

# Bulletin of the Seismographic Stations

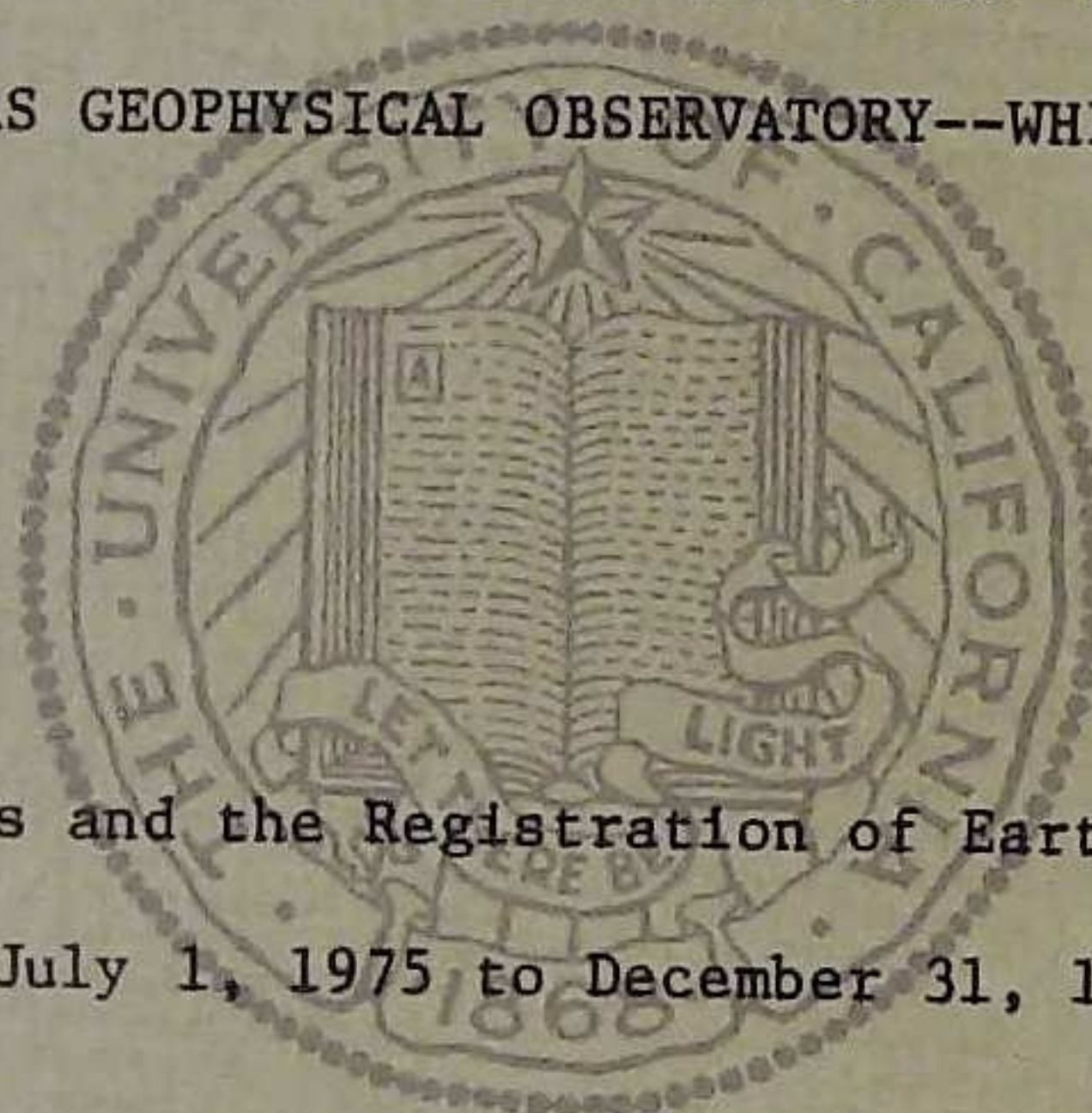
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ARCATA--BERKELEY--FICKLE HILL--FRIANT--GRANITE  
CREEK--JAMESTOWN--LLANADA--MINA--MINERAL--MOUNT HAMILTON  
OROVILLE--PARAISO--PILARCITOS CREEK--PRIEST  
SAN ANDREAS GEOPHYSICAL OBSERVATORY--WHISKEYTOWN



Earthquakes and the Registration of Earthquakes  
From July 1, 1975 to December 31, 1975

This book was donated to the ISC  
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British Geological Survey (BGS)

by

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University of California  
Berkeley

1977

BULLETIN OF THE SEISMOGRAPHIC STATIONS  
of the University of California

Volume 45, Number 2

July 1, 1975 to December 31, 1975

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INTRODUCTION

Each issue of the Bulletin includes determination of epicenters, origin times, magnitudes, and other information available at the time of writing, for earthquakes in Northern California and adjoining areas. Recorded arrival times of seismic waves are tabulated for the above earthquakes and for teleseisms.

Information items regarding the seismographic stations which comprise the Berkeley network are repeated in each issue.

## PERSONNEL ( June 1977 )



Director	Bruce A. Bolt
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## HISTORY OF THE UNIVERSITY OF CALIFORNIA STATIONS

"The Seismographic Stations at Mount Hamilton and Berkeley present several items of interest in the history of earthquake science, one of which is that according to the available records they were the first seismographic stations set up in America. Furthermore, they have functioned continuously from their founding to the present day, with improvements in instrumental equipment from time to time as the development of the science and opportunity have permitted.

Several outstanding figures in the seismology of the 1880's were impressed with the importance of these stations, and Ewing, Milne, and Gray each took a personal interest in aiding one or both stations to obtain their own best and most modern types of instruments."

The quotation is from "History of the University of California Seismographic Stations and Related Activities" by Professor George D. Louderback, published in the Bulletin of the Seismological Society of America, Vol. 32, No. 3, pp. 205-229, 1942. In this paper may be found a detailed account of the development of the Berkeley stations from the installation of the instruments (the first earthquake known recorded at Mount Hamilton was on April 24, 1887) to 1942.

Since 1942, the number of seismographic stations associated with the University of California has increased from six to eighteen in 1975. In 1950, Professor Perry Byerly was appointed Director by the Regents; he had been in charge of instruction and research since 1925. Professor Bruce A. Bolt was appointed Director in 1963. Since 1960, the stations have entered into research and service contracts with the Air Force Office of Scientific Research, the National Science Foundation, the California Department of Water Resources and the California State Division of Mines and Geology. A telemetry network of fourteen stations in Central California, recording on film and selected stations on magnetic tape, is now operated together with seismographs with broad-band frequency response at Berkeley, Jamestown, and Whiskeytown. Copies of records from instruments at the Berkeley laboratory are available, together with response characteristics, on request to the Director.

## THE BYERLY SEISMOGRAPHIC STATION (BKS)

Equipment of a WWSS station began operating in a newly constructed tunnel east of the main campus on June 8, 1962. The closest buildings, part of the Lawrence Berkeley Laboratory, are about 0.8 km away. The tunnel was cut into the upper part of the Claremont Formation. Of Miocene age, this formation consists of thin layers of cherty material alternating with shale.

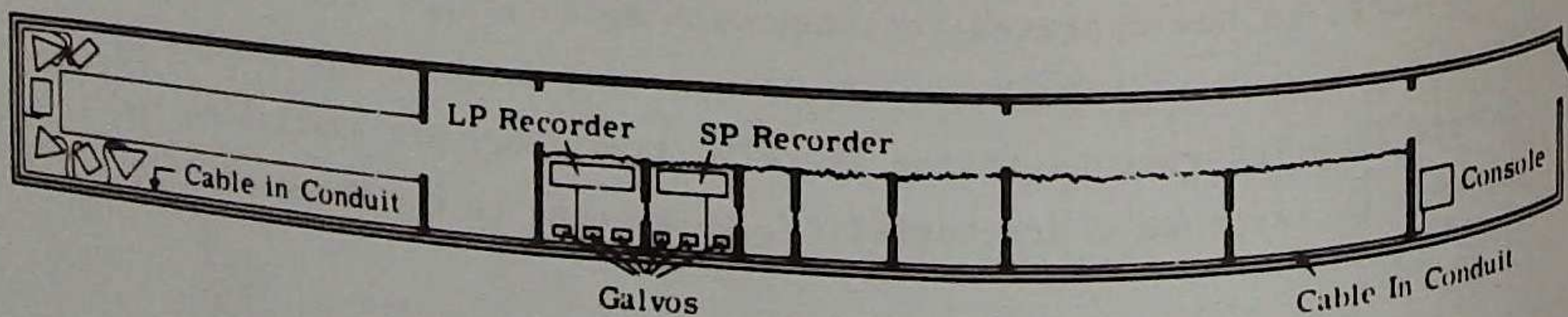
A plan of the tunnel is shown in the diagram below. Piers are constructed of reinforced concrete with no isolation from floor and walls. The temperature is stable. A ventilating and dehumidifying system is connected to all rooms.

The short-period world-wide standard instruments are operated with an approximate magnification of 25,000 at 1 sec and the long-period standard instruments with a peak magnification of 3,000 at about 15 sec.

On March 20, 1964, the Regents of the University of California named this station the "Byerly Seismographic Station" in recognition of the work of Professor Perry Byerly.

### Geology

The portal of the adit is in an old quarry which exposes near-vertical, intensely contorted, thinly-bedded, brittle chert, and softer interbedded shale of the Miocene Claremont Formation. Individual beds are one to a few inches thick; the chert beds are intensely fractured and intricately criss-crossed by fine patterns of jointing. Near-surface beds are warped by downhill creep; soil is very thin. The area is crossed by numbers of minor faults, and is about one mile from the active trace of the Hayward fault.



STATIONS IN OPERATION: July 1, 1975 to December 31, 1975

Station (From N to S)	North Latitude	West Longitude	Elev. Meters	Foundation Material	Symbol	Present Auspices and Date Established
A Arcata	40° 52!6	124° 04!5	60	Sandstone (loose)	ARC	Humboldt State Univ. 1948
F Fickle Hill	40° 48!1	123° 59!1	610	Siltstone over graywacke	FHC	Humboldt State Univ. Sept. 4, 1968
W Whiskeytown	40° 34!8	122° 32!4	300	Geo-Devonian meta- volcanic	WDC	National Park Service March 8, 1973
M Mineral	40° 20!7	121° 36!3	1495	Volcanic	MIN	National Park Service 1938
O Oroville	39° 33!3	121° 30!0	360	Basalt	ORV	Dept. of Water Resources 1963
M Mina (Nevada)	38° 26!0	118° 09!2	1524	Limestone	MNV	Lawrence Livermore Lab. 1969
J Jamestown	37° 56!8	120° 26!3	457	Metamorphic (serpentine)	JAS	Dept. of Water Resources 1964
B Berkeley (Byerly)	37° 52!6	122° 14!1	276	Claremont shales & cherts	BKS	University of Calif. 1962
B Berkeley	37° 52!4	122° 15!6	81	Franciscan sandstone	BRK	University of Calif. 1887
P Pilarcitos Creek	37° 30!0	122° 22!9	91	Grano- diorite (weathered)	PCC	Sare Ranch, 1965
M Mt. Hamilton	37° 20!5	121° 38!5	1282	Franciscan formation (greenstone)	MHC	Lick Observatory 1887
G Granite Creek	37° 01!8	121° 59!8	122	Granite	GCC	Richard E. Randolph Santa Cruz, 1965
F Friant	36° 59!5	119° 42!5	119	Alluvium overlying granite	FRI	Bureau of Reclamation March 9, 1971
S San Andreas Geophysical Observatory	36° 45!9	121° 26!7	350	Granite	SAO	University of Calif. 1966
L Llanada	36° 37!0	120° 56!6	475	Alluvium overlying sandstone	LLA	Charles McCullough Ranch 1961
P Paraiso	36° 19!9	121° 22!2	363	Grano- diorite	PRS	Paraiso Hot Springs 1961
P Priest	36° 08!5	120° 39!9	1187	Greenstone basic metamorphic	PRI	Federal Aviation Agency 1961

## STATION INSTRUMENTATION

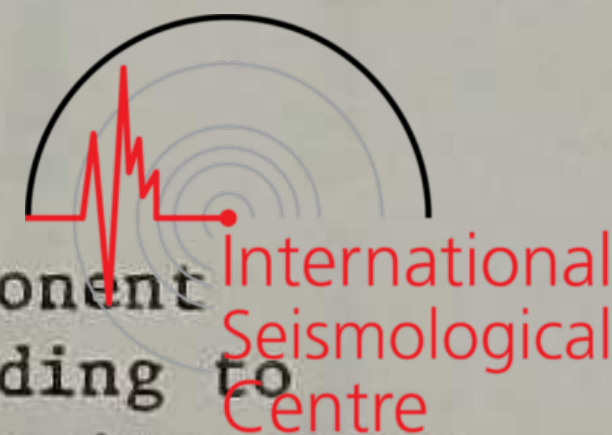
July 1, 1975 to December 31, 1975

Station	Type of Instrument	T <sub>o</sub> sec	T <sub>g</sub> sec	Component	Mag. at T <sub>o</sub>
ARC	Wood-Anderson torsion	0.8	-	S, W	2,000
BKS	Benioff 100 kg	1.0	0.75	N, E, Z	25,000
	Sprengnether	15	100	N, E, Z	3,000
	Wood-Anderson torsion	0.8	-	S, W	2,000
	Sprengnether ULP	100	300 Filter	N45°W, N45°E, Z	500
BRK	#Benioff 100 kg	1.0	0.2	Z	25,000
	Benioff 100 kg	1.0	8.0	Z	Variable
	100X torsion	0.8	-	N, E	100 max
	4X torsion	0.8	-	N, E	4 max
	Press-Ewing	15	30	Z	1,000
	*Press-Ewing	30	BB	N45°W, N45°E, Z	-----
FHC	#Benioff 14 kg	1.0	0.2	Z	50,000
FRI	#Benioff 14 kg	1.0	0.33	Z	150,000
			Filter		
GCC	#Benioff 14 kg	1.0	0.2	Z	50,000
JAS	Benioff 100 kg	1.0	0.75	N, E, Z	250,000
	#*Benioff 14 kg	1.0	0.2	Z	600,000
	Sprengnether	40	-	Z	-----
	*BB Velocity				-----
	*Displacement				-----
	*Short Period(Filter)				-----
LLA	#Benioff 14 kg	1.0	0.2	Z	50,000
MHC	#Benioff 14 kg	1.0	0.2	Z	50,000
			Wood-Anderson torsion	0.8	
MIN	Wood-Anderson torsion	0.8	-	S, E	2,000
		#Teledyne S-13	1.0	0.2	Z
			Filter		
MNV	#Broad band instrument filtered to give short-period response			Z	600,000 at 1 sec
ORV	#Benioff 100 kg	1.0	0.2	Z	220,000
PCC	#Benioff 14 kg	1.0	0.2	Z	50,000
PRI	#*Benioff 14 kg	1.0	0.2	Z	50,000
PRS	#Benioff 14 kg	1.0	0.2	Z	50,000
SAO	*Benioff 14 kg	1.0	0.2	Z	-----
	+#Sprengnether 0.70 kg	0.2	0.05	Z	1,500,000
WDC	Sprengnether	40	Filter	Z	-----
	*BB Velocity		-	Z	-----
	*Displacement				-----
	#*Short Period(Filter)				500,000 at 1 sec

# Signals telemetered to Berkeley. Magnifications on 20X viewer.

\* Signals recorded on magnetic tape, Berkeley.

+ Signals recorded on magnetic tape at SAO.



Direction of motion: In the "Component" column, each horizontal component seismograph is designated by the direction of ground motion corresponding to upward trace motion on the seismogram when it is oriented so that time increases from left to right. On all vertical component (Z) instruments, upward trace motion corresponds to upward ground motion.

Relative magnification curves of instruments recording photographically and through the telemeter system are listed on pages 49 and 50. Absolute magnification may be obtained by use of calibration pulses recorded daily from each station.

A network of broadband seismographs is now operated by the University of California at seismographic stations at Berkeley (BKS), Jamestown (JAS), San Andreas Geophysical Observatory (SAO), and Whiskeytown (WDC). The instrumentation at Whiskeytown was installed in January 1973 and at Jamestown in November 1973. The Jamestown and Whiskeytown seismographs are closely matched and consist of a single vertical seismometer, a Sprengnether S-5100, operating with a free period of 40 seconds and a damping ratio of 0.70. Signals from these seismometers are telemetered to Berkeley via FM telemetry components and leased telephone lines where they are recorded on analog magnetic tape recorders. Low- ( $\pm 2\text{mm}$ ) and high- ( $\pm 0.01\text{mm}$ ) gain displacement signals from JAS and WDC and a short period high-gain channel from WDC are recorded along with BKS and SAO strain on the 0.03 ips tape recorder. Velocity signals from JAS (one level) and WDC (two levels) are recorded at Berkeley on the 0.06 ips tape recorder. The seismometers at JAS and WDC are operated in sealed pressure vessels identical to those used with high-gain long-period (HGLP) instruments. At Berkeley, broadband instrumentation has been gradually developed, starting with the installation in June 1964 of Press-Ewing seismometers operating at a free period of 30 seconds. Recently, a 3-component set of special ultra-long period seismometers has been installed in the Byerly Seismographic Vault. The seismometers are Sprengnether S-5100 operated at a free period of 100 seconds and utilize electronic recentering feedback for long term stability and temperature/barometric feedback also for the vertical component. Low- ( $\pm 2.5\text{mm}$ ) and high- ( $\pm 0.025\text{mm}$ ) gain displacement signals from each of the three components are telemetered to the laboratory and recorded on 0.03 ips, 0-10 Hz, magnetic tape. High-gain displacement signals from BRK, JAS, and WDC are high-pass filtered at 500 sec to reduce tidal signals. The Berkeley ultra-long period system also generates photographic paper records equivalent to a 100 second pendulum with a velocity transducer recorded by a 300 second galvanometer.

At SAO, the central vault is instrumented with Sprengnether S-5000 (WSSN-type) 3-component long period (30 sec) seismometers with displacement transducers recording 0-10 Hz on 0.06 ips magnetic tape at SAO with 10 mm full-scale displacement; Sprengnether S-7000 3-component short period (0.44 sec) seismometers recording on SAO magnetic tape (0-20 Hz) at two gain levels separated by a factor of 100; and a single vertical component S-7000 (5 Hz) telemetered to Berkeley and recorded on Develocorders ('William' channel). At the SAO-East vault, two S-5000 horizontal instruments at 15 sec period with displacement transducers are recorded on SAO magnetic tape (0-10 Hz) with 10 mm full-scale sensitivity. The south vault, a tunnel 300 m SW of the San Andreas fault zone, houses a quartz-tube strainmeter 19 m long, operating with full-scale sensitivity of  $2 \times 10^{-7}$  and recorded on 0.03 ips FM tape (0-10 Hz) at Berkeley.

Response curves for these broadband instruments are shown on pages 51 and 53.



## UNIVERSITY OF CALIFORNIA ACCELEROGRAPH STATIONS

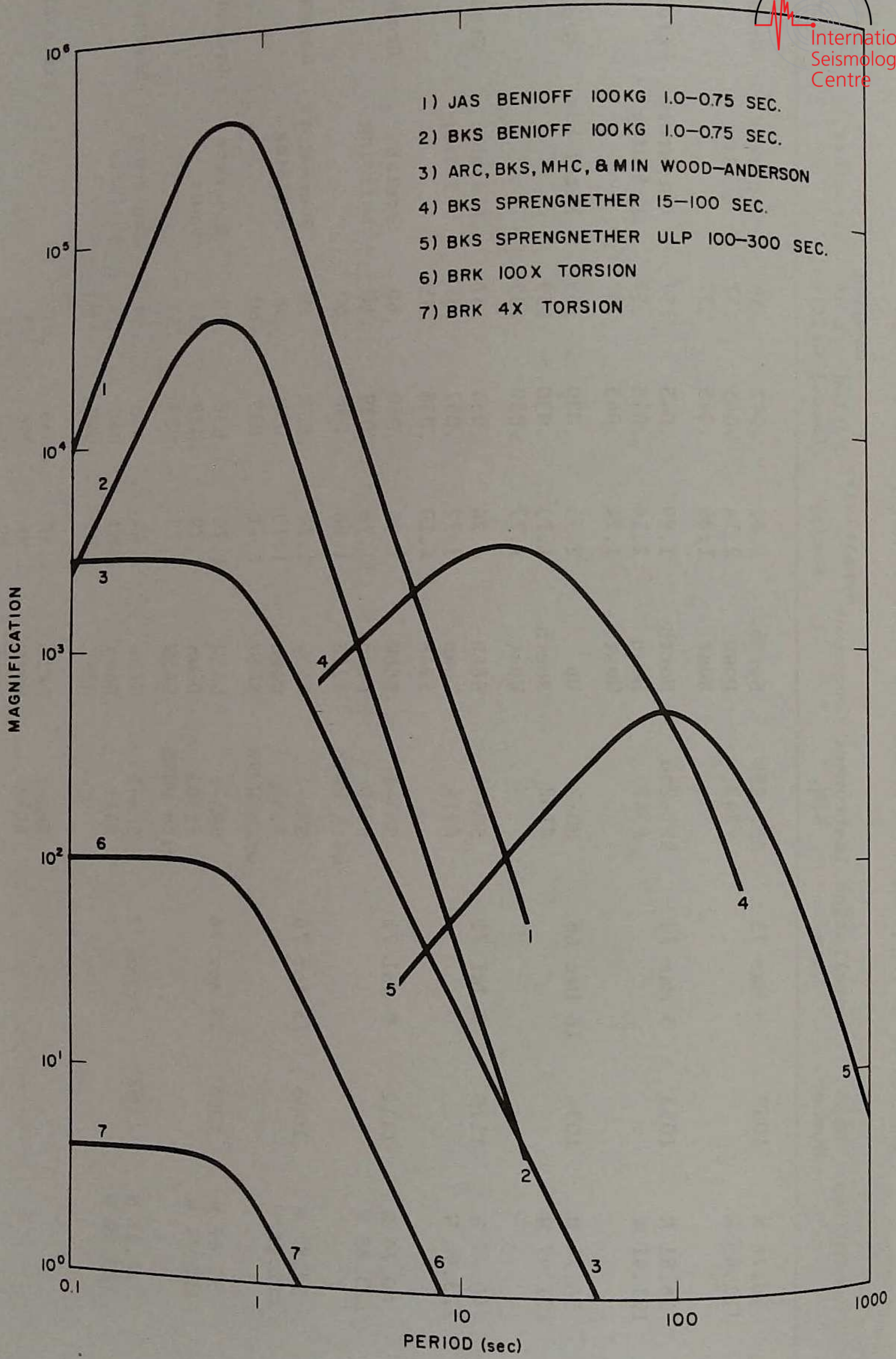
Station Name	Coordinates	Installation Date	Instrument S.N.	Component	Sensitivity (cm/g)	Period (sec)	Damping % of Critical	Structure	Location in Structure		
BERKELEY MEMORIAL STADIUM	37.87 N 122.25 W	3 Aug 76	CRA-1 #148 (Recorder)	V	1.79	.018	.64	4" I.D. cased borehole (163m deep)	Downhole (163m)		
			FBA-3 downhole	L unknown T unknown	1.82 1.83	.019 .018	.62 .66				
			FBA-3 uphole	V Down L North T East	1.90 1.83 1.82	.019 .018 .018	.63 .63 .65	Metal Box	Ground Level		
BERKELEY UNIVERSITY LIBRARY	37.87 N 122.26 W	3 May 76	MO-2 trace #6	A Up B S45W C S45E	1.65 1.66 2.40	.03 .03 .03	.6 .6 .6		Ground Level		
			Sensitivity (g/F.S.)      Bandwidth (Hz)								
RICHMOND	37.92 N 122.33 W	12 May 76	Columbia Research Force Balance Accelerometer SA-107 (+2g units) (0-50Hz)	Z, H <sub>1</sub> , H <sub>2</sub> ** Z, H <sub>1</sub> , H <sub>2</sub>	±0.010 ±0.50	.05-50 0-50		5" I.D. uncased backfilled borehole (43.8m deep)	Downhole (43.7m)		
				Z, H <sub>1</sub> , H <sub>2</sub> Z, H <sub>1</sub> , H <sub>2</sub>	±0.010 ±0.50	.05-50 0-50			Midhole (15.7m)		
				Z, H <sub>1</sub> , H <sub>2</sub> Z, H <sub>1</sub> , H <sub>2</sub>	±0.010 ±0.50	.05-50 0-50		Metal Box	Ground Surface Level		

- accelerometer aligned S45W  
- accelerometer aligned S45E  
- recorded on magnetic tape

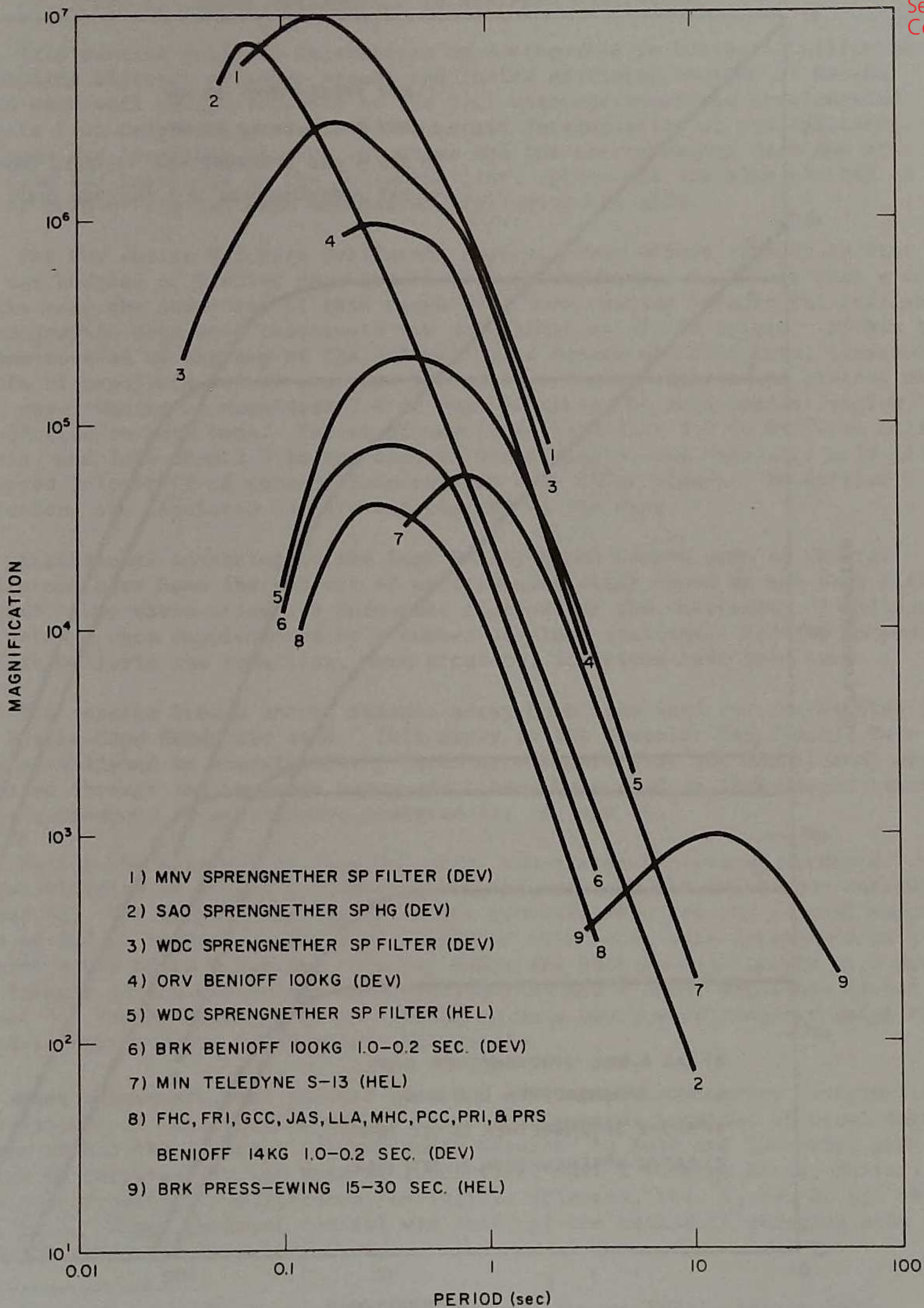
UNIVERSITY OF CALIFORNIA ACCELEROGRAPH STATIONS MAINTAINED BY USGS

Station Name	Coordinates	USGS Number	Installation Date	Instrument S.N.	Component	Sensitivity (cm/g)	Period (Sec.)	Damping % of Critical	Structure	Location in Structure
SAGO CENTRAL	36.76 N 121.45 W	1032	5 Mar 73	RFT-250 #343	North Down West	1.82 2.14 1.89	.042 .045 .045	.57 .57 .57	Concrete vault	Ground level
SAGO EAST	36.81 N 121.41 W	1033	5 Mar 73	RFT-250 #347	North Down West	1.89 2.14 1.74	.045 .045 .045	.57 .57 .57	One-story building	Ground level
REEVES RANCH	36.74 N 121.47 W	1034	18 Dec 68	MO-2 #182	Up South West	2.75 1.73 1.77	.030 .030 .030	.59 .59 .59	Metal box	Ground level
BUTLER VALLEY STA. 1 (RANCH)	40.77 N 123.90 W	1110	9 Jul 71	SMA-1 #314	S66W Down S24E	4.24 3.72 4.10	.054 .057 .058	.57 .57 .55	Prefab building	Ground level
BUTLER VALLEY STA. 2 (ABUTMENT)	40.79 N 123.88 W	1112	9 Jul 71	SMA-1 #319 with WWVB	S66W Down S24E	1.96 1.76 1.86	.040 .039 .038	.60 .60 .60	Prefab building	Ground level
BERKELEY HAVILAND HALL	37.87 N 122.26 W	1006	15 Apr 76	SMA-1 #2500 with WWVB	N45W Down S45W	1.74 1.70 1.71	.038 .038 .039	.59 .58 .60	Four-story building	Basement
BERKELEY BYERLY SEIS. STATION	37.87 N 122.24 W	1005	29 Apr 76	SMA-1 #2503 with WWVB	N45W Down S45W	1.79 1.79 1.73	.038 .039 .039	.60 .55 .57	Concrete vault	Ground level
BERKELEY EVANS HALL	37.87 N 123.90 W	1182	7 Jan 72	SMA-1 #411	S12E Down N78E	1.64 1.83 1.92	.040 .040 .040	.59 .59 .59	Ten-story building	Basement
				SMA-1 #412	S12E Down N78E	1.67 1.96 1.92	.040 .038 .040	.61 .61 .59		Fifth floor
				SMA-1 #413	S12E Down N78E	2.01 1.88 1.85	.038 .037 .037	.60 .53 .55		Tenth floor

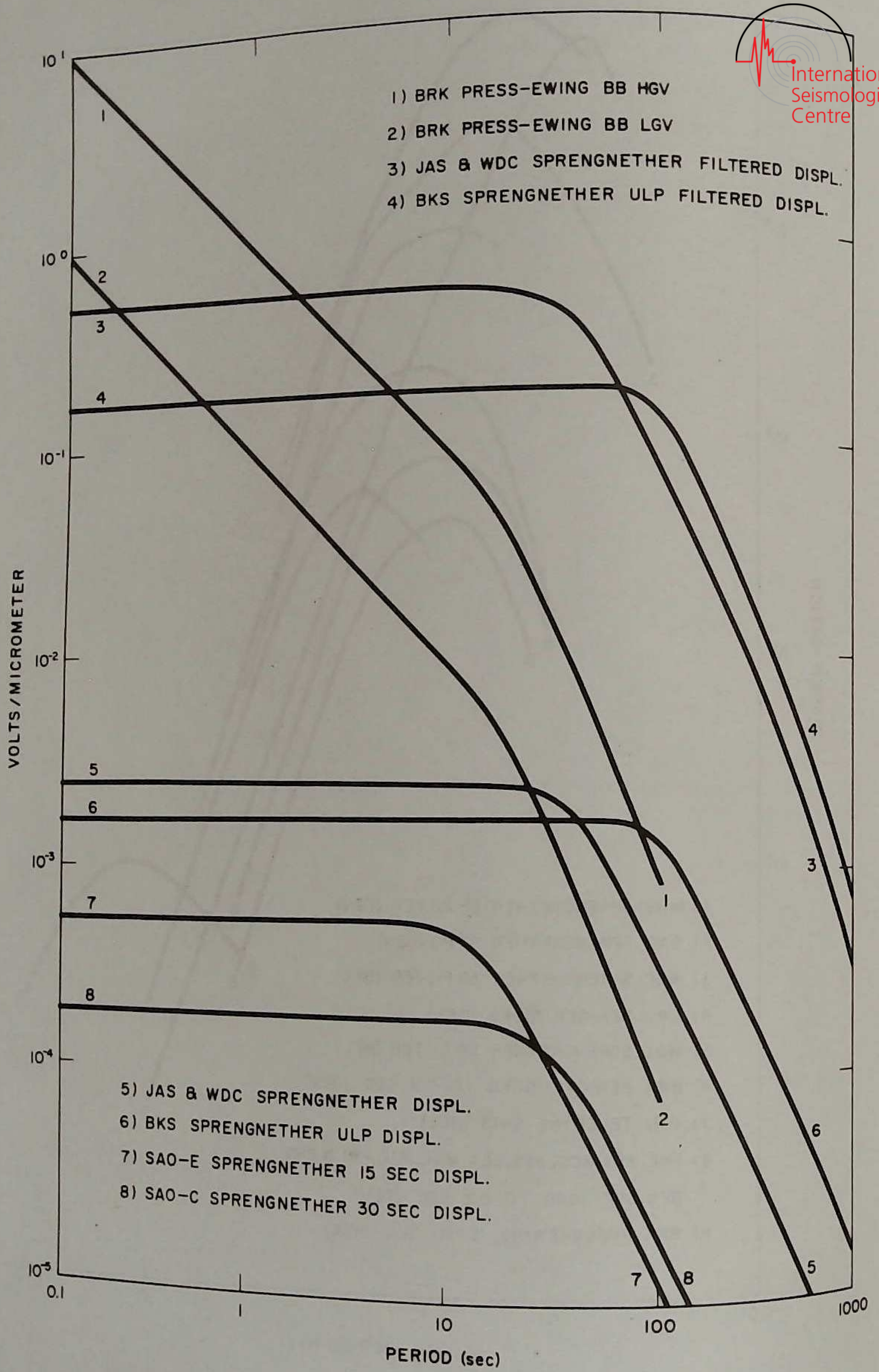




Response curves for photographically recording seismographs. The BKS Benioff and Sprengnether 15-100 second instruments are the WWSSN system.



Response curves for Helicorder (HEL) and Develocorder (DEV) channels when viewed at 20X enlargement. The Benioff 14KG curve (8) represents several different stations and is normalized to 10,000 magnification at 1 second period.



Response curves for broadband seismographs recorded on slow-speed FM magnetic tape at BRK and SAO. Displacement sensitivity (magnification) in volts/micrometer when reproduced on Honeywell LAR 7400 system ( $\pm 4$  volts output).

## PART I. LOCAL EARTHQUAKES IN NORTHERN CALIFORNIA

This section includes information on earthquakes in Northern California (including adjacent offshore areas) and in the adjoining section of Nevada which were well enough recorded at the U.C. stations (sometimes complemented by data from neighboring stations) to permit determination of the epicenter. Latitude and longitude of each epicenter and the corresponding date and origin time are tabulated in the following list; epicenters are also plotted on one or both of the two maps immediately following the list.

For the entire Northern California region, every effort is made to list all earthquakes of Richter magnitude 3.0 or above, but it is likely that some shocks near the lower end of this range have been omitted because the available seismographic data were inadequate for determination of the origin. Within the region covered by the map of the central Coast Ranges of California, locatable shocks of magnitude 2.5 or over are included in the tabulation and plotted on this map. Shocks of magnitude 3.0 or over occurring in this smaller region are plotted on both maps. Shocks of magnitude less than 3.0 in Northern California, and less than 2.5 in the central Coast Ranges, are tabulated only if reported felt or if of special interest for some other reason. Identified explosions are tabulated but are not plotted on the maps.

Earthquakes occurring in the Bear Valley-Stone Canyon area of Central California have been the subject of an intensive study known as the Near Field project. For these areas the permanent stations of the University of California network were supplemented by a number of close stations. For the purpose of this Bulletin the resulting, more accurate, locations have been used.

The results from a second seismic array have been used for earthquakes in the Eureka-Cape Mendocino area. This array is the Humboldt Bay Seismic Network established in August 1974.\* Three hypocenters (but not magnitudes) determined through the Humboldt Bay project have been used in the present report. These correspond to earthquakes numbered 41, 46, and 64.

During the interval of this Bulletin, two earthquake swarms occurred - one in the vicinity of Oroville, number 62 on the map, and the other near Coalinga, number 63. The largest earthquake in the Oroville sequence had a local magnitude of 5.7 on August 1. The hypocenters of this swarm were determined in a special study where a special velocity model and station adjustments were used.\*\* The largest earthquake in the Coalinga sequence had a local magnitude of 4.9 on August 3. The hypocenters of the events in this swarm were computed using the standard Byerly model for Northern California.

Most epicenters were located by a CDC 6400 computer program. Information on Version I of this program may be found in "Computer Location of Local Earthquakes within the Berkeley Seismographic Network" by Bolt and Turcotte, published in Computers in the Mineral Industries, Part 2 (George Parks, Editor); Stanford University Publications, Geological Sciences, Vol. 9, No. 2, pp. 561-576, 1964. Where quadrant control was lacking, the method of swinging arcs was used for epicenter location.

\* Humboldt Bay Seismic Network, Annual Report, August 1975 - August 1976, submitted to Pacific Gas and Electric Company by TERA Corporation (Teknekron Energy Resource Analysts); Stewart W. Smith, Principal Investigator.

\*\*Morrison, Jr., Paul W., Brian W. Stump, and Robert Uhrhammer, 1976. The Oroville Earthquake Sequence of August 1975, Bull. Seism. Soc. Am., 66, 1065-1084.

### Explanation of the Table:

Map No. for each epicenter corresponds to the number plotted beside that epicenter on the maps. Epicenters without numbers lie outside the area of the map. The underlining of a map number in the table indicates that one point on a map has been used to represent more than one earthquake in the table.

Date and Origin Time are given in Universal Coordinated Time (UTC). To obtain local time, subtract 8 hours for Pacific Standard Time (PST) and 7 hours for Pacific Daylight Time (PDT).

In selecting input for the computer, we sought the best possible distribution of stations, both in azimuth and in distance. Where possible, both P and S phases were used. However, the number of P arrivals greatly outnumbered the S arrivals. Geographic coordinates are quoted to tenths of a minute for computer located epicenters. Uncertainties of up to five minutes exist in determinations where the depth has been restricted, or where the epicenters lie outside the network. Those epicenters located by the arc method have their coordinates expressed to tenths of a degree. This is the accuracy to which the arc method allows.

The Magnitude of the earthquake is determined on the Richter scale from the maximum trace amplitudes recorded for the shock by standard Wood-Anderson torsion seismographs. The magnitudes of earthquakes for which no Wood-Anderson records are available are determined from Benioff seismograph trace amplitudes, and are listed in parentheses.

The focal depth h is given to the nearest kilometer or by the following ranges: a) 0-5; b) 5.1-10; c) 10.1-15; d) 15.1-50 km. A letter R following the estimated depth indicates that the depth has been restricted to the value given.

No. of Stas. is the number of stations used by the computer program or the arc method. An asterisk after a number indicates location by the arc method. Two asterisks after a number indicate the location resulting from the Near Field Project. Three asterisks after a number indicate the location as determined by the Humboldt Bay Seismic Network. A † after a number indicates the location resulting from the Earthquake Data Report, U.S. Geological Survey. A †† after a number indicates the location as determined by the Seismological Laboratory, University of Nevada, Reno, Nevada.

Under Remarks will be found a short descriptive location of the epicenter.

### Acknowledgements:

We should like to thank the following institutions for their assistance in supplying readings for the epicenter locations: Seismological Laboratory, California Institute of Technology; Seismological Laboratory, University of Nevada; Seismological Laboratory, Oregon State University; National Center for Earthquake Research, United States Geological Survey; Pacific Gas and Electric Company; and California Department of Water Resources.

## EARTHQUAKES IN NORTHERN CALIFORNIA

Date 1975	Origin Time (U.T.C.)	Latitude North	Longitude West	Magni- tude	h	No. of Stas.	Remarks
Ju1 02	10 38 29.8	37.4°	118.8°	(3.2)	5(R)	8	W of Bishop
Ju1 04	04 13 55.7	38.0°	118.5°	3.2	5(R)	7	E of Mono Lake
Ju1 04	19 32 04.2	36° 34.6'	121° 02.7'	2.7	8	7**	Bear Valley
Ju1 13	01 16 35.1	39.336°	117.584°	4.0	6.8	++	E of Reno
Ju1 13	01 36 58.2	39.384°	117.651°	4.2	11.9	++	E of Reno
Ju1 16	21 35 11.9	36° 56.1'	121° 27.6'	2.8	2.5	8	NW of Hollister
Ju1 23	20 59 21.4	36° 56.0'	121° 36.0'	3.3	7.6	7	Gilroy. Felt
Ju1 25	22 53 15.3	39° 48.0'	122° 13.4'	(3.0)	5.0(R)	6	NW of Chico
Ju1 27	11 46 54.9	37.2°	117.9°	(3.3)	a	6+	SE of Bishop
Ju1 27	12 48 37.9	37.2°	118.0°	(3.3)	a	6+	SE of Bishop
Ju1 28	11 53 10.1	37.5°	118.3°	(3.2)	5(R)	5	Bishop area
Aug 01	20 20 12.6	39° 26.3'	121° 31.7'	5.7			Oroville. Moderate damage (VII) in the Oroville area; some minor injuries. Widely felt in Northern California (see p. 59).
Aug 03	06 35 16.5	36° 27.4'	120° 20.4'	4.9	4.5	7	Coalinga. Widely felt in Coalinga-Fresno area (see p. 62).
Aug 03	08 57 05.5	39° 18.3'	123° 14.7'	3.3	2.0(R)	6	Willits area
Aug 06	22 23 14.6	37° 04.0'	121° 29.1'	2.5	8.3	6	Gilroy
Aug 10	05 16 40.5	37° 22.2'	119° 59.1'	4.2	7.3	7	NW of Fresno. Felt in Fresno.
Aug 10	17 16 36.2	36° 55.9'	121° 28.4'	2.5	3.2	8	NW of Hollister
Aug 11	11 03 31.1	36° 34.4'	121° 04.7'	2.5	11	7**	Bear Valley
Aug 15	09 57 43.7	40° 16'	124° 48'	3.3	2(R)	6	SW of FHC
Aug 17	00 24 28.0	37° 31'	118° 50'	4.2	5.0(R)	8	Mammoth Lakes area
Aug 21	12 36 19.1	37° 34'	118° 47'	(3.0)	5.0(R)	12	Mammoth Lakes area
Aug 27	09 53 42.6	36° 38.9	121° 16.5'	2.5	4	7**	Stone Canyon
Aug 28	07 36 43	41°	126°	3.3	a	3*	SW of FHC
Aug 28	09 20 45.5	38° 52.8'	122° 47.8'	3.1	4.2	12	S of Clear Lake
Aug 30	00 34 06.5	39.1°	124.3°	(3.0)	a	5*	S of FHC
Aug 30	00 34 42	39° 24'	118° 03'	(3.9)		++	NE of Mina
Aug 31	05 52 39.5	36° 33.0'	121° 08.8'	2.8	7	7**	Bear Valley
Aug 31	11 27 40	40° 45'	118° 59'	4.2		++	N NE of Gerlach
Sep 04	12 29 50.8	39.8°	125.4°	3.0	a	4*	W of Petrolia



Map No.	Date 1975	Origin Time (U.T.C.)	Latitude North	Longitude West	Magnitude	h	No. of Stas.	Remarks
23	Sep 09	02 43 33	41.2°	125.2°	4.6	2(R)	6	W of FHC
64	Sep 10	12 14 24.0	40.438°	123.950°	3.0	23.5	8***	S of FHC
24	Sep 13	21 20 59.8	36° 00.0'	120° 33.5'	4.8	13.5	8	Parkfield. Felt in Monterey and San Luis Obispo Counties.
25	Sep 15	12 31 16.4	37° 50.3'	121° 56.7'	2.8	1.8	7	Danville. Felt in Danville and Walnut Creek.
	Sep 16	02 10 48.9	40.3°	126.5°	3.4	a	5*	NW of FHC
26	Sep 20	00 51 04.8	36° 33.1'	121° 06.3'	(2.6)	8	7**	Bear Valley
27	Sep 25	20 58 21.8	40.2°	124.8°	(3.2)	a	3*	SW of FHC
28	Oct 03	09 44 45.3	37° 51.4'	121° 55.1'	2.5	6.4	8	Danville. Felt in Danville.
29	Oct 03	21 45 09.3	38° 55.9'	122° 47.0'	3.0	2.5	7	E of Clear Lake
30	Oct 04	01 23 48.5	37° 51.7'	122° 16.0'	2.5	9.4	9	Richmond
30	Oct 04	08 06 29.1	37° 51.7'	122° 16.1'	2.5	9.1	9	Richmond
31	Oct 04	09 53 13.0	37° 27'	118° 56'	3.0	5.0(R)	9	Mammoth Lakes area
32	Oct 05	19 08 57.2	36.721°	118.295°	(3.5)	a(R)	8	Lone Pine
33	Oct 06	13 36 01.4	36° 12.6'	120° 50.3'	2.5	8.5	8	Peach Tree Valley
34	Oct 07	20 58 13.6	37° 37'	118° 47'	(3.0)	5.0(R)	10	Mammoth Lakes area
35	Oct 07	21 12 46.6	37° 34'	118° 45'	3.8	5.0(R)	12	Mammoth Lakes area
36	Oct 10	03 35 39.4	38° 43'	119° 59'	3.2	5.0(R)	7	Markleville
37	Oct 12	20 52 42.1	36° 28.7'	121° 04.0'	(2.5)	6	7**	Bear Valley
38	Oct 23	07 53 37.2	37° 23.3'	122° 11.9'	2.7	7.1	10	SW of Palo Alto. Felt in Palo Alto.
	Oct 23	21 15 06	40.6°	127.8°	4.5	a	5*	W of FHC
39	Oct 24	17 27 30.2	36° 59.9	121° 02.0'	(2.5)	2.1	7	W of Los Banos
40	Nov 03	02 14 11.7	36° 47.7'	121° 35.9'	2.8	2.2	7	San Juan Bautista
41	Nov 03	04 24 15.8	41.086°	124.117°	3.3	23.8	15***	N of FHC
42	Nov 04	14 33 52.5	36° 56.3'	121° 26.5'	2.8	4.5	7	San Felipe
43	Nov 05	03 28 50.3	36° 39.6'	121° 17.6'	2.9	5	7**	Stone Canyon
44	Nov 09	15 56 46.5	37° 31.6'	121° 38.2'	2.6	2.0(R)	8	Diablo Ridge
45	Nov 12	07 00 23.1	40.3°	125.1°	3.4	2(R)	6	SW of FHC
46	Nov 14	09 29 49.4	40.570°	124.436°	4.8	22.0	12***	NW of Petrolia
	Nov 16	17 29 29.3	40.35°	126.25°	5.0	2(R)	7	W of Ferndale
47	Nov 18	00 12 34.8	40.2°	124.5°	3.2	2(R)	6	E of Petrolia
48	Nov 18	11 50 33.8	36° 55.6'	121° 26.9'	3.1	11.3	9	N NW of Hollister. Felt in Hollister.
48	Nov 18	13 37 59.6	36° 56.2'	121° 26.3'	2.6	2.1	8	N NW of Hollister.

Map No.	Date 1975	Origin Time (U.T.C.)	Latitude North	Longitude West	Magnitude	h	No. of Stas.	Remarks
47	Nov 19	10 17 00.9	40.2°	124.5°	3.0	2(R)	6	Petrolia
49	Nov 22	08 33 56.4	39° 26.4'	123° 21.3'	3.1	7.0(R)	8	Willits area
50	Nov 25	22 49 53.4	36° 51.0'	121° 25.4'	2.8	2.2	8	Hollister. Felt as a sharp jolt in Hollister.
51	Nov 29	02 38 33.9	36° 42.1'	121° 20.9'	2.9	0	7**	Stone Canyon
52	Nov 29	08 17 02.7	37° 32'	118° 24'	(3.2)	5.0(R)	8	N of Bishop
53	Nov 29	23 31 22.8	37° 05.2'	121° 30.4'	2.5	9.0	6	Coyote Reservoir
54	Dec 02	20 55 09	40.4°	125.25°	(3.2)	a	3*	SW of FHC
55	Dec 07	18 59 10.1	37° 57.9'	122° 21.8'	3.0	5.7	10	N of Richmond. Felt in Albany, Richmond and El Cerrito.
56	Dec 09	08 35 32.1	36° 32.2'	121° 07.9'	2.9	8	7**	Bear Valley
57	Dec 10	19 19 25.3	37° 28'	118° 19'	3.5	5.0(R)	14	Bishop area
	Dec 11	07 35 31.1	40.5°	126.15°	4.1	7(R)	6	W of Ferndale
58	Dec 13	18 07 21.2	36° 48.8'	121° 35.8'	2.8	0.1	8	San Juan Bautista
59	Dec 25	04 45 07.0	37° 17.8'	121° 40.7'	3.2	6.3	6	MHC local
60	Dec 28	08 33 02.9	36° 52.8'	122° 05.3'	3.2	4.2	9	SW of Santa Cruz. Felt in Santa Cruz area.
61	Dec 29	15 07 32.3	36° 48.1'	121° 07.5'	3.5	9.2	7	E of Hollister

## EXPLOSIONS AT NEVADA TEST SITE

Date 1975	Origin Time (U.T.C.)	Latitude North	Longitude West	Magnitude
Sep 06	17 00 00.1	37° 01.5'	116° 01.7'	4.4
Oct 24	17 11 26.1	37° 13.26'	116° 10.25'	4.7
Oct 28	14 30 00.2	37° 17.4'	116° 24.7'	6.2
Nov 18	15 30 00.3	36.991°	116.032°	3.8
Nov 20	15 00 00.1	37° 13.5'	116° 22.0'	5.8
Nov 26	15 30 00.2	37° 07.0'	116° 01.1'	4.4
Dec 20	20 00 00.2	37° 07.7'	116° 03.1'	5.6

## OROVILLE SEQUENCE

Date 1975	Origin Time (OT)	$\sigma(T)$ sec	Magni- tude $M_L$	Latitude $\phi$	$\sigma(\phi)$ km	Longitude $\lambda$	$\sigma(\lambda)$ km	Depth h	$\sigma(h)$ km
Jun 28	04 19 53.72	0.13	3.5	39°28.33'	1.19	121°31.45'	1.05	7.56km	1.59
Aug 01	15 45 37.81	0.07	3.8	39 26.98	0.67	121 31.87	0.67	7.27	1.06
Aug 01	16 27 17.81	0.14	4.7	39 26.29	1.19	121 32.25	1.20	4.89	2.17
Aug 01	17 26 50.12	0.09	3.0	39 27.71	0.85	121 32.27	0.83	8.57	1.22
Aug 01	20 20 04.75	0.08	4.5	39 26.33	0.76	121 31.71	0.76	8.01	1.17
Aug 01	20 20 12.85		5.7	39 26.33		121 31.71			
Aug 01	20 25		4.7	39 26.33		121 31.71			
Aug 01	20 29		4.6	39 26.33		121 31.71			
Aug 01	20 32 39.84	0.15	3.0	39 26.71	1.62	121 30.40	1.44	4.82	3.21
Aug 01	20 37		3.5	39 26.71		121 30.40			
Aug 01	20 45 18.40	0.14	3.0	39 28.40	1.56	121 30.02	1.59	6.13	2.69
Aug 01	20 45		3.8	39 28.40		121 30.02			
Aug 01	21 05 39.84	0.04	3.0	39 25.98	0.38	121 29.25	0.43	6.74	0.63
Aug 01	21 16 23.84	0.11	3.2	39 26 15	1.02	121 31.97	1.02	7.59	1.57
Aug 01	21 21 50.65	0.07	4.1	39 26.53	0.64	121 31.70	0.64	7.76	0.99
Aug 01	21 25 59.02	0.04	3.3	39 28.44	0.42	121 31.08	0.41	7.08	0.63
Aug 01	21 29 24.12	0.08	3.6	39 27.12	0.69	121 32.92	0.80	6.55	1.21
Aug 01	22 04 55.99	0.07	3.1	39 25.63	0.62	121 31.27	0.62	7.20	0.98
Aug 01	22 11 04.67	0.04	3.1	39 26.46	0.41	121 29.36	0.40	7.48	0.63
Aug 01	22 23 43.92	0.13	3.2	39 25.52	1.13	121 31.36	1.14	6.66	1.86
Aug 01	23 44 40.98	0.03	3.4	39 29.18	0.25	121 31.34	0.24	7.51	0.35
Aug 02	00 52 48.47	0.03	3.8	39 29.06	0.25	121 30.55	0.24	7.27	0.36
Aug 02	06 31 57.19	0.06	3.2	39 26.84	0.50	121 29.01	0.38	5.68	0.79
Aug 02	10 11 53.68	0.04	3.1	39 29.40	0.37	121 30.70	0.35	7.22	0.52
Aug 02	10 49 00.12	0.07	3.3	39 25.66	0.52	121 28.41	0.43	5.54	0.85
Aug 02	11 51 50.74	0.12	3.4	39 28.36	0.89	121 29.30	0.91	2.49	1.86
Aug 02	14 44 38.71	0.04	3.2	39 25.03	0.32	121 29.38	0.33	5.00	0.59
Aug 02	16 51 45.11	0.05	3.7	39 25.07	0.43	121 29.09	0.44	6.48	0.75
Aug 02	17 24 29.23	0.07	4.3	39 28.42	0.60	121 28.25	0.59	5.84	0.98
Aug 02	17 43 24.13	0.06	4.0	39 28.66	0.51	121 28.41	0.49	5.52	0.83
Aug 02	19 58 36.85	0.05	3.1	39 26.89	0.44	121 32.20	0.44	7.10	0.70
Aug 02	20 22 16.32	0.05	5.1	39 26.69	0.35	121 27.76	0.36	3.62	0.71
Aug 02	20 35 48.55	0.06	3.9	39 28.26	0.52	121 28.89	0.51	5.98	0.84

Date 1975	Origin Time (OT)	$\sigma(T)$ sec	Magni- tude $M_L$	Latitude $\phi$	$\sigma(\phi)$ km	Longitude $\lambda$	$\sigma(\lambda)$ km	Depth h	$\sigma(h)$ km
Aug 02	20 58 55.70	0.06	3.8	39°25.93'	0.50	121°27.97'	0.51	5.71	0.90
Aug 02	20 59		5.2	39 25.93		121 27.97			
Aug 02	21 11 44.53	0.18	3.1	39 26.95	1.23	121 28.48	1.28	1.53	2.75
Aug 02	21 40 01.34	0.07	3.9	39 25.62	0.57	121 28.39	0.58	5.39	1.04
Aug 03	01 03 05.77	0.04	4.6	39 29.26	0.40	121 31.06	0.38	7.98	0.55
Aug 03	02 47 08.80	0.04	4.1	39 28.68	0.33	121 30.06	0.32	6.79	0.50
Aug 04	09 47 45.01	0.06	3.5	39 25.27	0.61	121 31.36	0.45	7.57	0.88
Aug 05	02 28 57.35	0.05	3.3	39 24.91	0.39	121 29.46	0.33	7.17	0.63
Aug 05	20 44 24.50	0.17	3.2	39 24.87	1.35	121 30.87	1.15	6.79	2.23
Aug 06	03 50 29.94	0.20	4.7	39 28.73	1.94	121 31.46	1.73	7.69	2.51
Aug 06	13 03 28.60	0.08	3.0	39 30.47	0.86	121 32.29	0.81	7.77	1.09
Aug 06	16 25 47.93	0.14	3.1	39 26.73	1.24	121 27.58	1.14	8.49	1.30
Aug 06	16 41 52.08	0.02	3.6	39 29.80	0.17	121 31.76	0.17	8.40	0.16
Aug 06	21 00 33.46	0.11	3.0	39 26.37	0.95	121 29.10	0.89	9.20	0.98
Aug 06	21 00		3.0	39 26.37		121 29.10			
Aug 07	20 31 20.38	0.15	3.1	39 30.99	1.56	121 31.98	1.48	8.68	1.71
Aug 08	07 00 50.09	0.05	4.9	39 30.13	0.51	121 30.72	0.46	7.64	0.62
Aug 08	13 37 53.87	0.08	3.2	39 29.79	0.70	121 29.37	0.64	6.29	0.68
Aug 08	19 03 27.23	0.09	3.1	39 23.60	0.65	121 29.60	0.62	5.60	0.91
Aug 09	07 38 47.48	0.10	3.0	39 24.80	0.74	121 29.00	0.70	7.46	0.90
Aug 11	02 40 16.73	0.35	3.0	39 27.72	2.28	121 26.53	1.85	1.52	3.89
Aug 11	06 11 36.34	0.12	4.3	39 26.78	0.91	121 28.85	0.81	4.26	1.24
Aug 11	15 59 05.26	0.19	3.6	39 28.22	1.40	121 33.23	1.39	6.39	1.68
Aug 12	11 58 52.05	0.14	3.0	39 27.41	1.50	121 32.47	1.08	7.63	1.89
Aug 16	05 48 09.38	0.03	4.0	39 28.33	0.33	121 31.26	0.40	9.01	0.51
Aug 16	12 23 24.43	0.05	3.1	39 29.59	0.52	121 30.26	0.37	6.05	0.68
Aug 23	18 31 53.26	0.13	3.1	39 29.90	1.20	121 29.64	1.14	4.96	1.79
Aug 24	09 10 37.72	0.16	3.3	39 30.48	1.78	121 29.94	1.32	5.26	2.20
Aug 25	13 35 11.65	0.13	3.2	39 20.36	1.12	121 30.60	1.25	3.87	1.90
Sep 04	01 17 01.95	0.11	3.0	39 23.93	1.23	121 32.97	1.08	7.33	2.01
Sep 05	21 01 39.22	0.12	3.2	39 24.79	0.99	121 31.35	1.17	7.15	1.65
Sep 10	17 39 05.17	0.07	3.4	39 31.21	0.68	121 32.24	0.85	6.33	1.00
Sep 12	02 00 47.89	0.03	3.5	39 30.14	0.27	121 29.19	0.27	3.62	0.39
Sep 26	02 31 07.14	0.29	4.0	39 30.00	1.05	121 29.76	2.06	11.44	1.35
Sep 26	09 57 16.26	0.17	3.1	39 26.31	1.38	121 30.22	1.86	9.09	2.23

Date 1975	Origin Time (OT)			$\sigma(T)$ sec	Magni- tude ML	Latitude $\phi$		$\sigma(\phi)$ km	Longitude $\lambda$		$\sigma(\lambda)$ km	Depth h	$\sigma(h)$ km
Sep 27	22	34	38.05	0.03	4.6	39	30.65	0.33	121	32.19	0.42	8.44	0.46
Sep 27	23	04	30.94	0.02	3.1	39	31.05	0.17	121	31.09	0.20	8.39	0.21
Sep 27	23	28	05.02	0.12	3.2	39	30.93	1.17	121	33.21	1.51	7.07	1.83
Sep 28	21	07	15		3.4	39	31		121	32			
Oct 10	07	44	47.63	0.01	3.6	39	27.44	0.06	121	29.12	0.07	3.14	0.11
Oct 13	16	06	51.45	0.20	3.0	39	29.53	1.74	121	31.05	1.52	4.13	2.57
Oct 28	03	41	16.06	0.07	3.5	39	29.49	0.69	121	30.46	0.66	4.21	1.12
Nov 05	05	37	46.79	0.13	3.4	39	23.27	0.83	121	29.82	0.70	3.56	1.64
Nov 15	03	35	01.94	0.10	3.8	39	25.24	0.87	121	29.83	0.87	7.45	1.40

Most of these were felt in Oroville and throughout Butte County.

## COALINGA SEQUENCE

Date 1975	Origin Time (U.T.C)	Latitude North	Longitude West	Magni- tude	h	No. of Stas.	Remarks
Aug 02	23 56 04.1	36° 28.7'	120° 20.3'	(2.8)	2.0(R)	7	
Aug 03	03 30 33.3	36° 28.3'	120° 20.7'	(2.5)	3.1	6	
Aug 03	04 30 41.5	36° 28.1'	120° 22.5'	3.0	6.8	7	
Aug 03	05 57 17.2	36° 28.1'	120° 20.9'	4.0	4.8	7	
Aug 03	06 04 47.9	36° 29.7'	120° 22.1'	3.9	1.0	7	
Aug 03	06 35 16.5	36° 27.4'	120° 20.4'	4.9	4.5	7	
Aug 03	06 38	36° 27.4'	120° 20.4'	4.4	4.5		Same location as 0635
Aug 03	06 47 32.0	36° 29.5'	120° 22.6'	(2.6)	4.4	6	
Aug 03	06 48 45.4	36° 28.4'	120° 21.6'	(2.5)	5.8	9	
Aug 03	06 49 31.5	36° 26.6'	120° 20.9'	3.0	7.6	7	
Aug 03	07 11 35.9	36° 29.2'	120° 21.5'	(2.5)	1.5	6	
Aug 03	07 27 12.8	36° 28.7'	120° 20.8'	(2.6)	4.1	7	
Aug 03	07 59 40.5	36° 29.4'	120° 21.7'	(2.5)	1.2	7	
Aug 03	08 38 00.1	36° 27.7'	120° 20.5'	3.6	4.0	8	
Aug 03	09 00 30.0	36° 27.4'	120° 20.8'	3.5	5.0	8	
Aug 03	09 57 05.1	36° 28.9'	120° 21.0'	3.2	5.7	8	
Aug 03	10 14 01.9	36° 28.7'	120° 21.7'	(2.5)	4.9	8	
Aug 03	13 46 57.8	36° 28.6'	120° 22.2'	(2.5)	3.9	7	
Aug 03	16 58 35.5	36° 28.6'	120° 22.7'	2.6	6.5	8	
Aug 04	07 14 47.8	36° 27.6'	120° 21.6'	3.5	4.6	8	
Aug 05	06 10 20.1	36° 27.0'	120° 20.4'	(2.5)	4.7	7	
Aug 05	09 44 09.2	36° 28.4'	120° 19.7'	(2.6)	6.6	7	
Aug 07	01 17 35.9	36° 29.5'	120° 20.0'	(2.5)	3.4	7	
Aug 07	21 42 01.1	36° 27.5'	120° 19.1'	(2.5)	5.6	7	
Aug 07	21 46 02.4	36° 27.0'	120° 19.6'	3.1	6.6	7	
Aug 08	06 28 14.4	36° 28.0'	120° 19.6'	(2.8)	2.5	6	
Aug 08	22 23 43.6	36° 30.0'	120° 20.4'	(2.6)	3.1	7	
Aug 15	22 27 51.8	36° 29.8'	120° 23.9'	4.6	6.4	7	
Aug 17	08 52 52.7	36° 28.6'	120° 20.8'	(2.5)	4.7	7	
Aug 18	08 35 54.6	36° 30.0'	120° 22.9'	(2.5)	3.6	7	
Aug 21	14 19 42.5	36° 29.0'	120° 21.4'	(2.5)	6.7	8	
Aug 29	07 52 42.6	36° 30.5'	120° 23.3'	3.9	5.9	7	
Aug 29	07 57 10.6	36° 30.3'	120° 21.6'	(2.5)	3.2	7	
Aug 29	08 30 40.9	36° 30.3'	120° 23.5'	2.8	6.1	8	

Date 1975	Origin Time (U.T.C.)	Latitude North	Longitude West	Magni- tude	h	No. of Stas.	Remarks
Aug 30	05 48 14.8	36° 29.7'	120° 23.3'	3.0	7.4	7	
Oct 12	16 45 05.4	36° 27'	120° 24'	(2.5)	5.6	5	
Oct 23	14 37 12.4	36° 28.7'	120° 19.7'	(2.5)	2.0	6	
Dec 10	23 32 17.7	36° 27.8'	120° 20.2'	(2.7)	4.4	6	
Dec 22	02 29 36.1	36° 31.0'	120° 22.4	(2.6)	1.0	7	
Dec 27	22 16 14.3	36° 28.4'	120° 20.2'	(2.8)	2.1	7	

## ERRATA

- Vol. 45, No. 1, p 17 Under "Remarks" for earthquake map no. 27, change W of LLA to read E of LLA. Underscore map no. 52.
- Vol. 45, No. 1, p 19 Delete the map no. 69 which is adjacent to 52 located north of Los Banos. Map no. 69 refers to earthquakes occurring near Palo Alto.

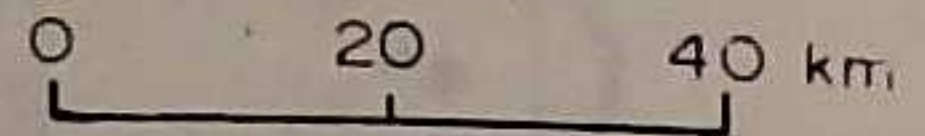






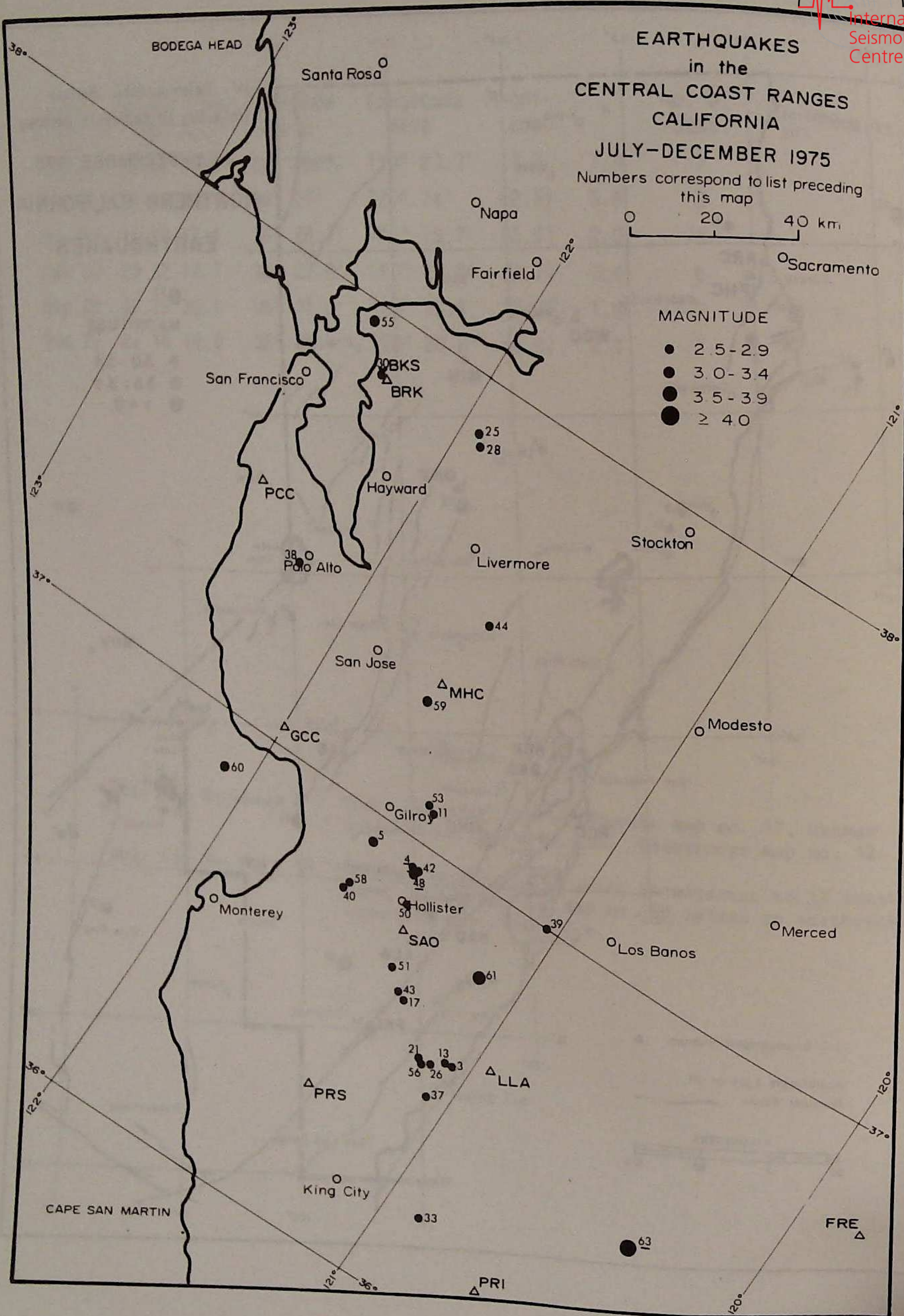
# EARTHQUAKES in the CENTRAL COAST RANGES CALIFORNIA JULY-DECEMBER 1975

Numbers correspond to list preceding  
this map



### MAGNITUDE

- 2.5 - 2.9
- 3.0 - 3.4
- 3.5 - 3.9
- ≥ 4.0



## PART II. REGISTRATION OF EARTHQUAKES

This section tabulates measured arrival times of prominent phases of earthquakes and large explosions recorded at selected stations of the seismographic network operated by the University of California (Berkeley). These stations are BKS (or BRK if the BKS reading is not clear), SAO, JAS, MHC, WDC, PRI, MIN, FRI, and FHC. Information regarding these stations and instrumentation will be found in the introductory section of this Bulletin. Berkeley source parameters from Part I are repeated for all earthquakes in Northern California and adjoining areas.

Phase arrival times are Universal Coordinated Time (UTC).

In the column identifying the P or PKP phase, "C" or "D" indicates initial compression or dilatation of the ground, respectively, from a wave of the compressional type.

S arrival times and arrival times of later phases are given in minutes and seconds after the hour of the P or P' arrival time. When a later phase is recorded at a station, but no P or P' phase, the time in hours and minutes of the first P or P' arrival at the other stations of the network is printed in the P or P' column.

The maximum amplitudes of earth displacement in microns ( $\mu$ ) and periods in seconds (sec) in the indicated phases are given for the Berkeley station, BKS, under the BKS phase arrival times. Total horizontal amplitudes combined from N and E components are designated by "H" (e.g., PH, PPH). Unless otherwise specified, magnitudes given for earthquakes outside the Northern California, Nevada, and Oregon region correspond to the magnitude based on surface waves ( $M_S$ ). The published value is obtained by combining the value of  $M_S$  determined from the amplitude of surface waves of period near 20 seconds with magnitudes determined from body waves according to the formula:

$$m_b = Q + \log_{10} (A/T),$$

where  $A = 1/2$  peak-to-peak ground amplitude in microns,

$T =$  period in seconds, and

$Q$  is the empirically determined function of distance and depth given by Gutenberg and Richter ("Magnitude and Energy of Earthquakes," *Annali di Geofisica*, 9:1-15, 1956).

The arithmetic average of the available values of  $m_b$  for long-period and short-period records of body waves is converted to an equivalent value  $M_S$  by

$$M_S = 1.59 m_b - 3.97.$$

This value is then compared with the value of  $M_s$  determined from surface waves. Some events, particularly deep earthquakes and large explosions, give clear body waves, but only weakly developed surface waves. In these cases, the directly determined body-wave magnitude is given, designated MAG ( $m_b$ ).

Distances are given in degrees from the Berkeley station, BRK. USGS source parameters are listed as a guide at the end of arrival times of the earthquakes. USGS magnitude is  $m_b$ .

All measurements and interpretation of seismograms (i.e., identification of phases, arrival times, directions of initial ground motion, and ground amplitudes and periods) are done at Berkeley. Readings from the remaining stations in the network other than the nine listed are available on request. Requests for additional data or for copies of seismograms should be addressed to the Director.

UNIVERSITY OF CALIFORNIA  
SEISMOGRAPHIC STATIONS  
BERKELEY, CALIFORNIA 94720  
JUL 01 THROUGH DEC 31, 1978

\* PRECEDING ALPHABET INDICATES LOWER CASE  
P+ IS TC EE READ AS FKP

F CF FKF S OTHER PHASES



MNV JUL 01 EP 04 18 32.0  
WCC EP 04 18 52.3  
JAS EP 04 18 52.8  
BKS EP 04 18

LSGS 04 16 22.5, 44.5N, 110.6W, H= 5 KM, M=4.8  
YELLOWSTONE NATIONAL PARK, WYO

MNV JUL 01 EPC 04 51 04.0  
FRI EP 04 51 17.0  
JAS EP 04 51 25.2  
PRI EP 04 51  
SAO EP 04 51  
WCC EP 04 51  
WCC EP 04 51  
WCC EP 04 51

\*E 23 20  
\*E 51 22  
\*E 51 34  
\*E 51 38  
\*E 51 45  
\*E 51 50  
\*E 51 57 \*E 52 04 \*E 52 11

MAGNITUDE 4.2  
LSGS 04 50 31.9, 37.3N, 116.4W, H= 5 KM, M=4.5  
SOUTHERN NEVADA

FHC JUL 01 EP 09 36 57.4  
WCC EP 09 37 01.5  
MIN EP 09 37 04.3  
JAS EP 09 37 14.4  
MNV EP 09 37 15.2

LSGS 09 24 02.1, 24.8N, 122.4E, H=105 KM, M=4.9  
TAIWAN REGION

FRI JUL 01 EP 10 17 49.9  
MNV EP 10 17 51.8  
JAS EP 10 17 52.3  
MHC EP 10 17 59.0  
MIN E(P) 10 18 20.3  
WCC E(P) 10 18 20.5

\*E 18 00  
\*E 18 06  
\*E 18 30

LSGS 10 13 05.2, 19.6N, 102.7W, H=233 KM, M=4.5  
MICHACAN, MEXICO

MNV JUL 01 EPD 18 14 40.4  
FRI EP 18 14 53.0  
JAS EP 18 15 01.8  
PRI EP 18 15  
SAO EP 18 15  
WCC EP 18 15  
WCC EP 18 15  
WCC EP 18 15

\*E 14 58  
\*E 15 10  
\*E 15 10  
\*E 15 21  
\*E 15 25  
\*E 15 41 \*E 15 40 \*E 16 46

MAGNITUDE 4.2  
LSGS 18 14 08.8, 37.2N, 116.4W, H= 5 KM, M=4.8  
SOUTHERN NEVADA

FHC JUL 02 EP 07 19 50.2  
WCC EP 07 19 57.5  
MIN E(P) 07 20 02.2  
JAS EP 07 20 20.2  
MNV EP 07 20 26.6  
PRI EP 07 20

\*E 20 29

USGS 07 10 56.3, 55.7N, 160.3E, H= 33 KM, M=4.7  
KAMCHATKA

FHC JUL 02 EP 07 43 19.0  
WCC EP 07 43 23.8  
MIA E(P) 07 43 28.6  
MHC E(P) 07 43 44.7  
JAS EPC 07 43 46.6  
MNV EPC 07 43 53.0

LSGS 07 34 22.2, 55.8N, 160.4E, H= 25 KM, M=4.7  
KAMCHATKA

FRI JUL 02 IPC 10 38 42.6 38 54  
MNV EP 10 38 50.0  
JAS EP 10 38 53.9  
PRI EP 10 39 03  
SAO EP 10 39 06.8  
MHC EP 10 39 07.6

ERK 10 38 29.8, 37.4N, 118.8W, H= 5 KM, ML=3.2  
WEST OF BISHOP, CALIFORNIA

WCC JUL 02 EP 19 52 15.8  
JAS EP 19 52 35.8  
MNV EP 19 52 43.2

LSGS 19 42 33.5, 48.3N, 154.4E, H= 59 KM, M=5.0  
KURIL ISLANDS

MNV JUL 02 EP 21 00 00.0  
JAS EP 21 00 09.0

LSGS 20 54 00.4, 15.2N, 98.1W, H= 33 KM, M=4.7  
OFF COAST OF GUERRERO, MEXICO

MNV JUL 02 EP 23 24 33.4  
JAS EP 23 24 38.9  
MHC E(P) 23 24 41.6  
WCC EP 23 24 52.6

LSGS 23 12 56.9, 22.6S, 66.3W, H=208 KM, M=4.7  
JUJUY PROVINCE ARGENTINA

MHC JUL 03 EP 01 06  
JAS EP 01 06 42.0  
WCC EP 01 06 44.8  
MNV EP 01 06 50.3

\*E 06 32

LSGS 01 06 50.3  
KERMADEC ISLANDS

WCC JUL 03 EP 22 01 41.4  
JAS EP 22 02 02.0  
MNV EP 22 02 05.6

USGS 21 52 39.7, 55.5N, 160.4E, H= 57 KM, M=4.5  
KAMCHATKA

MNV JUL 04 IPD 04 14 06.0 14 13  
FRI IPD 04 14 16.6 14 35  
JAS IFC 04 14 19.5 14 37  
MHC EP 04 14 36.0 15 07  
PRI EP 04 14 38.0  
SAO EP 04 14 38.2  
BKS EP 04 14 45.7 15 23 \*E 15 30 \*E 15 37  
MIA E(P) 04 14 54.5

ERK 04 13 55.7, 38.0N, 118.5W, H= 5 KM, ML=3.2  
EAST OF MONO LAKE, CALIFORNIA

SAO JUL 04 EP 11 37 13.5  
FRI EP 11 37 14.2  
MHC EP 11 37 15.8  
BKS EP 11 37 17.0

\*E 37 25 \*E 37 53 LC 57 00

MICRON 0.1  
PERIOD 1.1

FZ 0.1  
MAXR(Z) 1.1 18  
MAXH(N) 1.0 18  
MAXH(E) 0.7 18

FRI EP 11 37 20.7  
JAS EP 11 37 21.6  
WCC EP 11 37 24.3  
MIN EP 11 37 25.9  
MNV EP 11 37 30.9

MAG 5.1, DIST(DEC) 78  
USGS 11 25 24.5, 21.3S, 174.1W, H= 15 KM, M=5.7  
TONGA ISLANDS

SAO JUL 04 IPC 19 32 11.4  
FRI EP 19 32 14.7  
MHC EP 19 32 21.0  
PRI EP 19 32 24.3  
JAS EPD 19 32 29.5 32 48

BKS EPD 19 32 31.3  
ERK 19 32 04.2, 36.6N, 121.0W, H= 5 KM, M=4.8  
BEAR VALLEY, CALIFORNIA

JAS JUL 04 EPKP 20 58 36.0  
WCC EPKP 20 58 37.0  
MHC EPKP 20 58 38.0  
FRI EPKP 20 58  
PRI EPKP 20 58 40.0

\*E 58 40

LSGS 20 40 10.9, 8.2S, 123.0E, H=132 KM, M=5.0  
FLORES ISLAND REGION

PRI JUL 05 EP 09 42 34  
WCC EP 09 42 34.7  
BKS EP 09 42 36.0

MICRON 0.02 PERIOD 0.8

JAS WDC EP 09 42 36.4  
WCC EP 09 42 42.2

LSGS 09 30 30.4, 31.3S, 179.7E, H=408 KM, M=4.8  
KERMADEC ISLANDS REGION

SAO JUL 05 EP 21 50 48.8  
BKS EP 21 50 50.3

MICRON 0.02 PERIOD 0.8

PRI EP 21 50 50.6  
MHC EP 21 50 50.6  
FHC EP 21 50 53.8  
FRI EP 21 50 58.5  
JAS EP 21 50 58.8  
WCC EP 21 50 57.4  
MIN EP 21 50 59.3  
MNV EP 21 51 08.7

LSGS 21 39 58.1, 18.0S, 178.5W, H=601 KM, M=5.0  
FIJI ISLANDS REGION

FHC JUL 07 EP 12 27 46.4  
WCC EPD 12 27 51.8  
MIN EP 12 27 55.4  
BKS EP 12 27 58.8

MICRON 0.04 PERIOD 0.9

MHC EP 12 28 02.1  
JAS EPD 12 28 05.4  
PRI EP 12 28 08.5  
FRI EP 12 28 09.9  
MNV EP 12 28 13.2

USGS 12 18 53.9, 23.9N, 142.6E, H= 33 KM, M=5.6  
VOLCANO ISLANDS REGION

FHC JUL 07 EP 19 40 25.6  
WCC IPC 19 40 30.7  
MIN EPC 19 40 34.4  
BKS EPC 19 40 37.7

\*E 41 02  
\*E 41 06  
\*E 40 50 \*PP 41 10 \*SP 41 24  
\*E 41 51 LP 05 29

MICRON 0.27 PERIOD 0.8

PZ 19 40 41.7  
SAO EP 19 40 43.1  
JAS EP 19 40 44.3  
PRI EP 19 40 48.4  
FRI EP 19 40 45.6  
MNV EP 19 40 52.2

LSGS 19 28 42.1, 25.9N, 140.9E, H=119 KM, M=5.9  
VOLCANO ISLANDS REGION

PRI JUL 08 IP 09 39 39.8  
FRI IP 09 39 42.6  
MNV IP 09 39 49.7  
SAO EP 09 39 51.0  
JAS EP 09 39 56.3  
MHC EP 09 39 57.8  
BKS EPC 09 40 07.6

\*I 42 46  
\*I 42 56  
\*I 43 50

MICRON 0.7C PERIOD 1.5

MIA EP 09 40 31.2  
WCC EP 09 40 37.9  
FHC EP 09 40 51.3

MAG 7.0, DIST(DEC) 14  
LSGS 09 37 27.3, 29.5N, 113.3W, H= 33 KM, M=5.8  
GULF OF CALIFORNIA

JAS JUL 08 EP 10 57 21.6  
WCC EP 10 57 23.0  
MNV EP 10 57 31.2

USGS 10 48 31.2, 19.9S, 173.5W, H= 12 KM, M=5.0  
TONGA ISLANDS

WCC JUL 08 EP 12 18 54.3  
BKS E(P) 12 19 15 33 18

\*E 23 00 PKKP 33 04 PCPP+ 37 38  
\*E 23 02 \*E 23 47 PKKF 33 59  
\*E 34 34 PCPP+ 37 32 \*E 39 14  
\*E 59 35  
\*E 23 04  
\*E 23 02 PKKP 33 54 PCPP+ 37 29  
\*E 23 04 PKKP 33 52 PCPP+ 37 27  
\*E 23 06  
\*E 23 07

LSGS 12 04 42.4, 21.5N, 94.7E, H=157 KM, M=6.5  
BURMA

WCC JUL 08 EPC 21 04 48.2  
MHC EP 21 08 08.2  
JAS EP 21 08 11.9  
MNV EP 21 08 20.7

\*E 04 58 \*E 05 05  
\*E 05 22 \*E 05 30

LSGS 20 57 22.7, 52.5N, 178.3W, H= 57 KM, M=6.0  
ANDREANOF ISLANDS, ALEUTIAN ISLANDS

FHC JUL 08 EP 22 57 41.0  
WCC IPD 22 57 46.5  
MIA EPD 22 57 50.3  
BKS EPD 22 57 55.2

\*E 57 53

\*E 58 02 55 12 26 55S 15 56

MICRON 0.11 PERIOD 0.8  
PZ 0.11  
MAXR(Z) 6.6 20  
MAXH(N) 4.3 20  
MAXH(E) 6.1 20

MHC EPD 22 57 59.3  
SAO EP 22 58 01.1  
JAS IPD 22 58 02.3  
PRI EPD 22 58 07.0  
FRI EPD 22 58 07.6  
MNV EPD 22 58 09.6

\*E 58 02  
\*E 58 14  
\*E 58 16

MAG 5.6, DIST(DEC) 76  
USGS 22 46 19.6, 32.8N, 142.2E, H= 51 KM, M=5.8  
SOUTH OF HONSHU, JAPAN

WCC JUL 09 EPC 11 45 16.5  
MIN EP 11 45 21.0  
JAS EPC 11 45 35.2  
PRI E(P) 11 45 42.0  
MNV EPC 11 45 42.8

USGS 11 34 45.7, 43.6N, 147.3E, H= 36 KM, M=5.1  
KURIL ISLANDS

WCC JUL 09 EP 13 07 52.7  
MIN E(P) 13 07 56.0  
MHC E(P) 13 08 04.7  
JAS EP 13 08 06.8  
PRI E(P) 13 08 11.0  
MNV EP 13 08 13.0

LSGS 12 55 23.0, 28.2N, 130.0E, H= 33 KM, M=5.3  
RYUKYU ISLANDS

MNV JUL 09 E(P) 14 58 30.8  
JAS E(P) 14 58 47.8  
MIA E(P) 14 58 50.0

WDC E(P) 14 58 52.1  
 WDC E(P) 14 59 02.5  
 BKS E(P) 14 59 04.7  
 SAC E(P) 14 59 06.0  
 LSGS 14 54 15.1, 45.7N, 96.0W, H= 10 KM, M=4.6  
 MINNESOTA

FJC JUL 10 EP 05 42 25.6  
 WDC EP 05 42 30.7  
 MIN EP 05 42 34.2  
 BKS EPC 05 42 39.6  
 P7  
 MICRON C.02 PERIOD C.9

MHC EP 05 42 43.3  
 JAS EP 05 42 45.8  
 PRI EP 05 42 50.7  
 FRI EP 05 42 51.0  
 MNV IPC 05 42 52.1  
 USGS 05 31 20.3, 33.1N, 137.2E, H=373 KM, M=5.1  
 NEAR SOUTH COAST OF HONSHU, JAPAN

WDC JUL 10 EP 16 04 50.0 \*E 05 04  
 JAS EP 16 04 52.3 \*E 05 06  
 MIN EP 16 05 \*E 05 06  
 MNV E(P) 16 05 03.0 \*E 05 16  
 LSGS 16 02 24.6, 11.6S, 166.2E, H= 45 KM, M=5.1  
 SANTA CRUZ ISLANDS

WDC JUL 10 EP 18 43 02.2 \*E 43 15 \*E 46 30 PKKP 59 40  
 BKS EPC 18 43 05 55 10 FP 47 20 \*E 54 20 PPS 56 32  
 PKKP 59 11 \*E 59 34 \*E 01 24  
 \*E 05 22 \*E 09 00 \*E 12 11

P2 4.6  
 MAXR(Z) 25  
 MAXH(N) 16  
 MAXH(E) 30  
 PERIOD 20  
 20  
 20  
 20

MHC EP 18 43 \*E 43 10 \*E 47 45 PKKP 59 30  
 JAS EP 18 43 12.4 \*E 43 46 \*E 46 47 \*E 47 55  
 MNV EP 18 43 15.6 PKKP 59 07 \*E 59 26  
 FRI EP 18 43 \*E 43 20 PKKP 59 20  
 FRI EP 18 43 \*E 43 20  
 MAG 6.9, DIST(DEC) 108  
 LSGS 18 29 16.0, 6.5N, 126.6E, H= 86 KM, M=6.2  
 MINDANAO, PHILIPPINE ISLANDS

WDC JUL 11 EP 08 32 26.2  
 JAS EP 08 32 48.0  
 MNV EP 08 32 54.7  
 LSGS 08 23 22.3, 23.4N, 158.7E, H=118 KM, M=4.7  
 NEAR EAST COAST OF KAMCHATKA

PRI JUL 11 EPC 07 16 39.0 \*E 18 38  
 PRI EP 07 16 41.7 FP 18 42 \*E 20 35 LR 27 17  
 MHC EP 07 16 50.5 \*E 28 30  
 JAS EPC 07 16 51.7  
 BKS EPC 07 16 56.0  
 MICRON 23 38 PERIOD 8.0  
 P2 1.47  
 MAXR(Z) 22  
 MAXH(N) 24  
 MAXH(E) 7.5  
 PERIOD 18  
 19  
 20

MIA E(P) 07 17 11.3  
 WDC EPC 07 17 14.4  
 FJC E(P) 07 17 21  
 MAG 6.0, DIST(DEC) 46  
 LSGS 07 07 39.4, 4.6S, 105.0W, H= 33 KM, M=5.4  
 NORTHERN EASTER ISLAND CORDILLERA

JAS JUL 11 EP 10 54 19.4 \*E 54 30  
 LSGS 10 41 36.1, 37.9S, 73.8W, H= 33 KM, M=5.0  
 NEAR COAST OF CENTRAL CHILE

BKS JUL 11 IPD 19 07 01.9 17 22 \*E 07 20 55 23 00 \*E 26 00  
 LO 29 40 LR 33 00  
 MICRON 2.0 PERIOD 20  
 MAXR(Z) 2.0  
 MAXH(N) 1.1  
 MAXH(E) 2.0

SAD EP 19 07 \*E 07 02  
 MHC EPD 19 07 02.8 \*E 07 23  
 WDC EP 19 07 03.3 \*E 07 24  
 PRI EPD 19 07 05.0 \*E 07 26  
 JAS EPD 19 07 07.3 \*E 07 28  
 FRI EPD 19 07 08.8 \*E 07 29  
 MNV EPD 19 07 16.8 \*E 07 37  
 MAG 8.5, DIST(DEC) 84  
 LSGS 18 54 27.1, 10.3S, 161.2E, H= 79 KM, M=8.9  
 SOLOMON ISLANDS

PRI JUL 12 EP 06 58 44.6 \*E 59 26  
 MNV EPD 06 58 46.0  
 PRI EP 06 58 46.8  
 SAD EP 06 58 51  
 JAS EPD 06 58 52.0 \*E 59 31  
 MHC EP 06 58 54.4 \*E 59 34  
 BKS EP 06 59 03.9  
 MIA EP 06 59 07.2  
 WDC IPD 06 59 15.0 \*E 59 48  
 FJC EP 06 59 18.0  
 LSGS 06 47 37.5, 17.2S, 69.4W, H=156 KM, M=5.8  
 PERU-BOLIVIA BORDER REGION

BKS JUL 12 EPC 17 20 42 \*E 31 48 \*E 45 00 \*E 54 52  
 MICRON C.05 PERIOD 0.8

SAD EP 17 20 42.1  
 MHC EP 17 20 43.3  
 PRI EP 17 20 44.5  
 WDC EPC 17 20 46.2 \*E 21 24  
 MIN EP 17 20 47.4  
 JAS EP 17 20 48.4  
 FRI EP 17 20 49.2  
 MNV EPC 17 20 57.8  
 USGS 17 08 23.2, 14.7S, 167.2E, H=122 KM, M=5.7  
 NEW HEBRIDES ISLANDS

SAD JUL 12 EP 19 17 10.8 \*E 17 27  
 PRI EP 19 17 11.0 \*E 17 28  
 MHC EP 19 17 12.1 \*E 28 32 LR 42 40  
 BKS EPC 19 17 12.8  
 MICRON 27 40 PERIOD 0.9  
 P2 0.08  
 MAXR(Z) 2.2  
 MAXH(N) 3.9  
 MAXH(E) 2.4  
 PERIOD 20  
 20  
 20

PRI EP 19 17 16.1 \*E 17 32 \*E 20 50  
 JAS EPC 19 17 17.1 \*E 17 18  
 WDC EP 19 17 20.2 \*E 17 36  
 MIN EP 19 17 21.6  
 FRI EP 19 17 28.1 \*E 17 40  
 MNV EPC 19 17 28.1  
 MAG 8.7, DIST(DEC) 81  
 LSGS 19 04 45.2, 29.1S, 177.5W, H= 63 KM, M=8.6  
 KERMADEC ISLANDS

MNV JUL 13 IPD 01 16 53.5  
 JAS IPC 01 17 14.8 17 56 \*E 17 20  
 MIN EPC 01 17 22.2 \*E 17 28  
 PRI EP 01 17 \*E 17 31  
 MHC EP 01 17 31.6  
 WDC EP 01 17 44.8 18 36 \*E 17 50  
 BKS E(P) 01 17 \*E 17 50  
 PRI EP 01 17  
 ERK 01 16 38.1, 30.3N, 117.0W, H= 7 KM, M=4.0  
 LSGS 01 16 30.6, 30.6N, 117.7W, H= 5 KM, M=4.0  
 EAST OF RENO, NEVADA

MNV JUL 13 IPD 01 37 17.2  
 JAS IPC 01 37 38.8 38 20 \*E 37 48

MIN EPD 01 37 46.0  
 FRI EP 01 37  
 WCC EP 01 37 55.5 \*E 37 51  
 MHC EP 01 37 \*E 37 55  
 SAD EP 01 37 \*E 37 55  
 BKS E(P) 01 38 09 \*E 38 55  
 PRI EP 01 38  
 ERK C1 36 58.2, 35.4N, 117.7W, H= 12 KM, M=4.2  
 LSGS 01 36 54.0, 30.6N, 117.6W, H= 5 KM, M=4.2  
 EAST OF RENO, NEVADA

JAS JUL 13 EP 21 16 55.0  
 WCC E(P) 21 17 02.2  
 LSGS 21 05 31.7, 12.1N, 44.0W, H= 33 KM, M=4.7  
 NORTH ATLANTIC RIDGE

SAD JUL 14 EP 11 08 16.8  
 PRI EP 11 08 17.2  
 MHC EP 11 08 18.0  
 FRI EP 11 08 23.0  
 JAS EP 11 08 23.5  
 WDC EP 11 08 26.5  
 MIN EP 11 08 28.2  
 MNV EP 11 08 33.6  
 LSGS 10 56 30.9, 21.1S, 173.8W, H= 33 KM, M=4.9  
 TONGA ISLANDS

FJC JUL 14 12 08 \*E 08 40  
 WDC EPC 12 08 45.0  
 MIN EP 12 08 48.2  
 MHC EP 12 08 52.3  
 JAS EP 12 08 56.0  
 FRI EP 12 08 58.0  
 PRI EP 12 08 59.8  
 MNV EP 12 09 04.2  
 USGS 11 56 32.9, 13.8N, 144.7E, H=144 KM, M=4.8  
 MARIANA ISLANDS

WDC JUL 14 EP 14 55 16.5 \*E 06 32 \*E 08 18 \*E 13 34  
 BKS EP 14 55 19 \*E 22 44 \*E 26 00

MIN EP 14 55 20.0  
 MHC EP 14 55 21.2  
 PRI EP 14 55 24.5  
 JAS EP 14 55 24.9  
 FRI EP 14 55 28.7 \*E 59 34  
 MNV EP 14 55 33.0  
 USGS 14 41 39.8, 1.6S, 138.1E, H= 33 KM, M=5.6  
 NEAR NORTH COAST OF WEST IRIAN

JAS JUL 14 EP 17 54 27.8  
 WDC EP 17 54 28.6  
 MNV EP 17 54 37.5  
 LSGS 17 43 27.9, 17.4S, 178.7W, H=565 KM, M=4.9  
 FIJI ISLANDS REGION

WDC JUL 14 EPKD 23 48 04.6  
 BKS 23 48  
 \*E 48 16 PP 52 40 PPD 57 24  
 \*E 00 00 \*E 02 00 \*E 03 00  
 \*E 06 00 SS 12 52 \*E 14 36  
 \*E 18 50 \*E 19 50 \*E 26 40  
 LO 36 00 LP 43 00

MICRON 23 48 PERIOD 8.0  
 MAXR(Z) 5.7  
 MAXH(N) 3.6  
 MAXH(E) 5.3

MIN EP 23 48 \*E 48 09  
 PRI EP 23 48 \*E 48 16  
 JAS EPKD 23 48 06.3  
 MNV EPKD 23 48 08.7  
 MAG 6.2, DIST(DEC) 163  
 LSGS 23 27 55.0, 40.4S, 78.4E, H= 33 KM, M=5.6  
 TIC INDIAN RISE

FJC JUL 15 EP 04 37 41  
 WDC IPC 04 37 56.5  
 MIN EP 04 38 04.3  
 JAS IPC 04 38 36.8  
 MNV EP 04 38 52.7  
 USGS 04 36 23.9, 44.3N, 129.2W, H= 33 KM, M=4.2  
 OFF COAST OF OREGON

MNV JUL 15 EPC 16 02 04.0  
 JAS EP 16 02 13.3  
 WDC EP 16 02 17.6  
 BKS EPC 16 02 23.2  
 MICRON 09 22 LR 12 48 \*E 16 00 \*E 16 40  
 MAXR(Z) 0.43 PERIOD 20  
 MAXH(N) 1.8  
 MAXH(E) 2.5

MIN EP 16 02 28.6  
 WDC EP 16 02 32.1  
 PRI EP 16 02 43.2  
 MAG 5.0, DIST(DEC) 41  
 LSGS 15 53 55.0, 7.8N, 82.8W, H= 33 KM, M=4.8  
 SOUTH OF PANAMA

JAS JUL 15 EP 19 21 47.5  
 BKS JUL 15 EP 20 15 36 26 16 PP 18 50 \*E 21 00 LR 44 00  
 MICRON 0.53 PERIOD 20  
 MAXR(Z) 0.53  
 MAXH(N) 0.53  
 MAXH(E) 0.53

JAS EP 20 15 \*E 15 43  
 WDC EP 20 15 \*E 15 45  
 MNV EP 20 15 \*E 15 50  
 MAG 5.0, DIST(DEC) 82  
 LSGS 20 03 03.1, 30.6S, 177.4W, H= 54 KM, M=5.0  
 KERMADEC ISLANDS REGION

WDC JUL 16 EP 03 35 13.7  
 MIN EP 03 35 17.8  
 JAS EP 03 35 32.2  
 MNV EP 03 35 39.2  
 LSGS 03 24 42.7, 43.2N, 146.4E, H= 73 KM, M=4.9  
 KURIL ISLANDS

PRI JUL 16 EP 18 30 17.5 \*E 30 40 \*E 31 52 FPS 42 00  
 BKS EP 18 30 18.6 40 46 \*E 42 44 SS 48 52 \*E 47 24  
 \*E 49 48 \*E 50 10 LR 52 40  
 LR 56 12

MHC EP 18 30 18.6  
 PRI EP 18 30 22.3  
 JAS EP 18 30 23.6  
 WDC EP 18 30 26.9  
 MIN EP 18 30 27.6  
 MNV E(P) 18 30 31.4  
 EPC 18 30 31.4  
 MAG 6.3, DIST(DEC) 85  
 LSGS 18 17 44.0, 30.6S, 177.5W, H= 46 KM, M=5.3  
 KERMADEC ISLANDS REGION

PRI JUL 16 E(P) 19 50 56.0  
 MHC EP 19 51 00.4  
 BKS EPC 19 51 01.5  
 MICRON 7.1 PERIOD 20  
 MAXR(Z) 7.1  
 MAXH(N) 2.4  
 MAXH(E) 4.6

MHC EP 19 51 04.0  
 PRI EP 19 51 07.4  
 WDC EP 19 51 09.0  
 MIN EP 19 51 09.0  
 MNV E(P) 19 51 12.2  
 EPC 19 51 12.2  
 LSGS 19 38 23.4, 30.9S, 177.4W, H= 37 KM, M=5.3  
 KERMADEC ISLANDS REGION



WDC JUL 22 EFC 19 33 03.6  
BKS EP 19 33 04

EP 36 29 PPP 39 32 \*E 42 30  
SCS 44 04 PPS 45 00 SS 49 20  
SSS 53 24 LO 56 42 LR 59 30

MICRON PERIOD  
C.04 1.4

MHC EP 19 33 06.7  
JAS EPC 19 33 08.4  
PRI EP 19 33 09.6  
PRI EP 19 33 12.8  
NAV EPC 19 33 16.0

LSGS 19 20 13.8, 7.2S, 155.7E, M= 36 KM, M=5.7  
SOLCOMN ISLANDS

WDC JUL 23 EP 17 55 09.8  
BKS EP 17 55 11.6  
MIN EP 17 55 12.3  
JAS EP 17 55 14.8  
PRI EP 17 55 17.8  
PRI EP 17 55 24.3

\*E 55 31

LSGS 17 42 15.1, 7.2S, 154.9E, M= 35 KM, M=5.1  
SOLCOMN ISLANDS

SAD JUL 23 IPD 20 59 26.0  
MHC IPD 20 59 29.2 59 35  
BKS IPC 20 59 40.7 59 56  
PRI EP 20 59 42.0  
JAS IFC 20 59 45.2 00 04  
PRI EP 20 59 47.6

ERK 20 59 21.4, 36.9N, 121.6W, M= 8 KM, ML=3.3  
GILFECY, CALIFORNIA

BKS JUL 23 EP 23 35 33 46 04  
\*E 42 28 PS 47 28 SS 52 28  
SSS 56 00 LC 59 25 LR 03 00

MICRON PERIOD  
1.61 20  
MAXR(Z) 0.79 20  
MAXH(N) 1.32 20  
MAXH(E) 1.32 20

MHC EP 23 35 37.0  
PRI EP 23 35 40.0  
JAS EP 23 35 40.9  
PRI EP 23 35 42.6  
NAV EP 23 35 47.7

MAG 5.2, DIST(DEC) 88  
USGS 23 22 43.8, 7.2S, 155.1E, M= 42 KM, M=5.6  
SOLCOMN ISLANDS

MHC JUL 24 EP 00 15 26.1  
PRI EP 00 15 27.0  
JAS EP 00 15 28.5  
PRI EP 00 15 31.0  
NAV EP 00 15 37.2

LSGS 00 02 32.6, 6.6S, 154.4E, M= 56 KM, M=5.0  
SOLCOMN ISLANDS

FHC JUL 24 EP 05 40 35.4  
MIN EP 05 41 04.8  
BKS EP 05 41 24.5

\*E 40 54

MICRON PERIOD  
0.02 0.5

MHC EP 05 41 34.9  
JAS EP 05 41 37.9  
NAV EP 05 41 41.0  
PRI EP 05 41 51.5  
PRI EP 05 41 56.0

\*E 41 52

LSGS 05 39 57.1, 43.2N, 126.2W, M= 33 KM, M=4.9  
OFF COAST OF OREGON

SAD JUL 24 EPC 19 13 01.8  
PRI EPC 19 13 02.4  
BKS EPC 19 13 02.4

FZ MICRON PERIOD  
0.25 1.0

MHC EPC 19 13 02.9  
PRI EPC 19 13 06.8  
PRI EPC 19 13 07.3  
JAS EPC 19 13 08.1  
WDC EPC 19 13 09.8  
MIN EPC 19 13 11.2  
NAV EPC 19 13 16.6

\*E 15 13  
\*E 15 13

LSGS 19 01 42.6, 23.5S, 179.8W, M=579 KM, M=5.6  
SOUTH OF FIJI ISLANDS

FHC JUL 24 EP 04 14 14.8  
WDC EP 04 14 27.0  
MIN EP 04 14 41.0  
BKS EP 04 14 57.6

\*E 14 40  
\*E 15 09  
\*E 18 18 \*E 15 22 \*E 16 24

FZ MICRON PERIOD  
0.04 1.2

MHC EP 04 15 11.5  
JAS EP 04 15 24.0  
NAV EP 04 15 27.0  
PRI EP 04 15 30.0

\*E 15 10

LSGS 04 13 21.5, 43.6N, 127.0W, M= 33 KM, M=4.5  
OFF COAST OF OREGON

FHC JUL 25 E(P) 10 46 17  
WDC EP 10 46 28.2  
MIN EP 10 46 31.0  
JAS EP 10 46 32.0  
BKS EP 10 46 52.7

\*E 46 26 PCP 49 30  
\*E 46 35 PCP 49 32 ECD 53 09  
\*E 46 40 PCP 49 34 SCP 53 11  
\*E 47 02 PCP 49 38  
\*E 47 04 PCP 49 42 \*E 52 51  
\*E 53 48 \*E 59 42 \*E 51 06  
\*E 06 00 \*E 28 22

MICRON PERIOD  
C.10 1.2

MHC EP 10 46 46.0  
NAV EP 10 47 00.0  
PRI EP 10 47 10.0  
PRI EP 10 47 10.0

USGS 10 40 25.0, 55.1N, 160.4W, M= 17 KM, M=5.8  
ALASKA PENINSULA

JAS JUL 25 EP 18 59 20.2  
WDC EP 18 59 23.2  
NAV EP 18 59 28.2

LSGS 18 46 39.7, 31.1S, 177.4W, M= 44 KM, M=4.4  
KERMADEC ISLANDS REGION

MIN JUL 25 IPD 22 23 25.8 53 35  
WDC IFC 22 23 30.6 53 41  
JAS EP 22 23 54

ERK 22 23 15.3, 39.8N, 122.2W, M= 5 KM, ML=3.0  
NORTHWEST OF CHICO, CALIFORNIA

WDC JUL 25 EP 22 58 16.9  
JAS EP 22 58 37.3  
NAV EP 22 58 44.7

LSGS 22 47 45.5, 42.9N, 146.9E, M= 43 KM, M=4.9  
OFF COAST OF HOKKAIDO, JAPAN

JAS JUL 26 EP 07 30 05.5  
USGS 07 19 20.0, 44.1N, 28.7W, M= 33 KM, M=4.5  
NORTH ATLANTIC RIDGE

PRI JUL 26 EP 18 37 06.9  
JAS EPD 18 37 07.9  
PRI EP 18 37 09.5  
NAV EPD 18 37 16.8

LSGS 18 24 07.7, 7.2S, 154.5E, M= 39 KM, M=5.2  
SOLCOMN ISLANDS

FHC JUL 27 EPC 04 16 32.2  
WDC EP 04 16 31.5  
MIN EP 04 17 00.7  
BKS EPC 04 17 22.4

\*E 17 26 \*E 17 42 \*E 17 54  
\*E 18 48 LR 19 06

FZ MICRON PERIOD  
0.02 0.8  
MAXR(Z) 3.6 20

MHC JUL 27 EP 04 17 29  
JAS EP 04 17 32.5  
PRI EP 04 17 32.5

MAXH(N) 2.4  
MAXH(E) 2.9

20  
20

LSGS 04 15 41.0, 43.7N, 127.2W, M= 31 KM, M=4.7  
OFF COAST OF OREGON

MNV JUL 27 IPD 11 47 16.6 47 35  
PRI IPC 11 47 20.9 47 40  
JAS EPC 11 47 31.2 48 02  
PRI EP 11 47 36.8  
SAD EP 11 47 42.6  
MHC E(P) 11 47 48.2

ERK 11 46 54.9, 37.2N, 117.9W, M= 2 KM, ML=3.3  
SOUTHEAST OF BISHOP, CALIFORNIA

MNV JUL 27 IPC 12 49 00.9  
PRI IPC 12 49 03.2 49 22  
JAS EP 12 49 13.7 49 44  
PRI EP 12 49 15.8  
SAC EP 12 49 25.0

FRK 12 48 37.9, 37.2N, 118.0W, M= 2 KM, ML=3.3  
SOUTHEAST OF BISHOP, CALIFORNIA

SAD JUL 28 EP 05 19 32  
MHC EP 05 19 33  
BKS EPC 05 19 33.5

FZ MICRON PERIOD  
0.04 0.8

PRI EPD 05 19 34  
JAS EPD 05 19 39  
WDC EPD 05 19 40.6

LSGS 05 09 32.1, 20.4S, 178.6W, M=609 KM, M=5.0  
FIJI ISLANDS REGION

BKS JUL 28 EPD 08 57 48.5

SCS 08 40 PPS 09 36 SS 14 04  
SSS 17 23 LG 21 56 \*E 22 52  
LR 25 20

PZ MICRON PERIOD  
C.04 1.0  
MAXR(Z) 4.6 20  
MAXH(N) C.36 20  
MAXH(E) 4.1 20

WDC EP 08 57 48.5  
MHC EP 08 57 49.5  
SAD E(P) 08 57 50  
PRI EP 08 57 53.5  
JAS EPC 08 57 54

MAG 5.8, DIST(DEC) 88  
LSGS 08 44 55.3, 6.9S, 154.5E, M= 38 KM, M=5.7  
SOLCOMN ISLANDS

JAS JUL 28 EP 11 53 35 54 01  
PRI EP 11 53 47  
SAD EP 11 53 52  
MHC EP 11 53 53

ERK 11 53 10.1, 37.5N, 118.3W, M= 5 KM, ML=3.2  
BISHOP AREA, CALIFORNIA

PRI JUL 28 EP 14 46  
MNV EP 14 46 06.4 \*E 46 02  
JAS EP 14 46 14.0  
MHC EP 14 46  
BKS EPD 14 46 25.2 49 39 \*E 46 17 \*E 46 34 \*E 50 13 LR 52 51

PZ MICRON PERIOD  
C.02 C.5  
MAXR(Z) 0.29 20  
MAXH(N) 2.0 20  
MAXH(E) 4.2 20

WDC EP 14 46 51.0  
FHC EP 14 47 08.2

MAG 4.5, DIST(DEC) 16  
LSGS 14 42 36.2, 25.3N, 109.6W, M= 33 KM, M=4.7  
GULF OF CALIFORNIA

PRI JUL 28 EP 15 29 41  
PRI EP 15 29 41.7  
JAS EP 15 29 56.0  
MHC EP 15 29 58.2  
BKS E(P) 15 30 11

33 17 LC 33 56 LR 36 35

FZ MICRON PERIOD  
0.07 1.2  
MAXR(Z) 1.2 20  
MAXH(N) 7.1 20  
MAXH(E) 14.6 20

WDC EP 15 30 27.3  
FHC EP 15 30 32.4  
FHC EP 15 30 44.6

MAG 5.1, DIST(DEC) 17  
LSGS 15 26 17.9, 25.4N, 109.6W, M= 36 KM, M=4.8  
GULF OF CALIFORNIA

PRI JUL 28 E(P) 16 55 16.3  
PRI EP 16 55 17.5  
MNV EP 16 55 24.7  
JAS EP 16 55 32.0  
MHC EP 16 55 34.3  
BKS EP 16 56

\*E 58 56 LR 00 48

MICRON PERIOD  
C.36 20  
MAXR(Z) 1.8 20  
MAXH(N) 3.8 20  
MAXH(E) 3.8 20

WDC EP 16 56 09.0  
FHC EP 16 56 09.0

LSGS 16 51 53.5, 25.4N, 109.7W, M= 33 KM, M=4.9  
GULF OF CALIFORNIA

FRI JUL 28 EP 17 00 58.3  
MNV EP 17 01 07.0  
JAS EP 17 01 13.0  
MHC EP 17 01 14.2  
WDC EP 17 01 47.8

THIS MAY BE PCP PHASE OF ABOVE EVENT

PRI JUL 28 EP 17 45 46.0  
MNV EP 17 45 55.3  
JAS EP 17 46 02.5  
BKS EPC 17 46 16.5

49 16 LR 50 04 LR 51 20

PZ MICRON PERIOD  
C.02 0.8  
MAXR(Z) 0.21 20  
MAXH(N) 1.6 20  
MAXH(E) 3.2 20

WDC EP 17 46 40.2  
FHC EP 17 46 40.2

MAG 4.4, DIST(DEC) 16  
LSGS 17 42 20.3, 25.0N, 109.5W, M= 33 KM, M=4.7  
GULF OF CALIFORNIA

JAS JUL 28 EP 18 35  
MNV EP 18 35 59.6 \*E 35 50

LSGS 18 22 53.6, 6.9S, 154.5E, M= 44 KM, M=4.9  
SOLCOMN ISLANDS

WDC JUL 28 EP 21 38 00.6  
PRI EP 21 38 02.6  
JAS EP 21 38 07.5  
MNV EP 21 38 12.8

USGS 21 28 04.7, 6.8S, 154.6E, M= 37 KM, M=5.3  
SOLCOMN ISLANDS

MNV JUL 29 EP 01 21 58.7  
JAS EP 01 22 06.0  
MHC EP 01 22 10.3  
WDC EP 01 22 24.2

LSGS 01 12 47.3, 1.4S, 77.9W, M=120 KM, M=4.6  
ECUADOR

FHC JUL 29 EP 01 49 05.1  
WDC EP 01 49 15.3  
MIN EP 01 49 26.2  
BKS EP 01 49 51.8

\*E 01 08 \*E 49 57 \*E 50 02 \*E 51 01

\*E 51 16 \*E 51 27 LP 53 12  
 MICRON C.14 PERIOD C.9  
 WDC EP 01 50 00.5  
 BKS EP 01 50 02.2  
 JAS EP 01 50 07.7  
 SAC EP 01 50 12.2  
 MNV EP 01 50 16.7  
 PRI EP 01 50 20.9  
 DRI EP 01 50 20.9  
 USGS C1 4E 16.2, 43.7N, 126.0W, H= 33 KM, M=5.2  
 OFF COAST OF OREGON  
 WDC JUL 29 EP 14 10 29.4  
 MIN EP 14 10 34.1  
 BKS EP 14 10 42.7  
 MICRON 0.03 PERIOD 0.8  
 WDC EP 14 10 46.7  
 JAS EP 14 10 49.4  
 SAC EP 14 10 55.5  
 MNV EP 14 10 56.2  
 PRI EP 14 10 56.6  
 USGS 14 00 32.4, 46.6N, 151.5E, H= 83 KM, M=5.2  
 KUFIL ISLANDS  
 WDC JUL 30 EPKF 09 35 56.2  
 FHC EPKF 09 35 57.4  
 PRI EPKF 09 35 59.0  
 JAS EPKF 09 36 00.1  
 SAC EPKF 09 36 00.3  
 MNV EPKF 09 36 02.0  
 PRI EPKF 09 36 04.2  
 BKS EPKF 09 36 04.2  
 \*SS 45 47 SP 46 35 \*E 47 24  
 FPS 48 18 SS 53 20 \*E 54 18  
 PDP 55 14 SSS 57 32 SKFF 00 20  
 \*E 05 36 LR 12 10  
 MICRON PERIOD  
 MAXR(?) 4.6 20  
 MAXM(N) 1.1 20  
 MAXM(E) 4.5 20  
 MAG 6.0, DIST(DEC) 119  
 USGS 09 17 12.9, 10.0S, 123.0E, H= 16 KM, M=5.6  
 TIMCF  
 WDC JUL 31 EP 08 50 19.0  
 MIN EP 08 50  
 BKS EP 08 50  
 MICRON C.10 PERIOD 11 20  
 MAXR(?) 1.6 20  
 MAXM(N) 0.7 20  
 MAXM(E) 0.7 20  
 WDC EP 08 50 24.8  
 JAS EP 08 50 24.9  
 SAC EP 08 50 27.0  
 MNV EP 08 50 29.5  
 PRI EP 08 50 35.6  
 USGS 08 38 57.3, 15.9S, 173.0E, H= 25 KM, M=5.2  
 TONGA ISLANDS  
 WDC JUL 31 EP 16 37 27  
 BKS EP 16 37 30  
 MICRON 49 26 PERIOD 0.8  
 MAXR(?) 5.5 20  
 MAXM(N) 1.25 20  
 MAXM(E) 4.5 20  
 PRI EP 16 37 31  
 JAS EP 16 37 31.5  
 PRI EP 16 37 34  
 MAG 5.2, DIST(DEC) 50  
 USGS 16 24 32.5, 5.2S, 152.0E, H= 53 KM, M=5.7  
 NEW BRITAIN REGION  
 WDC AUG 01 EP 14 06 46.2  
 MIN EP 14 06 53.5  
 BKS EP 14 07 24.8  
 MICRON 0.02 PERIOD 0.8  
 MAXR(?) 5.5 20  
 MAXM(N) 1.25 20  
 MAXM(E) 4.5 20  
 WDC EP 14 07 34.2  
 JAS EP 14 07 34.2  
 MNV EP 14 07 34.2  
 USGS 14 04 23.7, 49.3N, 128.0W, H= 16 KM, M=4.7  
 VANCOUVER ISLAND REGION  
 WDC AUG 01 EP 14 53 11  
 MIN EP 14 53 17.2  
 BKS EP 14 53 20.6  
 PRI EP 14 53 22.5  
 MICRON 0.05 PERIOD 1.0  
 MAXR(?) 5.5 10  
 MAXM(N) 5.5 14  
 MAXM(E) 5.5 17  
 WDC EP 14 53 32.2  
 JAS EP 14 53 32.2  
 MNV EP 14 53 37.3  
 PRI EP 14 53 37.3  
 USGS 14 41 28.6, 18.4N, 148.5E, H=193 KM, M=5.3  
 MARIANA ISLANDS  
 WDC AUG 01 EP 15 45 54.2  
 MIN EP 15 46 00.3  
 BKS EP 15 46 04.5  
 JAS EP 15 46 07.6  
 SAC EP 15 46 12.7  
 MNV EP 15 46 16.8  
 PRI EP 15 46 20.5  
 WDC EP 15 46 23.5  
 JAS EP 15 46 23.9  
 PRI EP 15 46 34.7  
 BRK 15 45 37.8, 39.4N, 121.5W, H= 7 KM, ML=3.8  
 CROVILLE, CALIFORNIA  
 WDC AUG 01 EP 16 27 34.5  
 MIN EP 16 27 40.5  
 BKS EP 16 27 46.0  
 JAS EP 16 27 47.8  
 SAC EP 16 27 52.7  
 MNV EP 16 27 56.6  
 PRI EP 16 28 00.6  
 WDC EP 16 28 03.4  
 JAS EP 16 28 04.2  
 PRI EP 16 28 12.4  
 BRK 16 27 17.0, 39.4N, 121.5W, H= 5 KM, ML=4.7  
 CROVILLE, CALIFORNIA  
 WDC AUG 01 EP 17 27 06.4  
 MIN EP 17 27 12.2  
 BKS EP 17 27 18  
 JAS EP 17 27 20.6  
 SAC EP 17 27 24.6  
 MNV EP 17 27 33.1  
 PRI EP 17 27 38.7  
 WDC EP 17 27 38.0  
 BRK 17 26 50.1, 39.5N, 121.5W, H= 9 KM, ML=3.0  
 CROVILLE, CALIFORNIA  
 WDC AUG 01 EP 20 20 21.3  
 MIN EP 20 20 27.4  
 BKS EP 20 20 32  
 JAS EP 20 20 34.4  
 SAC EP 20 20 39.4  
 MNV EP 20 20 43.0  
 PRI EP 20 20 47.1  
 WDC EP 20 20 49.7  
 JAS EP 20 20 50.3  
 MNV EP 20 20 58.4  
 PRI EP 20 20 58.4  
 BRK 20 20 04.8, 36.4N, 121.5W, H= 8 KM, ML=4.5  
 CROVILLE, CALIFORNIA  
 WDC AUG 01 EP 20 20 25.4

WDC E(P) 20 20 35.5  
 BKS E(P) 20 20 40  
 JAS E(P) 20 20 42.5  
 SAC E(P) 20 20 47.2  
 MNV E(P) 20 20 51.1  
 PRI E(P) 20 20 56.5  
 WDC E(P) 20 20 57.8  
 BKS E(P) 20 20 58.4  
 JAS E(P) 20 20 58.4  
 SAC E(P) 20 20 58.4  
 MNV E(P) 20 20 58.4  
 PRI E(P) 20 20 58.4  
 CROVILLE MAIN SHOCK - TIMES ARE APPROXIMATED BASED ON  
 CATCHER 8.1 SECONDS EARLIER - SEE REFERENCE ON  
 PAGE 24 OF THIS BULLETIN.  
 ERK 20 20 12.9, 39.4N, 121.5W, ML=5.7  
 CROVILLE, CALIFORNIA  
 WDC AUG 01 EP 20 28 35.0  
 MIN EP 20 28 39.4N, 121.5W, ML=4.7  
 CROVILLE, CALIFORNIA  
 WDC AUG 01 EP 20 29 28.5  
 MIN EP 20 29 40  
 BKS EP 20 29 47  
 JAS EP 20 29 51  
 SAC EP 20 29 54.7  
 PRI EP 20 29 58  
 ERK 20 29 39.4N, 121.5W, ML=4.6  
 CROVILLE, CALIFORNIA  
 WDC AUG 01 EP 20 32 42.1  
 MIN EP 20 33 09.5  
 BKS EP 20 32 39.8, 39.4N, 121.5W, H= 5 KM, ML=3.0  
 CROVILLE, CALIFORNIA  
 WDC AUG 01 EP 20 37 55  
 MIN EP 20 38 01.2  
 BKS EP 20 38 06  
 JAS EP 20 38 07.7  
 SAC EP 20 38 13.5  
 PRI EP 20 38 21.5  
 ERK 20 37 39.4N, 121.5W, ML=3.5  
 CROVILLE, CALIFORNIA  
 WDC AUG 01 EP 20 45 34.7  
 MIN EP 20 45 41.5  
 BKS EP 20 45 55  
 PRI EP 20 46 05  
 BRK 20 45 39.4N, 121.5W, ML=3.0  
 CROVILLE, CALIFORNIA  
 WDC AUG 01 EP 20 46 24.5  
 MIN EP 20 46 32.5  
 BKS EP 20 46 42.5  
 PRI EP 20 46 42.5  
 ERK 20 46 18.4, 39.5N, 121.5W, H= 6 KM, ML=3.8  
 CROVILLE, CALIFORNIA  
 WDC AUG 01 EP 21 06 03.0  
 MIN EP 21 06 09.0  
 BKS EP 21 06 25  
 PRI EP 21 06 25  
 ERK 21 06 39.6, 39.4N, 121.5W, H= 7 KM, ML=3.0  
 CROVILLE, CALIFORNIA  
 WDC AUG 01 EP 21 16 41.6  
 MIN EP 21 16 46.5  
 BKS EP 21 16 51  
 JAS EP 21 16 53  
 SAC EP 21 16 59  
 MNV EP 21 17 06  
 PRI EP 21 17 09  
 WDC EP 21 17 10.4  
 ERK 21 16 23.8, 39.4N, 121.5W, H= 8 KM, ML=3.2  
 CROVILLE, CALIFORNIA  
 WDC AUG 01 EP 21 22 07.1  
 MIN EP 21 22 13.2  
 BKS EP 21 22 19  
 JAS EP 21 22 20  
 SAC EP 21 22 25.2  
 MNV EP 21 22 29.5  
 PRI EP 21 22 33.1  
 WDC EP 21 22 36.3  
 JAS EP 21 22 37  
 PRI EP 21 22 45  
 ERK 21 21 50.6, 39.4N, 121.5W, H= 8 KM, ML=4.1  
 CROVILLE, CALIFORNIA  
 WDC AUG 01 EP 21 26 15.0  
 MIN EP 21 26 21.3  
 BKS EP 21 26 27  
 JAS EP 21 26 29.0  
 SAC EP 21 26 34  
 MNV EP 21 26 40  
 PRI EP 21 26 45.5  
 ERK 21 26 45.5  
 ERK 21 25 59.0, 39.5N, 121.5W, H= 7 KM, ML=3.3  
 CROVILLE, CALIFORNIA  
 WDC AUG 01 EP 21 29 40.6  
 MIN EP 21 29 46.6  
 BKS EP 21 29 50.5  
 JAS EP 21 29 53.5  
 SAC EP 21 29 58.2  
 MNV EP 21 30 02  
 PRI EP 21 30 06.2  
 WDC EP 21 30 09.5  
 JAS EP 21 30 09.7  
 PRI EP 21 30 09.7  
 ERK 21 29 24.1, 39.5N, 121.5W, H= 7 KM, ML=3.6  
 CROVILLE, CALIFORNIA  
 WDC AUG 01 EP 22 05 12.8  
 MIN EP 22 05 18.5  
 BKS EP 22 05 23.5  
 JAS EP 22 05 25.5  
 SAC EP 22 05 30.5  
 MNV EP 22 05 41.0  
 PRI EP 22 05 41.0  
 ERK 22 04 56.0, 39.4N, 121.5W, H= 7 KM, ML=3.1  
 CROVILLE, CALIFORNIA  
 WDC AUG 01 EP 22 11 21.3  
 MIN EP 22 11 27.5  
 BKS EP 22 11 34  
 JAS EP 22 11 34  
 MNV EP 22 11 50.7  
 PRI EP 22 11 50.7  
 ERK 22 11 04.7, 39.4N, 121.5W, H= 7 KM, ML=3.1  
 CROVILLE, CALIFORNIA  
 WDC AUG 01 EP 22 24 00.8  
 MIN EP 22 24 06.9  
 BKS EP 22 24 13.7  
 JAS EP 22 24 18.2  
 SAC EP 22 24 18.2  
 MNV EP 22 24 18.2  
 PRI EP 22 24 18.2  
 ERK 22 23 43.9, 39.4N, 121.5W, H= 7 KM, ML=3.2  
 CROVILLE, CALIFORNIA  
 WDC AUG 01 EP 23 44 57.0  
 MIN EP 23 45 03.1  
 BKS EP 23 45 11  
 JAS EP 23 45 11.1  
 SAC EP 23 45 16.5  
 MNV EP 23 45 19.5  
 PRI EP 23 45 32.0  
 ERK 23 44 41.0, 39.5N, 121.5W, H= 8 KM, ML=3.4  
 CROVILLE, CALIFORNIA  
 WDC AUG 02 EP 00 15 12.1  
 MIN EP 00 15 14  
 BKS EP 00 15 24.5  
 JAS EP 00 15 24.6  
 SAC EP 00 15 29  
 MNV EP 00 15 31.0  
 PRI EP 00 15 31.0  
 ERK 00 14 07.7, 33.5N, 116.6W, H= 13 KM, M=4.6  
 SOUTHERN CALIFORNIA  
 WDC AUG 02 EP 00 23 04.3



WDC IPC 00 23 10.2  
 BKS EP 00 23 17.2  
 JAS IPC 00 23 18.4  
 MHC EP 00 23 24.1  
 FHC EP 00 23 28.8  
 SAC EP 00 23 32.0  
 MNV IPC 00 23 34.3  
 FRI EP 00 23 35.3  
 PRI EP 00 23 41.1  
 BRK 00 22 42.2, 39.5N, 121.5W, H= 7 KM, ML=3.8  
 GROVILLE, CALIFORNIA

BKS AUG 02 EP 01 26 32.0  
 PRI EP 01 26 32.3  
 WDC EP 01 26 32.6  
 BKS EP 01 26 35.8  
 FHC EP 01 26 37.2  
 FRI EP 01 26 37.2  
 JAS IPC 01 26 37.2  
 WDC IPC 01 26 39.4  
 MNV EP 01 26 41.2  
 PRI IPC 01 26 46.3  
 USGS 01 45 18.5, 22.05, 175.5W, H=576 KM, M=5.3  
 SOUTH OF FIJI ISLANDS

WIA AUG 02 EPD 06 32 13.7  
 WDC EPC 06 32 20.3  
 BKS EP 06 32 22  
 JAS EPC 06 32 26.7  
 MHC EP 06 32 32.2  
 FHC EP 06 32 40.8  
 SAC E(F) 06 32 43.0  
 MNV E(P) 06 32 43.1  
 FRI EPK 06 31 57.2, 39.4N, 121.5W, H= 6 KM, ML=3.2  
 GROVILLE, CALIFORNIA

WDC AUG 02 IPC 10 12 15.8  
 BKS E(P) 10 12 22.8  
 JAS EFC 10 12 23.8  
 MHC E(P) 10 12 29.5  
 FHC E(P) 10 12 31.8  
 SAC EP 10 12 38.5  
 MNV EPD 10 12 35.7  
 FRI E(F) 10 12 40.3  
 PRK 10 11 57.7, 39.5N, 121.5W, H= 7 KM, ML=3.1  
 GROVILLE, CALIFORNIA

FHC AUG 02 EPD 10 24 11.1 \*E 24 23 \*E 27 22  
 WDC IPC 10 24 19.1 \*E 24 30 \*E 31 04  
 BKS EPD 10 24 36 29 44  
 MICRON PERIOD  
 FZ 0.50 1.0  
 MAXR(7) 14.5 20  
 MAX(N) 13.4 20  
 MAX(E) 11.1 20  
 MHC EPD 10 24 42.1 \*E 24 54 \*E 27 31  
 JAS EPD 10 24 45.0 \*E 24 57 \*E 24 06 \*E 31 13  
 SAC EP 10 24 46.1  
 MNV EPD 10 24 53.7 \*E 27 35 \*E 31 17  
 FRI EPD 10 24 54.0 \*E 27 32 \*E 31 28  
 PRI EPD 10 24 54.2 \*E 27 32 \*E 31 28  
 MAG 5.7, DIST(DEG) 33  
 USGS 10 16 17.9, 53.4N, 161.5W, H= 33 KM, M=6.2  
 SOUTH OF ALASKA

MIN AUG 02 IPC 10 49 17.2  
 WDC EPC 10 49 23.5  
 BKS E(P) 10 49 28 49 49  
 JAS EPD 10 49 29.4  
 MHC EP 10 49 36.0  
 FHC E(P) 10 49 40  
 SAC EP 10 49 43.5  
 MNV EP 10 49 46.0  
 FRI EP 10 49 46.0  
 BRK 10 45 00.1, 39.4N, 121.5W, H= 6 KM, ML=3.3  
 GROVILLE, CALIFORNIA

WIA AUG 02 EP 11 52 20 52 41 \*E 52 07  
 BKS EP 11 52 26.2  
 MHC E(P) 11 52 30  
 SAC EP 11 52 34.2  
 MNV EP 11 52 36.5  
 FRI E(P) 11 52 38.0  
 ARRIVAL TIMES ARE PARTIALLY OBSCURED BY A SMALL  
 EARTHQUAKE 27.5 SECONDS EARLIER.  
 BRK 11 51 50.7, 39.5N, 121.5W, H= 2 KM, ML=3.4  
 GROVILLE, CALIFORNIA

MIN AUG 02 IPC 14 44 55.9  
 WDC IPC 14 45 02.2  
 BKS EP 14 45 06.2 45 26  
 JAS IPD 14 45 08.0  
 MHC EP 14 45 13.8  
 FHC E(P) 14 45 18.2  
 SAC EP 14 45 22.5  
 MNV IPD 14 45 24.2  
 FRI E(P) 14 45 25  
 BRK 14 44 38.7, 39.4N, 121.5W, H= 5 KM, ML=3.2  
 GROVILLE, CALIFORNIA

MIN AUG 02 IPC 16 22 02.2  
 WDC IPC 16 22 08.4  
 BKS EP 16 22 12.0 52 32  
 JAS IPC 16 22 14.1  
 MHC EP 16 22 20.2  
 FHC EP 16 22 24.6  
 SAC EP 16 22 27.5  
 MNV IPC 16 22 30.4  
 FRI EP 16 22 31.0  
 PRI E(P) 16 22 30.5  
 BRK 16 21 45.1, 39.4N, 121.5W, H= 6 KM, ML=3.7  
 GROVILLE, CALIFORNIA

PRI AUG 02 EP 17 18 50.0  
 FRI EP 17 18 51.5  
 MNV EP 17 18 58.0  
 JAS EP 17 19 05.0  
 MHC EP 17 19 06.0  
 BKS EP 17 19 14.5 22 48 \*E 23 52  
 MICRON PERIOD  
 PZ 0.06 1.5  
 MAX(N) 8.5 20  
 MAX(E) 9.3 20  
 MIN EP 17 19 34.0  
 WDC EP 17 19 40.0  
 MAG 4.5, DIST(DEG) 21  
 USGS 17 18 05.5, 23.9N, 102.7W, H= 33 KM, M=5.0  
 GULF OF CALIFORNIA

WIA AUG 02 IPC 17 24 45.3  
 WDC IPC 17 24 52.0  
 BKS EP 17 24 57.0 25 18  
 JAS IPC 17 24 58.8  
 MHC EPD 17 25 05.1  
 FHC EP 17 25 07.9  
 SAC EP 17 25 13.0  
 MNV IPC 17 25 14.0  
 FRI EP 17 25 16.0  
 PRI EPC 17 25 24.0  
 BRK 17 24 29.2, 39.5N, 121.5W, H= 6 KM, ML=4.3  
 GROVILLE, CALIFORNIA

WIA AUG 02 IPC 17 43 40.1  
 WDC IPC 17 43 46.5  
 BKS EP 17 43 52.8 44 14  
 JAS IPC 17 43 53.9  
 MHC EP 17 43 55.7  
 FHC EP 17 44 02.6  
 SAC EP 17 44 07.2  
 MNV IPC 17 44 09.5  
 FRI EP 17 44 11.0  
 PRI EP 17 44 15  
 MAG 4.0, GROVILLE

BRK 17 43 24.1, 39.5N, 121.5W, H= 6 KM, ML=3.8  
 GROVILLE, CALIFORNIA  
 WIA AUG 02 IFC 19 58 53.2  
 WDC IP 19 58 55.4  
 JAS IPC 19 59 06.7  
 MHC E(P) 19 59 11.5  
 MNV EPD 19 59 22.2  
 BRK 19 58 36.8, 39.4N, 121.5W, H= 7 KM, ML=3.1  
 GROVILLE, CALIFORNIA

MIN AUG 02 IPD 20 22 33.0  
 WDC IPD 20 22 35.2  
 BKS EPD 20 22 43.7 23 06  
 JAS IPC 20 22 48.8  
 MHC EPC 20 22 51.3  
 FHC EPC 20 22 56.0  
 SAC EP 20 22 59.6  
 MNV EP 20 23 01.2  
 FRI EP 20 23 02.7  
 PRI E(P) 20 23 11.2  
 BRK 20 22 16.3, 39.4N, 121.5W, H= 4 KM, ML=5.1  
 GROVILLE, CALIFORNIA

MIN AUG 02 IFC 20 36 04.7  
 WDC IPC 20 36 11.4  
 BKS EP 20 36 17 36 38  
 JAS IPC 20 36 18.3  
 MHC EP 20 36 24.3  
 FHC EP 20 36 27.3  
 SAC EP 20 36 32.2  
 MNV IFC 20 36 34.2  
 FRI E(P) 20 36 35.0  
 PRI E(P) 20 36 43.2  
 BRK 20 35 48.6, 39.5N, 121.5W, H= 6 KM, ML=3.9  
 GROVILLE, CALIFORNIA

MIN AUG 02 IPD 20 59 12.6  
 WDC IPC 20 59 19.2  
 BKS E(P) 20 59 23.8  
 JAS EPC 20 59 24.8  
 MHC E(F) 20 59 30.6  
 FHC EPC 20 59 36.6  
 SAC E(P) 20 59 39.0  
 MNV E(P) 20 59 40.8  
 FRI E(P) 20 59 42.0  
 MAGNITUDE DETERMINED BY P PHASE COMPARISON WITH  
 20 35 EVENT  
 BRK 20 58 55.7, 39.4N, 121.5W, H= 6 KM, ML=3.8  
 GROVILLE, CALIFORNIA

BKS EP 20 59 31.8  
 FHC E(P) 20 59 43.2  
 PRI E(P) 20 59 58.3  
 BEST READINGS ARE LOST IN CCDs OF FORESHOCK 7.5  
 SECONDS EARLIER  
 BRK 20 59 15.4N, 121.5W, ML=3.2  
 GROVILLE, CALIFORNIA

MIN AUG 02 EPC 21 12 00.8  
 WDC EP 21 12 06.2  
 JAS EPC 21 12 14.2  
 MHC E(P) 21 12 21  
 MNV E(P) 21 12 30  
 BRK 21 11 44.5, 39.4N, 121.5W, H= 2 KM, ML=3.1  
 GROVILLE, CALIFORNIA

MIN AUG 02 IPC 21 40 18.3  
 WDC IPC 21 40 24.7  
 BKS EP 21 40 29.5 40 50  
 JAS EPC 21 40 30.4  
 MHC EP 21 40 36.3  
 SAC EP 21 40 40.5  
 MNV EPD 21 40 44.3  
 FRI EP 21 40 47.2  
 PRI EP 21 40 55.2  
 BRK 21 40 01.3, 39.4N, 121.5W, H= 5 KM, ML=3.9  
 GROVILLE, CALIFORNIA

PRI AUG 02 IPC 23 56 12.8  
 FRI IPC 23 56 18.1  
 SAC IPD 23 56 21.7  
 JAS EPD 23 56 30.6  
 MNV EPC 23 56 48.4  
 BRK 23 56 04.1, 36.5N, 120.3W, H= 2 KM, ML=2.8  
 COALINGA, CALIFORNIA

MIN AUG 03 IPD 01 03 21.6  
 WDC IPC 01 03 27.2  
 BKS EPD 01 03 31  
 JAS IPC 01 03 35.2  
 MHC EP 01 03 40.5  
 SAC EP 01 03 48.2  
 MNV EP 01 04 00.2  
 FRI EPC 01 04 00.2  
 PRI EPC 01 04 00.2  
 BRK 01 03 05.8, 39.5N, 121.5W, H= 8 KM, ML=4.6  
 GROVILLE, CALIFORNIA

MIN AUG 03 IPC 02 47 24.7  
 WDC IPC 02 47 31.2  
 BKS EP 02 47 37 47 58  
 JAS EPC 02 47 38.7  
 MHC EP 02 47 44.0  
 FHC EP 02 47 46.0  
 SAC EP 02 47 52.0  
 MNV IPC 02 47 54.6  
 FRI EP 02 47 55.0  
 PRI E(F) 02 48 03.3  
 BRK 02 47 08.8, 39.5N, 121.5W, H= 7 KM, ML=4.1  
 GROVILLE, CALIFORNIA

PRI AUG 03 IPC 03 30 41.2  
 FRI IPD 03 30 47.2  
 SAC IP 03 30 50.2  
 JAS EPC 03 30 59.2  
 BRK 03 30 33.3, 36.5N, 120.3W, H= 3 KM, ML=2.5  
 COALINGA, CALIFORNIA

PRI AUG 03 IPC 04 30 45.2  
 FRI IPD 04 30 52.2  
 SAC IPD 04 30 58.6  
 MHC EPC 04 31 04.5  
 JAS IFD 04 31 07.7  
 BKS EP 04 31 20.5  
 BRK 04 30 41.2, 36.5N, 120.3W, H= 7 KM, ML=3.0  
 COALINGA, CALIFORNIA

PRI AUG 03 IPC 05 27 25.7  
 FRI IPD 05 27 31.1  
 SAC EPC 05 27 34.2  
 MHC EPC 05 27 41.1  
 JAS IPD 05 27 43.7  
 BKS EP 05 27 52  
 MNV EPC 05 28 01.7  
 BRK 05 27 17.2, 36.5N, 120.3W, H= 5 KM, ML=4.0  
 COALINGA, CALIFORNIA

PRI AUG 03 IPC 06 04 56.2  
 FRI IPD 06 05 02.0  
 SAC EPC 06 05 05.4  
 MHC IPD 06 05 11.7  
 JAS EP 06 05 14.5  
 BKS EPD 06 05 22  
 MNV EPD 06 05 32.3  
 BRK 06 04 47.0, 36.5N, 120.3W, H= 1 KM, ML=3.9  
 COALINGA, CALIFORNIA  
 PRI AUG 03 EPC 06 35 24.7  
 FRI EPC 06 35 30.4  
 SAC EPC 06 35 33.8  
 MHC EPC 06 35 40.4 35 58  
 JAS EPD 06 35 42.2 36 02



USGS 21 28 07.8, 43.1N, 126.2W, H= 33 KM, M=4.5  
OFF CREGCN CCAST

BRK C7 CC 50.1, 39.5N, 121.5W, H= 8 KM, ML=3.0  
OROVILLE, CALIFORNIA

FHC AUG 06 EPD 21 48 12.7 \*E 49 21  
WDC IPD 21 48 17.9  
MIN E(P) 21 48 18.7  
MHC EPD 21 48 33.5 \*E 49 34  
JAS IPD 21 48 36.0  
FRI EPD 21 48 41.9  
MNV IPD 21 48 42.2  
PRI E(P) 21 48 42.2  
USGS 21 37 39.7, 43.9N, 139.3E, H=230 KM, M=5.6  
EASTERN SEA OF JAPAN

MIN AUG 08 IPD 13 38 09.8  
WDC IPC 13 38 16.2  
BKS EP 13 38 22.2 38 44  
JAS IFD 13 38 24.8  
MHC EP 13 38 29.8  
FHC EP 13 38 33.0  
SAO EP 13 38 38.8  
MNV EP 13 38 35.7  
ERK 13 37 53.9, 39.5N, 121.5W, H= 6 KM, ML=3.2  
OROVILLE, CALIFORNIA

MHC AUG 06 IPD 22 23 20.9 23 27  
SAO IPD 22 23 21.0  
BKS EP 22 23 34.3 23 50  
JAS EP 22 23 36.7  
PRI E(P) 22 23 39  
BRK 22 23 14.6, 37.1N, 121.5W, H= 8 KM, ML=2.5  
CILROY, CALIFORNIA

PRI AUG 08 EP 14 43 23.5  
MHC EP 14 43 24.1  
FRI EP 14 43 28.6  
JAS EPC 14 43 29.1  
MNV EPC 14 43 37.8  
USGS 14 31 55.8, 24.3S, 179.8E, H=524 KM, M=5.0  
SOUTH OF FIJI ISLANDS

FHC AUG 06 EP 22 37 35.2  
WDC EFC 22 37 43.0  
MHC EP 22 37 48.8  
BKS E(P) 22 37 47 48 48 \*E 01 00  
MICRON C.11 PERIOD 1.5  
MAXR(7) 12.5 20  
MAXH(N) 3.4 20  
MAXH(E) 6.3 20  
PRI EP 22 37 50.0  
JAS EPC 22 37 50.9  
FRI EP 22 37 52.8  
MNV EFC 22 37 58.6  
USGS 22 24 31.2, 2.8S, 146.0E, H= 33 KM, M=6.2  
ADMIRALTY ISLANDS REGION

BKS AUG 08 EPC 16 03 42.2  
SAO EP 16 03 46.4  
MHC EP 16 03 49.8  
PRI EP 16 03 51.2  
WDC EPC 16 03 52.7  
JAS EPC 16 03 54.6  
MIN E(P) 16 03 55  
FRI EP 16 03 58.4  
MNV EPC 16 04 03.8  
USGS 15 21 16.4, 15.5S, 168.0E, H= 20 KM, M=5.5  
NEW HEBRIDES ISLANDS

PRI AUG 07 IPC 01 17 44.6 17 51  
FRI IPD 01 17 45.4  
SAO IPD 01 17 53.4  
JAS IPD 01 18 02.0 18 21  
MNV EP 01 18 23.5  
BRK 01 17 35.9, 26.5N, 120.3W, H= 3 KM, ML=2.5  
COALINGA, CALIFORNIA

MIN AUG 08 IPC 19 03 44.8  
WDC IPC 19 03 50.9  
BKS EP 19 03 54.8 04 16  
JAS EPC 19 03 56.1  
MHC EP 19 04 02.4  
SAO EP 19 04 10.7  
MNV EPC 19 04 12.5  
FRI EP 19 04 14.1  
ERK 19 03 27.2, 39.4N, 121.5W, H= 6 KM, ML=3.1  
OROVILLE, CALIFORNIA

WDC AUG 07 EFC 01 31 06.0  
JAS EP 01 31 53.8 \*E 31 40  
MNV EPC 01 31 53.8  
USGS 01 28 43.5, 49.2N, 129.0W, H= 20 KM, M=4.4  
VANCOUVER ISLAND REGION

FHC AUG 08 EP 20 23 41.3  
WDC IPD 20 23 47.4  
JAS IFC 20 24 02.5  
FRI EPD 20 24 07.6  
PRI E(P) 20 24 06.3  
USGS 20 12 07.8, 30.3N, 141.8E, H= 33 KM, M=4.7  
SOUTH OF HONSHU, JAPAN

FHC AUG 07 EP 13 41 51.9  
WDC EPC 13 41 55.8  
BKS EP 13 41 \*E 41 58 \*E 13 00  
MIN EP 13 41 58.6  
MHC EP 13 41 59.6  
JAS EPD 13 42 03.4  
FRI EP 13 42 06.1  
MNV EP 13 42 11.7  
USGS 13 28 24.2, 3.8S, 139.7E, H= 65 KM, M=5.6  
WEST IPIAN

FHC AUG 08 EPC 21 16 12.0  
WDC EPC 21 16 17.3  
MHC EP 21 16 37.7  
JAS EPC 21 16 39.9  
MNV EPC 21 16 46.4  
USGS 21 07 16.7, 54.6N, 159.9E, H= 66 KM, M=4.8  
NEAR EAST COAST OF KAMCHATKA

MIN AUG 07 EP 15 42 45.8  
WDC EP 15 42 46.3  
FHC E(P) 15 42 50.8  
JAS EPD 15 42 51.4 \*E 43 17  
FRI EP 15 42 52.3  
MHC EP 15 42 55.2  
PRI EP 15 42 59.5  
USGS 15 30 22.9, 36.4N, 4.4W, H= 99 KM, M=5.2  
STRAIT OF GIBRALTER

PRI AUG 08 IPC 22 23 52.6  
FRI IPD 22 23 57.3  
SAO EP 22 24 01.1  
JAS EPD 22 24 09.4 24 29  
ERK 22 23 43.6, 26.5N, 120.3W, H= 3 KM, ML=2.6  
COALINGA, CALIFORNIA

PRI AUG 07 EP 19 14 25.0  
MNV EP 19 14 25.0  
JAS EP 19 14 35.0  
WDC EP 19 14 56.0 \*E 54 39

PRI AUG 08 EP 22 32 15.2  
MHC EP 22 32 18.3  
FHC EP 22 32 22.5  
FRI EP 22 32 23.9  
JAS EPC 22 32 24.6  
WDC EP 22 32 26.2  
MIN EP 22 32 28.2  
MNV IPC 22 32 34.9  
USGS 22 21 01.8, 15.0S, 174.2W, H= 74 KM, M=5.1  
TONGA ISLANDS

BKS AUG 07 EP 20 23 31  
SAC EP 20 23 31.3  
PRI EPD 20 23 32.7  
MHC EPD 20 23 33.0 \*E 25 45  
FRI EPD 20 23 37.6 \*E 25 44  
FHC EP 20 23 36.0 \*E 25 50  
JAS IPD 20 23 36.0 \*E 25 50  
WDC IPD 20 23 38.0 \*E 25 50  
MIN EPD 20 23 39.8 \*E 25 50  
MNV IPD 20 23 41.3 \*E 25 59  
USGS 20 12 15.2, 22.8S, 178.9E, H=626 KM, M=5.4  
SOUTH OF FIJI ISLANDS

SAO AUG 09 EP 06 48 01.7  
BKS EPD 06 48 02.5  
MHC EP 06 48 02.9 \*E 48 14  
FHC EP 06 48 03.2 \*E 48 16  
WDC IPD 06 48 04.0  
JAS IPD 06 48 07.2 \*E 48 20  
FRI EPD 06 48 07.8 \*E 48 21  
MIN EP 06 48 08.1 \*E 48 21  
MNV EPD 06 48 05.0 \*E 48 21  
USGS 06 35 12.1, 20.8S, 168.5E, H= 5 KM, M=5.3  
LOYALTY ISLANDS

MIN AUG 07 EPC 20 31 36.2  
WDC IPC 20 31 42.0  
JAS IPC 20 31 51.3  
FHC E(P) 20 31 57  
MHC EP 20 31 57.8  
SAC EP 20 32 04.8  
MNV EP 20 32 05.7  
BRK 20 31 20.4, 35.5N, 121.5W, H= 5 KM, ML=3.1  
OROVILLE, CALIFORNIA

MIN AUG 09 IPC 07 39 04.7  
WDC EPC 07 39 10.8  
BKS EP 07 39 15.2 \*E 39 35  
JAS IPD 07 39 16.4  
MHC EP 07 39 22.0  
SAO EP 07 39 25.5  
MNV EPC 07 39 32.3  
FRI EP 07 39 33.0  
ERK 07 38 47.5, 39.4N, 121.5W, H= 7 KM, ML=3.0  
OROVILLE, CALIFORNIA

PRI AUG 07 IPD 21 42 09.4  
FRI IPD 21 42 14.7  
SAO IPD 21 42 18.8  
JAS IPC 21 42 27.4  
ERK 21 42 01.1, 36.5N, 120.3W, H= 6 KM, ML=2.5  
COALINGA, CALIFORNIA

WDC AUG 10 EP 03 20 55.1  
MIN EP 03 21 00.5 \*E 22 55  
MHC EP 03 21 14.9  
JAS E(P) 03 21 18.1 \*E 23 08  
FRI EP 03 21 28.8  
MNV EP 03 21 25.7  
USGS 03 12 46.2, 51.2N, 174.2E, H= 17 KM, M=5.1  
NEAR ISLANDS, ALEUTIAN ISLANDS

FHC AUG 08 EP 00 52 15.8  
WDC EP 00 52 20.5 \*E 19 36  
BKS EP 00 52  
MICRON C.9 PERIOD 20  
MAXR(7) 1.25 20  
MAXH(N) 0.61 20  
MAXH(E) 0.9 20  
MHC EP 00 52 21.0  
PRI EP 00 52 24.8  
JAS EPC 00 52 25.7  
FRI EP 00 52 27.8  
MNV EPC 00 52 34.6  
USGS 00 39 28.5, 6.3S, 154.7E, H= 33 KM, M=5.3  
SCLCWN ISLANDS

WDC AUG 10 E(P) 04 23 31.2  
JAS EP 04 23 37.0 \*E 26 14  
FRI EP 04 23 39 \*E 26 16  
MNV EP 04 23 48.5 \*E 26 23  
USGS 04 10 38.9, 7.0S, 154.8E, H= 34 KM, M=5.1  
SCLCWN ISLANDS

PRI AUG 08 IPD 06 28 23.0  
FRI IPD 06 28 28.4  
SAC IF 06 28 32.0  
JAS IPD 06 28 41.0  
MNV E(P) 06 29 01.8  
ERK 06 28 14.4, 36.5N, 120.3W, H= 2 KM, ML=2.8  
COALINGA, CALIFORNIA

FRI AUG 10 IFD 05 16 49.2  
JAS IPD 05 16 53.3  
SAO IPC 05 17 03.8  
MHC IPC 05 17 04.0  
PRI IPD 05 17 04.2  
MNV IPC 05 17 10.6  
BKS IPD 05 17 11.3  
MIN E(P) 05 17 31.7 \*E 17 34  
ERK 05 16 40.5, 37.4N, 120.0W, H= 7 KM, ML=4.2  
NORTHWEST OF FRESNO, CALIFORNIA

MIN AUG 08 IPC 07 01 08.6  
WDC IPC 07 01 12.2  
BKS EP 07 01 18.7  
JAS IPC 07 01 20.3  
MHC E(P) 07 01 28.9  
FHC EPD 07 01 27.6  
SAO EPC 07 01 33.7  
MNV IPC 07 01 36.0  
FRI EPD 07 01 36.6  
PRI EPD 07 01 44.7

PRI AUG 10 EPC 07 06 35.6  
MHC EP 07 06 36.0  
FRI EP 07 06 40.6  
WDC EPC 07 06 41.2  
MIN EP 07 06 43.2  
MNV EPC 07 06 44.8  
USGS 06 55 11.5, 22.8S, 179.3W, H=467 KM, M=4.8  
SOUTH OF FIJI ISLANDS

MIN AUG 08 IPC 07 01 08.6  
WDC IPC 07 01 12.2  
BKS EP 07 01 18.7  
JAS IPC 07 01 20.3  
MHC E(P) 07 01 28.9  
FHC EPD 07 01 27.6  
SAO EPC 07 01 33.7  
MNV IPC 07 01 36.0  
FRI EPD 07 01 36.6  
PRI EPD 07 01 44.7

FRI AUG 10 EPD 10 37 21.7  
MNV EPD 10 37 22.2  
SAO EPD 10 37 23.2 47 02  
JAS EPD 10 37 27.1  
MHC EPD 10 37 28.8 47 10  
EPD 10 37 30.8  
FKKF 56 24 P+P+ 04 31  
FKKF 56 26 P+P+ 04 31  
PPP 38 19 P+P+ 04 31  
PPP 38 23 \*E 40 22 P+P+ 56 22  
PPP 04 28 \*E 40 33 P+P+ 04 28  
PPP 38 26



MIN WDC EP 14 17 21.5  
 WDC EPD 14 17 24.8  
 FRI AUG 19 EPD 15 03 20.6  
 MNV EPD 18 03 20.7  
 PRI EPD 18 03 23.3  
 JAS EPD 18 03 30.8  
 MFC EPD 18 03 34.7  
 BKS 15 03

\*E 03 41  
 \*E 03 43  
 \*E 03 50  
 \*E 03 54  
 \*E 11 30

MICRON PERIOD  
 LO 20  
 20  
 20  
 20

LSGS 07 24 17.4, 21.2S, 179.0W, H=631 KM, M=5.6  
 FIJI ISLANDS REGION

MIN AUG 16 IPC 12 23 40.0  
 WDC IPC 12 23 46.6  
 BKS E(P) 12 23 51.2  
 JAS EFC 12 23 54.8  
 MHC EP 12 24 00.0  
 SAC EP 12 24 08.0  
 MNV EPC 12 24 10.0  
 PRI EP 12 24 11.2

\*E 37 40  
 \*E 37 40

\*E 37 50

LSGS 12 23 24.4, 35.8N, 121.5W, H= 6 KM, ML=3.1  
 CECVILLE, CALIFORNIA

WDC AUG 16 EFC 15 24 15.0  
 MFC EP 15 24 22.2  
 JAS EFC 15 24 28.7  
 PRI EP 15 24 29.5  
 MNV EPC 15 24 34.1

\*E 38 28  
 \*E 38 30  
 \*E 38 24  
 \*E 38 33

LSGS 15 21 56.9, 13.1N, 144.0E, H=128 KM, M=4.2  
 MARIANA ISLANDS

FRI AUG 16 EP 21 28 16.5  
 JAS EP 21 28 16.7  
 MIN EP 21 28 20.3  
 WDC EP 21 28 21.5

\*E 38 28  
 \*E 38 30  
 \*E 38 24  
 \*E 38 33

LSGS 21 28 27.0, 32.7S, 178.3W, H= 33 KM, M=5.2  
 SOUTH OF KERMADEC ISLANDS

FRI AUG 17 IPC 00 24 42.9  
 MNV IPC 00 24 48.4  
 JAS IPC 00 24 50.2  
 ORI EPD 00 25 02.1  
 SAC IPC 00 25 05.0  
 MHC IPC 00 25 05.5  
 BKS EP 00 25 11.7  
 MIA EP 00 25 30

\*E 38 28  
 \*E 38 30  
 \*E 38 24  
 \*E 38 33

LSGS 00 24 28.0, 37.5N, 118.8W, H= 5 KM, ML=4.2  
 USGS 00 24 26.0, 37.6N, 118.8W, H= 5 KM, M=4.0  
 NAWKATH LAKES AREA, CALIFORNIA

MHC AUG 17 EP 01 41 52  
 WDC EP 01 41 54.2  
 PRI EP 01 42  
 JAS EP 01 41 56.0  
 MIN EP 01 42  
 MNV EP 01 42 05.3

\*E 42 16  
 \*E 42 18  
 \*E 42 18  
 \*E 42 20  
 \*E 42 22  
 \*E 42 30

LSGS 01 42 25.3, 15.7S, 167.5E, H= 89 KM, M=4.9  
 NEW HEBRIDES ISLANDS

BKS AUG 17 EP 03 41  
 PRI EP 03 41 29.7  
 MHC EP 03 41 30.0  
 FHC EP 03 41 30.0  
 PRI EP 03 41 34.6  
 JAS EP 03 41 35.2  
 WDC EP 03 41 35.5  
 MIN EP 03 41 37.7  
 MNV EP 03 41 34.8

\*E 42 30  
 \*E 50 36  
 \*E 42 33  
 \*E 42 36  
 \*E 42 38  
 \*E 42 38  
 \*E 42 40  
 \*E 42 42  
 \*E 42 48

LSGS 03 30 22.1, 17.2S, 178.0W, H=273 KM, M=5.6  
 TONGA ISLANDS

BKS AUG 17 EPD 06 28  
 JAS EPD 06 28 36.6  
 WDC EPD 06 28 42.0

\*E 36 15  
 \*E 49 00

LSGS 06 12 48.0, 32.8S, 178.5W, H= 33 KM, M=5.0  
 SOUTH OF KERMADEC ISLANDS

SAC AUG 17 EP 07 34 35.3  
 BKS EP 07 34 37.0

MICRON PERIOD  
 0.03 1.0

PRI EPC 07 34 37.1  
 MFC EPC 07 34 37.4  
 PRI EPC 07 34 41.6  
 JAS EPC 07 34 42.1  
 WDC IPC 07 34 42.7  
 MIN IPC 07 34 44.4  
 MNV EP 07 34 46.1  
 EPC 07 34 51.2

LSGS 07 23 24.4, 22.3S, 175.6W, H=598 KM, M=5.0  
 SOUTH OF FIJI ISLANDS

PRI AUG 17 IPC 08 23 01.4  
 FRI IPC 08 23 06.8  
 SAC IPC 08 23 10.0  
 JAS IPC 08 23 19.0

53 16  
 53 38

ERK 08 22 52.7, 36.5N, 120.3W, H= 5 KM, ML=2.5  
 COALINGA, CALIFORNIA

MNV AUG 17 EP 09 22 02.8  
 JAS EP 09 22 10.0  
 WDC EP 09 22 32.3

36 19  
 36 40

ERK 08 35 54.6, 36.8N, 120.4W, H= 4 KM, ML=2.5  
 COALINGA, CALIFORNIA

FHC AUG 18 EPC 15 01 52.7  
 WDC IPC 15 02 01.2  
 MIN EPC 15 02 06.7  
 BKS EPC 15 02 21.7

\*E 07 00  
 PERIOD 1.0

MICRON PERIOD  
 0.04 1.0

PRI EPC 15 02 28.2  
 JAS EPC 15 02 29.0  
 MNV EPC 15 02 35.0  
 PRI EPC 15 02 38.5  
 EPC 15 02 42.0

LSGS 14 56 42.1, 57.4N, 150.2W, H= 28 KM, M=5.2  
 GULF OF ALASKA

PRI AUG 18 EP 15 45 55.2  
 MNV EP 15 45 56.3  
 JAS EP 15 46 00.7  
 MHC EP 15 46 02.2  
 WDC EP 15 46 14.0  
 FHC EP 15 46 21.5

52 30  
 41 58  
 05 20 LR 19 00

LSGS 15 33 40.2, 31.5S, 68.7W, H=109 KM, M=4.5  
 SAN JUAN PROVINCE, ARGENTINA

PRI AUG 19 EP 10 41 26.4  
 MHC EP 10 41  
 BKS EP 10 41 52.8

\*E 42 02

MICRON PERIOD  
 2.1 20  
 1.1 20  
 1.1 20

LSGS 10 29 10.6, 32.7S, 178.7W, H= 31 KM, M=4.7  
 SOUTH OF KERMADEC ISLANDS

PRI AUG 19 EP 14 16 50.2  
 PRI EP 14 16 52.4  
 MHC EP 14 17 01.6  
 JAS EPD 14 17 04.5  
 MNV EPD 14 17 06.2

36 46  
 36 58

LSGS 12 26 19.1, 37.6N, 118.8W, H= 5 KM, ML=3.0

MIN WDC EP 14 17 21.5  
 WDC EPD 14 17 24.8  
 FRI AUG 19 EPD 15 03 20.6  
 MNV EPD 18 03 20.7  
 PRI EPD 18 03 23.3  
 JAS EPD 18 03 30.8  
 MFC EPD 18 03 34.7  
 BKS 15 03

\*E 03 41  
 \*E 03 43  
 \*E 03 50  
 \*E 03 54  
 \*E 11 30

MICRON PERIOD  
 LO 20  
 20  
 20  
 20

LSGS 14 57 12.3, 16.2N, 94.1W, H= 25 KM, M=5.8  
 CAXACA, MEXICO

FRI AUG 19 EP 20 25  
 PRI EP 20 25  
 MNV EPC 20 25 02.0  
 JAS EPC 20 25 09.3  
 MFC EP 20 25  
 BKS E(P) 20 25 15

\*E 25 00  
 \*E 28 01

MICRON PERIOD  
 30 24  
 MAXR(7) 0.4  
 MAXH(N) 2.0  
 MAXH(E) 4.8

LSGS 20 16 16.9, 16.5N, 97.8W, H= 85 KM, M=5.0  
 CAXACA, MEXICO

WDC AUG 20 IPC 02 08 58.0  
 MIN EP 02 09 03.2  
 BKS EP 02 09  
 JAS EP 02 09 37.5  
 MHC EP 02 09  
 MNV EP 02 09  
 PRI EP 02 09

\*E 09 54  
 \*E 12 00  
 \*E 09 38  
 \*E 09 40  
 \*E 09 50  
 \*E 09 57

USGS 02 06 01.8, 51.5N, 130.6W, H= 33 KM, M=4.5  
 QUEEN CHARLOTTE ISLANDS REGION

SAC AUG 20 EP 05 28 44.5  
 PRI EP 05 28 45.5  
 MHC EPD 05 28 46.4  
 FRI EP 05 28 51.0  
 JAS IPC 05 28 51.7  
 WDC IPD 05 28 53.3  
 MIN EPD 05 28 54.1  
 MNV EPD 05 29 00.5

\*E 17 41.2, 21.2S, 179.0W, H=628 KM, M=4.9  
 FIJI ISLANDS REGION

SAC AUG 20 EP 20 29 54.6  
 BKS EPD 20 29 56.0

MICRON PERIOD  
 39 10  
 0.25 0.7

PRI EPD 20 29 56.3  
 MHC EPD 20 29 56.7  
 FHC EP 20 30 00.2  
 PRI EPD 20 30 01.5  
 JAS IPD 20 30 02.0  
 WDC IPD 20 30 03.7  
 MIN EP 20 30 05.6

\*PP 31 56  
 \*PP 31 56  
 \*PP 32 04  
 \*PP 32 01  
 \*PP 32 02

USGS 20 12 50.9, 20.4S, 176.4W, H=559 KM, M=5.7  
 FIJI ISLANDS REGION

FRI AUG 21 EP 05 15  
 MNV EPD 05 15 11.4  
 PRI EPD 05 15 11.7  
 JAS EPD 05 15 16.7  
 MHC EP 05 15 15.2  
 BKS EP 05 15 23.2

\*E 15 11

MICRON PERIOD  
 F2 C.02 0.6

MIN EP 05 15 28.0  
 WDC EPD 05 15 30.9  
 FHC EP 05 15 38.2

LSGS 05 03 37.2, 22.0S, 66.9W, H=186 KM, M=5.1  
 JUJUY PROVINCE, ARGENTINA

MHC AUG 21 EP 05 42 18.2  
 PRI EP 05 42 21.8  
 JAS EP 05 42 23.0  
 FRI EP 05 42 24.9  
 MNV EP 05 42 31.7

\*E 25 29.2, 6.3S, 154.9E, H= 60 KM, M=5.0  
 SOLOMON ISLANDS

WDC AUG 21 EPD 07 00 36.7  
 MHC EP 07 00 38.4  
 MIN EP 07 00 39.5  
 PRI EP 07 00 41.8  
 JAS EPD 07 00 42.7  
 FRI EP 07 00 44.9  
 MNV EPD 07 00 51.7

LSGS 06 42 30.3, 5.9S, 154.4E, H=430 KM, M=5.3  
 SOLOMON ISLANDS

FHC AUG 21 E(P) 07 31 58.5  
 WDC EPC 07 32 08.8  
 MIN EPC 07 32 12.6  
 BKS EPC 07 32 23.0

MICRON PERIOD  
 P2 0.04 0.7

MHC EPC 07 32 28.4  
 JAS EPC 07 32 31.7  
 PRI EP 07 32 32.0  
 MNV EPC 07 32 35.3  
 PRI EPC 07 32 40.2  
 EPC 07 32 40.2

LSGS 07 24 19.8, 51.1N, 177.8E, H= 33 KM, M=5.0  
 RAT ISLANDS, ALEUTIAN ISLANDS

SAC AUG 21 EP 08 48 55.6  
 MHC EP 08 48 57.1  
 PRI EP 08 48 57.2  
 JAS EPD 08 49 02.8  
 WDC EPD 08 49 02.7  
 MIN EP 08 49 03.6  
 MNV EPD 08 49 05.8  
 EPD 08 49 12.3

LSGS 08 38 00.2, 17.7S, 178.6W, H=546 KM, M=4.9  
 FIJI ISLANDS

FHC AUG 21 EP 09 59 27.4  
 BKS EP 09 59 31.4

MICRON PERIOD  
 10 17 22 54 LR 27 10  
 C.06 0.7  
 5.0 20  
 0.45 20  
 4.3 20

WDC EP 09 59 32.0  
 MFC EP 09 59 32.2  
 PRI EP 09 59 35.0  
 JAS EP 09 59 37.1  
 FRI EP 09 59 39.5  
 MNV EP 09 59 46.2

LSGS 09 46 42.4, 6.6S, 154.9E, H= 50 KM, M=5.8  
 SOLOMON ISLANDS

PRI AUG 21 IPC 12 26 34.1  
 MNV IPC 12 26 36.7  
 JAS IPC 12 26 41.4  
 PRI EPD 12 26 54.2  
 SAC EPD 12 26 56.4  
 MFC EPD 12 26 56.8

36 46  
 36 58

LSGS 12 26 19.1, 37.6N, 118.8W, H= 5 KM, ML=3.0

MANMOTH LAKES AREA, CALIFORNIA

PRI AUG 21 IPC 14 15 51.0 19 57  
 FRI IPD 14 19 55.0 20 06  
 JAS EP 14 19 55.5  
 WDC EP 14 20 08.5  
 FHC EP 14 20 08.5  
 BKS  
 USGS 14 15 42.5, 36.5N, 120.4W, H= 7 KM, ML=2.5  
 CCALINGA, CALIFORNIA

WDC AUG 21 EP 22 24 54.0 \*E 28 11  
 FRI E(F) 22 28 00  
 JAS EP 22 28 22.5 \*E 28 39  
 FRI EP 22 28 32.0 \*E 28 4E  
 PRI E(P) 22 28 36.3  
 USGS 22 19 21.1, 60.4N, 181.2W, H= 67 KM, M=4.9  
 KENAI PENINSULA, ALASKA

FHC AUG 22 EP 01 10 \*E 10 52  
 WDC EP 01 10 57.0 \*E 12 39  
 BKS EP 01 11 04.0  
 F2 MICRON PERIOD  
 0.01 0.5  
 WDC EP 01 11 06.0 \*E 12 47  
 JAS EP 01 11 11.3 \*E 12 50  
 PRI EP 01 11 16.2 \*E 12 56  
 FRI EP 01 11 18.4 \*E 12 56  
 MNV EP  
 USGS 00 59 46.8, 28.1N, 139.7E, H=466 KM, M=5.0  
 MCNIN ISLANDS REGION

FHC AUG 22 EP 19 47 26.6 \*E 49 05  
 WDC EPC 19 47 34.5  
 BKS IPD 19 47 43.6  
 F2 MICRON PERIOD  
 0.07 0.9  
 WDC EPC 19 47 46.9 \*E 49 20 \*E 50 55  
 JAS EPC 19 47 45.3 \*E 49 27  
 PRI EPC 19 47 54.0 \*E 49 27 \*E 51 04  
 FRI EPC 19 47 54.2 \*E 49 27 \*E 51 04  
 MNV EPC 19 47 56.3 \*E 49 27 \*E 51 04  
 USGS 19 36 24.2, 31.4N, 138.1E, H=359 KM, M=5.1  
 SOUTH OF HONSHU, JAPAN

FRI AUG 22 E(P) 23 14 42.8  
 MNV EP 23 14 44.2  
 PRI EP 23 14 48.0  
 JAS EP 23 14 52.6  
 BKS EPC 23 18 03  
 20 37 \*E 15 11 \*E 15 22 \*E 15 42  
 PP 16 28 LO 24 20 LR 28 16  
 MICRON PERIOD  
 2.4 18  
 MAX(F) 2.9 18  
 MAX(H) 2.0 18  
 MAX(E) 2.0 18  
 FHC EP 23 15 26.4  
 MAG 6.2, DIST(DEG) 36  
 USGS 23 08 16.9, 14.6N, 92.5W, H= 38 KM, M=5.2  
 NEAR COAST OF CHIAPAS, MEXICO

WDC AUG 23 EPD 04 19 38.6 \*E 19 57 \*E 23 28  
 BKS EPC 04 19 40.2 30 16 PS 32 42 SS 38 10 SSS 41 40  
 LG 45 36 \*E 46 54 LR 51 08  
 F2 MICRON PERIOD  
 0.05 0.8  
 MAX(F) 1.8 20  
 MAX(H) 0.53 20  
 MAX(E) 1.4 20  
 MIN EP 04 19 41.2 \*E 20 03  
 WDC EP 04 19 42.4 \*E 20 06 \*E 24 05 PKKP 36 20  
 JAS EPD 04 19 46.3 \*E 20 06 \*E 24 05 PKKP 36 20  
 PRI EP 04 19 46.8 \*E 20 06 \*E 24 05 PKKP 36 20  
 FRI EP 04 19 49.2 \*E 20 06 \*E 24 05 PKKP 36 20  
 MNV EPD 04 19 54.7 \*E 20 15 PKKP 36 11  
 MAG 5.4, DIST(DEG) 99  
 USGS 04 05 58.8, 3.2S, 137.6E, H= 57 KM, M=5.8  
 WEST IRIAN

FHC AUG 23 EPC 09 10 49.4 P+P+ 39 23  
 WDC EPC 09 10 49.4 PKKP 30 38 P+P+ 39 22  
 MIN EPC 09 10 51.4 P+P+ 39 22  
 MNV IPC 09 11 03.2 \*E 13 34 PKKP 30 23 P+P+ 39 16  
 JAS IPC 09 11 06.7 \*E 13 38 PKKP 30 25 \*E 38 51  
 \*E 38 50 P+P+ 39 14 PAKP 47 52  
 BKS EPC 09 11 07.7 P+P+ 39 20  
 F2 MICRON PERIOD  
 0.29 0.9  
 WDC EPC 09 11 10.9 P+P+ 39 13  
 FRI EPC 09 11 12.4 \*E 13 47 P+P+ 39 14  
 JAS EPC 09 11 14.1 P+P+ 39 12  
 PRI EPC 09 11 18.8 P+P+ 39 12  
 USGS 08 59 57.9, 73.4N, 54.6E, H= 0 KM, M=6.4  
 NOVAYA ZEMLYA

MHC AUG 23 E(P) 13 06 11  
 PRI EP 13 06 13.4  
 WDC EPC 13 06 14.0  
 JAS EP 13 06 16.3  
 MIN EP 13 06 16.5  
 PRI EP 13 06 17.6  
 USGS 12 04 08.7, 12.5S, 167.0E, H=220 KM, M=5.0  
 SANTA CRUZ ISLANDS

FHC AUG 23 EPD 14 00 09.7 \*PP 00 40  
 WDC IPD 14 00 16.0 \*PP 00 45 P+P+ 31 20  
 MIN EPD 14 00 20.8 \*PP 00 50  
 BKS EPD 14 00 31.4 07 56 \*PP 01 02 SCS 10 08 \*E 13 52  
 \*E 16 4E  
 F2 MICRON PERIOD  
 0.30 1.1  
 WDC EPD 14 00 36.6 \*PP 01 06  
 JAS IPD 14 00 38.5 \*PP 01 08 \*SP 01 37 PP 02 40  
 \*PPP 03 11 P+P+ 31 22  
 \*PP 01 10  
 SAC EP 14 00 39.6 \*PP 01 17 P+P+ 31 18  
 MNV IPD 14 00 45.1 08 20 P+P+ 31 19  
 PRI EP 14 00 45.7 \*PP 01 17 P+P+ 31 18  
 PRI EPD 14 00 47.2 \*PP 01 17 P+P+ 31 18  
 USGS 13 51 24.1, 24.7N, 160.1E, H=141 KM, M=5.9  
 NEAR EAST COAST OF KAMCHATKA

FHC AUG 23 E(P) 15 20 15.5  
 WDC EP 15 20 20.1  
 MIN EP 15 20 22.8  
 WDC EP 15 20 28.6  
 JAS EP 15 20 31.6  
 PRI EP 15 20 34.4  
 FRI EP 15 20 38.1  
 MNV EP 15 20 38.3  
 USGS 15 06 39.0, 10.0N, 125.8E, H= 40 KM, M=6.0  
 LEYTE, PHILIPPINE ISLANDS

MIN AUG 23 IPD 18 32 09.2  
 WDC IPC 18 32 15.6  
 BKS E(P) 18 32 22 32 44  
 JAS IPD 18 32 24.1  
 WDC EP 18 32 29  
 SAO EP 18 32 38.0  
 ERK 18 31 53.3, 39.5N, 121.5W, H= 5 KM, ML=3.1  
 OROVILLE, CALIFORNIA

SAO AUG 23 EP 19 49 46.1  
 PRI EP 19 49 46.5  
 BKS EPD 19 49 47.0  
 F2 MICRON PERIOD  
 0.06 0.8  
 WDC EPC 19 49 47.0  
 FRI EPC 19 49 51.5  
 JAS IPC 19 49 52.2  
 WDC IPC 19 49 54.1  
 MIN EP 19 49 58.8  
 MNV EPD 19 50 00.3  
 USGS 19 38 13.3, 24.8S, 179.9E, H=488 KM, M=5.3  
 SOUTH OF FIJI ISLANDS

MNV AUG 24 EP 01 14 47.6  
 FRI EP 01 14 \*E 14 53  
 JAS EP 01 14 55.0  
 WDC EP 01 15 08.2  
 FHC EP 01 15 12.0  
 BKS EP 01 15 22  
 USGS 01 05 14.5, 10.7N, 82.6W, H=106 KM, M=5.2  
 NEAR COAST OF VENEZUELA

MIN AUG 24 IPC 09 10 53.3  
 WDC IPC 09 10 55.6  
 BKS EP 09 11 08.0 11 26  
 JAS EPD 09 11 08.1 \*I 11 09  
 WDC E(P) 09 11 08.1  
 SAO EP 09 11 14.1  
 FRI EP 09 11 22.6  
 MNV EPD 09 11 23.3  
 FHC EPD 09 11 23.7  
 PRK 09 10 37.7, 39.5N, 121.5W, H= 5 KM, ML=3.3  
 OROVILLE, CALIFORNIA

PRI AUG 24 EP 14 00 20.8  
 WDC EP 14 00 21.1 \*E 01 15  
 FRI EP 14 00 25.5 \*E 01 24  
 JAS EP 14 00 26.5 \*E 01 26  
 WDC EPD 14 00 29.0 \*E 01 28  
 MIN EP 14 01 \*E 01 30  
 MNV EPD 14 01 08.3 \*E 01 32  
 USGS 13 48 50.6, 24.3S, 176.8W, H=110 KM, M=5.0  
 SOUTH OF FIJI ISLANDS

WDC AUG 24 EP 14 48 13.5 \*E 48 28  
 PRI E(P) 14 48 17 \*E 48 28  
 JAS E(P) 14 48 18.0 \*E 48 30  
 FRI EP 14 48 \*E 48 32  
 MNV EP 14 48 28.4 \*E 48 39  
 USGS 14 35 31.6, 9.7S, 159.9E, H= 45 KM, M=5.4  
 SCLCOW ISLANDS

MNV AUG 24 EP 15 40 00.1  
 JAS EPD 15 40 07.4  
 WDC EP 15 40 10.2  
 WDC EPD 15 40 24.0  
 USGS 15 30 08.7, 5.5S, 77.2W, H= 33 KM, M=5.1  
 NORTHERN PERU

WDC AUG 24 EP 16 13 39.8  
 MIN E(P) 16 13 41  
 WDC EP 16 13 \*E 14 03  
 JAS EPD 16 13 46.2 \*E 14 05  
 MNV EP 16 14 06.1 \*E 14 14  
 FRI EP 16 14 07.2 \*E 14 17  
 PRI EP 16 14 \*E 14 17  
 USGS 16 05 16.0, 53.1N, 171.0E, H= 24 KM, M=5.1  
 NEAR ISLANDS, ALEUTIAN ISLANDS

MIN AUG 25 EP 13 35 26.9  
 WDC IPC 13 35 33.8  
 BKS EP 13 35 40.0 \*E 36 02  
 JAS EP 13 35 41.7  
 WDC EP 13 35 47.5  
 SAO EP 13 38 56.3  
 ERK 13 35 11.6, 39.3N, 121.8W, H= 4 KM, ML=3.2  
 OROVILLE, CALIFORNIA

FRI AUG 25 EP 21 53 31.4  
 MNV IP 21 53 32.5  
 PRI EP 21 53 33.0  
 JAS IPD 21 53 38.5  
 WDC EPD 21 53 41.4  
 BKS EPD 21 53 45.0  
 \*E 54 14 \*E 54 28 \*E 03 16  
 \*E 04 08 LC 12 00

MIN EP 21 53 50.4  
 WDC IPD 21 53 53.4  
 FHC EP 21 54 00.6  
 F2 MICRON PERIOD  
 0.03 1.0  
 USGS 21 42 10.8, 19.2S, 69.2W, H=115 KM, M=5.7  
 NORTHERN CHILE

FRI AUG 26 EP 00 45 38.4  
 MNV EP 00 45 38.5  
 PRI EP 00 45 38.5  
 JAS IPD 00 46 43.9  
 WDC EP 00 46 46.4  
 BKS EP 00 46  
 MIN EP 00 46 55.5 \*E 45 50  
 WDC IPD 00 46 58.6  
 USGS 00 34 02.0, 21.1S, 68.8W, H= 79 KM, M=5.1  
 CHILE BOLIVIA BORDER REGION

WDC AUG 26 EP 05 21 40.0  
 MIN EP 05 21 44.1  
 JAS EP 05 21 57.8  
 MNV EP 05 22 04.0  
 USGS 05 10 45.0, 41.0N, 143.0E, H= 54 KM, M=5.2  
 HOKKAIDO, JAPAN REGION

BKS AUG 26 EP 11 18 \*E 28 26  
 WDC EP 11 18 33.2  
 PRI EP 11 18 34.2  
 FRI EP 11 18 39.6  
 JAS EP 11 18 40.0  
 WDC EP 11 18 41.0  
 MIN EP 11 18 43.0  
 MNV EP 11 18 50.0  
 USGS 11 06 58.7, 15.5S, 177.2W, H= 33 KM, M=6.3  
 FIJI ISLANDS REGION

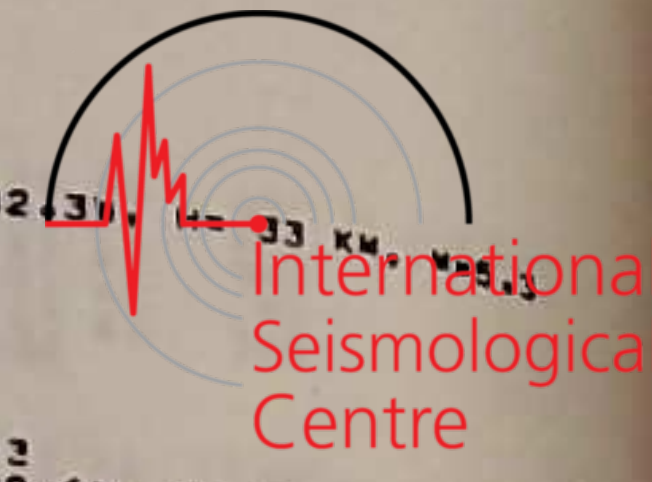
SAO AUG 26 EP 12 31 30.8  
 PRI EP 12 31 31.6  
 WDC EP 12 31 32.0  
 BKS EP 12 31 32.5  
 F2 MICRON PERIOD  
 0.02 0.6  
 FRI EP 12 31 36.6  
 JAS EPC 12 31 37.5  
 WDC IPC 12 31 40.2  
 MIN EP 12 31 41.8  
 MNV EPC 12 31 46.8  
 USGS 12 19 32.6, 27.8S, 176.9W, H=114 KM, M=5.4  
 SOUTH OF FIJI ISLANDS

PRI AUG 26 E(P) 20 12 24.0  
 JAS EP 20 12 32.8  
 WDC EP 20 12 38  
 USGS 20 06 02.8, 15.1N, 94.1W, H= 50 KM, M=4.9  
 NEAR COAST OF OAXACA, MEXICO

BKS AUG 27 E(P) 02 47 23.5  
 PRI EPC 02 47 24.1  
 WDC EP 02 47 24.6  
 FRI EP 02 47 28.8  
 JAS EPC 02 47 29.7  
 WDC EPC 02 47 31.5  
 MIN EP 02 47 32.1  
 MNV EPC 02 47 38.0  
 USGS 02 35 59.7, 23.8S, 179.8W, H=540 KM, M=5.1  
 SOUTH OF FIJI ISLANDS

SAO AUG 27 IPC 09 53 46.2  
 PRI EPC 09 53 56.3  
 WDC EP 09 53 57.7  
 FRI EP 09 54 02.0  
 JAS EPC 09 54 09.0  
 ERK 09 53 42.6, 36.6N, 121.3W, H= 4 KM, ML=2.5  
 STONE CANYON, CALIFORNIA

PRI AUG 27 EP 12 29 30.2  
 JAS EPC 12 29 35.8  
 WDC EPC 12 29 37.5  
 MNV EPC 12 29 44.5



TONGA ISLANDS REGION

WDC AUG 28 EP C2 22 15.5
MFC EP 02 22 26.1
JAS EP 02 22 29.7
PRI EP 02 22 32.0
MNV EP 02 22 33.5
LSGS 02 10 04.2, 14.3N, 146.6E, H= 45 KM, M=5.0
VARIANA ISLANDS

FHC AUG 28 IFD 07 37 11.2 27 19
WDC EP 07 37 27.6
BRK 07 36 43, 41N, 126W, H= 2 KM, ML=3.9
SOUTHWEST OF ARCATA, CALIFORNIA

BKS AUG 28 EPC 09 21 06.2
WDC EP 09 21 14.5
MFC EP 09 21 15.5
MNV EP 09 21 18.0
JAS EP 09 21 20.5
SAC EP 09 21 24.3
FHC EP 09 21 31.5
MNV EP 09 21 32.5
BRK 09 20 45.5, 38.9N, 122.8W, H= 4 KM, ML=3.1
SOUTH OF CLEAR LAKE, CALIFORNIA

FHC AUG 28 EP 12 33 31.0
WDC EP 12 33 35.4
JAS EP 12 34 34.2

PRI AUG 29 E(P) 07 16 11.5
JAS EP 07 16 13.9
PRI EP 07 16 14
WDC EP 07 16 15.1
MNV EP 07 16 23.0
USGS 07 03 55.3, 15.85, 167.8E, H=192 KM, M=5.5
NEW HEBRIDES ISLANDS

FRI AUG 29 IFD 07 22 51.3
FRI IFD 07 22 56.2
SAC EPC 07 22 59.2
MFC IPC 07 23 05.7
JAS IFD 07 23 08.4
BKS EPD 07 23 15.8
MNV EPD 07 23 26.7
MFC EP 07 23 45.6
WDC E(P) 07 23 49
BRK 07 22 42.6, 36.5N, 120.4W, H= 6 KM, ML=3.9
COALINGA, CALIFORNIA

PRI AUG 29 IPC 07 27 19.4
FRI IPC 07 27 24.3
SAC EP 07 27 27.6
JAS IPC 07 27 36.6
MNV EPD 07 27 58.7
BRK 07 27 10.6, 36.5N, 120.4W, H= 3 KM, ML=2.5
COALINGA, CALIFORNIA

PRI AUG 29 IPC 08 20 49.5
FRI IFD 08 20 54.6
SAC EPC 08 20 57.2
MFC EP 08 21 03.9
JAS EPD 08 21 06.7
MNV EPC 08 21 28.1
BRK 08 20 38, 36.2N, 120.4W, H= 6 KM, ML=2.8
COALINGA, CALIFORNIA

FHC AUG 29 E(P) 10 27 06.5
WDC EP 10 27 12.3
JAS EP 10 27 30.0
MNV EP 10 27 37.0
LSGS 10 16 17.1, 40.6N, 143.7E, H= 30 KM, M=5.1
OFF EAST COAST OF HONSHU, JAPAN

MFC AUG 29 E(P) 11 12
PRI E(P) 11 12 32.8
WDC EP 11 12 36.8
JAS EP 11 12 37.2
FRI EP 11 12
MNV EP 11 12 46.3
USGS 11 00 19.2, 15.85, 167.8E, H=200 KM, M=5.3
NEW HEBRIDES ISLANDS

FHC AUG 30 IFD 00 34 15.6
WDC EPC 00 34 28.2
MFC EP 00 34 38.3
JAS E(P) 00 38 04
BRK 00 34 06.5, 39.1N, 124.3E, H= 2 KM, ML=3.0
SOUTH OF ARCATA, CALIFORNIA

MNV AUG 30 IPC 00 38 00.5
JAS EP 00 38 26
PRI EPC 00 38 32.2
MFC EP 00 38 47
SAC EP 00 38 51
PRI EP 00 38 53
BRK 00 34, 39.4N, 118.1W, ML=3.9
NORTHEAST OF NINA, NEVADA

PRI AUG 30 IPC 05 48 23.2 48 25
FRI IFD 05 48 28.4
SAC IFD 05 48 31.5
MFC EP 05 48 37.8
JAS IFD 05 48 40.6
MNV IFD 05 48 58.5
BRK 05 48 14.8, 36.5N, 120.4W, H= 7 KM, ML=3.0
COALINGA, CALIFORNIA

JAS AUG 30 EP 20 28 18.9
WDC EP 20 28 20.5
MFC EP 20 28 27.1
MNV EP 20 28 27.7
LSGS 20 17 01.7, 21.1S, 176.8W, H=518 KM, M=4.9
FIJI ISLANDS REGION

SAC AUG 31 IFD 05 22 48.6
PRI IFD 05 22 50.8
MFC EP 05 22 56.8
FRI IFD 05 23 00.6
JAS EPD 05 23 06.3
MNV EP 05 23 32.6
BRK 05 22 39.5, 36.6N, 121.1W, H= 7 KM, ML=2.8
PEAR VALLEY, CALIFORNIA

MFC AUG 31 IFD 11 28 11.3 28 40
WDC EPD 11 28 19.8
MNV EP 11 28 20.0
JAS EP 11 28 24.2
MFC E(P) 11 28 40.1
PRI EPD 11 28 40.2
BRK 11 27, 40.7N, 119.0W, ML=4.2
LSGS 11 27 39.7, 41.0N, 119.1W, H= 33 KM, M=4.2
NORTHEAST OF GERLACH, NEVADA

FHC AUG 31 IFD 12 07 28.0
WDC IFD 12 07 34.1
MFC EPC 12 07 35.4
JAS IFD 12 08 02.0
MNV IFD 12 08 08.0
PRI EP 12 08 14.8
FRI EP 12 08 14.9
LSGS 12 02 10.0, 87.3N, 151.1W, H= 12 KM, M=5.1
KODIAK ISLANDS REGION

MNV AUG 31 EPC 12 27 10.7
PRI EP 12 27 11.0
PRI EP 12 27 18.0
JAS EPC 12 27 19.3
MFC EP 12 27 24.2
BKS EP 12 27 25.8
\*E 29 12
MICRON \*E 41 00 PERIOD

FZ 0.11 1.2
MIN EP 12 27 34.8
WDC EP 12 27 38.8
FHC EP 12 27 49.4
LSGS 12 18 56.0, 7.2N, 82.3E, H= 33 KM, M=5.3
SOUTH OF PANAMA

FRI AUG 31 EP 12 28 45.3
MNV EP 13 25 46.0
PRI EP 13 25 48
JAS EP 13 25 55.0
WDC EP 13 26
LSGS 13 19 03.7, 14.1N, 90.6W, H= 88 KM, M=4.3
GUATEMALA

MNV SEP 01 EPD 21 58 39.5
FRI EP 21 58 40.6
PRI EP 21 58 43.5
JAS EPD 21 58 49.3
MFC EP 21 58 53.2
BKS EP 21 58 58.7
MICRON C.07 PERIOD 1.0
FZ 21 59 04.3
WDC E(P) 21 59 08.0
FHC E(P) 21 59 19.2
LSGS 21 50 36.8, 8.6N, 83.2W, H= 28 KM, M=5.2
COSTA RICA

MNV SEP 02 EP 08 27 26.5
JAS EP 08 27 59.8
LSGS 08 44 58.6, 41.6S, 71.9W, H= 33 KM, M=5.1
SOUTHERN CHILE - ARGENTINA BORDER REGION

WDC SEP 02 EPD 10 28 27.0
MIN EP 10 28 30.2
BKS EP 10 28 35.7
MICRON 0.05 PERIOD 0.9
FZ 10 28 35.0
MFC EP 10 28 42.0
JAS EP 10 28 47.0
PRI EP 10 28 49.0
MNV EPD 10 28 49.2
LSGS 10 16 38.7, 30.2N, 140.1E, H= 24 KM, M=5.3
SOUTH OF HONSHU, JAPAN

FHC SEP 02 IPC 10 35 06.7 \*E 37 34
WDC IPC 10 35 13.9 \*E 37 48
MIN EPC 10 35 17.5
BKS EP 10 35 22.7 \*E 37 57
MICRON C.17 PERIOD 0.7
MFC EPC 10 35 26.1
JAS IFD 10 35 29.0 \*E 38 04 \*E 39 35
PRI EPC 10 35 33.5
FRI EPC 10 35 34.0
MNV IPC 10 35 36.3 \*E 38 09 \*E 39 50
LSGS 10 23 25.2, 30.1N, 140.0E, H= 26 KM, M=5.6
SOUTH OF HONSHU, JAPAN

BKS SEP 02 EP 10 56
JAS EP 10 56 43.0
FRI EP 10 56 46
MNV EP 10 56 49.5
LSGS 10 44 38.8, 30.1N, 140.1E, H= 25 KM, M=5.0
SOUTH OF HONSHU, JAPAN

WDC SEP 02 EPC 11 09 37.0
MIN EP 11 09 40.5
BKS EP 11 09 45.5
MICRON 0.06 PERIOD 1.0
FZ 11 09 45.5
MFC EP 11 09 52.2
JAS E(P) 11 09 57
PRI EP 11 09 57.2
MNV EPC 11 09 59.8
LSGS 10 57 49.8, 30.1N, 139.9E, H= 42 KM, M=5.5
SOUTH OF HONSHU, JAPAN

WDC SEP 02 EPKP 15 50 28
BKS EP 15 50
MIN EP 15 50 \*E 50 52 \*E 01 20
MFC EP 15 50 \*E 50 57
PRI EP 15 50 \*E 50 59
JAS EP 15 50 \*E 50 44
FRI EPKP 15 50 42.5 \*E 51 00 \*E 01 26
MNV EPKP 15 50 45.0 \*E 51 02
LSGS 15 31 59.5, 10.0S, 121.7E, H= 68 KM, M=5.9
SAVU SEA

MNV SEP 03 E(P) 19 59 45
WDC EP 19 59 45.1
MIN EP 19 59 45.4
FHC EP 19 59 51.2
JAS IFD 19 59 58.8
MFC EP 19 59 59.0
SAC EP 20 00 03.7
PRI EP 20 00 06.0
EP 20 00 07.2
LSGS 19 50 01.6, 59.9N, 29.8W, H= 33 KM, M=5.0
NORTH ATLANTIC OCEAN

MFC SEP 04 IFD 01 17 15.2
WDC IFD 01 17 25.0
JAS IFD 01 17 31.3
MFC EP 01 17 36.0
SAC EP 01 17 42.8
FRI EP 01 17 47.2
BRK 01 17 02.0, 39.4N, 121.5W, H= 7 KM, ML=3.0
COVILLE, CALIFORNIA

FRI SEP 04 EP 02 09 33.0
MNV EP 02 09 34.5
JAS E(P) 02 09 41
EP 02 09 45.5
LSGS 02 04 56.6, 19.3N, 107.9W, H= 33 KM, M=3.8
OFF COAST OF JALISCO, MEXICO

FHC SEP 04 IPC 12 30 02.5
WDC IPC 12 30 21.1 \*I 30 14 \*E 30 17
MIN IFD 12 30 30.2 \*I 30 30
BRK 12 25 50.2, 39.8N, 125.4W, H= 2 KM, ML=3.0
WEST OF PETROLIA, CALIFORNIA

WDC SEP 04 EP 13 12 11.4
JAS EP 13 12 12.0
PRI EP 13 12 22.4
LSGS 13 02 17.4, 59.7N, 29.8W, H= 33 KM, M=4.6
NORTH ATLANTIC OCEAN

FHC SEP 04 EPC 15 35 01.8
BKS EP 15 35 05.5
MICRON C.06 PERIOD 1.0
FZ 15 35 06.7
WDC EP 15 35 07.7
PRI EP 15 35 09.7
MFC EP 15 35 09.9
JAS EP 15 35 12.1
PRI EP 15 35 12.5
MNV EP 15 35 14.2
EPC 15 35 22.2
LSGS 15 22 55.2, 10.7S, 166.1E, H=120 KM, M=5.1
SANTA CRUZ ISLANDS

MNV SEP 04 EP 19 21 00.5
PRI EP 19 21 02.0
JAS EP 19 21 09.3
WDC E(P) 19 21 21.8

FHC E(P) 19 21 4E  
LSGS 19 14 06.4, 12.9N, 90.7W, H= 33 KM, M=4.7  
OFF COAST OF CENTRAL AMERICA

SAC SEP 04 EP 23 22 26.2  
BKS EP 23 22 28.0  
MICRON C.13 PERIOD C.9

PRI EP 23 22 28.2  
MHC EP 23 22 28.2  
FHC EP 23 22 32.2  
FRI EP 23 22 32.2  
JAS EPC 23 22 33.6 \*E 24 3C  
WDC EPC 23 22 35.3  
MIN EP 23 22 37.0  
MNV EFC 23 22 42.0  
LSGS 23 41 01.1, 23.7S, 179.2E, H=541 KM, M=5.3  
SOUTH OF FIJI ISLANDS

FRI SEP 05 EP 19 21 20.2  
MNV EP 19 21 22.5  
PRI EP 19 21 22.5  
JAS IPD 19 21 27.4  
MHC EP 19 21 29.8  
BKS EPD 19 22 02.0  
MICRON 0.02 PERIOD 0.6

MIN EP 19 22 08.5  
WDC EPD 19 22 11.2  
FHC EPD 19 22 16.4  
LSGS 19 10 08.9, 24.1S, 66.7W, H=193 KM, M=5.1  
SALTA PROVINCE, ARGENTINA

MIN SEP 05 IPD 21 01 56.3  
WDC EPC 21 02 02.3  
BKS E(F) 21 02 06.0 02 26  
JAS EP 21 02 07.7  
MHC E(P) 21 02 14.0  
SAO EP 21 02 21.5  
FRI E(P) 21 02 24.2  
ERK 21 01 39.2, 39.4N, 121.5W, H= 7 KM, ML=3.2  
ORCVILLE, CALIFORNIA

FHC SEP 05 E(P) 22 24 13.3  
BKS EPC 22 24 15.0  
MICRON C.03 PERIOD 1.0

MHC EP 22 24 22.0  
PRI EP 22 24 25.0  
JAS EPC 22 24 26.0  
FRI EP 22 24 28.0  
MNV EPC 22 24 34.7  
LSGS 22 41 26.2, 6.8E, 124.4E, H= 36 KM, M=5.2  
SOLCPCK ISLANDS

WCC SEP 06 EP 09 33 53.8  
MIN EP 09 33 54.3  
MNV EP 09 34 00.0  
JAS EP 09 34 04.5  
BKS EP 09 34 07.0  
45 50  
PP 37 6E PPKP 50 15 P+P+ 58 32  
PP 38 01  
PP 38 08 PPKP 50 12 P+P+ 58 28  
PP 38 14 PPKP 50 10 P+P+ 58 25  
PP 38 16 PS 47 28 SS 53 00  
LC 01 00 \*E 05 00 \*E 08 00

FZ 1.08 PERIOD 10  
MAXR(Z) 14 20  
MAXH(N) 30 20  
MAXH(E) 16 20

MHC EP 09 34 07.9  
FRI EP 09 34 14.8  
PRI EP 09 34 14.8  
MAG 4.8, DIST(DEC) 102  
LSGS 09 20 10.9, 38.5N, 40.7E, H= 26 KM, M=6.1  
TURKEY

MHC SEP 06 EP 09 46 47.7  
PRI EP 09 46 47.8  
FHC EP 09 46 51.4  
FRI EP 09 46 52.4  
JAS EP 09 46 52.9  
WDC EP 09 46 54.8  
MIN EP 09 46 56.5  
MNV EP 09 47 01.4  
LSGS 09 35 38.2, 22.0S, 179.7W, H=630 KM, M=4.6  
SOUTH OF FIJI ISLANDS

MNV SEP 06 IPC 17 00 37.7  
PRI IPC 17 00 48.8  
JAS EPC 17 00 52.1  
PRI EFC 17 01 01.6  
MIN EPC 17 01 24.2  
WDC EPC 17 01 33.8  
MAGNITUDE 4.3  
LSGS 17 00 00.1, 37.0N, 116.0W, H= 0 KM, M=4.6  
NEVADA TEST SITE

FHC SEP 06 EP 18 10 14.7  
WDC EPD 18 10 22.5  
MIN EP 18 10 28.1  
JAS EPD 18 10 30.2  
MNV EP 18 10 36.8  
LSGS 18 04 59.5, 26.6N, 122.3W, H= 33 KM, M=5.1  
KODIAK ISLAND REGION

WCC SEP 07 11 51 \*E 51 27  
JAS EPC 11 51 43.2 \*E 51 2C  
MNV 11 51 \*E 51 2C  
USGS 11 40 41.4, 43.1N, 139.3E, H=201 KM, M=5.1  
EASTERN SEA OF JAPAN

MNV SEP 07 EPC 23 24 15.0  
PRI EP 23 24 15.5  
PRI EP 23 24 18.6  
JAS EPC 23 24 24.1  
MHC EP 23 24 25.1  
BKS EP 23 24 34.0  
FZ 0.04 PERIOD 1.0

USGS 23 46 08.7, 8.3N, 82.6W, H= 33 KM, M=5.0  
PANAMA - COSTA RICA BORDER REGION

FRI SEP 08 EP 06 34 44.4 \*E 34 46  
FRI EP 06 34 \*E 34 46  
JAS EP 06 34 53.5 \*E 35 45 \*E 57 00  
BKS EP 06 34 55.3  
MNV EP 06 34 55.4  
WDC EP 06 35 09.8  
LSGS 06 23 46.6, 31.4S, 111.8W, H= 33 KM, M=5.3  
EASTER ISLANDS REGION

FHC SEP 09 IPC 02 43 51.5  
WDC IPC 02 44 07.8  
MIN IPC 02 44 16.2  
BKS IPC 02 44 34.6  
MHC EPD 02 44 44.7  
JAS EPD 02 44 47.4  
SAO EP 02 44 52.2 45 37  
FRI EPD 02 45 01.8  
MNV EPD 02 45 03.7  
PRI EPD 02 45 08.3  
ERK 02 43 33, 41.2N, 125.2W, H= 2 KM, ML=4.6  
WEST OF ARCATA, CALIFORNIA

WCC SEP 09 EP 06 07 31.8  
JAS EP 06 07 51.3  
MNV EP 06 07 57.0 \*E 07 57  
FRI EP 06 07 \*E 07 57  
LSGS 06 06 38.2, 41.6N, 142.7E, H= 50 KM, M=5.1  
HOKKAIDO, JAPAN REGION

MNV SEP 09 EPD 18 26 26.0  
PRI EP 18 26 28.0  
PRI EP 18 26 33.2

JAS EPD 18 26 35.6 \*E 57 43  
MHC EP 18 26 41.1  
BKS EP 18 26 45.8  
MICRON 0.03 PERIOD 1.0

MIN EP 18 26 48.0  
WDC EP 18 26 51.2  
FHC EPD 18 27 02.4  
LSGS 18 47 34.7, 6.8N, 73.1W, H=159 KM, M=5.1  
NORTHERN COLUMBIA

MNV SEP 09 EPC 23 02 10.0  
FRI EP 23 02 21.0  
JAS EPC 23 02 21.0  
BKS EPC 23 02 28.0  
MICRON C.02 PERIOD 1.0

PRI EP 23 02 28.1  
LSGS 22 50 23.1, 35.5N, 17.3W, H= 33 KM, M=4.9  
NORTH ATLANTIC OCEAN

BKS SEP 10 08 14 \*E 40 CC  
WDC EP 08 14 26 \*E 14 5C  
JAS EP 08 14 42 \*E 15 0S  
LSGS 08 02 20.8, 11.9S, 126.4E, H=107 KM, M=5.2  
SANTA CRUZ ISLANDS

PRI SEP 10 EPC 10 06 30.7  
BKS EP 10 06 31.5 \*E 56 43 \*E 20 25  
MICRON PERIOD  
MAXR(Z) 1.2 20  
MAXH(N) C.9 20  
MAXH(E) C.9 20

MHC EP 10 06 31.7  
FRI EP 10 06 35.5 \*E 56 47  
JAS EPC 10 06 37.0 \*E 56 42  
WDC EPC 10 06 40.2 \*E 56 52  
MIN EP 10 06 41.8  
MNV EPC 10 06 46.0 \*E 56 57  
LSGS 10 44 22.2, 25.1S, 175.4W, H= 33 KM, M=5.1  
SOUTH OF TONGA ISLANDS

FHC SEP 10 IPC 12 14 31.8 14 38 \*I 14 37  
WDC EPD 12 14 42.9 14 57  
MIN E(P) 12 14 53  
ERK 12 14 24.0, 40.4N, 124.0W, H= 24 KM, ML=3.0  
SOUTH OF ARCATA, CALIFORNIA

MIN SEP 10 IP 17 39 20.3  
WDC IPC 17 39 26.7  
BKS EP 17 39 34.0  
JAS IPD 17 39 36.0  
MHC EP 17 39 42.8  
FHC EP 17 39 43.1  
SAO EP 17 39 49.1  
MNV EP 17 39 51.2  
PRI EP 17 40 04  
ERK 17 35 05.2, 39.8N, 121.8W, H= 6 KM, ML=3.4  
ORCVILLE, CALIFORNIA

MHC SEP 11 EP 03 47 43.7  
PRI EP 03 47 44.2  
WDC EP 03 47 48.3  
JAS EP 03 47 49.0  
FRI EP 03 47 49.2  
LSGS 03 35 22.7, 20.3S, 174.4E, H= 63 KM, M=4.6  
NEW HEBRIDES ISLANDS REGION

JAS SEP 11 EP 08 19 21.9  
MNV EP 08 19 25.2

MHC SEP 11 EP 19 21 18.8 \*E 51 23  
FRI EP 19 21 23.0 \*E 51 27  
JAS EP 19 21 24.0  
TONGA ISLANDS

PRI SEP 11 EPC 22 06 29.4 PCP 09 16  
FRI EPC 22 06 31.2 PCP 09 15  
SAC E(P) 22 06 38 \*E 09 17  
MNV EPC 22 06 38.8  
JAS EPC 22 06 41.6 PP 02 06 PCP 09 18 \*E 11 50  
MHC EPC 22 06 42.0 PCP 09 18  
BKS EPC 22 06 47.0 12 33 PP 08 17 PCP 09 22 \*E 09 50  
LO 15 00 LR 16 30

FZ 2.7 PERIOD 2.0  
MAXR(Z) 7.8 20  
MAXH(N) 8.5 20  
MAXH(E) 6.4 20

MIN EP 22 07 03.8 PCP 09 26  
WDC EP 22 07 07.0 PCP 09 31  
FHC EP 22 07 18.4  
MAG 5.5, DIST(DEC) 37  
USGS 21 59 57.2, 7.0N, 104.3W, H= 33 KM, M=6.4  
OFF COAST OF MEXICO

MIN SEP 12 EP 02 01 03.4  
WDC EPC 02 01 10.3  
BKS EPC 02 01 16.5 C1 38  
JAS EP 02 01 19  
MHC E(P) 02 01 24  
SAC E(P) 02 01 33  
MNV EP 02 01 33.5  
FRI E(P) 02 01 35  
ERK 02 00 47.9, 39.5N, 121.8W, H= 4 KM, ML=3.5  
ORCVILLE, CALIFORNIA

FHC SEP 12 EP 18 37 45.0  
WDC IPC 18 37 51.2  
MIN EP 18 37 56.0  
BKS EP 18 38 05.7 45 47 \*E 38 30 LC 52 14 LR 54 28  
MICRON 0.07 PERIOD 1.0

MHC EP 18 38 10.5 \*E 38 35  
JAS IPC 18 38 12.7 \*E 38 42 \*E 40 16  
SAO EP 18 38 \*E 38 15  
MNV EPC 18 38 19.7 \*E 40 3C  
FRI EP 18 38 19.8  
FRI EP 18 38 20.7  
LSGS 18 28 35.1, 51.9N, 157.2E, H= 82 KM, M=5.6  
NEAR EAST COAST OF KAMCHATKA

MNV SEP 12 EP 18 27 33.5 29 10 \*E 27 54  
JAS E(P) 18 28 23 30 03  
LSGS 18 26 06.4, 42.1N, 112.6W, H= 56 KM  
EASTERN IDAHO

PRI SEP 13 EP 02 40 06.0  
FRI EP 02 40 11.2 \*E 40 20  
SAC EP 02 40  
MNV EP 02 40 27.0  
JAS EP 02 40 28.0  
BKS EP 02 40 39.1 \*E 41 08 \*E 42 26 \*E 43 27  
MICRON PERIOD  
FZ 0.03 0.6

MIN EP 02 41 08.5  
WDC EP 02 41 13.8  
USGS 02 38 33.7, 30.9N, 116.1W, H= 33 KM, M=5.0  
BAJA CALIFORNIA

PRI SEP 13 EP 02 26 52.8  
FRI EP 02 27 04.0 \*E 57 12  
SAC EP 02 27  
MNV EP 02 27 19.0  
JAS EP 02 27 20.8

LSGS 02 55 26.1, 30.9N, 116.3W, H= 33 KM, M=5.1  
BAJA CALIFORNIA

PRI SEP 13 EP 06 47 37.0 \*E 47 48  
BKS EP 06 47  
MHC E(P) 06 47 37.5  
FRI EP 06 47 41.4



JAS EPC 06 47 42.7  
WCC EPC 06 47 46.0  
MIN EP 06 47 47.0  
MNV EP 06 47 45.2  
USGS 06 34 50.8, 32.75, 178.4W, H= 28 KM, M=5.1  
SOUTH OF KERMADEC ISLANDS

SAC SEP 13 EP 11 25 38.0  
PRI EP 11 25 36.3  
MHC EP 11 25 39.6  
BKS EPC 11 28 39.6  
MICRON 0.04 PERIOD 0.8  
FZ 0.7  
MAXR(2) 2.8  
MAXH(N) 4.5  
MAXH(E) 5.0  
FHC EP 11 28 43.2  
PRI EP 11 28 44.4  
JAS EPD 11 28 45.1  
WCC EPD 11 28 46.7  
MIN EP 11 25 47.3  
MNV EPD 11 25 54.1  
USGS 11 14 36.2, 20.85, 178.7W, H=619 KM, M=5.3  
FIJI ISLANDS REGION

FRI SEP 13 EP 13 31 50.3  
PRI EP 13 31 52.5  
SAC EP 13 32  
MNV EP 13 32 11.0  
JAS EP 13 32 12.5  
BKS EP 13 32  
\*E 32 05  
MICRON PERIOD  
MAXR(2) 2.8 20  
MAXH(N) 4.5 20  
MAXH(E) 5.0 20  
\*E 32 54  
\*E 33 00  
USGS 13 30 12.7, 20.4N, 116.4W, H= 33 KM, M=4.7  
MAJAL CALIFORNIA

MNV SEP 13 EP 19 38 32.5  
PRI EP 19 38 39.3  
JAS EP 19 38 47.8  
MHC EP 19 38 53.5  
BKS EP 19 38  
FHC EP 19 39 32.8  
\*E 46 24  
USGS 19 31 39.9, 16.8N, 85.9W, H= 33 KM, M=4.6  
CARIBBEAN SEA

PRI SEP 13 IPC 21 21 03.6  
SAC IPC 21 21 18.2  
PRI IPC 21 21 20.6  
FRI IPC 21 21 20.6  
MHC IPC 21 21 26.6  
JAS IPD 21 21 31.1  
BKS EPC 21 21 35.6  
MNV EPC 21 21 46.7  
MIN E(P) 21 22 10.5  
FHC E(P) 21 22  
\*E 22 0F  
\*E 22 22  
USGS 21 20 59.8, 26.0N, 120.6W, H= 13 KM, ML=4.2  
PARKFIELD, CALIFORNIA

JAS SEP 13 EP 22 46 00.0  
WCC EP 22 46 22.5  
BKS EP 22 46  
\*E 59 24

MHC SEP 13 EP 23 27 22.5  
WCC EP 23 27 23.5  
PRI EP 23 27 25.0  
JAS EP 23 27 27.6  
FRI EP 23 27 29  
MNV EP 23 27 37.2  
USGS 23 14 56.5, 9.4S, 161.9E, H= 92 KM, M=4.9  
SOLMON ISLANDS

MNV SEP 14 EPC 12 18 42.2  
JAS EPC 12 18 46.1  
MHC EPC 12 18 47.5  
BKS EP 12 18 50  
\*E 16 05  
\*E 16 09  
\*E 16 10  
MICRON PERIOD  
FZ 0.01 0.8  
\*E 16 22  
USGS 12 03 12.6, 33.7S, 70.5W, H= 37 KM, M=5.2  
CHILE - ARGENTINA BORDER REGION

MNV SEP 14 EPC 18 26 55.0  
PRI EPC 18 26 56.0  
JAS EP 18 26  
MHC EPC 18 27 04.3  
BKS EP 18 27 09  
MIN E(P) 18 27 12  
MIA EP 18 27 21  
WCC EP 18 27 21  
EPC 18 27 24.0  
USGS 18 19 30.9, 11.1N, 86.2W, H= 54 KM, M=4.6  
NEAR COAST OF NICARAGUA

FRI SEP 14 EP 17 46 10  
PRI EP 17 46 10  
MNV EP 17 46 10  
JAS EP 17 46 19  
BKS EP 17 46  
WCC EP 17 46  
\*E 59 16 \*E 03 32  
USGS 17 38 59.5, 12.4N, 88.4W, H= 33 KM, M=4.8  
OFF COAST OF CENTRAL AMERICA

WCC SEP 18 EP 03 56 11.3  
MHC EP 03 56 11.8  
MIN EP 03 56 14  
PRI EP 03 56 14.8  
JAS EP 03 56 16.0  
FRI EP 03 56 17.7  
MNV EP 03 56 28.3  
USGS 03 43 35.2, 7.6S, 159.3E, H= 60 KM, M=5.2  
SOLMON ISLANDS

MNV SEP 18 EPC 07 16 11.7  
PRI EPC 07 16 12.0  
PRI E(P) 07 16 13  
JAS EPC 07 16 20.5  
MHC EP 07 16 28.5  
BKS EP 07 16 31.0  
\*E 18 21  
\*E 18 21  
\*E 18 21  
\*E 18 25  
\*E 18 27  
MICRON PERIOD  
FZ 0.04 1.4  
\*E 18 33  
USGS 07 08 40.2, 10.9N, 86.3W, H= 33 KM, M= .  
OFF COAST OF COSTA RICA

PRI SEP 18 EP 07 50 41.2  
MNV EP 07 50 44.8  
JAS EP 07 50 47.3  
USGS 07 37 50.0, 42.25, 73.3W, H= 60 KM, M=4.8  
NEAR COAST OF SOUTHERN CHILE

BKS SEP 18 IPC 12 31 21.0  
MHC IPD 12 31 27.8  
SAC EP 12 31 37.0  
JAS EPC 12 31 37.2  
BRK 12 31 31.4  
USGS 12 31 10.4, 37.8N, 121.9W, H= 2 KM, ML=2.8  
DANVILLE, CALIFORNIA

SAC SEP 18 EP 16 59 21.7  
BKS EP 16 59 22.5  
09 12 \*E 59 32 \*E 59 56 \*E 00 50  
FFP 03 41 PS 14 06 SS 19 02  
LR 23 34  
MICRON PERIOD  
PZ 1.0  
4\*79\*99 0.71 20  
MAXR(2) 0.85 20  
MAXH(N) 0.89 20  
MAXH(E) 0.89 20  
\*E 59 35 \*E 59 52

MHC EP 16 59 23.1  
PRI EP 16 59 23.9  
FHC EP 16 59 26.2

FRI EP 16 59 27.5 \*E 59 40  
JAS EP 16 59 28.4 \*I 59 41  
WCC EP 16 59 31.4 \*I 59 44  
MIN EP 16 59 33.0 \*E 59 46  
MNV EP 16 59 38.0 \*I 59 50 \*I 00 07  
MAG 5.1, CIST(DEC) 80  
USGS 16 47 32.9, 21.3S, 174.6W, H= 31 KM, M=5.4  
TONCA ISLANDS

MNV SEP 16 EP 00 23 25.7  
JAS EP 00 23 38.7  
WCC EP 00 23  
USGS 00 44 02.3, 4.3S, 80.7W, H= 68 KM, M=5.0  
PERU - ECUADOR BORDER REGION

FHC SEP 16 EPC 02 11 21.0 11 3E  
WCC IPC 02 11 37.6 12 12  
MIN EP 02 11 47.3 12 27  
MHC EP 02 12 02.3  
SAC EP 02 12 08.3  
JAS EP 02 12 10.4  
FRI EP 02 12 23.7  
BRK 02 10 48.5, 40.3N, 126.5W, H= 2 KM, ML=3.4  
NORTHWEST OF ARCATA, CALIFORNIA

FHC SEP 16 EP 11 20 22.1  
WCC IPD 11 20 27.2  
MIN EPD 11 20 30.2  
BKS EFC 11 20 34.2  
MICRON PERIOD  
PZ C.08 1.0  
\*E 20 3E  
\*E 23 49

MHC EPD 11 20 41.0  
JAS EP 11 20 46.2  
PRI EPD 11 20 48.9  
MNV IPD 11 20 48.2  
USGS 11 09 07.8, 27.3N, 140.1E, H=374 KM, M=5.2  
BONIN ISLANDS REGION

SAC SEP 16 EP 12 03 44.7  
BKS EPD 12 03 45.2  
MICRON PERIOD  
PZ C.07 1.0  
\*E 06 54

MHC IPD 12 03 46.2  
PRI EPD 12 03 46.3  
FHC EP 12 03 49.3  
FRI EP 12 03 51.4  
JAS IPD 12 03 51.2  
WCC IPD 12 03 52.9  
MIN EP 12 03 54.2  
MNV IPD 12 04 01.2  
USGS 11 02 48.4, 18.0S, 178.0W, H=223 KM, M=5.1  
FIJI ISLANDS REGION

WCC SEP 17 EPC 01 59 14.0  
JAS EPC 01 59 23.1  
FRI EP 01 59 27.7  
MNV EPC 01 59 30.2  
USGS 01 47 38.7, 21.8N, 142.5E, H=302 KM, M=4.5  
MARIANA ISLANDS REGION

PRI SEP 17 EP 09 31 03.1  
MNV EP 09 31 04.4  
JAS EPD 09 31 08.8  
MHC EP 09 31 10.2  
WCC EPD 09 31 22.1  
USGS 09 18 50.2, 31.5S, 69.3W, H=119 KM, M=4.5  
SAN JUAN, ARGENTINA

JAS SEP 18 EP 05 40 59.7  
WCC EP 05 41 03.0  
MIN EP 05 41  
MNV EP 05 41 02.2  
USGS 05 29 12.1, 16.8S, 177.2W, H= 33 KM, M=5.2  
FIJI ISLANDS REGION

FRI SEP 18 EP 18 42 04.5  
JAS EP 18 42 05.4  
WCC EP 18 42 09  
MIN EP 18 42 14.0  
\*E 42 15  
\*E 42 28

WCC SEP 19 EP 02 52 4E  
JAS EP 02 53 07.3  
MNV EP 02 53 14  
PRI EP 02 53 14  
USGS 02 43 36.6, 23.0N, 186.7E, H= 41 KM, M=5.3  
NEAR EAST COAST OF KAMCHATKA

FHC SEP 19 E(P) 03 25 07  
WCC EPD 03 25 11.0  
MIN EP 03 25 18.8  
MHC EP 03 25 29  
JAS EPD 03 25 30.2  
FRI EP 03 25 32  
MNV EPD 03 25 37.5  
PRI EPD 03 25 37.2  
EP 03 25 38  
USGS 03 15 21.1, 47.0N, 151.9E, H=119 KM, M=5.5  
KURIL ISLANDS

FHC SEP 19 EPKP 03 57 08.8  
WCC EPKP 03 57 08.8  
BKS EPKPD 03 57 09.3  
06 16 \*E 57 49 \*E 57 51 PKKF 07 10  
\*E 12 00 SS 18 00 \*E 21 40  
LO 28 24 \*E 30 47 \*E 50 48

MICRON PERIOD  
FZ 0.16 1.8  
MAXR(2) 4.6 20  
MAXH(N) 3.0 20  
MAXH(E) 3.0 20  
EPKP 03 57 09.4  
EPKP 03 57 10.0  
EPKP 03 57 11.0  
EPKP 03 57 11.7  
EPKP 03 57 12.8  
EPKP 03 57 14  
USGS 03 37 11.7, 34.8S, 81.8E, H= 33 KM, M=6.0  
AMSTERDAM - NATURALISTE RIDGE

FHC SEP 19 EPC 18 05 23.4  
WCC EP 18 05 29.2  
MIN EP 18 05 33.4  
BKS EP 18 05 41.2  
14 45 \*E 08 42  
MICRON PERIOD  
PZ C.04 1.0  
MAXR(2) 2.8 20  
MAXH(N) 2.3 20  
MAXH(E) 2.1 20  
EP 18 05 45.1  
EP 18 05 47.1  
EP 18 05 53.4  
EP 18 05 53.7  
EP 18 05 54.1  
MAG 5.4, CIST(DEC) 88  
USGS 17 54 37.0, 41.9N, 142.7E, H= 47 KM, M=5.5  
HOKKAIDO, JAPAN REGION

FHC SEP 19 EP 23 28 22.2 \*E 28 36  
WCC EP 23 28 23.4 \*E 28 37  
BKS E(P) 23 28 23.9 \*E 28 24 SSS 48 50 LO 51 36  
39 14  
MICRON PERIOD  
PZ C.04 0.9  
MAXR(2) 2.8 20  
MAXH(N) 0.5 20  
MAXH(E) 2.0 20  
E(P) 23 28 28.2 \*E 28 39  
EP 23 28 29.4 \*E 28 42  
EP 23 28 29.8 \*E 28 43  
EP 23 28 31.8 \*E 28 48  
EP 23 28 32.2 \*E 28 52  
MAG 5.4, CIST(DEC) 88

USGS 23 1E 34.0, 6.4S, 124.9E, H= 47 KM, M=5.4  
SCLERON ISLANDS

USGS 00 19 35.1, 25.4N, 125.9E, H= 33 KM, M=5.1  
RYUKYU ISLANDS

SAC SEP 20 EPC 00 01 11.4  
DPT 00 01 15.2 51 24  
MHC 00 01 22.2  
FRI 00 01 26.0  
JAS 00 01 31.4  
EPK 00 01 04.8, 36.6N, 121.1W, H= 8 KM, ML=2.6  
BEAR VALLEY, CALIFORNIA

WDC SEP 25 06 27  
MIN 06 27  
BKS 06 28 13  
E(P)  
MHC 02  
JAS 06 28  
MNV 06 28 27.1  
FRI 06 28  
PRI 06 28 41.9  
EP  
USGS 06 26 40.2, 43.4N, 126.9W, H= 33 KM, M=4.2  
OFF COAST OF OREGON

WDC SEP 20 EDKD 06 31 23.4  
FHC 06 31 24  
MVA 06 31 24.6  
JAS 06 31 32.9  
PKS 06 31 32  
MICRON C.04 PERIOD 1.2  
EPK 06 31 33.2  
EDKD 06 31 33.7  
EPK 06 31 36  
EPK 06 31 38  
USGS 06 11 00.0, 6.7S, 68.3E, H= 33 KM, M=5.4  
CHAGCS ARCHIPELAGO REGION

PRI SEP 25 EP 08 32 53.0  
MHC 08 32 53.0  
MFC 08 32 53.0  
FRI 08 32 53.0  
JAS 08 32 53.2  
WDC 08 32 53.7  
MIN 08 33  
MNV 08 33 01.2  
EP  
USGS 08 21 59.5, 15.5S, 177.9W, H=591 KM, M=4.8  
FIJI ISLANDS REGION

FRI SEP 21 EP 13 19 27.0  
MNV 13 19 27.0  
DPT 12 19 27.0  
FRI 13 19 27.0  
JAS 13 19 27.0  
MHC 13 19 27.0  
PKS 13 19 27.0  
EP  
F2 25 20 FCP 22 24 \*E 28 44 \*E 30 32  
MICRON C.04 PERIOD 1.2  
MAXR(2) 1.9 20  
MAXH(N) 14 20  
MAXH(E) 14 20  
EP 13 19 27.0  
EPD 13 19 27.0  
EPD 13 20 10.5  
MAG 5.7, DIST(DEC) 34  
USGS 13 12 02.1, 14.7N, 53.5W, H= 33 KM, M=5.4  
NEAR COAST OF CHIAPAS, MEXICO

FHC SEP 25 E(D) 18 23 00.7  
BKS 18 23 03.2  
PZ MAXR(2) 1.4 PERIOD 0.8  
WDC EPC 18 23 04.5  
MFC 18 23 06.1  
MIN 18 23 07.2  
PRI 18 23 08.2  
JAS 18 23 10.2  
FRI 18 23 12.7  
MNV 18 23 19.2  
USGS 18 10 16.4, 6.5S, 154.9E, H= 61 KM, M=5.5  
SCLERON ISLANDS

MVA SEP 21 EP 16 02 05.2  
FRI 16 02 07.0  
JAS 16 02 14.5  
MHC 16 02 36.2  
FHC 16 02 47.8  
EP  
LEGS 15 55 27.2, 14.1N, 91.0W, H=102 KM, M=4.8  
GUATEMALA

FHC SEP 25 IPD 20 58 36.3 58 50  
WDC 20 58 53.0  
MIN 20 59 03.7  
EP  
USGS 20 52 21.8, 40.2N, 124.8W, H= 2 KM, ML=3.2  
SOUTHWEST OF ARCATO, CALIFORNIA

FRI SEP 27 EP 01 14 50.5 \*E 15 14  
JAS 01 14 52.0 \*E 15 17  
WDC 01 14 52.0 \*E 15 22

MIN SEP 26 IPC 02 31 22.7  
WDC 02 31 28.9  
BKS 02 31 34.6 21 22 \*E 31 49  
JAS 02 31 36.5  
MHC 02 31 41.7  
FHC 02 31 44.4  
SAO 02 31 50.0  
MNV 02 31 52.8  
FRI 02 31 53.0  
PRI 02 32 01.5  
EP  
USGS 02 31 07.1, 39.2N, 121.5W, H= 11 KM, ML=4.0  
OROVILLE, CALIFORNIA

FHC SEP 24 EP 01 06 28.0  
WDC 01 06 33.2  
MIN 01 06 37.0  
PKS 01 06 42.0  
EP  
F2 16 21 \*PP 06 56 \*SS 16 50 LO 36 40  
MICRON 0.04 PERIOD 0.8  
EP 01 06 46.1  
EPD 01 06 49.0  
EPD 01 06 53.9  
EPD 01 06 54.2  
EPD 01 06 56.5  
USGS 00 58 04.6, 32.1N, 142.3E, H= 51 KM, M=5.6  
SOUTH OF HONSHU, JAPAN

MVA SEP 26 EFC 09 57 33.0  
WDC 09 57 39.0  
BKS 09 57 43.7  
JAS 09 57 45.1  
MHC 09 57 51.7  
SAC 09 57 59.2  
MNV 09 58 01.0  
FRI 09 58 02.0  
PRI 09 58 11  
EP  
USGS 09 57 16.3, 39.4N, 121.5W, H= 9 KM, ML=3.1  
OROVILLE, CALIFORNIA

FRI SEP 24 EPC 01 59 33.7  
SAC 01 59 34.2  
MHC 01 59 34.7  
BKS 01 59 35.4  
EP  
F2 09 18 SS 14 10 LO 12 48  
MICRON C.75 PERIOD 2.0  
MAXR(2) 6.9 20  
MAXH(N) 7.8 20  
MAXH(E) 7.8 20  
EP 01 59 39.6  
EP 01 59 39.7  
EP 01 59 40.5  
EP 01 59 43.1  
\*E 59 55 \*E 00 14 PIP 26 55  
\*E 59 57 \*E 00 16 \*E 02 35  
PIP 27 CC  
EP 01 59 44.8  
EP 01 59 51.2  
MAG 6.1, DIST(DEC) 76  
USGS 01 47 49.7, 20.5S, 174.0W, H= 33 KM, M=6.1  
TONGA ISLANDS

MVA SEP 26 EFC 21 28 12.4  
FRI 21 28 13.7  
JAS 21 28 22.2  
MHC 21 28 26.8  
BKS 21 28 32  
FHC 21 28 50.7  
EP  
USGS 21 49 37.5, 7.3N, 78.1W, H= 33 KM, M=5.2  
PANAMA

FHC SEP 24 EP 17 23 04.6  
FRI 17 23 08.2  
MNV 17 23 11.9  
JAS 17 23 19.4  
SAO 17 23  
MHC 17 23 20.8 \*E 23 24  
PKS 17 23 30.0  
EPD  
F2 26 44 LR 28 00  
MICRON 0.41 PERIOD 1.4  
MAXR(2) 21 20  
MAXH(N) 61 20  
MAXH(E) 46 20  
EP 17 23 51.0  
EP 17 23 57.4  
EP 17 24 02.3  
MAG 5.8, DIST(DEC) 15  
USGS 17 19 37.2, 25.2N, 109.3W, H= 33 KM, M=5.5  
GLLF OF CALIFORNIA

MIN SEP 27 IPD 22 34 53.4  
WDC 22 35 00.7  
BKS 22 35 06.0 \*F 35 26 \*E 35 40  
JAS 22 35 06.1  
MHC 22 35 13.6  
FHC 22 35 15.2  
SAC 22 35 21.5  
MNV 22 35 24  
FRI 22 35 24.7  
PRI 22 35 32.5  
EP  
USGS 22 34 32.0, 29.5N, 121.5W, H= 8 KM, ML=4.6  
OROVILLE, CALIFORNIA

FHC SEP 24 IPC 18 03 32.3  
WDC 18 03 36.6  
MVA 18 03 43.0  
BKS 18 03 53.4  
EP  
F2 18 03 50.2  
IPC 18 04 01.2  
IPC 18 04 02.5  
IP 18 04 08.0  
EP 18 04 08.3  
EP 18 04 09.7  
USGS 17 54 41.8, 54.6N, 160.1E, H= 54 KM, M=5.3  
NEAR EAST COAST OF KAMCHATKA

MIN SEP 27 EP 23 04 45.5  
WDC 23 04 52.5  
BKS 23 05 00.3 \*E 05 20  
JAS 23 05 01.3  
MHC 23 05 07.5  
MNV 23 05 16.8  
FRI 23 05 18  
EP  
USGS 23 04 30.6, 39.5N, 121.5W, H= 8 KM, ML=3.1  
OROVILLE, CALIFORNIA

WDC SEP 24 EP 21 41 33.0  
MHC 21 41 45.7  
JAS 21 41 47.7  
PRI 21 41 52.3  
FRI 21 41 52.7  
MNV 21 41 53.7  
EP  
USGS 21 29 04.8, 29.3N, 125.2E, H= 33 KM, M=5.2  
RYUKYU ISLANDS

MIN SEP 27 EP 23 28 20.6  
WDC 23 28 26.5  
BKS 23 28 23.5 28 55  
JAS 23 28 35.9  
MHC 23 28 41.2  
FHC 23 28 42.0  
SAO 23 28 49.5  
MNV 23 28 50.5  
FRI 23 28 51.9  
EP  
USGS 23 28 05.0, 39.5N, 121.6W, H= 7 KM, ML=3.2  
OROVILLE, CALIFORNIA

WDC SEP 24 EP 22 57 36.5  
MIN 22 57 41.8  
BKS 22 57 46.7  
EP  
F2 22 57 50.2  
EP 22 57 52.2  
EP 22 57  
EP 22 57 57.2  
EP 22 57 57.3  
USGS 22 48 07.7, 29.2N, 125.5E, H= 24 KM, M=5.3  
RYUKYU ISLANDS

SAO SEP 28 EPC 04 06 55.2  
BKS 04 06 56.0  
MHC 04 06 57.0  
PRI 04 06 57.1  
FHC 04 07 01.0  
FRI 04 07 02.2 \*E 09 09  
MNV 04 07 02.9 \*E 09 11  
JAS 04 07 03.6  
WDC 04 07 05.7 \*E 09 20  
MIN 04 07 11.0  
MVA 04 07 11.0  
EP  
USGS 03 56 05.2, 18.0S, 178.4W, H=512 KM, M=5.3  
FIJI ISLANDS REGION

WDC SEP 25 EP 00 32 02.2  
BKS 00 32 11  
MHC 00 32 14.2  
JAS 00 32 16.2  
FRI 00 32 20.8  
PRI 00 32 21.0  
EP

PRI SEP 28 EPC 04 44 48.0  
FRI 04 44 53.2  
MNV 04 45 05.0  
EP  
USGS 04 42 00.7, 26.2N, 113.5W, H= 25 KM, M=4.4  
BAJA CALIFORNIA



MNV EPC 09 28 42.4 \*E 27 34  
USGS 09 13 58.3, 24.65, 175.7W, H=500 KM, M=5.2  
SOUTH OF FIJI ISLANDS

MIN SEP 28 IPC 21 07 30.4  
WDC EP 21 07 37.1  
BKS EF 21 07 43.2 08 05  
JAS IPD 21 07 48.5  
PRK 21 07 15, 29.5N, 121.5W, ML=3.4  
CFCVILLE, CALIFORNIA

WDC SEP 29 EP 11 10 58.0  
MIN EP 11 10 59.5  
MNV EP 11 11 14.8  
JAS EPC 11 11 15.5  
MHC E(P) 11 11 20  
PRI E(P) 11 11 22.8  
PRI E(P) 11 11 27  
LSGS 10 25 58.1, 69.6N, 50.4E, H= 0 KM, M=4.9  
CENTRAL RUSSIA

FRI SEP 29 EP 19 01 14.2  
MHC EP 19 01 16.0 \*E 01 28  
BKS IPC 19 01 16.0 \*E 28 26 \*E 30 00  
MICRON PERIOD  
C.02 C.6

FRI EP 19 01 20.0  
WDC EP 19 01 24.3 \*I 01 36  
MIN EP 19 01 26.4  
MNV EP 19 01 29.2  
LSGS 12 49 06.4, 25.15, 178.6W, H= 33 KM, M=5.4  
SOUTH OF TONGA ISLANDS

FRI SEP 30 EP 04 01 10.0  
MNV IPD 04 01 11.8  
PRI EPD 04 01 12.0  
SAC EP 04 01 18.1  
JAS IPD 04 01 18.7  
MHC IPD 04 01 22.0  
BKS IPD 04 01 26.7  
MICRON PERIOD  
0.24 1.0

MNV EPD 04 01 32.2  
WDC IPD 04 01 35.6  
FHC IPD 04 01 44.4  
USGS 03 50 59.3, 9.65, 74.7W, H=135 KM, M=5.8  
PERU

JAS SEP 30 EP 08 05 50.8  
LSGS 07 52 29.8, 10.85, 166.4E, H=106 KM, M=5.6  
SANTA CRUZ ISLANDS

WDC SEP 30 EP 08 25 42.8  
MIN EP 08 25 51.4  
JAS EP 08 26 09.3  
PRI EP 08 26 17.0  
MNV EP 08 26 18.0  
PRI EP 08 26 18.4  
LSGS 08 28 12.2, 51.7N, 179.4W, H= 33 KM, M=4.6  
ANDREANOF ISLANDS, ALEUTIAN ISLANDS

FRI SEP 30 C9 C0 \*E 00 40 \*E 00 51  
PRI 09 00 \*E 00 43  
MNV 09 00 \*E 00 50  
JAS C9 C0 \*E 00 54  
MHC 09 01 \*E 01 04  
BKS EP 09 01 \*E 05 00  
MIN 09 01 \*E 01 22  
WDC 09 01 \*E 01 25  
LSGS 02 27 23.9, 26.1N, 109.7W, H= 33 KM, M=4.4  
GULF OF CALIFORNIA

MNV SEP 30 EP 18 42 00.0 \*I 42 16 \*E 44 C0 \*E 44 36  
PRI EP 18 42 00.0 \*E 42 00 \*E 42 06  
FRI EP 18 42 09.5 \*E 43 52 \*E 44 35  
JAS EP 18 42 13.8 \*E 42 20 \*E 42 20  
MHC EP 18 42 20 \*E 42 20 \*E 42 20 \*E 49 00  
MIN EP 18 42 30.8 \*E 51 30 \*E 48 C0 \*E 49 00  
WDC EP 18 42 \*E 42 27 \*E 42 27  
FHC EP 18 42 \*E 42 42 \*E 42 42  
USGS 15 38 24.4, 14.3N, 91.0W, H=107 KM, M=4.8  
GUATEMALA

FHC SEP 30 EPKF 18 36 50.3 \*E 40 20 \*E 40 12  
WDC EPKF 18 36 51.8 \*E 37 28 \*E 40 12  
MIN EPKF 18 36 52.0 \*E 38 54 \*E 40 10 \*E 49 00  
BKS EPKF 18 36 \*E 50 32 \*E 20 00 \*E 49 00  
MHC EPKF 18 36 56.8 \*E 37 34 \*E 40 17  
JAS EPKF 18 36 57.4 \*E 40 21 \*E 40 21  
PRI EPKF 18 36 59.9 \*E 40 22 \*E 40 22  
MNV EPKF 18 37 00.4 \*E 40 22 \*E 40 22  
USGS 18 17 49.8, 4.65, 102.2E, H= 33 KM, M=5.6  
SOUTHERN SUMATRA

FHC OCT 01 EP 02 02 31.5  
WDC EPC 02 02 36.4  
MIN EP 02 02 39.6  
MHC EP 02 02 43.8  
JAS EP 02 02 47.3  
PRI E(P) 02 02 49.8  
PRI EP 02 02 51.3  
MNV EPC 02 02 50.7  
LSGS 01 50 24.1, 13.8N, 144.5E, H=143 KM, M=4.3  
MARIANA ISLANDS

FHC OCT 01 EPKF 03 49 00.3 \*E 50 48 \*E 02 18  
WDC EPKF 03 49 01.4 \*E 51 15 \*E 02 27  
MIN EPKF 03 49 02.7 \*E 50 16 \*E 51 02 \*E 52 20  
BKS EPKF 03 49 04 \*E 56 18 \*E 01 10 \*E 02 56  
MHC EPKF 03 49 06 \*E 06 52 \*E 08 30 \*E 12 20  
JAS EPKF 03 49 07 \*E 18 52 \*E 26 40 \*E 12 20  
PRI EPKF 03 49 07.1 \*E 18 52 \*E 26 40 \*E 12 20  
MNV EPKF 03 49 07.1 \*E 18 52 \*E 26 40 \*E 12 20  
MICRON PERIOD  
MAXR(Z) 30.3  
MAX(H) 12.1  
MAX(E) 33.9  
20  
20  
20

FRI EPKF 03 49 06.2 \*E 49 40 \*E 51 13 \*E 51 48  
PRI EPKF 03 49 07.7 \*E 02 15 \*E 51 13 \*E 51 48  
MNV EPKF 03 49 10.2 \*E 49 43 \*E 51 85  
MAG 6.9, DIST(DEG) 128  
USGS 03 25 58.9, 4.9S, 102.2E, H= 33 KM, M=6.2  
SOUTHERN SUMATRA

FHC OCT 01 EPKPC 04 32 29.7 \*E 34 13  
WDC EPKPC 04 32 30.7 \*E 34 14  
MIN EPKPC 04 32 32.2 \*E 34 15  
MHC EPKPC 04 32 35.7 \*E 34 18 \*E 35 54  
SAC EPKPC 04 32 36.3 \*E 34 19 \*E 35 54  
JAS EPKPC 04 32 36.5 \*E 34 20 \*E 35 54 \*E 48 28  
PRI EPKPC 04 32 38.3 \*E 34 22 \*E 35 59 \*E 48 28  
PRI EPKPC 04 32 38.9 \*E 34 22 \*E 35 59 \*E 48 28  
MNV EPKPC 04 32 38.4 \*E 34 22 \*E 35 59 \*E 48 28  
LSGS 04 13 28.4, 4.8S, 102.1E, H= 33 KM, M=6.0  
SOUTHERN SUMATRA  
THIS APPEARS TO BE A DOUBLE EVENT. SECOND ARRIVALS  
HAS FOLLOWING HYPOCENTER  
LSGS 04 18 12.4, 4.8S, 102.1E, H= 33 KM, M=5.8

SAC OCT 01 EP 18 12 38.3  
PRI EPC 18 12 39.0  
BKS EPC 18 12 39.0  
MICRON PERIOD  
PZ C.06  
C.06 0.8

MHC EP 18 12 35.4  
FHC EP 18 12 43.2  
PRI EP 18 12 43.6  
JAS IPC 18 12 44.4  
WDC EF 18 12 46.0  
MIN EP 18 12 47.7  
MNV IPC 18 12 52.0  
LSGS 18 01 06.4, 25.2S, 178.6E, H=556 KM, M=5.3  
SOUTH OF FIJI ISLANDS

FHC OCT 02 EPC 11 17 12.8  
WDC IPC 11 17 18.9  
MIN IPC 11 17 23.1  
BKS EPC 11 17 30.0  
MICRON PERIOD  
PZ 0.17  
C.02 1.0

MHC EPC 11 17 34.8  
SAO EP 11 17 37.3  
JAS IPC 11 17 37.4  
PRI IPC 11 17 43.2  
PRI IPC 11 17 43.2  
MNV IPC 11 17 44.8  
LSGS 11 06 46.5, 43.2N, 145.9E, H= 75 KM, M=5.8  
HOKKAIDO, JAPAN REGION

SAO OCT 02 EP 18 51 39.0  
BKS IPC 18 51 39.0  
MICRON PERIOD  
PZ C.06  
C.06 1.0

MHC EPC 18 51 40.5  
PRI EPC 18 51 40.7  
FHC EPC 18 51 43.5  
PRI EPC 18 51 45.8  
JAS IPC 18 51 46.3  
WDC IPC 18 51 47.3  
MIN EP 18 51 49.0  
MNV EPC 18 51 55.8  
LSGS 18 40 49.2, 18.0S, 178.5W, H=617 KM, M=5.1  
FIJI ISLANDS REGION

PRI OCT 03 EP 05 03 24.7  
JAS EPC 05 03 30.8 \*E 04 07  
MHC EP 05 03 32.0  
WDC IPC 05 03 44.2 \*E 04 28  
LSGS 04 21 10.6, 31.9S, 70.3W, H= 59 KM, M=4.8  
CHILE - ARGENTINA BORDER REGION

BKS OCT 03 IPC 09 44 45.9 44 55  
MHC EPC 09 44 56.6  
JAS EPD 09 45 06.0  
SAO EP 09 45 06.2  
ERK 09 44 48.3, 37.6N, 121.6W, H= 6 KM, ML=2.5  
DANVILLE, CALIFORNIA

FHC OCT 03 EP 10 01 20.5  
WDC EPC 10 01 26.1 \*E 07 14 \*E 08 14  
MIN EPC 10 01 33.0  
BKS EP 10 01 42.5 \*E 07 17 \*E 08 40  
MICRON PERIOD  
PZ C.12  
C.12 1.0  
MAXR(Z) 2.7  
MAX(H) 1.8  
MAX(E) 2.8  
20  
20

MHC EP 10 01 47.8  
SAO EP 10 01 51.0 \*E 07 17 \*E 08 40  
JAS EPC 10 01 51.0  
PRI EP 10 01 58.6  
PRI EP 10 01 59.1  
MNV EP 10 01 59.5  
MAG 5.7, DIST(DEG) 47  
USGS 00 23 22.6, 51.5N, 178.0E, H= 13 KM, M=5.2  
RAT ISLANDS, ALEUTIAN ISLANDS

WDC OCT 03 EPKF 13 28 40.0  
MIN EPKF 13 28 41.0  
BKS EPKF 13 28 41.6  
MHC EPKF 13 28 43.3  
JAS EPKF 13 28 44.5  
PRI EPKF 13 28 45.2  
PRI EPKF 13 28 45.7  
MNV EPKF 13 28 48.2  
LSGS 13 10 28.3, 7.8S, 122.9E, H=244 KM, M=5.5  
FLORES SEA

FHC OCT 03 EP 14 28 53.0  
BKS EP 14 28 54.4  
MHC EP 14 28 56.5 \*E 29 04  
WDC EP 14 28 57.5 \*E 29 07  
PRI EP 14 28 59.3 \*E 29 05  
MIN EP 14 28 59.3 \*E 29 12  
JAS EPC 14 29 01.3 \*E 29 12  
PRI EP 14 29 02.5 \*E 29 13  
MNV EPC 14 29 10.2 \*E 29 21  
LSGS 14 16 17.1, 10.1S, 160.5E, H= 56 KM, M=5.8  
SOLCOMON ISLANDS

MIN OCT 03 EP 18 44 11.2  
WDC EP 18 44 14.2  
FHC EP 18 44 17.3  
MNV EP 18 44 22  
JAS EP 18 44 25  
PRI EP 18 44 30  
MHC EP 18 44 32.4  
PRI EP 18 44 38.5  
LSGS 18 34 08.0, 64.4N, 17.3W, H= 33 KM, M=5.4  
ICELAND

BKS OCT 03 IPC 21 48 32.3  
MIN E(P) 21 48 38.8 \*E 48 51  
WDC EP 21 48 35  
MHC EP 21 48 42.5  
JAS E(P) 21 48 46.8  
MNV E(P) 21 48 53  
EP 21 48 53  
RRK 21 48 16  
21 48 06.3, 38.9N, 122.8W, H= 3 KM, ML=3.0  
EAST OF CLEAR LAKE, CALIFORNIA

BKS OCT 04 IPD 01 23 50.1 23 52  
MHC IP 01 24 02.0 24 13  
SAC IP 01 24 10.6  
JAS IP 01 24 13.5 24 32  
ERK 01 23 48.6, 37.9N, 122.3W, H= 9 KM, ML=2.5  
RICHMOND, CALIFORNIA

BKS OCT 04 IP 08 06 30.7 07 12  
MHC EP 08 06 42.7 06 32  
SAO EPD 08 06 50.5  
JAS EP 08 06 53.7  
ERK 08 06 29.1, 37.9N, 122.3W, H= 9 KM, ML=2.5  
RICHMOND, CALIFORNIA

FRI OCT 04 EPC 09 53 25.8 53 36  
MNV IP 09 53 34.3  
JAS EPC 09 53 38.3  
PRI EPC 09 53 45.3  
SAC IPD 09 53 48.3  
MHC EPD 09 53 49.4  
ERK 09 53 13.0, 37.8N, 112.5W, H= 5 KM, ML=3.0  
SANBETH LAKES AREA, CALIFORNIA

PRI OCT 04 EPC 20 11 51.3  
MHC EP 20 11 51.7  
PRI EP 20 11 57.3  
WDC EPC 20 11 58.1  
MNV EPC 20 11 58.7  
EP 20 12 09.5  
TONGA ISLANDS

WDC OCT 04 EP 20 26 22.2  
JAS EP 20 26 36.4  
PRI EP 20 26 43.9

MAV EP 20 26 42.7  
 LSGS 20 14 54.0, 33.7N, 142.1E, F= 18 KM, M=5.0  
 OFF EAST COAST OF HONSHU, JAPAN  
 WDC RKS EPD 08 41 24.4  
 08 41 26 52 CC PPS \*E 53 52  
 \*E 53 50 SS 58 46 \*E 04 58  
 \*E 08 30 LR 12 32  
 P7 MICRON PERIOD  
 C-1P  
 MAXR(2) 18 1.6  
 MAXH(N) 11.2 19  
 MAXF(E) 20 19  
 CE 41 25.7  
 MAG 6.6, DIST(DEC) C2  
 LSGS 08 28 09.5, 0.9N, 26.8W, F= 33 KM, M=6.2  
 MID-ATLANTIC RIDGE OFF EASTERN TIP OF BRAZIL  
 FRI OCT 07 IFC 20 58 29.4  
 MNV EPD 20 58 30.4  
 JAS EPC 20 58 35.8  
 PRI EPD 20 58 45.2  
 SAC EPD 20 58 51.2  
 MHC EPD 20 58 51.8  
 ERK 20 58 51.8  
 LSGS 20 58 12.6, 37.6N, 118.8W, H= 5 KM, ML=3.0  
 MAMMOTH LAKES AREA, CALIFORNIA  
 FRI OCT 07 IFC 21 13 02.6  
 MNV IFC 21 13 03.6  
 JAS IPC 21 13 05.1  
 PRI EPC 21 13 21.8  
 SAC EPC 21 13 24.2  
 MHC EPC 21 13 24.4  
 RKS EPD 21 13 31.0  
 ERK 21 13 31.0  
 \*E 14 26  
 LSGS 21 12 46.0, 37.6N, 118.8W, H= 5 KM, ML=3.0  
 MAMMOTH LAKES AREA, CALIFORNIA  
 PRI OCT 08 EP 05 18 56.4  
 MHC EP 05 18 56.7  
 WCC EP 05 18 58.2  
 MIN EP 05 19 00.7  
 JAS EP 05 19 01.7  
 FRI EP 05 19 03.1  
 MNV EP 05 19 11.0  
 LSGS 05 06 24.0, 11.0S, 163.8E, H= 33 KM, M=4.4  
 SELWEN ISLANDS  
 WDC OCT 09 EPD 13 17 05.0  
 JAS EPD 13 17 06.0  
 FRI EP 13 17 06.0  
 LSGS 13 04 17.8, 20.1S, 169.7E, F= 13 KM, M=4.7  
 NEW HEBRIDES ISLANDS  
 MNV OCT 05 EP 13 44 41.5  
 PRI EP 13 44 46.0  
 JAS EP 13 44 50.0  
 MHC \*I 44 56  
 WCC \*E 44 52  
 LSGS 13 34 15.5, 12.3S, 78.0W, H= 33 KM, M=5.4  
 OFF COAST OF PERU  
 JAS OCT 10 IPD 03 25 54.2  
 MNV IFC 03 26 03.6  
 PRI EPD 03 26 08.0  
 RKS E(P) 03 26 12.0  
 MHC E(P) 03 26 14.0  
 SAC EP 03 26 17.1  
 WTA EFC 03 26 17.2  
 ERK 03 35 39.4, 38.7N, 120.0W, F= 5 KM, ML=3.2  
 MARKLEVILLE, CALIFORNIA  
 SAC OCT 10 EP 06 01 31  
 MHC EP 06 01 32  
 PRI EP 06 01 32  
 FRI EPC 06 01 36.0  
 JAS EPC 06 01 37.2  
 MIN E(P) 06 01 39.0  
 WCC EP 06 01 40.0  
 LSGS 05 50 17.3, 22.2S, 179.6W, F=575 KM, M=5.0  
 SOUTH OF FIJI ISLANDS  
 MIN OCT 10 EPD 07 45 04.2  
 WCC EPC 07 45 11.8  
 RKS IPD 07 45 16.9  
 JAS EPD 07 45 17.1  
 MHC EP 07 45 24  
 SAC EP 07 45 31  
 MNV EP 07 45 32  
 FRI EP 07 45 38  
 PRK 07 44 47.6, 39.5N, 121.5W, H= 3 KM, ML=3.6  
 CROVILLE, CALIFORNIA  
 FRI OCT 10 EP 13 25 02  
 PRI EPD 13 25 02.7  
 MNV EPD 13 25 03.0  
 JAS EPD 13 25 08.2  
 MHC EPD 13 25 10.0  
 RKS EPC 13 25 13.0  
 WDC EF 13 25 27  
 LSGS 13 13 09.4, 25.1S, 68.1W, H= 96 KM, M=5.5  
 CHILE - ARGENTINA BORDER REGION  
 WDC OCT 11 EPC 07 42 55.0  
 RKS EP 07 42 \*E 00 08 \*E 07 00 LR 11 00  
 JAS EP 07 43 01.7  
 PRI EP 07 43 03.0  
 MNV EP 07 43 10.7  
 LSGS 07 29 49.4, 1.4S, 148.6E, F= 33 KM, M=5.2  
 BISMARCK SEA  
 FRI OCT 11 EP 14 46 25.1 \*E 46 34  
 PRI EP 14 46 25.9 \*E 46 38  
 MNV EPD 14 46 26.6 \*E 46 38  
 JAS EP 14 46 35.7 \*E 46 48  
 MHC EP 14 46 38.5 \*E 46 48  
 LSGS 14 41 13.0, 18.3N, 102.0W, H= 63 KM, M=4.9  
 MICHACAN, MEXICO  
 SAC OCT 11 EP 14 47 24.0  
 PRI EPD 14 47 24.7  
 BKS EPD 14 47 25.2  
 ERK 14 47 25.2  
 FRKF 06 17 P+P+ 14 34  
 \*PP 47 30 EP 50 24 PPS 50 22  
 SS 02 10 SSS 06 16 LR 07 48  
 LR 11 08  
 MICRON PERIOD  
 C-1 1.0  
 MAXH(N) 244 20  
 MAXF(E) 244 20  
 F4P+ 06 23  
 FRKF 06 11 P+P+ 14 20  
 PKKP 06 12 P+P+ 14 20  
 F4P+ 14 21  
 P4P+ 14 16  
 \*E 06 13  
 MAG 7.2, DIST(DEC) 75  
 LSGS 14 35 15.0, 24.9S, 175.1W, H= 9 KM, M=7.0  
 SOUTH OF TONGA ISLANDS  
 SAC OCT 11 EP 15 07 02.0 P+P+ 34 54  
 PRI EPD 15 07 03.2  
 RKS EPD 15 07 03.8  
 MICRON PERIOD  
 0.15 1.0  
 F2  
 LN(WA) 222 20  
 LE(WA) 222 20  
 \*E 06 31  
 FRKF 55 15 P+P+ 03 15  
 FRKF 55 15  
 MAG 7.5, DIST(DEC) 84  
 LSGS 22 24 16.2, 12.5S, 160.5E, H= 54 KM, M=6.6  
 SANTA CRUZ ISLANDS  
 WDC OCT 07 EPKE 05 16 08.4  
 JAS EPKE 05 16 14.3  
 PRI EPKE 05 16 16.4  
 MNV EPKE 05 16 17.4  
 LSGS 04 57 05.4, 4.8E, 101.9E, H= 33 KM, M=5.6  
 SOUTHERN SUMATRA  
 WDC OCT 07 EP 06 50 19.7  
 PRI EP 06 50 21.6  
 WCC EP 06 50 22.3 \*I 50 54 \*E 53 46  
 JAS EP 06 50 24.7 \*E 50 54 \*E 50 25  
 MIN EP 06 50  
 FRI EP 06 50 25.7 \*E 51 04  
 MNV EP 06 50 33.7 \*E 51 04  
 LSGS 06 37 57.4, 15.4S, 167.5E, H=115 KM, M=5.6  
 NEW HEBRIDES ISLANDS  
 MNV OCT 07 EP 08 41 11.1 \*I 41 18 \*I 45 01 \*E 53 44  
 PRI EP 08 41 \*E 41 16 \*E 45 07 \*E 53 44  
 JAS EP 08 41 18.4 \*I 41 26  
 PRI EP 08 41 20.7  
 WTA EP 08 41 22.4  
 MHC EP 08 41 24.3

WDC RKS EPD 08 41 24.4  
 08 41 26 52 CC PPS \*E 53 52  
 \*E 53 50 SS 58 46 \*E 04 58  
 \*E 08 30 LR 12 32  
 P7 MICRON PERIOD  
 C-1P  
 MAXR(2) 18 1.6  
 MAXH(N) 11.2 19  
 MAXF(E) 20 19  
 CE 41 25.7  
 MAG 6.6, DIST(DEC) C2  
 LSGS 08 28 09.5, 0.9N, 26.8W, F= 33 KM, M=6.2  
 MID-ATLANTIC RIDGE OFF EASTERN TIP OF BRAZIL  
 FRI OCT 07 IFC 20 58 29.4  
 MNV EPD 20 58 30.4  
 JAS EPC 20 58 35.8  
 PRI EPD 20 58 45.2  
 SAC EPD 20 58 51.2  
 MHC EPD 20 58 51.8  
 ERK 20 58 51.8  
 LSGS 20 58 12.6, 37.6N, 118.8W, H= 5 KM, ML=3.0  
 MAMMOTH LAKES AREA, CALIFORNIA  
 FRI OCT 07 IFC 21 13 02.6  
 MNV IFC 21 13 03.6  
 JAS IPC 21 13 05.1  
 PRI EPC 21 13 21.8  
 SAC EPC 21 13 24.2  
 MHC EPC 21 13 24.4  
 RKS EPD 21 13 31.0  
 ERK 21 13 31.0  
 \*E 14 26  
 LSGS 21 12 46.0, 37.6N, 118.8W, H= 5 KM, ML=3.0  
 MAMMOTH LAKES AREA, CALIFORNIA  
 PRI OCT 08 EP 05 18 56.4  
 MHC EP 05 18 56.7  
 WCC EP 05 18 58.2  
 MIN EP 05 19 00.7  
 JAS EP 05 19 01.7  
 FRI EP 05 19 03.1  
 MNV EP 05 19 11.0  
 LSGS 05 06 24.0, 11.0S, 163.8E, H= 33 KM, M=4.4  
 SELWEN ISLANDS  
 WDC OCT 09 EPD 13 17 05.0  
 JAS EPD 13 17 06.0  
 FRI EP 13 17 06.0  
 LSGS 13 04 17.8, 20.1S, 169.7E, F= 13 KM, M=4.7  
 NEW HEBRIDES ISLANDS  
 MNV OCT 05 EP 13 44 41.5  
 PRI EP 13 44 46.0  
 JAS EP 13 44 50.0  
 MHC \*I 44 56  
 WCC \*E 44 52  
 LSGS 13 34 15.5, 12.3S, 78.0W, H= 33 KM, M=5.4  
 OFF COAST OF PERU  
 JAS OCT 10 IPD 03 25 54.2  
 MNV IFC 03 26 03.6  
 PRI EPD 03 26 08.0  
 RKS E(P) 03 26 12.0  
 MHC E(P) 03 26 14.0  
 SAC EP 03 26 17.1  
 WTA EFC 03 26 17.2  
 ERK 03 35 39.4, 38.7N, 120.0W, F= 5 KM, ML=3.2  
 MARKLEVILLE, CALIFORNIA  
 SAC OCT 10 EP 06 01 31  
 MHC EP 06 01 32  
 PRI EP 06 01 32  
 FRI EPC 06 01 36.0  
 JAS EPC 06 01 37.2  
 MIN E(P) 06 01 39.0  
 WCC EP 06 01 40.0  
 LSGS 05 50 17.3, 22.2S, 179.6W, F=575 KM, M=5.0  
 SOUTH OF FIJI ISLANDS  
 MIN OCT 10 EPD 07 45 04.2  
 WCC EPC 07 45 11.8  
 RKS IPD 07 45 16.9  
 JAS EPD 07 45 17.1  
 MHC EP 07 45 24  
 SAC EP 07 45 31  
 MNV EP 07 45 32  
 FRI EP 07 45 38  
 PRK 07 44 47.6, 39.5N, 121.5W, H= 3 KM, ML=3.6  
 CROVILLE, CALIFORNIA  
 FRI OCT 10 EP 13 25 02  
 PRI EPD 13 25 02.7  
 MNV EPD 13 25 03.0  
 JAS EPD 13 25 08.2  
 MHC EPD 13 25 10.0  
 RKS EPC 13 25 13.0  
 WDC EF 13 25 27  
 LSGS 13 13 09.4, 25.1S, 68.1W, H= 96 KM, M=5.5  
 CHILE - ARGENTINA BORDER REGION  
 WDC OCT 11 EPC 07 42 55.0  
 RKS EP 07 42 \*E 00 08 \*E 07 00 LR 11 00  
 JAS EP 07 43 01.7  
 PRI EP 07 43 03.0  
 MNV EP 07 43 10.7  
 LSGS 07 29 49.4, 1.4S, 148.6E, F= 33 KM, M=5.2  
 BISMARCK SEA  
 FRI OCT 11 EP 14 46 25.1 \*E 46 34  
 PRI EP 14 46 25.9 \*E 46 38  
 MNV EPD 14 46 26.6 \*E 46 38  
 JAS EP 14 46 35.7 \*E 46 48  
 MHC EP 14 46 38.5 \*E 46 48  
 LSGS 14 41 13.0, 18.3N, 102.0W, H= 63 KM, M=4.9  
 MICHACAN, MEXICO  
 SAC OCT 11 EP 14 47 24.0  
 PRI EPD 14 47 24.7  
 BKS EPD 14 47 25.2  
 ERK 14 47 25.2  
 FRKF 06 17 P+P+ 14 34  
 \*PP 47 30 EP 50 24 PPS 50 22  
 SS 02 10 SSS 06 16 LR 07 48  
 LR 11 08  
 MICRON PERIOD  
 C-1 1.0  
 MAXH(N) 244 20  
 MAXF(E) 244 20  
 F4P+ 06 23  
 FRKF 06 11 P+P+ 14 20  
 PKKP 06 12 P+P+ 14 20  
 F4P+ 14 21  
 P4P+ 14 16  
 \*E 06 13  
 MAG 7.2, DIST(DEC) 75  
 LSGS 14 35 15.0, 24.9S, 175.1W, H= 9 KM, M=7.0  
 SOUTH OF TONGA ISLANDS  
 SAC OCT 11 EP 15 07 02.0 P+P+ 34 54  
 PRI EPD 15 07 03.2  
 RKS EPD 15 07 03.8  
 MICRON PERIOD  
 0.15 1.0  
 F2  
 LN(WA) 222 20  
 LE(WA) 222 20  
 \*E 06 31  
 FRKF 55 15 P+P+ 03 15  
 FRKF 55 15  
 MAG 7.5, DIST(DEC) 84  
 LSGS 22 24 16.2, 12.5S, 160.5E, H= 54 KM, M=6.6  
 SANTA CRUZ ISLANDS  
 WDC OCT 07 EPKE 05 16 08.4  
 JAS EPKE 05 16 14.3  
 PRI EPKE 05 16 16.4  
 MNV EPKE 05 16 17.4  
 LSGS 04 57 05.4, 4.8E, 101.9E, H= 33 KM, M=5.6  
 SOUTHERN SUMATRA  
 WDC OCT 07 EP 06 50 19.7  
 PRI EP 06 50 21.6  
 WCC EP 06 50 22.3 \*I 50 54 \*E 53 46  
 JAS EP 06 50 24.7 \*E 50 54 \*E 50 25  
 MIN EP 06 50  
 FRI EP 06 50 25.7 \*E 51 04  
 MNV EP 06 50 33.7 \*E 51 04  
 LSGS 06 37 57.4, 15.4S, 167.5E, H=115 KM, M=5.6  
 NEW HEBRIDES ISLANDS  
 MNV OCT 07 EP 08 41 11.1 \*I 41 18 \*I 45 01 \*E 53 44  
 PRI EP 08 41 \*E 41 16 \*E 45 07 \*E 53 44  
 JAS EP 08 41 18.4 \*I 41 26  
 PRI EP 08 41 20.7  
 WTA EP 08 41 22.4  
 MHC EP 08 41 24.3

NEAR EAST COAST OF NORTHERN PERU

WDC OCT 11 EP 18 14 04.7  
MIN EP 18 14 07.3 \*E 14 15  
PRI EP 18 14 \*E 17 22  
JAS EP 18 14 11.5  
FRI EP 18 14 13.2  
MNV EP 18 14 15.8  
USGS 18 00 59.6, 3.35, 148.5E, H= 33 KM, M=5.7  
BISMARCK SEA

PRI OCT 12 EP 16 14 25.6  
MHC EP 16 14 30.8  
MKS EP 16 14 30.7  
FRI EP 16 14 34.2  
JAS EP 16 14 35.5  
WDC EP 16 14 36.3  
MIA EP 16 14 39.7  
USGS 16 02 34.4, 27.95, 178.6W, H=326 KM, M=4.2  
KERMADEC ISLANDS REGION

PRI OCT 12 IPD 16 45 12.2  
FRI EP 16 45 20.0  
SAD EP 16 45 21.5  
JAS EPC 16 45 31.9  
USGS 16 45 36.4N, 120.4W, H= 6 KM, ML=2.5  
COALINGA, CALIFORNIA

SAD OCT 12 IPC 20 52 50.0  
PRI IPC 20 52 51.4  
MHC E(P) 20 53 02  
FRI EP 20 53 03.2  
JAS EP 20 53 09.3  
USGS 20 52 42.1, 36.5N, 121.1W, H= 6 KM, ML=2.5  
BEAR VALLEY, CALIFORNIA

MIN OCT 13 EPC 16 07 06.5  
WDC IPC 16 07 13.7  
JAS IPD 16 07 22.3  
MHC EP 16 07 27.6  
SAC EP 16 07 35.7  
MNV EP 16 07 37.3  
PRI EP 16 07 39.8  
USGS 16 06 51.4, 39.5N, 121.5W, H= 4 KM, ML=3.0  
GROVILLE, CALIFORNIA

PRI OCT 13 EP 21 03 27.7 \*E 03 27  
MHC EP 21 03 27.7 \*E 03 28  
MKS EP 21 03 32.1  
FRI IPD 21 03 33.0  
JAS IPD 21 03 36.1  
WDC EP 21 03 37.8  
MIN EP 21 03 37.8  
USGS 20 51 20.2, 24.85, 175.4W, H= 35 KM, M=5.5  
SOUTH OF TONGA ISLANDS

PRI OCT 13 EP 22 24 44.0 \*E 24 42  
MHC EP 22 24 45.2  
FRI EP 22 24 45.4  
JAS EP 22 24 50.0  
WDC EP 22 24 53.8  
MIN EP 22 24 54.5  
MNV EP 22 24 55.5  
USGS 22 12 37.5, 24.95, 175.3W, H= 33 KM, M=5.2  
SOUTH OF TONGA ISLANDS

FHC OCT 14 EP 06 12 16.2 \*E 12 28 \*E 13 10  
WDC EP 06 12 32.1 \*E 12 42  
MIN EP 06 12 \*E 12 42  
JAS EP 06 13 13.0  
USGS 06 11 38.1, 41.9N, 126.7W, H= 10 KM, M=4.1  
OFF COAST OF NORTHERN CALIFORNIA

MHC OCT 14 EP 09 22 13.7 \*E 22 22  
FRI EP 09 22 17.9 \*E 22 26  
JAS EP 09 22 19.0 \*E 22 28  
WDC EP 09 22 20.8 \*E 22 30  
MIN EP 09 22 21.7  
MNV EP 09 22 27.5 \*E 22 36  
USGS 09 10 04.9, 25.05, 175.3W, H= 33 KM, M=5.0  
SOUTH OF TONGA ISLANDS

FRI OCT 14 EP 12 30 18.6 \*I 30 32  
JAS EP 12 30 28.8  
WDC EP 12 30 48.6  
MEXICO

JAS OCT 14 EP 12 34 28.3

PRI OCT 14 EP 12 18 20.7 \*E 18 30  
FRI EP 12 19 22.1  
MNV EP 12 18 30.0  
JAS EP 12 18 32.1 \*E 18 42  
MHC EP 12 18 32.7  
WDC EP 12 18 38.0  
MEXICO

BKS OCT 14 EP 19 24 \*E 24 08  
PRI EP 19 24 08.2  
MHC EP 19 24 08.7  
FRI EP 19 24 10.7  
JAS EPC 19 24 11.8  
WDC EPC 19 24 14.5  
MIN EP 19 24 16  
MNV EP 19 24 20.6  
USGS 19 12 05.9, 24.75, 176.2W, H=112 KM, M=5.1  
SOUTH OF FIJI ISLANDS

FRI OCT 15 EP 08 17 38.0 \*E 17 43 \*E 17 57  
PRI EP 08 17 45.3 \*E 17 50 \*E 18 00  
MNV EP 08 17 51.8  
JAS EP 08 17 \*E 17 54  
MHC EP 08 18 \*E 18 06  
MKS EP 08 18 \*E 18 24  
MIN EP 08 18 \*E 18 33  
WDC EP 08 18  
USGS 08 14 07.4, 24.9N, 109.3W, H= 33 KM, M=4.7  
GULF OF CALIFORNIA

FHC OCT 15 EP 18 04 42.2  
WDC EPC 18 04 49.7  
JAS EPC 18 08 03.8  
FRI EP 18 08 08.8  
PRI EP 18 08 08.8  
MNV EP 18 08 10.0  
USGS 14 52 21.0, 29.2N, 130.0E, H= 12 KM, M=5.2  
RYUKYU ISLANDS

MHC OCT 15 EP 17 36 38.8  
FRI EP 17 36 42.2  
JAS EP 17 36 43.9  
WDC EP 17 36 46.8  
MNV EP 17 36 52.2  
USGS 17 24 32.0, 24.75, 175.2W, H= 33 KM, M=5.4  
SOUTH OF TONGA ISLANDS

MHC OCT 16 EP 03 49 48.0  
SAD EP 03 49 48.2  
PRI EP 03 49 49.8  
BKS EPC 03 49 50.2  
USGS 03 49 50.2  
MICRON PERIOD 0.04 1.0

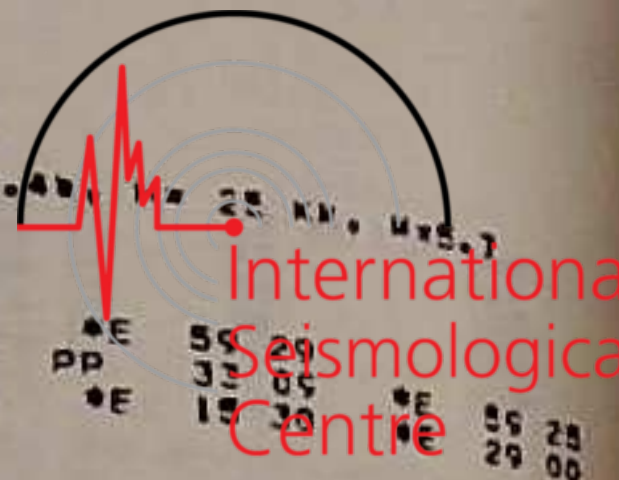
FRI OCT 16 EP 03 49 56.1  
JAS IPC 03 49 56.3  
WDC IPC 03 49 56.1  
MIA EP 03 50 08.1  
MNV IPC 03 50 08.3  
USGS 03 37 42.8, 24.85, 175.6W, H= 33 KM, M=5.4  
SOUTH OF TONGA ISLANDS

PRI OCT 16 EP 07 41 18.2  
MHC EP 07 41 18.8  
FRI EP 07 41 23.5  
JAS EP 07 41 24.3  
WDC EP 07 41 27.3  
MNV EP 07 41  
USGS 07 29 10.7, 24.65, 175.8W, H= 30 KM, M=4.4  
SOUTH OF TONGA ISLANDS

FRI OCT 16 EP 16 49 42  
WDC EP 16 49 46  
JAS EP 16 49 46.3  
SAO OCT 17 EP 02 10 54.5  
BKS EPD 02 10 55.3  
MICRON PERIOD C.06 0.9  
PZ 02 10 55.4  
EPC 02 10 55.2  
EP 02 10 59  
FHC EPD 02 11 00.5  
FRI EPD 02 11 01.0 \*E 13 02  
JAS EPD 02 11 02.6 \*E 13 01  
WDC EP 02 11 04.2  
MIN EP 02 11 09.3  
MNV EPD 02 11 09.3  
USGS 01 59 30.2, 23.35, 179.1E, H=540 KM, M=5.0  
SOUTH OF FIJI ISLANDS

FHC OCT 17 03 46 P+ 50 10 \*E 50 32 FKPD 01 24  
WDC EPC 03 46 08.0 P+ 50 11 \*E 50 39 PKKP 01 08  
MIN EP 03 46 10.5 P+ 50 12 \*E 50 42 PKKP 01 17  
BKS EP 03 46 12.7 P+ 50 13 \*E 50 36 EP 50 50  
P+ 50 14 \*E 50 40 SP 00 00  
P+ 50 15 \*E 50 42 \*E 01 18  
P+ 50 16 \*E 50 44 \*E 01 18  
P+ 50 17 \*E 50 46 \*E 01 18  
P+ 50 18 \*E 50 48 \*E 01 18  
P+ 50 19 \*E 50 50 \*E 01 18  
P+ 50 20 \*E 50 52 \*E 01 18  
P+ 50 21 \*E 50 54 \*E 01 18  
P+ 50 22 \*E 50 56 \*E 01 18  
P+ 50 23 \*E 50 58 \*E 01 18  
P+ 50 24 \*E 50 60 \*E 01 18  
P+ 50 25 \*E 50 62 \*E 01 18  
P+ 50 26 \*E 50 64 \*E 01 18  
P+ 50 27 \*E 50 66 \*E 01 18  
P+ 50 28 \*E 50 68 \*E 01 18  
P+ 50 29 \*E 50 70 \*E 01 18  
P+ 50 30 \*E 50 72 \*E 01 18  
P+ 50 31 \*E 50 74 \*E 01 18  
P+ 50 32 \*E 50 76 \*E 01 18  
P+ 50 33 \*E 50 78 \*E 01 18  
P+ 50 34 \*E 50 80 \*E 01 18  
P+ 50 35 \*E 50 82 \*E 01 18  
P+ 50 36 \*E 50 84 \*E 01 18  
P+ 50 37 \*E 50 86 \*E 01 18  
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P+ 50 62 \*E 51 36 \*E 01 18  
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P+ 50 329 \*E 56 70 \*E 01 18  
P+ 5





USGS 07 26 39.3, 22.65, 70.0W, M= 8 KM, M=5.4  
NEAR COAST OF NORTHERN CHILE

WDC OCT 28 EP 10 16 15.5  
MIA EP 10 16 25.0  
JAS EP 10 16 53.9  
MNV EP 10 17  
FRI EP 10 17  
LEGS 10 14 38.5, 44.6, 129.4, M= 33 KM, M=4.0  
OFF COAST OF OREGON

FHC OCT 28 IP 11 20 54.7 21 10  
WDC IP 11 21 09.9  
MIA IP 11 21 15.7  
MNV IP 11 21 15.7  
MAG 3.0, W OF CADETOWN  
F+P 10 10

JAS OCT 28 IPC 14 30 52.7  
FRI IPC 14 30 57.3  
SAO IPC 14 31 03.4  
MHC IPC 14 31 05.9  
BKS IPC 14 31 12.4  
MIA IPC 14 31 16.0  
WDC IPC 14 31 28.0  
MAGNITUDE 6.2  
USGS 14 30 00.2, 37.3N, 116.4W, M= 0 KM, M=6.2  
NEVADA TEST SITE

FRI OCT 29 EF 05 08 39.2  
WDC EP 05 08 46.5  
MIA EP 05 08 48.8  
JAS EP 05 08 49.9  
MNV EP 05 08 51.4  
BKS EP 05 08 51.6  
MNV EP 05 08 52.3  
PCP 11 11  
PCP 11 12  
PCP 11 13  
LO 19 25  
MICRON PERIOD  
FZ 0.18 1.7  
MAXR(2) 5.2 20  
MAXR(N) 7.2 18  
MAXR(E) 5.9 20  
PCP 11 20  
FCP 11 21

MIA EP 05 09 12.7  
WDC EP 05 09 15.8  
FHC EP 05 09 24.0  
MAG 5.5, DIST(DEC) 40  
USGS 05 01 49.0, 4.1N, 103.5W, M=100 KM, M=5.5  
EAST CENTRAL PACIFIC OCEAN

FRI OCT 29 EP 06 03 07.0  
WDC EP 06 03 07.7  
MIA EP 06 03 12.0  
JAS EP 06 03 13.4  
MNV EP 06 03 16.0  
WDC EP 06 03 22.0  
USGS 05 01 08.2, 23.1S, 175.6W, M= 48 KM, M=4.5  
TONGA ISLANDS REGION

MNV OCT 29 EFC 06 28 58.0 \*E 29 12  
FRI EP 06 28 58.4 \*E 28 85  
MIA EP 06 28 \*E 28 85  
JAS EP 06 28 06.0 \*E 29 20  
MHC EP 06 28 06.8 \*E 29 12 \*E 29 22  
BKS EP 06 28 \*E 29 12 \*E 29 22  
WDC EP 06 28 21.0 \*E 29 38  
FHC EP 06 28 28.2 \*E 29 47  
USGS 06 18 42.3, 11.0S, 78.1W, M= 52 KM, M=5.5  
OFF COAST OF PERU

MHC OCT 29 EP 06 42 \*E 42 11  
FRI EP 06 42 \*E 42 17  
JAS EP 06 42 17.2 \*E 42 21  
MIA EP 06 42 \*E 42 21  
MNV EP 06 42 27.7  
USGS 06 11 04.1, 17.1S, 173.5W, M=214 KM, M=4.2  
TONGA ISLANDS

WDC OCT 30 IPC 01 02 23.2  
BKS EP 01 02 34.8 C1 36 LO 09 42 LR 13 10  
MICRON PERIOD  
FZ 0.05 0.9  
MAXR(2) 4.4 25  
MAXR(N) 3.5 23  
MAXR(E) 3.8 23  
MHC EP 01 02 38.8  
JAS IPC 01 02 41.4  
FRI EP 01 02 47.1  
MNV EP 01 02 47.5  
FRI EP 01 02 48.0  
MAG 5.7, DIST(DEC) 65  
USGS 01 41 31.5, 42.0N, 142.7E, M= 59 KM, M=5.8  
HOKKAIDO, JAPAN REGION

BKS OCT 30 EP 10 17 19.2  
MICRON PERIOD  
MAXR(2) 1.8 20  
MAXR(N) 1.8 20  
MAXR(E) 1.4 20  
FRI EP 10 17 20.6  
MHC EP 10 17 20.5  
FRI EP 10 17 24.4  
JAS EP 10 17 24.7  
WDC EP 10 17 24.9  
MIA EP 10 17 27.5  
MNV EP 10 17 33.0  
MAG 5.5, DIST(DEC) 86  
USGS 10 04 43.9, 22.5S, 173.8E, M= 22 KM, M=5.4  
LOYALTY ISLANDS REGION

FHC OCT 31 EFC 08 41 26.2  
WDC EFC 08 41 33.8 54 28 P+P 06 44  
MIA EFC 08 41 36.7 F+P+P 28 30  
BKS EP 08 41 42.2 56 00 PP 45 20 P+P 06 47  
MICRON PERIOD \*E 41 45 \*E 44 56 \*E 52 38  
FZ 0.07 1.1  
LN(WA) 100 20  
LE(WA) 100 20  
MHC EP 08 41 43  
JAS EFC 08 41 48.2 EP 45 47 P+P 06 41  
FRI EP 08 41 48.2 PP 45 50 PKKP 58 15 \*E 06 20  
MIA EP 08 41 48.2 P+P 06 40 \*E 27 40  
MNV EP 08 41 52.0 F+P 06 37 P+P 06 40  
MAG 7.0, DIST(DEC) 98  
USGS 08 28 02.6, 12.5N, 126.0E, M= 50 KM, M=6.4  
PHILIPPINE ISLANDS REGION

SAC OCT 31 EP 16 14 15.1  
FRI EP 16 14 16.4  
BKS EP 16 14 16.8  
MICRON PERIOD  
FZ 0.08 1.0  
MHC EP 16 14 16.7 \*E 14 20  
FRI EP 16 14 21.2  
JAS EP 16 14 22.0  
WDC EP 16 14 23.8  
MIA EP 16 14 25.0  
MNV EP 16 14 30.2  
USGS 16 02 50.7, 23.5S, 180.0E, M=515 KM, M=5.2  
SOUTH OF FIJI ISLANDS

FHC NOV 01 E(F) 00 04 27  
WDC EP 00 04 34.0  
MIA EP 00 04 40  
BKS EP 00 04  
SCP 01 14  
MICRON PERIOD \*E 54 55 \*E 03 00 \*E 20 00  
FZ 5.4 20  
MAXR(N) 5.4 20  
MAXR(E) 5.0 20  
MHC EP 00 08  
JAS EP 00 08 08.0 \*E 55 00  
MNV EP 00 08 10.0 \*E 55 14 PP 06 30

FRI 00 05  
USCS 00 48 23.4, 23.7N, 163.4W, M= 25 KM, M=5.3  
LNIWAK ISLAND REGION  
FHC NOV 01 EFC 01 29 45.1 40 04 FP 33 00 \*E 55 29  
WDC IPC 01 29 49.0 40 07 \*E 30 33 PP 32 00 \*E 55 29  
MIA EFC 01 29 52.3 40 06 \*E 30 25 \*E 55 29  
BKS EP 01 29 53.0 40 06 \*E 30 25 \*E 55 29  
MICRON PERIOD  
FZ 3.9 2.0  
MAXR(2) 11.0 16.8  
MAXR(N) 4.1 16.8  
MAXR(E) 9.2 16.8  
MHC EP 01 29 56.2 \*E 30 23 \*E 30 42  
SAC EP 01 29 58.2 40 15 \*E 30 29 PP 33 19 \*E 59 20  
JAS EFC 01 30 02.0 40 22  
FRI EFC 01 30 03.6  
MNV EFC 01 30 07.6  
C1 30 07.6  
MAG 6.1, DIST(DEC) 81  
USGS 01 17 31.9, 13.8N, 144.8E, M=113 KM, M=6.1  
MARIANA ISLANDS

SAO NOV 01 EPC 06 26 02.0 35 17 \*PP 27 32  
BKS EPC 06 26 03.0 MICRON PERIOD  
FZ 0.17 0.8  
MHC EP 06 26 03.6 \*PP 27 38 P+P 53 16  
FRI EP 06 26 03.5 \*PP 27 38 P+P 53 16  
WDC EP 06 26 07.0 \*PP 27 42 P+P 53 16  
MIA EP 06 26 08.9 \*PP 27 44 P+P 53 14  
BKS EP 06 26 09.2 35 30 \*PP 27 44 \*PPP 30 30 SS 40 05  
MNV EP 06 26 10.4 35 27 P+P 53 12  
WDC EP 06 26 12.2 \*PP 27 46 P+P 53 12  
MIA EP 06 26 12.2 \*PP 27 46 P+P 53 12  
MNV EP 06 26 19.0 35 50 \*PP 27 44 P+P 53 11  
USGS 06 14 55.5, 18.5S, 177.9W, M=424 KM, M=5.8  
FIJI ISLANDS REGION

SAC NOV 01 EP 18 01 54.4 \*E 10 00 \*E 13 30  
BKS EP 18 01 55.6 MICRON PERIOD  
FZ 0.17 1.0  
MAXR(2) 1.85 20  
MAXR(N) 1.45 20  
MAXR(E) 1.85 20  
FRI EP 18 01 55.6  
MHC EP 18 01 56.2  
WDC EP 18 02 01.4  
MIA EP 18 02 01.4  
JAS EP 18 02 02.3  
WDC EP 18 02 04.6  
MIA EP 18 02 06.6  
MNV EP 18 02 12.5  
USGS 18 40 30.7, 17.3S, 172.7W, M= 33 KM, M=5.7  
TONGA ISLANDS REGION

FRI NOV 01 EFC 22 21 47.5  
MHC EP 22 21 49.4  
MIA EP 22 21 57.0 PCP 24 18  
WDC EP 22 21 57.7  
JAS EP 22 21 59.6 PCP 24 20  
BKS EP 22 22 06  
MIA EP 22 22 21.1  
WDC EP 22 22 24.5 PCP 24 30  
FHC EP 22 22 32.5  
USGS 22 14 50.4, 4.1N, 103.6W, M= 33 KM, M=5.0  
EAST CENTRAL PACIFIC OCEAN

FRI NOV 02 EPD 06 45 14.3  
MHC EP 06 45 14.3  
FRI EP 06 45 15.0  
JAS EPD 06 45 15.6  
WDC EPD 06 45 21.0  
MNV EP 06 45 25.0  
USGS 06 34 14.6, 19.7S, 178.5W, M=603 KM, M=4.8  
FIJI ISLANDS REGION

SAO NOV 03 IPD 02 14 14.1  
MHC IPD 02 14 22.2  
FRI EPD 02 14 31.8  
BKS EP 02 14 32.5  
JAS EP 02 14 37  
FRI EP 02 14 38.2  
ERK 02 14 11.7, 26.8N, 121.6W, M= 2 KM, ML=2.8  
SAN JUAN BAUTISTA, CALIFORNIA  
MNV NOV 03 E(P) 02 20 15  
FRI EP 02 20 33  
JAS EP 02 20 40.5  
FRI EP 02 20 53  
MHC EP 02 21 \*E 21 00  
SAO EP 02 21 \*E 21 00  
MIA EP 02 21 \*E 21 08  
BKS EP 02 21 \*E 21 08  
WDC EP 02 21 \*E 21 20  
MAGNITUDE 4.5  
USGS 02 19 47.0, 37.3N, 116.4W, M= 0 KM, M=4.7  
CLLAPSE, NEVADA TEST SITE

FRI NOV 03 EP 03 22 53.7  
MNV EP 03 22 56.0  
JAS EP 03 23 07.2  
MHC EP 03 23 08.0  
BKS EP 03 23 08.5  
FRI EP 03 23  
USGS 03 18 30.7, 19.8N, 109.4W, M= 33 KM, M=4.3  
REVILLA GIGEDO ISLANDS REGION  
FRI NOV 03 EP 03 32 04.3  
MNV EP 03 32 04.5  
MHC EP 03 32 13.0  
JAS EP 03 32 15.8  
BKS EP 03 32 16.8  
MIA EP 03 32  
WDC EP 03 32 \*E 32 26  
03 32 \*E 32 42  
03 32 \*E 32 58  
USGS 03 27 41.8, 20.0N, 105.7W, M= 33 KM, M=4.1  
REVILLA GIGEDO ISLANDS REGION

FHC NOV 03 IPD 04 24 22.6  
WDC IPD 04 24 37.8 24 52  
MIA EP 04 24 47.6  
ERK 04 24 15.8, 41.1N, 124.1W, M= 24 KM, ML=3.3  
NORTH OF ARCATA, CALIFORNIA  
FRI NOV 03 EP 05 24 35.2  
MHC EP 05 24 \*E 34 40  
JAS EP 05 24 \*E 34 48  
MNV EP 05 24 41.5  
WDC EP 05 24 43.0  
MIA EP 05 24  
USGS 05 22 10.4, 41.2S, 66.0W, M= 33 KM, M=5.3  
WEST CHILE RISE

MNV NOV 04 EP 10 42 28.8  
JAS EP 10 42 29.8  
USGS 10 23 26.3, 89.3S, 18.0W, M= 33 KM, M=5.2  
SOUTH-WESTERN ATLANTIC OCEAN  
FHC NOV 04 EPD 12 14 23.4  
WDC IPD 12 14 30.2  
MIA EP 12 14 32.2  
BKS EP 12 14 45.3  
MHC EP 12 14 51.0 MICRON PERIOD  
FZ 0.09 1.2  
MNV EP 12 14  
FRI EPD 12 15 00.8 \*E 14 55  
MIA EP 12 15 01.0  
WDC EP 12 15 02.0



USGS 12 03 03.6, 24.4N, 167.5E, H= 24 KM, M=5.5  
KOMANDORSKY ISLANDS REGION

WCC NOV 04  
MNV  
PRI  
FRI

12 03 03.6  
12 03 05.7  
12 03 25.5  
12 03 32.6

\*E 50 35

USGS 12 41 10.0, 20.0N, 160.3E, H= 33 KM, M=4.8  
EASTERN SIBERIA

SAC NOV 04  
MHC  
PRI  
FRI

14 23 56.6  
14 24 01.3  
14 24 12.8  
14 24 17.0

34 75  
EPK 14 23 52.5, 36.9N, 121.4W, H= 5 KM, ML=2.8  
SAN FILIPE, CALIFORNIA

MNV NOV 05  
PRI  
JAS  
MHC  
WCC

02 07 40.8  
02 07 42.1  
02 07 45.7  
02 07 50.5  
02 07 55.4  
02 07 58.5

PCP 05 04

PCP 05 08

MICRON PERIOD  
F2 0.12 1.2

MNV NOV 05  
WCC  
FHC

02 08 04.1  
02 08 07.7  
02 08 18.8

USGS 01 52 54.4, 6.3N, 76.9W, H= 44 KM, M=5.4  
NORTHERN COLOMBIA

SAC NOV 05  
PRI  
MHC  
FRI  
JAS

03 28 53.5  
03 29 04.3  
03 29 04.8  
03 29 13.7  
03 29 15.0

\*I 29 16

EPK 03 28 50.3, 26.7N, 121.3W, H= 5 KM, ML=2.9  
STONE CANYON, CALIFORNIA

MNV NOV 05  
JAS  
MNV

04 07 01.0  
04 07 06.7  
04 07

USGS 03 58 42.9, 0.7N, 90.5W, H= 33 KM, M=4.3  
GALAPAGOS ISLANDS

MNV NOV 05  
WCC  
FHC  
PRI  
JAS  
MNV

05 38 04.3  
05 38 10.2  
05 38 15.0  
05 38 15.7  
05 38 20.0  
05 38 26.0  
05 38 32  
05 38 32.0

\*E 38 34

EPK 05 37 46.8, 39.4N, 121.5W, H= 4 KM, ML=3.4  
OROVILLE, CALIFORNIA  
MAC 3.3, CFCVILLE

MNV NOV 05  
PRI  
JAS  
MHC  
WCC

17 10 40.6  
17 10 41.2  
17 10 43.4  
17 10  
17 10 54.6  
17 11

\*E 10 51

\*E 11 03 LR 22 30

USGS 17 04 21.4, 16.9N, 92.8W, H= 12 KM, M=5.0  
CHIAPAS, MEXICO

PRI NOV 05  
PRI  
MNV  
MHC  
JAS  
WCC

17 27 07.7  
17 27 08.3  
17 27 13.7  
17 27 14.2  
17 27 14.7  
17 27  
17 27 29.6

\*E 27 18

USGS 17 15 08.7, 38.3S, 93.7W, H= 33 KM, M=4.7  
WEST CHILE RISE

FHC NOV 06  
WCC  
MNV  
PRI

01 14 27.0  
01 14 34.6  
01 14 38.7  
01 14 50.0

\*E 21 00 LR 25 00 LF 28 00

MICRON PERIOD  
F2 0.07 1.0  
MAXR(Z) 1.2 20  
MAXR(N) 1.4 20  
MAXR(E) 2.6 20

MNV NOV 06  
PRI  
MNV  
PRI

01 14 55.0  
01 14 58.0  
01 15 05.8  
01 15 06.0  
01 15 06.0

\*I 16 56

USGS 01 06 42.1, 51.9N, 176.2E, H= 61 KM, M=5.4  
RAT ISLANDS, ALEUTIAN ISLANDS

WCC NOV 06  
BKS

12 49 50.9  
12 49

\*E 53 45  
\*E 09 00 LR 21 30

MICRON PERIOD  
MAXR(Z) 2.7 20  
MAXR(N) 1.4 20  
MAXR(E) 2.7 20

MNV NOV 06  
PRI  
MNV

12 49  
12 50 02.6  
12 50 06.5  
12 50 09.0

\*E 49 53  
\*E 49 56  
\*E 54 09

\*I 06 21

USGS 12 28 14.5, 12.5N, 126.1E, H= 11 KM, M=6.1  
PHILIPPINE ISLANDS REGION

MNV NOV 06  
PRI  
JAS  
MHC  
WCC

17 53 20.0  
17 53 20.4  
17 53 27.0  
17 53 30.9  
17 53  
17 53 40.5

\*E 53 44

USGS 17 44 16.3, 0.3S, 80.7W, H= 54 KM, M=5.1  
NEAR COAST OF ECUADOR

FHC NOV 08  
BKS

11 12 40.2  
11 12 41.4

MICRON PERIOD  
F2 0.24 0.8

SAC NOV 08  
MHC  
WCC  
PRI  
MNV  
PRI  
MNV

11 12 41.9  
11 12 42.7  
11 12 44.6  
11 12 44.9  
11 12 47.3  
11 12 48.0  
11 12 45.0  
11 12 57.4

\*PP 15 52  
\*E 13 05

\*FF 16 02  
\*E 13 10 \*PP 16 02

\*PP 16 04  
\*PP 16 17

USGS 11 00 24.5, 11.0S, 166.1E, H= 77 KM, M=5.7  
SANTA CRUZ ISLANDS

WCC NOV 08  
JAS  
MNV

15 07 33.0  
15 07  
15 07

\*E 11 54  
\*E 07 54  
\*E 07 56 \*E 12 10

USGS 14 23 32.5, 6.6N, 126.8E, H= 97 KM, M=5.7  
MINDANAO, PHILIPPINE ISLANDS

MNV NOV 08  
JAS  
MNV  
WCC

15 23  
15 23 37.5  
16 28 32.8  
16 28 34.5  
16 28 48

\*E 23 30

MNV NOV 08  
PRI  
JAS  
WCC  
MNV

18 04  
18 04  
18 04 25.0  
18 04 27.0  
18 04 29.5  
18 04 35.0

\*E 04 20  
\*E 04 24

USGS 17 22 41.2, 16.2S, 176.8W, H=123 KM, M=4.9

FIJI ISLANDS REGION

WCC NOV 08  
MIN  
BKS  
MHC  
JAS  
MNV  
FRI  
PRI

20 23 05.0  
20 23 17.0  
20 23  
20 23  
20 23 46.0  
20 24 00.5  
20 24 00.6

\*E 55 40  
\*E 53 42

USGS 20 21 29.9, 44.6N, 129.4W, H= 33 KM, M=4.8  
OFF COAST OF OREGON

WCC NOV 08  
MHC  
JAS  
MNV  
FRI

21 24 37.8  
21 24 49  
21 24  
21 24 15.0  
21 24 28

\*E 25 14

USGS 21 23 02.4, 44.7N, 129.3W, H= 33 KM, M=4.6  
OFF COAST OF OREGON

WCC NOV 08  
JAS  
MNV

21 44  
21 45 31.0  
21 45 45

\*E 44 49

USGS 21 42 13.6, 44.6N, 129.6W, H= 34 KM, M=4.5  
OFF COAST OF OREGON

FRI NOV 09  
MNV  
PRI  
JAS  
MNV  
WCC  
FHC

15 41  
15 41 43.5  
15 41 43.7  
15 41 46.1  
15 42 00.4  
15 42 03.5  
15 42 11

\*E 41 42

USGS 15 30 05.9, 21.1S, 68.4W, H= 77 KM, M=5.1  
CHILE - BOLIVIA BORDER REGION

MHC NOV 09  
SAC  
JAS  
FRI

15 56 50.4  
15 57 02.0  
15 57 02.6  
15 57 14.4

\*E 57 20  
\*E 57 38

EPK 15 56 46.5, 37.5N, 121.6W, H= 2 KM, ML=2.6  
DIAZEL RIDGE, CALIFORNIA

WCC NOV 09  
MNV  
PRI  
JAS  
MHC  
MNV  
FRI  
PRI

17 57 11.5  
17 57 14.1  
17 57 28.1  
17 57 28.2  
17 57 29.2  
17 57 33.0  
17 57

\*E 57 37

USGS 17 44 48.2, 4P.0N, 107.0E, H= 33 KM, M=4.9  
MONGOLIA

WCC NOV 09  
MNV  
BKS  
MHC  
JAS  
PRI  
FRI  
MNV

18 07 27.2  
18 07 30.8  
18 07  
18 07 35.5  
18 07 39.4  
18 07 41.7  
18 07 43.5  
18 07 46.0

\*E 30 54 \*E 31 44

USGS 17 55 29.1, 1R.0N, 146.5E, H= 62 KM, M=5.2  
MARIANA ISLANDS

WCC NOV 09  
MNV  
BKS

20 48 21.8  
20 48 24.8  
20 48

MICRON PERIOD  
MAXR(Z) 2.1 20  
MAXR(N) 1.1 20  
MAXR(E) 2.5 20

MHC NOV 09  
JAS  
PRI  
FRI  
MNV

20 48 31.0  
20 48 33.7  
20 48 37.0  
20 48 37.8  
20 48 40.3

MAC 5.6, DIST(CEC) 50  
USGS 20 34 49.8, 13.8N, 125.1E, H= 33 KM, M=5.8  
PHILIPPINE ISLANDS REGION

MNV NOV 10  
JAS

04 55 35.2  
04 55 36.5

USGS 04 43 08.2, 41.3S, 88.9W, H= 33 KM, M=4.9  
WEST CHILE RISE

PRI NOV 10  
PRI  
MHC  
JAS  
BKS

13 10 54.4  
13 10 57.5  
13 11 05.0  
13 11 05.9  
13 11

LR 23 18  
MICRON PERIOD  
MAXR(Z) 3.2 20  
MAXR(N) 4.6 20  
MAXR(E) 3.5 20

USGS 13 02 57.1, 4.4S, 105.6W, H= 33 KM, M=4.9  
NORTHERN EASTER ISLANDS CORDILLERA

PRI NOV 10  
PRI  
MNV  
JAS

13 49 35.0  
13 49  
13 49  
13 49 48.8

\*E 49 38  
\*E 49 48

USGS 13 41 35.9, 4.8S, 105.7W, H= 33 KM, M=4.2  
NORTHERN EASTER ISLANDS CORDILLERA

FHC NOV 11  
WCC  
MNV  
BKS

04 35 15.4  
04 35 25.1  
04 35 29.3  
04 35 37.0

\*I 36 46

MICRON PERIOD  
F2 0.08 0.7

MHC NOV 11  
JAS  
SAC  
FRI  
MNV  
FRI

04 35 41.8  
04 35 44.0  
04 35 44.4  
04 35 50.2  
04 35 50.6  
04 35 50.7

\*E 36 12 \*I 37 06

\*E 36 15 \*E 27 12

\*I 37 13

USGS 04 25 32.3, 46.7N, 145.5E, H=255 KM, M=5.5  
SEA OF OKhotsk

WCC NOV 11  
MNV  
JAS  
MNV

09 05  
09 05 12.6  
09 05 26.7  
09 05

\*E 05 06

USGS 08 24 18.5, 41.7N, 144.0E, H= 31 KM, M=5.4  
HOKKAIDO, JAPAN REGION

PRI NOV 12  
PRI  
JAS  
BKS  
WCC

02 39 08.2  
02 39  
02 39 21.2  
02 39  
02 39 42.8

\*E 39 12

LR 53 25

USGS 02 30 42.6, 5.1S, 106.6W, H= 33 KM, M=4.7  
NORTHERN EASTER ISLANDS CORDILLERA

FHC NOV 12  
WCC  
MNV  
MHC  
JAS  
SAC  
FRI

07 00 41.7  
07 00 56.0  
07 01 05.7  
07 01 25.5  
07 01 31.2  
07 01 31.7  
07 01 46.0

CO E4

EPK 07 00 23.1, 40.3N, 125.1W, H= 2 KM, ML=3.4  
SOUTHWEST OF ARCATA, CALIFORNIA

MNV NOV 12  
WCC  
MNV  
JAS

23 47  
23 47  
23 47  
23 47 54.7

\*E 47 42  
\*E 47 44  
\*E 47 49

USGS 23 28 33.7, 71.7N, 02.5W, H= 33 KM, M=5.0



JAA HAYEN ISLAND REGION

JAS NOV 13 EP 01 43 09  
 WDC NOV 13 EP 03 00 02.5  
 MIN EP 03 00 14.3  
 MHC EP 03 00 25.8  
 FZ 02 00 31.6  
 JAS EP 03 00 34.8  
 MNV EP 03 00 43.3  
 PRI EP 03 00 43.7  
 PRI EP 03 00 45.6  
 LSGS 02 E4 01.2, 24.4N, 162.7W, H= 33 KM, M=5.3  
 ALASKA PENINSULA

JAS NOV 13 EP 13 17 47.5  
 WDC EP 13 17  
 MNV EP 13 17  
 LSGS 13 06 10.1, 18.75, 172.8E, H= 33 KM, M=4.4  
 TONGA ISLANDS REGION

WDC NOV 13 EPC 15 58 11.6  
 MIN EP 15 58 16.3  
 MHC EPC 15 58 30.0  
 JAS EPC 15 58 32.6  
 PRI EPC 15 58 39.5  
 MNV EPC 15 58 39.9  
 PRI EP 15 58 46.0  
 USGS 15 48 46.0, 20.3N, 156.7E, H= 65 KM, M=5.1  
 KURIL ISLANDS

PRI NOV 13 EPC 16 18 20.0  
 MNV EPD 16 18 20.2  
 JAS EPD 16 18 25.2  
 MHC EPD 16 18 27.8  
 WCC EPD 16 18 35.2  
 LSGS 16 06 33.8, 24.25, 66.9W, H=160 KM, M=5.2  
 SALTA PROVINCE, ARGENTINA

WDC NOV 13 EPC 16 38 07.6  
 MIN EP 16 38 10.7  
 MHC EP 16 38 18.7  
 JAS EP 16 38 20.7  
 PRI EP 16 38 25.2  
 PRI EP 16 38 28.2  
 MNV EP 16 38 28.2  
 LSGS 16 25 03.3, 24.3N, 121.6E, H= 66 KM, M=5.2  
 TAIWAN

FHC NOV 14 IP 09 25 57.8  
 WDC IPC 09 30 12.6  
 MIN IPC 09 30 22.8  
 MHC EPC 09 30 36.4  
 JAS EPC 09 30 46.5  
 SAC EP 09 30 45.7  
 PRI EP 09 30 53.2  
 PRI EP 09 31 04.6  
 MNV EP 09 31 06.7  
 RRK 09 25 49.4, 40.6N, 124.4W, H= 22 KM, ML=4.8  
 NORTHWEST OF PETROLIA, CALIFORNIA

SAC NOV 14 EP 09 49 25.3  
 MHC EPC 09 49 23.4  
 FZ 09 49 23.8  
 PRI EPC 09 49 24.0  
 PRI EPC 09 49 25.1  
 JAS EPC 09 49 25.8  
 WCC EPC 09 49 30.0  
 MIN EP 09 49 32.6  
 MNV EPC 09 49 36.0  
 LSGS 09 38 31.8, 17.75, 178.4W, H=254 KM, M=5.1  
 FIJI ISLANDS REGION

PRI NOV 14 EP 10 56 17.5  
 PRI EPD 10 56 15.0  
 JAS EPD 10 56 25.5  
 MHC EP 10 56 29.8  
 MHC EP 10 56 30.8  
 BKS EP 10 56 38.8  
 LSGS 10 50 10.8, 10.3N, 103.6W, H= 33 KM, M=5.2  
 OFF COAST OF MEXICO

FHC NOV 14 EP 11 35 31.5  
 WDC EP 11 35 38.0  
 MIN EP 11 35 40.4  
 JAS EP 11 35 44.0  
 PRI EP 11 35 46.7  
 PRI EP 11 35 48.6  
 MNV EP 11 35 53.0  
 USGS 11 23 38.7, 20.5N, 147.2E, H= 33 KM, M=5.0  
 MARIANA ISLANDS REGION

PRI NOV 14 EPKF 14 16 00.7  
 PRI EPKF 14 16 01.8  
 MNV EPKF 14 16 01.6  
 JAS EPKF 14 16 03.1  
 MHC EPKF 14 16 04.0  
 BKS EPKF 14 16 08.2  
 LSGS 13 27 23.2, 56.05, 27.5W, H=129 KM, M= .  
 SOUTH SANDWICH ISLANDS REGION

BKS NOV 14 EP 22 40 18.4  
 MHC EP 22 40 20.2  
 PRI EP 22 40 22.5  
 MIN EP 22 40 23.5  
 JAS EP 22 40 24.9  
 PRI EP 22 40 28.8  
 MNV EP 22 40 33.8  
 LSGS 22 27 46.0, 10.1S, 161.5E, H= 67 KM, M=5.4  
 SOLOMON ISLANDS

MIN NOV 15 IPC 03 35 18.8  
 WCC IPC 03 35 25.1  
 BKS EP 03 35 27.9  
 JAS IPC 03 35 30.7  
 MHC EP 03 35 36.3  
 FHC EP 03 35 40.4  
 SAO EPD 03 35 44.2  
 MNV IPC 03 35 46.8  
 PRI EP 03 35 47.0  
 PRI EP 03 35 56.0  
 ERK 03 35 01.9, 39.4N, 121.8W, H= 7 KM, ML=3.8  
 GROVILLE, CALIFORNIA

PRI NOV 15 EP 06 14 26.0  
 PRI EP 06 14 28.7  
 SAO IPO 06 14 34.7  
 JAS EP 06 14 40.3  
 MHC EP 06 14 42.9  
 MHC EP 06 14 48.2  
 BKS EP 06 14 58.2  
 LSGS 06 13 27.6, 34.3N, 116.3W, H= 6 KM, M=4.6  
 SOUTHERN CALIFORNIA

FRI NOV 15 EPC 15 33 45.2  
 PRI EPC 15 33 46.5  
 PRI EPC 15 33 46.1  
 MNV EP 15 33 56.2  
 SAC EP 15 33 56.0  
 JAS EP 15 33 56.0  
 MHC EP 15 34 02.0  
 BKS EP 15 34 02.0  
 MICRON PERIOD 0.10  
 FZ 0.10  
 MAXR(Z) 9.6  
 MAX(H) 11.9  
 MAX(E) 12.0  
 PERIOD 20  
 20  
 20  
 20  
 E(P) 15 34 17.5  
 EP 15 34 30.2  
 LSGS 15 28 30.4, 18.2N, 102.2W, H= 33 KM, M=5.9  
 MICROCACAN, MEXICO

FHC NOV 15 E(P) 20 22 56  
 WCC EP 20 23 01.0  
 MIN EP 20 23 03.8  
 MHC EP 20 23 05.8  
 BKS EP 20 23 12  
 MICRON PERIOD 0.04  
 FZ 0.04  
 MAXR(Z) 5.1  
 MAX(H) 3.5  
 MAX(E) 4.9  
 PERIOD 20  
 20  
 20  
 20  
 JAS EP 20 23 12.6  
 PRI EP 20 23 16.4  
 PRI EP 20 23 17.2  
 MNV EP 20 23 19.8  
 MAG C.C. DIST(DEG) 100  
 USGS 20 25 28.5, 12.9N, 125.9E, H= 11 KM, M=6.1  
 SAMAR, PHILIPPINE ISLANDS

FHC NOV 16 IPC 17 29 59.1  
 WCC IPC 17 30 14.5  
 MIN IPC 17 30 24.9  
 MHC EP 17 30 30.1  
 BKS EP 17 30 40.5  
 MHC EP 17 30 46.7  
 SAO EP 17 30 48.9  
 JAS EP 17 31 00.0  
 PRI EP 17 31 01.2  
 FRI EP 17 31 01.2  
 ERK 17 29 29.3, 40.4N, 126.3W, H= 2 KM, ML=5.0  
 WEST OF FERRDALE, CALIFORNIA

WDC NOV 16 EP 21 33 12.9  
 JAS EPC 21 33 51.5  
 MNV EPC 21 33 56.9  
 LSGS 21 23 05.1, 45.1N, 147.2E, H= 18 KM, M=4.9  
 KURIL ISLANDS

PRI NOV 17 EP 02 14 03.0  
 MHC EPD 02 14 03.6  
 BKS EP 02 14 03.7  
 MICRON PERIOD 0.04  
 FZ 0.04  
 MAXR(Z) 0.7  
 MAX(H) 0.1  
 MAX(E) 1.0  
 PERIOD 20  
 20  
 20  
 20  
 JAS EP 02 14 07.2  
 JAS EP 02 14 08.1  
 WCC EP 02 14 11.0  
 MIN EP 02 14  
 MNV EPD 02 14 12.5  
 USGS 02 01 26.4, 26.6S, 179.1W, H= 33 KM, M=5.0  
 KERMADEC ISLANDS REGION

FRI NOV 17 EP 06 57 59.1  
 PRI EP 06 58 00.2  
 MNV EPD 06 58 01.8  
 JAS EPD 06 58 05.7  
 MHC IP 06 58 07.6  
 MIN EP 06 58 16.5  
 WDC IPD 06 58 16.3  
 LSGS 06 45 47.2, 31.55, 69.2W, H=122 KM, M=5.3  
 SAN JUAN PROVINCE, ARGENTINA

FHC NOV 18 IPC 00 12 09.7  
 WDC IPD 00 12 22.3  
 MIN IP 00 12 32.6  
 MHC EP 00 12 52.8  
 SAO IP 00 12 52.8  
 ERK 00 12 34.8, 40.2N, 124.5W, H= 2 KM, ML=3.2  
 EAST OF PETROLIA, CALIFORNIA

SAO NOV 18 IPD 11 50 37.6  
 MHC IPC 11 50 42.4  
 PRI EP 11 50 52.4  
 BKS EP 11 50 52.4  
 JAS IPD 11 50 53.4  
 PRI EP 11 50 56.5  
 MNV IP 11 50 57.7  
 ERK 11 50 27.0  
 ERK 11 50 33.8, 36.9N, 121.4W, H= 11 KM, ML=3.1  
 NORTHWEST OF HOLLISTER, CALIFORNIA

SAO NOV 18 IPD 13 38 03.8  
 MHC IPC 13 38 08.5  
 PRI EP 13 38 20.0  
 BKS EP 13 38 20.0  
 JAS IPD 13 38 22.9  
 PRI EP 13 38 23.5  
 ERK 13 37 59.6, 36.9N, 121.4W, H= 2 KM, ML=2.6  
 NORTHWEST OF HOLLISTER, CALIFORNIA

MNV NOV 18 IPC 15 30 32.0  
 FRI EPC 15 30 48.5  
 JAS EPC 15 30 56.1  
 PRI EP 15 31 01.8  
 SAO EP 15 31 06  
 WDC E(P) 15 31 34.3  
 LSGS 15 30 00.3, 37.0N, 116.0W, H= 5 KM, M=4.4  
 SOUTHERN NEVADA

FHC NOV 19 EP 03 47 18.0  
 BKS EP 03 47 22.6  
 MICRON PERIOD 0.03  
 FZ 0.03  
 MAXR(Z) C.C  
 MAX(H) C  
 MAX(E) 5.0  
 PERIOD 20  
 20  
 20  
 20  
 MHC EP 03 47 23.1  
 WDC EP 03 47 24.1  
 MIN EP 03 47 26.5  
 PRI EP 03 47 27.3  
 JAS EP 03 47 28.5  
 FRI EP 03 47 30.8  
 MNV E(P) 03 47 32.8  
 LSGS 03 34 28.1, 6.8S, 154.5E, H= 24 KM, M=5.6  
 SOLOMON ISLANDS

FHC NOV 19 EP 04 55 32.6  
 WCC EP 04 55 33.8  
 MNV EP 04 55 44.2  
 JAS EP 04 55 46.4  
 MHC EP 04 55 52.4  
 SAO EP 04 55 58.8  
 PRI EP 04 55 59.5  
 PRI EP 04 56 03.6  
 LSGS 04 46 10.9, 82.0N, 4.8W, H= 26 KM, M=5.1  
 NORTH OF SVALBARD

SAO NOV 19 EP 06 25 56.7  
 BKS EPC 06 30 01.0  
 MICRON PERIOD 0.33  
 FZ 0.33  
 MAXR(Z) 0.1  
 MAX(H) 0.1  
 MAX(E) 0.2  
 PERIOD 20  
 20  
 20  
 20  
 PRI IPC 06 30 01.1  
 FHC EPC 06 30 01.8  
 FHC IPC 06 30 05.2  
 PRI EPC 06 32 02.0





JAS NOV 27 EP 10 22 58 \*E 55 58  
 WDC NOV 27 EP 10 26 07  
 MNV EP 10 26 07  
 USGS 10 44 05.1, 19.55, 173.2W, H= 33 KM, M=4.6  
 TONGA ISLANDS

BKE NOV 27 11 13 MICRON PERIOD  
 MAXR(7) 2.0  
 MAXH(N) 1.4  
 MAXH(E) 1.4

MHC EP 11 13 27.8  
 PRI EP 11 13 27.8  
 JAS EP 11 13 33.0 \*E 16 22  
 WDC EP 11 13 32.7  
 MNV EP 11 13 35.6  
 PRI EP 11 13 37.8  
 EPC 11 13 42.9  
 LSGS 11 01 52.6, 17.85, 174.8W, H= 33 KM, M=5.5  
 TONGA ISLANDS

WDC NOV 27 EP 20 23 11.0  
 MIN EP 20 23 14.2  
 MHC EP 20 23 21  
 JAS EPC 20 23 23.5  
 PRI EP 20 23 27.5  
 WDC EP 20 23 26.0  
 MNV EPC 20 23 31.2  
 LSGS 20 11 37.7, 21.7N, 142.9E, H=317 KM, M=4.7  
 MARIANA ISLANDS REGION

PRI NOV 28 EP 16 26 14.5  
 MHC EP 16 26 18.0  
 PRI EP 16 26 20.3  
 JAS EPC 16 26 20.5  
 WDC EPC 16 26 22.9  
 MIN EP 16 26 24.6  
 MNV EPC 16 26 30.8  
 LSGS 16 44 44.9, 17.75, 174.7W, H= 78 KM, M=5.0  
 TONGA ISLANDS

SAD NOV 29 IPC 02 38 38.5  
 MHC EPC 02 38 47.8 38 59  
 PRI E(F) 02 38 49.3  
 PRI E(P) 02 38 51.1  
 JAS EP 02 38 55.5 39 18  
 BKS EP 02 39 00 39 19  
 PRK 02 38 33.5, 36.7N, 121.3W, H= 0 KM, ML=2.9  
 STONE CANYON, CALIFORNIA

MNV NOV 29 IPD 08 17 19.1  
 PRI IPC 08 17 22.6 17 37  
 JAS IPC 08 17 30.5 17 52  
 SAC EP 08 17 45.0  
 PRK 08 17 02.7, 37.5N, 118.4W, H= 5 KM, ML=3.2  
 NORTH OF BISHOP, CALIFORNIA

MHC NOV 29 EP 09 13 34.6 \*E 13 49  
 PRI EP 09 13 38.5 \*E 13 53  
 JAS EPC 09 13 35.5 \*E 13 54  
 WDC EP 09 13 42.7 \*E 13 57  
 MNV EPC 09 13 47.5 \*E 14 02  
 LSGS 09 00 53.4, 31.85, 178.4W, H= 49 KM, M=5.4  
 KERMADEC ISLANDS REGION

WDC NOV 29 EP 10 22 58  
 MIN EP 10 22 58  
 JAS EP 10 23 30  
 MNV EP 10 23 34.5  
 LSGS 10 20 33.8, 49.6N, 126.3W, H= 33 KM, M=4.0  
 VANCOUVER ISLANDS REGION

PRI NOV 29 EPKPC 11 05 46.5 \*E 06 01  
 PRI EPKPC 11 05 47.3 \*E 06 02  
 MNV EPKPC 11 05 47.5 \*E 06 02  
 SAC EPKPC 11 05 48.5 \*E 06 04  
 JAS EPKPC 11 05 49.1 \*E 06 04  
 MHC EPKPC 11 05 49.7 \*E 06 04  
 BKE EPKPC 11 05 51.0 \*E 06 05  
 MIN EPKPC 11 05 52.2 \*E 06 06  
 WDC EPKPC 11 05 53.5 \*E 06 06  
 EPKPC 11 05 53.5 \*E 06 09 PKK 09 21 PKKP 18 37  
 LSGS 10 46 55.6, 57.85, 25.3W, H= 51 KM, M=5.8  
 SOUTH SANDWICH ISLANDS REGION

BKS NOV 29 EP 13 42 27 LR 13 50 T 17 13  
 MHC EP 13 42 28.8  
 SAC EP 13 42 29.0  
 PRI EP 13 42 30.2  
 WDC EPC 13 42 31.3  
 JAS EPC 13 42 32.3  
 MIN EPC 13 42 33.4  
 PRI EP 13 42 34.4  
 MNV EPC 13 42 35.7  
 LSGS 13 32 40.5, 19.4N, 155.1W, H= 8 KM, M=5.8  
 HAWAII

BKS NOV 29 IPC 14 24 26.1 CO 00 \*E 55 12 T 29 20  
 SAC EP 14 24 26.7 MICRON PERIOD  
 MHC EP 14 24 27.1 C.31 1.4  
 PRI EP 14 24 28.2 \*E 55 17  
 WDC EP 14 24 31.0 \*E 55 18  
 JAS EP 14 24 32.7 \*E 55 19  
 PRI EPC 14 24 34.8 \*E 55 28  
 MIN EP 14 24 37.9  
 MNV EP 14 24 39.2  
 EP 14 24 42.2  
 LSGS 14 47 40.4, 19.3N, 155.0W, H= 5 KM, M=6.0  
 HAWAII

MHC NOV 29 IPD 23 31 28.4 31 33  
 SAC IPD 23 31 29.5  
 BKS IPD 23 31 31.0  
 JAS EP 23 31 41.0 31 58  
 PRI EP 23 31 44.8 32 00  
 PRI EPD 23 31 48.2  
 ERK 23 31 47.4 32 06  
 LSGS 23 31 22.8, 37.1N, 121.5W, H= 9 KM, ML=2.5  
 COYOTE RESERVOIR, CALIFORNIA

WDC NOV 30 EP 04 08 12.8 \*E 09 03  
 BKS EP 04 08 13.8 \*E 36 00  
 JAS EP 04 08 19.7 \*E 09 10  
 PRI EP 04 08 22.1  
 MNV EP 04 08 27.2 \*E 09 12  
 LSGS 03 21 53.1, 5.1S, 145.2E, H= 47 KM, M=5.7  
 EAST PAPUA, NEW GUINEA REGION

WDC NOV 30 EP 04 30 10.2  
 JAS EP 04 30 36.1  
 MNV EP 04 30 42.0  
 MAYBE PKPPKP OF PREVIOUS EVENT

WDC NOV 30 IPD 08 38 36.0  
 MIN EP 08 38 42.0  
 BKS EP 08 38 50.8  
 F2 MICRON PERIOD  
 0.02 0.5  
 LSGS 08 31 28.7, 82.3N, 176.3W, H= 99 KM, M=4.8  
 ANDREANOF ISLANDS, ALEUTIAN ISLANDS

JAS EP 08 39 00.0  
 PRI EP 08 39 08.0  
 MNV EP 08 39 08.0  
 USGS 08 31 28.7, 82.3N, 176.3W, H= 99 KM, M=4.8  
 ANDREANOF ISLANDS, ALEUTIAN ISLANDS

FHC NOV 30 E(P) 10 50 30.3  
 WDC EP 10 50 32.3

MIN EP 10 50 38.5  
 MNV EP 10 51 13.7 \*E 51 14  
 JAS EP 10 51 \*E 51 20  
 MHC EP 10 51  
 PRI E(P) 10 51 35.8  
 LSGS 10 48 22.0, 49.4N, 123.5W, H= 32 KM, M=4.7  
 VANCOUVER ISLAND REGION

WDC NOV 30 EP 13 45 \*E 45 17  
 JAS EP 13 45 17.8 \*E 45 27  
 PRI EP 13 45 21.0 \*E 45 31  
 MNV EP 13 45 \*E 45 26  
 PRI EP 13 45 \*E 45 28  
 LSGS 13 32 34.8, 10.6N, 145.9E, H= 32 KM, M=4.9  
 SOUTH OF MARIANA ISLANDS

FHC NOV 30 EP 20 36 39.1  
 WDC IFC 20 36 47.7  
 WDC EPD 20 36 53.4  
 MIN IPD 20 37 03.3 42 34 \*E 37 12 LO 44 42 \*E 45 50  
 BKS MICRON PERIOD  
 P2 C.15 1.4  
 MAXR(2) 14.3 20  
 MAXH(N) 53.6 20  
 MAXH(E) 22.1 20

MHC EPD 20 37 09.6  
 JAS IPD 20 37 12.9  
 SAC EP 20 37 13.0  
 PRI EPD 20 37 21.5  
 MNV IPD 20 37 22.0  
 PRI EPD 20 37 22.0  
 MAG 6.1, CIST(DEG) 34  
 USGS 20 30 17.0, 52.6N, 167.2W, H= 24 KM, M=6.7  
 FOX ISLANDS, ALEUTIAN ISLANDS

WDC DEC 01 EP 12 20 31.0  
 JAS EP 12 20 43.0  
 MNV EP 12 20 45.0  
 LSGS 12 06 57.4, 12.6N, 126.0E, H= 30 KM, M=5.6  
 PHILIPPINE ISLANDS REGION

JAS DEC 01 EP 22 21 23.2  
 MNV EP 22 21 27.1  
 LSGS 22 15 21.2, 61.8N, 145.1W, H= 42 KM, M=3.7  
 SCUTHERN ALASKA

FHC DEC 02 EP 20 30 35.4  
 WDC IPD 20 30 40.8  
 MIN EP 20 30 44.2  
 BKS EPC 20 30 45.6  
 F2 MICRON PERIOD  
 0.05 0.8

MHC EPD 20 30 45.0  
 JAS IPC 20 30 52.8  
 PRI EPD 20 30 55.0  
 PRI EPD 20 30 56.5  
 MNV EPC 20 31 01.0  
 LSGS 20 18 46.4, 18.1N, 145.8E, H=137 KM, M=5.1  
 MARIANA ISLANDS

FHC DEC 02 IPC 20 55 29.0 55 43  
 WDC IPC 20 55 44.0 56 10  
 MIN EP 20 55 53.8  
 BRK 20 55 09.0, 40.4N, 125.3W, H= 2 KM, ML=3.2  
 SOUTHWEST OF ARCATA, CALIFORNIA

BKS DEC 03 EP 05 58 37  
 SAC EP 05 58 38.3  
 FHC EP 05 58 38.5  
 MHC EP 05 58 38.5  
 PRI EPC 05 58 40.2  
 WDC EPC 05 58 40.5  
 MIN EPC 05 58 43.2  
 JAS EPC 05 58 43.6  
 PRI EPC 05 58 44.5  
 MNV EPC 05 58 52.5  
 LSGS 05 46 40.1, 11.9S, 167.0E, H=246 KM, M=5.0  
 SANTA CRUZ ISLANDS

FHC DEC 03 EP 07 24 55.2  
 WDC EP 07 25 08.2  
 MIN EP 07 25 08.3  
 MHC EP 07 25 21.6  
 JAS EP 07 25 23.4  
 PRI EP 07 25 30.1  
 PRI EP 07 25 30.3  
 MNV EP 07 25 30.6  
 LSGS 07 14 32.4, 43.2N, 145.7E, H= 76 KM, M=5.3  
 HOKKAIDO, JAPAN REGION

FRI DEC 04 EP 15 04 23.2 \*E 04 43  
 MNV EP 15 04 23.5 \*E 04 46  
 PRI EP 15 04 25.8 \*E 04 46  
 SAC EP 15 04 \*E 04 52  
 JAS EP 15 04 32.5 \*E 04 54  
 MHC EP 15 04 37.0 \*E 04 57  
 BKS E(P) 15 04 44 \*E 05 04 \*E 09 36 \*E 12 00  
 \*E 18 00

MIA PPZ MICRON PERIOD  
 WDC C.04 0.9  
 FHC 15 05 \*E 05 09  
 15 05 \*E 05 17  
 15 05 \*E 05 29  
 LSGS 14 58 20.2, 16.6N, 94.5W, H= 89 KM, M=5.0  
 OAXACA, MEXICO

JAS DEC 05 EP 18 01 13.9  
 MNV EP 18 01 22.2  
 PRI EP 18 01 22.7  
 LSGS 17 54 39.6, 54.4N, 162.9W, H= 45 KM, M=4.7  
 ALASKA PENINSULA

FHC DEC 05 EP 20 24 41.2  
 WDC EP 20 24 47.1  
 MIN EP 20 24 51.2  
 BKS EP 20 24 59.0  
 P2 MICRON PERIOD  
 C.06 1.0  
 MAXR(2) 1.4 20  
 MAXH(N) C.9 20  
 MAXH(E) 1.4 20

MHC EP 20 25 03.3  
 JAS EP 20 25 05.8  
 PRI EP 20 25 12.0  
 MNV EP 20 25 12.2  
 EP 20 25 12.7  
 MAG 5.1, CIST(DEG) 68  
 LSGS 20 14 18.2, 43.6N, 146.4E, H= 68 KM, M=5.8  
 KURIL ISLANDS

FRI DEC 06 EP 22 29 16.3 \*PP 59 40  
 PRI EPD 22 29 17.7 \*PP 59 42  
 MNV EP 22 29 18.1 \*PP 59 42  
 SAC EP 22 29 22.5 \*PP 59 46  
 JAS EPD 22 29 23.5 \*PP 59 48  
 MHC EPD 22 29 25.8 \*PP 59 50  
 BKS EPD 22 29 26.2 \*PP 59 53

MIN EP 22 29 34.6 \*PP 59 59  
 WDC IFD 22 29 37.7 \*PP 00 02  
 LSGS 22 47 30.4, 23.8S, 68.8W, H= 82 KM, M=5.4  
 NORTHERN CHILE

WDC DEC 07 EP 08 08 27 \*E 08 44  
 JAS EP 08 08 43.6  
 PRI EP 08 08  
 MNV EP 08 08 50  
 LSGS 07 57 52.3, 43.4N, 147.2E, H= 23 KM, M=5.1  
 KURIL ISLANDS

WDC DEC 07 ERKFC 08 21 09.6 \*E 21 12  
 JAS ERKFC 08 21 09.7  
 MIN 08 21 16.8  
 WDC 08 21 16.8  
 LSGS 08 21 16.8  
 C1 41.3, 49.2E, 109.0E, H= 33 KM, M=5.4  
 SOUTHEAST INDIAN RISE

WDC DEC 07 EP 06 22 22.5  
 JAS EP 09 26 36.7  
 MIN EP 09 26 43.0  
 WDC EP 09 26 43.0  
 LSGS 09 26 43.0  
 09 43 58.3, 29.8N, 130.7E, H= 28 KM, M=4.9  
 FYUKYU ISLANDS

WDC DEC 07 IPD 18 59 12.8 59 15  
 JAS IPD 18 59 26.0  
 MIN IPD 18 59 33.0  
 WDC IPD 18 59 38.0  
 ERK 18 59 38.0  
 12 59 10.1, 38.0N, 122.4E, H= 6 KM, ML=3.0  
 NORTH OF RICHMOND, CALIFORNIA

WDC DEC 08 E(F) 00 13 03  
 JAS EP 00 13 11.0  
 MIN EP 00 13 16.0  
 WDC EP 00 13 34.0  
 LSGS 00 13 34.0  
 C1 48.1, 34.8E, 108.2E, H= 33 KM, M=5.4  
 EASTER ISLANDS CORDILLERA

WDC DEC 08 EPC 02 00 06.0  
 JAS EP 02 00 07.0  
 MIN EP 02 00 13.0  
 WDC EP 02 00 16.0  
 LSGS 02 00 31.0  
 C1 20 19.1, 8.5E, 77.3E, H= 78 KM, M=5.0  
 NORTHERN PERU

WDC DEC 08 IPC 19 04 46.4  
 JAS EP 19 04 51.1  
 MIN EP 19 05 08.0  
 WDC EP 19 05 08.0  
 LSGS 19 05 16.2  
 18 55 40.6, 52.8N, 160.1E, H= 54 KM, M=5.2  
 OFF EAST COAST OF KAMCHATKA

WDC DEC 08 EP 23 02 40.3  
 JAS EP 23 02 41.0  
 MIN EP 23 02 51.0  
 WDC EP 23 02 57.0  
 LSGS 23 03 03.2  
 10 50 10.0, 22 00 10.0, 23 30 10.0  
 GREENLAND SEA

WDC DEC 09 EPKF 01 52 05.3 \*E 52 24  
 JAS EPKF 01 52 11.2 \*E 52 26  
 MIN EPKF 01 52 13.2 \*E 52 29  
 WDC EPKF 01 52 14.2 \*E 52 31  
 LSGS 01 52 17.9 \*E 52 34  
 01 52 17.9 \*E 52 36  
 01 52 17.9 \*E 52 38  
 01 52 21.5 \*E 52 40  
 SOUTH SANDWICH ISLANDS

WDC DEC 09 IPC 08 38 36.7  
 JAS IPD 08 38 42.0  
 MIN EP 08 38 49.0  
 WDC EP 08 38 53.0  
 LSGS 08 38 55.0 36 19  
 08 38 55.1 36 20  
 ERK 08 38 28.0  
 08 35 32.1, 36.5N, 121.1W, H= 2 KM, ML=2.9  
 BEAR VALLEY, CALIFORNIA

WDC DEC 09 EPD 09 25 58.0 35 00 \*E 26 09 \*E 35 45 L0 43 30  
 LSGS 09 25 58.0 35 00 LR 46 18 P1P1 53 55  
 MICRON PERIOD  
 C.11 0.8  
 MAX(Z) 22 20  
 MAX(N) 18 20  
 MAX(E) 24 20

WDC DEC 09 EP 09 25 54.5  
 JAS EP 09 25 58.0 \*I 26 10 P1P1 53 56  
 MIN EP 09 25 56.0 \*E 26 10  
 WDC EP 09 26 01.8 \*I 26 16  
 JAS IPD 09 26 02.2 \*I 26 12 P1P1 53 51  
 WDC EP 09 26 04.0 F1P1 53 51  
 MIN EP 09 26 05.2 \*I 26 21  
 WDC EP 09 26 12.7  
 MAG 6.5, DIST(DEG) 70  
 USGS 09 14 40.6, 14.8E, 173.0W, H= 33 KM, M=6.0  
 SAMOA ISLANDS REGION

WDC DEC 09 EP 13 44 53.0  
 JAS EP 13 44 54.5  
 MIN EP 13 44 54.7  
 WDC EP 13 44 55.5 \*E 45 07  
 LSGS 13 44 55.5 \*I 45 08  
 13 44 00.1  
 13 44 01.0  
 13 44 03.0  
 13 44 05.7  
 LSGS 13 34 04.1, 18.0S, 178.6W, H=635 KM, M=5.1  
 FIJI ISLANDS REGION

WDC DEC 10 EP 13 37 53.1  
 JAS EP 13 37 58.0  
 MIN EP 13 37 58.0  
 WDC EP 13 38 03.2  
 LSGS 13 26 24.4, 16.3S, 174.0W, H= 29 KM, M=4.6  
 TONGA ISLANDS

WDC DEC 10 IPD 19 19 42.0  
 JAS IPC 19 19 45.0 19 60  
 MIN IPC 19 19 53.0  
 WDC IPC 19 20 03.2  
 LSGS 19 20 07.3  
 19 20 07.5  
 19 20 14.5 20 59  
 ERK 19 19 25.3, 37.5N, 118.3W, H= 8 KM, ML=3.5  
 PISCOP AREA, CALIFORNIA

WDC DEC 10 IPC 23 32 28.9 32 32  
 JAS IPD 23 32 31.6 32 42  
 MIN EP 23 32 38.1  
 WDC IPD 23 32 44.4 33 05  
 LSGS 23 32 17.7, 36.8N, 120.3W, H= 4 KM, ML=2.7  
 COALINGA, CALIFORNIA

WDC DEC 11 EP 05 28 32.8  
 JAS EP 05 28 36.2  
 MIN EP 05 28 36.2  
 WDC EP 05 28 37.7  
 LSGS 05 16 08.4, 11.2S, 165.9E, H= 50 KM, M=4.9  
 SANTA CRUZ ISLANDS

WDC DEC 11 EP 06 31 12.0  
 JAS EP 06 31 19.2  
 MIN EP 06 31 45.0 34 25 \*E 35 38 \*E 36 45  
 WDC EP 06 31 51.7  
 JAS EP 06 31 52.2  
 MIN EP 06 31 55.2  
 WDC EP 06 32 06.7  
 LSGS 06 28 35.8, 50.1N, 125.5W, H= 33 KM, M=4.7  
 VANCOUVER ISLAND REGION

WDC DEC 11 EP 07 05 50.6  
 JAS EP 07 05 57.8  
 MIN EP 07 06 23.0 09 02 \*E 10 18 \*E 11 22 \*E 11 51  
 WDC EP 07 06 30.4

WDC DEC 07 EP 07 06  
 JAS EP 07 06 37.7 \*E 06 33  
 MIN EP 07 06 45.0 \*I 06 47  
 WDC EP 07 06  
 LSGS 07 03 13.8, \*E 06 52  
 VANCOUVER ISLAND REGION

WDC DEC 11 IPC 07 35 59.6  
 JAS IPC 07 36 14.7  
 MIN IPC 07 36 24.6  
 WDC EP 07 36 32.8 37 04  
 JAS EP 07 36 42.4 37 14  
 MIN EP 07 36 48.7  
 WDC EP 07 36 49.1  
 LSGS 07 37 02.8  
 ERK 07 35 31.1, 40.5N, 126.2W, H= 7 KM, ML=4.1  
 WEST OF FERDALE, CALIFORNIA

WDC DEC 11 EP 16 53 28.9  
 JAS EP 16 53 42.1 \*E 53 33  
 MIN EP 16 53 58.0  
 LSGS 16 43 14.0, 44.8N, 146.0E, H= 67 KM, M=5.6  
 KURIL ISLANDS

WDC DEC 11 EPD 20 27 32.8  
 JAS EPD 20 27 35.2  
 MIN EPD 20 27 35.6  
 WDC EPD 20 27 41.0  
 JAS EPD 20 27 42.1  
 MIN EPD 20 27 45.2  
 WDC EPD 20 27 49.2  
 LSGS 20 17 08.1, 11.6S, 74.6W, H= 98 KM, M=6.0  
 FERU

WDC DEC 12 EP 13 21  
 JAS EP 13 21  
 MIN EP 13 21  
 WDC EP 13 21  
 LSGS 13 08 53.9, 12.0S, 166.4E, H= 53 KM, M=5.3  
 SANTA CRUZ ISLANDS

WDC DEC 13 IPD 18 07 23.8  
 JAS EP 18 07 31.8  
 MIN EP 18 07 41.2  
 WDC EP 18 07 43.7 08 01  
 JAS EP 18 07 47.4  
 WDC EP 18 07 48.3  
 ERK 18 07 21.2, 36.8N, 121.6W, H= 0 KM, ML=2.8  
 SAN JUAN BALTISTA, CALIFORNIA

WDC DEC 14 EP 00 02 36.3  
 JAS EP 00 02  
 MIN EP 00 02  
 WDC EP 00 02  
 LSGS 00 02 36.3  
 \*E 02 49

WDC DEC 14 EP 03 29 05.0 \*E 29 18  
 JAS EP 03 29 16.7 \*E 29 22  
 MIN EP 03 29 17.5 \*E 29 24  
 WDC EP 03 17 45.6, 24.9S, 168.4W, H= 33 KM, M=4.7  
 EASTER ISLANDS CORDILLERA

WDC DEC 14 EP 18 17 19.3  
 JAS EP 18 17 20.5  
 MIN EP 18 17 27.7  
 WDC EP 18 17 32.0  
 JAS EP 18 17 34.7 PG 17 50 5G 18 54  
 MIN EP 18 17 38.3  
 WDC EP 18 17 48.3  
 LSGS 18 16 4.4, N OF PALM SPRINGS  
 18 16 20.4, 34.3N, 116.3W, H= 2 KM, M=4.5  
 SOUTHERN CALIFORNIA

WDC DEC 15 E(F) 01 20 27.3  
 JAS EP 01 20 32.4  
 MIN EP 01 20 32.4  
 WDC EP 01 20 32.4  
 LSGS 01 20 32.4  
 MICRON PERIOD  
 0.04 1.0

WDC DEC 15 EP 02 22 53.7  
 JAS EP 02 22 53.7  
 MIN EP 02 22 53.7  
 WDC EP 02 22 53.7  
 LSGS 02 14 42.3, 4.6S, 108.3W, H= 33 KM, M=4.7  
 NORTHERN EASTER ISLANDS CORDILLERA

WDC DEC 15 EP 04 36 41.7  
 JAS EP 04 36 42.8  
 MIN EP 04 36 42.8  
 WDC EP 04 36 42.8  
 LSGS 04 24 28.8, 29.0S, 178.6W, H=200 KM, M=5.2  
 KERMADEC ISLANDS

WDC DEC 15 EP 13 51 19.4 \*E 51 16 \*E 54 45  
 JAS EP 13 51 19.4 \*E 55 00  
 MIN EP 13 38 06.0, 0.6N, 26.1W, H= 33 KM, M=5.5  
 WDC EP 13 38 06.0, 0.6N, 26.1W, H= 33 KM, M=5.5  
 LSGS 13 38 06.0, 0.6N, 26.1W, H= 33 KM, M=5.5  
 CENTRAL MID-ATLANTIC RIDGE

WDC DEC 15 EP 14 34  
 JAS EP 14 34 27.6 \*E 34 28  
 MIN EP 14 34 27.6 \*E 37 22  
 WDC EP 14 34 36.9  
 JAS EP 14 34 40.2  
 MIN EP 14 34 54.8 \*E 37 21  
 WDC EP 14 34 58.5 \*E 37 21  
 LSGS 14 27 57.8, 14.4N, 92.6W, H= 77 KM, M=5.0  
 NEAR COAST OF CHIAPAS, MEXICO

WDC DEC 15 EP 17 42 55.0 \*E 45 87  
 JAS EP 17 43 00.2  
 MIN EP 17 43 01.8  
 WDC EP 17 43 08.8  
 JAS EP 17 43 27.5 \*E 45 84  
 MIN EP 17 43 31.2  
 WDC EP 17 43 42.6  
 LSGS 17 36 29.7, 14.4N, 92.7W, H= 65 KM, M=5.2  
 NEAR COAST OF CHIAPAS, MEXICO

WDC DEC 16 EP 02 16 28.8  
 JAS EP 02 16 30.2  
 MIN EP 02 16 30.5  
 WDC EP 02 16 35.8  
 JAS EP 02 16 36.0  
 MIN EP 02 16 37.4  
 WDC EP 02 16 39.6  
 LSGS 02 05 26.8, 20.3S, 177.9W, H=550 KM, M=4.5  
 FIJI ISLANDS REGION

WDC DEC 16 EP 10 19 36.7 \*E 19 57  
 JAS EP 10 19 51.6  
 MIN EP 10 19  
 WDC EP 10 19  
 LSGS 10 07 18.4, 30.2N, 131.0E, H= 33 KM, M=5.1  
 KYUSHU, JAPAN

MIN DEC 16 EP 13 47 15.0 \*E 47 12  
 WDC EP 13 47  
 PRI EP 13 47 21.0  
 JAS EP 13 47 21.2  
 PRI EP 13 47 28.5  
 USGS 13 38 22.4, 35.7N, 17.0W, H= 33 KM, M=4.9  
 NORTH ATLANTIC OCEAN

WDC DEC 16 EP 20 00 28.2 \*E 01 02  
 MIN EP 20 00 32.5  
 MHC EP 20 00 38.5  
 JAS IPC 20 00 42.0 \*E 01 14  
 PRI EP 20 00 45.0  
 PRI EPC 20 00 46.4 \*E 01 19  
 USGS 19 48 39.7, 22.1N, 143.0E, H=128 KM, M=4.9  
 VOLCANO ISLANDS REGION

PRI DEC 16 EP 21 13 46.2 \*E 13 50  
 PRI EP 21 13  
 WDC EP 21 13 52.3  
 JAS EP 21 13 57.1  
 MIN EP 21 13  
 USGS 21 01 38.6, 18.75S, 172.5E, H= 33 KM, M=4.9  
 FIJI ISLANDS

FRI DEC 17 EPKF 01 55 43.0  
 PRI EPKF 01 55 43.3  
 JAS EPKF 01 55 46.0  
 MHC EPKF 01 55 46.0  
 BKS EPKPD 01 55 46.5  
 MICRON PERIOD  
 C.03 1.0

WDC EPKF 01 55 50.0  
 USGS 01 36 49.1, 58.9S, 28.5W, H= 33 KM, M=4.9  
 SOUTH SANDWICH ISLANDS REGION

WDC DEC 17 IPKP 05 54 13.5 \*E 54 20  
 MIN EPKF 05 54 18.0  
 BKS EPKF 05 54 19.0  
 MICRON PERIOD  
 F2 C.04 1.2  
 MAXR(2) 2.5 20  
 MAXH(N) 1.4 20  
 MAXH(E) 4.6 20

MHC EPKF 05 54 15.8  
 JAS EPKF 05 54 21.1 \*E 54 27 \*E 07 40  
 PRI EPKF 05 54 22.0 \*E 54 28  
 PRI EPKF 05 54 24.1 \*E 54 30 \*E 07 46  
 MAG 6.0, DIST(DEG) 129  
 USGS 05 22 17.8, 5.3N, 95.9E, H= 17 KM, M=5.6  
 NORTHERN SUMATRA

WDC DEC 17 EP 07 24 52.0  
 BKS E(P) 07 24 54.5  
 MICRON PERIOD  
 F2 C.02 1.0  
 MAXR(2) 2.1 20  
 MAXH(N) 1.43 20  
 MAXH(E) 1.9 20

PRI EP 07 24 56  
 JAS EP 07 24 57.2  
 PRI EP 07 25  
 \*E 55 00  
 MAG 5.8, DIST(DEG) 92  
 USGS 07 42 06.7, 7.0S, 122.8E, H= 67 KM, M=5.8  
 SOLICHO ISLANDS

JAS DEC 17 EP 12 03 46.7  
 WDC EP 12 03 46.7  
 USGS 11 52 22.4, 15.0S, 173.6W, H= 40 KM, M=4.9  
 TONGA ISLANDS

SAC DEC 17 EP 13 22 07.8  
 PRI EP 13 23 00.4  
 BKS EPC 13 23 01.8  
 MICRON PERIOD  
 F2 C.04 1.3

FRI EPC 13 23 08.4  
 JAS IPC 13 23 06.1  
 WDC IPC 13 23 07.7  
 MIN EP 13 23 06.3  
 USGS 13 41 49.5, 22.2S, 179.8W, H=618 KM, M=4.9  
 SOUTH OF FIJI ISLANDS

WDC DEC 18 EP 00 35 59.8  
 BKS EPC 00 36 00.4  
 MICRON PERIOD  
 P2 C.02 0.8

MIN EP 00 36 03.2  
 PRI EP 00 36 05  
 JAS EP 00 36 06.5  
 PRI EP 00 36 08.8  
 USGS 00 23 11.3, 5.1S, 151.3E, H=125 KM, M=5.8  
 NEW BRITAIN REGION

JAS DEC 18 EP 11 24 23.9  
 WDC EP 11 24 26.6  
 USGS 11 42 46.5, 17.9S, 173.6W, H= 34 KM, M=5.0  
 TONGA ISLANDS

FHC DEC 15 EPD 02 26 59.4  
 BKS IPD 02 26 59.4  
 MICRON PERIOD  
 F2 C.80 1.0  
 MAXR(2) 4.3 20  
 MAXH(N) 2.5 20  
 MAXH(E) 4.3 20

SAC EPD 02 27 00.0  
 MHC EPD 02 27 00.5  
 WDC EPD 02 27 02.7  
 PRI EPD 02 27 03.2  
 MIN EPD 02 27 08.2  
 JAS EPD 02 27 06.0 \*E 30 34  
 PRI EPD 02 27 07.3 \*E 27 14  
 MNV EPD 02 27  
 MAG 6.2, DIST(DEG) 85  
 USGS 02 14 29.6, 11.8S, 164.8E, H= 33 KM, M=6.0  
 SANTA CRUZ ISLANDS

BKS DEC 20 EPC 02 56 31.8  
 MICRON PERIOD  
 F2 C.02 0.9

MHC EP 02 56 32.2  
 PRI EP 02 56 33.0  
 WDC EP 02 56 36.8  
 JAS EP 02 56 37.2  
 PRI EP 02 56 37.3  
 MIN EP 02 56 38.8  
 USGS 02 43 46.1, 21.0S, 162.6E, H= 33 KM, M=4.9  
 LOYALTY ISLANDS

WDC DEC 20 EP 03 03 56.6  
 JAS EP 03 03 57.0  
 PRI EP 03 03 57.4  
 USGS 02 51 04.2, 21.1S, 168.6E, H= 26 KM, M=4.5  
 LOYALTY ISLANDS

MNV DEC 20 IPC 20 00 38.3  
 PRI IPC 20 00 48.2  
 JAS IPC 20 00 57.1  
 PRI IPC 20 01 01.0  
 SAC IPC 20 01 07.3  
 MHC IPC 20 01 09.5  
 BKS IPC 20 01 16.6 02 39 \*E 01 29  
 MIN EPC 20 01 22.6  
 WDC EPC 20 01 32.1  
 FHC 20 01 \*E 01 52  
 MAG 6.6, NEVADA TEST SITE  
 USGS 20 00 00.2, 37.1N, 116.0W, H= 0 KM, M=5.7  
 NEVADA TEST SITE

FHC DEC 20 EPC 20 31 00.4  
 WDC EPC 20 31 02.7 \*E 31 31

MIN BKS EPC EPC 20 31 05.4 \*E 31 34  
 20 31 12.8 MICRON PERIOD  
 C.09 0.9

MHC EPC 20 31 16.2  
 SAC EP 20 31 17.6 \*E 31 42  
 JAS IPC 20 31 19.8  
 PRI EPC 20 31 23.1 \*E 31 50  
 PRI EPC 20 31 24.1  
 MNV EP 20 31 27.0  
 USGS 20 19 12.5, 24.7N, 141.5E, H= 96 KM, M=5.2  
 VOLCANO ISLANDS REGION

JAS DEC 20 EP 23 02 25.0  
 PRI EP 23 02 30.5  
 MNV EP 23 02 38.5  
 USGS 22 49 46.1, 10.7S, 162.1E, H= 33 KM, M=4.9  
 SLEMON ISLANDS

PRI DEC 20 EP 23 13 31.3  
 PRI EP 23 13 34.2  
 MHC EP 23 13 40  
 JAS EP 23 13 42.3  
 MNV EP 23 13 44.3  
 WDC EP 23 13 59.8  
 EASTER ISLANDS REGION

FHC DEC 21 EPC 11 03 07.7 \*PP 04 57  
 WDC IPC 11 03 13.2 10 33 \*PCP 04 03 \*PP 05 03 \*SP 05 48  
 S\*CS 12 09 P\*P\* 32 42 \*E 35 00

MIN IPC 11 03 17.9 10 40 \*FP 05 08 \*SP 06 06  
 BKS EPC 11 03 27.6 10 56 \*PP 05 16 \*E 08 43 \*E 09 49  
 S\*CS 12 18 \*SS 14 14 \*E 14 57  
 \*E 16 05 \*E 17 09 LO 18 18

MHC EPC 11 03 31.9 11 05 \*PP 05 23  
 JAS IPC 11 03 34.0 11 10 \*PCP 04 15 \*PP 05 24 \*E 06 17  
 P\*P\* 32 50 \*E 35 00

SAC EP 11 03 34.7  
 MNV IPC 11 03 40.2  
 PRI EPC 11 03 40.3  
 PRI EP 11 03 41.5 11 27 \*PP 05 31 \*E 32 47  
 USGS 10 24 17.7, 51.9N, 151.6E, H=554 KM, M=6.0  
 SEA OF OKHOTSK

MNV DEC 21 IPD 18 15 16.1  
 PRI EP 18 15 17.6  
 JAS EPD 18 15 23.8  
 MHC EP 18 15 27.2  
 BKS EPD 18 15 31.5  
 WDC EPD 18 15 41.2  
 FHC EP 18 15 50.7  
 USGS 18 05 40.6, 3.8S, 77.4W, H= 87 KM, M=5.3  
 PERU - ECUADOR BORDER REGION

MNV DEC 21 EP 22 31 31.8  
 PRI EP 22 31 32.0  
 PRI EPD 22 31 \*E 31 33  
 JAS EPD 22 31 37.0  
 MHC EP 22 31 35.2  
 MIN EP 22 31 \*E 31 46  
 WDC EPC 22 31 50.9  
 FHC EP 22 31 56.0  
 USGS 22 19 49.8, 23.3S, 66.4W, H=175 KM, M=4.9  
 JUJUY PROVINCE, ARGENTINA

PRI DEC 22 IPC 02 29 45.0  
 PRI IPD 02 29 50.0 30 00  
 SAC IPC 02 29 53.2  
 JAS EPD 02 30 02.2  
 BRK 02 25 36.1, 36.5N, 120.4W, H= 1 KM, M=2.6  
 COALINGA, CALIFORNIA

PRI DEC 22 IPC 03 33 47.7 34 10  
 PRI IPD 03 33 52.0 34 16  
 SAC EP 03 33 55.3  
 JAS EP 03 34 08.3 34 46  
 MNV EPC 03 34 20  
 MAG 3.7, FT. TEJCN AREA  
 USGS 03 33 19.8, 35.1N, 119.0W, H= 8 KM, M=4.0

SAC DEC 22 EP 05 07 28.4  
 BKS EPC 05 07 25.1  
 MHC EP 05 07 29.4  
 PRI EP 05 07 30.2  
 WDC EPC 05 07 32.6  
 JAS EPC 05 07 34.5  
 PRI EP 05 07 36.0  
 MNV EPC 05 07 43.2  
 USGS 04 55 14.8, 19.2S, 169.4E, H=234 KM, M=4.1  
 NEW HERRIDES ISLANDS

PRI DEC 22 EPKF 07 01 15.5  
 PRI EPKF 07 01 16.0  
 MNV EPKPC 07 01 16.6  
 SAC EPKF 07 01 17.0  
 JAS EPKPC 07 01 17.9  
 MHC EPKF 07 01 18.7  
 BKS EPKFC 07 01 19.5  
 MICRON PERIOD  
 F2 C.11 0.7

MIN EPKFC 07 01 22.7  
 WDC EPKF 07 01 22.2  
 FHC EPKF 07 01 26.3  
 USGS 06 42 30.5, 57.9S, 25.7W, H=103 KM, M=5.4  
 SOUTH SANDWICH ISLANDS REGION

SAC DEC 23 EP 00 22 52.4  
 PRI EP 00 22 59.9  
 MHC EP 00 23 00.0  
 BKS EPC 00 23 00.2  
 PRI EP 00 23 05.1  
 JAS EPC 00 23 05.3  
 WDC EP 00 23 05.8  
 MIN EP 00 23 06.2  
 MNV IPC 00 23 14.9  
 USGS 00 42 08.2, 18.1S, 178.4W, H=622 KM, M=4.8  
 FIJI ISLANDS REGION

WDC DEC 23 EP 10 02 17.9  
 JAS EP 10 02 18.7  
 PRI EP 10 02 18.9  
 MIN EP 10 02 20.0  
 MNV EP 10 02 27.2  
 USGS 09 46 27.2, 21.0S, 162.5E, H= 33 KM, M=4.2  
 LOYALTY ISLANDS

PRI DEC 24 EPKF 05 43 35.0 \*E 44 31  
 MNV EPKF 05 43 35.5 \*E 44 31  
 JAS EPKF 05 43 37.2 \*E 44 33  
 BKS EPKF 05 43 40 \*E 44 35  
 WDC EPKF 05 43 42.2 \*E 44 38  
 USGS 05 24 49.8, 22.9S, 25.7W, H=107 KM, M= .  
 SOUTH SANDWICH ISLANDS REGION

WDC DEC 24 EP 09 43 54.6  
 MIN EP 09 43 57.4  
 JAS EP 09 44 09.4  
 PRI EP 09 44 13.8  
 PRI EP 09 44 22.2  
 USGS 09 33 56.9, 66.1N, 16.7W, H= 33 KM, M=4.6  
 ICELAND REGION

FHC DEC 24 EP 15 10 04.0  
 BKS EPD 15 10 06.5  
 MICRON PERIOD  
 P2 0.27 \*E 35 00  
 1.8

MHC EP 15 10 07.0  
 WDC EP 15 10 09.0  
 PRI EP 15 10 09.4  
 MIN EP 15 10 11.2



WDC 03 14 20  
 \*E 57 46  
 MAG 6.3, CIST(CEG) 103  
 LSGS 03 39 43.0, 56.85, 68.5W, H= 14 KM, M=6.1  
 DRAKE PASSAGE

WDC DEC 29 EP 10 25 17.1  
 JAS EP 10 25 26.0  
 LSGS 10 45 11.4, 66.0N, 16.9W, H= 14 KM, M=4.7  
 ICELAND REGION

SAD DEC 29 2PC 18 07 37.7  
 MFC IPD 18 07 48.2  
 PRI IPD 18 07 47.5  
 FRI IPC 18 07 52.7  
 JAS IPD 18 07 54.8  
 BKS 2PD 18 07 56.0  
 08 14  
 ERK 18 07 32.3, 36.8N, 121.1E, H= 9 KM, ML=3.8  
 EAST OF HOLLISTER, CALIFORNIA

MNV DEC 29 E(F) 18 21 07.5  
 JAS EP 18 21 12.0  
 MIN 18 21  
 WDC 18 21  
 \*E 21 30  
 \*E 21 38  
 LSGS 18 12 35.8, 1.7N, 101.0W, H= 33 KM, M=4.8  
 EAST CENTRAL PACIFIC OCEAN

PRI DEC 29 21 35  
 \*E 35 31  
 JAS EP 21 35 27.4  
 WDC EP 21 35 25.2  
 MNV EP 21 35 27.8  
 LSGS 21 24 01.3, 16.0S, 172.7W, H= 35 KM, M=4.9  
 SAMOA ISLANDS REGION

FRI DEC 29 EP 21 42 45.2  
 JAS EP 21 42 50.0  
 WDC EP 21 42 52.4  
 MNV EP 21 42 55.0  
 LSGS 21 34 22.4, 16.6S, 172.4W, H= 33 KM, M=4.6  
 SAMOA ISLANDS REGION

BKS DEC 29 EP 21 26 27.5  
 PRI EP 21 26 31.7  
 MFC EP 21 26 32.0  
 FRI EP 21 26 37.2  
 JAS EP 21 26 38.8  
 WDC EP 21 26 40.4  
 MNV EP 21 26 42.2  
 LSGS 21 45 11.3, 16.2S, 172.6W, H= 33 KM, M=4.8  
 SAMOA ISLANDS REGION

PRI DEC 30 EP 02 40 53.2  
 BKS EPC 02 40 54.0  
 FZ 0.04  
 PERIOD 1.0  
 MFC EP 02 40 54.1  
 PRI EP 02 40 59.4  
 JAS EPC 02 41 00.2  
 WDC EPC 02 41 02.6  
 MIN EP 02 41 04.3  
 LSGS 02 29 40.9, 15.7S, 172.5W, H= 69 KM, M=5.2  
 SAMOA ISLANDS REGION

WDC DEC 30 EP 04 22 05.5  
 MIN EP 04 22 05.0  
 JAS EP 04 22 22.8  
 FRI EP 04 22 28.4  
 LSGS 04 11 23.1, 42.0N, 133.7E, H=451 KM, M=4.6  
 NEAR EAST COAST OF EASTERN USSR

WDC DEC 31 EPD 07 27 09.8  
 JAS EPD 07 27 10.5  
 FRI EP 07 27 10.6  
 MNV EFD 07 27 19.3

WDC DEC 31 EP 14 23 29.8  
 MIN EP 14 23 34.0  
 JAS EP \*E 23 54  
 PRI EP \*E 24 07  
 FRI EP 14 23 53.8  
 14 23  
 \*E 24 13  
 \*E 24 14  
 MNV EP 14 23 54.0  
 LSGS 14 12 35.9, 41.6N, 142.0E, H= 71 KM, M=5.4  
 HOKKAIDO, JAPAN REGION

FHC JAN 01 E(P) 00 07 34.8  
 WDC EP 00 07 39.2  
 MIN EP 00 07 42.7  
 BKS EP 00 07 48.0  
 FZ 0.11  
 PERIOD 0.9  
 MFC EP 00 07 47.7  
 SAC EP 00 07 48.7  
 JAS EP 00 07 51.2  
 PRI EP 00 07 53.2  
 FRI EP 00 07 55.8  
 LSGS 23 26 28.5, 18.7N, 148.1E, H=580 KM, M=5.0  
 MARIANA ISLANDS