GEOLOGICAL SURVEY CIRCULAR 896–C

Earthquakes in the United States, July–September 1982

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By J. H. Minsch, C. W. Stover, L. R. Brewer, and F. W. Baldwin

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INTRODUCTION

The earthquake information in this publication supplements that published by the U.S. Geological Survey (USGS) in the National Earthquake Information Service (NEIS) 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 powerplant 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 isoseismal or intensity maps and table 2. This section may contain information on events that 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 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 U.S. Geological Survey; 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 USGS. 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 U.S. Geological Survey, United States Earthquakes Project, Stop 967, Box 25046, Denver Federal Center, Denver, CO 80225. Copies of the current "Earthquake Report" questionnaire can be obtained at this address.

The USGS 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 USGS, where they are evaluated and intensity values are assigned to individual locations. For large or significant earthquakes, the intensity observations are plotted and isoseismal maps are prepared. Note that the isoseismals represent a general intensity level and that they do not necessarily agree with every individual observation.

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

U.S. DEPARTMENT OF THE INTERIOR
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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.

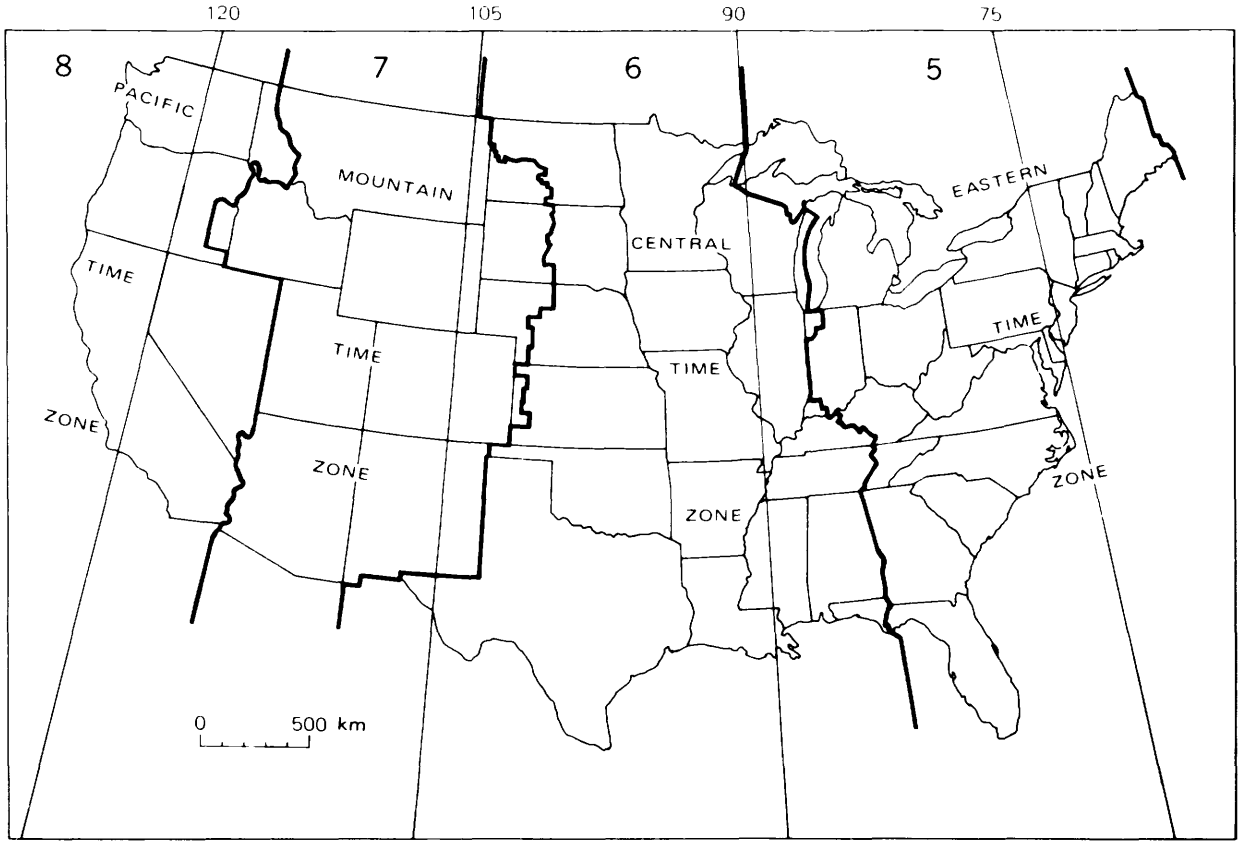

FIGURE 2.--Standard time zones of the conterminous United States. The number in each zone shows the number of hours to be subtracted from Universal Coordinated Time to convert to local standard time. (Subtract 1 hour less for local daylight-saving time.)

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 indicated by the number of decimals listed. The epicenters located by the NEIS usually are accurate to two-tenths of a degree or less. In general, epicenters located offshore are less accurate than those on land, even though they are listed to two decimals. In regions covered by dense networks of seismographs such as California, epicenter accuracy is significantly better than the two-tenths of a degree listed. 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 1982. The magnitudes represented in these figures are based on ML, Mn, or MD; if none of these were computed, then on MS; and finally on mb, when it was the only magnitude computed.

The magnitude values listed in tables 1 and 2 were furnished by cooperating institutions or determined by USGS. 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 USGS. The magnitude values calculated by USGS are based on the following formulas:

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

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.

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

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 max-

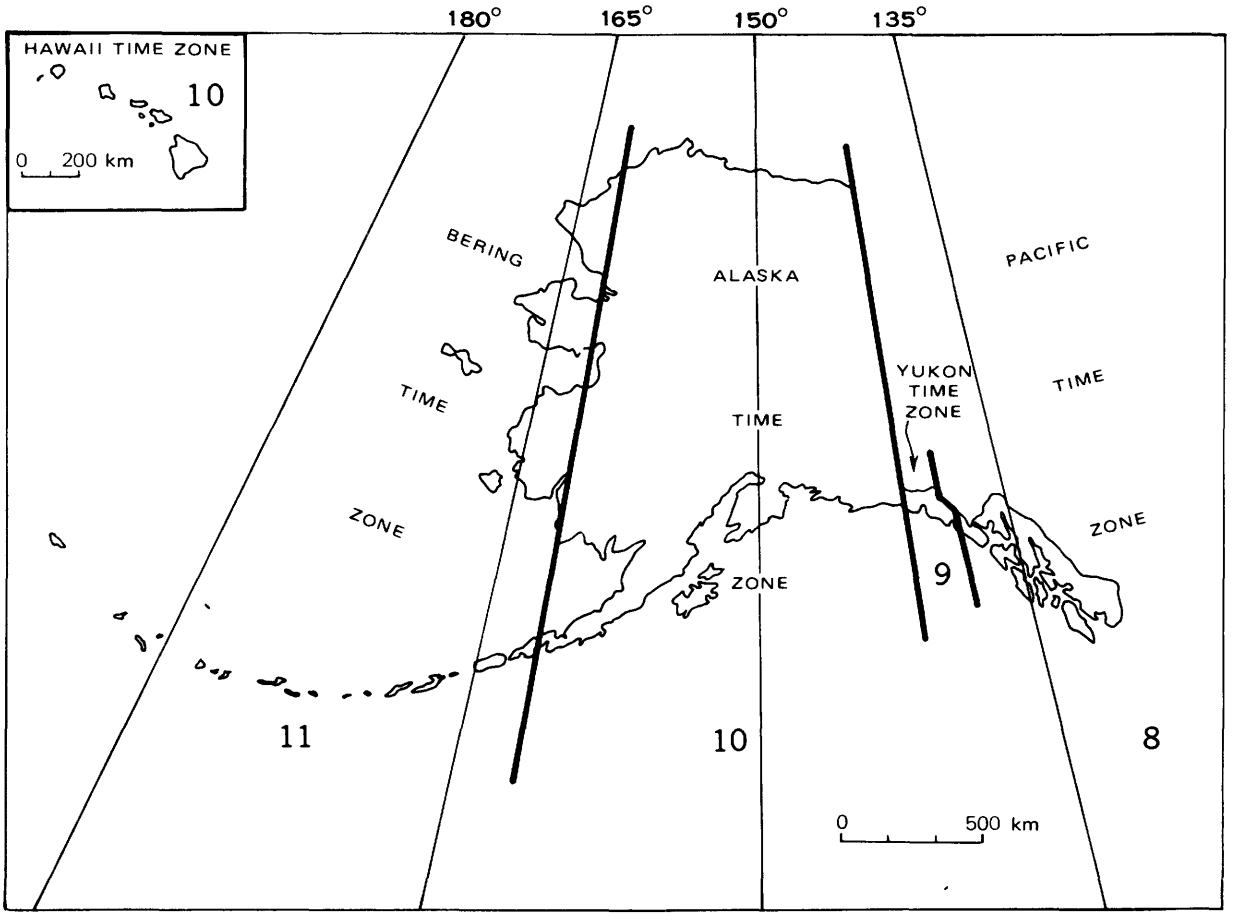

FIGURE 3.--Standard time zones of Alaska and Hawaii. The number in each zone shows the number of hours to be subtracted from Universal Coordinated Time to convert to local standard time. (Subtract 1 hour less for local daylight-saving time.)

imum of the P-wave group. Q is a function of distance D and depth h, where $D \geq 5°$.

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

as defined by Richter (1958, p. 340), where A_o is the maximum trace amplitude in millimeters, written by a Wood-Anderson torsion seismometer, and log A is a standard value as a function of distance, where the distance is ≤ 600 km. ML values are also calculated from other seismometers by conversion of recorded ground motion to the expected response of the torsion seismometer.

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

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

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.

MD is used in this publication for the duration or coda length magnitude. MD is usually computed from the difference, in seconds, between Pn-or Pg-wave arrival time and the time the final coda amplitude decreases to the background-noise amplitude. These magnitudes are normally correlated with ML or mbLg so that resulting magnitudes are compatible. Thus the formulas vary for different geographic regions and seismograph systems.

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 U.S. Geological Survey personnel, engineering firms, or universities; and from detailed macroseismic data communicated to the USGS by people in the

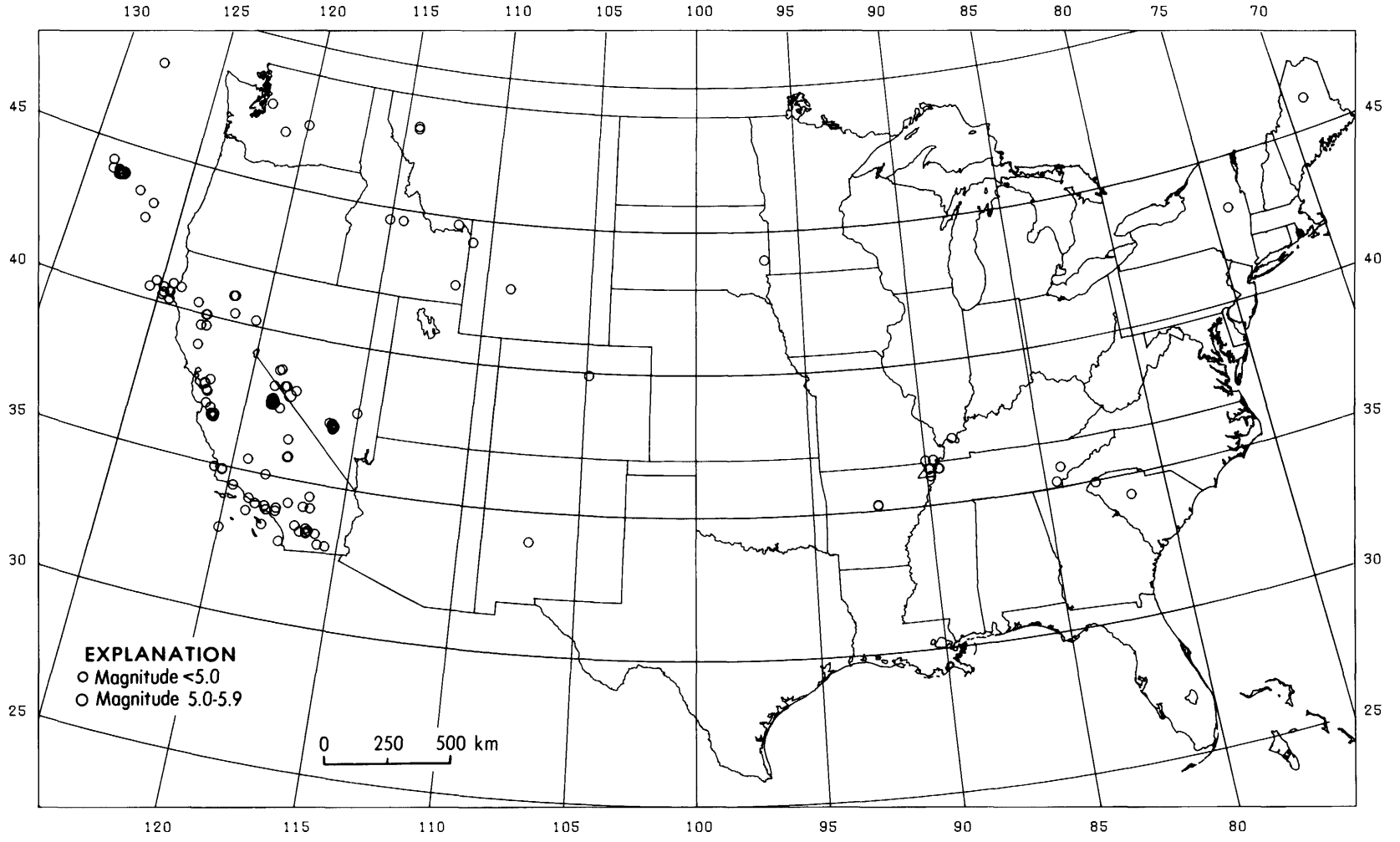

FIGURE 4.--Earthquake epicenters in the conterminous United States for July-September 1982, plotted from table 1.

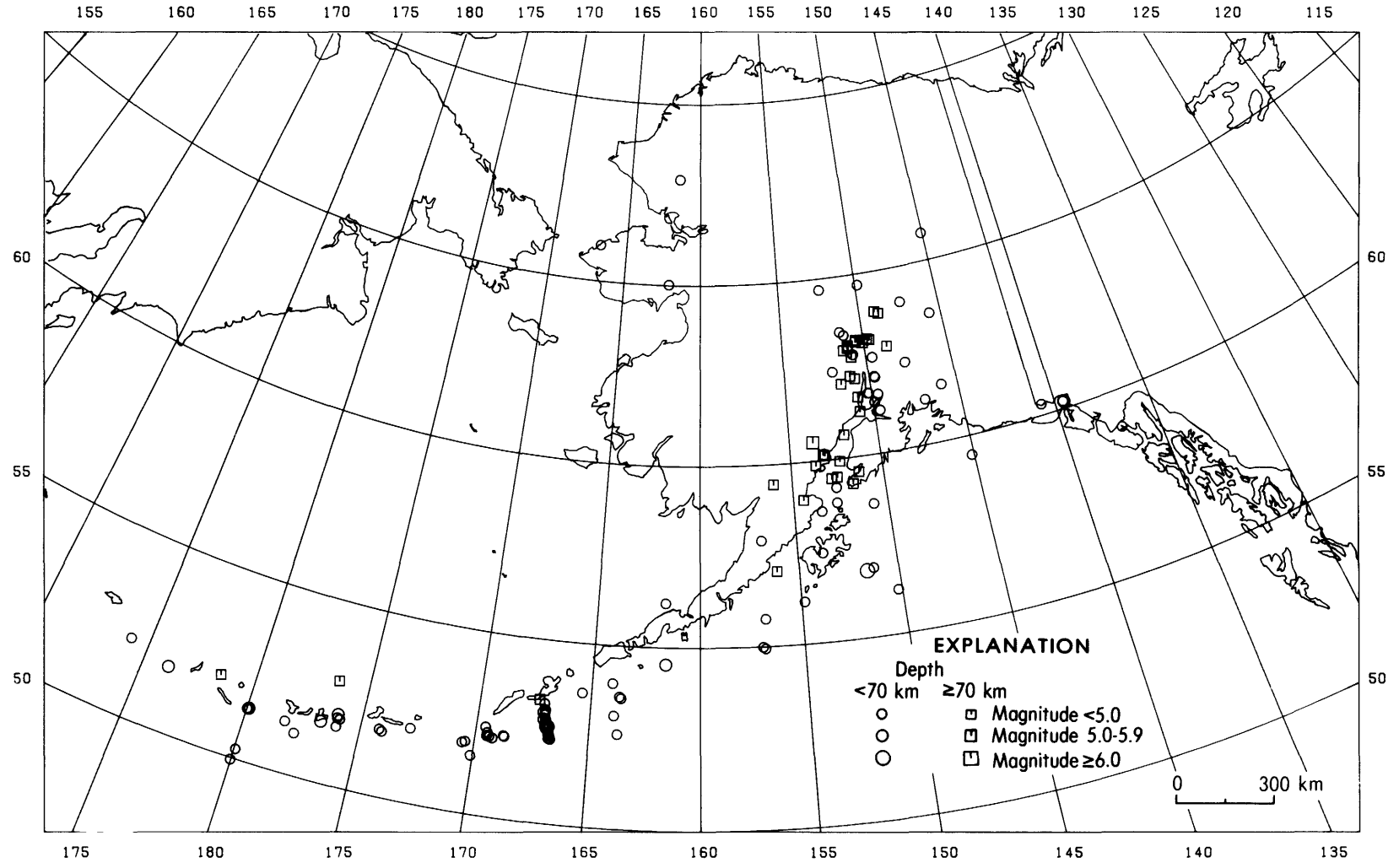

FIGURE 5.--Earthquake epicenters in Alaska for July-September 1982, plotted from table 1.

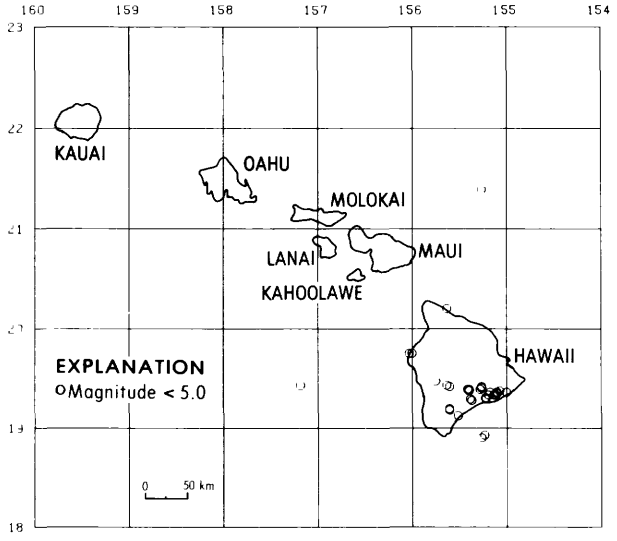

FIGURE 6.--Earthquake epicenters in Hawaii for July-September 1982, plotted from table 1.

area affected by the earthquake. All earthquake reports received that 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 are 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, including 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.

[Sources of the hypocenters and magnitudes: (B) University of California, Berkeley; (E) U.S. Department of Energy, Las Vegas, Nev.; (G) U.S. Geological Survey, Golden, Colo. and Menlo Park, Calif.; (H) U.S. Geological Survey, Hawaiian Volcano Observatory; (J) Weston Observatory, Mass.; (K) Tennessee Earthquake Information Center, Memphis; (L) Lamont-Doherty Geological Observatory, Palisades, N.Y.; (M) National Oceanic and Atmospheric Administration, Alaska Tsunami Warning Center, Palmer; (P) California Institute of Technology, Pasadena; (S) St. Louis University, St. Louis, Missouri; (V) Virginia Polytechnic Institute and State University, Blacksburg; (W) University of Washington, Seattle; N, Normal depth; UTC, Universal Coordinated Time. For names of local time zones, see figures 2 and 3. Leaders (...) indicate no information available]

Date (1982)	Origin time (UTC) hr	min	sec	Lat (°)	Long (°)	Depth (km)	Magnitude mb	MS	ML, Mn or MD	Maximum intensity	Hypocenter source	Local time Date	Hour
ALASKA													
JULY 1	00	09	52.2	59.48 N.	152.83 W.	97	4.5	...	...	III	G	JUNE 30	02 P.M. AST
JULY 1	07	41	53.2	51.43 N.	179.94 W.	48	6.3	5.5	5.4M	IV	G	JUNE 30	08 P.M. BST
JULY 1	22	18	11.8	63.55 N.	145.68 W.	8	...	...	3.6M	...	G	JULY 1	12 P.M. AST
JULY 2	03	49	06.0	59.92 N.	152.31 W.	86	3.8	...	...	...	G	JULY 1	05 P.M. AST
JULY 2	07	55	00.7	59.86 N.	153.62 W.	170	...	...	...	...	G	JULY 1	09 P.M. AST
JULY 3	05	26	18.1	62.22 N.	151.11 W.	83	...	...	...	...	G	JULY 2	07 P.M. AST
JULY 3	07	36	38.2	51.41 N.	179.99 W.	33N	4.4	...	...	...	G	JULY 2	08 P.M. BST
JULY 3	17	08	38.9	51.40 N.	179.92 W.	63	4.7	...	...	...	G	JULY 3	06 A.M. BST
JULY 6	17	10	00.6	53.35 N.	167.32 W.	77	...	...	...	...	G	JULY 6	06 A.M. BST
JULY 6	17	33	08.8	59.22 N.	152.64 W.	69	4.8	...	...	IV	G	JULY 6	07 A.M. AST
JULY 6	19	48	11.9	61.69 N.	150.19 W.	18	...	...	3.3M	III	G	JULY 6	09 A.M. AST
JULY 8	06	43	16.2	53.10 N.	167.03 W.	58	4.5	...	...	...	G	JULY 7	07 P.M. BST
JULY 9	02	23	50.7	50.27 N.	179.94 W.	38	4.8	...	...	...	G	JULY 8	03 P.M. BST
JULY 10	09	22	37.6	61.17 N.	149.66 W.	59	4.3	...	4.0M	IV	G	JULY 9	11 P.M. AST
JULY 10	20	11	50.2	51.61 N.	176.05 W.	62	4.5	...	...	...	G	JULY 10	09 A.M. BST
JULY 11	23	42	12.4	61.55 N.	145.94 W.	33N	...	...	3.0M	...	G	JULY 11	01 P.M. AST
JULY 12	08	10	22.1	63.89 N.	149.08 W.	136	...	...	...	...	G	JULY 11	10 P.M. AST
JULY 14	08	17	00.1	64.69 N.	152.34 W.	33N	...	...	3.9M	...	G	JULY 13	10 P.M. AST
JULY 14	11	15	34.1	67.93 N.	161.49 W.	15	4.2	...	...	...	G	JULY 14	00 A.M. BST
JULY 14	12	15	47.6	60.51 N.	153.67 W.	157	5.0	...	...	IV	G	JULY 14	02 A.M. AST
JULY 15	00	54	56.7	58.60 N.	153.55 W.	33N	...	...	2.9M	...	G	JULY 14	02 P.M. AST
JULY 15	05	48	29.5	58.64 N.	150.75 W.	33N	3.9	...	3.2M	...	G	JULY 14	07 P.M. AST
JULY 17	00	12	21.4	52.57 N.	163.75 W.	33N	4.6	...	...	...	G	JULY 16	01 P.M. BST
JULY 17	02	02	47.3	49.96 N.	179.97 E.	33N	4.4	...	...	...	G	JULY 16	03 P.M. BST
JULY 18	08	19	37.2	63.08 N.	150.04 W.	99	...	...	...	...	G	JULY 17	10 P.M. AST
JULY 18	17	47	27.8	51.94 N.	170.39 W.	33N	4.7	4.0	3.9M	...	G	JULY 18	06 A.M. BST
JULY 19	17	22	28.5	51.91 N.	170.54 W.	33N	5.0	4.3	...	...	G	JULY 19	06 A.M. BST
JULY 20	14	18	40.9	52.23 N.	168.72 W.	33N	4.4	...	...	...	G	JULY 20	03 A.M. BST
JULY 20	14	26	38.6	52.26 N.	168.77 W.	33N	5.0	4.5	...	...	G	JULY 20	03 A.M. BST
JULY 20	19	59	56.9	52.10 N.	174.18 E.	44	4.8	4.1	...	...	G	JULY 20	08 A.M. BST
JULY 21	23	37	34.1	54.95 N.	156.90 W.	33N	5.0	4.4	...	...	G	JULY 21	01 P.M. AST
JULY 21	23	49	08.5	55.00 N.	156.99 W.	33N	4.8	...	...	...	G	JULY 21	01 P.M. AST
JULY 22	03	48	17.2	51.58 N.	170.08 W.	33N	4.5	...	...	...	G	JULY 21	04 P.M. BST
JULY 22	14	34	02.1	52.42 N.	169.60 W.	33N	4.9	4.0	...	...	G	JULY 22	03 A.M. BST
JULY 22	21	26	27.6	59.45 N.	145.11 W.	33N	...	...	3.7M	...	G	JULY 22	11 A.M. AST
JULY 25	05	39	01.8	52.04 N.	178.44 E.	106	4.5	...	...	...	G	JULY 24	06 P.M. BST
JULY 26	05	06	51.4	62.36 N.	147.75 W.	57	4.1	...	3.8M	III	G	JULY 25	07 P.M. AST
JULY 27	12	34	51.8	52.84 N.	176.41 W.	228	4.6	...	...	...	G	JULY 27	01 A.M. BST
JULY 28	05	02	06.3	52.29 N.	169.49 W.	33N	4.4	...	3.6M	...	G	JULY 27	06 P.M. BST
JULY 28	05	29	39.6	52.16 N.	169.23 W.	33N	4.6	4.3	4.0M	...	G	JULY 27	06 P.M. BST
JULY 28	09	44	43.4	52.19 N.	169.38 W.	33N	5.0	4.1	4.5M	...	G	JULY 27	10 P.M. BST
JULY 28	19	24	47.4	61.24 N.	147.01 W.	33N	...	...	3.2M	...	G	JULY 28	09 A.M. AST
JULY 29	05	56	20.6	59.49 N.	152.51 W.	89	...	...	...	...	G	JULY 28	07 P.M. AST
JULY 30	01	41	50.4	64.69 N.	149.83 W.	15	...	...	3.9M	FELT	G	JULY 29	03 P.M. AST
JULY 31	06	29	15.5	51.76 N.	176.14 E.	38	6.2	6.0	5.9M	III	G	JULY 30	07 P.M. BST
AUG. 1	20	23	31.4	57.46 N.	153.72 W.	52	4.3	...	3.9M	...	G	AUG. 1	10 A.M. AST
AUG. 2	02	34	17.3	63.00 N.	151.02 W.	151	4.1	...	...	...	G	AUG. 1	04 P.M. AST
AUG. 3	06	09	53.7	60.29 N.	140.74 W.	14	...	...	3.4M	...	G	AUG. 2	09 P.M. YST
AUG. 4	18	02	32.0	63.37 N.	151.17 W.	33N	...	...	2.9M	...	G	AUG. 4	08 A.M. AST
AUG. 5	14	45	03.1	61.42 N.	149.89 W.	37	...	...	3.0M	FELT	G	AUG. 5	04 A.M. AST
AUG. 6	00	41	55.3	51.14 N.	177.75 W.	33N	4.5	...	4.1M	III	G	AUG. 5	01 P.M. BST
AUG. 6	04	53	58.6	51.95 N.	176.09 W.	64	5.4	...	...	IV	G	AUG. 5	05 P.M. BST
AUG. 7	08	37	25.8	60.21 N.	139.54 W.	15	4.7	...	...	III	G	AUG. 6	11 P.M. YST
AUG. 7	19	53	46.1	66.00 N.	166.77 W.	15	4.8	4.7	...	IV	G	AUG. 7	08 A.M. BST
AUG. 8	14	11	00.6	51.85 N.	176.09 W.	68	4.8	...	...	FELT	G	AUG. 8	03 A.M. BST

Table 1.--*Summary of U. S. earthquakes for July-September 1982*--Continued

Date (1982)	Origin time (UTC) hr	min	sec	Lat (°)		Long (°)		Depth (km)	Magnitude mb	MS	ML, Mn or MD	Maximum intensity	Hypocenter source	Local time Date		Hour	
ALASKA--Continued																	
AUG. 9	12	47	54.6	51.82	N.	175.96	W.	67	4.8	...	...	FELT	G	AUG. 9	01	A.M.	BST
AUG. 10	16	25	39.3	60.12	N.	153.07	W.	132	4.9	...	...	...	G	AUG. 10	06	A.M.	AST
AUG. 10	19	12	20.2	62.13	N.	149.73	W.	57	...	...	4.2M	FELT	G	AUG. 10	09	A.M.	AST
AUG. 12	09	58	19.3	55.75	N.	156.81	W.	33N	4.9	...	4.0M	...	G	AUG. 11	11	P.M.	AST
AUG. 13	11	11	04.5	56.23	N.	161.72	W.	33N	...	...	3.9M	...	G	AUG. 13	00	A.M.	BST
AUG. 15	10	45	40.2	52.03	N.	172.88	W.	33N	...	...	...	...	G	AUG. 14	11	P.M.	BST
AUG. 15	12	52	02.8	58.96	N.	154.45	W.	152	...	...	...	...	G	AUG. 15	02	A.M.	AST
AUG. 15	15	47	27.1	65.01	N.	162.07	W.	33N	4.4	...	4.6M	FELT	G	AUG. 15	04	A.M.	BST
AUG. 16	20	58	20.7	51.78	N.	174.06	W.	49	5.4	4.6	4.8M	III	G	AUG. 16	09	A.M.	BST
AUG. 18	00	05	46.4	53.08	N.	163.92	W.	44	4.7	...	...	...	G	AUG. 17	01	P.M.	BST
AUG. 19	14	46	27.9	52.20	N.	169.51	W.	33N	5.2	4.0	...	...	G	AUG. 19	03	A.M.	BST
AUG. 21	05	44	24.8	62.39	N.	152.15	W.	16	4.0	...	3.9M	...	G	AUG. 20	07	P.M.	AST
AUG. 21	19	20	36.7	53.57	N.	163.65	W.	38	5.0	4.7	...	...	G	AUG. 21	08	A.M.	BST
AUG. 22	15	23	21.3	51.66	N.	176.78	W.	59	5.1	...	...	III	G	AUG. 22	04	A.M.	BST
AUG. 22	15	44	21.3	61.62	N.	149.67	W.	39	...	...	3.2M	FELT	G	AUG. 22	05	A.M.	AST
AUG. 23	16	17	13.3	62.14	N.	150.86	W.	106	...	...	...	...	G	AUG. 23	06	A.M.	AST
AUG. 24	04	09	15.6	53.65	N.	165.44	W.	33N	5.3	4.8	...	IV	G	AUG. 23	05	P.M.	BST
AUG. 25	15	05	17.8	60.20	N.	139.51	W.	15	4.7	...	5.1M	...	G	AUG. 25	06	A.M.	YST
AUG. 25	20	00	44.6	62.66	N.	149.63	W.	14	...	...	3.6M	...	G	AUG. 25	10	A.M.	AST
AUG. 25	21	12	24.7	62.09	N.	149.70	W.	56	...	...	3.1M	...	G	AUG. 25	11	A.M.	AST
AUG. 26	08	15	16.2	53.97	N.	164.05	W.	33N	4.7	...	...	...	G	AUG. 25	09	P.M.	BST
AUG. 26	19	02	23.4	58.99	N.	136.95	W.	15	4.1	...	...	FELT	G	AUG. 26	11	A.M.	PST
AUG. 27	11	59	00.6	51.39	N.	178.28	W.	49	5.1	4.4	4.9M	FELT	G	AUG. 27	00	A.M.	BST
AUG. 28	18	02	45.7	63.46	N.	151.38	W.	33N	...	...	3.1M	...	G	AUG. 28	08	A.M.	AST
AUG. 29	16	44	18.2	64.03	N.	147.35	W.	69	...	...	...	...	G	AUG. 29	06	A.M.	AST
AUG. 29	16	49	03.9	62.90	N.	148.65	W.	101	3.8	...	...	...	G	AUG. 29	06	A.M.	AST
AUG. 30	08	23	11.2	63.18	N.	150.49	W.	117	...	...	...	...	G	AUG. 29	10	P.M.	AST
AUG. 30	09	15	59.6	63.18	N.	149.80	W.	122	...	...	...	...	G	AUG. 29	11	P.M.	AST
AUG. 30	13	30	06.1	54.53	N.	161.62	W.	35	5.2	4.3	5.5M	FELT	G	AUG. 30	02	A.M.	BST
AUG. 31	07	16	14.7	63.06	N.	150.99	W.	137	...	...	...	...	G	AUG. 30	09	P.M.	AST
SEPT. 1	06	19	24.8	61.22	N.	150.82	W.	93	3.8	...	...	III	G	AUG. 31	08	P.M.	AST
SEPT. 1	11	46	43.5	58.80	N.	152.70	W.	33N	...	...	4.1M	...	G	SEPT. 1	01	A.M.	AST
SEPT. 2	00	56	56.9	63.16	N.	149.66	W.	116	...	...	...	...	G	SEPT. 1	02	P.M.	AST
SEPT. 2	19	13	10.1	60.15	N.	153.19	W.	125	4.0	...	...	...	G	SEPT. 2	09	A.M.	AST
SEPT. 3	02	39	47.9	52.57	N.	166.93	W.	33N	4.8	...	...	...	G	SEPT. 2	03	P.M.	BST
SEPT. 3	21	16	10.6	62.04	N.	151.71	W.	113	...	...	...	...	G	SEPT. 3	11	A.M.	AST
SEPT. 4	22	41	38.1	53.61	N.	163.74	W.	33N	4.7	...	...	...	G	SEPT. 4	11	A.M.	BST
SEPT. 5	17	46	47.4	51.83	N.	174.20	W.	33N	4.5	...	...	...	G	SEPT. 5	06	A.M.	BST
SEPT. 6	07	48	54.9	56.84	N.	151.59	W.	33N	5.7	5.6	6.0M	III	G	SEPT. 5	09	P.M.	AST
SEPT. 7	03	55	13.4	56.91	N.	151.24	W.	33N	4.5	...	3.5M	...	G	SEPT. 6	05	P.M.	AST
SEPT. 9	10	19	55.3	57.05	N.	156.15	W.	90	4.1	...	...	...	G	SEPT. 9	00	A.M.	AST
SEPT. 10	05	48	00.0	56.22	N.	150.20	W.	33N	4.5	4.3	4.2M	...	G	SEPT. 9	07	P.M.	AST
SEPT. 10	18	04	29.0	56.16	N.	154.85	W.	33N	4.3	...	3.8M	...	G	SEPT. 10	08	A.M.	AST
SEPT. 12	09	22	23.1	52.64	N.	166.94	W.	33N	5.7	5.9	5.4M	...	G	SEPT. 11	10	P.M.	BST
SEPT. 12	09	28	14.1	52.69	N.	166.88	W.	33N	4.8	...	...	...	G	SEPT. 11	10	P.M.	BST
SEPT. 12	09	28	39.5	53.02	N.	167.10	W.	33N	5.1	...	...	...	G	SEPT. 11	10	P.M.	BST
SEPT. 12	09	32	38.8	52.30	N.	166.71	W.	33N	4.8	...	...	...	G	SEPT. 11	10	P.M.	BST
SEPT. 12	09	50	51.7	52.83	N.	166.99	W.	33N	4.7	...	3.5M	...	G	SEPT. 11	10	P.M.	BST
SEPT. 12	10	05	17.3	52.40	N.	166.78	W.	33N	4.5	...	3.4M	...	G	SEPT. 11	11	P.M.	BST
SEPT. 12	10	11	26.3	52.32	N.	166.78	W.	33N	4.7	...	3.5M	...	G	SEPT. 11	11	P.M.	BST
SEPT. 12	11	59	52.0	52.64	N.	166.85	W.	33N	5.2	4.8	5.0M	...	G	SEPT. 12	00	A.M.	BST
SEPT. 12	12	18	26.8	52.49	N.	166.80	W.	33N	4.5	...	3.2M	...	G	SEPT. 12	01	A.M.	BST
SEPT. 12	15	01	38.9	52.50	N.	166.80	W.	33N	...	...	3.1M	...	G	SEPT. 12	04	A.M.	BST
SEPT. 12	16	50	37.7	52.82	N.	167.05	W.	33N	5.5	5.1	5.3M	...	G	SEPT. 12	05	A.M.	BST
SEPT. 12	16	57	59.0	52.43	N.	166.78	W.	33N	4.6	...	3.5M	...	G	SEPT. 12	05	A.M.	BST
SEPT. 12	17	24	00.1	52.38	N.	166.75	W.	33N	4.6	...	...	...	G	SEPT. 12	06	A.M.	BST
SEPT. 13	00	50	22.6	52.59	N.	166.93	W.	33N	4.8	...	...	...	G	SEPT. 12	01	P.M.	BST
SEPT. 13	11	34	55.2	52.73	N.	166.92	W.	33N	4.7	4.1	...	...	G	SEPT. 13	00	A.M.	BST
SEPT. 13	21	48	13.6	62.81	N.	150.73	W.	33N	...	...	3.0M	...	G	SEPT. 13	11	A.M.	AST
SEPT. 14	18	14	50.7	59.28	N.	151.71	W.	109	...	...	...	...	G	SEPT. 14	08	A.M.	AST
SEPT. 15	03	37	23.8	59.57	N.	151.34	W.	93	...	...	...	...	G	SEPT. 14	05	P.M.	AST
SEPT. 15	10	11	32.5	62.94	N.	151.30	W.	153	...	...	...	...	G	SEPT. 15	00	A.M.	AST
SEPT. 16	06	46	07.9	52.95	N.	167.03	W.	33N	5.0	4.5	...	...	G	SEPT. 15	07	P.M.	BST
SEPT. 18	06	24	13.4	60.63	N.	151.87	W.	92	...	...	...	...	G	SEPT. 17	08	P.M.	AST
SEPT. 18	20	41	00.8	53.26	N.	167.10	W.	33N	4.7	...	4.1M	...	G	SEPT. 18	09	A.M.	BST

Table 1.--*Summary of U.S. earthquakes for July-September 1982*--Continued

Date (1982)	Origin time (UTC) hr	min	sec	Lat (°)	Long (°)	Depth (km)	Magnitude mb	MS	ML, Mn or MD	Maximum intensity	Hypocenter source	Local time Date	Hour
ALASKA--Continued													
SEPT. 19	00	30	41.4	62.74 N.	150.88 W.	127	...	...	...	...	G	SEPT. 18	02 P.M. AST
SEPT. 20	09	29	46.8	52.69 N.	166.92 W.	33N	4.8	...	...	...	G	SEPT. 19	10 P.M. BST
SEPT. 21	09	54	19.8	52.80 N.	166.98 W.	33N	4.5	...	...	...	G	SEPT. 20	10 P.M. BST
SEPT. 26	18	49	57.1	63.83 N.	148.85 W.	133	...	...	...	...	G	SEPT. 26	08 A.M. AST
SEPT. 26	19	57	57.3	59.44 N.	156.01 W.	87	...	...	...	...	G	SEPT. 26	09 A.M. AST
SEPT. 27	09	44	50.7	63.15 N.	150.49 W.	125	3.7	...	...	...	G	SEPT. 26	11 P.M. AST
SEPT. 30	09	48	05.1	65.75 N.	145.06 W.	15	...	...	4.3M	FELT	G	SEPT. 29	11 P.M. AST
SEPT. 30	18	52	33.2	57.92 N.	156.84 W.	33N	...	...	3.2M	...	G	SEPT. 30	08 A.M. AST
SEPT. 30	23	39	33.9	61.63 N.	150.82 W.	86	...	...	...	...	G	SEPT. 30	01 P.M. AST
ARKANSAS													
JULY 5	03	07	45.3	35.20 N.	92.23 W.	2	...	...	2.6T	...	K	JULY 4	09 P.M. CST
JULY 5	04	13	49.8	35.18 N.	92.23 W.	6	...	...	3.8T	FELT	K	JULY 4	10 P.M. CST
AUG. 9	11	12	31.7	35.18 N.	92.23 W.	4	...	...	3.2T	FELT	K	AUG. 9	05 A.M. CST
SEPT. 25	23	17	05.5	35.20 N.	92.23 W.	5	...	...	3.5T	FELT	K	SEPT. 25	05 P.M. CST
SEPT. 27	10	22	32.5	35.19 N.	92.22 W.	3	...	...	3.1G	III	K	SEPT. 27	04 A.M. CST
CALIFORNIA													
JULY 4	12	44	03.4	35.77 N.	117.73 W.	8	...	...	3.6P	IV	P	JULY 4	04 A.M. PST
JULY 5	09	02	36.9	36.68 N.	121.36 W.	5	...	...	3.2B	...	B	JULY 5	01 A.M. PST
JULY 5	09	02	37.1	36.67 N.	121.36 W.	8	...	...	3.2B	...	B	JULY 5	01 A.M. PST
JULY 7	08	44	33.7	34.15 N.	116.70 W.	11	...	...	3.6P	FELT	P	JULY 7	00 A.M. PST
JULY 12	01	06	26.2	34.12 N.	116.40 W.	4	...	...	3.2P	...	P	JULY 11	05 P.M. PST
JULY 18	01	28	19.7	40.00 N.	122.62 W.	6	...	...	3.2B	...	B	JULY 1	05 P.M. PST
JULY 18	10	16	41.5	36.89 N.	121.49 W.	10	...	...	3.5B	FELT	B	JULY 18	02 A.M. PST
JULY 18	11	25	50.9	33.83 N.	117.83 W.	8	...	...	3.0P	IV	P	JULY 18	03 A.M. PST
JULY 18	22	45	24.3	40.00 N.	122.61 W.	13	...	...	3.7B	FELT	B	JULY 18	02 P.M. PST
JULY 21	09	28	18.1	35.42 N.	119.38 W.	6	...	...	3.2P	...	P	JULY 21	01 A.M. PST
JULY 23	21	09	16.7	34.53 N.	116.50 W.	8	...	...	3.0P	...	P	JULY 23	01 P.M. PST
JULY 29	02	15	29.0	34.08 N.	119.02 W.	12	...	...	3.0P	...	P	JULY 28	06 P.M. PST
JULY 29	05	50	08.6	33.95 N.	118.72 W.	11	...	...	3.4P	V	P	JULY 28	09 P.M. PST
JULY 31	00	57	58.4	35.75 N.	117.73 W.	5	...	...	3.2P	...	P	JULY 30	04 P.M. PST
AUG. 1	09	43	41.9	39.61 N.	122.76 W.	11	...	...	3.0B	...	B	AUG. 1	01 A.M. PST
AUG. 3	16	38	05.3	33.27 N.	116.42 W.	3	...	...	3.7P	...	P	AUG. 3	08 A.M. PST
AUG. 4	15	41	31.5	38.92 N.	122.67 W.	6	...	...	3.0B	V	B	AUG. 4	07 A.M. PST
AUG. 5	04	02	19.8	33.27 N.	116.42 W.	3	...	...	3.5P	FELT	P	AUG. 4	08 P.M. PST
AUG. 5	06	09	38.6	37.51 N.	118.88 W.	6	...	...	3.0B	...	B	AUG. 4	10 P.M. PST
AUG. 5	06	10	09.7	37.56 N.	118.95 W.	5	...	...	3.1B	...	G	AUG. 4	10 P.M. PST
AUG. 5	15	38	31.0	37.63 N.	118.91 W.	1	...	...	3.4B	FELT	B	AUG. 5	07 A.M. PST
AUG. 6	21	29	05.2	40.87 N.	121.59 W.	9	...	...	3.0B	...	B	AUG. 6	01 P.M. PST
AUG. 7	04	40	18.5	40.88 N.	121.53 W.	8	...	...	3.2B	...	B	AUG. 6	08 P.M. PST
AUG. 8	23	30	56.5	38.10 N.	118.92 W.	14	...	...	3.7B	...	B	AUG. 8	03 P.M. PST
AUG. 10	02	11	29.8	36.59 N.	121.24 W.	7	3.9	...	4.5B	IV	B	AUG. 9	06 P.M. PST
AUG. 10	02	24	00.3	36.60 N.	121.26 W.	6	...	...	3.4B	III	B	AUG. 9	06 P.M. PST
AUG. 10	08	23	48.1	36.59 N.	121.25 W.	6	...	...	3.0B	...	B	AUG. 10	00 A.M. PST
AUG. 10	18	37	04.2	32.92 N.	115.53 W.	15	...	...	3.6P	IV	P	AUG. 10	10 A.M. PST
AUG. 11	07	46	43.2	36.63 N.	121.31 W.	9	4.6	...	4.6B	V	B	AUG. 10	11 P.M. PST
AUG. 12	06	53	05.8	36.62 N.	121.29 W.	10	...	...	3.4B	...	B	AUG. 11	10 P.M. PST
AUG. 12	15	51	37.2	36.70 N.	121.25 W.	5	...	...	3.1B	...	B	AUG. 12	07 A.M. PST
AUG. 14	02	37	59.1	34.17 N.	117.33 W.	5	...	...	3.1P	IV	P	AUG. 13	06 P.M. PST
AUG. 14	04	51	29.4	33.35 N.	116.33 W.	11	...	...	3.0P	...	P	AUG. 13	08 P.M. PST
AUG. 14	05	13	50.2	35.00 N.	118.50 W.	10	...	...	3.6P	...	P	AUG. 13	09 P.M. PST
AUG. 14	10	37	56.9	40.21 N.	120.37 W.	22	...	...	3.2B	...	B	AUG. 14	02 A.M. PST
AUG. 15	18	58	10.8	37.48 N.	118.90 W.	5	...	...	3.6B	FELT	B	AUG. 15	10 A.M. PST
AUG. 15	22	55	29.4	33.40 N.	116.43 W.	11	...	...	3.0P	...	P	AUG. 15	02 P.M. PST
AUG. 18	08	43	49.8	37.02 N.	121.73 W.	11	4.3	...	4.5B	V	B	AUG. 18	00 A.M. PST
AUG. 19	09	24	46.5	40.20 N.	124.48 W.	10	...	...	3.0B	...	G	AUG. 19	01 A.M. PST
AUG. 19	11	04	19.1	37.69 N.	121.95 W.	8	...	...	2.9B	III	B	AUG. 19	03 A.M. PST
AUG. 21	10	20	42.4	33.25 N.	116.42 W.	2	...	...	3.4P	FELT	P	AUG. 21	02 A.M. PST
AUG. 21	14	31	26.4	37.68 N.	121.95 W.	8	...	...	3.3B	FELT	B	AUG. 21	06 A.M. PST
AUG. 22	04	25	17.3	37.49 N.	118.87 W.	5	...	...	3.6B	FELT	B	AUG. 21	08 P.M. PST
AUG. 23	22	34	42.0	37.45 N.	118.86 W.	10	...	...	3.4B	...	B	AUG. 23	02 P.M. PST
AUG. 24	07	27	35.4	37.54 N.	118.85 W.	2	...	...	3.4B	FELT	B	AUG. 23	11 P.M. PST

Table 1.--*Summary of U.S. earthquakes for July-September 1982*--Continued

Date (1982)	Origin time (UTC) hr	min	sec	Lat (°)	Long (°)	Depth (km)	Magnitude mb	MS	ML, Mn or MD	Maximum intensity	Hypocenter source	Local time Date	Hour
CALIFORNIA--Continued													
AUG. 24	22	33	36.8	37.46 N.	121.82 W.	6	...	...	3.9B	V	B	AUG. 24	02 P.M. PST
AUG. 26	19	39	08.4	37.60 N.	118.82 W.	6	...	...	3.9B	FELT	B	AUG. 26	11 A.M. PST
AUG. 26	20	36	53.2	37.62 N.	118.82 W.	4	...	...	3.0P	...	P	AUG. 26	12 P.M. PST
AUG. 26	22	28	03.1	33.27 N.	116.00 W.	4	...	...	3.5P	FELT	P	AUG. 26	02 P.M. PST
AUG. 27	04	25	37.6	33.93 N.	117.82 W.	17	...	...	3.1P	V	P	AUG. 26	08 P.M. PST
AUG. 28	01	03	11.3	37.85 N.	121.76 W.	12	...	...	3.8B	V	B	AUG. 27	05 P.M. PST
AUG. 28	08	26	55.3	38.73 N.	118.72 W.	5	...	...	3.6B	...	G	AUG. 28	00 A.M. PST
AUG. 29	05	02	34.8	37.37 N.	118.46 W.	16	...	...	3.7B	IV	B	AUG. 28	09 P.M. PST
AUG. 31	03	11	07.8	36.64 N.	121.33 W.	7	...	...	4.0B	FELT	B	AUG. 30	07 P.M. PST
AUG. 31	15	34	50.4	33.27 N.	116.68 W.	4	...	...	3.0P	...	P	AUG. 31	07 A.M. PST
SEPT. 1	01	36	34.6	36.63 N.	121.31 W.	8	...	...	3.0B	...	B	AUG. 31	05 P.M. PST
SEPT. 1	10	47	43.0	32.80 N.	117.45 W.	6	...	...	3.0P	...	P	SEPT. 1	02 A.M. PST
SEPT. 3	11	11	06.1	33.27 N.	116.42 W.	4	...	...	2.6P	FELT	P	SEPT. 3	03 A.M. PST
SEPT. 3	18	58	24.4	39.63 N.	122.52 W.	9	4.3	...	4.0B	IV	B	SEPT. 3	10 A.M. PST
SEPT. 5	05	21	26.6	32.93 N.	115.85 W.	4	3.7	...	4.4P	IV	P	SEPT. 4	09 P.M. PST
SEPT. 5	06	27	39.8	33.45 N.	116.90 W.	3	...	...	3.0P	...	P	SEPT. 4	10 P.M. PST
SEPT. 6	15	12	09.6	32.93 N.	115.85 W.	6	...	...	3.3P	...	P	SEPT. 6	07 A.M. PST
SEPT. 7	21	38	34.1	36.64 N.	121.33 W.	5	...	...	3.2B	...	B	SEPT. 7	01 P.M. PST
SEPT. 8	04	39	13.1	36.66 N.	121.33 W.	5	...	...	3.1B	...	B	SEPT. 7	08 P.M. PST
SEPT. 8	11	54	58.6	36.65 N.	121.33 W.	4	...	...	3.3B	...	B	SEPT. 8	03 A.M. PST
SEPT. 8	12	11	38.4	36.64 N.	121.33 W.	6	...	...	3.4B	...	B	SEPT. 8	04 A.M. PST
SEPT. 8	18	07	05.0	37.47 N.	118.87 W.	6	...	...	3.5B	FELT	B	SEPT. 8	10 A.M. PST
SEPT. 8	18	42	19.1	37.50 N.	118.86 W.	6	...	...	3.8B	FELT	B	SEPT. 8	10 A.M. PST
SEPT. 9	23	39	15.9	37.47 N.	118.86 W.	5	...	...	3.4B	...	B	SEPT. 9	03 P.M. PST
SEPT. 11	11	59	32.4	37.41 N.	121.77 W.	8	...	...	3.1B	FELT	B	SEPT. 11	03 A.M. PST
SEPT. 11	13	55	31.6	33.80 N.	118.23 W.	4	...	...	2.6P	FELT	P	SEPT. 11	05 A.M. PST
SEPT. 12	06	51	33.5	40.37 N.	123.11 W.	25	...	...	3.1B	...	B	SEPT. 11	10 P.M. PST
SEPT. 12	15	55	53.6	33.80 N.	118.20 W.	6	...	...	2.5P	FELT	P	SEPT. 12	07 A.M. PST
SEPT. 13	04	25	28.3	37.50 N.	118.85 W.	3	...	...	3.0P	...	P	SEPT. 12	08 P.M. PST
SEPT. 16	10	26	05.9	40.70 N.	124.06 W.	17	...	...	3.0B	III	B	SEPT. 16	02 A.M. PST
SEPT. 16	19	19	53.5	37.48 N.	118.82 W.	6	...	...	3.0P	...	P	SEPT. 16	11 A.M. PST
SEPT. 17	10	57	50.3	33.93 N.	118.32 W.	14	...	...	3.3P	FELT	P	SEPT. 17	02 A.M. PST
SEPT. 19	02	58	36.6	37.52 N.	118.77 W.	6	...	...	3.1P	...	P	SEPT. 18	06 P.M. PST
SEPT. 19	13	46	00.7	35.77 N.	117.73 W.	5	...	...	2.8P	FELT	P	SEPT. 19	05 A.M. PST
SEPT. 19	16	55	20.9	37.67 N.	118.85 W.	4	...	...	3.3B	...	B	SEPT. 19	08 A.M. PST
SEPT. 20	01	54	45.2	36.64 N.	121.30 W.	5	...	...	3.1B	...	B	SEPT. 19	05 P.M. PST
SEPT. 21	18	17	12.4	34.43 N.	119.78 W.	9	...	...	3.2P	IV	P	SEPT. 21	10 A.M. PST
SEPT. 22	14	07	03.4	40.28 N.	121.39 W.	7	...	...	2.8B	...	B	SEPT. 22	06 A.M. PST
SEPT. 23	03	28	00.1	37.46 N.	118.83 W.	5	...	...	4.0B	FELT	B	SEPT. 22	07 P.M. PST
SEPT. 23	03	31	44.0	37.47 N.	118.82 W.	5	...	...	3.2B	...	B	SEPT. 22	07 P.M. PST
SEPT. 23	20	42	50.9	34.87 N.	120.38 W.	3	...	...	3.9P	V	P	SEPT. 23	12 P.M. PST
SEPT. 24	01	21	25.3	34.90 N.	120.37 W.	1	...	...	3.1P	...	P	SEPT. 23	05 P.M. PST
SEPT. 24	02	43	49.1	34.87 N.	120.38 W.	10	...	...	3.2P	...	P	SEPT. 23	06 P.M. PST
SEPT. 24	08	05	55.4	36.66 N.	121.34 W.	6	3.7	...	4.0B	IV	B	SEPT. 24	00 A.M. PST
SEPT. 24	08	11	22.0	36.66 N.	121.34 W.	5	...	...	3.1B	...	B	SEPT. 24	00 A.M. PST
SEPT. 24	08	11	53.4	36.66 N.	121.34 W.	5	...	...	3.1B	...	B	SEPT. 24	00 A.M. PST
SEPT. 25	04	20	04.9	36.67 N.	121.33 W.	5	...	...	3.8B	...	B	SEPT. 24	08 P.M. PST
SEPT. 25	18	42	06.3	36.65 N.	121.34 W.	5	...	...	3.4B	...	B	SEPT. 25	10 A.M. PST
SEPT. 25	20	38	10.4	33.28 N.	118.30 W.	1	...	...	3.4P	...	P	SEPT. 25	12 P.M. PST
SEPT. 25	21	01	12.1	36.65 N.	121.34 W.	6	...	...	3.0B	...	B	SEPT. 25	01 P.M. PST
SEPT. 25	21	01	22.4	36.66 N.	121.33 W.	6	...	...	3.4B	...	B	SEPT. 25	01 P.M. PST
SEPT. 25	21	31	17.4	36.66 N.	121.34 W.	6	...	...	3.2B	II	B	SEPT. 25	01 P.M. PST
SEPT. 25	23	29	46.0	36.36 N.	117.82 W.	5	...	...	3.5B	...	G	SEPT. 25	03 P.M. PST
SEPT. 26	05	20	37.0	34.92 N.	120.72 W.	6	...	...	3.0P	...	P	SEPT. 25	09 P.M. PST
SEPT. 28	00	41	49.2	37.49 N.	118.76 W.	13	...	...	4.3B	FELT	B	SEPT. 27	04 P.M. PST
SEPT. 28	03	32	19.8	37.46 N.	118.87 W.	5	...	...	3.6B	FELT	B	SEPT. 27	07 P.M. PST
SEPT. 28	03	37	25.5	37.47 N.	118.83 W.	2	...	...	3.7B	FELT	B	SEPT. 27	07 P.M. PST
SEPT. 28	10	43	51.4	35.75 N.	117.75 W.	5	...	...	3.5P	FELT	P	SEPT. 28	02 A.M. PST
SEPT. 28	17	35	05.0	35.75 N.	117.75 W.	9	...	...	3.1P	...	P	SEPT. 28	09 A.M. PST
SEPT. 29	18	19	16.1	35.75 N.	117.75 W.	6	...	...	3.9P	IV	P	SEPT. 29	10 A.M. PST
SEPT. 29	18	21	01.1	35.75 N.	117.75 W.	8	...	...	4.2P	V	P	SEPT. 29	10 A.M. PST
SEPT. 29	19	37	14.7	35.75 N.	117.75 W.	9	...	...	3.8P	...	P	SEPT. 29	11 A.M. PST
SEPT. 30	22	38	10.6	35.75 N.	117.75 W.	8	4.4	...	4.1P	V	P	SEPT. 30	02 P.M. PST

Table 1.--*Summary of U.S. earthquakes for July-September 1982*--Continued

Date (1982)	Origin time (UTC) hr	min	sec	Lat (°)	Long (°)	Depth (km)	Magnitude mb	MS	ML, Mn or MD	Maximum intensity	Hypocenter source	Local time Date	Hour
CALIFORNIA--OFF THE COAST													
JULY 2	02	18	20.0	40.76 N.	124.44 W.	20	...	...	3.1B	...	B	JUNE 30	06 P.M. PST
JULY 25	08	56	17.9	40.45 N.	125.50 W.	20	...	...	3.5B	...	B	JULY 25	00 A.M. PST
JULY 28	17	06	31.6	40.43 N.	124.50 W.	16	...	...	3.3B	...	B	JULY 28	09 A.M. PST
JULY 30	07	42	39.7	40.38 N.	124.81 W.	12	...	...	3.6B	...	B	JULY 29	10 P.M. PST
AUG. 17	14	10	02.2	40.58 N.	124.85 W.	22	...	...	3.0B	...	B	AUG. 17	06 A.M. PST
AUG. 19	09	24	46.2	40.29 N.	124.82 W.	18	...	...	3.1B	...	B	AUG. 19	01 A.M. PST
AUG. 29	21	23	56.8	40.71 N.	125.24 W.	10	...	...	3.6B	...	B	AUG. 29	01 P.M. PST
SEPT. 10	17	47	05.6	33.63 N.	119.02 W.	6	...	...	3.1P	...	P	SEPT. 10	09 A.M. PST
SEPT. 20	09	36	29.5	32.87 N.	119.98 W.	16	3.8	...	3.8P	...	P	SEPT. 20	01 A.M. PST
COLORADO													
SEPT. 18	16	11	44.9	39.90 N.	104.91 W.	5	...	...	2.8G	III	G	SEPT. 18	09 A.M. MST
HAWAII													
JULY 1	23	27	31.4	19.19 N.	155.61 W.	10	...	...	3.6H	...	H	JULY 1	01 P.M. HST
JULY 6	07	19	02.4	19.29 N.	155.38 W.	6	...	...	3.2H	III	H	JULY 5	09 P.M. HST
JULY 12	12	59	48.1	19.28 N.	155.37 W.	8	...	...	3.1H	...	H	JULY 12	02 A.M. HST
JULY 18	13	30	11.1	19.12 N.	155.52 W.	13	...	...	3.0H	III	H	JULY 18	03 A.M. HST
JULY 18	22	17	35.1	18.93 N.	155.24 W.	14	...	...	3.0H	...	H	JULY 18	12 P.M. HST
JULY 30	11	37	10.7	19.44 N.	157.18 W.	20	...	...	3.4H	...	H	JULY 30	01 A.M. HST
AUB. 1	11	51	41.0	19.43 N.	155.63 W.	3	...	...	3.2H	...	H	AUG. 1	01 A.M. HST
AUG. 3	20	09	35.4	19.47 N.	155.76 W.	10	...	...	3.2H	...	H	AUG. 3	10 A.M. HST
AUG. 7	21	03	03.9	19.35 N.	155.10 W.	8	...	...	3.2H	...	H	AUG. 7	11 A.M. HST
AUG. 8	00	02	26.8	19.33 N.	155.19 W.	10	...	...	3.4H	III	H	AUG. 7	02 P.M. HST
AUG. 9	01	03	07.2	19.36 N.	155.10 W.	9	...	...	3.3H	...	H	AUG. 8	03 P.M. HST
AUG. 10	02	55	09.5	19.38 N.	155.07 W.	8	...	...	3.1H	...	H	AUG. 9	04 P.M. HST
AUG. 10	11	21	54.1	19.30 N.	155.22 W.	10	...	...	3.6H	III	H	AUG. 10	01 A.M. HST
AUG. 10	11	37	51.4	19.31 N.	155.22 W.	8	...	...	3.4H	III	H	AUG. 10	01 A.M. HST
AUG. 12	10	43	35.8	19.42 N.	155.27 W.	16	...	...	4.0H	IV	H	AUG. 12	00 A.M. HST
AUG. 12	12	44	04.5	19.42 N.	155.27 W.	16	...	...	3.3H	III	H	AUG. 12	02 A.M. HST
AUG. 15	17	01	44.0	19.33 N.	155.13 W.	9	...	...	3.4H	...	H	AUG. 15	07 A.M. HST
AUG. 17	18	57	39.6	18.90 N.	155.27 W.	14	...	...	3.9H	...	H	AUG. 17	08 A.M. HST
AUG. 20	08	51	20.5	19.75 N.	156.03 W.	8	...	...	3.6H	IV	H	AUG. 19	10 P.M. HST
AUG. 20	08	59	59.1	19.75 N.	156.01 W.	8	...	...	3.0H	III	H	AUG. 19	10 P.M. HST
AUG. 27	11	48	30.7	20.20 N.	155.64 W.	10	...	...	3.8H	IV	H	AUG. 27	01 A.M. HST
AUG. 29	01	55	23.3	19.39 N.	155.40 W.	11	...	...	3.0H	...	H	AUG. 28	03 P.M. HST
AUG. 31	21	32	25.3	19.31 N.	155.22 W.	11	...	...	3.5H	...	H	AUG. 31	11 A.M. HST
SEPT. 2	16	09	54.2	21.39 N.	155.26 W.	2	...	...	3.1H	...	H	SEPT. 2	06 A.M. HST
SEPT. 11	05	03	44.7	19.39 N.	155.42 W.	11	...	...	3.4H	III	H	SEPT. 10	07 P.M. HST
SEPT. 12	16	18	34.6	19.36 N.	155.00 W.	9	...	...	3.1H	III	H	SEPT. 12	06 A.M. HST
SEPT. 14	16	49	41.9	19.33 N.	155.19 W.	10	...	...	3.0H	...	H	SEPT. 14	06 A.M. HST
SEPT. 14	19	17	32.6	19.18 N.	155.60 W.	10	...	...	3.6H	IV	H	SEPT. 14	09 A.M. HST
SEPT. 22	01	35	27.8	19.33 N.	155.12 W.	9	...	...	3.7H	IV	H	SEPT. 21	03 P.M. HST
SEPT. 24	00	23	37.5	19.38 N.	155.40 W.	11	...	...	3.2H	III	H	SEPT. 23	02 P.M. HST
SEPT. 26	03	02	15.1	19.39 N.	155.28 W.	6	...	...	3.3H	III	H	SEPT. 25	05 P.M. HST
SEPT. 26	04	38	47.3	19.40 N.	155.26 W.	1	...	...	3.3H	III	H	SEPT. 25	06 P.M. HST
SEPT. 29	16	20	52.1	19.37 N.	155.18 W.	32	...	...	3.4H	III	H	SEPT. 29	06 A.M. HST
SEPT. 30	16	43	08.5	19.42 N.	155.60 W.	0	...	...	3.0H	...	H	SEPT. 30	06 A.M. HST
IDAHO													
AUG. 10	19	35	46.2	44.62 N.	114.40 W.	5	...	...	4.1G	III	G	AUG. 10	11 A.M. PST
SEPT. 4	14	48	43.2	44.59 N.	115.06 W.	5	...	...	3.2G	...	G	SEPT. 4	06 A.M. PST
SEPT. 30	02	27	19.8	42.64 N.	111.46 W.	5	...	...	3.5G	III	G	SEPT. 29	07 P.M. MST
ILLINOIS													
AUG. 11	10	32	38.8	37.25 N.	88.73 W.	5	...	...	3.0G	III	S	AUG. 11	04 A.M. CST

Table 1.--*Summary of U.S. earthquakes for July-September 1982*--Continued

Date (1982)	Origin time (UTC) hr	min	sec	Lat (°)		Long (°)		Depth (km)	Magnitude mb	MS	ML, Mn or MD	Maximum intensity	Hypocenter source	Local time Date		Hour	
MAINE																	
JULY 15	07	27	55.6	46.08	N.	69.03	W.	0	...	...	2.8J	...	J	JULY 15	02	A.M.	EST
MISSOURI																	
JULY 3	04	58	48.8	36.58	N.	89.99	W.	9	...	...	2.7K	FELT	K	JULY 2	10	P.M.	CST
JULY 13	04	30	52.7	36.01	N.	89.85	W.	12	...	...	2.6G	III	K	JULY 12	10	P.M.	CST
SEPT. 6	21	22	53.0	36.58	N.	89.64	W.	0	...	...	2.5K	...	K	SEPT. 6	03	P.M.	CST
SEPT. 7	03	31	55.1	36.27	N.	89.87	W.	5	...	...	2.7K	...	K	SEPT. 6	09	P.M.	CST
MONTANA																	
JULY 6	09	32	49.0	44.75	N.	111.70	W.	5	...	...	3.3D	...	G	JULY 6	02	A.M.	MST
AUG. 5	01	48	16.5	47.85	N.	114.35	W.	5	...	...	2.5G	FELT	G	AUG. 4	05	P.M.	PST
AUG. 8	07	48	07.4	47.93	N.	114.36	W.	5	...	...	2.3D	FELT	G	AUG. 7	11	P.M.	PST
AUG. 8	07	49	23.1	47.93	N.	114.34	W.	5	...	...	2.8G	FELT	G	AUG. 7	11	P.M.	PST
NEVADA																	
JULY 6	02	10	43.5	37.69	N.	115.05	W.	3	4.1	...	4.2G	III	G	JULY 5	06	P.M.	PST
JULY 29	20	05	00.0	37.10	N.	116.07	W.	0	4.5	...	4.6B	...	E	JULY 29	12	P.M.	PST
AUG. 5	14	00	00.0	37.08	N.	116.01	W.	0	5.7	4.2	5.4B	...	E	AUG. 5	06	A.M.	PST
AUG. 11	15	00	00.0	37.19	N.	116.05	W.	0	...	...	3.3G	...	E	AUG. 11	07	A.M.	PST
AUG. 28	08	26	56.8	38.67	N.	118.82	W.	9	...	...	3.6B	...	B	AUG. 28	00	A.M.	PST
AUG. 29	21	08	03.8	38.17	N.	118.37	W.	10	...	...	4.0B	...	B	AUG. 29	01	P.M.	PST
AUG. 29	21	08	04.0	38.17	N.	118.43	W.	5	...	...	4.0B	FELT	B	AUG. 29	01	P.M.	PST
AUG. 30	09	52	22.8	38.17	N.	118.36	W.	12	...	...	3.5B	...	B	AUG. 30	01	A.M.	PST
AUG. 30	09	52	23.2	38.17	N.	118.44	W.	5	...	...	3.5B	...	B	AUG. 30	01	A.M.	PST
SEPT. 2	14	00	00.0	37.02	N.	116.02	W.	0	...	...	3.3G	...	E	SEPT. 2	06	A.M.	PST
SEPT. 2	22	51	06.2	38.08	N.	117.92	W.	5	...	...	3.2P	...	G	SEPT. 2	02	P.M.	PST
SEPT. 23	16	00	00.0	37.21	N.	116.21	W.	0	4.9	...	4.8B	...	E	SEPT. 23	08	A.M.	PST
SEPT. 23	17	00	00.0	37.17	N.	116.09	W.	0	4.9	...	4.8B	...	E	SEPT. 23	09	A.M.	PST
SEPT. 24	07	40	24.6	37.87	N.	118.14	W.	17	5.0	4.6	5.5B	V	B	SEPT. 23	11	P.M.	PST
SEPT. 29	13	30	00.1	37.09	N.	116.04	W.	0	...	...	4.1B	...	E	SEPT. 29	05	A.M.	PST
NEW MEXICO																	
SEPT. 20	03	55	17.2	33.95	N.	107.06	W.	11	...	...	2.9G	IV	G	SEPT. 19	08	P.M.	MST
NEW YORK																	
AUG. 31	10	16	58.1	43.21	N.	74.20	W.	4	...	...	2.7L	III	L	AUG. 31	05	A.M.	EST
OREGON--OFF THE COAST																	
JULY 2	03	30	24.1	42.71	N.	126.62	W.	10	4.2	...	...	...	G	JULY 1	07	P.M.	PST
JULY 13	08	24	22.6	43.26	N.	126.41	W.	10	4.8	4.0	...	...	G	JULY 13	00	A.M.	PST
JULY 26	13	05	49.0	43.91	N.	128.38	W.	10	4.8	4.5	...	...	G	JULY 26	05	A.M.	PST
JULY 26	14	55	18.7	44.03	N.	128.48	W.	10	4.3	3.7	...	...	G	JULY 26	06	A.M.	PST
JULY 27	04	49	59.7	43.94	N.	128.33	W.	10	4.8	5.1	...	...	G	JULY 26	08	P.M.	PST
JULY 27	04	51	44.1	43.94	N.	128.38	W.	10	5.0	...	...	...	G	JULY 26	08	P.M.	PST
JULY 27	06	02	03.9	43.95	N.	128.36	W.	10	4.9	4.5	...	...	G	JULY 26	10	P.M.	PST
JULY 27	06	16	55.2	43.96	N.	128.18	W.	10	5.1	5.1	...	...	G	JULY 26	10	P.M.	PST
JULY 27	06	22	58.4	43.88	N.	128.44	W.	10	5.2	4.8	...	...	G	JULY 26	10	P.M.	PST
JULY 27	06	46	13.7	44.32	N.	128.87	W.	10	4.1	3.8	...	...	G	JULY 26	10	P.M.	PST
JULY 27	07	22	12.6	43.96	N.	128.22	W.	10	4.4	...	...	...	G	JULY 26	11	P.M.	PST
JULY 27	09	02	36.0	43.89	N.	128.36	W.	10	4.5	4.2	...	...	G	JULY 27	01	A.M.	PST
AUG. 13	02	23	57.1	43.91	N.	128.30	W.	10	3.7	...	...	...	G	AUG. 12	06	P.M.	PST
AUG. 13	11	27	05.4	44.02	N.	128.77	W.	10	3.9	...	...	...	G	AUG. 13	03	A.M.	PST
SEPT. 18	07	31	33.5	43.57	N.	127.18	W.	10	4.0	...	...	...	G	SEPT. 17	11	P.M.	PST
SOUTH CAROLINA																	
JULY 16	14	16	01.8	34.28	N.	81.51	W.	7	...	...	3.1K	III	K	JULY 16	09	A.M.	EST
SEPT. 2	21	52	45.2	34.93	N.	82.92	W.	2	...	...	2.8K	...	K	SEPT. 2	04	P.M.	EST

Date (1982)	Origin time (UTC) hr	min	sec	Lat (°)	Long (°)	Depth (km)	Magnitude mb	MS	ML, Mn or MD	Maximum intensity	Hypocenter source	Local time Date	Hour
SOUTH DAKOTA													
JULY 11	19	42	28.4	44.01 N.	96.72 W.	5	...	...	3.6T	V	G	JULY 11	01 P.M. CST
TENNESSEE													
JULY 14	16	01	35.6	36.26 N.	89.45 W.	4	...	...	2.4K	FELT	K	JULY 14	10 A.M. CST
SEPT. 5	10	11	09.4	35.20 N.	84.51 W.	13	...	...	2.8G	IV	K	SEPT. 5	05 A.M. EST
SEPT. 24	21	57	42.4	35.68 N.	84.24 W.	14	...	...	3.0V	V	K	SEPT. 24	04 P.M. EST
SEPT. 24	22	19	16.9	35.69 N.	84.25 W.	10	...	...	3.4V	IV	K	SEPT. 24	05 P.M. EST
SEPT. 29	02	05	56.3	36.24 N.	89.42 W.	9	...	...	2.0K	FELT	K	SEPT. 28	08 P.M. CST
SEPT. 29	02	06	28.0	36.26 N.	89.43 W.	7	...	...	2.8K	FELT	K	SEPT. 28	08 P.M. CST
WASHINGTON													
JULY 15	03	02	07.5	47.25 N.	119.95 W.	1	...	...	2.4W	III	W	JULY 14	07 P.M. PST
SEPT. 15	17	32	33.2	47.69 N.	122.03 W.	7	...	...	2.9W	IV	W	SEPT. 15	09 A.M. PST
SEPT. 26	10	09	23.9	46.87 N.	121.07 W.	4	...	...	2.9G	FELT	W	SEPT. 26	02 A.M. PST
WASHINGTON--OFF THE COAST													
AUG. 26	21	57	27.1	48.00 N.	127.99 W.	10	4.3	...	...	...	G	AUG. 26	01 P.M. PST
WYOMING													
JULY 10	01	19	54.8	44.19 N.	110.90 W.	5	...	...	3.0G	III	G	JULY 9	06 P.M. MST
AUG. 31	22	02	18.5	42.72 N.	108.85 W.	5	...	...	3.2G	IV	G	AUG. 31	03 P.M. MST

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*

[Sources of the hypocenters, magnitudes, and macroseismic data: (B) University of California, Berkeley; (D) University of Montana, Missoula. (E) U.S. Department of Energy, Las Vegas, Nev.; (G) U.S. Geological Survey, Golden, Colo. and Menlo Park, Calif.; (H) U.S. Geological Survey, Hawaiian Volcano Observatory; (J) Weston Observatory, Mass.; (K) Tennessee Earthquake Information Center, Memphis; (L) Lamont-Doherty Geological Observatory, Palisades, NY; (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) Oklahoma Geological Survey, Leonard; (V) Virginia Polytechnic Institute and State University, Blacksburg; (W) University of Washington, Seattle. Normal depth = 33 km. 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]

ALASKA

1 July (G) Southern Alaska
Origin time: 00 09 52.2
Epicenter: 59.48 N., 152.83 W.
Depth: 97 km
Magnitude: 4.5mb(G)
Intensity III: Homer (M).

1 July (G) Andreanof Islands, Aleutian Islands
Origin time: 07 41 53.2
Epicenter: 51.43 N., 179.94 W.
Depth: 48 km
Magnitude: 6.3mb(G), 5.5MS(G), 5.4MS(B), 5.4ML(M).
Intensity IV: Adak Island (M).

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

ALASKA--Continued

6 July (G) Southern Alaska
Origin time: 17 33 08.8
Epicenter: 59.22 N., 152.64 W.
Depth: 69 km
Magnitude: 4.8mb(G)
Intensity IV: Homer (M).

6 July (G) Southern Alaska
Origin time: 19 48 11.9
Epicenter: 61.69 N., 150.19 W.
Depth: 18 km
Magnitude: 3.3ML(M)
Intensity III: Wasilla (M).

10 July (G) Southern Alaska
Origin time: 09 22 37.6
Epicenter: 61.17 N., 149.66 W.
Depth: 59 km
Magnitude: 4.3mb(G), 4.0ML(M)
Intensity IV: Anchorage (M).
Intensity III: Palmer (M).

14 July (G) Southern Alaska
Origin time: 12 15 47.6

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

ALASKA--Continued

Epicenter: 60.51 N., 153.67 W.
Depth: 157 km
Magnitude: 5.0mb(G)
Intensity IV: Clam Gulch, Cooper Landing, Ninilchik.
Intensity III: Anchor Point, Anchorage, Homer (M), Kenai.
Intensity II: Palmer (M).

26 July (G) Southern Alaska
Origin time: 05 06 51.4
Epicenter: 62.36 N., 147.75 W.
Depth: 57 km
Magnitude: 4.1mb(G), 3.8ML(M)
Intensity III: Palmer (M).

30 July (G) Central Alaska
Origin time: 01 41 50.4
Epicenter: 64.69 N., 149.83 W.
Depth: 15 km
Magnitude: 3.9ML(M)

Felt at Fairbanks, Manley Hot Springs, and Minto (M).

31 July (G) Near Islands, Aleutian Islands
Origin time: 06 29 15.5
Epicenter: 51.76 N., 176.14 E.
Depth: 38 km
Magnitude: 6.2mb(G), 6.5mb(P), 6.0MS(G) 6.1MS(B), 5.6MS(P), 5.9ML(M).
Intensity III: Shemya Island (M).

5 August (G) Southern Alaska
Origin time: 14 45 03.1
Epicenter: 61.42 N., 149.89 W.
Depth: 37 km
Magnitude: 3.0ML(M)

Felt at Anchorage, Eagle River, and Palmer (M).

6 August (G) Andreanof Islands, Aleutian Islands
Origin time: 00 41 55.3
Epicenter: 51.14 N., 177.75 W.
Depth: Normal
Magnitude: 4.5mb(G), 4.1ML(M)
Intensity III: Adak Island (M).

6 August (G) Andreanof Islands, Aleutian Islands
Origin time: 04 53 58.6
Epicenter: 51.95 N., 176.09 W.
Depth: 64 km
Magnitude: 5.4mb(G), 4.8MS(B)
Intensity IV: Adak Island (M).

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

ALASKA--Continued

7 August (G) Southeastern Alaska
Origin time: 08 37 25.8
Epicenter: 60.21 N., 139.54 W.
Depth: 15 km
Magnitude: 4.7mb(G)
Intensity III: Yakutat (M).

7 August (G) Western Alaska
Origin time: 19 53 46.1
Epicenter: 66.00 N., 166.77 W.
Depth: 15 km
Magnitude: 4.8mb(G), 4.7MS(G)
Intensity IV: Nome.
Intensity III: Kotzebue.

8 August (G) Andreanof Islands, Aleutian Islands
Origin time: 14 11 00.6
Epicenter: 51.85 N., 176.09 W.
Depth: 68 km
Magnitude: 4.8mb(G)

Felt on Adak Island (M).

9 August (G) Andreanof Islands, Aleutian Islands
Origin time: 12 47 54.6
Epicenter: 51.82 N., 175.96 W.
Depth: 67 km
Magnitude: 4.8mb(G)

Felt on Adak Island (M).

10 August (G) Southern Alaska
Origin time: 19 12 20.2
Epicenter: 62.13 N., 149.73 W.
Depth: 57 km
Magnitude: 4.2ML(M)

Felt at Takeetna (M).

15 August (G) Western Alaska
Origin time: 15 47 27.1
Epicenter: 65.01 N., 162.07 W.
Depth: Normal
Magnitude: 4.4mb(G), 4.6ML(M)

Felt from Koyuk to Nome along the southern coast of the Seward Peninsula (M).

16 August (G) Andreanof Islands, Aleutian Islands
Origin time: 20 58 20.7
Epicenter: 51.78 N., 174.06 W.
Depth: 49 km
Magnitude: 5.4mb(G), 4.6MS(G), 4.8ML(M)
Intensity III: Adak Island (M).

22 August (G) Andreanof Islands, Aleutian Islands
Origin time: 15 23 21.3
Epicenter: 51.66 N., 176.78 W.

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

ALASKA--Continued

Depth: 59 km
Magnitude: 5.1mb(G)
Intensity III: Adak Island (M).

22 August (G) Southern Alaska
Origin time: 15 44 21.3
Epicenter: 61.62 N., 149.67 W.
Depth: 39 km
Magnitude: 3.2ML(M)

Felt in the Palmer-Wasilla Area (M).

24 August (G) Fox Islands, Aleutian Islands
Origin time: 04 09 15.6
Epicenter: 53.65 N., 165.44 W.
Depth: Normal
Magnitude: 5.3mb(G), 4.8MS(G), 4.7MS(B)
Intensity IV: Unalaska (M).

26 August (G) Southeastern Alaska
Origin time: 19 02 23.4
Epicenter: 58.99 N., 136.95 W.
Depth: 15 km
Magnitude: 4.1mb(G)

Felt at Haines (M).

27 August (G) Andreanof Islands, Aleutian Islands
Origin time: 11 59 00.6
Epicenter: 51.39 N., 178.28 W.
Depth: 49 km
Magnitude: 5.1mb(G), 4.4MS(G), 4.9ML(M)

Felt on Adak Island (M).

30 August (G) Alaska Peninsula
Origin time: 13 30 06.1
Epicenter: 54.53 N., 161.62 W.
Depth: 35 km
Magnitude: 5.2mb(G), 4.3MS(G), 5.5ML(M)

Felt at Sand Point (press report).

1 September (G) Southern Alaska
Origin time: 06 19 24.8
Epicenter: 61.22 N., 150.82 W.
Depth: 93 km
Magnitude: 3.8ML(G)
Intensity III: Anchorage (M).

6 September (G) Kodiak Island region
Origin time: 07 48 54.9
Epicenter: 56.84 N., 151.59 W.
Depth: Normal
Magnitude: 5.7mb(G), 5.9mb(B), 6.0mb(P)
5.6MS(G), 5.4MS(B), 6.0ML(M)
Intensity III: Kodiak (press report).

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

ALASKA--Continued

30 September (G) Central Alaska
Origin time: 09 48 05.1
Epicenter: 65.75 N., 145.06 W.
Depth: 15 km
Magnitude: 4.3ML(M)

Felt at Fairbanks (M).

ARKANSAS

5 July (K) Central Arkansas
Origin time: 04 13 49.8
Epicenter: 35.18 N., 92.23 W.
Depth: 6 km
Magnitude: 3.8Mn(T), 3.8MD(K)

Felt in the epicentral area (K).

13 July (K) New Madrid region
Origin time: 04 30 52.7

See Missouri listing.

9 August (K) Central Arkansas
Origin time: 11 12 31.7
Epicenter: 35.18 N., 92.23 W.
Depth: 4 km
Magnitude: 3.2Mn(T), 2.9MD(K)

Felt at Enola and Naylor (K).

25 September (K) Central Arkansas
Origin time: 23 17 05.5
Epicenter: 35.20 N., 92.23 W.
Depth: 5 km
Magnitude: 3.5Mn(T), 3.2MD(K)

Felt in the Enola-Naylor area (K).

27 September (K) Central Arkansas
Origin time: 10 22 32.5
Epicenter: 35.19 N., 92.22 W.
Depth: 3 km
Magnitude: 3.1Mn(G), 3.8Mn(T), 2.7MD(K)

Felt in the Enola-Naylor area (K).

Intensity III: Naylor (press report).

CALIFORNIA

4 July (P) Southern California
Origin time: 12 44 03.4
Epicenter: 35.77 N., 117.73 W.

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

CALIFORNIA--Continued

Depth: 8 km
Magnitude: 3.6ML(P), 3.7ML(B)
Intensity IV: China Lake, Ridgecrest.

7 July (P) Southern California
Origin time: 08 44 33.7
Epicenter: 34.15 N., 116.70 W.
Depth: 11 km
Magnitude: 3.6ML(P)

Felt at Palm Desert and Lucerne Valley (P) and at Palm Springs (press report).

18 July (P) Central California
Origin time: 10 16 41.5
Epicenter: 36.89 N., 121.49 W.
Depth: 10 km
Magnitude: 3.5ML(B)

Felt at Hollister (B).

18 July (P) Southern California
Origin time: 11 25 50.9
Epicenter: 33.83 N., 117.83 W.
Depth: 8 km
Magnitude: 3.0ML(P)
Intensity IV: Anaheim (press report), Santa Ana.

18 July (B) Northern California
Origin time: 22 45 24.3
Epicenter 40.00 N., 122.61 W.
Depth: 13 km
Magnitude: 3.7ML(B)

Felt at Paskenta (B).

29 July (P) Southern California
Origin time: 05 50 08.6
Epicenter: 33.95 N., 118.72 W.
Depth: 11 km
Magnitude: 3.4ML(P)
Intensity V: West Los Angeles--some glassware was broken, few small objects were overturned and fell, trees and bushes were slightly shaken, felt by several.
Intensity IV: Agoura.
Intensity III: El Monte, Hawthorne, North Hollywood, Thousand Oaks, Paramount, Palms.

4 August (B) Central California
Origin time: 15 41 31.5
Epicenter: 38.92 N., 122.67 W.
Depth: 6 km
Magnitude: 3.0ML(B)

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

CALIFORNIA--Continued

Intensity V: Clear Lake Oaks--a few small objects fell and a few windows were cracked.
Intensity IV: Clear Lake Highlands.
Intensity III: Middletown.
Felt: Lakeport (B).

5 August (P) Southern California
Origin time: 04 02 19.8
Epicenter: 33.27 N., 116.42 W.
Depth: 3 km
Magnitude: 3.5ML(P)

Felt at Borrego Springs (P).

5 August (B) Owens Valley area
Origin time: 15 38 31.0
Epicenter: 37.63 N., 118.91 W.
Depth: 1 km
Magnitude: 3.4ML(B), 3.2ML(P)

Felt at Mammoth Lakes (B).

10 August (B) Central California
Origin time: 02 11 29.8
Epicenter: 36.59 N., 121.24 W.
Depth: 7 km
Magnitude: 3.9mb(G), 4.5ML(B)
Intensity IV: Felton, Gonzales, Hollister, Monterey, Pacific Grove, Soledad.
Intensity III: Big Sur, Boulder Creek, Castroville, Carmel Valley, Coalinga, Mount Herman, Paicines, Moss Landing, Salinas, San Juan Bautista, Soquel.
Felt: Watsonville (B).

10 August (B) Central California
Origin time: 02 24 00.3
Epicenter: 36.60 N., 121.26 W.
Depth: 6 km
Magnitude: 3.4ML(B)
Intensity III: Salinas (press report).
Felt: Hollister (B).

10 August (P) Imperial Valley area
Origin time: 18 37 04.2
Epicenter: 32.92 N., 115.53 W.
Depth: 15 km
Magnitude: 3.6ML(P)
Intensity IV: Brawley (press report), El Centro, Imperial, Jacumba (a pan of boiling water slid from a stove and scalded a child), Seeley.
Intensity III: Heber.

11 August (B) Central California
Origin time: 07 46 43.2
Epicenter: 36.63 N., 121.31 W.

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

CALIFORNIA--Continued

Depth: 9 km
Magnitude: 4.6mb(G), 4.6ML(B)
Intensity V: Gonzales--a few windows were cracked, hanging pictures were swung out of place, felt by all.
Intensity IV: Big Sur, Bradley, Carmel Valley, Coalinga, Hollister, King City, Jolon, Monterey, Pacific Grove, Paicines, San Ardo, Santa Cruz, Soledad, Tres Pinos.
Intensity III: Castroville, Felton, Mount Hermon, San Miguel, Seaside.
Felt: Salinas (B), Watsonville (B).

14 August (P) Southern California
Origin time: 02 37 59.1
Epicenter: 34.17 N., 117.33 W.
Depth: 5 km
Magnitude: 3.1ML(P)
Intensity IV: Colton, San Bernardino (press report).

15 August (B) Owens Valley area
Origin time: 18 58 10.8
Epicenter: 37.48 N., 118.90 W.
Depth: 5 km
Magnitude: 3.6ML(B), 3.2ML(P)

Felt at Mammoth Lakes (B).

18 August (B) Central California
Origin time: 08 43 49.8
Epicenter: 37.02 N., 121.73 W.
Depth: 11 km
Magnitude: 4.3mb(G), 4.5ML(B)

This event was felt over an area of approximately 9500 km^2 of the coastal region (fig. 7).

Intensity V: The most common effects at the places listed below were: Items knocked from shelves, small objects overturned and fell.
Cupertino (press report), Freedom, Gilroy (a man was thrown out of bed), Los Gatos, Morgan Hill (hanging pictures fell), New Almaden (small landslides), Palo Alto, Saratoga (press report).
Intensity IV: Alameda, Aptos, Aromas, Belmont, Ben Lomond, Berkeley (press report), Boulder Creek, Capitola, Carmel, Chular, Corralitos (press report), Daly City, Davenport, East Santa Cruz, El Cerrito, Fairfax (press report), Felton, Fremont, Half Moon Bay, Hayward, Hollister, Holy City, La Honda, Millbrae, Moffett Field Naval Air Station, Monterey, Monte Sereno, Mount Hermon, Newark, Pescadero, Redwood

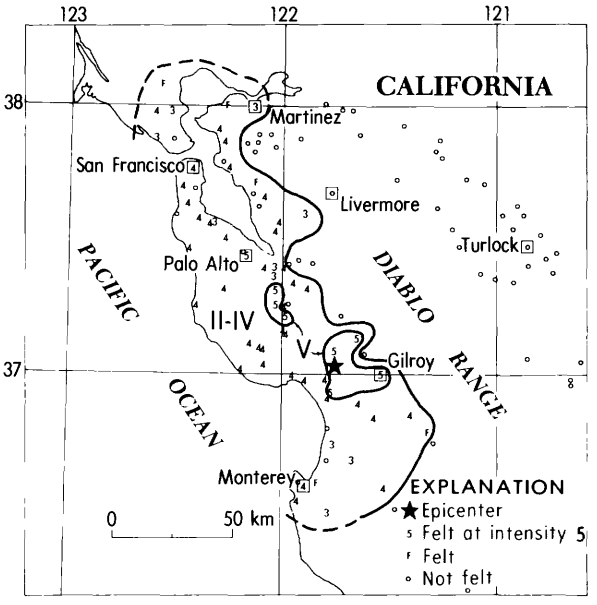

FIGURE 7.--Isoseismal map for the central California earthquake of 18 August 1982, 08 43 49.8 UTC. Roman numerals represent Modified Mercalli intensities between isoseismals; Arabic numerals are used to represent these intensities at specific sites.

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

CALIFORNIA--Continued

Estates, San Carlos, San Francisco, San Jose (City, Cambrian Park, Saint James Park), San Juan Bautista, Santa Clara, Santa Cruz, Saratoga, Soquel, South San Francisco, Union City, Watsonville.
Intensity III: Carmel Valley, Castroville, Martinez (press report), Mountain View (telegraphic report), Richmond, Salinas, San Rafael (press report), San Mateo, Stinson Beach, Sunol, Sunnyvale (press report).
Intensity II: San Francisco International Airport.
Felt: Novato (press report), Pinole (press report), San Anselmo (press report), San Leandro (press report), Sausalito (press report), Seaside, Tres Pinos.

19 August (B) Central California
Origin time: 11 04 19.1
Epicenter: 37.69 N., 121.95 W.
Depth: 8 km
Magnitude: 2.9ML(B)
Intensity III: Livermore, Pleasanton, San Leandro (all press reports).

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

CALIFORNIA--Continued

21 August (P) Southern California
Origin time: 10 20 42.4
Epicenter: 33.25 N., 116.42 W.
Depth: 2 km
Magnitude: 3.4ML(P)

Felt at Borrego Springs (P).

21 August (B) Central California
Origin time: 14 31 26.4
Epicenter: 37.68 N., 121.95 W.
Depth: 8 km
Magnitude: 3.3ML(B)

Felt along the east side of San Francisco Bay (press report). Also felt at Dublin (B) and Livermore (press report).

22 August (B) Owens Valley area
Origin time: 04 25 17.3
Epicenter: 37.49 N., 118.87 W.
Depth: 5 km
Magnitude: 3.6ML(B), 3.2 ML(P)

Felt at Mammoth Lakes (B).

24 August (B) Owens Valley area
Origin time: 07 27 35.4
Epicenter: 37.54 N., 118.85 W.
Depth: 2 km
Magnitude: 3.4ML(B), 3.1ML(P)

Felt at Mammoth Lakes (B).

24 August (B) Central California
Origin time: 22 33 36.8
Epicenter: 37.46 N., 121.82 W.
Depth: 6 km
Magnitude: 3.9ML(B)
Intensity V:
San Jose--few small objects were overturned or fell, some glassware was broken, few merchandise items were thrown from store shelves.
San Jose (Cambrian Park)--few windows were cracked, some glassware was broken, few small objects were overturned or fell.
Intensity IV: Boulder Creek, Calaveras Reservoir Dam (press report), Mount Hamilton, Mountain View (press report), San Rafael, Milipitas, Santa Clara, Sunnyvale (press report).
Intensity III: Agnew, Belmont, Campbell, Fremont (press report), Half Moon Bay, Mission, San Jose (Saint James Park).
Intensity II: Ben Lomond, Felton.

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

CALIFORNIA--Continued

26 August (B) Owens Valley area
Origin time: 19 39 08.4
Epicenter: 37.60 N., 118.82 W.
Depth: 6 km
Magnitude: 3.9ML(B), 3.6ML(P)

Felt at Mammoth Lakes (B). This is one of 60 small earthquakes in a swarm.

26 August (P) Southern California
Origin time: 22 28 03.1
Epicenter: 33.27 N., 116.00 W.
Depth: 4 km
Magnitude: 3.5ML(P)

Felt at Borrego Springs and Salton City (press report).

27 August (P) Southern California
Origin time: 04 25 37.6
Epicenter: 33.93 N., 117.82 W.
Depth: 17 km
Magnitude: 3.1ML(P)
Intensity V:
Anaheim--few dishes were broken, few small objects were overturned or fell, few windows were cracked.
Huntington Beach--hairline cracks in dry wall.
Intensity IV: Santa Ana.
Intensity III: El Toro Marine Corps Air Station, Perry, Whittier.
Intensity II: Glendora.

28 August (B) Central California
Origin time: 01 03 11.3
Epicenter: 37.85 N., 121.76 W.
Depth: 12 km
Magnitude: 3.8ML(B)
Intensity V:
San Ramon--few merchandise items were thrown from store shelves, some glassware was broken, few small objects were overturned or fell.
Stockton--few windows were cracked, some glassware was broken, few small objects were overturned or fell, hanging pictures were swung out of place.
Intensity IV: Alamo.
Intensity III: Alameda, Boulder Creek, Brentwood (press report), Fremont, Hayward, Holt, Livermore (press report), Novato, Volcano.
Intensity II: Byron, Elk Grove.
Felt: Antioch (B), Dublin (B), Lafayette (B).

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

CALIFORNIA--Continued

29 August (B) Owens Valley area
Origin time: 05 02 34.8
Epicenter: 37.37 N., 118.46 W.
Depth: 16 km
Magnitude: 3.7ML(B), 3.1ML(P)
Intensity IV: Bishop.

31 August (B) Central California
Origin time: 03 11 07.8
Epicenter: 36.64 N., 121.33 W.
Depth: 7 km
Magnitude: 4.0ML(B)

Felt at Hollister (B).

3 September (P) Southern California
Origin time: 11 11 06.1
Epicenter: 33.27 N., 116.42 N.
Depth: 4 km
Magnitude: 2.6ML(P)

Felt at Borrego Springs (P).

3 September (B) Northern California
Origin time: 18 58 24.4
Epicenter: 39.63 N., 122.52 W.
Depth: 9 km
Magnitude: 4.3mb(G), 4.0ML(B)
Intensity IV: Hamilton City (one report of a cracked foundation), Princeton.
Intensity III: Paskenta, Tehama.

5 September (P) Imperial Valley area
Origin time: 05 21 26.6
Epicenter: 32.93 N., 115.85 W.
Depth: 4 km
Magnitude: 3.7mb(G), 4.4ML(P)
Intensity IV: Calexico, Plaster City.
Intensity III: Agua Caliente Springs (Canebrake Canyon), Heber, Mount Laguna, Ocotillo, Seeley.
Intensity II: Boulevard, Niland.
Felt: Brawley (P), El Centro (P).

8 September (B) Owens Valley area
Origin time: 18 07 05.0
Epicenter: 37.47 N., 118.87 W.
Depth: 6 km
Magnitude: 3.5ML(B)

Felt at Mammoth Lakes (B).

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

CALIFORNIA--Continued

8 September (B) Owens Valley area
Origin time: 18 42 19.1
Epicenter: 37.50 N., 118.86 W.
Depth: 6 km
Magnitude: 3.8ML(B)

Felt at Mammoth Lakes (B).

11 September (B) Central California
Origin time: 11 59 32.4
Epicenter: 37.41 N., 121.77 W.
Depth: 8 km
Magnitude: 3.1ML(B)

Felt in the epicentral area (B).

11 September (P) Southern California
Origin time: 13 55 31.6
Epicenter: 33.80 N., 118.23 W.
Depth: 4 km
Magnitude: 2.6ML(P)

Felt at Carson (P).

12 September (P) Southern California
Origin time: 15 55 53.6
Epicenter: 33.80 N., 118.20 W.
Depth: 6 km
Magnitude: 2.5ML(P)

Felt at Carson (P).

16 September (G) Northern California
Origin time: 10 26 05.9
Epicenter: 40.70 N., 124.06 W.
Depth: 17 km
Magnitude: 3.0ML(B)
Intensity III: Rio Dell.

17 September (P) Southern California
Origin time: 10 57 50.3
Epicenter: 33.93 N., 118.32 W.
Depth: 14 km
Magnitude: 3.3ML(P)

Felt at Burbank, Pasadena, Long Beach, and Los Angeles (P).

19 September (P) Southern California
Origin time: 13 46 00.7
Epicenter: 35.77 N., 117.73 W.
Depth: 5 km
Magnitude: 2.8ML(P)

Felt at Ridgecrest (P).

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

CALIFORNIA--Continued

21 September (P) Southern California
Origin time: 18 17 12.4
Epicenter: 34.43 N., 119.78 W.
Depth: 9 km
Magnitude: 3.2ML(P)

Felt from Santa Barbara to San Luis Obispo (P).

Intensity IV: Isla Vista (University of California, Santa Barbara), Santa Barbara (press report).
Intensity III: Montecito.
Felt: San Luis Obispo (P).

23 September (B) Owens Valley area
Origin time: 03 28 00.1
Epicenter: 37.46 N., 118.83 W.
Depth: 5 km
Magnitude: 4.0ML(B), 4.0ML(P)

Felt at Mammoth Lakes (B).

23 September (P) Southern California
Origin time: 20 42 50.9
Epicenter: 34.87 N., 120.38 W.
Depth: 3 km
Magnitude: 3.9ML(P), 3.5ML(B)
Intensity V: Orcutt (few items fell off shelves).
Intensity IV: Atascadero, Casmalia, Goleta, Guadalupe, Santa Maria, Vandenberg AFB.
Intensity III: Ventura.
Intensity II: Los Alamos
Felt: Summerland, Oxnard (P).

24 September (B) California-Nevada border region
Origin time: 07 40 24.3

See Nevada listing.

24 September (B) Central California
Origin time: 08 05 55.4
Epicenter: 36.66 N., 121.34 W.
Depth: 6 km
Magnitude: 3.7mb(G), 4.0ML(B)
Intensity IV: Paicines, San Juan Bautista.
Intensity III: Hollister (press report).
Felt: Tres Pinos.

25 September (B) Central California
Origin time: 21 31 17.4
Epicenter: 36.66 N., 121.34 W.
Depth: 6 km
Magnitude: 3.2ML(B)
Intensity II: Hollister.

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

CALIFORNIA--Continued

28 September (G) Owens Valley area
Origin time: 00 41 49.2
Epicenter: 37.49 N., 118.76 W.
Depth: 13 km
Magnitude: 4.3ML(B), 3.7ML(P)

Felt at Mammoth Lakes (B).

28 September (B) Owens Valley area
Origin time: 03 32 19.8
Epicenter: 37.46 N., 118.87 W.
Depth: 5 km
Magnitude: 3.6ML(B)

Felt at Mammoth Lakes (B).

28 September (G) Owens Valley area
Origin time: 03 37 25.5
Epicenter: 37.47 N., 118.83 W.
Depth: 2 km
Magnitude: 3.7ML(B), 3.8ML(P)

Felt at Mammoth Lakes (B).

28 September (P) Southern California
Origin time: 10 43 51.4
Epicenter: 35.75 N., 117.75 W.
Depth: 5 km
Magnitude: 3.5ML(P)

Felt at Ridgecrest (P).

29 September (P) Southern California
Origin time: 18 19 16.1
Epicenter: 35.75 N., 117.75 W.
Depth: 6 km
Magnitude: 3.9ML(P)
Intensity IV: Ridgecrest.
Intensity III: Cantil, Mountain Mesa.

29 September (P) Southern California
Origin time: 18 21 01.1
Epicenter: 35.75 N., 117.75 W.
Depth: 8 km
Magnitude: 4.2ML(P)
Intensity V:
Little Lake--few merchandise items were thrown from store shelves, few small objects were overturned or fell, moving vehicles rocked slightly.
Ridgecrest--a brick fence collapsed and a 15-foot tree split (press report).

30 September (P) Southern California
Origin time: 22 38 10.6
Epicenter: 35.75 N., 117.75 W.
Depth: 8 km
Magnitude: 4.4mb(G), 4.1ML(P), 4.4ML(B)

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

CALIFORNIA--Continued

Intensity V:
Inyokern--hairline cracks in plaster walls, hanging pictures out of place.
Intensity IV: Ridgecrest, Trona.
Intensity III: Onyx.

COLORADO

18 September (G) Denver area
Origin time: 16 11 44.9
Epicenter: 39.90 N., 104.91 W.
Depth: 5 km
Magnitude: 2.8ML(G), 2.8Mn(T)
Intensity III: Northglenn, Thornton (press report).
Intensity II: Denver (Western Hills).

GEORGIA

24 September (K) Eastern Tennessee
Origin time: 21 57 42.4

See Tennessee listing.

24 September (K) Eastern Tennessee
Origin time: 22 19 16.9

See Tennessee listing.

HAWAII

6 July (H) Island of Hawaii
Origin time: 07 19 02.4
Epicenter: 19.29 N., 155.38 W.
Depth: 6 km
Magnitude: 3.2ML(H)
Intensity III: Pahala.

18 July (H) Island of Hawaii
Origin time: 13 30 11.1
Epicenter: 19.12 N, 155.52 W.
Depth: 13 km
Magnitude: 3.0ML(H)
Intensity III: Discovery Harbor, Pahala.

8 August (H) Island of Hawaii
Origin time: 00 02 26.8
Epicenter: 19.33 N., 155.19 W.
Depth: 10 km
Magnitude: 3.4ML(H)
Intensity III: Hilo

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

HAWAII--Continued

10 August (H) Island of Hawaii
Origin time: 11 21 54.1
Epicenter: 19.30 N., 155.22 W.
Depth: 10 km
Magnitude: 3.6ML(H)
Intensity III: Glenwood, Hilo.

10 August (H) Island of Hawaii
Origin time: 11 37 51.4
Epicenter: 19.31 N., 155.22 W.
Depth: 8 km
Magnitude: 3.4ML(H)
Intensity III: Hilo.

12 August (H) Island of Hawaii
Origin time: 10 43 35.8
Epicenter: 19.42 N., 155.27 W.
Depth: 16 km
Magnitude: 4.0ML(H)
Intensity IV: Glenwood, Hilo, Pahala.

12 August (H) Island of Hawaii
Origin time: 12 44 04.5
Epicenter: 19.42 N., 155.27 W.
Depth: 16 km
Magnitude: 3.3ML(H)
Intensity III: Hilo.

20 August (H) Island of Hawaii
Origin time: 08 51 20.5
Epicenter: 19.75 N., 156.03 W
Depth: 8 km
Magnitude: 3.6ML(H)
Intensity IV: Kona.

20 August (H) Island of Hawaii
Origin time: 08 59 59.1
Epicenter: 19.75 N., 156.01 W
Depth: 8 km
Magnitude: 3.0ML(H)
Intensity III: Kona.

27 August (H) Island of Hawaii
Origin time: 11 48 30.7
Epicenter: 20.20 N., 155.64 W.
Depth: 10 km
Magnitude: 3.8ML(H)
Intensity IV: Kohala.

11 September (H) Island of Hawaii
Origin time: 05 03 44.7
Epicenter: 19.39 N., 155.42 W.
Depth: 11 km
Magnitude: 3.4ML(H)
Intensity III: Glenwood.
Felt: Ka'u area (press report), Volcano (press report).

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

HAWAII--continued

12 September (H) Island of Hawaii
Origin time: 16 18 34.6
Epicenter: 19.36 N., 155.00 W.
Depth: 9 km
Magnitude: 3.1ML(H)
Intensity III: Kalapana.
Felt: Hilo (press report), Puna area (press report).

14 September (H) Island of Hawaii
Origin time: 19 17 32.6
Epicenter: 19.18 N., 155.60 W.
Depth: 10 km
Magnitude: 3.6ML(H)
Intensity IV: Pahala.
Intensity III: Hawaiian Ocean View Estates.

22 September (H) Island of Hawaii
Origin time: 01 35 27.8
Epicenter: 19.33 N., 155.12 W.
Depth: 9 km
Magnitude: 3.7ML(H)
Intensity IV: Hilo.

24 September (H) Island of Hawaii
Origin time: 00 23 37.5
Epicenter: 19.38 N., 155.40 W.
Depth: 11 km
Magnitude: 3.2ML(H)
Intensity III: Pahala.

26 September (H) Island of Hawaii
Origin time: 03 02 15.1
Epicenter: 19.39 N., 155.28 W.
Depth: 6 km
Magnitude: 3.3ML(H)
Intensity III: Volcano.

26 September (H) Island of Hawaii
Origin time: 04 38 47.3
Epicenter: 19.40 N., 155.26 W.
Depth: 1 km
Magnitude: 3.3ML(H)
Intensity III: Volcano.

29 September (H) Island of Hawaii
Origin time: 16 20 52.1
Epicenter: 19.37 N., 155.18 W.
Depth: 32 km
Magnitude: 3.4ML(H)
Intensity III: Glenwood, Hilo, Volcano.

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

IDAHO

10 August (G) Central Idaho
Origin time: 19 35 46.2
Epicenter: 44.62 N., 114.40 W
Depth: 5 km
Magnitude: 4.1ML(G), 3.5ML(D)
Intensity III: Lemhi.

30 September (G) Eastern Idaho
Origin time: 02 27 19.8
Epicenter: 42.64 N., 111.46 W.
Depth: 5 km
Magnitude: 3.5ML(G)
Intensity III: Etna, Wyoming.

ILLINOIS

11 August (S) Southern Illinois
Origin time: 10 32 38.8
Epicenter: 37.25 N., 88.73 W.
Depth: 5 km
Magnitude: 3.0Mn(G), 2.9MD(K)
Intensity III: Metropolis.

IOWA

11 July (G) Eastern South Dakota
Origin time: 19 42 28.4

See South Dakota listing.

MINNESOTA

11 July (G) Eastern South Dakota
Origin time: 19 42 28.4

See South Dakota listing.

MISSOURI

3 July (K) New Madrid Region
Origin time: 04 58 48.8
Epicenter: 36.58 N., 89.99 W.
Depth: 9 km
Magnitude: 2.7MD(K)

Felt near Malden (K).

13 July (K) New Madrid region
Origin time: 04 30 52.7
Epicenter: 36.01 N., 89.85 W.

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

MISSOURI--Continued

Depth: 12 km
Magnitude: 2.6Mn(G), 2.4MD(K)
Intensity III:
Arkansas--Blytheville.
Missouri--Holland.

MONTANA

5 August (G) Northwestern Montana
Origin time: 01 48 16.5
Epicenter: 47.85 N., 114.35 W.
Depth: 5 km
Magnitude: 2.5ML(G), 2.4MD(D)

Felt in the Echo Lake area, Ferndale, and along the east shore of Flathead Lake (D).

8 August (G) Northwestern Montana
Origin time: 07 48 07.4
Epicenter: 47.93 N., 114.36 W.
Depth: 5 km
Magnitude: 2.3MD(D)

Felt at Bigfork and in Echo Lake area (D).

8 August (G) Northwestern Montana
Origin time: 07 49 23.1
Epicenter: 47.93 N., 114.34 W.
Depth: 5 km
Magnitude: 2.8ML(G), 2.7ML(D)

Felt at Kalispell and in the area north of Flathead Lake (D).

8 August Northwestern Montana
Origin time: 05 15
Epicenter: Not located
Depth: None computed
Magnitude: None computed
Intensity IV: Marion.

8 August Northwestern Montana
Origin time: 09 45
Epicenter: Not located
Depth: None computed
Magnitude: None computed
Intensity IV: Marion.

NEVADA

6 July (G) Southern Nevada
Origin time: 02 10 43.5
Epicenter: 37.69 N., 115.05 W.

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

NEVADA--Continued

Depth: 3 km
Magnitude: 4.1mb(G), 4.2ML(G), 4.7ML(B)
Intensity III: Hiko.

29 July (E) Southern Nevada
Origin time: 20 05 00.083
Epicenter: 37.10 N., 116.08 W.
Depth: 0 km
Magnitude: 4.5mb(G), 4.6ML(B)

Nevada Test Site explosion "MONTEREY" at 37°06'08.30" N., 116°04'29.90" W., surface elevation 1280 m, depth of burial 400 m.

5 August (E) Southern Nevada
Origin time: 14 00 00.090
Epicenter: 37.08 N., 116.01 W.
Depth: 0 km
Magnitude: 5.7mb(G), 4.2MS(G), 5.4ML(B) 5.6ML(P)

Nevada Test Site explosion "ATRISCO" at 37°05'03.14" N., 116°00'23.57" W., surface elevation 1295 m, depth of burial 640 m.

11 August (E) Southern Nevada
Origin time: 15 00 00.000
Epicenter: 37.19 N., 116.05 W.
Depth: 0 km
Magnitude: 3.3ML(G)

Nevada Test Site explosion "QUESO" at 37°11'23.25" N., 116°02'51.66" W., surface elevation 1337 m, depth of burial 216 m.

29 August (B) California-Nevada border region
Origin time: 21 08 04.0
Epicenter: 38.17 N., 118.43 W.
Depth: 5 km
Magnitude: 4.0ML(B), 3.9ML(P)

Felt in the epicentral area (B).

2 September (E) Southern Nevada
Origin time: 14 00 00.090
Epicenter: 37.02 N., 116.02 W.
Depth: 0 km
Magnitude: 3.3ML(G)

Nevada Test Site explosion "CERRO" at 37°01'11.04" N., 116°00'56.41" W., surface elevation 1212 m, depth of burial 229 m.

23 September (E) Southern Nevada
Origin time: 16 00 00.091
Epicenter: 37.21 N., 116.21 W.

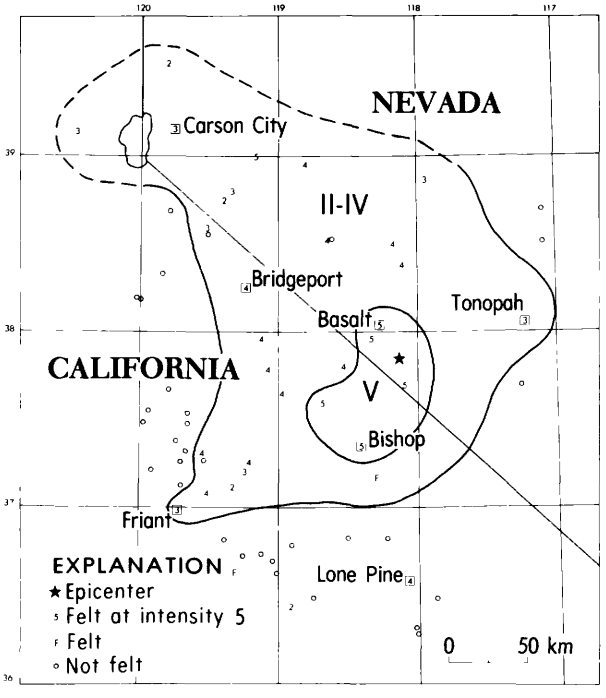

FIGURE 8.--Isoseismal map for the California-Nevada border region earthquake of 24 September 1982, 07 40 24.3 UTC. Roman numerals represent Modified Mercalli intensities between isoseismals; Arabic numerals are used to represent these intensities at specific sites.

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

NEVADA--Continued

Depth: 0 km
Magnitude: 4.9mb(G), 4.8ML(B)

Two simultaneous Nevada Test Site explosions "HURON LANDING" and "DIAMOND ACE" at 37°12'43.28" N., 116°12'24.36" W., surface elevation 2260 m, working elevation 1852 m.

23 September (E) Southern Nevada
Origin time: 17 00 00.082
Epicenter: 37.18 N., 116.09 W.
Depth: 0 km
Magnitude: 4.9mb(G), 4.8ML(B)

Nevada Test Site explosion "FRISCO" at 37°10'29.10" N., 116°05'16.06" W., surface elevation 1374 m, depth of burial 451 m.

24 September (B) California-Nevada border region
Origin time: 07 40 24.3
Epicenter: 37.85 N., 118.12 W.
Depth: 5 km
Magnitude: 5.0mb(G), 4.6MS(G), 5.4ML(B)

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

NEVADA--Continued

This earthquake was felt over an area of approximately 50,000 km² of California and Nevada (fig. 8).

Intensity V:
California--
Bishop--some glassware was broken, small objects were overturned or fell, water splashed onto sides of swimming pools.
Toms Place--hairline cracks in dry wall, awakened people.
Nevada--
Basalt--people had difficulty standing and walking.
Dyer (Fish Lake Valley)--few merchandise items were thrown from store shelves, few small objects were overturned or fell, hanging pictures fell, felt by all.
Montgomery Pass area--objects were knocked off shelves, a house trailer shifted on its foundation.
Yerington--knocked objects off shelves.
Intensity IV:
California--Auberry, Benton, Bridgeport, June Lake, Lakeshore, Lee Vining, Lone Pine, Mammoth Lakes, Wishon.
Nevada--Hawthorne, Luning, Mina, Schurz.
Intensity III:
California--Big Creek, Friant, Murphys, Topaz.
Nevada--Carson City, Gabbs, Smith, Tonopah.
Intensity II:
California--Shaver Lake, Three Rivers
Nevada--Reno, Wellington
Felt:
California--Bass Lake, Big Pine, Orange Cove.

29 September (E) Southern Nevada
Origin time: 13 30 00.096
Epicenter: 37.09 N., 116.05 W.
Depth: 0 km
Magnitude: 4.1ML(B)

Nevada Test Site explosion "BORREGO" at 37°05'28.69" N., 116°02'41.59" W., surface elevation 1261 m, depth of burial 564 m.

NEW MEXICO

20 September (G) Southern New Mexico
Origin time: 03 55 17.2
Epicenter: 33.95 N., 107.06 W.
Depth: 11 km

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

NEW MEXICO--Continued

Magnitude: 2.9ML(G), 3.5Mn(T)
Intensity IV: Socorro.
Intensity III: Magdalena.

NEW YORK

31 August (L) Eastern New York
Origin time: 10 16 58.1
Epicenter: 43.21 N., 74.20 W.
Depth: 4 km
Magnitude: 2.7Mn(L)
Intensity III: Northville (press report).

NORTH CAROLINA

24 September (K) Eastern Tennessee
Origin time: 21 57 42.4

See Tennessee listing.

24 September (K) Eastern Tennessee
Origin time: 22 19 16.9

See Tennessee listing.

SOUTH CAROLINA

16 July (K) Northwestern South Carolina
Origin time: 14 16 01.8
Epicenter: 34.28 N., 81.51 W.
Depth: 7 km
Magnitude: 3.1MD(K)
Intensity III: Keitts Crossroads and St. Phillips areas of Newberry County.

12 August Northwestern South Carolina
Origin time: 18 30
Epicenter: Not located
Depth: None computed
Magnitude: 2.0Mn (University of South Carolina)
Intensity III: Newberry (press report).

SOUTH DAKOTA

11 July (G) Eastern South Dakota
Origin time: 19 42 28.4
Epicenter: 44.01 N., 96.72 W.
Depth: 5 km
Magnitude: 3.6Mn(T)

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

SOUTH DAKOTA--Continued

Intensity V:
South Dakota--
Brandon--a few small objects were overturned and fell, hanging pictures were swung out of place, buildings shook strongly, felt by all and frightened many.
Chester--a few items were thrown from store shelves, buildings shook strongly, felt by all and frightened many.
Renner--a few windows were cracked, vibration was described as "strong," felt by many.
Sherman--some glassware was broken, a few small objects were overturned and fell, trees and bushes were slightly shaken.
Intensity IV:
Iowa--Brunsville, George.
Minnesota--Chandler, Hills, Luverne, Pipestone.
South Dakota--Colman, Colton, Corson, Flandreau, Garretson, Lyons, Nunda, Rutland, Trent, Ward, Wentworth.
Intensity III:
Iowa--Matlock, Sioux Center.
Minnesota--Beaver Creek, Clarkfield, Edgerton, Holland, Rushmore, Verdi.
South Dakota--Baltic (press report), Dell Rapids (press report), Egan, Elkton, Humboldt, Jasper, Lennox, Madison, Ramona, Sinai, Sioux Falls (press report), Valley Springs, Volga.

TENNESSEE

14 July (K) Northwestern Tennessee
Origin time: 16 01 35.6
Epicenter: 36.26 N., 89.45 W.
Depth: 4 km
Magnitude: 2.4MD(K)

Felt in the Ridgely area (K).

5 September (K) Eastern Tennessee
Origin time: 10 11 09.4
Epicenter: 35.20 N., 84.51 W.
Depth: 13 km
Magnitude: 3.2MD(K), 2.8Mn(G)
Intensity IV: Benton, Delano, Reliance.
Intensity III: Etowah.

24 September (K) Eastern Tennessee
Origin time: 21 57 42.4
Epicenter: 35.68 N., 84.24 W.

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

TENNESSEE--Continued

Depth: 14 km
Magnitude: 3.0Mn(V), 3.2MD(K)
Intensity V:
Tennessee--
Alcoa--a few dishes were broken and a few small objects fell.
Knoxville--a few windows were cracked, some glassware was broken, and a few small objects were overturned or fell.
Mount Vernon--a few small objects were overturned, felt by all.
Tallassee--some glassware was broken, a few small objects were overturned or fell, well water was muddied.
Intensity IV:
North Carolina--Fontana Dam.
Tennessee--Clarkrange, Friendsville, Greenback, Grimsley, Lenoir City, Loudon, Madisonville, Seymour, Sweetwater, Tellico Plains, Ten Mile, Vonore.
Intensity III:
Georgia--McCaysville.
North Carolina--Hayesville.
Tennessee--Etowah, Turtletown.
Intensity II:
Georgia--Crandall.
Tennessee--Ducktown, Jefferson City, Monterey, Petros.
Felt:
Tennessee--Concord, Townsend.

24 September (K) Eastern Tennessee
Origin time: 22 19 16.9
Epicenter: 35.69 N., 84.25 W.
Depth: 10 km
Magnitude: 3.4Mn(V), 3.4MD(K)
Intensity IV:
North Carolina--Alcoa, Fontana Dam.
Tennessee--Delano, Friendsville, Loudon, Lenoir City, Madisonville, Maryville, Mount Vernon, Reliance, Sweetwater, Tellico Plains, Ten Mile, Vonore.
Intensity III:
Georgia--Cherry Log, McCaysville.
Tennessee--Etowah, Knoxville.
Intensity II:
Georgia--Crandall.
Tennessee-Ducktown.

29 September (K) Northwestern Tennessee
Origin time: 02 05 56.3
Epicenter: 36.24 N., 89.42 W.
Depth: 9 km
Magnitude: 2.0MD(K)

Felt in the Ridgely area (K).

29 September (K) Northwestern Tennessee
Origin time: 02 06 28.0
Epicenter: 36.26 N., 89.43 W.

Table 2.--*Summary of macroseismic data for U.S. earthquakes, July-September 1982*--Continued

TENNESSEE--Continued

Depth: 7 km
Magnitude: 2.8MD(K)

Felt at Ridgely (K).

WASHINGTON

15 July (W) Central Washington
Origin time: 03 02 07.5
Epicenter: 47.25 N., 119.95 W.
Depth: 1 km
Magnitude: 2.4MD(W)
Intensity III: Quincy (W).

15 September (W) Puget Sound area
Origin time: 17 32 33.2
Epicenter: 47.69 N., 122.03 W.
Depth: 7 km
Magnitude: 2.9MD(W)
Intensity IV: Duvall (W).

26 September (W) Central Washington
Origin time: 10 09 23.9
Epicenter: 46.87 N., 121.07 W.
Depth: 4 km
Magnitude: 2.9ML(G), 3.4MD(W)

Felt in the Naches area (W).

WYOMING

10 July (G) Yellowstone National Park
Origin time: 01 19 54.8
Epicenter: 44.19 N., 110.90 W.
Depth: 5 km
Magnitude: 3.0ML(G)
Intensity III: Grant Village, Old Faithful.

31 August (G) Central Wyoming
Origin time: 22 02 18.5
Epicenter: 42.72 N., 108.85 W.
Depth: 5 km
Magnitude: 3.2ML(G)

The effects at Ethete were reported as sounding like a sonic boom, only louder and longer, with no accompanying vibration.

Intensity IV: Lander.

30 September (G) Eastern Idaho
Origin time: 02 27 19.8

See Idaho listing.

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