	AMP MM	PER SEC	TR	SEC	SMAG	PMAG	MAG	UMAG	ERGS
630703	19:10	1.0		0.00	0	42.8	0.27	14	0.0	1.15	0.00	1.15	2.10	1.15E 12
630703	19:29	6.8	U	0.30	8	77.3	0.30	14	7.3	1.38	1.03	1.38	2.00	2.97E 12
630702	4:48	1.9	D	0.20	9	0.0	0.00	14	7.2	0.00	0.66	0.66	1.76	1.38E 11
630702	5:26	0.0		0.00	0	28.5	0.30	14	0.0	0.95	0.00	0.95	1.85	4.72E 11
630702	5:32	3.8	D	0.30	8	0.0	0.35	14	7.5	0.00	0.77	0.77	1.74	2.27E 11
630702	5:48	2.3	D	0.25	8	0.0	0.30	14	7.4	0.00	0.61	0.61	1.64	1.12E 11
630702	7:25	0.0	D	0.00	8	27.0	0.25	14	7.5	0.98	0.00	0.98	1.95	5.47E 11
630702	10: 3	0.0	D	0.00	8	18.0	0.25	14	7.3	0.80	0.00	0.80	1.78	2.58E 11
630702	10:22	0.0		0.00	0	25.5	0.34	14	7.3	0.86	0.00	0.86	1.73	3.34E 11
630630	12:32	3.0	U	0.28	8	63.0	0.30	14	7.6	1.29	0.70	1.29	1.69	2.04E 12
630629	6:17	0.8	U	0.20	9	45.0	0.29	14	7.6	1.15	0.24	1.15	1.35	1.15E 12
630624	13:48	3.0	U	0.20	8	32.3	0.30	14	7.6	1.00	0.85	1.00	1.95	5.94E 11
630623	10:31	0.8	U	0.25	8	29.3	0.30	14	7.8	0.96	0.13	0.96	1.17	4.96E 11
630622	6:32	3.0	U	0.30	8	54.8	0.30	14	7.5	1.23	0.68	1.23	1.64	1.58E 12
630622	12: 7	3.4	U	0.28	8	36.0	0.29	14	7.7	1.06	0.76	1.06	1.75	7.51E 11
630622	14:14	1.5	U	0.20	7	13.5	0.27	14	7.7	0.65	0.54	0.65	1.65	1.35E 11
630622	20:31	2.3	U	0.19	7	34.5	0.25	14	7.4	1.09	0.75	1.09	1.87	8.61E 11
630620	21:50	3.8	U	0.30	8	26.3	0.30	14	7.7	0.91	0.77	0.91	1.74	4.05E 11
630620	22:17	2.7	U	0.30	8	24.0	0.30	14	7.6	0.87	0.63	0.87	1.60	3.43E 11
630617	23: 6	1.5	D	0.17	7	19.5	0.30	14	7.5	0.78	0.62	0.78	1.82	2.33E 11
630617	12:57	4.2	U	0.21	8	49.5	0.33	14	7.7	1.16	0.97	1.16	2.05	1.16E 12
630611	12:24	3.0	D	0.20	9	19.5	0.25	15	7.7	0.84	0.85	0.84	1.95	2.99E 11
630611	14:50	3.0	D	0.15	7	49.5	0.30	14	7.4	1.18	1.04	1.18	2.28	1.31E 12
630610	16:45	4.5	D	0.20	7	48.0	0.30	14	7.5	1.17	1.02	1.17	2.12	1.24E 12
630608	16:56	2.3	D	0.25	8	19.5	0.35	14	7.5	0.75	0.61	0.75	1.64	2.02E 11
630607	14: 8	9.0	D	0.28	8	0.0	0.00	14	7.4	0.00	1.18	1.18	2.17	1.26E 12
630526	3:47	3.0	D	0.20	8	21.0	0.29	14	7.4	0.82	0.85	0.82	1.95	2.80E 11
630526	21: 8	0.0		0.00	0	15.0	0.45	14	0.0	0.62	0.00	0.62	1.41	1.20E 11
630517	3:25	3.0	D	0.18	7	18.0	0.24	14	7.5	0.82	0.90	0.82	2.05	2.81E 11
630517	11:12	1.5	D	0.20	8	13.5	0.28	14	7.6	0.64	0.54	0.64	1.65	1.29E 11
630503	10:40	3.0	D	0.23	8	79.5	0.30	14	7.4	1.39	0.78	1.39	1.83	3.13E 12
630429	0: 7	4.5	U	0.27	8	72.0	0.32	14	7.7	1.33	0.89	1.33	1.89	2.40E 12
630429	3:57	2.3	U	0.30	8	32.3	0.31	14	7.8	0.99	0.55	0.99	1.52	5.69E 11
630429	3:58	3.0	U	0.30	8	54.0	0.32	14	7.8	1.20	0.68	1.20	1.64	1.41E 12
630429	4: 4	2.3	U	0.14	8	16.5	0.30	14	7.8	0.71	0.98	0.71	2.25	1.71E 11
630429	4: 5	5.3	U	0.30	8	112.5	0.30	14	7.6	1.54	0.92	1.54	1.89	5.91E 12
630429	7:13	0.0		0.00	0	27.0	0.32	14	0.0	0.90	0.00	0.90	1.79	3.92E 11
630429	21:34	6.0	U	0.23	8	48.0	0.30	14	7.8	1.17	1.08	1.17	2.13	1.24E 12
630416	9:24	2.3	U	0.30	8	36.8	0.30	14	7.4	1.06	0.55	1.06	1.52	7.56E 11
630416	9:23	3.0	U	0.28	8	64.5	0.32	14	7.4	1.28	0.70	1.28	1.69	1.96E 12
630404	14:54	7.5	D	0.20	7	120.0	0.28	14	7.3	1.59	1.24	1.59	2.35	7.28E 12
630330	14: 9	1.0	D	0.10	7	17.3	0.32	14	7.7	0.71	0.95	0.71	2.33	1.70E 11
630329	6:43	0.0		0.00	0	14.3	0.32	14	7.5	0.62	0.00	0.62	1.51	1.19E 11
630328	5:55	1.5	D	0.24	7	24.0	0.31	14	7.6	0.86	0.45	0.86	1.50	3.29E 11
630326	2:14	2.3	D	0.15	7	73.5	0.24	14	7.5	1.43	0.91	1.43	2.16	3.78E 12
630321	12:34	1.2	D	0.10	7	15.8	0.30	14	7.7	0.69	1.01	0.69	2.38	1.57E 11
630321	12:37	3.0	D	0.22	8	18.0	0.29	14	7.7	0.76	0.80	0.76	1.87	2.10E 11
630305	23:33	2.3	D	0.15	7	12.8	0.30	14	7.4	0.60	0.91	0.60	2.16	1.06E 11
630305	12:53	1.5	D	0.15	7	30.0	0.25	14	7.4	1.03	0.74	1.03	1.98	6.65E 11
630305	10:53	3.0	D	0.28	7	25.5	0.30	14	7.3	0.90	0.70	0.90	1.69	3.84E 11

DATE	TIME	P-WAVE				S-WAVE			S-P	MAGNITUDE				ENERGY
YR MO DA	HR MIN	AMP MM	MOT U D	PER SEC	TR	AMP MM	PER SEC	TR	SEC	SMAG	PMAG	MAG	UMAG	ERGS
630305	11:23	7.5	D	0.25	7	127.5	0.32	14	7.3	1.58	1.13	1.58	2.17	6.83E 12
630305	12:46	0.0		0.00	0	25.5	0.30	14	0.0	0.90	0.00	0.90	1.80	3.84E 11
630305	12:51	7.5	D	0.25	7	120.0	0.28	14	7.4	1.59	1.13	1.59	2.17	7.28E 12
630301	5:53	0.0		0.00	0	14.3	0.36	14	0.0	0.61	0.00	0.61	1.46	1.12E 11
630301	20:48	2.3	D	0.13	9	26.3	0.30	14	7.4	0.91	1.04	0.91	2.35	4.05E 11
630225	18:13	9.8	D	0.20	9	0.0	0.00	0	8.0	0.00	1.36	1.36	2.46	2.73E 12
630217	16:16	4.5	D	0.17	7	92.3	0.31	14	7.4	1.45	1.10	1.45	2.29	3.94E 12
630206	20:28	1.8	D	0.15	7	27.8	0.33	14	7.4	0.90	0.82	0.90	2.06	3.97E 11
630206	6:27	1.5	D	0.16	7	15.8	0.31	14	7.4	0.68	0.68	0.68	1.89	1.50E 11
630205	5: 4	1.8	D	0.15	8	27.0	0.25	14	7.5	0.98	0.82	0.98	2.06	5.47E 11
630203	12:39	2.7	U	0.17	7	54.0	0.30	14	7.4	1.22	0.88	1.22	2.07	1.54E 12
630203	5:22	0.8	D	0.18	7	65.3	0.32	14	7.6	1.28	0.30	1.28	1.45	2.00E 12
630127	19: 0	10.5	D	0.15	7	34.5	0.30	14	7.5	1.03	1.58	1.03	2.82	6.73E 11
630127	19:57	9.0	D	0.15	7	36.0	0.35	14	7.5	1.01	1.52	1.01	2.76	6.30E 11
630127	20:53	12.0	D	0.15	7	30.0	0.35	14	7.5	0.93	1.64	0.93	2.88	4.49E 11
630114	3:16	1.5	D	0.22	9	45.0	0.30	14	7.2	1.14	0.50	1.14	1.57	1.10E 12

DATE YR MO DA	TIME HR MIN	P-WAVE AMP MM	MOT U D	PER SEC	TR	S-WAVE AMP MM	PER SEC	TR	S-P SEC	MAGNITUDE SMAG	PMAG	MAG	UMAG	ENERGY ERGS
621231	3:34	9.0	U	0.30	8	120.0	0.30	14	7.7	1.57	1.15	1.57	2.12	6.65E 12
621223	5: 9	0.0		0.00	0	32.3	0.30	14	0.0	1.00	0.00	1.00	1.90	5.94E 11
621220	21:12	3.0	D	0.30	8	28.5	0.30	14	7.2	0.95	0.68	0.95	1.64	4.72E 11
621220	7: 2	2.5	D	0.22	8	25.5	0.33	14	7.4	0.87	0.73	0.87	1.80	3.39E 11
621220	5:38	0.8	D	0.25	8	31.5	0.30	14	7.8	0.99	0.13	0.99	1.17	5.68E 11
621220	1: 4	4.5	D	0.27	8	105.0	0.30	14	7.6	1.51	0.89	1.51	1.89	5.21E 12
621220	1: 3	1.9	D	0.22	8	39.0	0.30	14	7.4	1.08	0.61	1.08	1.68	8.44E 11
621216	17: 9	4.2	U	0.27	8	44.3	0.30	14	7.7	1.14	0.86	1.14	1.86	1.07E 12
621216	15:34	4.5	U	0.30	8	72.0	0.30	14	7.7	1.35	0.85	1.35	1.82	2.61E 12
621216	15:19	2.3	U	0.30	8	33.0	0.30	14	7.7	1.01	0.55	1.01	1.52	6.20E 11
621216	15: 3	2.3	D	0.27	8	35.3	0.31	14	7.6	1.03	0.59	1.03	1.59	6.71E 11
621215	23:30	5.3	U	0.22	8	114.0	0.31	14	7.8	1.54	1.04	1.54	2.11	5.80E 12
621215	22:53	4.5	D	0.25	8	76.5	0.30	14	7.2	1.37	0.91	1.37	1.95	2.92E 12
621211	6:36	8.3	D	0.17	7	49.5	0.33	14	7.3	1.16	1.37	1.16	2.56	1.16E 12
621210	6:13	0.0		0.00	0	18.0	0.30	14	0.0	0.75	0.00	0.75	1.65	2.01E 11
621210	20:12	3.8	D	0.20	8	21.8	0.34	14	7.4	0.79	0.94	0.79	2.04	2.48E 11
621209	16:12	3.0	U	0.12	7	13.5	0.28	14	7.4	0.64	1.23	0.64	2.57	1.29E 11
621208	4:28	1.5	D	0.18	7	13.5	0.28	14	7.4	0.64	0.60	0.64	1.75	1.29E 11
621208	19:16	0.0		0.00	0	21.0	0.31	14	0.0	0.80	0.00	0.80	1.70	2.56E 11
621208	11:38	3.0	D	0.20	8	50.3	0.35	14	7.4	1.16	0.85	1.16	1.95	1.17E 12
621206	17:56	6.0	U	0.16	8	28.5	0.20	14	7.5	1.11	1.28	1.11	2.49	9.69E 11
621207	1: 8	2.3	U	0.20	8	55.5	0.30	14	7.6	1.23	0.72	1.23	1.82	1.62E 12
621206	17: 2	3.0	D	0.26	8	36.0	0.30	14	7.4	1.05	0.72	1.05	1.74	7.28E 11
621206	11: 5	3.4	U	0.28	8	24.0	0.30	14	7.6	0.87	0.76	0.87	1.75	3.43E 11
621206	9:32	28.5	U	0.19	0	0.0	0.00	0	0.0	0.00	1.85	1.85	2.98	2.14E 13
621202	6:28	0.8	D	0.17	7	12.0	0.29	14	7.8	0.58	0.32	0.58	1.52	9.86E 10
621201	2:25	1.9	U	0.15	7	16.5	0.31	14	7.6	0.70	0.85	0.70	2.09	1.64E 11
621130	18: 9	24.8	D	0.16	7	0.0	0.00	0	0.0	0.00	1.89	1.89	3.11	2.58E 13
621130	18:25	3.4	D	0.30	8	43.5	0.30	14	7.4	1.13	0.74	1.13	1.70	1.03E 12
621130	22:25	22.5	U	0.30	7	0.0	0.00	0	0.0	0.00	1.55	1.55	2.52	6.19E 12
621130	22:35	5.3	D	0.25	8	0.0	0.00	14	7.4	0.00	0.98	0.98	2.01	5.44E 11
621126	10:44	1.5	D	0.17	7	27.0	0.27	14	7.6	0.95	0.62	0.95	1.82	4.92E 11
621121	10:46	0.0		0.00	0	15.0	0.30	14	8.1	0.67	0.00	0.67	1.57	1.43E 11
621117	22:59	0.0		0.00	0	18.0	0.30	14	0.0	0.75	0.00	0.75	1.65	2.01E 11
621117	22:52	3.0	U	0.15	8	19.5	0.30	14	7.6	0.78	1.04	0.78	2.28	2.33E 11
621117	17:35	1.5	U	0.19	7	26.3	0.28	14	7.5	0.93	0.57	0.93	1.70	4.45E 11
621117	13:32	1.5	D	0.15	7	18.0	0.33	14	7.7	0.72	0.74	0.72	1.98	1.77E 11
621117	6:47	0.0		0.00	0	16.5	0.30	14	7.7	0.71	0.00	0.71	1.61	1.71E 11
621116	13:37	0.0		0.00	0	16.5	0.30	14	0.0	0.71	0.00	0.71	1.61	1.71E 11
621116	11:48	2.7	U	0.28	8	34.5	0.30	14	7.6	1.03	0.65	1.03	1.64	6.73E 11
621116	11:41	1.9	U	0.27	8	31.5	0.30	14	7.7	0.99	0.52	0.99	1.53	5.68E 11
621116	11:37	12.0	U	0.26	8	0.0	0.00	0	0.0	0.00	1.32	1.32	2.34	2.37E 12
621116	11:36	21.0	D	0.23	8	0.0	0.00	0	0.0	0.00	1.62	1.62	2.68	8.30E 12
621116	11:32	10.5	D	0.24	8	0.0	0.00	0	0.0	0.00	1.30	1.30	2.34	2.13E 12
621116	11:30	3.0	D	0.27	8	51.0	0.30	14	7.4	1.20	0.71	1.20	1.71	1.38E 12
621116	10:23	3.0	D	0.27	8	18.0	0.30	14	7.6	0.75	0.71	0.75	1.71	2.01E 11
621116	10:20	0.0		0.00	0	16.5	0.33	14	0.0	0.68	0.00	0.68	1.55	1.51E 11
621116	10: 7	0.9	D	0.21	7	0.0	0.00	0	0.0	0.00	0.30	0.30	1.38	2.93E 10
621116	10: 7	1.0	D	0.20	8	27.8	0.30	14	7.4	0.93	0.39	0.93	1.49	4.49E 11
621116	9:52	3.3	U	0.25	8	61.5	0.30	14	7.6	1.28	0.78	1.28	1.81	1.95E 12

DATE YR MO DA	TIME HR MIN	P-WAVE AMP MM	P-WAVE MOT U D	P-WAVE PER SEC	P-WAVE TR	S-WAVE AMP MM	S-WAVE PER SEC	S-WAVE TR	S-P SEC	MAGNITUDE SMAG	MAGNITUDE PMAG	MAGNITUDE MAG	MAGNITUDE UMAG	ENERGY ERGS
621116	11:35	0.0	D	0.00	0	34.5	0.30	14	7.6	1.03	0.00	1.03	1.93	6.73E 11
621116	9:45	5.3	D	0.22	8	0.0	0.00	14	7.6	0.00	1.04	1.04	2.11	7.15E 11
621116	6:13	1.5	D	0.26	8	29.3	0.30	14	7.4	0.96	0.42	0.96	1.44	4.96E 11
621116	4:21	3.4	U	0.23	8	34.5	0.30	14	7.6	1.03	0.84	1.03	1.89	6.73E 11
621116	4: 0	0.8	U	0.30	8	15.8	0.30	14	7.3	0.69	0.08	0.69	1.04	1.57E 11
621116	3:35	0.8	D	0.20	9	27.0	0.30	14	7.2	0.92	0.24	0.92	1.35	4.27E 11
621115	14:43	8.3	U	0.28	8	0.0	0.00	0	7.6	0.00	1.14	1.14	2.13	1.08E 12
621115	8:19	5.3	U	0.28	8	40.5	0.30	14	7.8	1.10	0.94	1.10	1.93	9.05E 11
621115	1: 9	8.3	U	0.29	8	109.5	0.33	14	7.8	1.50	1.13	1.50	2.11	4.98E 12
621115	0:56	1.8	U	0.20	8	31.5	0.30	14	7.7	0.99	0.62	0.99	1.73	5.68E 11
621115	0:42	0.0		0.00	0	26.3	0.28	14	0.0	0.93	0.00	0.93	1.86	4.45E 11
621114	14: 7	2.3	D	0.20	8	57.8	0.30	14	7.6	1.25	0.72	1.25	1.82	1.74E 12
621114	11:43	0.0		0.00	0	14.3	0.30	14	0.0	0.64	0.00	0.64	1.55	1.30E 11
621114	10:53	3.8	U	0.24	8	66.8	0.32	14	7.4	1.29	0.85	1.29	1.90	2.09E 12

DATE YR MO DA	TIME HR MIN	P-WAVE AMP MM	MOT U D	PER SEC	TR	S-WAVE AMP MM	PER SEC	TR	S-P SEC	MAGNITUDE SMAG	PMAG	MAG	UMAG	ENERGY ERGS
621113	23:56	0.0		0.00	0	22.0	0.30	14	0.0	0.83	0.00	0.83	1.74	2.92E 11
621113	20:25	0.0		0.00	0	16.0	0.31	14	0.0	0.68	0.00	0.68	1.58	1.54E 11
621113	18:24	0.0		0.00	0	26.0	0.32	14	0.0	0.89	0.00	0.89	1.77	3.66E 11
621113	3:33	0.0		0.00	0	38.0	0.30	14	0.0	1.07	0.00	1.07	1.98	8.04E 11
621113	19: 1	0.0		0.00	0	42.0	0.30	14	0.0	1.11	0.00	1.11	2.02	9.68E 11
621113	17:31	12.0	D	0.24	8	0.0	0.00	0	7.4	0.00	1.36	1.36	2.40	2.73E 12
621113	15:57	5.0	D	0.30	8	111.0	0.33	14	7.5	1.51	0.90	1.51	1.87	5.10E 12
621112	20: 9	0.0		0.00	0	20.0	0.30	14	0.0	0.79	0.00	0.79	1.70	2.45E 11
621111	20:52	2.0	D	0.25	8	26.0	0.32	14	7.6	0.89	0.56	0.89	1.59	3.66E 11
621111	7: 2	4.0	D	0.25	8	0.0	0.30	14	7.6	0.00	0.86	0.86	1.89	3.29E 11
621111	6:43	4.0	D	0.30	8	66.0	0.31	14	7.6	1.30	0.80	1.30	1.77	2.13E 12
621111	6: 0	0.0		0.00	0	10.0	0.31	14	0.0	0.48	0.00	0.48	1.37	6.41E 10
621111	5:57	4.0		0.27	8	54.0	0.30	14	7.5	1.22	0.84	1.22	1.84	1.54E 12
621110	5:24	0.0		0.00	0	14.0	0.32	14	0.0	0.62	0.00	0.62	1.50	1.15E 11
621110	4:57	2.0	D	0.14	7	26.0	0.30	14	7.5	0.91	0.92	0.91	2.20	3.98E 11
621110	4:21	4.0	D	0.20	7	46.0	0.33	14	7.5	1.12	0.97	1.12	2.07	1.01E 12
621110	1: 7	0.0		0.00	0	20.0	0.30	14	0.0	0.79	0.00	0.79	1.70	2.45E 11
621110	0:34	2.0	D	0.23	8	28.0	0.30	14	7.5	0.94	0.60	0.94	1.66	4.57E 11
621109	19:43	4.0	D	0.30	8	63.0	0.31	14	7.6	1.28	0.80	1.28	1.77	1.96E 12
621109	2:29	4.0	D	0.25	8	26.0	0.33	14	7.6	0.88	0.86	0.88	1.89	3.52E 11
621109	2:24	0.0		0.00	0	13.0	0.30	14	0.0	0.60	0.00	0.60	1.51	1.09E 11
621109	1:42	0.0		0.00	0	12.0	0.31	14	0.0	0.56	0.00	0.56	1.45	9.02E 10
621108	19:28	0.0		0.00	0	14.0	0.30	14	0.0	0.64	0.00	0.64	1.54	1.26E 11
621108	19:15	0.0		0.00	0	15.0	0.30	14	0.0	0.67	0.00	0.67	1.57	1.43E 11
621108	18: 1	0.0		0.00	0	22.0	0.30	14	0.0	0.83	0.00	0.83	1.74	2.92E 11
621108	17:55	0.0		0.00	0	24.0	0.30	14	0.0	0.87	0.00	0.87	1.78	3.43E 11
621108	15:27	1.0	D	0.15	7	27.0	0.30	14	7.6	0.92	0.56	0.92	1.80	4.27E 11
621108	14:27	4.0	D	0.27	8	44.0	0.32	14	7.6	1.11	0.84	1.11	1.84	9.69E 11
621108	14:13	3.6	D	0.23	7	20.0	0.32	14	6.4	0.77	0.86	0.77	1.91	2.25E 11
621108	10: 5	0.0		0.00	0	10.0	0.34	14	0.0	0.46	0.00	0.46	1.32	5.81E 10
621108	6:59	3.0	D	0.20	7	10.0	0.32	14	7.6	0.47	0.85	0.47	1.95	6.14E 10
621108	12:46	0.0		0.00	0	21.0	0.32	14	0.0	0.79	0.00	0.79	1.68	2.46E 11
621107	12:46	0.0		0.00	0	15.0	0.30	14	0.0	0.67	0.00	0.67	1.57	1.43E 11
621107	12:28	5.0	D	0.18	7	64.0	0.30	14	7.7	1.30	1.12	1.30	2.28	2.10E 12
621107	10: 0	2.0	D	0.17	7	24.0	0.32	14	7.6	0.85	0.75	0.85	1.94	3.15E 11
621107	9:58	2.0	D	0.22	8	16.0	0.30	14	7.6	0.69	0.62	0.69	1.69	1.61E 11
621107	9:55	3.0	D	0.15	7	26.0	0.30	14	7.6	0.91	1.04	0.91	2.28	3.98E 11
621107	9:49	3.0		0.15	7	27.0	0.30	14	7.6	0.92	1.04	0.92	2.28	4.27E 11
621107	9:33	4.0	D	0.22	8	26.0	0.30	14	6.5	0.91	0.92	0.91	1.99	3.98E 11
621107	6:39	0.0		0.00	0	12.0	0.30	14	0.0	0.57	0.00	0.57	1.48	9.42E 10
621107	6:39	0.0		0.00	0	10.0	0.30	14	0.0	0.49	0.00	0.49	1.40	6.69E 10
621107	5:16	0.0		0.00	0	8.0	0.25	14	0.0	0.45	0.00	0.45	1.43	5.66E 10
621107	4:49	2.0	D	0.17	8	20.0	0.31	14	7.6	0.78	0.75	0.78	1.94	2.34E 11
621105	6:14	0.0		0.00	0	8.0	0.30	14	0.0	0.39	0.00	0.39	1.30	4.40E 10
621105	3:15	0.0		0.00	0	10.0	0.30	14	0.0	0.49	0.00	0.49	1.40	6.69E 10
621103	22:21	0.0		0.00	0	18.0	0.31	14	0.0	0.74	0.00	0.74	1.63	1.92E 11
621103	16:37	1.0	D	0.15	7	12.0	0.29	14	7.6	0.58	0.56	0.58	1.80	9.86E 10

This page intentionally left blank