GEOLOGICAL SURVEY CIRCULAR 836–C

Earthquakes in the United States, July–September 1979

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By J. H. Minsch, C. W. Stover, W. J. Person, and P. K. Smith

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INTRODUCTION

The earthquake information in this publication supplements that published in the NEIS (National Earthquake Information Service) publications, PDE ("Preliminary Determination of Epicenters") and "Preliminary Determination of Epicenters Monthly Listing," by providing detailed felt and intensity data, for U.S. earthquakes. The purpose of this circular is to provide a complete listing of macroseismic effects of earthquakes, which can be used in risk studies, nuclear power plant site evaluations, seismicity studies, and to answer inquiries by the public.

This publication contains two major sections. The first part (table 1), which is mainly concerned with data obtained by seismographs, is a tabular listing of earthquakes in chronological order by State, consisting of the following basic information: date, origin time, hypocenter, magnitude, maximum intensity, and computational source of the hypocenter. The second section, which concerns intensity information, consists of two maps and table 2. This section also contains information on events which were felt but were not listed in the PDE because there was not enough instrumental data to obtain a solution. The list of earthquakes in table 1 was compiled from those located in the United States or nearby offshore areas that were published in the PDE; from aftershock studies carried out by the USGS (U.S. Geological Survey) and other organizations; from hypocenters in California above magnitude 3.0, supplied by the California Institute of Technology, Pasadena, the University of California, Berkeley, and other offices of the USGS; from hypocenters in Hawaii supplied by the Hawaiian Volcano Observatory; and from other institutions as listed in the acknowledgments. Known or suspected explosions are also listed in table 1 and table 2.

The intensities and macroseismic data were compiled from information obtained from postal questionnaires, from newspaper articles, and from other Government agencies, State institutions, local organizations, and individuals. (See "Acknowledgments" for a list of collaborators.) Figure 1 is the questionnaire in use by the NEIS. Other types of questionnaires are used by State agencies, engineering firms, and other Government agencies to collect intensity data. Anyone wishing to submit felt or damage information on earthquakes for inclusion in future reports should send it to the National Earthquake Information Service, Stop 967, Box 25046, Denver Federal Center, Denver, CO 80225. Copies of the current "Earthquake Report" questionnaire can be obtained at this address.

The NEIS uses the postal questionnaire as the primary source of macroseismic data to carry out an intensity survey; however, on-site field investigations are made following earthquakes that do significant damage. The "Earthquake Report" forms are mailed to postmasters within the area affected by the earthquake. The completed forms are returned to the NEIS, where they are evaluated and intensity values are assigned to individual locations. In the case of large or significant earthquakes the intensity observations are plotted and isoseismal maps are prepared. It should be pointed out that the isoseismals represent a general intensity level and that they do not necessarily agree with every individual observation.

U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

EARTHQUAKE REPORT

Form Approved
OMB No. 42-R1700

Please answer this questionnaire and return as soon as possible

1. Was an earthquake felt by anyone in your town near the date and time indicated on the opposite page?
   ☐ No: Please refold and tape for return mail.
   ☐ Yes: Date_____ Time_____ ☐ AM ☐ PM ☐ Standard time ☐ Daylight time

Name of person filling out form _____

Address_____

City_____ County_____

State_____ Zip code_____

If you felt the earthquake, complete the following section. If others felt the earthquake but you did not, skip the personal report and complete the community report.

PERSONAL REPORT

2. Did you personally feel the earthquake? 1☐ Yes ☐ No
   Were you awakened by the earthquake? 2☐ Yes ☐ No
   Were you frightened by the earthquake? 3☐ Yes ☐ No
   Were you at 4☐ Home 5☐ Work 6☐ Other? _____
   Town and zip code of your location at time of earthquake _____
   Check your activity when the earthquake occurred:
   7☐ Walking 8☐ Sleeping 9☐ Lying down 10☐ Standing
   11☐ Driving (car in motion) 12☐ Sitting 13☐ Other_____
   Were you 14☐ Inside or 15☐ Outside?
   If inside, on what floor were you? 16 _____
   Did you have difficulty in standing or walking 17☐ Yes 18☐ No
   Vibration could be described as 19☐ Light 20☐ Moderate 21☐ Strong
   Was there earth noise? ☐ No 22☐ Faint 23☐ Moderate 24☐ Loud
   Direction of noise ☐ North ☐ South ☐ East ☐ West
   Estimated duration of shaking 25☐ Sudden, sharp (less than 10 secs) 26☐ Long (30-60 secs) 27☐ Short (10-30 secs)

Continue on to next section which should include personal as well as reported observations.

COMMUNITY REPORT

Town and zip code_____
DO NOT INCLUDE EFFECTS FROM OTHER COMMUNITIES/TOWNS
Check one box for each question that is applicable.

3a. The earthquake was felt by	☐ No one	28☐ Few	29☐ Several	30☐ Many	31☐ All?
b. This earthquake awakened	☐ No one	32☐ Few	33☐ Several	34☐ Many	35☐ All?
c. This earthquake frightened	☐ No one	36☐ Few	37☐ Several	38☐ Many	39☐ All?

4. What indoor physical effects were noted in your community?

Windows, doors, dishes rattled	40☐ Yes	☐ No		
Walls creaked	41☐ Yes	☐ No		
Building trembled (shook)	42☐ Slightly	43☐ Strongly		
Hanging pictures (more than one)	44☐ Swung	45☐ Out of place	46☐ Fallen	
Windows	47☐ Few cracked	48☐ Some broken out	49☐ Many broken out	
Small objects overturned	50☐ Few	51☐ Many		
Small objects fallen	52☐ Few	53☐ Many		
Glassware/dishes broken	54☐ Few	55☐ Many		
Light furniture or small appliances	56☐ Overturned	57☐ Damaged seriously		
Heavy furniture or appliances	58☐ Overturned	59☐ Damaged seriously		
Did hanging objects or doors swing?	60☐ Slightly	61☐ Moderately	62☐ Violently	
Can you estimate direction?	☐ North/South	☐ East/West	☐ Other_____	
Items thrown from store shelves	63☐ Few	64☐ Many		

Continued on the reverse side

FIGURE 1.--Example of the "Earthquake Report" form used for evaluating the intensities of earthquakes. A, front side.

5. Indicate effects of the following types to interior walls if any:

Plaster/stucco	65☐ Hairline cracks	66☐ Large cracks (many)	67☐ Fell in large amounts
Dry wall	68☐ Hairline cracks	69☐ Large cracks (many)	70☐ Fell in large amounts

6. What outdoor physical effects were noted in your community?

Trees and bushes shaken	71☐ Slightly	72☐ Moderately	73☐ Strongly
Standing vehicles rocked	74☐ Slightly	75☐ Moderately	
Moving vehicles rocked	76☐ Slightly	77☐ Moderately	
Water splashed onto sides of lakes, ponds, swimming pools	78☐ Yes	☐ No	
Elevated water tanks	79☐ Cracked	80☐ Twisted	81☐ Fallen (thrown down)
Tombstones	82☐ Displaced	83☐ Cracked	84☐ Rotated
	85☐ Fallen		
Chimneys	86☐ Cracked	87☐ Twisted	88☐ Fallen
	89☐ Broken at roof line	90☐ Bricks fallen	
Railroad tracks bent	91☐ Slightly	92☐ Greatly	
Stone or brick fences /walls	93☐ Open cracks	94☐ Fallen	95☐ Destroyed
Underground pipes	96☐ Broken	97☐ Out of service	
Highways or streets	98☐ Large cracks	99☐ Large displacements	
Sidewalks	100☐ Large cracks	101☐ Large displacements	

7a. Check below any structural damage to buildings.

Foundation	102☐ Cracked		103☐ Destroyed	
Interior walls	104☐ Split	105☐ Fallen	106☐ Separated from ceiling or floor	
Exterior walls	107☐ Large Cracks		108☐ Bulged outward	
	109☐ Partial collapse		110☐ Total collapse	

b. What type of construction was the building that showed this damage?

111☐ Wood	112☐ Stone	113☐ Brick veneer	114☐ Other _____	
115☐ Brick	116☐ Cinderblock	117☐ Reinforced concrete	118☐ Mobile home	

c. What was the type of ground under the building?

☐ Don't know	119☐ Sandy soil	120☐ Marshy	121☐ Fill	
122☐ Hard rock	123☐ Clay soil	124☐ Sandstone, limestone, shale		

d. Was the ground: 125☐ Level 126☐ Sloping 127☐ Steep?

e. Check the approximate age of the building:

128☐ Built before 1935 129☐ Built 1935-65 130☐ Built after 1965

8. Check below any structural damage to

Bridges/Overpasses	131☐ Concrete	132☐ Wood	133☐ Steel	134☐ Other_____
Damage was	135☐ Slight	136☐ Moderate		137☐ Severe
Dams	138☐ Concrete	139☐ Large earthen		
Damage was	140☐ Slight	141☐ Moderate		142☐ Severe

9. What geologic effects were noted in your community?

Ground cracks	143☐ Wet ground	144☐ Steep slopes	145☐ Dry and level ground
Landslides	146☐ Small	147☐ Large	
Slumping	148☐ River bank	149☐ Road fill	150☐ Land fill
Were springs or well water disturbed?	151 Level changed		152☐ Flow disturbed
	153 Muddied		☐ Don't know
Were rivers or lakes changed?	154 Yes	☐ No	☐ Don't know

10a. What percentage of buildings were damaged?

Within 2 city blocks of your location	☐ None		155☐ Few (about 5%)
	156☐ Many(about 50%)		157☐ Most (about 75%)
b. In area covered by your zip code	☐ None		158☐ Few (about 5%)
	159☐ Many (about 50%)		160☐ Most (about 75%)

Thank you for your time and information. Refold this card and tape for return mail.

FIGURE 1.--Example of the "Earthquake Report" form used for evaluating the intensities of earthquakes. B, reverse side.

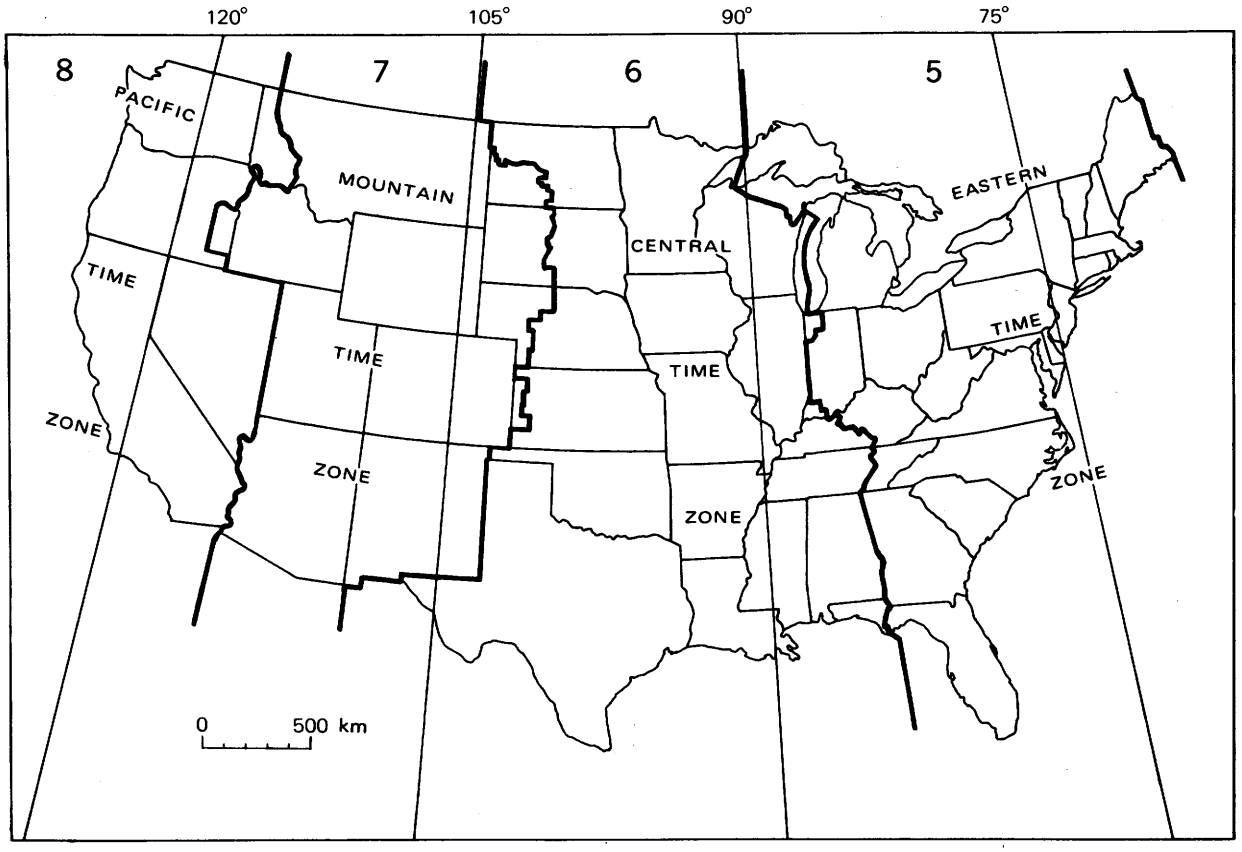

FIGURE 2.--Standard time zones of the conterminous United States. The number in each zone shows the number of hours to be subtracted from Universal Coordinated Time to convert to local standard time. (Subtract 1 hour less for local daylight-saving time.)

The data in table 2 will be included in the "Earthquake Description" section of the annual publication "United States Earthquakes," to which later data from other sources may be added. "United States Earthquakes" is published jointly by the U.S. Geological Survey, Department of the Interior, and the Environmental Data Service, National Oceanic and Atmospheric Administration, Department of Commerce.

DISCUSSION OF TABLES

The parameters for the earthquakes in table 1 and table 2 include the date, origin time, hypocenter (epicenter and focal depth), magnitude, intensity, and source of the computed solution. The origin time and date are listed in Universal Coordinated Time (UTC) and local standard time based on the time-zone maps in figures 2 and 3. The epicenters, which were taken from those published in the PDE, or from other sources as noted, are listed here to two decimals. The accuracy of the epicenters is not necessarily the accuracy indicated by the number of decimals listed. The epicenters located by the NEIS usually have an accuracy of two-tenths of a degree or less. In general, epicenters located offshore are less accurate than those on land, even though both are listed to two decimals. In regions covered by dense networks of seismographs such as California, epicenter accuracy is significantly better than two-tenths of a degree. Depths are listed to the nearest whole kilometer.

Figures 4-6 are maps summarizing the earthquake activity for the conterminous United States, Alaska, and Hawaii for the period July-September 1979. The magnitudes represented in these figures are based on ML or mbLg; if neither was computed, then on MS; and finally on mb, when it was the only magnitude computed.

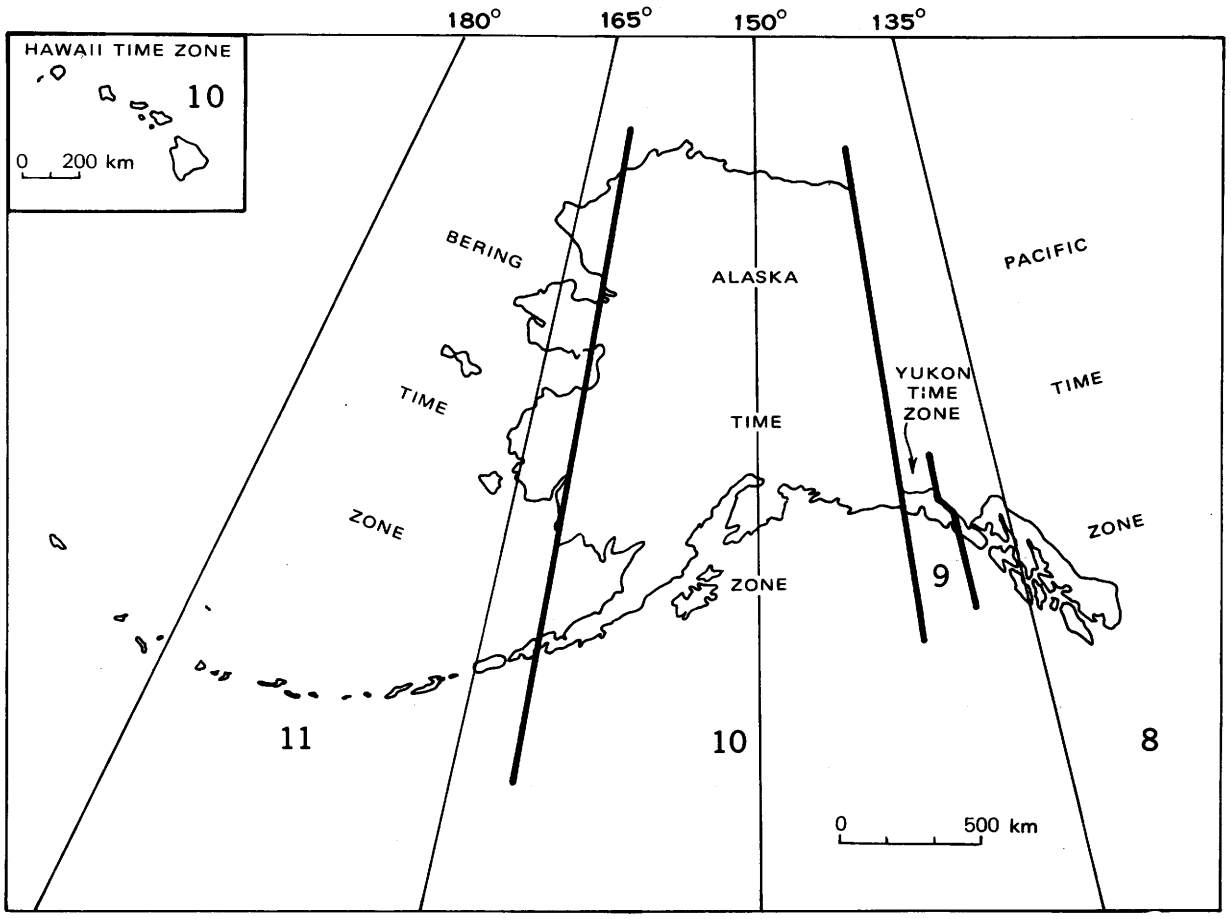

FIGURE 3.--Standard time zones of Alaska and Hawaii. The number in each zone shows the number of hours to be subtracted from Universal Coordinated Time to convert to local standard time. (Subtract 1 hour less for local daylight-saving time.)

The magnitude values listed in tables 1 and 2 were furnished by cooperating institutions or determined by NEIS. The computational sources are labeled according to the assigned letter codes shown in headnotes to tables 1 and 2; the letter follows the value listed under the column heading "Magnitude." In table 1, the absence of a letter code indicates that the source is NEIS. In table 2, the magnitude source is the same as the location source unless indicated otherwise by an alphabetic character to the right of the magnitude value. The magnitude values calculated by the NEIS are based on the following formulas:

$$MS=\log(A/T)+1.66\log D+3.3, \qquad (1)$$

as adopted by the International Association of Seismology and Physics of the Earth's Interior (IASPEI; Bath, 1966, p. 153), where A is the maximum vertical surface-wave ground amplitude, in micrometers; T is the period, in seconds, and $18 \leq T \leq 22$; and D is the distance, in geocentric degrees (station to epicenter), and $20° \leq D \leq 160°$. No depth correction is made for depths less than 50 km.

$$mb=\log(A/T)+Q(D,h), \qquad (2)$$

as defined by Gutenberg and Richter (1956), except that T, the period in seconds, is restricted to $0.1 \leq T \leq 3.0$, and A, the ground amplitude in micrometers, is not necessarily the maximum of the P-wave group. Q is a function of distance D and depth h, where $D \geq 5°$.

$$ML=\log A-\log A_o, \qquad (3)$$

as defined by Richter (1958, p. 340), where A is the maximum trace amplitude

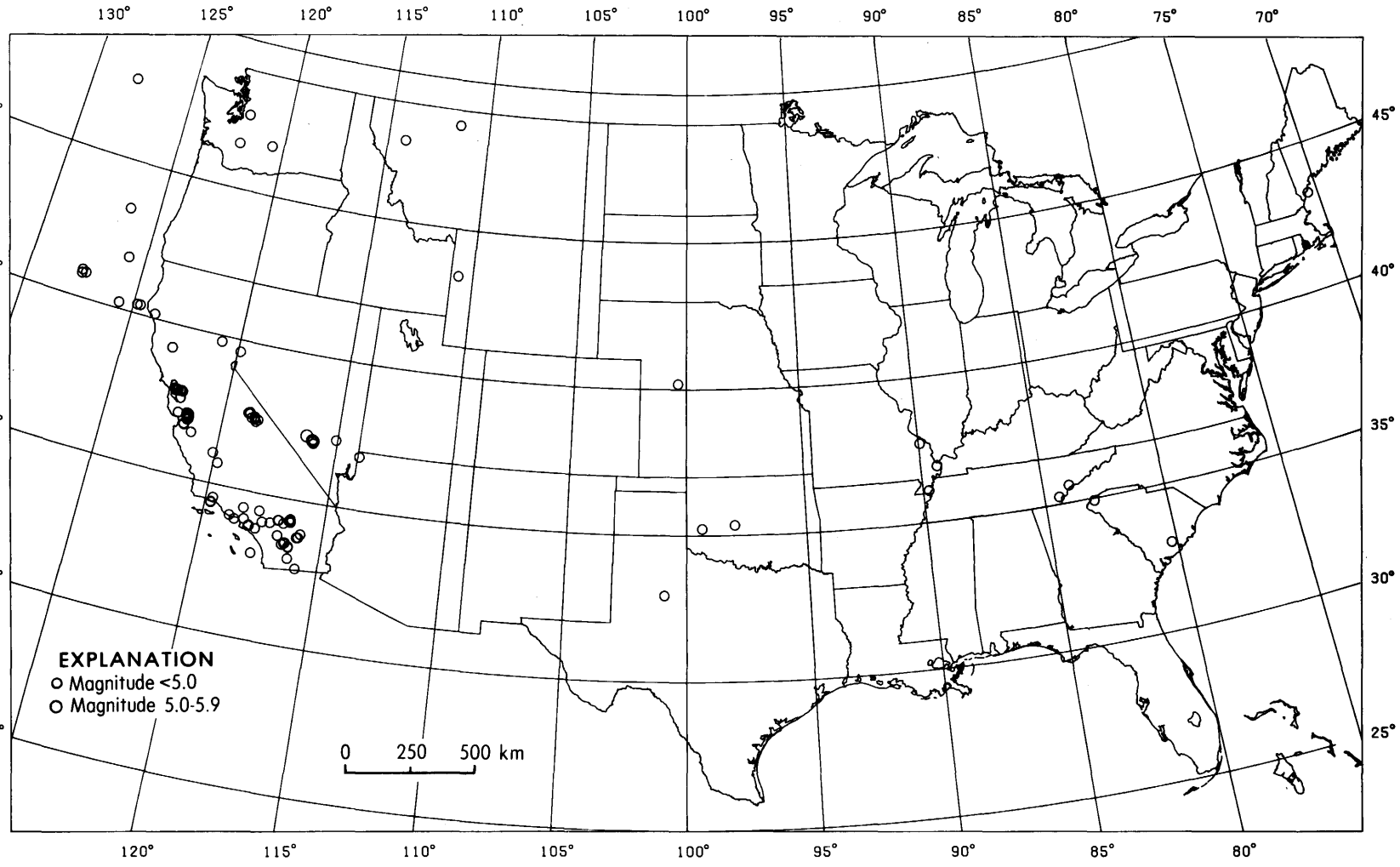

FIGURE 4.--Earthquake epicenters in the conterminous United States for July-September 1979, plotted from table 1.

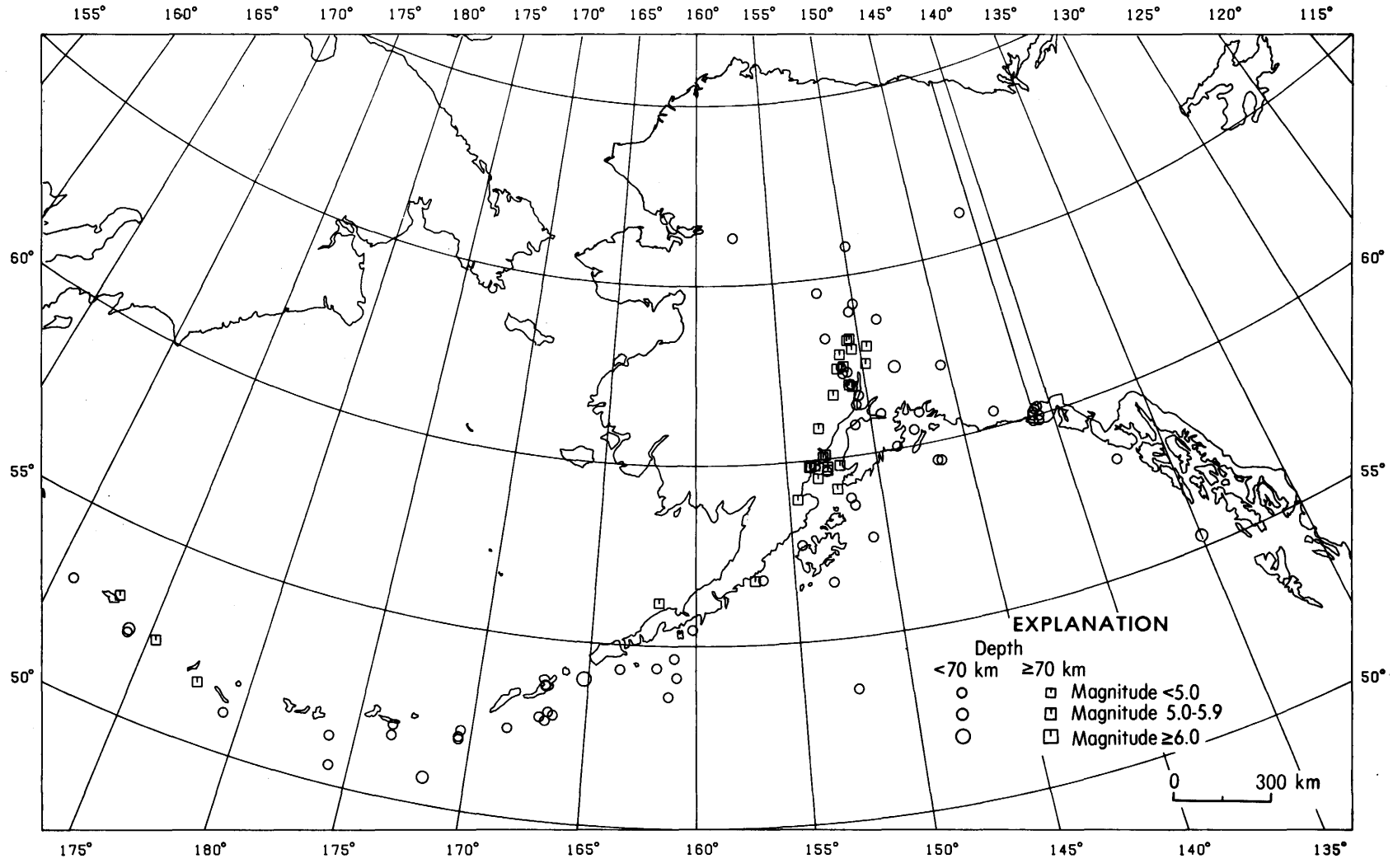

FIGURE 5.--Earthquake epicenters in Alaska for July-September 1979, plotted from table 1.

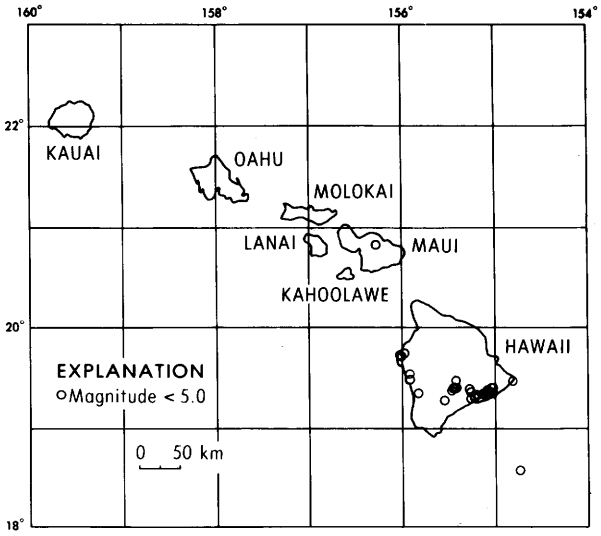

FIGURE 6.--Earthquake epicenters in Hawaii for July-September 1979, plotted from table 1.

in millimeters, written by a Wood-Anderson torsion seismometer, and log A_o is a standard value as a function of distance, where the distance is $\leq$600 km. ML values are also calculated from other seismometers by conversion of recorded ground motion to the expected response of the torsion seismometer.

$$mbLg=3.75+0.90(logD)+log(A/T) \quad (4)$$
$$0.5° \leq D \leq 4°,$$

$$mbLg=3.30+1.66(logD)+log(A/T)$$
$$4° \leq D \leq 30°,$$

as proposed by Nuttli (1973), where A/T is expressed in micrometers per second, calculated from the vertical-component 1-second Lg waves, and D is the distance in geocentric degrees.

All of the intensity values (indicated by Roman numerals) listed in this summary were determined, using the Modified Mercalli Intensity Scale of 1931 (Wood and Neumann, 1931) shown below, from the evaluation of "Earthquake Report" forms; from field reports by USGS personnel, engineering firms, or universities; and from detailed macroseismic data communicated to the NEIS by people in the area affected by the earthquake. All earthquake reports received which contain minimal or sketchy information are listed only as "FELT." This does not imply that the earthquake was felt at a low intensity level, but indicates that the available data is not sufficient for assigning a valid intensity value. These reports are filed in the offices of the NEIS or in government archives and are available for detailed study.

MODIFIED MERCALLI INTENSITY SCALE OF 1931

Adapted from Sieberg's Mercalli-Cancani scale, modified and condensed.

I. Not felt - or, except rarely under especially favorable circumstances. Under certain conditions, at and outside the boundary of the area in which a great shock is felt: sometimes birds, animals, reported uneasy or disturbed; sometimes dizziness or nausea experienced; sometimes trees, structures, liquids, bodies of water, may sway--doors may swing, very slowly.

II. Felt indoors by few, especially on upper floors, or by sensitive, or nervous persons. Also, as in grade I, but often more noticeably: sometimes hanging objects may swing, especially when delicately suspended; sometimes trees, structures, liquids, bodies of water, may sway, doors may swing, very slowly; sometimes birds, animals, reported uneasy or disturbed; sometimes dizziness or nausea experienced.

III. Felt indoors by several, motion usually rapid vibration. Sometimes not recognized to be an earthquake at first. Duration estimated in some cases. Vibration like that due to passing of light, or lightly loaded trucks, or heavy trucks some distance away. Hanging objects may swing slightly. Movements may be appreciable on upper levels of tall structures. Rocked standing motor cars slightly.

IV. Felt indoors by many, outdoors by few. Awakened few, especially light sleepers. Frightened no one, unless apprehensive from previous experience. Vibration like that due to passing of heavy or heavily loaded trucks. Sensation like heavy body striking building or falling of heavy objects inside. Rattling of dishes, windows, doors; glassware and crockery clink and clash.

Creaking of walls, frame, especially in the upper range of this grade. Hanging objects swung, in numerous instances. Disturbed liquids in open vessels slightly. Rocked standing motor cars noticeably.

V. Felt indoors by practically all, outdoors by many or most: outdoors direction estimated. Awakened many, or most. Frightened few--slight excitement, a few ran outdoors. Buildings trembled throughout. Broke dishes, glassware, to some extent. Cracked windows--in some cases, but not generally. Overturned vases, small or unstable objects, in many instances, with occasional fall. Hanging objects, doors, swing generally or considerably. Knocked pictures against walls, or swung them out of place. Opened, or closed, doors, shutters, abruptly. Pendulum clocks stopped, started or ran fast, or slow. Moved small objects, furnishings, the latter to slight extent. Spilled liquids in small amounts from well-filled open containers. Trees, bushes, shaken slightly.

VI. Felt by all, indoors and outdoors. Frightened many, excitement general, some alarm, many ran outdoors. Awakened all. Persons made to move unsteadily. Trees, bushes, shaken slightly to moderately. Liquid set in strong motion. Small bells rang--church, chapel, school, etc. Damage slight in poorly built buildings. Fall of plaster in small amount. Cracked plaster somewhat, especially fine cracks chimneys in some instances. Broke dishes, glassware, in considerable quantity, also some windows. Fall of knick-knacks, books, pictures. Overturned furniture in many instances. Moved furnishings of moderately heavy kind.

VII. Frightened all--general alarm, all ran outdoors. Some, or many, found it difficult to stand. Noticed by persons driving motor cars. Trees and bushes shaken moderately to strongly. Waves on ponds, lakes, and running water. Water turbid from mud stirred up. Incaving to some extent of sand or gravel stream banks. Rang large church bells, etc. Suspended objects made to quiver. Damage negligible in buildings of good design and construction, slight to moderate in well-built ordinary buildings, considerable in poorly built or badly designed buildings, adobe houses, old walls (especially where laid up without mortar), spires, etc. Cracked chimneys to considerable extent, walls to some extent. Fall of plaster in considerable to large amount, also some stucco. Broke numerous windows, furniture to some extent. Shook down loosened brickwork and tiles. Broke weak chimneys at the roof-line (sometimes damaging roofs). Fall of cornices from towers and high buildings. Dislodged bricks and stones. Overturned heavy furniture, with damage from breaking. Damage considerable to concrete irrigation ditches.

VIII. Fright general--alarm approaches panic. Disturbed persons driving motor cars. Trees shaken strongly--branches, trunks, broken off, especially palm trees. Ejected sand and mud in small amounts. Changes: temporary, permanent; in flow of springs and wells; dry wells renewed flow; in temperature of spring and well waters. Damage slight in structures (brick) built especially to withstand earthquakes. Considerable in ordinary substantial buildings, partial collapse: racked, tumbled down, wooden houses in some cases; threw out panel walls in frame structures, broke off decayed piling. Fall of walls. Cracked, broke, solid stone walls seriously. Wet ground to some extent, also ground on steep slopes. Twisting, fall, of chimneys, columns, monuments, also factory stacks, towers. Moved conspicuously, overturned, very heavy furniture.

IX. Panic general. Cracked ground conspicuously. Damage considerable in (masonry) structures built especially to withstand earthquakes: Threw out of plumb some wood-frame houses built especially to withstand earthquakes; great in substantial (masonry) buildings, some collapse in large part; or wholly shifted frame buildings off foundations, racked frames; serious to reservoirs; underground pipes sometimes broken.

X. Cracked ground, especially when loose and wet, up to widths of several inches; fissures up to a yard in width ran parallel to canal and stream banks. Landslides considerable from river banks and steep coasts. Shifted sand and mud horizontally on beaches and flat land. Changed level of water in wells. Threw water on banks of canals, lakes, rivers, etc. Damage serious to dams, dikes, embankments. Severe to well-built wooden structures and bridges, some destroyed. Developed dangerous cracks in excellent brick walls. Destroyed most masonry and frame structures, also their foundations. Bent railroad rails slightly. Tore apart, or crushed endwise, pipe lines buried in earth. Open cracks and broad wavy folds in cement pavements and asphalt road surfaces.

XI. Disturbances in ground many and widespread, varying with ground material. Broad fissures, earth slumps, and land slips in soft, wet ground. Ejected water in large amounts charged with sand and mud. Caused sea-waves ("tidal" waves) of significant magnitude. Damage severe to wood-frame structures, especially near shock centers. Great to dams, dikes, embankments often for long distances. Few, if any (masonry) structures remained standing. Destroyed large well-built bridges by the wrecking of supporting piers, or pillars. Affected yielding wooden bridges less. Bent railroad rails greatly, and thrust them endwise. Put pipe lines buried in earth completely out of service.

XII. Damage total--practically all works of construction damaged greatly or destroyed. Disturbances in ground great and varied, numerous shearing cracks. Landslides, falls of rock of significant character, slumping of river banks, etc., numerous and extensive. Wrenched loose, tore off, large rock masses. Fault slips in firm rock, with notable horizontal and vertical offset displacements. Water channels, surface and underground, disturbed and modified greatly. Dammed lakes, produced waterfalls, deflected rivers, etc. Waves seen on ground surfaces (actually seen, probably, in some cases). Distorted lines of sight and level. Threw objects upward into the air.

Table 1.—*Summary of U.S. earthquakes for July-September 1979*

[Sources of the hypocenters, magnitudes, and macroseismic data: (B) University of California, Berkeley; (E) U.S. Department of Energy, Las Vegas, Nevada; (G) U.S. Geological Survey, National Earthquake Information Service; (H) U.S. Geological Survey, Hawaiian Volcano Observatory; (J) Weston Observatory, Massachusetts; (M) National Oceanic and Atmospheric Administration, Alaska Tsunami Warning Center, Palmer; (O) Earth Physics Branch, Seismological Service of Canada, Ottawa; (P) California Institute of Technology, Pasadena; (S) St. Louis University, St. Louis, Missouri; (T) University of Oklahoma, Leonard; (V) Virginia Polytechnic Institute and State University, Blacksburg; (W) University of Washington, Seattle; (Z) Bollinger and Mathena, 1980. Dates and origin times are listed in Universal Coordinated Time (UTC) giving the hour, minute, and second. Epicenters are shown in decimal degrees. Only earthquakes with intensity data and explosions are listed]

Date (1979)	Origin time (UTC) hr	min	s	Lat	Long	Depth (km)	Magnitude mb	MS	ML or mbLg	Maximum intensity	Hypocenter source	Local time Date	Hour
ALASKA													
JULY 2	06	47	33.6	61.99 N.	150.87 W.	22	...	...	3.0M	...	G	JULY 1	08 P.M. AST
JULY 2	18	20	20.0	59.87 N.	141.16 W.	15	...	...	3.7M	...	G	JULY 2	08 A.M. AST
JULY 3	11	38	31.9	61.39 N.	150.73 W.	49	...	...	...	...	G	JULY 3	01 A.M. AST
JULY 3	13	45	55.1	64.19 N.	150.00 W.	33N	...	...	3.0M	...	G	JULY 3	03 A.M. AST
JULY 4	00	15	39.5	60.23 N.	140.76 W.	15	3.1	...	3.9M	...	G	JULY 3	03 P.M. YST
JULY 4	08	15	37.0	59.83 N.	153.65 W.	153	4.4	...	...	...	G	JULY 3	10 P.M. AST
JULY 4	13	04	20.2	63.98 N.	150.33 W.	33N	...	...	2.9M	...	G	JULY 4	03 A.M. AST
JULY 4	18	57	34.3	52.84 N.	167.12 W.	33N	4.7	5.1	4.7M	...	G	JULY 4	07 A.M. BST
JULY 5	07	48	49.7	52.76 N.	166.85 W.	21	4.9	...	...	...	G	JULY 4	08 P.M. BST
JULY 8	02	37	58.9	52.30 N.	175.34 E.	90	4.2	...	...	...	G	JULY 7	03 P.M. BST
JULY 8	03	58	18.9	59.14 N.	152.36 W.	135	...	...	...	...	G	JULY 7	05 P.M. AST
JULY 9	01	23	49.1	66.03 N.	141.81 W.	33N	4.6	...	3.7M	...	G	JULY 8	03 P.M. AST

Table 1.–*Summary of U.S. earthquakes for July-September 1979*–Continued

Date (1979)	Origin time (UTC) hr	min	s	Lat	Long	Depth (km)	Magnitude mb	MS	ML or mbLg	Maximum intensity	Hypocenter source	Local time Date	Hour
ALASKA--Continued													
JULY 10	04	04	20.5	63.20 N.	150.72 W.	130	4.9	...	...	II	G	JULY 9	06 P.M. AST
JULY 10	17	48	52.0	60.90 N.	147.22 W.	33N	...	...	3.2M	...	G	JULY 10	07 A.M. AST
JULY 11	12	28	2.9	55.32 N.	134.97 W.	10	5.1	5.1	5.8M	IV	G	JULY 11	04 A.M. PST
JULY 13	12	56	27.3	56.19 N.	161.83 W.	230	4.1	...	...	...	G	JULY 13	01 A.M. BST
JULY 13	17	35	5.6	62.32 N.	150.94 W.	33N	...	...	3.0M	...	G	JULY 13	07 A.M. AST
JULY 14	00	48	25.7	65.80 N.	149.92 W.	33N	...	...	2.7M	...	G	JULY 13	02 P.M. AST
JULY 14	08	33	14.5	53.71 N.	166.96 W.	33N	3.8	...	...	...	G	JULY 13	09 P.M. BST
JULY 14	19	12	38.9	62.49 N.	151.13 W.	114	...	...	...	...	G	JULY 14	09 A.M. AST
JULY 15	05	46	47.8	61.05 N.	149.39 W.	33N	...	...	3.0M	...	G	JULY 14	07 P.M. AST
JULY 15	05	50	21.1	51.93 N.	170.55 W.	39	5.4	4.6	...	...	G	JULY 14	06 P.M. BST
JULY 16	06	00	56.4	63.24 N.	150.54 W.	145	...	...	...	...	G	JULY 15	08 P.M. AST
JULY 16	23	45	58.5	60.86 N.	153.02 W.	141	4.6	...	...	FELT	G	JULY 16	01 P.M. AST
JULY 17	18	01	46.8	51.63 N.	177.73 E.	89	4.3	...	...	...	G	JULY 17	07 A.M. BST
JULY 17	20	44	29.5	62.27 N.	148.14 W.	58	5.3	...	...	IV	G	JULY 17	10 A.M. AST
JULY 18	12	39	25.0	56.78 N.	156.62 W.	57	4.8	...	...	...	G	JULY 18	02 A.M. AST
JULY 18	19	41	45.5	56.78 N.	157.00 W.	80	4.7	...	...	...	G	JULY 18	09 A.M. AST
JULY 21	10	29	30.3	60.18 N.	140.93 W.	15	3.3	...	3.2M	...	G	JULY 21	01 A.M. YST
JULY 22	23	09	41.7	52.93 N.	166.51 W.	33N	...	...	4.1M	...	G	JULY 22	12 P.M. BST
JULY 23	08	38	13.0	58.63 N.	151.51 W.	33N	4.4	...	4.6M	II	G	JULY 22	10 P.M. AST
JULY 23	09	07	7.7	61.64 N.	150.51 W.	49	...	...	2.9M	II	G	JULY 22	11 P.M. AST
JULY 24	22	23	24.8	54.13 N.	160.89 W.	33N	4.9	5.5	4.1M	...	G	JULY 24	12 P.M. AST
JULY 25	04	04	33.2	60.06 N.	148.78 W.	33N	3.2	...	3.6M	...	G	JULY 24	06 P.M. AST
JULY 26	17	49	11.3	50.74 N.	171.79 W.	33N	5.0	...	...	...	G	JULY 26	06 A.M. BST
JULY 27	08	54	56.5	60.43 N.	143.15 W.	33N	...	...	4.0M	...	G	JULY 26	10 P.M. AST
JULY 28	03	24	4.7	59.82 N.	153.75 W.	161	...	...	...	...	G	JULY 27	05 P.M. AST
JULY 28	07	46	33.0	59.78 N.	152.05 W.	113	...	...	...	...	G	JULY 27	09 P.M. AST
JULY 29	09	52	31.4	51.99 N.	173.51 W.	44	4.8	...	3.5G	...	G	JULY 28	10 P.M. BST
JULY 29	17	03	46.8	64.61 N.	152.21 W.	33N	...	...	3.6M	...	G	JULY 29	07 A.M. AST
JULY 30	02	24	4.6	62.04 N.	145.44 W.	14	...	...	3.5M	II	G	JULY 29	04 P.M. AST
JULY 30	05	11	49.4	50.52 N.	175.84 W.	33N	4.9	...	...	...	G	JULY 29	06 P.M. BST
JULY 30	17	13	31.8	59.85 N.	140.83 W.	15	...	...	...	...	G	JULY 30	08 A.M. YST
JULY 31	02	04	54.9	51.09 N.	179.20 E.	33N	4.4	...	...	...	G	JULY 30	03 P.M. BST
JULY 31	09	27	28.1	59.64 N.	152.80 W.	33N	3.4	...	3.2M	...	G	JULY 30	11 P.M. AST
JULY 31	11	26	54.5	66.32 N.	157.49 W.	33N	...	...	...	...	G	JULY 31	01 A.M. AST
AUG. 3	00	19	40.7	62.30 N.	151.24 W.	33N	...	...	3.0M	...	G	AUG. 2	02 P.M. AST
AUG. 4	20	02	55.3	59.83 N.	153.40 W.	144	...	...	...	...	G	AUG. 4	10 A.M. AST
AUG. 4	20	12	10.6	62.49 N.	149.77 W.	99	4.1	...	...	III	G	AUG. 4	10 A.M. AST
AUG. 5	16	15	42.9	56.57 N.	153.06 W.	33N	4.1	...	...	...	G	AUG. 5	06 A.M. AST
AUG. 7	02	12	34.8	58.94 N.	154.53 W.	157	...	...	...	...	G	AUG. 6	04 P.M. AST
AUG. 7	18	15	9.5	51.32 N.	176.11 W.	33N	4.6	...	4.0M	III	G	AUG. 7	07 A.M. BST
AUG. 8	10	56	42.5	61.73 N.	151.95 W.	117	4.0	...	...	...	G	AUG. 8	00 A.M. AST
AUG. 10	00	02	25.4	61.97 N.	150.94 W.	81	4.3	...	...	III	G	AUG. 9	02 P.M. AST
AUG. 10	03	32	16.7	52.18 N.	170.49 W.	33N	4.5	4.1	...	...	G	AUG. 9	04 P.M. BST
AUG. 10	07	25	10.0	52.00 N.	170.57 W.	33N	5.0	4.8	...	...	G	AUG. 9	08 P.M. BST
AUG. 11	20	08	12.4	59.98 N.	140.75 W.	15	3.6	...	3.5M	...	G	AUG. 11	11 A.M. YST
AUG. 12	00	54	31.6	60.12 N.	152.78 W.	128	...	...	...	...	G	AUG. 11	02 P.M. AST
AUG. 13	10	58	28.1	58.13 N.	137.52 W.	15	4.0	...	4.3M	...	G	AUG. 13	02 A.M. PST
AUG. 14	19	26	10.5	63.66 N.	148.71 W.	17	...	...	3.5M	...	G	AUG. 14	09 A.M. AST
AUG. 15	00	25	59.9	57.69 N.	150.82 W.	33N	...	...	3.6M	...	G	AUG. 14	02 P.M. AST
AUG. 15	05	50	29.9	62.48 N.	151.26 W.	33N	...	...	3.1M	...	G	AUG. 14	07 P.M. AST
AUG. 15	07	17	26.2	54.32 N.	163.56 W.	33N	4.0	...	3.8M	...	G	AUG. 14	08 P.M. BST
AUG. 15	16	48	34.6	59.47 N.	153.31 W.	142	...	...	...	...	G	AUG. 15	06 A.M. AST
AUG. 15	18	30	56.5	59.69 N.	152.75 W.	129	...	...	...	...	G	AUG. 15	08 A.M. AST
AUG. 16	01	51	34.8	53.59 N.	152.46 W.	33N	...	...	3.9M	...	G	AUG. 15	03 P.M. AST
AUG. 16	20	29	28.6	62.97 N.	149.54 W.	108	...	...	...	...	G	AUG. 16	10 A.M. AST
AUG. 19	10	01	29.3	63.33 N.	152.00 W.	33N	4.0	...	4.9M	...	G	AUG. 19	00 A.M. AST
AUG. 21	11	13	29.2	51.70 N.	173.49 W.	44	3.6	...	...	...	G	AUG. 21	00 A.M. BST
AUG. 22	09	33	9.2	59.78 N.	152.73 W.	101	...	...	...	...	G	AUG. 21	11 P.M. AST
AUG. 22	22	13	38.9	58.84 N.	151.68 W.	33N	4.6	...	4.5M	...	G	AUG. 22	12 P.M. AST
AUG. 25	08	22	59.2	60.12 N.	141.02 W.	15	...	...	3.6M	...	G	AUG. 24	10 P.M. AST
AUG. 25	11	21	48.6	60.44 N.	147.67 W.	33N	...	...	3.7M	...	G	AUG. 25	01 A.M. AST
AUG. 25	20	36	19.2	53.60 N.	161.31 W.	33N	4.8	...	4.1M	...	G	AUG. 25	09 A.M. BST
AUG. 28	17	06	9.6	60.85 N.	150.91 W.	33N	...	...	3.3M	...	G	AUG. 28	07 A.M. AST

Table 1.—*Summary of U.S. earthquakes for July-September 1979*—Continued

Date (1979)	Origin time (UTC) hr	min	s	Lat	Long	Depth (km)	Magnitude mb	MS	ML or mbLg	Maximum intensity	Hypocenter source	Local time Date	Hour
ALASKA--Continued													
AUG. 29	19	38	11.4	61.91 N.	150.80 W.	88	3.9	...	...	III	G	AUG. 24	09 A.M. AST
AUG. 30	14	43	1.9	53.04 N.	173.07 E.	79	4.8	...	...	...	G	AUG. 30	03 A.M. BST
AUG. 30	21	17	53.2	57.68 N.	154.48 W.	67	4.4	...	...	...	G	AUG. 30	11 A.M. AST
AUG. 31	01	21	23.4	52.43 N.	168.49 W.	33N	4.6	...	...	...	G	AUG. 30	02 P.M. BST
AUG. 31	13	56	23.8	52.93 N.	170.82 E.	33N	4.3	...	...	...	G	AUG. 31	02 A.M. BST
AUG. 31	20	42	27.4	54.39 N.	161.84 W.	20	5.1	4.3	...	III	G	AUG. 31	09 A.M. BST
SEPT. 1	05	27	17.6	53.98 N.	165.20 W.	69	5.8	6.4B	...	IV	G	AUG. 31	06 P.M. BST
SEPT. 1	16	20	30.7	62.84 N.	151.29 W.	131	3.4	...	...	...	G	SEPT. 1	06 A.M. AST
SEPT. 1	18	56	51.6	60.03 N.	141.10 W.	15	3.4	...	4.0M	...	G	SEPT. 1	08 A.M. AST
SEPT. 3	11	10	13.4	60.05 N.	152.94 W.	150	...	...	...	...	G	SEPT. 3	01 A.M. AST
SEPT. 8	07	15	41.0	59.49 N.	146.72 W.	33N	4.7	...	4.2M	...	G	SEPT. 7	09 P.M. AST
SEPT. 8	08	45	8.0	59.46 N.	146.49 W.	33N	4.2	...	3.7M	...	G	SEPT. 7	10 P.M. AST
SEPT. 9	07	24	23.5	53.00 N.	166.76 W.	15	4.6	4.4	...	...	G	SEPT. 8	08 P.M. BST
SEPT. 9	22	57	38.1	62.94 N.	150.50 W.	120	...	...	...	...	G	SEPT. 9	12 P.M. AST
SEPT. 21	18	04	41.5	54.65 N.	161.03 W.	39	4.8	...	...	...	G	SEPT. 21	07 A.M. BST
SEPT. 22	03	49	27.7	53.73 N.	166.95 W.	33N	4.6	...	...	...	G	SEPT. 21	04 P.M. BST
SEPT. 23	10	17	20.8	52.29 N.	174.03 E.	43	5.8	5.6	...	IV	G	SEPT. 22	11 P.M. BST
SEPT. 24	03	19	56.7	52.19 N.	174.02 E.	33N	4.8	...	...	IV	G	SEPT. 23	04 P.M. BST
SEPT. 26	00	45	19.2	62.45 N.	151.52 W.	138	...	...	...	...	G	SEPT. 25	02 P.M. AST
SEPT. 30	10	38	4.4	55.45 N.	160.15 W.	66	4.1	...	...	...	G	SEPT. 30	00 A.M. AST
ARIZONA													
AUG. 5	19	10	15.9	36.80 N.	113.98 W.	5	...	...	3.7G	...	G	AUG. 5	12 P.M. MST
CALIFORNIA													
JULY 1	09	29	28.0	34.22 N.	116.92 W.	6	...	...	3.2P	FELT	P	JULY 1	01 A.M. PST
JULY 2	06	51	40.7	34.05 N.	117.55 W.	14	...	...	2.5P	FELT	P	JULY 1	10 P.M. PST
JULY 2	11	51	55.2	33.50 N.	116.49 W.	16	...	...	3.7P	FELT	P	JULY 2	03 A.M. PST
JULY 2	12	42	37.0	33.52 N.	116.49 W.	17	...	...	3.6P	FELT	P	JULY 2	04 A.M. PST
JULY 3	13	03	1.3	34.38 N.	119.78 W.	4	...	...	3.0P	III	P	JULY 3	05 A.M. PST
JULY 3	13	25	45.5	37.60 N.	121.98 W.	8	...	...	3.4B	IV	B	JULY 3	05 A.M. PST
JULY 3	13	35	4.3	34.37 N.	119.78 W.	4	...	...	3.3P	III	P	JULY 3	05 A.M. PST
JULY 9	21	20	40.9	36.55 N.	121.18 W.	5	...	...	3.1B	...	B	JULY 9	01 P.M. PST
JULY 10	05	20	27.3	32.95 N.	117.78 W.	6	...	...	3.1P	...	P	JULY 9	09 P.M. PST
JULY 10	08	23	23.2	37.86 N.	121.98 W.	17	...	...	3.7B	V	B	JULY 10	00 A.M. PST
JULY 13	02	26	3.4	34.27 N.	116.43 W.	5	...	...	4.0P	IV	P	JULY 12	06 P.M. PST
JULY 13	02	26	56.9	34.25 N.	116.43 W.	5	...	...	3.2P	...	P	JULY 12	06 P.M. PST
JULY 13	02	28	41.0	34.25 N.	116.45 W.	4	...	...	3.5P	...	P	JULY 12	06 P.M. PST
JULY 13	03	51	23.5	34.27 N.	116.43 W.	5	4.2	...	3.9P	III	P	JULY 12	07 P.M. PST
JULY 13	04	57	24.0	34.25 N.	116.42 W.	1	...	...	3.1P	...	P	JULY 12	08 P.M. PST
JULY 1	10	57	38.2	37.57 N.	122.39 W.	6	...	...	2.2B	FELT	B	JULY 13	02 A.M. PST
JULY 14	06	39	42.1	36.02 N.	120.12 W.	13	...	...	3.0B	...	B	JULY 13	10 P.M. PST
JULY 14	12	07	53.1	34.33 N.	116.42 W.	7	...	...	3.0P	...	P	JULY 14	04 A.M. PST
JULY 15	09	06	6.6	35.73 N.	119.82 W.	4	...	...	3.3P	...	P	JULY 15	01 A.M. PST
JULY 20	23	59	38.1	37.38 N.	118.60 W.	5	...	...	3.0P	...	P	JULY 20	03 P.M. PST
JULY 27	19	57	29.9	37.63 N.	118.94 W.	7	...	...	2.9B	...	B	JULY 27	11 A.M. PST
JULY 27	23	23	8.0	37.63 N.	118.92 W.	10	...	...	3.2B	FELT	B	JULY 27	03 P.M. PST
JULY 27	23	23	59.2	37.63 N.	118.93 W.	9	...	...	3.1B	...	B	JULY 27	03 P.M. PST
JULY 28	20	09	21.4	37.63 N.	118.93 W.	10	...	...	3.2B	...	B	JULY 28	12 P.M. PST
JULY 31	12	51	11.9	33.83 N.	118.10 W.	7	...	...	2.7P	IV	P	JULY 31	04 A.M. PST
AUG. 1	17	54	2.3	37.50 N.	118.80 W.	5	...	...	3.0P	...	P	AUG. 1	09 A.M. PST
AUG. 2	12	18	45.4	40.17 N.	123.98 W.	5	...	...	3.5B	III	G	AUG. 2	04 A.M. PST
AUG. 2	20	41	35.5	36.78 N.	121.57 W.	3	...	...	3.1B	III	B	AUG. 2	12 P.M. PST
AUG. 2	20	52	7.4	36.76 N.	121.57 W.	4	...	...	3.1B	...	B	AUG. 2	12 P.M. PST
AUG. 2	21	43	16.3	36.78 N.	121.57 W.	3	...	...	3.9B	IV	B	AUG. 2	01 P.M. PST
AUG. 3	04	30	42.3	37.63 N.	118.98 W.	2	...	...	3.2B	...	B	AUG. 2	08 P.M. PST
AUG. 3	04	33	53.2	37.63 N.	119.00 W.	2	...	...	3.3B	...	B	AUG. 2	08 P.M. PST
AUG. 6	07	03	15.5	33.87 N.	118.08 W.	3	...	...	2.0P	FELT	P	AUG. 5	11 P.M. PST
AUG. 6	17	05	22.7	37.10 N.	121.50 W.	6	5.4	5.7	5.9B	VII	B	AUG. 6	09 A.M. PST
AUG. 6	17	10	43.3	37.09 N.	121.48 W.	6	...	...	3.8B	FELT	B	AUG. 6	09 A.M. PST
AUG. 6	17	22	47.6	37.04 N.	121.48 W.	7	...	...	3.2B	FELT	B	AUG. 6	09 A.M. PST
AUG. 6	18	04	57.4	34.42 N.	118.40 W.	6	...	...	2.8P	FELT	P	AUG. 6	10 A.M. PST

Table 1.—*Summary of U.S. earthquakes for July-September 1979*—Continued

Date (1979)	Origin time (UTC) hr	min	s	Lat	Long	Depth (km)	Magnitude mb	MS	ML or mbLg	Maximum intensity	Hypocenter source	Local time Date	Hour
CALIFORNIA—Continued													
AUG. 6	22	21	1.7	37.03 N.	121.47 W.	6	...	...	3.6B	FELT	B	AUG. 6	02 P.M. PST
AUG. 6	22	33	55.4	37.00 N.	121.48 W.	4	...	...	4.4B	FELT	B	AUG. 6	02 P.M. PST
AUG. 6	22	35	57.6	36.98 N.	121.49 W.	5	...	...	2.9B	FELT	B	AUG. 6	02 P.M. PST
AUG. 6	22	36	4.9	36.99 N.	121.48 W.	1	...	...	3.8B	FELT	B	AUG. 6	02 P.M. PST
AUG. 6	23	36	0.6	37.05 N.	121.47 W.	4	...	...	2.8B	...	B	AUG. 6	03 P.M. PST
AUG. 7	02	32	31.6	36.98 N.	121.47 W.	5	...	...	2.9B	...	B	AUG. 6	06 P.M. PST
AUG. 7	05	56	51.6	37.06 N.	121.49 W.	4	...	...	3.1B	FELT	B	AUG. 6	09 P.M. PST
AUG. 7	18	51	46.5	36.99 N.	121.46 W.	1	...	...	2.5B	...	B	AUG. 7	10 A.M. PST
AUG. 7	19	01	41.3	36.98 N.	121.47 W.	2	...	...	2.5B	...	B	AUG. 7	11 A.M. PST
AUG. 7	19	11	25.7	36.98 N.	121.47 W.	2	...	...	3.2B	FELT	B	AUG. 7	11 A.M. PST
AUG. 8	03	52	14.4	36.99 N.	121.47 W.	2	...	...	2.6B	...	B	AUG. 7	07 P.M. PST
AUG. 8	22	56	7.9	37.03 N.	121.47 W.	4	...	...	3.4B	FELT	B	AUG. 8	02 P.M. PST
AUG. 9	05	28	48.6	36.98 N.	121.46 W.	6	...	...	2.7B	...	B	AUG. 8	09 P.M. PST
AUG. 9	07	03	20.2	37.01 N.	121.45 W.	6	...	...	4.2B	FELT	B	AUG. 8	11 P.M. PST
AUG. 9	12	49	27.5	36.98 N.	121.46 W.	3	...	...	3.5B	FELT	B	AUG. 9	04 A.M. PST
AUG. 9	12	51	41.7	36.97 N.	121.46 W.	5	...	...	2.5B	...	B	AUG. 9	04 A.M. PST
AUG. 9	14	39	5.6	37.48 N.	118.67 W.	5	...	...	3.0P	...	G	AUG. 9	06 A.M. PST
AUG. 10	00	25	20.8	37.02 N.	121.46 W.	5	...	...	3.7B	FELT	B	AUG. 9	04 P.M. PST
AUG. 10	04	50	40.0	36.96 N.	121.48 W.	5	...	...	3.0B	FELT	B	AUG. 9	08 P.M. PST
AUG. 10	05	10	42.9	36.98 N.	121.44 W.	5	...	...	2.7B	...	B	AUG. 9	09 P.M. PST
AUG. 10	12	37	0.3	36.96 N.	121.47 W.	5	...	...	2.5B	...	B	AUG. 10	04 A.M. PST
AUG. 10	19	22	26.8	36.97 N.	121.47 W.	1	...	...	2.5B	...	B	AUG. 10	11 A.M. PST
AUG. 11	09	40	19.3	36.98 N.	121.46 W.	2	...	...	2.8B	...	B	AUG. 11	01 A.M. PST
AUG. 11	16	42	32.7	36.97 N.	121.48 W.	5	...	...	2.6B	...	B	AUG. 11	08 A.M. PST
AUG. 11	20	29	35.2	37.14 N.	121.52 W.	5	...	...	3.4B	FELT	B	AUG. 11	12 P.M. PST
AUG. 13	10	13	1.0	34.28 N.	116.42 W.	4	...	...	3.3P	...	P	AUG. 13	02 A.M. PST
AUG. 13	19	02	52.5	37.88 N.	122.21 W.	13	...	...	2.3B	FELT	B	AUG. 13	11 A.M. PST
AUG. 13	19	18	46.8	37.86 N.	122.17 W.	9	...	...	3.5B	IV	B	AUG. 13	11 A.M. PST
AUG. 14	03	15	57.0	36.99 N.	121.47 W.	4	...	...	3.6B	FELT	B	AUG. 13	07 P.M. PST
AUG. 14	04	20	18.6	33.80 N.	117.80 W.	6	...	...	2.1P	FELT	P	AUG. 13	08 P.M. PST
AUG. 14	17	19	17.6	34.28 N.	116.43 W.	5	...	...	3.0P	...	P	AUG. 14	09 A.M. PST
AUG. 16	02	20	13.5	33.42 N.	116.62 W.	10	...	...	3.0P	...	P	AUG. 15	06 P.M. PST
AUG. 16	06	39	21.1	34.23 N.	116.90 W.	5	...	...	3.0P	...	P	AUG. 15	10 P.M. PST
AUG. 16	11	47	44.9	37.16 N.	121.55 W.	3	...	...	2.5B	...	B	AUG. 16	03 A.M. PST
AUG. 17	15	43	03.3	37.84 N.	122.23 W.	8	...	...	2.9B	FELT	B	AUG. 17	07 A.M. PST
AUG. 19	03	13	51.2	34.08 N.	117.22 W.	5	...	...	2.7P	FELT	P	AUG. 18	07 P.M. PST
AUG. 19	08	45	50.8	36.97 N.	121.46 W.	5	...	...	2.3B	IV	B	AUG. 19	00 A.M. PST
AUG. 21	13	18	7.0	34.55 N.	119.72 W.	6	...	...	3.1P	IV	P	AUG. 21	05 A.M. PST
AUG. 22	02	01	36.4	33.70 N.	116.85 W.	16	...	...	4.0P	IV	P	AUG. 21	06 P.M. PST
AUG. 24	04	46	51.6	37.84 N.	122.25 W.	7	...	...	2.9B	IV	B	AUG. 23	08 P.M. PST
AUG. 25	18	33	17.9	37.45 N.	118.67 W.	5	...	...	3.2P	...	P	AUG. 25	10 A.M. PST
AUG. 27	05	19	40.0	33.88 N.	115.90 W.	5	...	...	3.4P	...	P	AUG. 26	09 P.M. PST
AUG. 27	07	23	53.5	32.70 N.	115.90 W.	5	...	...	3.5P	FELT	P	AUG. 26	11 P.M. PST
AUG. 28	08	57	56.3	34.42 N.	117.73 W.	9	...	...	3.9P	IV	P	AUG. 28	00 A.M. PST
AUG. 29	09	19	24.9	33.97 N.	118.70 W.	7	...	...	2.7P	FELT	P	AUG. 29	01 A.M. PST
AUG. 31	18	53	45.1	37.84 N.	122.03 W.	8	...	...	2.7B	FELT	B	AUG. 31	10 A.M. PST
SEPT. 2	07	38	00.1	39.20 N.	122.86 W.	22	...	...	2.6B	III	B	SEPT. 1	11 P.M. PST
SEPT. 3	06	40	16.4	37.05 N.	121.49 W.	5	...	...	3.2B	...	B	SEPT. 2	10 P.M. PST
SEPT. 3	11	44	17.0	33.38 N.	116.33 W.	9	...	...	3.8P	...	P	SEPT. 3	03 A.M. PST
SEPT. 5	17	11	7.1	34.07 N.	118.90 W.	7	...	...	3.4P	FELT	P	SEPT. 5	09 A.M. PST
SEPT. 7	09	43	47.3	37.62 N.	118.91 W.	3	...	...	4.2B	IV	B	SEPT. 7	01 A.M. PST
SEPT. 7	10	17	20.4	33.40 N.	116.35 W.	7	...	...	3.0P	...	P	SEPT. 7	02 A.M. PST
SEPT. 9	20	48	30.7	37.84 N.	121.95 W.	1	...	...	2.9B	FELT	B	SEPT. 9	12 P.M. PST
SEPT. 10	06	16	4.2	37.15 N.	121.55 W.	6	...	...	3.0B	...	B	SEPT. 9	10 P.M. PST
SEPT. 10	19	26	52.6	37.55 N.	118.68 W.	5	...	...	2.7P	FELT	P	SEPT. 10	11 A.M. PST
SEPT. 14	01	04	5.0	37.11 N.	121.94 W.	15	...	...	3.2B	FELT	B	SEPT. 13	05 P.M. PST
SEPT. 14	07	41	14.6	37.46 N.	118.54 W.	19	...	...	3.0B	...	B	SEPT. 13	11 P.M. PST
SEPT. 16	08	55	40.7	33.47 N.	116.52 W.	17	...	...	3.0P	...	P	SEPT. 16	00 A.M. PST
SEPT. 17	19	19	13.1	37.04 N.	121.49 W.	5	...	...	3.0B	...	B	SEPT. 17	11 A.M. PST
SEPT. 19	02	44	40.0	39.79 N.	120.79 W.	14	...	...	3.2B	...	B	SEPT. 18	06 P.M. PST
SEPT. 20	03	05	24.8	37.88 N.	122.30 W.	10	...	...	2.5B	FELT	B	SEPT. 19	07 P.M. PST
SEPT. 22	09	09	49.5	32.98 N.	116.28 W.	7	...	...	3.1P	...	P	SEPT. 22	01 A.M. PST
SEPT. 23	20	00	58.2	34.22 N.	116.37 W.	5	...	...	3.1P	...	P	SEPT. 23	12 P.M. PST

Table 1.—*Summary of U.S. earthquakes for July-September 1979*—Continued

Date (1979)	Origin time (UTC) hr	min	s	Lat	Long	Depth (km)	Magnitude mb	MS	ML or mbLg	Maximum intensity	Hypocenter source	Local time Date	Hour
CALIFORNIA—Continued													
SEPT. 24	07	47	56.6	34.15 N.	116.67 W.	5	...	...	3.2P	...	P	SEPT. 23	11 P.M. PST
SEPT. 24	13	05	3.2	37.66 N.	118.94 W.	5	...	...	4.1B	IV	B	SEPT. 24	05 A.M. PST
SEPT. 24	14	26	18.5	37.66 N.	118.94 W.	5	...	...	3.6B	FELT	B	SEPT. 24	06 A.M. PST
SEPT. 24	15	01	19.3	37.66 N.	118.94 W.	5	...	...	3.1B	...	B	SEPT. 24	07 A.M. PST
SEPT. 26	21	45	35.2	37.62 N.	118.91 W.	16	...	...	3.4B	...	B	SEPT. 26	01 P.M. PST
SEPT. 26	22	29	36.9	33.75 N.	116.00 W.	4	...	...	3.4P	...	P	SEPT. 26	02 P.M. PST
SEPT. 26	22	30	12.7	33.75 N.	116.05 W.	6	...	...	3.1P	...	P	SEPT. 26	02 P.M. PST
SEPT. 27	06	14	50.2	36.79 N.	121.59 W.	2	...	...	2.9B	FELT	B	SEPT. 26	10 P.M. PST
SEPT. 28	20	08	26.2	34.03 N.	118.32 W.	6	...	...	2.2P	FELT	P	SEPT. 28	12 P.M. PST
CALIFORNIA--OFF THE COAST													
AUG. 1	10	50	24.7	40.87 N.	127.43 W.	5	5.3	5.2	4.7B	...	B	AUG. 1	02 A.M. PST
AUG. 1	11	33	11.3	40.92 N.	127.63 W.	5	4.2	...	3.5B	...	B	AUG. 1	03 A.M. PST
AUG. 2	21	34	21.0	40.82 N.	127.60 W.	5	4.6	4.0	3.9B	...	B	AUG. 2	01 P.M. PST
AUG. 4	14	48	0.4	40.31 N.	124.84 W.	28	...	...	3.8B	...	B	AUG. 4	06 A.M. PST
AUG. 8	10	24	57.6	40.31 N.	124.68 W.	29	3.8	...	4.3B	IV	B	AUG. 8	02 A.M. PST
SEPT. 5	09	42	3.4	41.79 N.	125.78 W.	9	4.3	...	4.3B	...	G	SEPT. 5	01 A.M. PST
SEPT. 24	08	07	10.3	40.21 N.	125.66 W.	5	...	...	3.8B	...	B	SEPT. 24	00 A.M. PST
HAWAII													
JULY 3	04	42	44.8	19.40 N.	155.45 W.	11	...	...	3.3H	IV	H	JULY 2	06 P.M. HST
JULY 5	03	27	15.9	19.35 N.	155.13 W.	9	...	...	3.4H	III	H	JULY 4	05 P.M. HST
JULY 5	12	33	46.1	19.47 N.	154.82 W.	12	...	...	3.1H	...	H	JULY 5	02 A.M. HST
JULY 14	15	15	34.3	19.72 N.	156.00 W.	34	...	...	3.0H	...	H	JULY 14	05 A.M. HST
JULY 16	02	42	07.3	19.38 N.	155.09 W.	1	...	...	3.6H	IV	H	JULY 15	04 P.M. HST
JULY 16	08	03	40.5	19.49 N.	155.92 W.	13	...	...	3.0H	...	H	JULY 15	10 P.M. HST
JULY 16	12	48	49.7	19.38 N.	155.08 W.	2	...	...	3.1H	...	H	JULY 16	02 A.M. HST
JULY 16	14	13	15.7	19.40 N.	155.03 W.	9	...	...	3.5H	III	H	JULY 16	04 A.M. HST
JULY 19	13	56	29.0	18.58 N.	154.73 W.	7	...	...	3.4H	...	H	JULY 19	03 A.M. HST
JULY 21	09	22	30.2	19.41 N.	155.46 W.	11	...	...	3.6H	IV	H	JULY 20	11 P.M. HST
JULY 25	04	07	38.3	19.33 N.	155.14 W.	10	...	...	3.5H	III	H	JULY 24	06 P.M. HST
JULY 26	19	50	41.6	19.76 N.	155.97 W.	20	...	...	3.6H	III	H	JULY 26	09 A.M. HST
JULY 27	18	56	33.6	19.33 N.	155.13 W.	9	...	...	3.5H	IV	H	JULY 27	08 A.M. HST
JULY 31	13	30	51.3	19.47 N.	155.43 W.	12	...	...	4.3H	V	H	JULY 31	03 A.M. HST
AUG. 1	16	14	11.8	19.39 N.	155.28 W.	3	...	...	3.0H	III	H	AUG. 1	06 A.M. HST
AUG. 3	13	30	06.3	19.33 N.	155.21 W.	10	...	...	3.3H	III	H	AUG. 3	03 A.M. HST
AUG. 6	03	03	34.8	19.28 N.	155.54 W.	10	...	...	3.5H	IV	H	AUG. 5	05 P.M. HST
AUG. 11	03	57	53.1	19.31 N.	155.22 W.	10	...	...	3.0H	...	H	AUG. 10	05 P.M. HST
AUG. 13	06	32	01.3	19.33 N.	155.12 W.	8	...	...	3.0H	...	H	AUG. 12	08 P.M. HST
AUG. 13	16	03	40.6	19.30 N.	155.26 W.	10	...	...	3.4H	III	H	AUG. 13	06 A.M. HST
AUG. 14	12	51	42.2	20.82 N.	156.29 W.	24	4.1	...	4.5H	V	H	AUG. 14	02 A.M. HST
AUG. 15	15	00	08.1	19.41 N.	155.42 W.	11	...	...	3.0H	...	H	AUG. 15	05 A.M. HST
AUG. 16	23	04	19.4	19.38 N.	155.47 W.	11	...	...	3.9M	IV	H	AUG. 16	01 P.M. HST
AUG. 26	07	08	14.6	19.35 N.	155.12 W.	10	...	...	3.3H	II	H	AUG. 25	09 P.M. HST
AUG. 28	15	21	59.1	19.31 N.	155.22 W.	11	...	...	3.5H	III	H	AUG. 28	05 A.M. HST
AUG. 28	15	47	24.8	19.32 N.	155.22 W.	11	...	...	3.4H	III	H	AUG. 28	05 A.M. HST
AUG. 28	16	55	13.2	19.31 N.	155.22 W.	11	...	...	3.8H	III	H	AUG. 28	06 A.M. HST
SEPT. 1	22	16	33.5	19.37 N.	155.08 W.	10	...	...	3.8H	IV	H	SEPT. 1	12 P.M. HST
SEPT. 4	11	30	09.2	19.74 N.	156.02 W.	9	...	...	3.2H	IV	H	SEPT. 4	01 A.M. HST
SEPT. 6	12	24	48.0	19.33 N.	155.12 W.	10	...	...	3.4H	III	H	SEPT. 6	02 A.M. HST
SEPT. 8	23	34	42.2	19.32 N.	155.23 W.	11	...	...	3.4H	III	H	SEPT. 8	01 P.M. HST
SEPT. 14	14	32	17.4	19.39 N.	155.28 W.	3	...	...	3.0H	III	H	SEPT. 14	04 A.M. HST
SEPT. 14	17	35	18.7	19.33 N.	155.20 W.	10	...	...	3.2H	III	H	SEPT. 14	07 A.M. HST
SEPT. 15	01	31	48.0	19.35 N.	155.82 W.	11	...	...	3.8H	IV	H	SEPT. 14	03 P.M. HST
SEPT. 16	19	51	36.7	19.40 N.	155.04 W.	9	...	...	3.2H	III	H	SEPT. 16	09 A.M. HST
SEPT. 21	11	29	24.1	19.33 N.	155.20 W.	10	...	...	3.4H	III	H	SEPT. 21	01 A.M. HST
SEPT. 22	07	59	37.6	19.35 N.	155.07 W.	9	5.7	4.8	5.5H	VI	H	SEPT. 21	09 P.M. HST
SEPT. 22	09	29	12.3	19.35 N.	155.03 W.	9	4.8	...	4.3H	IV	H	SEPT. 21	11 P.M. HST
SEPT. 22	09	36	17.3	19.35 N.	155.04 W.	8	...	...	3.2H	III	H	SEPT. 21	11 P.M. HST
SEPT. 23	11	28	19.9	19.38 N.	155.07 W.	9	...	...	3.3H	III	H	SEPT. 23	01 A.M. HST
SEPT. 23	19	25	25.8	19.37 N.	155.27 W.	36	...	...	3.3H	...	H	SEPT. 23	09 A.M. HST
SEPT. 25	03	50	23.1	19.37 N.	155.08 W.	9	...	...	3.6H	III	H	SEPT. 24	05 P.M. HST

Table 1.–*Summary of U.S. earthquakes for July-September 1979*–Continued

Date (1979)	Origin time (UTC) hr	min	s	Lat	Long	Depth (km)	Magnitude mb	MS	ML or mbLg	Maximum intensity	Hypocenter source	Local time Date	Hour
HAWAII—Continued													
SEPT. 26	16	21	22.8	19.36 N.	155.04 W.	9	...	...	3.0H	...	H	SEPT. 26	06 A.M. HST
SEPT. 27	01	01	32.4	19.54 N.	155.92 W.	11	...	...	3.2H	III	H	SEPT. 26	03 P.M. HST
SEPT. 27	15	35	45.5	19.33 N.	155.12 W.	10	4.7	...	4.3H	V	H	SEPT. 27	05 A.M. HST
SEPT. 27	15	38	31.2	19.33 N.	155.13 W.	9	...	...	3.2H	IV	H	SEPT. 27	05 A.M. HST
SEPT. 30	00	02	26.3	19.37 N.	155.11 W.	8	...	...	3.2H	II	H	SEPT. 29	02 P.M. HST
MAINE													
JULY 28	23	29	12.3	43.29 N.	70.44 W.	11	...	...	3.5G	IV	J	JULY 28	06 P.M. EST
MISSOURI													
JULY 8	12	35	15.1	36.89 N.	89.29 W.	3	...	...	3.1S	IV	S	JULY 8	06 A.M. CST
JULY 13	07	29	39.0	36.08 N.	89.77 W.	11	...	...	2.8S	IV	S	JULY 13	01 A.M. CST
SEPT. 12	10	59	46.2	37.74 N.	89.95 W.	3	...	...	2.5S	FELT	S	SEPT. 12	04 A.M. CST
MONTANA													
JULY 21	22	18	47.3	47.72 N.	114.15 W.	5	...	...	3.5G	FELT	G	JULY 21	02 P.M. PST
AUG. 9	17	12	55.4	48.49 N.	111.47 W.	5	...	...	3.8G	...	G	AUG. 9	10 A.M. MST
NEBRASKA													
JULY 16	00	03	47.3	40.18 N.	100.38 W.	5	...	...	3.2T	III	G	JULY 15	06 P.M. CST
NEVADA													
JULY 19	16	51	8.5	39.60 N.	119.90 W.	7	...	...	3.3B	...	B	JULY 19	08 A.M. PST
AUG. 3	15	07	30.2	37.08 N.	116.07 W.	0	4.5	...	4.6B	...	E	AUG. 3	07 A.M. PST
AUG. 8	15	00	0.1	37.01 N.	116.01 W.	0	4.8	...	4.6B	...	E	AUG. 8	07 A.M. PST
AUG. 12	11	31	19.7	37.26 N.	115.08 W.	5	...	...	3.6G	...	G	AUG. 12	03 A.M. PST
AUG. 16	03	37	44.9	37.24 N.	115.06 W.	5	...	...	3.7G	...	G	AUG. 15	07 P.M. PST
AUG. 29	15	08	0.2	37.12 N.	116.07 W.	0	4.7	...	5.0B	...	E	AUG. 29	07 A.M. PST
SEPT. 6	15	00	0.1	37.09 N.	116.05 W.	0	5.8	4.1	5.5B	...	E	SEPT. 6	07 A.M. PST
SEPT. 8	17	02	0.1	37.15 N.	116.04 W.	0	...	...	3.7B	...	E	SEPT. 8	09 A.M. PST
SEPT. 26	15	00	0.1	37.23 N.	116.36 W.	0	5.6	4.1	5.4B	...	E	SEPT. 26	07 A.M. PST
OKLAHOMA													
SEPT. 13	00	49	23.0	35.22 N.	99.36 W.	15	...	...	3.4T	IV	T	SEPT. 12	06 P.M. CST
SEPT. 16	15	57	20.8	35.34 N.	98.00 W.	5	...	...	2.5T	IV	T	SEPT. 16	09 A.M. CST
OREGON—OFF THE COAST													
AUG. 28	01	23	56.9	43.39 N.	126.34 W.	15	4.2	...	...	...	G	AUG. 27	05 P.M. PST
SOUTH CAROLINA													
AUG. 11	02	11	56.6	32.99 N.	80.22 W.	10	...	...	2.5Z	III	Z	AUG. 10	09 P.M. EST
AUG. 26	01	31	45.0	34.93 N.	82.97 W.	2	...	...	3.7V	VI	G	AUG. 25	08 P.M. EST
TENNESSEE													
AUG. 13	05	18	56.0	35.24 N.	84.38 W.	5	...	...	3.7V	V	G	AUG. 13	00 A.M. EST
SEPT. 12	06	24	3.6	35.59 N.	83.90 W.	5	...	...	3.2V	V	G	SEPT. 12	01 A.M. EST
TEXAS													
JULY 5	01	05	1.0	32.95 N.	100.90 W.	4	...	...	2.7T	...	G	JULY 4	07 P.M. CST

Table 1.—*Summary of U.S. earthquakes for July-September 1979*—Continued

Date (1979)	Origin time (UTC) hr	min	s	Lat	Long	Depth (km)	Magnitude mb	MS	ML or mbLg	Maximum intensity	Hypocenter source	Local time Date	Hour
WASHINGTON													
JULY 7	20	50	1.5	46.52 N.	122.17 W.	5	...	...	3.8G	IV	G	JULY 7	12 P.M. PST
JULY 28	02	19	6.9	46.67 N.	120.59 W.	0	...	...	3.1G	IV	W	JULY 27	06 P.M. PST
SEPT. 5	03	49	59.4	47.52 N.	122.00 W.	7	...	...	2.1W	FELT	W	SEPT. 4	07 P.M. PST
WASHINGTON—OFF THE COAST													
AUG. 30	14	22	58.0	47.64 N.	127.84 W.	15	4.9	...	...	...	G	AUG. 30	06 A.M. PST
WYOMING													
JULY 3	09	57	23.9	43.41 N.	110.71 W.	5	...	...	3.2U	IV	G	JULY 3	02 A.M. MST

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*

[Sources of the hypocenters and magnitudes: (B) University of California, Berkeley; (E) U.S. Department of Energy, Las Vegas, Nevada; (G) U.S. Geological Survey, National Earthquake Information Service; (H) U.S. Geological Survey, Hawaiian Volcano Observatory; (J) Weston Observatory, Massachusetts; (M) National Oceanic and Atmospheric Administration, Alaska Tsunami Warning Center, Palmer; (P) California Institute of Technology, Pasadena; (S) St. Louis University, St. Louis, Missouri; (T) University of Oklahoma, Leonard; (V) Virginia Polytechnic Institute and State University, Blacksburg; (W) University of Washington, Seattle; (Z) Bollinger and Mathena, 1980. N, Normal depth; UTC, Universal Coordinated Time. For names of local time zones, see figures 2 and 3. Leaders (...) indicate no information available]

Alaska

10 July (G) Southern Alaska
- Origin time: 04 04 20.5
- Epicenter: 63.20 N., 150.72 W.
- Depth: 130 km
- Magnitude: 4.9 mb(G)
- Intensity II: Anchorage (M).

11 July (G) Southeastern Alaska
- Origin time: 12 28 02.9
- Epicenter: 55.32 N., 134.97 W.
- Depth: 10 km
- Magnitude: 5.1 mb(G), 5.1 MS(G), 5.1 MS(B), 5.8 ML(M)
- Intensity IV: Craig, Hydaburg, Klawock (M), Metlakatla, Petersburg, Port Alexander.
- Intensity II: Ketchikan, Sitka.

16 July (G) Southern Alaska
- Origin time: 23 45 58.5
- Epicenter: 60.86 N., 153.02 W.
- Depth: 141 km
- Magnitude: 4.6 mb(G)

Felt at Anchorage (M).

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

Alaska--Continued

17 July (G) Southern Alaska
- Origin time: 20 44 29.5
- Epicenter: 62.27 N., 148.14 W.
- Depth: 58 km
- Magnitude: 5.3 mb(G), 5.0 mb(B)
- Intensity IV: Anchorage, Chickaloon (telegraphic report), Chugiak, Girdwood, Moose Pass, Sutton, Whittier.
- Intensity III: Palmer, Skwentna, Willow.
- Intensity II: Fairbanks (telegraphic report).
- Felt: Glennallen, Talkeetna, Valdez.

23 July (G) Southern Alaska
- Origin time: 08 38 13.0
- Epicenter: 58.63 N., 151.51 W.
- Depth: Normal.
- Magnitude: 4.4 mb(G), 4.6 ML(M)
- Intensity II: Kodiak.

23 July (G) Southern Alaska
- Origin time: 09 07 07.7
- Epicenter: 61.64 N., 150.51 W.
- Depth: 49 km
- Magnitude: 2.9 ML(M)
- Intensity II: Palmer area.

30 July (G) Southern Alaska
- Origin time: 02 24 04.6
- Epicenter: 62.04 N., 145.44 W.
- Depth: 14 km
- Magnitude: 3.5 ML(M)
- Intensity II: Glennallen (M).

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

Alaska--Continued

4 August (G) Southern Alaska
Origin time: 20 12 10.6
Epicenter: 62.49 N., 149.77 W.
Depth: 99 km
Magnitude: 4.1 mb(G)
Intensity III: Gold Creek (M), Talkeetna (M).
Intensity II: Palmer (M).

7 August (G) Andreanof Islands, Aleutian Islands
Origin time: 18 15 09.5
Epicenter: 51.32 N., 176.11 W.
Depth: Normal.
Magnitude: 4.6 mb, 4.0 ML(M)
Intensity III: Adak (M).

10 August (G) Southern Alaska
Origin time: 00 02 25.4
Epicenter: 61.97 N., 150.94 W.
Depth: 81 km
Magnitude: 4.3 mb(G)
Intensity III: Talkeetna.

27 August Andreanof Islands, Aleutian Islands
Origin time: 18 15
Epicenter: Not located.
Depth: None computed.
Magnitude: 4.0 ML(M)
Intensity III: Adak (M).

29 August (G) Southern Alaska
Origin time: 19 38 11.4
Epicenter: 61.91 N., 150.80 W.
Depth: 88 km
Magnitude: 3.9 mb(G)
Intensity III: Hatcher Pass (M), Wasilla (M).

31 August (G) Alaska Peninsula
Origin time: 20 42 27.4
Epicenter: 54.39 N., 161.84 W.
Depth: 20 km
Magnitude: 5.1 mb(G), 4.3 MS(G)
Intensity III: Cold Bay (M).

1 September (G) Fox Islands, Aleutian Islands
Origin time: 05 27 17.6
Epicenter: 53.98 N., 165.20 W.
Depth: 69 km
Magnitude: 5.8 mb(G), 6.4 mb(B), 6.3 mb(P)
Intensity IV: Dutch Harbor (M).

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

Alaska--Continued

14 September Near Islands, Aleutian Islands
Origin time: 07 29
Epicenter: Not located.
Depth: None computed.
Magnitude: None computed.
Intensity III: Shemya Island (M).

23 September (G) Near Islands, Aleutian Islands
Origin time: 10 17 20.8
Epicenter: 52.29 N., 174.03 E.
Depth: 43 km
Magnitude: 5.8 mb(G), 5.6 MS(G)
Intensity IV: Shemya (M).

24 September (G) Near Islands, Aleutian Islands
Origin time: 03 19 56.7
Epicenter: 52.19 N., 174.02 E.
Depth: Normal.
Magnitude: 4.8 mb
Intensity IV: Shemya (M).

26 September Andreanof Islands, Aleutian Islands
Origin time: 07 18
Epicenter: Not located.
Depth: None computed.
Magnitude: None computed.
Intensity III: Adak (M).

27 September Andreanof Islands, Aleutian Islands
Origin time: 22 18
Epicenter: Not located.
Depth: None computed.
Magnitude: None computed.
Intensity III: Adak (M).

Arkansas

26 August Northern Arkansas
Origin time: 11 28
Epicenter: Not located.
Depth: None computed.
Magnitude: None computed.
Intensity IV: Hardy (two windows were broken and the earthquake noise was described as similar to a sonic boom--press report).
Intensity III: Salem (press report).

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California

1 July (P) Southern California
Origin time: 09 29 28.0
Epicenter: 34.22 N., 116.92 W.
Depth: 6 km
Magnitude: 3.2 ML(P)

Felt at Big Bear (P).

2 July (P) Southern California
Origin time: 06 51 40.7
Epicenter: 34.05 N., 117.55 W.
Depth: 14 km
Magnitude: 2.5 ML(P)

Felt at Riverside (P).

2 July (P) Southern California
Origin time: 11 51 55.2
Epicenter: 33.50 N., 116.49 W.
Depth: 16 km
Magnitude: 3.7 ML(P)

Felt at Anza-Borrego Desert State Park, Borrego Springs, Coachella (P), Indio (P), Palm Springs, San Diego, and other areas of San Diego County. No damage was reported (press report).

2 July (P) Southern California
Origin time: 12 42 37.0
Epicenter: 33.52 N., 116.49 W.
Depth: 17 km
Magnitude: 3.6 ML(P)

Felt at Anza-Borrego Desert State Park, Borrego Springs, Coachella (P), Indio (P), San Diego, and other areas of San Diego County. No damage was reported (press report).

3 July (P) Southern California
Origin time: 13 03 01.3
Epicenter: 34.38 N., 119.78 W.
Depth: 4 km
Magnitude: 3.0 ML(P)
Intensity III: Santa Barbara (press report).

3 July (B) Central California
Origin time: 13 25 45.5
Epicenter: 37.60 N., 121.98 W.
Depth: 8 km
Magnitude: 3.4 ML(B)
Intensity IV: Hayward, Mount Eden, Sunol.

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California--Continued

Intensity III: Fremont, La Honda, Newark, San Francisco (press report), San Leandro.
Intensity II: San Lorenzo.
Felt: Oakland (B).

3 July (P) Southern California
Origin time: 13 35 04.3
Epicenter: 34.37 N., 119.78 W.
Depth: 4 km
Magnitude: 3.3 ML(P)
Intensity III: Goleta, Santa Barbara (press report).

10 July (B) Central California
Origin time: 08 23 23.2
Epicenter: 37.86 N., 121.98 W.
Depth: 17 km
Magnitude: 3.7 ML(B)
Intensity V: Diablo (few windows cracked, hanging pictures out of place, and small objects moved), Danville (felt by all, many awakened, sidewalks slightly cracked).
Intensity IV: Alamo, Antioch, Clayton, Martinez, Pittsburg, Pleasant Hill, San Leandro, San Ramon.
Felt: Berkeley (B), Concord (B), Livermore (B), Moraga (B), Oakland (B), Walnut Creek (B).

13 July (P) Southern California
Origin time: 02 26 03.4
Epicenter: 34.27 N., 116.43 W.
Depth: 5 km
Magnitude: 4.0 ML(P)
Intensity IV: Morongo Valley, San Bernardino.
Intensity III: Joshua Tree, Lake Elsinore, Twentynine Palms, Yucca Valley.
Intensity II: Indio.

13 July (P) Southern California
Origin time: 03 51 23.5
Epicenter: 34.27 N., 116.43 W.
Depth: 5 km
Magnitude: 4.2 mb, 3.9 ML(P)
Intensity III: Joshua Tree (press report), Twentynine Palms (press report), Yucca Valley (press report).
Felt: San Bernardino (P).

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California--Continued

13 July (B) Central California
Origin time: 10 57 38.2
Epicenter: 37.57 N., 122.39 W.
Depth: 6 km
Magnitude: 2.2 ML(B)

Felt at Burlingame, Hillsborough, and San Mateo (B).

27 July (B) Owens Valley Area
Origin time: 23 23 08.0
Epicenter: 37.63 N., 118.92 W.
Depth: 10 km
Magnitude: 3.2 ML(B), 3.4 ML(P)

Felt in the Mammoth Lakes area (B).

31 July (P) Southern California
Origin time: 12 51 11.9
Epicenter: 33.83 N., 118.10 W.
Depth: 7 km
Magnitude: 2.7 ML(P)

Felt in the Los Angeles area. Thousands of southeast residents were awakened (press report).

Intensity IV: Bellflower, Long Beach.

2 August (G) Northern California
Origin time: 12 18 45.4
Epicenter: 40.17 N., 123.98 W.
Depth: 5 km
Magnitude: 3.5 ML(B)
Intensity III: Rio Dell.

2 August (B) Central California
Origin time: 20 41 35.5
Epicenter: 36.78 N., 121.57 W.
Depth: 3 km
Magnitude: 3.1 ML(B)
Intensity III: Hollister (press report), San Juan Bautista (B).

2 August (B) Central California
Origin time: 21 43 16.3
Epicenter: 36.78 N., 121.57 W.
Depth: 3 km
Magnitude: 3.9 ML(B)

In Hollister, the press reported a few boxes of rice fell at the Gonzalez Market and some rolls of tissue fell to the floor at the Nob Hill Market. No damage reported.

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California--Continued

Intensity IV: Hollister, San Juan Bautista.
Felt: Carmel (B), Monterey (B), North of Morgan Hill (B), Pacific Grove (B).

6 August (P) Southern California
Origin time: 07 03 15.5
Epicenter: 33.87 N., 118.08 W.
Depth: 3 km
Magnitude: 2.0 ML(P)

Felt at Los Angeles.

6 August (B) Central California
Origin time: 17 05 22.7
Epicenter: 37.10 N., 121.50 W.
Depth: 6 km
Magnitude: 5.4 mb(G), 5.7 MS(G), 5.9 ML(B)

This earthquake, commonly called the Coyote Lake earthquake, was generally felt over an area of approximately 63,200 sq km from about 60 km north of Bakersfield, north to Sacramento, east to the Reno-Lake Tahoe area, and westward to the Pacific Ocean (fig. 7). There were no fatalities but 16 injuries were reported by the press in Hollister and Gilroy. Most injuries were cuts from flying glass or possible heart attacks. Damage in Gilroy and Hollister was estimated at $500,000 (press report). The damage consisted mainly of broken store windows, broken glassware in grocery and liquor stores, some damaged chimneys, and some structural damage to five buildings in Gilroy. Ground displacement was observed along the Calaveras fault zone from Hollister northward to the area of Anderson Lake, a distance of 39 km (Armstrong, 1979). The maximum horizontal displacement observed on August 6 was 5-6 mm located about 10 km east of Gilroy where the Calaveras fault zone intersects Highway 152. Continued movement along the fault zone was observed in the days following the main shock. Ground lurching, settlement, and slumping as a result of the ground shaking was observed at

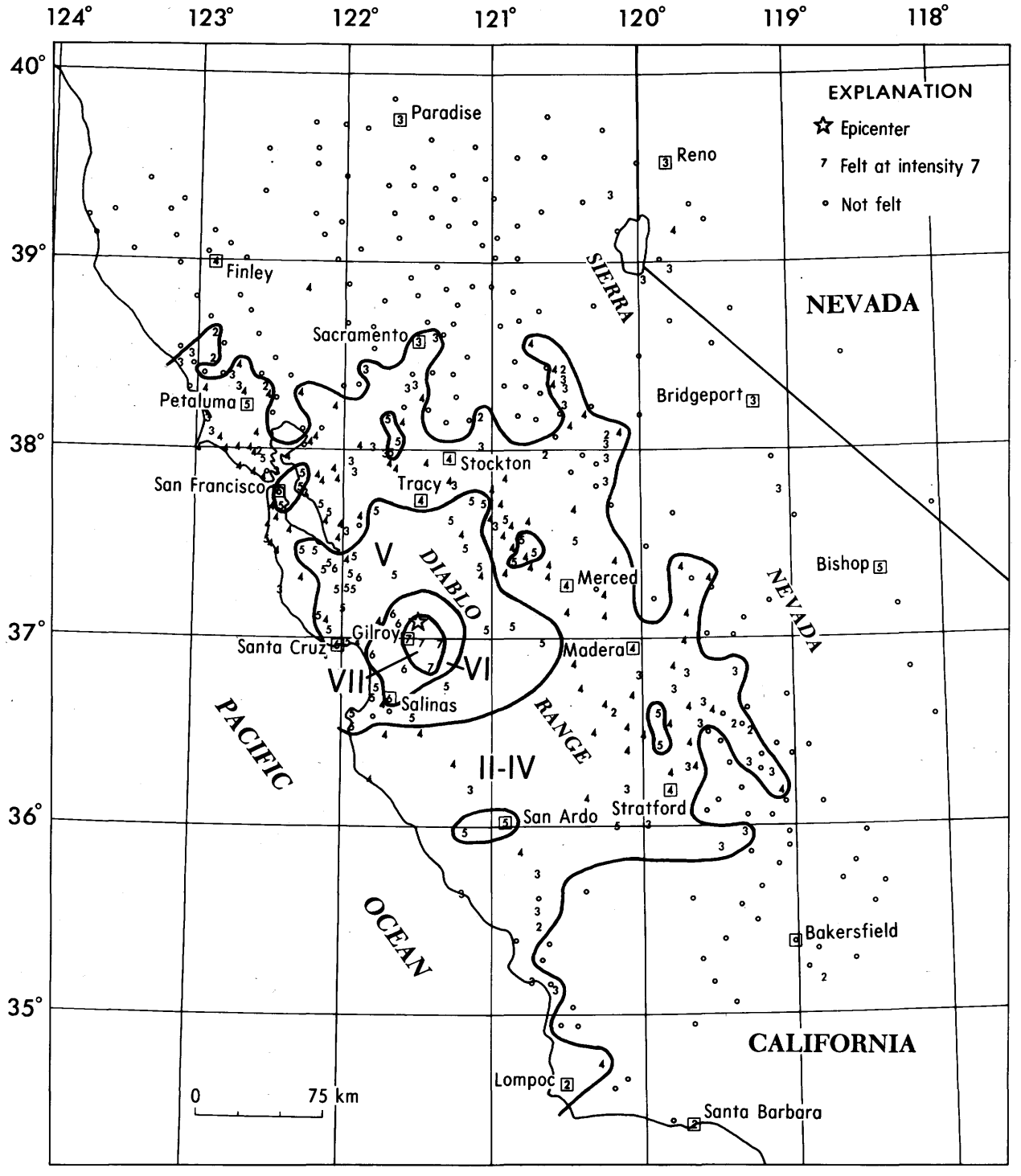

FIGURE 7.--Isoseismal map for the central California earthquake of 6 August 1979, 17 05 22.7 UTC. Roman numerals represent Modified Mercalli intensities between isoseismals; Arabic numerals are used to represent these intensities at specific sites.

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California--Continued

many locations between Anderson Lake and Hollister (Armstrong, 1979).

Uhrhammer (1980) located 31 aftershocks ($2.4 \leq ML \leq 4.4$) during August 1979, most of which were located south of the main shock with a concentration of epicenters about 10 km south on the Calaveras fault zone.

All accelerographs within a radius of approximately 40 km from the epicenter were triggered along with some at greater distances (Porcella, 1980). The maximum acceleration of 0.44 g was recorded on the instrument at the San Ysidro School in Gilroy located about 9 km south of the main shock. A much lower acceleration of 0.23 g was recorded near the epicenter on the Coyote Creek accelerograph. The intensities were also lower on the west side of Coyote Lake which is much nearer the epicenter than Gilroy or Hollister. The maximum intensity determined for the Coyote Lake area appears to be about V along the west shore.

Intensity VII:

California--

Casa de Fruta--At the Shell service station, located about 3.2 km (2 mi) northeast of the junction of Highways 152 and 156, there was extensive damage to the building's inside and outside walls and roof. Bricks fell from the chimney, exterior walls bulged outward, interior walls separated from the ceiling or floors, ceiling tiles fell, hanging pictures fell, small objects and merchandise overturned and broke.

Gilroy--Five buildings reported some structural damage. Fords Department store, which had damage in the second floor to beams and uprights, was deemed unsafe and closed. Also on the second floor of the Ford building there were numerous cracks in plaster

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California--Continued

walls and much china and crystal glassware smashed to the floor. There were many reports of cracks in the exterior of office buildings in Gilroy. At the San Martin vineyards wine tasting room, adobe walls cracked and stacks of wine cases came tumbling down. Many chimneys were damaged, mostly in 75-year-old or older homes near the downtown area. A new crack split a wall in the City Hall buildings and a ceiling in a court room of the Municipal Courthouse caved in. Most of the damage in stores, bars, and homes came when dishes, bottles, and goods were thrown off shelves and out of cupboards. Supermarkets especially, had their shelves virtually emptied in some areas of town. Sparks from three PG&E gas lines that were snapped started grass fires. Motorists on Highway 101 overpasses reported being tossed from lane to lane as the quake swayed the support pillars (press reports).

Hollister--A runway was reported cracked at Hollister airport. A roof caved in at the Walker and Lee Real Estate office when a 136 kg (300 lb) parapet toppled. The quake knocked a 3 m (10 ft) hole in the plaster ceiling of the J. C. Penney building and there were extensive cracks in the ceiling throughout the store. The ceiling partly collapsed at the new Employment Development Department building on San Felipe Road. The walls of the Hollister Travel Service were also cracked. At Northern California Savings extremely heavy files of safety deposit boxes were moved several inches. At a Texaco distribution plant an empty 11,360 liter (3000 gallon) gasoline tank was rolled around. A nearly life-size

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California--Continued

statue toppled inside Sacred Heart Church. The San Benito County Library was closed temporarily after book stacks were tilted dangerously and books were strewn all over the floor. Grocery and liquor stores suffered much damage. The Gonzalez Market (1280 San Juan Highway) had a gaping hole in the ceiling where a light fixture had ripped loose and the aisles were filled with toppled bottles, cans, and cartons. Gonzalez Liquors next door estimated $15,000-20,000 loss due to smashed bottles that filled the aisles with shattered glass. A home located at 1181 South Street reported a hutch filled with dishes was toppled to the floor, paintings were ripped off the walls, and a dresser overturned. There was considerable roof and wall damage at the testing room of the Almaden Vineyard on Pacheco Pass Highway and much of its stock of wine crashed to the floor. The power lines were down in the downtown area, and 600 customers were temporarily without electricity. There were also unconfirmed reports of broken water lines in the downtown area. No apparent damage was reported to any of the dams and reservoirs in the area (press reports).

Pacheco Pass--At the state fire station, about 16 km (10 mi) northeast of Hollister, the lids of the toilet tanks were thrown off and crashed to the floor, pictures fell off the walls, and a 45 kg (100 lb) filing cabinet bounced 0.3 m (1 ft) from the wall. The Pacheco Peak lookout station near the firehouse suffered some structural damage and was vacated. The fire station was reported to have suffered extensive damage (press report).

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California--Continued

Intensity VI:

California--

Milpitas--large cracks in plaster walls, trees and bushes shook strongly, standing vehicles rocked moderately, buildings shook strongly.

Morgan Hill--cracks in interior walls and dry wall, plaster fell, light and heavy furniture having moved, small objects overturned and some fell, buildings shook strongly, felt by all.

Salinas--There were reports of cracked foundations of reinforced concrete, cracks in exterior brick walls, large cracks in interior dry wall and plaster walls, light and heavy furniture moved, some windows cracked and broke, pictures out of place and some fell, felt by all. The press reported that many items were thrown from shelves and there was much broken glassware at the Mid-Town Market.

San Francisco--The press reported two 0.9-m- (3 ft) long cracks in the exterior brick work of the Adams Grant Building at 114 Sansome Street. At 40 Westwood Drive the walls were cracked throughout a house, one crack penetrated completely through both sides of the wall. Scores of people ran out of the San Francisco City Hall where plaster was shaken loose from a hallway ceiling on the second floor. Birds were knocked from their roof-top perches, tall buildings were rocked so strongly that people crawled under desks for protection, and cars in the streets were shaken.

San Juan Bautista--The north wall of Mission San Juan Bautista cracked and plaster fell. In the mission gift shop, figurines crashed to the floor. At San Juan Bautista State Historic Park

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California--Continued

walls of several buildings were cracked and plaster fell. In city shops there were reports of objects falling from shelves and plaster falling from ceilings (press reports). Bricks of chimneys were loosened, light and heavy furniture were moved, small objects were overturned and some broke, a few windows cracked, hanging pictures out of place, felt by and frightened all.

San Martin--Some windows and underground pipes broke, heavy furniture moved, light furniture overturned and damaged, small objects overturned and broke, hanging pictures fell, water splashed onto sides of pools, felt by and frightened all.

Santa Cruz--The press reported an apartment building had large cracks and bowed walls, windows were broken throughout Santa Cruz County, and the Santa Cruz County Center had its support beams slightly separated in some rooms.

Sunnyvale--At 1188 Bardeaux Drive a one-story office building of pre-stressed concrete walls and floor had several cracks in the exterior walls, the doors were put ajar, a 90 kg (200 lb) drafting table moved, and the suspended ceiling buckled.

Watsonville--There were reports of cracked chimneys, hairline cracks in exterior walls, interior walls separated from the ceiling or floor, light furniture moved, few windows cracked, small objects overturned and broke, felt by many. The police department reported that some older buildings suffered wall and roof cracks (press report).

Intensity V:

California--

Avenal--light furniture or small applicances moved, small objects moved, felt by many.

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California--Continued

Ballico--light and heavy furniture moved, water splashed onto sides of swimming pools, hanging pictures swung, felt by many.

Berkeley--light furniture or small appliances moved, felt by many.

Bethel Island--light furniture or small appliances moved, small objects overturned, hanging pictures out of place, felt by many.

Bishop--few windows cracked, windows, doors, and dishes rattled, felt by many.

Blossom Hill--light and heavy furniture moved, small objects moved, liquid spilled from small containers, hanging pictures out of place, felt by many.

Boulder Creek--light and heavy furniture moved, water splashed onto sides of swimming pools, small objects moved, few windows cracked, hanging pictures fell, felt by many.

Brisbane--light furniture and small objects moved, trees and bushes shook moderately, buildings shook strongly, felt by many.

Cambrian Park (San Jose)--unconfirmed report of some windows broken, hanging pictures swung, felt by all.

Campbell--light furniture moved, small objects broke, hanging pictures out of place, buildings shook strongly, felt by many.

Capitola--light furniture and small objects moved, liquid spilled from containers, hangings pictures out of place, building shook strongly, felt by many.

Castroville--small objects overturned, trees and bushes shook moderately, hanging pictures swung, felt by all.

Chular--heavy furniture and small objects moved, hanging objects swung violently, buildings shook strongly, felt by all.

Crows Landing--light and heavy

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California—Continued
furniture moved, small objects moved, hanging objects swung violently, water splashed onto sides of swimming pools, felt by all.
Denair—light furniture and small objects moved, water splashed onto sides of swimming pools, felt by many.
Dos Palos—light furniture and small objects moved, few windows cracked, liquid spilled from small containers, hanging pictures fell, felt by all.
Empire—light furniture moved, few windows cracked, water splashed onto sides of swimming pools, hanging pictures out of place, felt by many.
Gustine—few windows cracked, light furniture and small objects moved, water splashed onto sides of swimming pools, felt by many.
Hayward—light and heavy furniture moved, small objects moved, hanging pictures swung, buildings shook strongly, trees and bushes shook moderately, felt by many.
Hilmar—light furniture and small objects moved, water splashed onto sides of swimming pools, hanging pictures swung, felt by many.
Jolon—light furniture and small objects moved, hanging pictures swung, felt by many.
Knightson—light furniture and small objects moved, hanging pictures swung, felt by several.
Laurel—furniture shifted, small objects fell, hanging objects swung moderately.
Livermore—light furniture and small objects moved, few windows cracked, hanging pictures swung, felt by all.
Los Altos—light furniture and small objects moved, hanging pictures swung, felt by all.
Los Banos—some goods fell from grocery shelves, few windows cracked, light furniture moved, hanging pictures out of place, felt by many.

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California—Continued
Los Gatos—light furniture and small objects moved, hanging pictures swung, felt by many.
Marina—light furniture and small appliances moved, hanging pictures out of place, standing vehicles rocked moderately, felt by many.
Menlo Park—few windows cracked, buildings creaked, trees and bushes shook moderately, felt by many.
Moss Beach—light furniture and small objects moved, hanging pictures swung, felt by many.
Mount Hamilton—light furniture and small objects moved, hanging pictures out of place, buildings shook strongly, one report of a cracked foundation, felt by many.
Mount Herman—hanging objects swung violently, trees and bushes shook strongly, water splashed onto sides of swimming pools, buildings shook strongly, felt by many.
Mountain View—light furniture damaged, small objects moved, pendulum clocks stopped, felt by many.
Pacific Grove—few windows cracked, hanging pictures out of place, water splashed onto sides of swimming pools, felt by many.
Pebble Beach—light furniture and small objects moved, few windows cracked, water splashed onto sides of swimming pools, felt by many.
Oakland—furniture moved, ceiling tiles cracked, telephone service interrupted, buildings swayed, felt by many.
Paicines—light and heavy furniture moved, small objects moved, trees and bushes shook moderately, felt by all.
Patterson—light furniture and small objects moved, hanging objects swung moderately, felt by many.
Petaluma—few windows cracked, light furniture and small objects moved, water splashed onto sides of swimming pools, felt by many.

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California--Continued

Raisin--light furniture and small objects moved, hanging pictures swung, felt by several.
Redwood City--few windows cracked, one report of cracked plaster, light furniture and small objects moved, water splashed onto sides of swimming pools, felt by many, people ran into the street.
Redwood Estates--hanging objects swung violently, water splashed onto sides of swimming pools, trees and bushes shook moderately, buildings shook strongly, felt by all.
Rio Vista--light furniture and small objects moved, hanging pictures out of place, felt by many.
Ripon--light furniture moved, small objects overturned, few windows cracked, underground pipes broke, hanging objects swung violently, felt by many.
Riverdale--light furniture and small objects moved, trees and bushes shook moderately, hanging pictures swung, felt by many.
Ross--hanging pictures fell, small objects moved, buildings shook strongly, felt by several.
Salida--light furniture and small objects moved, hanging pictures out of place, felt by many.
San Ardo--few windows cracked, small objects moved, hanging pictures swung, felt by many.
San Francisco International Airport--few windows cracked, hanging objects swung violently, buildings shook strongly, felt by all.
San Jose--There were reports of light and heavy furniture moved, small objects moved, buildings shook strongly, and felt by all. The press described the shaking as violent and a police dispatcher said his room moved 4 or 5 in. (10-13 cm) up and down.

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California--Continued

San Leandro--small objects broke, hanging objects swung moderately, felt by many.
Santa Clara--few windows cracked, small objects moved, buildings shook strongly, felt by many.
Saratoga--There were reports of light furniture moved and hanging pictures swung. The postmaster described it as a "very good shake" that moved the whole Post Office building back and forth.
Snelling--light furniture and small objects moved, hanging pictures swung, buildings shook strongly, felt by all.
South Dos Palos--cracks in interior walls, small objects moved, buildings shook strongly, felt by all.
Vernalis--few windows cracked, small objects moved, water splashed onto sides of swimming pools, felt by many.

Intensity IV:

California--Ahwanee, Alamo, Alviso, Aptos, Atwater, Bass Lake, Ben Lomond, Benicia, Big Sur, Bolinas, Bradley, Brentwood, Brookdale, Burlingame, Burrel, Byron, Cantua Creek, Carmel, Carmel Valley, Caruthers, Castro Valley, Catheys Valley, Chowchilla, Coalinga, Crockett, Daly City, Danville, Davenport, Delhi, El Granada, El Nido, El Verano, Escalon, Fairfax, Fairfield, Farmington, Felton, Finley, Firebaugh, Five Points, Forest Knolls, Fort Ord, Fowler, Fresno, Friant, Glencoe, Gonzales, Greenfield, Half Moon Bay, Hanford, Hathaway Pines, Helm, Hernandez, Hickman, Holt, Holy City, Hughson, Isleton, Keyes, La Grange, La Honda, Lagunitas, Layton, Le Grand, Lemoore NAS, Limington, Lindsay, Livingston, Long Barn, Los Alamos, Madera, Mendota, Merced, Modesto, Monte Sereno, Monterey, Moraga, Mt. Aukum, Mount Eden, Murphys, Myers Flat, New Almaden, Newark, Newman, Novato, Olema, O'Neals, Orinda, Pacific Grove, Pacifica, Parlier, Penngrove, Petrolia,

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California--Continued

Pinedale, Pioneer, Pittsburg, Pleasanton, Oakland International Airport, Point Reyes Station, Port Costa, Richmond, River Pines, Riverbank, San Bruno, Santa Rosa, Sequoia National Park, South San Francisco, Stevinson, Stinson Beach, Stockton, Stratford, Tracy, Tranquillity, Turlock, Union City, Valley Ford, Valley Home, Walnut Creek, Walnut Grove, Westley, Winton, Woodacre.
Nevada--Carson City.

Intensity III:
California--Alameda, Alpaugh, Antioch, Armona, Arroyo Grande, Avila Beach, Belvedere-Tiburon, Biola, Bridgeport, Ceres, Clayton, Clovis, Concord, (press report), Corte Madera, Courtland, Del Ray, Diablo, Dixon, Exeter, Fremont, Fulton, Groveland, Guerneville, Healdsburg (press report), Hood, Huron, Inverness, Jenner, June Lake, Kettleman City, King City, Larkspur, Linden, Manteca, Marshall, Martinez (press report), Mountain Ranch, Napa, Oakley, Paradise, Pescadero, Piedra, Pixley, Rail Road Flat, Rohnert Park, Sacramento, San Lorenzo, San Mateo, San Miguel, San Simeon, Santa Clara, Selma, South Lake Tahoe, Sunnyvale, Templeton, Truckee, Tuolumne, Twain Harte, Visalia, Waterford, Wilseyville.
Nevada--Minden, Reno.

Intensity II:
California--Arvin, Atascadero, Clements, Copperopolis, Cutler, Davis (press report), Dinuba, Eldridge, Forest Knolls, Lompoc, Mi-wuk Village, San Anselmo, San Joaquin, Santa Barbara, West Point.
Nevada--Carson City.

Felt:
California--Coyote.

6 August (B) Central California
Origin time: 17 10 43.3
Epicenter: 37.09 N., 121.48 W.
Depth: 6 km
Magnitude: 3.8 ML(B)

Felt in the epicentral area (B). Aftershock of the August 6, 17 05 22.7 earthquake.

6 August (B) Central California
Origin time: 17 22 47.6
Epicenter: 37.04 N., 121.48 W.
Depth: 7 km
Magnitude: 3.2 ML(B)

Felt in the epicentral area (B). Aftershock of the August 6, 17 05 22.7 earthquake.

6 August (P) Southern California
Origin time: 18 04 57.4
Epicenter: 34.42 N., 118.40 W.
Depth: 6 km
Magnitude: 2.8 ML(P)

Felt: San Fernando (P).

6 August (B) Central California
Origin time: 22 21 01.7
Epicenter: 37.03 N., 121.47 W.
Depth: 6 km
Magnitude: 3.6 ML(B)

Felt in the epicentral area (B). Aftershock of the August 6, 17 05 22.7 earthquake.

6 August (B) Central California
Origin time: 22 33 55.4
Epicenter: 37.00 N., 121.48 W.
Depth: 4 km
Magnitude: 4.4 ML(B)

Felt in the epicentral area (B). Aftershock of the August 6, 17 05 22.7 earthquake.

Intensity IV: Campbell.

6 August (B) Central California
Origin time: 22 35 57.6
Epicenter: 36.98 N., 121.49 W.
Depth: 5 km
Magnitude: 2.9 ML(B)

Felt in the epicentral area (B). Aftershock of the August 6, 17 05 22.7 earthquake.

6 August (B) Central California
Origin time: 22 36 04.9
Epicenter: 36.99 N., 121.48 W.

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California--Continued

Depth: 1 km
Magnitude: 3.8 ML(B)

Felt in the epicentral area (B). Aftershock of the August 6, 17 05 22.7 earthquake.

7 August (B) Central California
Origin time: 05 56 51.6
Epicenter: 37.06 N., 121.49 W.
Depth: 4 km
Magnitude: 3.1 ML(B)

Felt in the epicentral area (B). Aftershock of the August 6, 17 05 22.7 earthquake.

7 August (B) Central California
Origin time: 19 11 25.7
Epicenter: 36.98 N., 121.47 W.
Depth: 2 km
Magnitude: 3.2 ML(B)

Felt in the epicentral area (B). Aftershock of the August 6, 17 05 22.7 earthquake.

8 August (B) Central California
Origin time: 22 56 07.9
Epicenter: 37.03 N., 121.47 W.
Depth: 4 km
Magnitude: 3.4 ML(B)

Felt in the epicentral area (B). Aftershock of the August 6, 17 05 22.7 earthquake.

9 August (B) Central California
Origin time: 07 03 20.2
Epicenter: 37.01 N., 121.45 W.
Depth: 6 km
Magnitude: 4.2 ML(B)

The press reported that the earthquake was felt at Alameda, East San Jose, Fremont, Gilroy, Hollister, Monterey, Morgan Hill, Newark, San Francisco, San Leandro, Santa Clara, Tiburon, and Union City. Aftershock of the August 6, 17 05 22.7 earthquake.

9 August (B) Central California
Origin time: 12 49 27.5
Epicenter: 36.98 N., 121.46 W.
Depth: 3 km
Magnitude: 3.5 ML(B)

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California--Continued

Felt in Hollister (press report). Aftershock of the August 6, 17 05 22.7 earthquake.

10 August (B) Central California
Origin time: 00 25 20.8
Epicenter: 37.02 N., 121.46 W.
Depth: 5 km
Magnitude: 3.7 ML(B)

Felt in the epicentral area (B). Aftershock of the August 6, 17 05 22.7 earthquake.

10 August (B) Central California
Origin time: 04 50 40.0
Epicenter: 36.96 N., 121.48 W.
Depth: 5 km
Magnitude: 3.0 ML(B)

Felt in the epicentral area (B). Aftershock of the August 6, 17 05 22.7 earthquake.

11 August (B) Central Califonia
Origin time: 20 29 35.2
Epicenter: 37.14 N., 121.52 W.
Depth: 5 km
Magnitude: 3.4 ML(B)

Felt in the epicentral area (B). Aftershock of the August 6, 17 05 22.7 earthquake.

13 August (B) Central California
Origin time: 19 02 52.5
Epicenter: 37.88 N., 122.21 W.
Depth: 13 km
Magnitude: 2.3 ML(B)

Felt at Orinda (B).

13 August (B) Central California
Origin time: 19 18 46.8
Epicenter: 37.86 N., 122.17 W.
Depth: 9 km
Magnitude: 3.5 ML(B)
Intensity IV: Moraga (press report), Rheem Valley, Walnut Creek.
Intensity III: Alamo, Berkeley, Martinez (press report), San Francisco (press report).
Intensity II: Port Costa.
Felt: Oakland (B), Orinda (B).

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California--Continued

14 August (B) Central California
Origin time: 03 15 57.0
Epicenter: 36.99 N., 121.47 W.
Depth: 4 km
Magnitude: 3.6 ML(B)

Felt in the epicentral area (B). Aftershock of the August 6, 17 05 22.7 earthquake.

14 August (P) Southern California
Origin time: 04 20 18.6
Epicenter: 33.80 N., 117.80 W.
Depth: 6 km
Magnitude: 2.1 ML(P)

Felt at Brea (P).

17 August (B) Central California
Origin time: 15 43 03.3
Epicenter: 37.84 N., 122.23 W.
Depth: 8 km
Magnitude: 2.9 ML(B)

Felt in Berkeley Hills (B) and in parts of Oakland and as far east as Moraga (press report).

19 August (P) Southern California
Origin time: 03 13 51.2
Epicenter: 34.08 N., 117.22 W.
Depth: 5 km
Magnitude: 2.7 ML(P)

Felt at Redlands (P).

19 August (B) Central California
Origin time: 08 45 50.8
Epicenter: 36.97 N., 121.46 W.
Depth: 5 km
Magnitude: 2.3 ML(B)

Aftershock of the August 6, 17 05 22.7 earthquake

Intensity IV: San Jose.

21 August (P) Southern California
Origin time: 13 18 07.0
Epicenter: 34.55 N., 119.72 W.
Depth: 6 km
Magnitude: 3.1 ML(P)
Intensity IV: Carpenteria, San Roque, Santa Barbara.
Intensity III: Goleta.

22 August (P) Southern California
Origin time: 02 01 36.4

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California--Continued

Epicenter: 33.70 N., 116.85 W.
Depth: 16 km
Magnitude: 4.0 ML(P)
Intensity IV: Aguanga, Bloomington, Bonsall, Cabazon, Hemet, Indio, Palm Springs, Vista.
Intensity III: Beaumont, Cedar Glen, Highland, Indio (press report), Lake Elsinore (press report), Lakeview, North Palm Springs, Perris, Sunnymead, Temecula, Thousand Palms, Twin Peaks, White Water.
Felt: San Bernardino (P).

24 August (B) Central California
Origin time: 04 46 51.6
Epicenter: 37.84 N., 122.25 W.
Depth: 7 km
Magnitude: 2.9 ML(B)
Intensity IV: San Francisco.
Felt: Albany (B), Berkeley (B), El Cerrito (B), Emeryville (B), LaFayette (press report), Oakland (B), Orinda (press report), Richmond (B).

27 August (P) Imperial Valley area
Origin time: 07 23 53.5
Epicenter: 32.70 N., 115.90 W.
Depth: 5 km
Magnitude: 3.5 ML(P)

Felt at El Centro (P).

28 August (P) Southern California
Origin time: 08 57 56.3
Epicenter: 34.42 N., 117.73 W.
Depth: 9 km
Magnitude: 3.9 ML(P)
Intensity IV: Lytle Creek, Mt. Baldy, Pinon Hills, Wrightwood.
Intensity III: Blue Jay, Cedar Glen.
Intensity II: Action, Valyermo.
Felt: Los Angeles (P), Palmdale (P), Pasadena (P).

29 August (P) Southern California
Origin time: 09 19 24.9
Epicenter: 33.97 N., 118.70 W.
Depth: 7 km
Magnitude: 2.7 ML(P)

Felt at Malibu (P).

31 August (B) Central California
Origin time: 18 53 45.1
Epicenter: 37.84 N., 122.03 W.

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California--Continued

Depth: 8 km
Magnitude: 2.7 ML(B)

Felt at Danville (press report).

2 September (B) Northern Califonia
Origin time: 07 38 00.1
Epicenter: 39.20 N., 122.86 W.
Depth: 22 km
Magnitude: 2.6 ML(B)
Intensity III: Potter Valley, Redwood Valley, Ukiah (press report).

5 September (P) Southern California
Origin time: 17 11 07.1
Epicenter: 34.07 N., 118.90 W.
Depth: 7 km
Magnitude: 3.4 ML(P)

Felt at Chatsworth and Thousand Oaks (P).

7 September (B) Owens Valley area
Origin time: 09 43 47.3
Epicenter: 37.62 N., 118.91 W.
Depth: 3 km
Magnitude: 4.2 ML(B), 4.2 ML(P)
Intensity IV: Big Creek, Bridgeport, Crowley Lake, Lakeshore, Mammoth Lakes, Mono City.
Intensity III: June Lake.

9 September (B) Central California
Origin time: 20 48 30.7
Epicenter: 37.84 N., 121.95 W.
Depth: 1 km
Magnitude: 2.9 ML(B)

Felt in Contra Costa County (press report).

10 September (P) Owens Valley area
Origin time: 19 26 52.6
Epicenter: 37.55 N., 118.68 W.
Depth: 5 km
Magnitude: 2.7 ML(P)

Felt at Mammoth Lakes (P).

14 September (B) Central California
Origin time: 01 04 05.0
Epicenter: 37.11 N., 121.94 W.
Depth: 15 km
Magnitude: 3.2 ML(B)

Felt at Santa Cruz (B).

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

California--Continued

20 September (B) Central California
Origin time: 03 05 24.8
Epicenter: 37.88 N., 122.30 W.
Depth: 10 km
Magnitude: 2.5 ML(B)

Felt at Berkeley (B).

24 September (B) Owens Valley area
Origin time: 13 05 03.2
Epicenter: 37.66 N., 118.94 W.
Depth: 5 km
Magnitude: 4.1 ML(B), 4.4 ML(P)
Intensity IV: Mammoth Lakes, Lakeshore.

24 September (B) Owens Valley area
Origin time: 14 26 18.5
Epicenter: 37.66 N., 118.94 W.
Depth: 5 km
Magnitude: 3.6 ML(B), 3.9 ML(P)

Felt at Mammoth Lakes (P).

27 September (B) Central California
Origin time: 06 14 50.2
Epicenter: 36.79 N., 121.59 W.
Depth: 2 km
Magnitude: 2.9 ML(B)

Felt at San Juan Bautista (B).

28 September (P) Southern California
Origin time: 20 08 26.2
Epicenter: 34.02 N., 118.32 W.
Depth: 6 km
Magnitude: 2.2 ML(P)

Felt at Hollywood (P).

California--Off the coast

8 August (B) Northern California
Origin time: 10 24 57.6
Epicenter: 40.31 N., 124.68 W.
Depth: 29 km
Magnitude: 3.8 mb(G), 4.3 ML(B)
Intensity IV: Blocksburg, Honey Dew, Leggett, Miranda, Scotia.
Intensity III: Zenia.

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

Georgia

13 August (G) Southeastern Tennessee
Origin time: 05 18 56.0

See Tennessee listing.

26 August (G) Northwestern South Carolina
Origin time: 01 31 45.0

See South Carolina listing.

Hawaii

The places shown below followed by (H) designate intensity values assigned by the Hawaiian Volcano Observatory.

3 July (H) Island of Hawaii
Origin time: 04 42 44.8
Epicenter: 19.40 N., 155.45 W.
Depth: 11 km
Magnitude: 3.3 ML(H)
Intensity IV: Ahualoa (H)
Intensity III: Glenwood (H), Honokaa, Volcano (H).

5 July (H) Island of Hawaii
Origin time: 03 27 15.9
Epicenter: 19.35 N., 155.13 W.
Depth: 9 km
Magnitude: 3.4 ML(H)
Intensity III: Hawaii Volcanoes National Park (H).

16 July (H) Island of Hawaii
Origin time: 02 42 07.3
Epicenter: 19.38 N., 155.09 W.
Depth: 1 km
Magnitude: 3.6 ML(H)
Intensity IV: Hilo (H), Puna (H).

16 July (H) Island of Hawaii
Origin time: 14 13 15.7
Epicenter: 19.40 N., 155.03 W.
Depth: 9 km
Magnitude: 3.5 ML(H)
Intensity III: Ainaloa (H), Kurtistown (H).

21 July (H) Island of Hawaii
Origin time: 09 22 30.2
Epicenter: 19.41 N., 155.46 W.
Depth: 11 km
Magnitude: 3.6 ML(H)
Intensity IV: Pahala (H).

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

Hawaii--Continued

25 July (H) Island of Hawaii
Origin time: 04 07 38.3
Epicenter: 19.33 N., 155.14 W.
Depth: 10 km
Magnitude: 3.5 ML(H)
Intensity III: Volcano (H).

26 July (H) Island of Hawaii
Origin time: 19 50 41.6
Epicenter: 19.76 N., 155.97 W.
Depth: 20 km
Magnitude: 3.6 ML(H)
Intensity III: Holualoa (H), Kealakekua (H).

27 July (H) Island of Hawaii
Origin time: 18 56 33.6
Epicenter: 19.33 N., 155.13 W.
Depth: 9 km
Magnitude: 3.5 ML(H)
Intensity IV: Hilo (H).

31 July (H) Island of Hawaii
Origin time: 13 30 51.3
Epicenter: 19.47 N., 155.43 W.
Depth: 12 km
Magnitude: 4.3 ML(H), 4.5 mb(G)
Intensity V: Pahala (H).
Intensity IV: Kona, Puna Areas, Waimea.
Intensity III: Hamakua (H), Hawaii Volcanoes National Park (H), Hawi (H), Hilo (H), Volcano (H).

1 August (H) Island of Hawaii
Origin time: 16 14 11.8
Epicenter: 19.39 N., 155.28 W.
Depth: 3 km
Magnitude: 3.0 ML(H)
Intensity III: Hawaii Volcanoes National Park (H), Volcano (H).

3 August (H) Island of Hawaii
Origin time: 13 30 06.3
Epicenter: 19.33 N., 155.21 W.
Depth: 10 km
Magnitude: 3.3 ML(H)
Intensity III: Hawaii Volcanoes National Park (H), Mountain View (H), Volcano (H).

6 August (H) Island of Hawaii
Origin time: 03 03 34.8
Epicenter: 19.28 N., 155.54 W.
Depth: 10 km
Magnitude: 3.5 ML(H)

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

Hawaii--Continued

Intensity IV: Kapapala (H), Pahala (H).
Intensity III: Kona (H), Volcano (H).

13 August (H) Island of Hawaii
Origin time: 16 03 40.6
Epicenter: 19.30 N., 155.26 W.
Depth: 10 km
Magnitude: 3.4 ML(H)
Intensity III: Glenwood (H), Mountain View (H), Volcano (H).

14 August (H) Island of Maui
Origin time: 12 51 42.2
Epicenter: 20.82 N., 156.29 W.
Depth: 24 km
Magnitude: 4.5 ML(H), 4.1 mb(G)

Felt in Kahoolawe, Lanai, Maui, Molokai, and Oahu Islands. Most strongly felt on the eastern half of Maui Island.

Intensity V:
Maui Island--
Haliimaile--hanging pictures fell; windows, doors, and dishes rattled; felt by and awakened many.
Kahului--shook one house so strongly the owner thought the house would fall down (press report).
Kula (H).
Makawao--house rattled and shook back and forth (press report).
Olinda--house rattled and shook (press report).
Intensity IV:
Hawaii Island--Captain Cook, Honokaa, Pahala, Volcano.
Maui Island--Hoolehua, Kihei, Kualapuu, Kula, Lahaina, Lanai City, Makawao, Pukalani, Waikapu, Wailuku.
Oahu Island--Aiea.
Intensity III:
Hawaii Island--Hamakua District (H), Kohala District (H), Papaikou.
Kahoolawe Island (press report).
Lanai Island (H).
Maui Island--Hana (H).
Molokai Island (H).
Oahu Island--Honolulu.

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

Hawaii--Continued

16 August (H) Island of Hawaii
Origin time: 23 04 19.4
Epicenter: 19.38 N., 155.47 W.
Depth: 11 km
Magnitude: 3.9 ML(H)
Intensity IV: Kapapala (H).
Intensity III: Hawaii Volcanoes National Park (H), Hawaiian Oceanview Estates (H), Mauna Loa Observatory (H).
Intensity II: Papaikou (H).

26 August (H) Island of Hawaii
Origin time: 07 08 14.6
Epicenter: 19.35 N., 155.22 W.
Depth: 10 km
Magnitude: 3.3 ML(H)
Intensity II: Papaikou (H), Volcano (H).

28 August (H) Island of Hawaii
Origin time: 15 21 59.1
Epicenter: 19.31 N., 155.22 W.
Depth: 11 km
Magnitude: 3.5 ML(H)
Intensity III: Glenwood (H), Hawaii Volcanoes National Park (H), Hilo (H), Mountain View (H).

28 August (H) Island of Hawaii
Origin time: 15 47 24.8
Epicenter: 19.32 N., 155.22 W.
Depth: 11 km
Magnitude: 3.4 ML(H)
Intensity III: Glenwood (H), Hawaii Volcanoes National Park (H), Hilo (H), Mountain View (H).

28 August (H) Island of Hawaii
Origin time: 16 55 13.2
Epicenter: 19.31 N., 155.22 W.
Depth: 11 km
Magnitude: 3.8 ML(H)
Intensity III: Glenwood, Hawaii Volcanoes National Park (H), Hilo (H), Mountain View (H), Volcano (H).

1 September (H) Island of Hawaii
Origin time: 22 16 33.5
Epicenter: 19.37 N., 155.08 W.
Depth: 10 km
Magnitude: 3.8 ML(H)
Intensity IV: Hilo (H), Kalapana (H).
Intensity III: Olaa (H), Pahoa (H), Volcano (H).

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

Hawaii--Continued

4 September (H) Island of Hawaii
Origin time: 11 30 09.2
Epicenter: 19.74 N., 156.02 W.
Depth: 9 km
Magnitude: 3.2 ML(H)
Intensity IV: Kailua.

6 September (H) Island of Hawaii
Origin time: 12 24 48.0
Epicenter: 19.33 N., 155.12 W.
Depth: 10 km
Magnitude: 3.4 ML(H)
Intensity III: Volcano (H).
Intensity II: Papaikou (H).

8 September (H) Island of Hawaii
Origin time: 23 34 42.2
Epicenter: 19.32 N., 155.23 W.
Depth: 11 km
Magnitude: 3.4 ML(H)
Intensity III: Ainaloa (H), Volcano (H).
Intensity II: Pepeekeo (H).

14 September (H) Island of Hawaii
Origin time: 14 32 17.4
Epicenter: 19.39 N., 155.28 W.
Depth: 3 km
Magnitude: 3.0 ML(H)
Intensity III: Hawaii Volcanoes National Park (H), Volcano (H).

14 September (H) Island of Hawaii
Origin time: 17 35 18.7
Epicenter: 19.33 N., 155.20 W.
Depth: 10 km
Magnitude: 3.2 ML(H)
Intensity III: Hilo (H), Volcano (H).

15 September (H) Island of Hawaii
Origin time: 01 31 48.0
Epicenter: 19.35 N., 155.82 W.
Depth: 11 km
Magnitude: 3.8 ML(H)
Intensity IV: Honaunau (H), Kealakekua (H).

16 September (H) Island of Hawaii
Origin time: 19 51 36.7
Epicenter: 19.40 N., 155.04 W.
Depth: 9 km
Magnitude: 3.2 ML(H)
Intensity III: Hilo (H).

21 September (H) Island of Hawaii
Origin time: 11 29 24.1
Epicenter: 19.33 N., 155.20 W.
Depth: 10 km

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

Hawaii--Continued

Magnitude: 3.4 ML(H)
Intensity III: Volcano (H).

22 September (H) Island of Hawaii
Origin time: 07 59 37.6
Epicenter: 19.35 N., 155.07 W.
Depth: 9 km
Magnitude: 5.7 mb(G), 4.8 MS(G), 5.5 ML(H)

The press reported this earthquake was felt over the whole island of Hawaii and was the most damaging since the November 29, 1975 shock. According to the press several hundred homes in the Hilo area were damaged and several businesses suffered losses. Damage was reported heaviest in the Ainaka, Wainaku, and Wailuku Drive neighborhoods of Hilo. There were no reports of injuries.

Intensity VI: Hilo area (many windows broke, water lines ruptured, dishes and household effects broke, store merchandise damaged, some foundations damage--press reports). Reeds Island (foundation and fireplace damage to homes--press report).
Intensity V: Glenwood (H), Hamakua (H), Honomu, Kurtistown, Laupahoehoe, Mountain View, Papaikou, Volcano (H).
Intensity IV: Captain Cook, Honokaa, Kau District, Ninole, Keaau, Naalehu, Ookala, Pahala, Waimea (H).
Intensity III: Holualoa, Papaaloa, Kamuela, Kona District (H), Kohala District (H), Paauhau.

22 September (H) Island of Hawaii
Origin time: 09 29 12.3
Epicenter: 19.35 N., 155.03 W.
Depth: 9 km
Magnitude: 4.8 mb(G), 4.3 ML(H)
Intensity IV: Hilo (H).
Intensity III: Glenwood (H), Mountain View (H), Puna District (H), Volcano (H).

22 September (H) Island of Hawaii
Origin time: 09 36 17.3
Epicenter: 19.35 N., 155.04 W.
Depth: 8 km

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

Hawaii--Continued

Magnitude: 3.2 ML(H)
Intensity III: Hilo (H), Puna District (H), Volcano (H).

23 September (H) Island of Hawaii
Origin time: 11 28 19.9
Epicenter: 19.38 N., 155.07 W.
Depth: 9 km
Magnitude: 3.3 ML(H)
Intensity III: Hilo (H), Keaau (H), Volcano (H).

25 September (H) Island of Hawaii
Origin time: 03 50 23.1
Epicenter: 19.37 N., 155.08 W.
Depth: 9 km
Magnitude: 3.6 ML(H)
Intensity III: Hawaii Volcanoes National Park (H), Hilo (H), Honomu (H), Volcano (H).

27 September (H) Island of Hawaii
Origin time: 01 01 32.4
Epicenter: 19.54 N., 155.92 W.
Depth: 11 km
Magnitude: 3.2 ML(H)
Intensity III: Captain Cook (H), Kainaliu (H).

27 September (H) Island of Hawaii
Origin time: 15 35 45.5
Epicenter: 19.33 N., 155.12 W.
Depth: 10 km
Magnitude: 4.7 mb(G), 4.3 ML(H)
Intensity V: Hilo (H).
Intensity IV: Captain Cook, Honokaa, Kamuela, Kurtistown, Laupahoehoe, Mountain View, Ookala, Pahala, Papaikou, Volcano (H).
Intensity III: Kau District (H), Kohala District (H), Kona District (H), Papaaloa.

27 September (H) Island of Hawaii
Origin time: 15 38 31.2
Epicenter: 19.33 N., 155.13 W.
Depth: 9 km
Magnitude: 3.2 ML(H)
Intensity IV: Hilo (H).
Intensity III: Glenwood (H), Kalapana (H), Volcano (H).

30 September (H) Island of Hawaii
Origin time: 00 02 26.3
Epicenter: 19.37 N., 155.11 W.
Depth: 8 km
Magnitude: 3.2 ML(H)
Intensity II: Hilo (H).

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

Maine

28 July (J) Southwestern Maine
Origin time: 23 29 12.3
Epicenter: 43.29 N., 70.44 W.
Depth: 11 km
Magnitude: 3.5 mbLg(G), 3.5 mbLg(J)

The intensities listed below are a combination of USGS and Maine Geological Survey questionnaires which were evaluated by the NEIS. The maximum effects reported were small objects moved; windows, doors, and dishes rattled; hanging pictures out of place; loud earth noises; felt by many.

Intensity IV:
Maine--Kennebunkport, Moody, North Berwick, Onunquit, Saco, Scarborough, South Berwick, Wells, York, York Harbor.
New Hampshire--Milton, Rollinsford.
Intensity III:
Maine--Acton, Bar Mills, Berwick, Biddeford, Cape Elizabeth, East Waterboro, Hollis Center, Kittery Point, Portland, Springvale.
New Hampshire--New Castle, Somersworth.
Intensity II:
Maine--Biddeford Pool, Eliot, Kittery.
New Hampshire--Greenland.

19 August (O) Southern Quebec Canada
Origin time: 22 49 31.0
Epicenter: 47.64 N., 69.96 W.
Depth: 18 km
Magnitude: 4.6 mb(G), 4.5 MS(G), 5.4 mbLg(O)

Felt at maximum intensity V in the St. Simeon area in Canada.

Intensity IV: Saint Francis.
Intensity III: Lille.

Missouri

8 July (S) Southeast Missouri
Origin time: 12 35 15.1
Epicenter: 36.89 N., 89.29 W.
Depth: 3 km
Magnitude: 3.1 mbLg(S)
Intensity IV: Wyatt (windows,

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

Missouri--Continued

doors, and dishes rattled; small objects moved).
Intensity III: Charleston.

13 July (S) New Madrid region
Origin time: 07 29 39.0
Epicenter: 36.08 N., 89.77 W.
Depth: 11 km
Magnitude: 2.7 mbLg(T), 2.8 mbLg(S)
Intensity IV:
Missouri--Campbell, Clarkton.
Tennessee--Bogota.
Intensity III:
Missouri--Wardell, Whiteoak.
Intensity II:
Missouri--Braggadocio (press report), Marston.
Tennessee--Ridgely.
Felt:
Missouri--Caruthersville.

12 September (S) Eastern Missouri
Origin time: 10 59 46.2
Epicenter: 37.74 N., 89.95 W.
Depth: 3 km
Magnitude: 2.5 mbLg(S)

Felt in Perryville area (S).

Montana

27 July (G) Northwestern Montana
Origin time: 22 18 47.3
Epicenter: 47.72 N., 114.15 W.
Depth: 5 km
Magnitude: 3.5 ML(G)

Felt along the South Shore area of Flathead Lake and at Dayton and Ronan on the west shore (press report).

Nebraska

16 July (G) Southwestern Nebraska
Origin time: 00 03 47.3
Epicenter: 40.18 N., 100.38 W.
Depth: 5 km
Magnitude: 3.2 mbLg(T)
Intensity III: Indianola (telephone report).

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

Nevada

3 August (E) Southern Nevada
Origin time: 15 07 30.163
Epicenter: 37.08 N., 116.07 W.
Depth: 0 km
Magnitude: 4.5 mb(G), 4.6 ML(B)

Nevada Test Site explosion "Burzet" at 37°05'02.22" N., 116°04'11.59" W., surface elevation 1262 m, depth of burial 450 m.

8 August (E) Southern Nevada
Origin time: 15 00 00.112
Epicenter: 37.02 N., 116.01 W.
Depth: 0 km
Magnitude: 4.8 mb(G), 4.6 ML(B)

Nevada Test Site explosion "Offshore" at 37°00'53.09" N., 116°00'28.82" W., surface elevation 1209 m, depth of burial 396 m.

29 August (E) Southern Nevada
Origin time: 15 08 00.171
Epicenter: 37.12 N., 116.07 W.
Depth: 0 km
Magnitude: 4.7 mb(G), 5.0 ML(B)

Nevada Test Site explosion "Nessel" at 37°07'16.39" N., 116°03'59.71" W, surface elevation 1286 m, depth of burial 464 m.

6 September (E) Southern Nevada
Origin time: 15 00 00.089
Epicenter: 37.09 N., 116.05 W.
Depth: 0 km
Magnitude: 5.8 mb(G), 4.1 MS(G), 5.5 ML(B)

Nevada Test Site explosion "Hearts" at 37°05'17.20" N., 116°03'10.02" W., surface elevation 1259 m, depth of burial 640 m.

8 September (E) Southern Nevada
Origin time: 17 02 00.090
Epicenter: 37.15 N., 116.04 W.
Depth: 0 km
Magnitude: 3.8 mb(G), 3.7 ML(B)

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

Nevada--Continued

Nevada Test Site explosion "Pera" at 37°09'17.98" N., 116°02'17.48" W., depth of burial 200 m.

26 September (E) Southern Nevada
Origin time: 15 00 00.091
Epicenter: 37.23 N., 116.36 W.
Depth: 0 km
Magnitude: 5.6 mb(G), 4.1 MS(G), 5.4 ML(B)

Nevada Test Site explosion "Sheepshead" at 37°13'44.64" N., 116°21'50.59" W., surface elevation 2060 m, depth of burial 640 m.

New Hampshire

28 July (J) Southwestern Maine
Origin time: 23 29 12.3

See Maine listing.

North Carolina

13 August (G) Southeastern Tennessee
Origin time: 05 18 56.0

See Tennessee Listing.

26 August (G) Northwestern South Carolina
Origin time: 01 31 45.0

See South Carolina listing.

12 September (G) Eastern Tennessee
Origin time: 06 24 03.6

See Tennessee listing.

Oklahoma

13 September (T) Western Oklahoma
Origin time: 00 49 23.0
Epicenter: 35.22 N., 99.36 W.
Depth: 15 km
Magnitude: 3.4 mbLg(T)
Intensity IV: Carter (small objects moved, dishes rattled, buildings shook slightly, felt by many).

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

Oklahoma--Continued

Intensity III: Sentinel, Willow.
Felt: Retrop (T).

16 September (T) Central Oklahoma
Origin time: 15 57 20.8
Epicenter: 35.34 N., 98.00 W.
Depth: 5 km
Magnitude: 2.5 mbLg(T)
Intensity IV: Minco (T).

South Carolina

11 August (Z) Eastern South Carolina
Origin time: 02 11 56.6
Epicenter: 32.99 N., 80.22 W.
Depth: 10 km
Magnitude: 2.5 mb(Z)
Intensity III: Summerville.

26 August (G) Northwestern South Carolina
Origin time: 01 31 45.0
Epicenter: 34.93 N., 82.97 W.
Depth: 2 km
Magnitude: 3.7 mbLg(V)

The University of South Carolina recorded about 20 aftershocks. The largest aftershock, approximately magnitude 2.2 mbLg, occurred on August 27 at 05 07 UTC. Some of the intensities listed below were evaluated by the USGS from a newspaper questionnaire published by the University of South Carolina in the Transylvania Times of Brevard, N.C.; the Seneca Journal of Seneca, S.C.; and the Anderson Independent of Anderson, S.C. This earthquake was felt over an area of approximately 11,400 sq km of Georgia, North Carolina, South Carolina, and Tennessee (fig. 8).

Intensity VI:
South Carolina--
Tamasee--dry wall cracked and fell, concrete basement floor cracked, small objects fell but did not break.
Intensity V:
North Carolina--
Naples--small objects and light furniture moved; trees and bushes shook moderately;

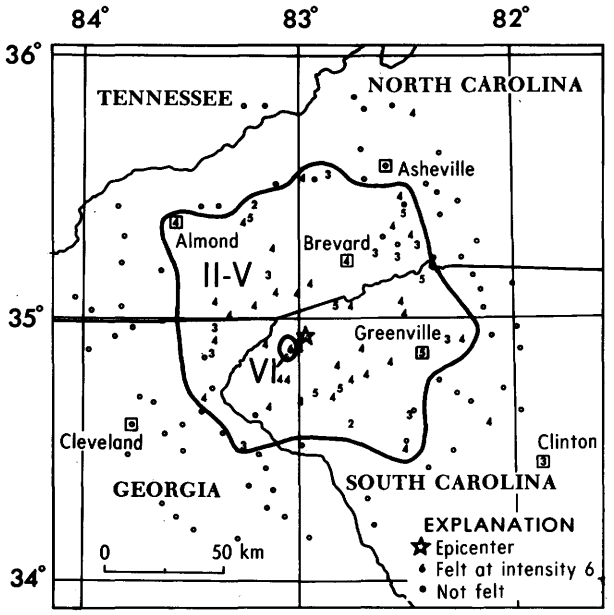

FIGURE 8.--Isoseismal map for the northwestern South Carolina earthquake of 26 August 1979, 01 31 45.0 UTC. Roman numerals represent Modified Mercalli intensities between isoseismals; Arabic numerals are used to represent these intensities at specific sites.

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1979*--Continued

South Carolina--Continued

windows, doors, and dishes rattled.
Rosman--small objects and light furniture moved, few windows cracked, hanging pictures swung, felt by several.
Sylva--moved a large business desk and rattled windows (press report).
Zirconia--few windows cracked, small objects moved, water splashed onto sides of lake or swimming pools, hanging pictures swung, felt by several.

South Carolina--
Central--furniture moved; hanging objects swung moderately; windows, doors, and dishes rattled; sounded like an explosion.
Greenville--few windows cracked; hanging pictures swung; windows, doors, and dishes rattled.

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1979*--Continued

South Carolina--Continued

Newry--light furniture and small objects moved; hanging pictures swung; windows, doors, and dishes rattled; felt by several.

Intensity IV:
Georgia--Mountain City, Turnerville.
North Carolina--Almond, Arden, Barnardsville, Brevard, Cashiers, Cedar Mountain, Dillsboro, Hendersonville, Highlands, Horse Shoe, Lake Junaluska, Lake Toxaway, Otto, Sapphire, Scaly Mountain, Toxaway Falls (press report), Tuckasegee, Waynesville, Webster.
South Carolina--Anderson (press report), Clemson, Cleveland, Easley, Gray Court, Greer, Liberty, Marietta, Mountain Rest, Norris, Pickens, Salem, Seneca, Six Mile, Walhalla, West Union, Westminster.

Intensity III:
Georgia--Clayton, Eastanollee, Rabun Gap.
North Carolina--Canton, Flat Rock, Glenville, Penrose, Tuxedo.
South Carolina--Clinton, Taylors, Williamston.

Intensity II:
Georgia--Dillard.
North Carolina--Balsam.
South Carolina--Cateechee, Sandy Springs.

Tennessee

13 July (S) New Madrid Region
Origin time: 07 29 39.0

See Missouri listing.

13 August (G) Southeastern Tennessee
Origin time: 05 18 56.0
Epicenter: 35.24 N., 84.38 W.
Depth: 5 km
Magnitude: 3.7 mbLg(V)

Intensity V:
Georgia--
Cisco--few windows cracked, felt by and awakened many.
Varnell--small objects overturned, felt by many and awakened several.

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

Tennessee--Continued

North Carolina--
Murphy-few windows cracked, pendulum clocks stopped, felt by and awakened several.
Tennessee--
Chattanooga--few windows cracked, small objects moved, hanging picture swung, felt by many.
Cleveland--dishes fell (telephone report), hanging pictures out of place, felt by and awakened many.

Intensity IV:
Georgia--Blue Ridge, Cedartown, Chatsworth, Cherrylog, Cohutta, Ellijay, Epworth, Eton, Hiwassee, Marietta, McCaysville, Mineral Bluff, Morganton, Tennga, Tunnel Hill (press report).
North Carolina--Andrews, Aquone, Brasstown, Robbinsville, Suit, Topton, Unaka.
Tennessee--Apison, Athens, Benton, Calhoun, Charleston, Coker Creek, Conasauga, Copperhill, Daisy, Delano, Ducktown, Etowah, Farner, Harrison, Hixson, Isabella, Madisonville, McDonald, Mount Vernon, Nashville (press report), Niota, Ocoee, Oldfort, Ooltewah, Postelle, Reliance, Riceville, Tellico Plains, Townsend, Turtletown.

Intensity III:
Georgia--Rome, Sandy Springs (press report).
Tennessee--Shelbyville.

Intensity II:
Georgia--Decatur.
Tennessee--Decatur.

Felt:
Georgia--Atlanta (telephone report).
North Carolina--Asheville, Cherokee, Clay.

12 September (G) Eastern Tennessee
Origin time: 06 24 03.6
Epicenter: 35.59 N., 83.90 W.
Depth: 5 km
Magnitude: 3.2 mbLg(V)

Intensity V:
Tennessee--Maryville (small objects overturned, windows, doors, and dishes rattled, felt by many).

Intensity IV:
North Carolina--Fontana Dam.
Tennessee--Alcoa, Friendsville, Greenback, Knoxville, Louisville, Madisonville, Tallassee, Townsend, Walland.

Texas

5 July (G) West Texas
Origin time: 01 05 01.0
Epicenter: 32.95 N., 100.90 W.
Depth: 4 km
Magnitude: 2.7 mbLg(T)

Heard but not felt at Snyder.

Washington

7 July (G) Southwestern Washington
Origin time: 20 50 01.5
Epicenter: 46.52 N., 122.17 W.
Depth: 5 km
Magnitude: 3.8 ML(G)

Felt in Cowlitz, Lewis, and Pierce Counties.

Intensity IV: Glenoma, Mossyrock.
Intensity III: Ashford, Eatonville (press report), Kelso, Mt. St. Helens area, Morton, Rainier.
Intensity II: Elbe, Randle.

28 July (W) Southern Washington
Origin time: 02 19 06.7
Epicenter: 46.66 N., 120.66 W.
Depth: 2 km
Magnitude: 3.1 ML(G)
Intensity IV: Naches, Selah (telephone report), Yakima.

5 September (W) Northwestern Washington
Origin time: 03 49 59.4
Epicenter: 47.52 N., 122.00 W.
Depth: 7 km
Magnitude: 2.1 ML(W)

Felt at Issaquah.

Table 2.—*Summary of macroseismic data for U.S. earthquakes, July-September 1979*—Continued

Wyoming	
3 July (G)	Northwestern Wyoming
Origin time:	09 57 23.9
Epicenter:	43.41 N., 110.71 W.
Depth:	5 km
Magnitude:	3.2 ML(U)
Intensity IV:	Jackson (awakened some residents--press report).
6 September	Yellowstone National Park
Origin time:	14 41
Epicenter:	Not located.
Depth:	None computed.
Magnitude:	None computed.
	This is one of a swarm of small earthquakes recorded by the seismograph at the Old Faithful Ranger Station.
Intensity III:	Norris.

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