

GEOLOGICAL SURVEY CIRCULAR 896-B



Earthquakes in the United States, April–June 1982

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By B. G. Reagor, C. W. Stover, J. H. Minsch,
and L. R. Brewer

G E O L O G I C A L S U R V E Y C I R C U L A R 8 9 6 – B

United States Department of the Interior
JAMES G. WATT, *Secretary*



Geological Survey
Dallas L. Peck, *Director*

CONTENTS

	Page
Introduction.....	B1
Discussion of tables.....	1
Modified Mercalli Intensity Scale of 1931.....	8
Acknowledgments.....	27
References cited.....	28

ILLUSTRATIONS

	Page
FIGURE 1. "Earthquake Report" form.....	B2
2. Map showing standard time zones of the conterminous United States.	4
3. Map showing standard time zones of Alaska and Hawaii.....	5
4. Map of earthquake epicenters in the conterminous United States for April-June 1982.....	6
5. Map of earthquake epicenters in Alaska for April-June 1982.....	7
6. Map of earthquake epicenters in Hawaii for April-June 1982.....	8
7. Isoleismal map for the southern California earthquake of 15 June 1982.....	20
8. Isoleismal map for the western New Jersey earthquake of 12 April 1982.....	25

TABLES

	Page
TABLE 1. Summary of U.S. earthquakes for April-June 1982:	
Alaska.....	B10
Arkansas.....	12
California.....	12
California--Off the coast.....	13
Connecticut.....	13
Georgia.....	13
Hawaii.....	13
Idaho.....	14
Montana.....	14
Nevada.....	14
New Jersey.....	14
New Mexico.....	14
Oklahoma.....	14
Oregon--Off the coast.....	14
Pennsylvania.....	14
South Carolina.....	14
Tennessee.....	15
Texas.....	15
Utah.....	15
Virginia.....	15
Washington.....	15
West Virginia.....	15
Wyoming.....	15

	Page
2. Summary of macroseismic data for U.S. earthquakes, April-June 1982:	
Alaska.....	B16
Arkansas.....	17
California.....	17
California--Off the coast.....	21
Connecticut.....	21
Hawaii.....	22
Idaho.....	23
Maine.....	23
Montana.....	24
Nevada.....	24
New Jersey.....	24
New Mexico.....	25
Oklahoma.....	25
Pennsylvania.....	26
South Carolina.....	26
Tennessee.....	26
Utah.....	26
Virginia.....	27
Washington.....	27

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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 power plant site evaluations, seismicity studies, and to answer inquiries by the public.

This publication contains two major sections. The first part (table 1), which is mainly concerned with data obtained by seismographs, is a tabular listing of earthquakes in chronological order by State, consisting of the following basic information: date, origin time, hypocenter, magnitude, maximum intensity, and computational source of the hypocenter. The second section, which concerns intensity information, consists of 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. In the case of large or significant earthquakes, the intensity observations are plotted and isoseismal maps are prepared. It should be pointed out that the isoseismals represent a general intensity level and that they do not necessarily agree with every individual observation.

DISCUSSION OF TABLES

The parameters for the earthquakes in table 1 and table 2 include the date, origin time, hypocenter (epicenter and focal depth), magnitude, intensity, and source of the computed solution. The origin time and date are listed in Universal Coordinated Time (UTC) and local standard time based on the time-zone maps in figures 2 and 3. The epicenters, which were taken from those published in the PDE, or from other sources as noted, are listed here to two decimals. The accuracy of the epicenters is not necessarily indicated by the number of decimals

U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
EARTHQUAKE REPORT

Form Approved
OMB No. 42-R1700

Please answer this questionnaire and return as soon as possible

1. Was an earthquake felt by anyone in your town near the date and time indicated on the opposite page?

☐ No: Please refold and tape for return mail.

☐ Yes: Date _____ Time _____ ☐ AM ☐ Standard time
☐ PM ☐ 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? ☐ Yes ☐ No
Were you awakened by the earthquake? ☐ Yes ☐ No
Were you frightened by the earthquake? ☐ Yes ☐ No
Were you at ☐ Home ☐ Work ☐ Other? _____
Town and zip code of your location at time of earthquake _____
Check your activity when the earthquake occurred:
☐ Walking ☐ Sleeping ☐ Lying down ☐ Standing
☐ Driving (car in motion) ☐ Sitting ☐ Other _____
Were you ☐ Inside or ☐ Outside?
If inside, on what floor were you? ☐ _____
Did you have difficulty in standing or walking ☐ Yes ☐ No
Vibration could be described as ☐ Light ☐ Moderate ☐ Strong
Was there earth noise? ☐ No ☐ Faint ☐ Moderate ☐ Loud
Direction of noise ☐ North ☐ South ☐ East ☐ West
Estimated duration of shaking ☐ Sudden, sharp (less than 10 secs) ☐ Long (30-60 secs)
☐ 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 ☐ Few ☐ Several ☐ Many ☐ All?
b. This earthquake awakened ☐ No one ☐ Few ☐ Several ☐ Many ☐ All?
c. This earthquake frightened ☐ No one ☐ Few ☐ Several ☐ Many ☐ All?
4. What indoor physical effects were noted in your community?
Windows, doors, dishes rattled ☐ Yes ☐ No
Walls creaked ☐ Yes ☐ No
Building trembled (shook) ☐ Slightly ☐ Strongly
Hanging pictures (more than one) ☐ Swung ☐ Out of place ☐ Fallen
Windows ☐ Few cracked ☐ Some broken out ☐ Many broken out
Small objects overturned ☐ Few ☐ Many
Small objects fallen ☐ Few ☐ Many
Glassware/dishes broken ☐ Few ☐ Many
Light furniture or small appliances ☐ Overturned ☐ Damaged seriously
Heavy furniture or appliances ☐ Overturned ☐ Damaged seriously
Did hanging objects or doors swing? ☐ Slightly ☐ Moderately ☐ Violently
Can you estimate direction? ☐ North/South ☐ East/West ☐ Other _____
Items thrown from store shelves ☐ Few ☐ 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 <input type="checkbox"/> Hairline cracks	66 <input type="checkbox"/> Large cracks (many)	67 <input type="checkbox"/> Fell in large amounts
Dry well	68 <input type="checkbox"/> Hairline cracks	69 <input type="checkbox"/> Large cracks (many)	70 <input type="checkbox"/> Fell in large amounts

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

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

7a. Check below any structural damage to buildings.

Foundation	102 <input type="checkbox"/> Cracked	103 <input type="checkbox"/> Destroyed
Interior walls	104 <input type="checkbox"/> Split	105 <input type="checkbox"/> Fallen
Exterior walls	107 <input type="checkbox"/> Large Cracks	108 <input type="checkbox"/> Bulged outward
	109 <input type="checkbox"/> Partial collapse	110 <input type="checkbox"/> Total collapse

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

111 <input type="checkbox"/> Wood	112 <input type="checkbox"/> Stone	113 <input type="checkbox"/> Brick veneer	114 <input type="checkbox"/> Other _____
115 <input type="checkbox"/> Brick	116 <input type="checkbox"/> Cinderblock	117 <input type="checkbox"/> Reinforced concrete	118 <input type="checkbox"/> Mobile home

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

<input type="checkbox"/> Don't know	119 <input type="checkbox"/> Sandy soil	120 <input type="checkbox"/> Marshy	121 <input type="checkbox"/> Fill
122 <input type="checkbox"/> Hard rock	123 <input type="checkbox"/> Clay soil	124 <input type="checkbox"/> Sandstone, limestone, shale	

d. Was the ground:

125 <input type="checkbox"/> Level	126 <input type="checkbox"/> Sloping	127 <input type="checkbox"/> Steep?
------------------------------------	--------------------------------------	-------------------------------------

e. Check the approximate age of the building:

128 <input type="checkbox"/> Built before 1935	129 <input type="checkbox"/> Built 1935-65	130 <input type="checkbox"/> Built after 1965
--	--	---

8. Check below any structural damage to

Bridges/Overpasses	131 <input type="checkbox"/> Concrete	132 <input type="checkbox"/> Wood	133 <input type="checkbox"/> Steel	134 <input type="checkbox"/> Other _____
Damage was	135 <input type="checkbox"/> Slight	136 <input type="checkbox"/> Moderate	137 <input type="checkbox"/> Severe	
Dams	138 <input type="checkbox"/> Concrete	139 <input type="checkbox"/> Large earthen		
Damage was	140 <input type="checkbox"/> Slight	141 <input type="checkbox"/> Moderate	142 <input type="checkbox"/> Severe	

9. What geologic effects were noted in your community?

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

10a. What percentage of buildings were damaged?

Within 2 city blocks of your location	<input type="checkbox"/> None	155 <input type="checkbox"/> Few (about 5%)
	156 <input type="checkbox"/> Many (about 50%)	157 <input type="checkbox"/> Most (about 75%)

b. In area covered by your zip code

<input type="checkbox"/> None	158 <input type="checkbox"/> Few (about 5%)
159 <input type="checkbox"/> Many (about 50%)	160 <input type="checkbox"/> 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.

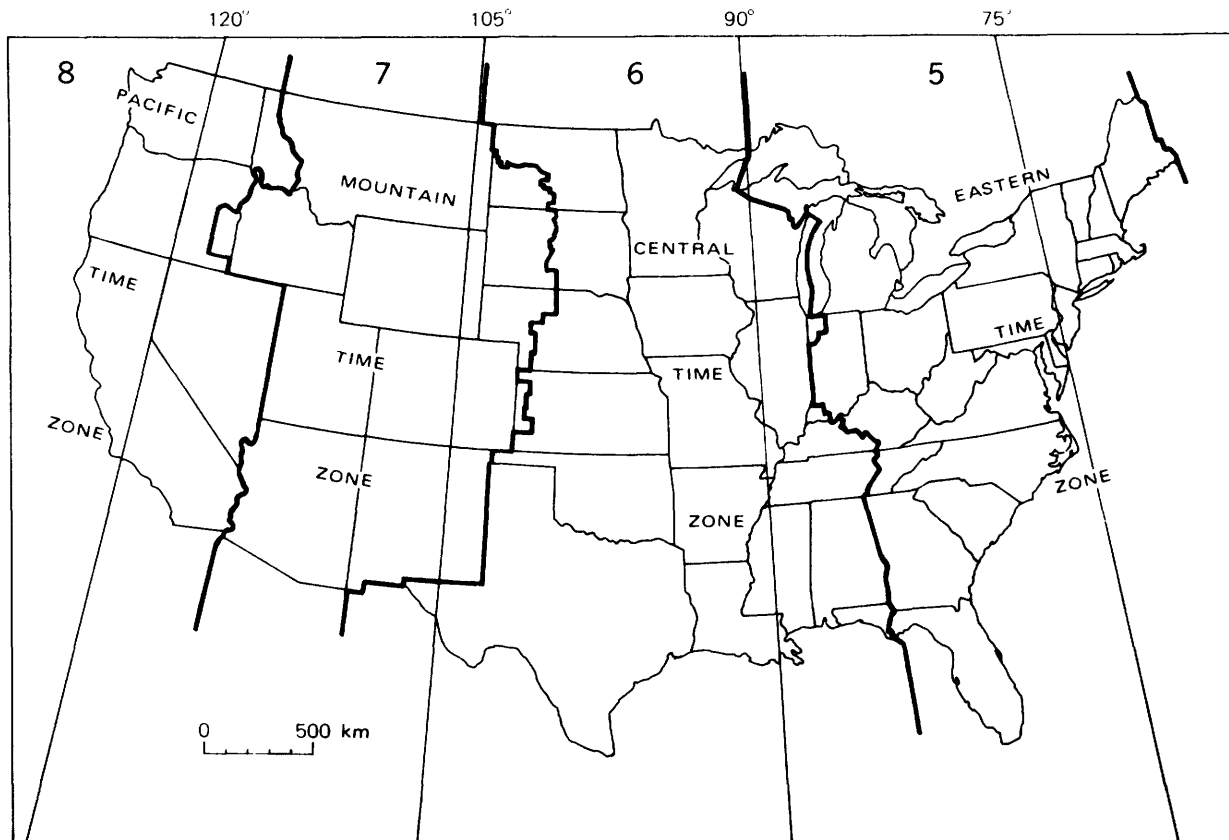


FIGURE 2.--Standard time zones of the conterminous United States. The number in each zone shows the number of hours to be subtracted from Universal Coordinated Time to convert to local standard time. (Subtract 1 hour less for local daylight-saving time.)

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 April-June 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 $18 < T < 22$; and D is the distance, in geocentric degrees (station to epicenter), and $20^\circ < D < 160^\circ$. 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 $0.1 < T < 3.0$, and A, the ground amplitude in micrometers, is not necessarily the maximum of the P-wave group. Q is a function of distance D and depth h, where $D > 5^\circ$.

$$ML = \log A - \log A_0, \quad (3)$$

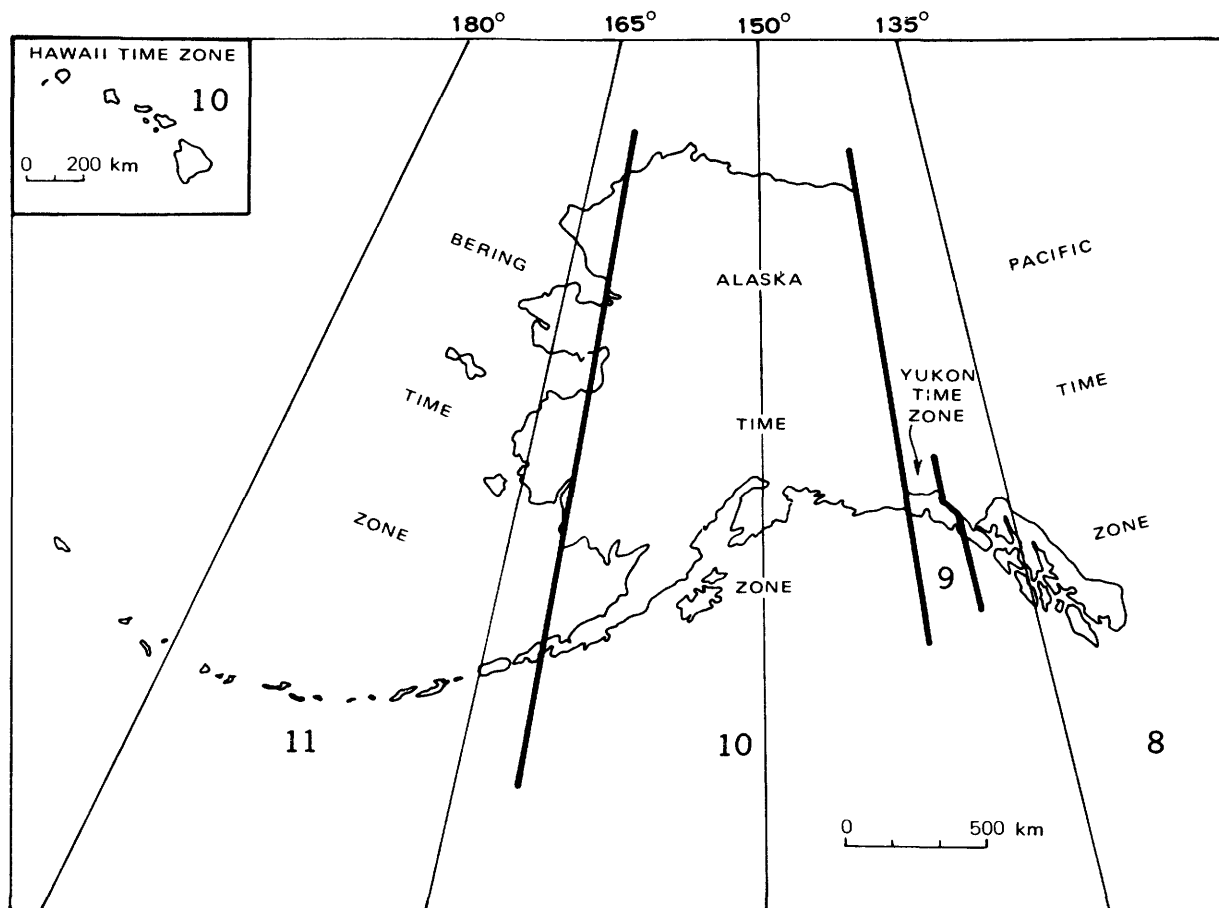


FIGURE 3.--Standard time zones of Alaska and Hawaii. The number in each zone shows the number of hours to be subtracted from Universal Coordinated Time to convert to local standard time. (Subtract 1 hour less for local daylight-saving time.)

as defined by Richter (1958, p. 340), where A 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.

$$M_n = 3.75 + 0.90(\log D) + \log(A/T) \quad (4)$$

$$0.5^\circ \leq D \leq 4^\circ,$$

$$M_n = 3.30 + 1.66(\log D) + \log(A/T)$$

$$4^\circ \leq D \leq 30^\circ,$$

as proposed by Nuttli (1973), where A/T is expressed in micrometers per second, calculated from the vertical-component 1-second L_g 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 P_n or P_g -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 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

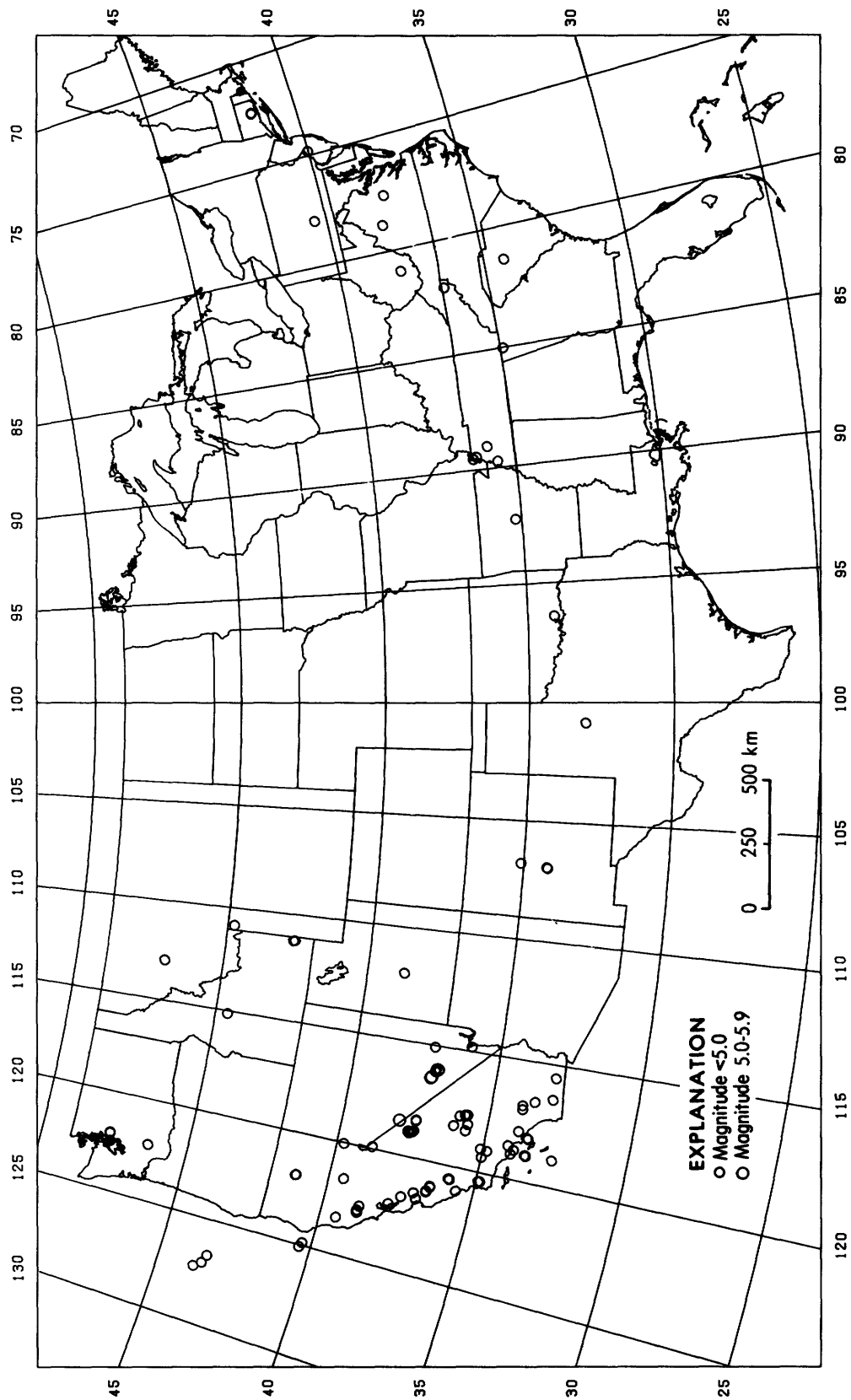


FIGURE 4.—Earthquake epicenters in the conterminous United States for April-June 1982, plotted from table 1.

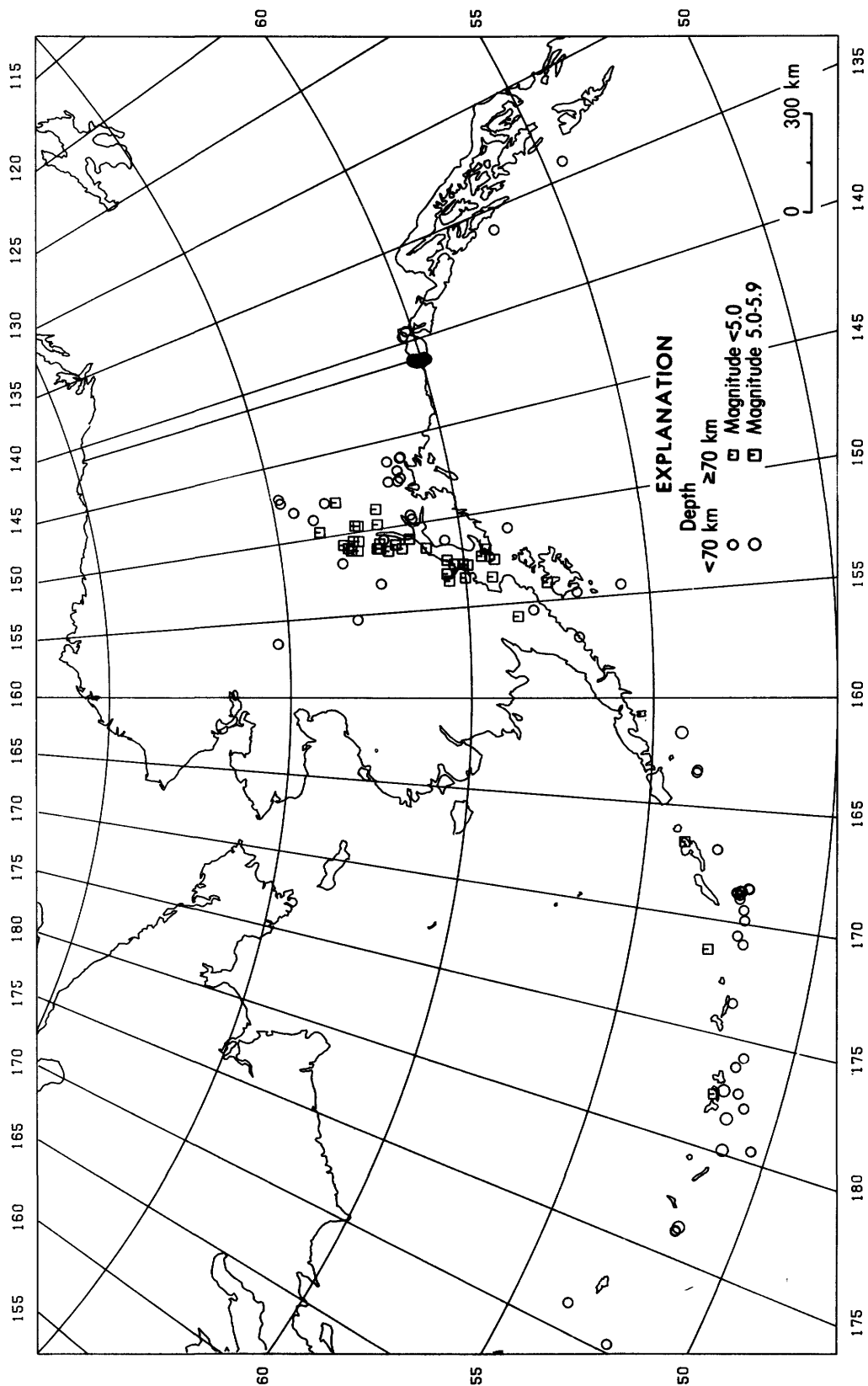


FIGURE 5.--Earthquake epicenters in Alaska for April-June 1982, plotted from table 1.

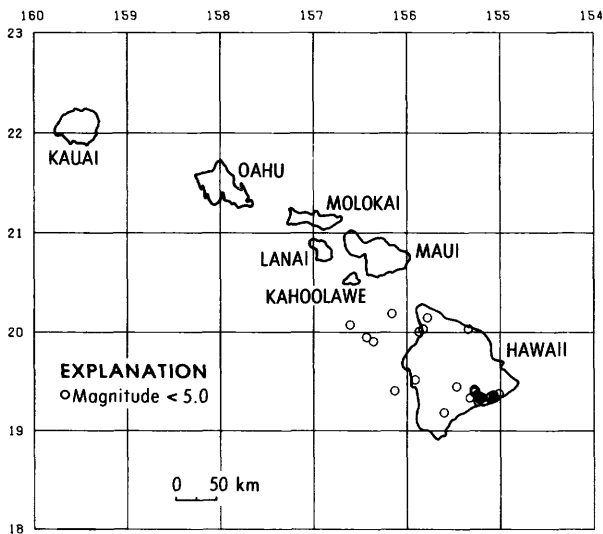


FIGURE 6.--Earthquake epicenters in Hawaii for April-June 1982, plotted from table 1.

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.

Table 1.—Summary of U. S. earthquakes for April-June 1982

[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, National Earthquake Information Service, Golden, Colo.; (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; (T) Oklahoma Geological Survey, Leonard; (U) University of Utah, Salt Lake City; (V) Virginia Polytechnic Institute and State University, Blacksburg; (W) University of Washington, Seattle; (Y) Pennsylvania State University, University Park; 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)			Lat (°)	Long (°)	Depth (km)	Magnitude			Maximum intensity	Hypocenter source	Local time					
	hr	min	sec				mb	MS	ML, Mn or MD			Date	Hour				
ALASKA																	
APR.	1	01	37	39.8	58.68 N.	151.00 W.	33N	3.9	...	3.7M	...	G	MAR.	31	03	P.M.	AST
APR.	1	08	52	13.2	61.70 N.	147.40 W.	55	...	...	3.0M	...	G	MAR.	31	10	P.M.	AST
APR.	4	23	40	07.5	52.88 N.	171.34 W.	101	4.3	...	...	...	G	APR.	4	12	P.M.	BST
APR.	5	19	31	16.0	50.95 N.	177.84 W.	33N	4.3	...	...	...	G	APR.	5	08	A.M.	BST
APR.	7	00	27	21.5	51.46 N.	176.20 W.	53	4.4	...	...	...	G	APR.	6	01	P.M.	BST
APR.	9	23	24	58.6	63.94 N.	148.82 W.	10	...	...	2.9M	...	G	APR.	9	01	P.M.	AST
APR.	11	04	10	32.1	52.09 N.	170.34 E.	33N	4.5	...	...	...	G	APR.	10	05	P.M.	BST
APR.	11	15	03	27.8	62.19 N.	148.81 W.	79	...	...	...	II	G	APR.	11	05	A.M.	AST
APR.	15	13	17	37.5	63.83 N.	149.65 W.	156	...	...	...	...	G	APR.	15	03	A.M.	AST
APR.	15	16	21	14.6	54.21 N.	161.63 W.	59	5.3	...	...	IV	G	APR.	15	05	A.M.	BST
APR.	16	08	46	56.6	53.74 N.	163.43 W.	33N	4.2	...	...	...	G	APR.	15	09	P.M.	BST
APR.	16	08	49	32.1	53.73 N.	163.33 W.	33N	4.5	...	...	...	G	APR.	15	09	P.M.	BST
APR.	16	11	31	47.8	61.27 N.	149.48 W.	52	...	...	3.4M	IV	G	APR.	16	01	A.M.	AST
APR.	16	19	15	49.9	59.25 N.	153.49 W.	161	...	...	...	...	G	APR.	16	09	A.M.	AST
APR.	17	06	10	53.1	60.00 N.	153.39 W.	150	3.9	...	...	...	G	APR.	16	08	P.M.	AST
APR.	17	16	38	08.7	60.29 N.	139.69 W.	15	3.7	...	3.9M	...	G	APR.	17	07	A.M.	YST
APR.	17	17	06	46.6	60.16 N.	139.44 W.	15	4.0	...	4.4M	...	G	APR.	17	08	A.M.	YST
APR.	17	18	17	25.3	59.35 N.	151.96 W.	87	...	...	...	...	G	APR.	17	08	A.M.	AST
APR.	19	09	47	37.5	63.55 N.	147.95 W.	33N	...	...	3.3M	...	G	APR.	18	11	P.M.	AST
APR.	19	13	50	11.0	60.48 N.	153.05 W.	139	...	...	...	...	G	APR.	19	03	A.M.	AST
APR.	22	07	42	07.3	62.84 N.	149.59 W.	99	...	...	...	...	G	APR.	21	09	P.M.	AST
APR.	23	14	43	17.3	60.21 N.	141.06 W.	12	4.9	4.2	5.0M	...	G	APR.	23	04	A.M.	AST
APR.	23	15	30	36.6	61.24 N.	146.15 W.	26	...	...	2.8M	III	G	APR.	23	05	A.M.	AST
APR.	23	23	18	23.5	51.18 N.	179.84 W.	44	5.6	5.1	...	III	G	APR.	23	12	P.M.	BST
APR.	23	23	18	49.9	63.05 N.	155.26 W.	33N	...	...	3.5M	...	G	APR.	23	01	P.M.	AST
APR.	26	00	47	11.6	62.11 N.	150.67 W.	33N	...	...	2.9M	...	G	APR.	25	02	P.M.	AST
APR.	26	15	13	48.1	61.44 N.	147.46 W.	50	...	...	3.0M	...	G	APR.	26	05	A.M.	AST
APR.	27	12	39	24.4	60.01 N.	152.62 W.	124	4.2	...	...	...	G	APR.	27	02	A.M.	AST
APR.	30	05	45	02.1	51.60 N.	176.34 E.	70	5.0	...	...	...	G	APR.	29	06	P.M.	BST
APR.	30	15	30	06.5	61.64 N.	151.34 W.	76	...	...	...	...	G	APR.	30	05	A.M.	AST
MAY	1	12	23	08.3	65.30 N.	156.46 W.	33N	...	...	3.3M	...	G	MAY	1	02	A.M.	AST
MAY	2	15	35	58.6	60.12 N.	141.18 W.	13	5.0	5.1	5.4M	...	G	MAY	2	05	A.M.	AST
MAY	2	15	42	21.5	59.85 N.	141.20 W.	15	...	...	4.5M	...	G	MAY	2	05	A.M.	AST
MAY	2	15	54	03.3	59.98 N.	141.23 W.	15	...	...	4.1M	...	G	MAY	2	05	A.M.	AST
MAY	2	16	11	57.3	59.97 N.	141.27 W.	15	...	...	3.3M	...	G	MAY	2	06	A.M.	AST
MAY	2	16	24	50.6	60.00 N.	141.25 W.	15	...	...	3.6M	...	G	MAY	2	06	A.M.	AST
MAY	2	16	31	59.5	60.05 N.	141.15 W.	15	3.7	...	3.7M	...	G	MAY	2	06	A.M.	AST
MAY	2	17	00	26.9	60.13 N.	141.16 W.	15	4.5	...	5.0M	...	G	MAY	2	07	A.M.	AST
MAY	2	17	13	37.8	60.09 N.	141.15 W.	15	4.5	4.4	4.4M	...	G	MAY	2	07	A.M.	AST
MAY	2	17	57	12.7	52.25 N.	168.96 W.	37	4.6	...	...	...	G	MAY	2	06	A.M.	BST
MAY	2	19	23	29.0	60.05 N.	141.13 W.	15	3.7	...	4.1M	...	G	MAY	2	09	A.M.	AST
MAY	3	05	21	45.8	59.88 N.	141.18 W.	15	...	...	3.9M	...	G	MAY	2	07	P.M.	AST
MAY	3	10	14	14.2	60.12 N.	141.12 W.	11	5.0	4.7	5.1M	IV	G	MAY	3	00	A.M.	AST
MAY	3	10	29	08.1	59.99 N.	141.13 W.	15	4.3	...	3.8M	...	G	MAY	3	00	A.M.	AST
MAY	3	12	12	03.5	59.89 N.	141.08 W.	15	...	...	3.7M	...	G	MAY	3	02	A.M.	AST
MAY	3	15	17	26.1	60.03 N.	141.14 W.	15	4.2	...	4.6M	III	G	MAY	3	05	A.M.	AST
MAY	3	20	45	24.9	59.94 N.	141.09 W.	15	...	...	4.0M	...	G	MAY	3	10	A.M.	AST
MAY	3	22	20	21.7	61.39 N.	146.87 W.	33N	...	...	2.9M	...	G	MAY	3	12	P.M.	AST
MAY	4	05	28	53.2	59.99 N.	141.16 W.	15	4.0	...	4.5M	...	G	MAY	3	07	P.M.	AST
MAY	4	09	35	34.9	60.25 N.	152.57 W.	129	4.4	...	...	...	G	MAY	3	11	P.M.	AST
MAY	4	23	01	01.9	59.97 N.	141.16 W.	15	3.8	...	3.9M	...	G	MAY	4	01	P.M.	AST
MAY	5	19	49	54.3	61.25 N.	149.75 W.	63	4.8	...	...	V	G	MAY	5	09	A.M.	AST
MAY	7	00	43	38.4	51.84 N.	177.58 W.	101	4.3	...	...	III	G	MAY	6	01	P.M.	BST
MAY	7	05	16	26.9	60.44 N.	153.45 W.	175	...	...	...	...	G	MAY	6	07	P.M.	AST
MAY	7	07	42	02.9	59.14 N.	152.57 W.	83	4.4	...	...	...	G	MAY	6	09	P.M.	AST
MAY	8	00	52	21.6	53.54 N.	171.32 E.	33N	4.3	...	...	...	G	MAY	7	01	P.M.	BST
MAY	8	00	59	52.8	51.65 N.	176.19 E.	33N	4.7	...	4.8M	...	G	MAY	7	01	P.M.	BST

Table 1.—Summary of U. S. earthquakes for April-June 1962—Continued

Date (1962)	Origin time (UTC)			Lat (°)	Long (°)	Depth (km)	Magnitude			Maximum intensity	Hypocenter source	Local time					
	hr	min	sec				mb	MS	ML, Ma or MD			Date	Hour				
ALASKA--Continued																	
MAY	8	01	27	23.3	51.64 N.	176.16 E.	33N	4.4	...	...	...	G	MAY	7	02	P.M.	BST
MAY	9	03	49	54.7	52.15 N.	170.57 W.	35	4.4	...	...	...	G	MAY	8	04	P.M.	BST
MAY	9	09	32	48.0	62.02 N.	151.38 W.	100	...	...	...	...	G	MAY	8	11	P.M.	AST
MAY	11	15	37	09.0	57.76 N.	154.07 W.	86	4.4	...	...	...	G	MAY	11	05	A.M.	AST
MAY	13	05	18	28.4	52.09 N.	169.39 W.	33N	3.8	...	...	...	G	MAY	12	06	P.M.	BST
MAY	14	10	00	50.7	54.48 N.	134.23 W.	10	4.1	...	4.1M	IV	G	MAY	14	02	A.M.	PST
MAY	14	11	55	59.5	59.92 N.	141.13 W.	15	3.9	...	4.0M	...	G	MAY	14	01	A.M.	AST
MAY	14	13	47	29.9	61.79 N.	151.07 W.	78	...	...	...	...	G	MAY	14	03	A.M.	AST
MAY	14	16	26	13.7	62.32 N.	153.27 W.	33N	...	...	3.3M	...	G	MAY	14	06	A.M.	AST
MAY	15	06	56	05.4	62.22 N.	150.89 W.	90	4.2	...	...	...	G	MAY	14	08	P.M.	AST
MAY	15	19	51	01.5	59.99 N.	141.29 W.	15	4.1	...	4.2M	...	G	MAY	15	09	A.M.	AST
MAY	16	17	42	27.6	62.79 N.	150.57 W.	111	...	...	...	...	G	MAY	16	07	A.M.	AST
MAY	17	04	01	09.8	61.26 N.	146.17 W.	33N	...	...	3.2M	...	G	MAY	16	06	P.M.	AST
MAY	20	04	56	17.8	62.23 N.	151.15 W.	94	...	...	2.9M	...	G	MAY	19	06	P.M.	AST
MAY	22	18	16	23.4	61.34 N.	147.29 W.	32	...	...	...	...	G	MAY	22	08	A.M.	AST
MAY	23	07	25	03.1	63.11 N.	150.88 W.	147	...	...	...	...	G	MAY	22	09	P.M.	AST
MAY	23	12	53	23.4	60.45 N.	152.32 W.	104	...	...	...	...	G	MAY	23	02	A.M.	AST
MAY	26	02	57	58.7	61.40 N.	150.86 W.	81	...	...	...	...	G	MAY	25	04	P.M.	AST
MAY	30	05	53	45.6	59.27 N.	152.42 W.	33N	...	...	3.2M	...	G	MAY	29	07	P.M.	AST
MAY	30	06	13	47.7	52.02 N.	169.86 W.	33N	4.5	...	3.8M	...	G	MAY	29	07	P.M.	BST
MAY	31	04	34	09.1	60.43 N.	151.19 W.	9	...	...	2.9M	...	G	MAY	30	06	P.M.	AST
MAY	31	11	19	04.7	58.20 N.	155.40 W.	33N	...	...	4.0M	...	G	MAY	31	01	A.M.	AST
MAY	31	21	20	31.9	63.22 N.	150.64 W.	143	...	...	...	...	G	MAY	31	11	A.M.	AST
JUNE	1	05	14	33.2	64.44 N.	148.14 W.	33N	...	...	3.4M	...	G	MAY	31	07	P.M.	AST
JUNE	1	09	29	02.6	59.89 N.	152.70 W.	133	...	...	...	...	G	MAY	31	11	P.M.	AST
JUNE	2	02	34	09.6	50.42 N.	179.52 W.	33N	3.9	...	4.2M	...	G	JUNE	1	03	P.M.	BST
JUNE	2	08	21	45.0	62.30 N.	151.12 W.	123	...	...	...	...	G	JUNE	1	10	P.M.	AST
JUNE	3	17	24	11.0	52.22 N.	168.63 W.	33N	5.3	4.9	...	...	G	JUNE	3	06	A.M.	BST
JUNE	4	03	01	04.1	51.60 N.	177.33 W.	59	5.8	...	5.7M	V	G	JUNE	3	04	P.M.	BST
JUNE	4	06	28	36.6	52.04 N.	168.44 W.	33N	4.7	...	...	...	G	JUNE	3	07	P.M.	BST
JUNE	4	09	25	56.3	52.26 N.	168.75 W.	33N	4.6	...	...	...	G	JUNE	3	10	P.M.	BST
JUNE	4	11	38	57.2	52.33 N.	168.71 W.	33N	4.5	...	...	...	G	JUNE	4	00	A.M.	BST
JUNE	4	12	50	20.0	52.24 N.	168.59 W.	33N	4.7	4.1	3.5M	...	G	JUNE	4	01	A.M.	BST
JUNE	4	14	00	44.2	51.20 N.	177.27 W.	41	4.1	...	4.7M	...	G	JUNE	4	03	A.M.	BST
JUNE	4	15	58	18.5	52.35 N.	168.67 W.	33N	4.7	...	4.2M	...	G	JUNE	4	04	A.M.	BST
JUNE	5	01	35	58.1	61.63 N.	146.26 W.	33N	...	...	3.0M	...	G	JUNE	4	03	P.M.	AST
JUNE	5	20	40	24.7	56.97 N.	154.68 W.	33N	...	...	4.1M	...	G	JUNE	5	10	A.M.	AST
JUNE	6	01	13	59.5	52.20 N.	168.61 W.	33N	5.2	4.5	...	...	G	JUNE	5	02	P.M.	BST
JUNE	6	05	07	29.6	53.02 N.	166.87 W.	33N	4.5	...	...	...	G	JUNE	5	06	P.M.	BST
JUNE	6	17	02	18.8	55.75 N.	154.48 W.	33N	4.3	...	4.4M	...	G	JUNE	6	07	A.M.	AST
JUNE	7	16	09	19.6	52.03 N.	168.45 W.	33N	4.4	...	...	...	G	JUNE	7	05	A.M.	BST
JUNE	8	03	31	35.1	62.74 N.	149.66 W.	114	...	...	...	...	G	JUNE	7	05	P.M.	AST
JUNE	13	14	24	24.3	56.93 N.	136.02 W.	33N	3.8	...	4.2M	...	G	JUNE	13	06	A.M.	PST
JUNE	14	02	07	25.6	62.28 N.	151.16 W.	109	...	...	...	...	G	JUNE	13	04	P.M.	AST
JUNE	15	19	57	38.3	51.32 N.	178.47 W.	49	5.0	4.0	5.3M	III	G	JUNE	15	08	A.M.	BST
JUNE	16	04	22	10.2	58.62 N.	155.70 W.	157	4.3	...	...	...	G	JUNE	15	06	P.M.	AST
JUNE	18	05	00	46.2	62.21 N.	149.74 W.	72	...	...	...	...	G	JUNE	17	07	P.M.	AST
JUNE	18	14	08	13.8	59.49 N.	152.33 W.	71	...	...	...	IV	G	JUNE	18	04	A.M.	AST
JUNE	19	11	55	36.9	63.02 N.	151.08 W.	124	...	...	...	...	G	JUNE	19	01	A.M.	AST
JUNE	21	04	59	30.2	60.96 N.	151.47 W.	94	3.9	...	...	...	G	JUNE	20	06	P.M.	AST
JUNE	22	07	05	27.1	53.93 N.	166.64 W.	90	4.8	...	...	IV	G	JUNE	21	08	P.M.	BST
JUNE	22	11	23	51.4	63.24 N.	148.02 W.	89	...	...	...	...	G	JUNE	22	01	A.M.	AST
JUNE	23	02	11	47.0	63.32 N.	151.76 W.	33N	...	...	...	...	G	JUNE	22	04	P.M.	AST
JUNE	23	09	51	29.6	51.93 N.	173.51 W.	33N	4.8	...	...	...	G	JUNE	22	10	P.M.	BST
JUNE	24	04	57	58.7	64.78 N.	147.16 W.	15	...	...	3.0M	IV	G	JUNE	23	06	P.M.	AST
JUNE	24	05	26	53.2	64.76 N.	147.44 W.	15	...	...	2.3M	FELT	G	JUNE	23	07	P.M.	AST
JUNE	24	14	03	12.6	51.96 N.	170.92 W.	41	4.7	...	...	...	G	JUNE	24	03	A.M.	BST
JUNE	25	23	12	12.9	62.95 N.	150.52 W.	119	...	...	...	...	G	JUNE	25	01	P.M.	AST
JUNE	27	03	33	10.4	56.99 N.	156.96 W.	33N	...	...	3.2M	...	G	JUNE	26	05	P.M.	AST
JUNE	29	06	52	12.4	51.31 N.	175.74 W.	48	4.8	3.8	4.3M	...	G	JUNE	28	07	P.M.	BST
JUNE	29	13	23	29.9	62.85 N.	151.13 W.	137	...	...	...	...	G	JUNE	29	03	A.M.	AST

Table 1.—Summary of U. S. earthquakes for April-June 1982—Continued

Date (1982)	Origin time (UTC)			Lat (°)	Long (°)	Depth (km)	Magnitude			Maximum intensity	Hypocenter source	Local time					
	hr	min	sec				mb	MS	ML, Mn or MD			Date	Hour				
ARKANSAS																	
MAY	31	17	49	19.9	35.20 N.	92.24 W.	5	...	...	3.6G	IV	K	MAY	31	11	A.M.	CST
MAY	31	18	21	19.4	35.20 N.	92.25 W.	4	...	...	3.6T	IV	K	MAY	31	12	P.M.	CST
CALIFORNIA																	
APR.	3	19	32	25.8	37.80 N.	122.21 W.	3	...	...	2.2B	FELT	B	APR.	3	11	A.M.	PST
APR.	8	03	54	12.6	39.45 N.	123.36 W.	5	...	...	3.0B	IV	B	APR.	7	07	P.M.	PST
APR.	8	15	03	04.0	34.18 N.	118.65 W.	4	...	...	2.6P	FELT	P	APR.	8	07	A.M.	PST
APR.	9	15	36	46.7	37.61 N.	118.91 W.	6	...	...	3.0B	...	B	APR.	9	07	A.M.	PST
APR.	11	02	49	38.4	41.12 N.	121.94 W.	5	...	...	3.3B	...	G	APR.	10	06	P.M.	PST
APR.	11	05	30	29.0	36.62 N.	121.32 W.	8	...	...	3.3B	...	B	APR.	10	09	P.M.	PST
APR.	13	11	02	12.2	34.05 N.	118.97 W.	17	4.2	...	3.9P	V	P	APR.	13	03	A.M.	PST
APR.	13	15	00	42.2	33.90 N.	117.97 W.	12	...	...	2.2P	FELT	P	APR.	13	07	A.M.	PST
APR.	21	21	19	30.4	35.00 N.	119.35 W.	6	...	...	3.2P	...	P	APR.	21	01	P.M.	PST
APR.	24	00	17	47.5	35.77 N.	117.73 W.	4	...	...	3.2P	...	P	APR.	23	04	P.M.	PST
APR.	25	02	59	35.3	37.42 N.	121.77 W.	5	...	...	3.1B	FELT	B	APR.	24	06	P.M.	PST
APR.	25	04	13	26.0	35.77 N.	117.73 W.	5	3.7	...	3.7P	...	P	APR.	24	08	P.M.	PST
APR.	25	15	56	08.8	32.95 N.	115.55 W.	15	...	...	2.4P	FELT	P	APR.	25	07	A.M.	PST
APR.	26	20	49	23.9	35.77 N.	117.73 W.	5	...	...	3.2P	...	P	APR.	26	12	P.M.	PST
APR.	27	15	42	40.2	35.77 N.	117.73 W.	5	...	...	3.8P	IV	P	APR.	27	07	A.M.	PST
APR.	27	17	34	01.0	35.77 N.	117.73 W.	7	...	...	3.1P	...	P	APR.	27	09	A.M.	PST
APR.	30	06	43	37.0	34.92 N.	120.37 W.	2	...	...	3.7P	IV	P	APR.	29	10	P.M.	PST
MAY	1	14	29	39.7	35.77 N.	117.73 W.	5	...	...	3.0P	...	P	MAY	1	06	A.M.	PST
MAY	2	07	19	42.3	35.77 N.	117.73 W.	4	...	...	3.2P	...	P	MAY	1	11	P.M.	PST
MAY	2	13	37	53.8	37.03 N.	121.49 W.	6	...	...	3.1B	FELT	B	MAY	2	05	A.M.	PST
MAY	3	08	23	59.0	33.95 N.	118.77 W.	14	...	...	3.2P	...	P	MAY	3	00	A.M.	PST
MAY	6	16	37	43.5	36.02 N.	117.83 W.	5	...	...	3.1P	...	P	MAY	6	08	A.M.	PST
MAY	7	12	17	41.7	37.66 N.	118.90 W.	5	...	...	3.2B	IV	G	MAY	7	04	A.M.	PST
MAY	7	12	29	53.4	37.66 N.	118.94 W.	5	...	...	3.3B	FELT	G	MAY	7	04	A.M.	PST
MAY	7	12	44	38.8	37.65 N.	118.94 W.	5	...	...	3.0G	FELT	G	MAY	7	04	A.M.	PST
MAY	7	15	43	32.2	35.77 N.	117.73 W.	7	...	...	3.2P	...	P	MAY	7	07	A.M.	PST
MAY	7	22	26	34.3	35.63 N.	120.98 W.	24	...	...	3.1P	...	P	MAY	7	02	P.M.	PST
MAY	8	03	57	12.5	37.64 N.	118.93 W.	5	...	...	3.7B	...	B	MAY	7	07	P.M.	PST
MAY	9	06	22	19.2	35.68 N.	118.10 W.	4	...	...	3.0P	...	P	MAY	8	10	P.M.	PST
MAY	9	07	05	44.0	37.60 N.	118.92 W.	5	...	...	3.3B	...	B	MAY	8	11	P.M.	PST
MAY	9	07	07	53.4	37.63 N.	118.96 W.	5	...	...	3.4B	...	B	MAY	8	11	P.M.	PST
MAY	9	09	46	44.9	35.82 N.	117.75 W.	4	...	...	3.2P	...	P	MAY	9	01	A.M.	PST
MAY	10	16	14	06.4	37.63 N.	118.95 W.	5	...	...	3.1B	...	B	MAY	10	08	A.M.	PST
MAY	10	18	10	57.2	36.62 N.	121.28 W.	4	...	...	3.0B	...	B	MAY	10	10	A.M.	PST
MAY	10	18	13	51.4	36.63 N.	121.28 W.	3	...	...	3.1B	...	B	MAY	10	10	A.M.	PST
MAY	11	22	37	29.8	36.62 N.	121.29 W.	5	...	...	3.6B	FELT	B	MAY	11	02	P.M.	PST
MAY	12	00	05	20.2	35.75 N.	117.73 W.	5	...	...	3.2P	...	P	MAY	11	04	P.M.	PST
MAY	14	20	05	06.3	35.80 N.	117.75 W.	3	...	...	3.3P	...	P	MAY	14	12	P.M.	PST
MAY	22	03	32	03.8	37.04 N.	121.50 W.	9	...	...	3.5B	II	B	MAY	21	07	P.M.	PST
MAY	29	13	02	25.2	38.78 N.	122.82 W.	5	4.3	...	3.9B	V	B	MAY	29	05	A.M.	PST
MAY	29	13	07	25.9	38.76 N.	122.61 W.	5	...	...	3.3B	FELT	B	MAY	29	05	A.M.	PST
MAY	31	15	42	03.5	35.72 N.	118.40 W.	9	...	...	3.7P	FELT	P	MAY	31	07	A.M.	PST
JUNE	1	01	57	11.1	35.72 N.	118.40 W.	7	...	...	3.1P	...	P	MAY	31	05	P.M.	PST
JUNE	1	02	49	29.1	35.08 N.	119.02 W.	6	...	...	3.0P	...	P	MAY	31	06	P.M.	PST
JUNE	4	03	12	48.9	39.75 N.	120.05 W.	5	...	...	3.3B	IV	G	JUNE	3	07	P.M.	PST
JUNE	4	11	59	01.6	37.47 N.	118.40 W.	5	...	...	3.0G	IV	G	JUNE	4	03	A.M.	PST
JUNE	4	16	41	48.3	37.49 N.	118.36 W.	26	...	...	4.3B	IV	B	JUNE	4	08	A.M.	PST
JUNE	5	00	56	20.2	36.91 N.	121.71 W.	7	...	...	3.2B	...	B	JUNE	4	04	P.M.	PST
JUNE	5	09	54	24.1	38.78 N.	119.90 W.	35	...	...	3.9B	IV	B	JUNE	5	01	A.M.	PST
JUNE	6	07	00	08.5	39.48 N.	121.60 W.	5	...	...	2.9G	III	G	JUNE	5	11	P.M.	PST
JUNE	8	20	05	35.8	35.75 N.	117.72 W.	5	...	...	3.4P	V	P	JUNE	8	12	P.M.	PST
JUNE	9	01	57	20.0	34.85 N.	119.04 W.	8	...	...	3.1P	...	P	JUNE	8	05	P.M.	PST
JUNE	9	03	27	09.2	33.95 N.	116.88 W.	14	...	...	3.2P	FELT	P	JUNE	8	07	P.M.	PST
JUNE	13	00	04	35.3	37.02 N.	121.49 W.	8	...	...	3.1B	FELT	B	JUNE	12	04	P.M.	PST
JUNE	14	20	29	18.3	38.78 N.	122.91 W.	6	...	...	3.2B	FELT	B	JUNE	14	12	P.M.	PST
JUNE	14	23	53	22.5	36.52 N.	121.06 W.	4	...	...	3.1B	...	B	JUNE	14	03	P.M.	PST
JUNE	15	23	49	21.3	33.55 N.	116.67 W.	12	4.5	...	4.8P	V	P	JUNE	15	03	P.M.	PST
JUNE	15	23	56	05.1	33.55 N.	116.67 W.	11	...	...	3.0P	FELT	P	JUNE	15	03	P.M.	PST
JUNE	16	00	03	55.7	33.55 N.	116.67 W.	13	...	...	3.1P	FELT	P	JUNE	15	04	P.M.	PST
JUNE	16	00	14	52.3	33.55 N.	116.67 W.	13	...	...	3.5P	FELT	P	JUNE	15	04	P.M.	PST

Table 1.--Summary of U. S. earthquakes for April-June 1982--Continued

Date (1982)	Origin time (UTC)			Lat (°)	Long (°)	Depth (km)	Magnitude			Maximum intensity	Hypocenter source	Local time			
	hr	min	sec				mb	MS	ML, Mn or MD			Date	Hour		
CALIFORNIA--Continued															
JUNE 16	00	38	19.5	36.53 N.	121.07 W.	6	...	...	3.1B	...	B	JUNE 15	04	P.M.	PST
JUNE 16	03	16	06.2	33.92 N.	117.05 W.	13	...	...	3.2P	...	P	JUNE 15	07	P.M.	PST
JUNE 16	11	20	18.4	33.55 N.	116.67 W.	12	...	...	3.2P	FELT	P	JUNE 16	03	A.M.	PST
JUNE 19	10	17	33.6	36.53 N.	121.07 W.	9	...	...	4.0B	IV	B	JUNE 19	02	A.M.	PST
JUNE 21	06	43	38.4	41.16 N.	121.94 W.	5	4.1	...	4.2B	IV	B	JUNE 20	10	P.M.	PST
JUNE 21	08	58	23.8	41.12 N.	121.93 W.	5	...	...	3.4B	...	G	JUNE 21	00	A.M.	PST
JUNE 22	01	05	27.7	37.55 N.	118.91 W.	5	...	...	3.4B	...	B	JUNE 21	05	P.M.	PST
JUNE 22	04	19	37.4	34.88 N.	120.37 W.	6	...	...	2.9P	III	P	JUNE 21	08	P.M.	PST
JUNE 24	10	08	00.9	37.47 N.	118.85 W.	11	...	...	3.8B	FELT	B	JUNE 24	02	A.M.	PST
JUNE 25	03	58	23.7	35.95 N.	120.55 W.	8	4.1	3.7	4.0B	IV	B	JUNE 24	07	P.M.	PST
JUNE 27	05	20	02.1	35.92 N.	120.55 W.	20	...	...	3.4B	FELT	B	JUNE 26	09	P.M.	PST
JUNE 27	11	21	33.2	32.95 N.	116.43 W.	3	...	...	3.2P	...	P	JUNE 27	03	A.M.	PST
JUNE 30	13	47	49.1	36.15 N.	118.27 W.	1	...	...	3.3P	...	P	JUNE 30	05	A.M.	PST
CALIFORNIA--OFF THE COAST															
APR. 5	01	14	54.5	33.52 N.	118.93 W.	19	...	...	3.9P	III	P	APR. 4	05	P.M.	PST
APR. 5	11	13	36.9	33.53 N.	118.92 W.	6	...	...	3.4P	...	P	APR. 5	03	A.M.	PST
APR. 5	13	10	13.6	33.55 N.	118.92 W.	8	...	...	3.0P	...	P	APR. 5	05	A.M.	PST
APR. 14	11	12	01.2	40.39 N.	125.08 W.	5	3.4	...	3.8B	...	B	APR. 14	03	A.M.	PST
APR. 29	15	33	45.0	33.52 N.	118.95 W.	19	...	...	3.8P	III	P	APR. 29	07	A.M.	PST
MAY 25	13	44	30.3	33.53 N.	118.20 W.	14	4.7	...	4.1P	IV	P	MAY 25	05	A.M.	PST
MAY 25	14	35	43.7	33.55 N.	118.20 W.	6	...	...	3.0P	...	P	MAY 25	06	A.M.	PST
MAY 26	04	05	15.1	33.55 N.	118.20 W.	6	...	...	3.2P	...	P	MAY 25	08	P.M.	PST
JUNE 15	11	59	32.1	32.57 N.	118.90 W.	24	...	...	3.3P	...	P	JUNE 15	03	A.M.	PST
JUNE 22	01	42	21.3	40.34 N.	124.90 W.	5	...	...	3.2B	...	B	JUNE 21	05	P.M.	PST
CONNECTICUT															
JUNE 17	08	02	38.6	41.52 N.	72.44 W.	1	...	...	2.2J	FELT	J	JUNE 17	03	A.M.	EST
JUNE 17	14	14	20.5	41.52 N.	72.44 W.	1	...	...	2.2J	FELT	J	JUNE 17	09	A.M.	EST
JUNE 17	14	14	35.9	41.51 N.	72.38 W.	2	...	...	3.0J	IV	J	JUNE 17	09	A.M.	EST
JUNE 17	15	29	24.4	41.51 N.	72.44 W.	1	...	...	2.4J	FELT	J	JUNE 17	10	A.M.	EST
GEORGIA															
MAY 12	01	21	52.2	34.90 N.	85.02 W.	12	...	...	2.8K	...	K	MAY 11	08	P.M.	EST
HAWAII															
APR. 5	14	19	06.3	19.33 N.	155.12 W.	9	...	...	3.0H	...	H	APR. 5	04	A.M.	HST
APR. 6	20	58	59.9	19.35 N.	155.10 W.	9	...	...	3.0H	III	H	APR. 6	10	A.M.	HST
APR. 7	10	19	48.2	19.52 N.	155.92 W.	12	...	...	3.1H	...	H	APR. 7	00	A.M.	HST
APR. 7	20	54	55.1	19.37 N.	155.25 W.	10	...	...	3.0H	...	H	APR. 7	10	A.M.	HST
APR. 10	15	59	49.6	19.39 N.	155.28 W.	3	...	...	3.1H	III	H	APR. 10	05	A.M.	HST
APR. 12	02	04	02.4	19.33 N.	155.12 W.	9	4.6	...	4.2H	V	H	APR. 11	04	P.M.	HST
APR. 16	15	00	23.2	20.03 N.	155.34 W.	7	...	...	3.6H	III	H	APR. 16	05	A.M.	HST
APR. 17	01	04	47.5	19.33 N.	155.20 W.	10	...	...	3.0H	...	H	APR. 16	03	P.M.	HST
APR. 17	01	15	40.7	19.33 N.	155.20 W.	10	...	...	3.7H	III	H	APR. 16	03	P.M.	HST
APR. 17	11	20	50.7	19.42 N.	155.28 W.	1	...	...	3.9H	V	H	APR. 17	01	A.M.	HST
APR. 19	12	23	55.9	19.35 N.	155.08 W.	9	...	...	3.8H	IV	H	APR. 19	02	A.M.	HST
APR. 19	13	02	00.7	19.34 N.	155.07 W.	9	...	...	3.9H	IV	H	APR. 19	03	A.M.	HST
APR. 27	02	51	14.5	20.18 N.	156.16 W.	31	...	...	3.1H	...	H	APR. 26	04	P.M.	HST
APR. 28	06	23	01.4	19.34 N.	155.06 W.	9	...	...	3.4H	III	H	APR. 27	08	P.M.	HST
APR. 30	18	48	52.7	19.36 N.	155.08 W.	9	...	...	3.4H	II	H	APR. 30	08	A.M.	HST
APR. 30	21	41	17.9	19.41 N.	155.27 W.	1	...	...	3.2H	...	H	APR. 30	11	A.M.	HST
MAY 4	17	29	42.6	19.32 N.	155.22 W.	10	...	...	3.6H	III	H	MAY 4	07	A.M.	HST
MAY 10	20	47	27.2	19.18 N.	155.60 W.	10	...	...	3.9H	IV	H	MAY 10	10	A.M.	HST
MAY 10	22	08	48.0	19.34 N.	155.12 W.	9	...	...	3.0H	...	H	MAY 10	12	P.M.	HST
MAY 13	21	40	34.2	20.07 N.	156.61 W.	0	...	...	3.2H	...	H	MAY 13	11	A.M.	HST
MAY 14	16	26	31.7	20.00 N.	155.87 W.	20	4.5	...	4.8H	V	H	MAY 14	06	A.M.	HST
MAY 14	16	31	29.1	20.00 N.	155.87 W.	21	...	...	3.1H	...	H	MAY 14	06	A.M.	HST
MAY 15	15	09	46.2	19.29 N.	155.23 W.	11	...	...	3.1H	III	H	MAY 15	05	A.M.	HST
MAY 19	00	10	32.0	19.91 N.	156.36 W.	0	...	...	3.4H	...	H	MAY 18	02	P.M.	HST
MAY 19	03	36	19.8	19.95 N.	156.43 W.	1	4.8	3.7	4.8H	V	H	MAY 18	05	P.M.	HST

Table 1.—Summary of U. S. earthquakes for April-June 1982--Continued

Date (1982)	Origin time (UTC)			Lat (°)	Long (°)	Depth (km)	Magnitude			Maximum intensity	Hypocenter source	Local time					
	hr	min	sec				mb	MS	ML, Mn or MD			Date	Hour				
HAWAII--Continued																	
MAY 19	10	05	51.5	19.39 N.	155.28 W.	3	...	...	3.0H	...	H	MAY 19	00	A.M.	HST
MAY 21	23	42	40.6	19.38 N.	155.01 W.	9	...	...	3.0H	...	H	MAY 21	01	P.M.	HST
MAY 28	01	28	09.6	19.35 N.	155.22 W.	9	...	...	3.0H	...	H	MAY 27	03	P.M.	HST
JUNE 2	20	34	57.1	19.45 N.	155.48 W.	11	...	...	3.2H	...	H	JUNE 2	10	A.M.	HST
JUNE 3	12	58	11.2	20.03 N.	155.83 W.	28	...	...	3.3H	...	H	JUNE 3	02	A.M.	HST
JUNE 6	18	39	30.9	20.15 N.	155.78 W.	27	...	...	3.0H	II	H	JUNE 6	08	A.M.	HST
JUNE 10	12	16	55.7	19.34 N.	155.22 W.	10	...	...	3.1H	II	H	JUNE 10	02	A.M.	HST
JUNE 11	07	49	15.9	19.41 N.	156.14 W.	41	...	...	3.2H	...	H	JUNE 10	09	P.M.	HST
JUNE 14	18	15	38.8	19.32 N.	155.22 W.	10	...	...	3.5H	...	H	JUNE 14	08	A.M.	HST
JUNE 20	17	30	13.5	19.33 N.	155.12 W.	9	...	...	3.0H	...	H	JUNE 20	07	A.M.	HST
JUNE 21	16	04	14.8	19.36 N.	155.25 W.	10	...	...	3.4H	III	H	JUNE 21	06	A.M.	HST
JUNE 22	23	58	06.3	19.33 N.	155.32 W.	10	...	...	3.1H	...	H	JUNE 22	01	P.M.	HST
IDAHO																	
MAY 30	11	06	43.4	42.69 N.	111.24 W.	7	...	...	4.0U	...	U	MAY 30	04	A.M.	MST
MAY 30	11	55	32.4	42.65 N.	111.23 W.	7	...	...	3.6U	...	U	MAY 30	04	A.M.	MST
JUNE 8	22	47	46.4	44.59 N.	115.15 W.	5	...	...	3.7G	III	G	JUNE 8	02	P.M.	PST
MONTANA																	
MAY 15	19	28	19.1	47.01 N.	112.98 W.	5	...	...	3.3G	IV	G	MAY 15	12	P.M.	MST
NEVADA																	
APR. 15	21	52	08.6	38.03 N.	118.50 W.	20	4.5	...	5.1B	IV	B	APR. 15	01	P.M.	PST		
APR. 17	18	00	00.1	37.02 N.	116.01 W.	0	4.5	...	4.4B	...	E	APR. 17	10	A.M.	PST		
APR. 25	18	05	00.1	37.26 N.	116.42 W.	0	5.4	...	5.4B	...	E	APR. 25	10	A.M.	PST		
MAY 6	20	00	00.1	37.12 N.	116.13 W.	0	4.3	...	4.4B	...	E	MAY 6	12	P.M.	PST		
MAY 7	18	17	00.1	37.07 N.	116.04 W.	0	5.7	4.2	5.4B	...	E	MAY 7	10	A.M.	PST		
MAY 12	19	29	24.5	37.27 N.	115.08 W.	10	...	...	4.0B	...	G	MAY 12	11	A.M.	PST
JUNE 1	11	02	01.0	36.00 N.	114.82 W.	0	...	...	2.6G	IV	G	JUNE 1	03	A.M.	PST
JUNE 16	14	00	00.8	37.11 N.	116.02 W.	0	...	...	4.3B	...	E	JUNE 16	06	A.M.	PST
JUNE 24	14	15	00.1	37.24 N.	116.37 W.	0	5.6	4.5	5.6B	...	E	JUNE 24	06	A.M.	PST		
NEW JERSEY																	
APR. 12	22	14	31.0	40.02 N.	74.81 W.	5	...	...	2.8L	V	G	APR. 12	05	P.M.	EST
NEW MEXICO																	
MAY 18	06	00	08.5	34.17 N.	106.95 W.	9	...	...	2.8G	IV	G	MAY 17	11	P.M.	MST
MAY 18	06	08	38.4	34.20 N.	106.90 W.	6	...	...	2.8G	IV	G	MAY 17	11	P.M.	MST
MAY 24	06	32	51.7	34.17 N.	106.95 W.	6	...	...	2.9G	FELT	G	MAY 23	11	P.M.	MST
MAY 31	09	37	08.5	35.10 N.	106.80 W.	6	...	...	2.0G	IV	G	MAY 31	02	A.M.	MST
OKLAHOMA																	
MAY 3	07	54	50.0	34.07 N.	96.38 W.	5	...	...	3.0T	V	T	MAY 3	01	A.M.	CST
OREGON--OFF THE COAST																	
MAY 12	11	16	27.8	43.37 N.	126.69 W.	10	4.4	...	...	...	G	MAY 12	03	A.M.	PST
MAY 17	01	45	28.2	43.73 N.	127.33 W.	10	4.3	...	...	...	G	MAY 16	05	P.M.	PST
JUNE 10	16	24	44.4	43.49 N.	127.07 W.	10	4.9	4.7	...	...	G	JUNE 10	08	A.M.	PST
PENNSYLVANIA																	
MAY 12	18	29	33.0	40.41 N.	77.96 W.	0	...	...	3.0Y	...	Y	MAY 12	01	P.M.	EST
SOUTH CAROLINA																	
APR. 13	09	25	19.0	34.29 N.	81.38 W.	5	...	...	2.7G	III	G	APR. 13	04	A.M.	EST

Table 1.—Summary of U. S. earthquakes for April-June 1982--Continued

Date (1982)	Origin time (UTC)			Lat (°)	Long (°)	Depth (km)	Magnitude			Maximum intensity	Hypocenter source	Local time		
	hr	min	sec				mb	MS	ML, Mn or MD			Date	Hour	
TENNESSEE														
APR. 13	13	04	13.1	36.52 N.	82.03 W.	1	...	...	2.7K	...	K	APR. 13	08	A.M. EST
APR. 17	01	22	54.9	35.91 N.	89.06 W.	5	...	...	2.8G	IV	K	APR. 16	07	P.M. CST
MAY 1	13	05	28.0	35.63 N.	89.73 W.	12	...	...	2.8K	FELT	K	MAY 1	07	A.M. CST
MAY 6	02	56	08.3	36.33 N.	89.47 W.	6	...	...	1.2K	FELT	K	MAY 5	08	P.M. CST
JUNE 2	11	55	45.4	36.46 N.	89.54 W.	1	...	...	2.6K	FELT	K	JUNE 2	05	A.M. CST
TEXAS														
APR. 26	08	31	47.7	33.02 N.	100.84 W.	5	...	...	2.8G	...	G	APR. 26	02	A.M. CST
UTAH														
MAY 24	12	13	27.0	38.71 N.	112.04 W.	9	4.7	...	4.0U	VI	U	MAY 24	05	A.M. MST
VIRGINIA														
MAY 6	07	18	10.9	37.85 N.	77.58 W.	10	...	...	2.0V	II	V	MAY 6	02	A.M. EST
JUNE 16	18	40	58.6	38.13 N.	78.84 W.	11	...	...	2.1V	II	V	JUNE 16	01	P.M. EST
WASHINGTON														
APR. 14	07	22	43.4	47.65 N.	122.52 W.	26	...	...	3.1G	IV	W	APR. 13	11	P.M. PST
MAY 31	05	10	40.9	46.35 N.	122.23 W.	11	...	...	2.7W	FELT	W	MAY 30	09	P.M. PST
JUNE 4	07	44	55.8	47.71 N.	122.09 W.	7	...	...	2.5G	IV	W	JUNE 3	11	P.M. PST
JUNE 4	16	10	34.1	47.71 N.	122.12 W.	6	...	...	2.6G	IV	W	JUNE 4	08	A.M. PST
WEST VIRGINIA														
JUNE 23	16	17	34.1	37.87 N.	80.96 W.	11	...	...	2.5V	...	V	JUNE 23	11	A.M. EST
WYOMING														
MAY 21	01	14	35.7	44.78 N.	110.85 W.	5	...	...	3.3G	...	G	MAY 20	06	P.M. MST

Table 2.—Summary of macroseismic data for U. S. earthquakes,
April-June 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, National Earthquake Information Service, Golden, Colo.; (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; (O) Earth Physics Branch, Seismological Service of Canada, Ottawa; (P) California Institute of Technology, Pasadena; (T) Oklahoma Geological Survey, Leonard; (U) University of Utah, Salt Lake City; (V) Virginia Polytechnic Institute and State University, Blacksburg; (W) University of Washington, Seattle; (Y) Pennsylvania State University, University Park. 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

11 April (G) Central Alaska

Origin time: 15 03 27.8
Epicenter: 62.19 N., 148.81 W.
Depth: 79 km
Magnitude: None computed.
Intensity II: Palmer (M).

15 April (G) Alaska Peninsula

Origin time: 16 21 14.6
Epicenter: 54.21 N., 161.63 W.
Depth: 59 km
Magnitude: 5.3mb(G)
Intensity IV: Cold Bay.
Intensity III: Sand Point (M).

16 April (G) Southern Alaska

Origin time: 11 31 47.8
Epicenter: 61.27 N., 149.48 W.
Depth: 52 km
Magnitude: 3.4ML(M)
Intensity IV: Anchorage (M), Chugiak (M), Palmer (M).

23 April (G) Southern Alaska

Origin time: 15 30 36.6
Epicenter: 61.24 N., 146.15 W.
Depth: 26 km
Magnitude: 2.8ML(M)
Intensity III: Valdez (M).

23 April (G) Andreanof Islands, Aleutian Islands

Origin time: 23 18 23.5
Epicenter: 51.18 N., 179.84 W.
Depth: 44 km
Magnitude: 5.6mb(G), 5.1MS(G), 5.2MS(B).
Intensity III: Adak (M).

3 May (G) Southeastern Alaska

Origin time: 10 14 14.2
Epicenter: 60.12 N., 141.12 W.
Depth: 11 km
Magnitude: 5.0mb(G), 4.7MS(G), 5.1ML(M)
Intensity IV: Icy Bay, Yakutat.

Table 2.—Summary of macroseismic data for U. S. earthquakes,
April-June 1982—Continued

ALASKA--Continued

3 May (G) Southeastern Alaska

Origin time: 15 17 26.1
Epicenter: 60.03 N., 141.14 W.
Depth: 15 km
Magnitude: 4.2mb(G), 4.6ML(M)
Intensity III: Yakutat (M).

5 May (G) Southern Alaska

Origin time: 19 49 54.3
Epicenter: 61.25 N., 149.75 W.
Depth: 63 km
Magnitude: 4.8mb(G)

In Resurrection Valley large lumber piles were reported to have bounced up and down.

Intensity V: The most common effects at the places listed below were: few small objects overturned, few merchandise items thrown from store shelves, few glassware and dishes broken.

Anchorage—few windows were cracked, light furniture or small appliances were overturned, hanging pictures were swung out of place, hanging objects or doors were swung moderately to violently.

Eagle River—hairline cracks in interior plaster walls, few small objects fell, hanging objects or doors were swung moderately.

Intensity IV: Chugiak, Cooper Landing, Elmendorf AFB, Hope, Kenai, Moose Pass, Nikishka, Sterling, Sutton, Talkeetna, Tyonek, Valdez, Wasilla, Whittier, Willow.
Intensity III: Ninilchik, Point Campbell, Skwentna.

Felt: Anchor Point.

7 May (G) Andreanof Islands, Aleutian Islands

Origin time: 00 43 38.4
Epicenter: 51.84 N., 177.58 W.
Depth: 101 km
Magnitude: 4.3mb(G)
Intensity III: Adak (M).

14 May (G) Queen Charlotte Islands region

Origin time: 10 00 50.7
Epicenter: 54.48 N., 134.23 W.
Depth: 10 km
Magnitude: 4.1mb(G), 4.1ML(M)
Intensity IV: Ketchikan (M).

4 June (G) Andreanof Islands, Aleutian Islands

Origin time: 03 01 04.1
Epicenter: 51.60 N., 177.33 W.
Depth: 59 km
Magnitude: 5.8mb(G), 5.7MS(B), 5.7ML(M)

Table 2.--Summary of macroseismic data for U. S. earthquakes,
April-June 1982--Continued

ALASKA--Continued	
<u>Intensity V:</u>	
Adak--few windows were cracked, few small objects fell, few glassware and dishes were broken, many merchandise items were thrown from store shelves, hanging objects or doors were swung violently.	
15 June (G) Andreanof Islands, Aleutian Islands	
Origin time:	19 57 38.3
Epicenter:	51.32 N., 178.47 W.
Depth:	49 km
Magnitude:	5.0mb(G), 4.0MS(G), 5.3ML(M)
<u>Intensity III:</u> Adak (M).	
18 June (G) Southern Alaska	
Origin time:	14 08 13.8
Epicenter:	59.49 N., 152.33 W.
Depth:	71 km
Magnitude:	None computed.
<u>Intensity IV:</u> Homer (M).	
22 June (G) Fox Islands, Aleutian Islands	
Origin time:	07 05 27.1
Epicenter:	53.93 N., 166.64 W.
Depth:	90 km
Magnitude:	4.8mb(G)
<u>Intensity IV:</u> Unalaska (M).	
24 June (G) Central Alaska	
Origin time:	04 57 58.7
Epicenter:	64.78 N., 147.16 W.
Depth:	15 km
Magnitude:	3.0ML(M)
<u>Intensity IV:</u> Fairbanks.	
24 June (G) Central Alaska	
Origin time:	05 26 53.2
Epicenter:	64.76 N., 147.44 W.
Depth:	15 km
Magnitude:	2.3ML(M)
Felt at Fairbanks (M).	

ARKANSAS

31 May (K) Southern Arkansas
Origin time: 17 49 19.9
Epicenter: 35.20 N., 92.24 W.
Depth: 5 km
Magnitude: 3.5Mn(T), 3.6Mn(G)
Intensity IV: Enola, Naylor (press report).

Table 2.--Summary of macroseismic data for U. S. earthquakes,
April-June 1982--Continued

ARKANSAS--Continued	
31 May (K) Southern Arkansas	
Origin time:	18 21 19.4
Epicenter:	35.20 N., 92.25 W.
Depth:	4 km
Magnitude:	3.6Mn(T)
<u>Intensity IV:</u> Enola.	
<u>Felt:</u> Naylor (press report).	
CALIFORNIA	
3 April (B) Central California	
Origin time:	19 32 25.8
Epicenter:	37.80 N., 122.21 W.
Depth:	3 km
Magnitude:	2.2ML(B)
Felt in the Oakland-San Francisco Bay area (press report).	
8 April (B) Northern California	
Origin time:	03 54 12.6
Epicenter:	39.45 N., 123.36 W.
Depth:	5 km
Magnitude:	3.0ML(B)
<u>Intensity IV:</u> Potter Valley, Ukiah, Willits.	
8 April (P) Southern California	
Origin time:	15 03 04.0
Epicenter:	34.18 N., 118.65 W.
Depth:	4 km
Magnitude:	2.6ML(P)
Felt at Woodland Hills (P).	
13 April (P) Southern California	
Origin time:	11 02 12.2
Epicenter:	34.05 N., 118.97 W.
Depth:	17 km
Magnitude:	4.2mb(G), 3.9ML(P)
<u>Intensity V:</u>	
Agoura--hairline cracks in interior plaster walls, building shook strongly.	
Camarillo--pictures were swung out of place, few small objects were overturned, building shook strongly.	
Malibu--few merchandise items were thrown from store shelves, few small objects were overturned and fell, few dishware and glasses were broken.	
<u>Intensity IV:</u> Canoga Park, Chatsworth, Glendale, Santa Monica, Somis, Thousand Oaks.	
<u>Felt:</u> El Segundo (P), Lynwood (P), Westlake Village (P), Woodland Hills (P).	

Table 2.--Summary of macroseismic data for U. S. earthquakes,
April-June 1982--Continued

CALIFORNIA--Continued	
13 April (P) Southern California	
Origin time: 15 00 42.2	
Epicenter: 33.90 N., 117.97 W.	
Depth: 12 km	
Magnitude: 2.2ML(P)	
Felt at Fullerton (P).	
15 April (B) California-Nevada border region	
Origin time: 21 52 08.6	
See Nevada listing.	
25 April (B) Central California	
Origin time: 02 59 35.3	
Epicenter: 37.42 N., 121.77 W.	
Depth: 5 km	
Magnitude: 3.1ML(B)	
Felt in the epicentral area (B).	
25 April (P) Imperial Valley	
Origin time: 15 56 08.8	
Epicenter: 32.95 N., 115.55 W.	
Depth: 15 km	
Magnitude: 2.4ML(P)	
Felt in the Imperial Valley (P).	
27 April (P) Central California	
Origin time: 15 42 40.2	
Epicenter: 35.77 N., 117.73 W.	
Depth: 5 km	
Magnitude: 3.8ML(P), 4.2ML(B)	
Intensity IV: China Lake, Little Lake, Onyx, Ridgecrest.	
30 April (P) Southern California	
Origin time: 06 43 37.0	
Epicenter: 34.92 N., 120.37 W.	
Depth: 2 km	
Magnitude: 3.7ML(P), 3.8ML(B)	
Intensity IV: Santa Maria.	
Felt: Santa Barbara (press report).	
2 May (B) Central California	
Origin time: 13 37 53.8	
Epicenter: 37.03 N., 121.49 W.	
Depth: 6 km	
Magnitude: 3.1ML(B)	
Felt at San Jose (press report).	
7 May (G) Owens Valley area	
Origin time: 12 17 41.7	
Epicenter: 37.66 N., 118.90 W.	
Depth: 5 km	
Magnitude: 3.2ML(B)	

Table 2.--Summary of macroseismic data for U. S. earthquakes,
April-June 1982--Continued

CALIFORNIA--Continued	
This was the first event in a swarm of 20 earthquakes which were felt in the Mammoth Lakes area. The radio station at Bishop was briefly knocked off the air and electricity flickered in parts of Bridgeport (press report).	
Intensity IV: Bishop and Bridgeport (press reports).	
7 May (G) Owens Valley area	
Origin time: 12 29 53.4	
Epicenter: 37.66 N., 118.94 W.	
Depth: 5 km	
Magnitude: 3.3ML(B)	
Felt at Bishop and Bridgeport (press reports).	
7 May (G) Owens Valley area	
Origin time: 12 44 38.8	
Epicenter: 37.65 N., 118.94 W.	
Depth: 5 km	
Magnitude: 3.0ML(G)	
Felt at Bishop and Bridgeport (press reports).	
11 May (B) Central California	
Origin time: 22 37 29.8	
Epicenter: 36.62 N., 121.29 W.	
Depth: 5 km	
Magnitude: 3.6ML(B)	
Felt in the epicentral area (B).	
22 May (B) Central California	
Origin time: 03 32 03.8	
Epicenter: 37.04 N., 121.50 W.	
Depth: 9 km	
Magnitude: 3.5ML(B)	
Intensity II: Hollister, Santa Cruz.	
Felt: Gilroy (B), Morgan Hill (B).	
29 May (B) Northern California	
Origin time: 13 02 25.2	
Epicenter: 38.78 N., 122.82 W.	
Depth: 5 km	
Magnitude: 4.3mb(G), 3.9ML(B)	
Intensity V:	
Finley--hairline cracks in interior plaster walls, few small objects were overturned, hanging pictures were swung out of place.	
Cobb--few small objects were overturned.	
Intensity IV: Clear Lake (press report), Geyserville, Kelseyville, Lakeport (press report).	

Table 2.—Summary of macroseismic data for U. S. earthquakes,
April-June 1982--Continued

CALIFORNIA--Continued	
<u>Intensity III: Healdsburg, St. Helena.</u> <u>Felt: Loch Lomond.</u>	
29 May (B) Northern California	
Origin time: 13 07 25.9	
Epicenter: 38.76 N., 122.61 W.	
Depth: 5 km	
Magnitude: 3.3ML(B)	
Felt at Cobb (B).	
31 May (P) Central California	
Origin time: 15 42 03.5	
Epicenter: 35.72 N., 118.40 W.	
Depth: 9 km	
Magnitude: 3.7ML(B), 3.7ML(P)	
Felt at Lake Isabella (P).	
4 June (G) Northern California	
Origin time: 03 12 48.9	
Epicenter: 39.75 N., 120.05 W.	
Depth: 5 km	
Magnitude: 3.3ML(B)	
<u>Intensity IV: Vinton.</u>	
4 June (G) Owens Valley area	
Origin time: 11 59 01.6	
Epicenter: 37.47 N., 118.40 W.	
Depth: 5 km	
Magnitude: 3.0ML(G)	
<u>Intensity IV: Bishop (press report).</u>	
4 June (B) Owens Valley area	
Origin time: 16 41 48.3	
Epicenter: 37.49 N., 118.36 W.	
Depth: 26 km	
Magnitude: 4.3ML(B)	
<u>Intensity IV: Bishop (few merchandise items</u> <u>were thrown from store shelves--press</u> <u>report).</u>	
<u>Intensity III:</u> <u>California--Crowley Lake.</u> <u>Nevada--Dyer.</u>	
5 June (B) Lake Tahoe area	
Origin time: 09 54 24.1	
Epicenter: 38.78 N., 119.90 W.	
Depth: 35 km	
Magnitude: 3.9ML(B)	
<u>Intensity IV:</u> <u>California--Markleeville.</u> <u>Nevada--Genoa, Zephyr Cove.</u>	
<u>Intensity III:</u> <u>California--Kirkwood, South Lake Tahoe.</u>	

Table 2.—Summary of macroseismic data for U. S. earthquakes,
April-June 1982--Continued

CALIFORNIA--Continued	
6 June (G) Northern California	
Origin time: 07 00 08.5	
Epicenter: 39.48 N., 121.60 W.	
Depth: 5 km	
Magnitude: 2.9ML(G)	
<u>Intensity III: Oroville (press report).</u> <u>Felt: Chico and Paradise (press reports).</u>	
8 June (P) Southern California	
Origin time: 20 05 35.8	
Epicenter: 35.75 N., 117.72 W.	
Depth: 5 km	
Magnitude: 3.4ML(P)	
<u>Intensity V: Naval Weapons Center (China</u> <u>Lake)--glass windows were shattered (press</u> <u>report).</u>	
9 June (P) Southern California	
Origin time: 03 27 09.2	
Epicenter: 33.95 N., 116.88 W.	
Depth: 14 km	
Magnitude: 3.2ML(P)	
Felt at Palm Springs (P).	
13 June (B) Central California	
Origin time: 00 04 35.3	
Epicenter: 37.02 N., 121.49 W.	
Depth: 8 km	
Magnitude: 3.1ML(B)	
Felt at Gilroy (B).	
14 June (B) Northern California	
Origin time: 20 29 18.3	
Epicenter: 38.78 N., 122.91 W.	
Depth: 6 km	
Magnitude: 3.2ML(B)	
Felt at Cobb (B).	
15 June (P) Southern California	
Origin time: 23 49 21.3	
Epicenter: 33.55 N., 116.67 W.	
Depth: 12 km	
Magnitude: 4.5mb(G), 4.8ML(B), 4.8ML(P)	
The earthquake was felt over an area of approximately 26,500 square kilometers in Imperial, Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties (fig. 7). At a Girl Scout camp near Lake Hemet (8 miles north of Anza), the quake was felt by everyone. Some aftershocks were felt in the hour following this earthquake.	
<u>Intensity V:</u> <u>Anza--many merchandise items were thrown</u>	

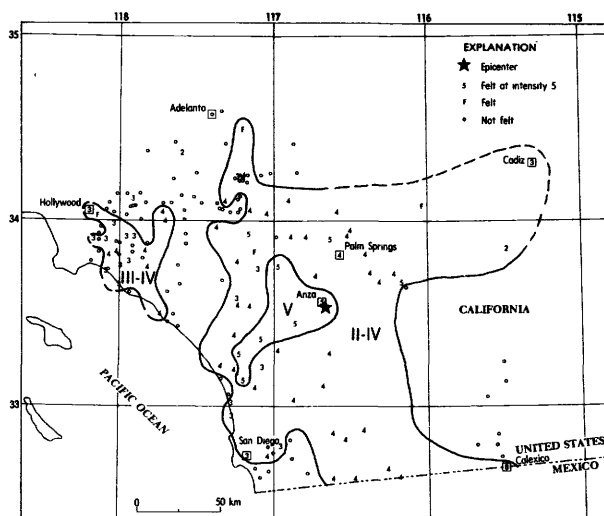


FIGURE 7.--Isoseismal map for the southern California earthquake of 15 June 1982, 23 49 21.3 UTC. Roman numerals represent Modified Mercalli intensities between isoseismals; Arabic numerals are used to represent these intensities at specific sites.

Table 2.--Summary of macroseismic data for U. S. earthquakes, April-June 1982--Continued

CALIFORNIA--Continued

from store shelves but few were broken (press report), many small objects fell, hanging objects or doors were swung moderately, hanging pictures were swung. Bonsall--hanging pictures fell. Cathedral City--few windows were cracked, few small objects were overturned and fell, few glassware and dishes were broken, few merchandise items were thrown from store shelves, hairline cracks in interior plaster or stucco and drywall walls, hanging pictures were swung out of place, hanging objects or doors were swung moderately. Coachella--few windows were cracked, few small objects were overturned and fell, few glassware and dishes were broken. Hemet--many pictures fell off the walls, dishes were broken (press report). Moreno--hairline cracks in interior drywall walls, building shook strongly. Pala--few small objects were overturned and fell, few glassware and dishes were broken, few merchandise items were thrown from store shelves, hanging pictures were swung out of place. San Marcos--few small objects were overturned, building shook strongly.

Table 2.--Summary of macroseismic data for U. S. earthquakes, April-June 1982--Continued

CALIFORNIA--Continued

White Water--few small objects were overturned, hanging pictures were swung out of place or fell, building shook strongly.

Intensity IV: Aguanga, Atwood, Banning, Boulevard, Cabazon, Campo, Chino, Cypress, Descanso, Desert Hot Springs, Escondido, Fallbrook, Forest Falls, Guyamaca, Indio (hanging pictures were swung out of place), Jacumba, Laguna Niguel (water was splashed onto sides of lakes, ponds, or swimming pools), Lake Arrowhead, La Quinta, Lemon Grove (hanging pictures were swung out of place), Los Alamitos, March AFB, Mentone, Miramar NAS, Morongo Valley, Mountain Center, Mount Laguna, Murrieta, North Palm Springs, Palm Desert (boulders were dislodged and rolled into ravines in the San Jacinto Mountains), Palm Springs, Pauma Valley, Perris, Pine Valley, Pomona (hanging pictures were swung out of place), Potrero, Ramona, Riverside, San Bernardino, San Luis Rey, San Marcos, Santa Ysabel, Thousand Palms, Tustin (few small objects were overturned), Vista, Warner Springs (building shook strongly), Yucaipa (buildings shook slightly to strongly, hanging objects or doors were swung moderately).

Intensity III: Azusa, Brea, Cadiz, Calexico, Cardiff-by-the-Sea, Cedar Glen, Del Mar, El Cajon, Garden Grove, Hollywood (press report), Homeland, Huntington Beach, La Habra, Midway City, Norwalk, Paramount, San Diego, Surfside, Valley Center, Whittier, Wildomar.

Intensity II: Eagle Mountain, Phelan. Felt: Apple Valley (P), Lakeview, Los Angeles (P), Twentynine Palms (P).

16 June (P) Imperial Valley

Origin time: 11 20 18.4
Epicenter: 33.55 N., 116.67 W.
Depth: 12 km
Magnitude: 3.2ML(P)

Felt at El Centro (P).

19 June (B) Central California

Origin time: 10 17 33.6
Epicenter: 36.53 N., 121.07 W.
Depth: 9 km
Magnitude: 4.0 ML(B)

Intensity IV: Carmel Valley, Jolon.
Intensity III: Monterey.
Felt: King City, San Benito (B).

Table 2.--Summary of macroseismic data for U. S. earthquakes,
April-June 1982--Continued

CALIFORNIA--Continued	
21 June (B) Northern California	
Origin time: 06 43 38.4	
Epicenter: 41.16 N., 121.94 W.	
Depth: 5 km	
Magnitude: 4.1mb(G), 4.2ML(B)	
<u>Intensity IV:</u> Castella, Dunsmuir, McCloud, Montgomery Creek, Mount Shasta, Oak Run, Weed (cans were toppled from shelves in many homes--press report).	
22 June (P) Southern California	
Origin time: 04 19 37.4	
Epicenter: 34.88 N., 120.37 W.	
Depth: 6 km	
Magnitude: 2.9ML(P)	
<u>Intensity III:</u> Santa Maria (press report).	
24 June (B) Owens Valley area	
Origin time: 10 08 00.9	
Epicenter: 37.47 N., 118.85 W.	
Depth: 11 km	
Magnitude: 3.8ML(B)	
Felt in the Mammoth Lakes area (B).	
25 June (B) Central California	
Origin time: 03 58 23.7	
Epicenter: 35.95 N., 120.55 W.	
Depth: 8 km	
Magnitude: 4.1mb(G), 3.7MS(G), 4.0ML(B)	
<u>Intensity IV:</u> Cambria, Coalinga, San Miguel, Santa Margarita.	
<u>Intensity III:</u> Atascadero, Bradley, Paso Robles, Templeton.	
<u>Intensity II:</u> San Ardo.	
<u>Felt:</u> Caruthers.	
27 June (B) Central California	
Origin time: 05 20 02.1	
Epicenter: 35.92 N., 120.55 W.	
Depth: 20 km	
Magnitude: 3.6ML(P), 3.4ML(B)	
Felt in the epicentral area (B).	

CALIFORNIA - OFF THE COAST

- 5 April (P) Southern California
- Origin time: 01 14 54.5
- Epicenter: 33.52 N., 118.93 W.
- Depth: 19 km
- Magnitude: 3.9ML(P)
- Intensity III: Marina del Rey.
- Felt: Santa Monica (P).

Table 2.--Summary of macroseismic data for U. S. earthquakes,
April-June 1982--Continued

CALIFORNIA--Off the coast--Continued	
29 April (P) Southern California	
Origin time: 15 33 45.0	
Epicenter: 33.52 N., 118.95 W.	
Depth: 19 km	
Magnitude: 3.8ML(P)	
Generally felt in the Santa Monica Bay area (press report).	
<u>Intensity III:</u> Carpinteria, Pasadena, Tra- buco Canyon.	
<u>Felt:</u> Brentwood (P), western part of the Los Angeles area (press report).	
25 May (P) Southern California	
Origin time: 13 44 30.3	
Epicenter: 33.53 N., 118.20 W.	
Depth: 14 km	
Magnitude: 4.7mb(G), 4.2ML(B), 4.1ML(P)	
This earthquake was felt in parts of Los Angeles, Orange, and San Diego Counties (press report).	
<u>Intensity IV:</u> Compton, Costa Mesa, Lakewood, Long Beach, Midway City, Palos Verdes Pen- insula, San Pedro, Seal Beach, Surfside, Torrance.	
<u>Intensity III:</u> Artesia, Avalon, Carson, Cypress, La Mirada, Lawndale, Hermosa Beach, Huntington Beach, Paramount, South Gate, Sunset Beach, Redondo Beach, West- minster, Wilmington.	
<u>Felt:</u> Anaheim, Burbank (press report), San Clemente (press report).	

CONNECTICUT

- 17 June (J) Southern Connecticut
- Origin time: 08 02 38.6
- Epicenter: 41.52 N., 72.44 W.
- Depth: 1 km
- Magnitude: 2.2Mn(J)
- Felt at Moodus (J).
- 17 June (J) Southern Connecticut
- Origin time: 14 14 20.5
- Epicenter: 41.52 N., 72.44 W.
- Depth: 1 km
- Magnitude: 2.2Mn(J)
- Felt at Moodus (J).
- 17 June (J) Southern Connecticut
- Origin time: 14 14 35.9
- Epicenter: 41.51 N., 72.38 W.

Table 2.--Summary of macroseismic data for U. S. earthquakes,
April-June 1982--Continued

CONNECTICUT--Continued	
Depth:	2 km
Magnitude:	3.0Mn(J), 3.0MD(J)
<u>Intensity IV:</u>	Amston, Cobalt, Higqanum, Moodus.
<u>Intensity III:</u>	Colchester, East Hampton.
<u>Felt:</u>	Glastonbury (J), Hebron (J).
17 June (J) Southern Connecticut	
Origin time:	15 29 24.4
Epicenter:	41.51 N., 72.44 W.
Depth:	1 km
Magnitude:	2.4Mn(J), 2.3MD(J)
Felt at Moodus (J).	

HAWAII

6 April (H) Island of Hawaii	
Origin time:	20 58 59.9
Epicenter:	19.35 N., 155.10 W.
Depth:	9 km
Magnitude:	3.0ML(H)
<u>Intensity III:</u>	Hilo.
10 April (H) Island of Hawaii	
Origin time:	15 59 49.6
Epicenter:	19.39 N., 155.28 W.
Depth:	3 km
Magnitude:	3.1ML(H)
<u>Intensity III:</u>	Hawaiian Volcanoes National Park.
12 April (H) Island of Hawaii	
Origin time:	02 04 02.4
Epicenter:	19.33 N., 155.12 W.
Depth:	9 km
Magnitude:	4.6mb(G), 4.2ML(H)
<u>Intensity V:</u>	Hawaiian Beaches, Paradise Park.
<u>Intensity IV:</u>	Hilo, Glenwood, Mountain View.
<u>Intensity III:</u>	Volcano, Hawaiian Volcanoes National Park.
<u>Intensity II:</u>	Ahualoa, Waimea.
16 April (H) Island of Hawaii	
Origin time:	15 00 23.2
Epicenter:	20.03 N., 155.34 W.
Depth:	7 km
Magnitude:	3.6ML(H)
<u>Intensity III:</u>	Ahualoa, Waimea.
17 April (H) Island of Hawaii	
Origin time:	01 15 40.7
Epicenter:	19.33 N., 155.20 W.
Depth:	10 km
Magnitude:	3.7ML(H)
<u>Intensity III:</u>	Hilo, Volcano.

Table 2.--Summary of macroseismic data for U. S. earthquakes,
April-June 1982--Continued

HAWAII--continued	
17 April (H) Island of Hawaii	
Origin time:	11 20 50.7
Epicenter:	19.42 N., 155.28 W.
Depth:	1 km
Magnitude:	3.9ML(H)
<u>Intensity V:</u>	Hawaiian Volcanoes National Park.
<u>Intensity IV:</u>	Volcano.
19 April (H) Island of Hawaii	
Origin time:	12 23 55.9
Epicenter:	19.35 N., 155.08 W.
Depth:	9 km
Magnitude:	3.8ML(H)
<u>Intensity IV:</u>	Glenwood.
<u>Intensity III:</u>	Hilo.
19 April (H) Island of Hawaii	
Origin time:	13 02 00.7
Epicenter:	19.34 N., 155.07 W.
Depth:	9 km
Magnitude:	3.9ML(H)
<u>Intensity IV:</u>	Glenwood.
<u>Intensity III:</u>	Hilo.
28 April (H) Island of Hawaii	
Origin time:	06 23 01.4
Epicenter:	19.34 N., 155.06 W.
Depth:	9 km
Magnitude:	3.4ML(H)
<u>Intensity III:</u>	Mountain View.
<u>Intensity II:</u>	Volcano.
30 April (H) Island of Hawaii	
Origin time:	18 48 52.7
Epicenter:	19.36 N., 155.08 W.
Depth:	9 km
Magnitude:	3.4ML(H)
<u>Intensity II:</u>	Hilo.
1 May Island of Oahu	
Origin time:	17 20
Epicenter:	Not located.
Depth:	None computed.
Magnitude:	None computed.
<u>Intensity IV:</u>	Wheeler AFB.
<u>Intensity II:</u>	Hickman AFB.
4 May (H) Island of Hawaii	
Origin time:	17 29 42.6
Epicenter:	19.32 N., 155.22 W.
Depth:	10 km
Magnitude:	3.6ML(H)
<u>Intensity III:</u>	Mountain View, Volcano.
<u>Intensity II:</u>	Hilo, Wood Valley.

Table 2.—Summary of macroseismic data for U. S. earthquakes,
April-June 1982--Continued

HAWAII--Continued	
10 May (H) Island of Hawaii	
Origin time:	20 47 27.2
Epicenter:	19.18 N., 155.60 W.
Depth:	10 km
Magnitude:	3.9ML(H)
Intensity IV:	Ka'u areas.
Intensity III:	Kona.
14 May (H) Island of Hawaii	
Origin time:	16 26 31.7
Epicenter:	20.00 N., 155.87 W.
Depth:	20 km
Magnitude:	4.5mb(G), 4.8ML(H)
This earthquake was felt throughout the Island of Hawaii and on parts of Maui.	
Intensity V:	Kamuela, Kawaihae, Kohala.
Intensity IV:	Hilo, Honokaa, Kailua-Kona, North Kona, Hale Pohaku-Maunakea.
Intensity III:	Honaunau-Kona, Pahala, Puna, South Kona, Volcano.
15 May (H) Island of Hawaii	
Origin time:	15 09 46.2
Epicenter:	19.29 N., 155.23 W.
Depth:	11 km
Magnitude:	3.1ML(H)
Intensity III:	Hilo.
19 May (H) Island of Hawaii	
Origin time:	03 36 19.8
Epicenter:	19.95 N., 156.43 W.
Depth:	1 km
Magnitude:	4.8mb(G), 3.7MS(G), 4.8ML(H)
Intensity V:	North Kona.
Intensity IV:	Ahualoa, Kamuela.
Intensity III:	Hilo, Honokaa, South Kona, Volcano.
Intensity II:	Island of Maui.
6 June (H) Island of Hawaii	
Origin time:	18 39 30.9
Epicenter:	20.15 N., 155.78 W.
Depth:	27 km
Magnitude:	3.0ML(H)
Intensity II:	Waimea.
10 June (H) Island of Hawaii	
Origin time:	12 16 55.7
Epicenter:	19.34 N., 155.22 W.
Depth:	10 km
Magnitude:	3.1ML(H)
Intensity II:	Volcano.

Table 2.—Summary of macroseismic data for U. S. earthquakes,
April-June 1982--Continued

HAWAII--continued	
21 June (H) Island of Hawaii	
Origin time:	16 04 14.8
Epicenter:	19.36 N., 155.25 W.
Depth:	10 km
Magnitude:	3.4ML(H)
Intensity III:	Hilo, Volcano.
IDAHO	
8 June (G) Western Idaho	
Origin time:	22 47 46.4
Epicenter:	44.59 N., 115.15 W.
Depth:	5 km
Magnitude:	3.7MD(D), 3.7ML(G)
Intensity III:	Lowman.
MAINE	
11 April (O) New Brunswick, Canada	
Origin time:	18 00 51.4
Epicenter:	47.00 N., 66.60 W.
Depth:	5 km
Magnitude:	4.0Mn(G)
Intensity III:	Caribou, Limestone.
Intensity II:	Easton, Van Buren.
16 June (O) New Brunswick, Canada	
Origin time:	11 43 30.0
Epicenter:	46.97 N., 66.99 W.
Depth:	5 km
Magnitude:	4.7mb(G), 4.6Mn(O)
The epicenter was located near the New Brunswick lumbering community of Plaster Rock. The shock is one of the larger of more than 1800 aftershocks which have occurred since the January 9, 1982 earth- quake.	
Intensity IV:	Blaine, Bridgewater, Caribou, Dennysville, Easton, Fort Fairfield, Mon- ticello, Saint Francis, Stockholm (hanging pictures were swung out of place), West- field.
Intensity III:	Ashland, Crouseville, Grand Isle, Houlton, Lile, Limestone, Loring AFB, Medway, Millinocket, New Limerick, New Sweden, North Amity, Perham, Sheridan, Smyrna Mills, Solider Pond, Upper French- ville, Vanceboro, Waite.
Intensity II:	Calais, Presque Isle (press report), Robbinston, Saint Agatha, Tops- field.
Felt:	Fort Kent, Saint David.

Table 2.--Summary of macroseismic data for U. S. earthquakes,
April-June 1982--Continued

MONTANA	
15 May (G) Western Montana	
Origin time:	19 28 19.1
Epicenter:	47.01 N., 112.98 W.
Depth:	5 km
Magnitude:	3.3ML(G)
<u>Intensity IV:</u>	Helmville.
<u>Intensity III:</u>	Ovando.
NEVADA	
15 April (B) California-Nevada border region	
Origin time:	21 52 08.6
Epicenter:	38.03 N., 118.50 W.
Depth:	20 km
Magnitude:	4.5mb(G), 5.1ML(B)
<u>Intensity IV:</u>	
California--El Portal, Lee Vining.	
Nevada--Goldfield.	
<u>Intensity III:</u>	
California--Benton, Bishop, Bridgeport,	
Merced, Independence.	
Nevada--Dyer, Hawthorne, Schurz, Yering-	
ton.	
<u>Felt:</u>	
California--Fish Camp, Shaver Lake.	
17 April (E) Southern Nevada	
Origin time:	18 00 00.088
Epicenter:	37.02 N., 116.01 W.
Depth:	0 km
Magnitude:	4.5mb(G), 4.4ML(B)
Nevada Test Site explosion "TENAJA" at	
37°01'00.54" N., 116°00'35.53" W., surface	
elevation 1210 m, depth of burial 357 m.	
25 April (E) Southern Nevada	
Origin time:	18 05 00.084
Epicenter:	37.26 N., 116.42 W.
Depth:	0 km
Magnitude:	5.4mb(G), 5.4ML(B)
Nevada Test Site explosion "GIBNE" at	
37°15'21.03" N., 116°25'20.50" W., surface	
elevation 1964 m, depth of burial 570 m.	
6 May (E) Southern Nevada	
Origin time:	20 00 00.083
Epicenter:	37.12 N., 116.13 W.
Depth:	0 km
Magnitude:	4.3mb(G), 4.4ML(B)
Nevada Test Site explosion "KRYDDOST" at	
37°07'00.62" N., 116°07'36.86" W., surface	
elevation 1390 m, depth of burial 335 m.	

Table 2.--Summary of macroseismic data for U. S. earthquakes,
April June 1982--Continued

NEVADA--Continued	
7 May (E) Southern Nevada	
Origin time:	18 17 00.110
Epicenter:	37.07 N., 116.04 W.
Depth:	0 km
Magnitude:	5.7mb(G), 4.2MS(G), 5.4ML(B), 5.6ML(P)
Nevada Test Site explosion "BOUSCHET" at	
37°04'08.62" N., 116°02'43.67" W., surface	
elevation 1244 m, depth of burial 564 m.	
1 June (G) Southern Nevada	
Origin time:	11 02 01.0
Epicenter:	36.00 N., 114.82 W.
Depth:	0 km
Magnitude:	2.6ML(G)
<u>Intensity IV:</u>	Boulder City.
4 June (B) Owens Valley area	
Origin time:	16 41 48.3
See California listing.	
5 June (B) Lake Tahoe area	
Origin time:	09 54 24.1
See California listing.	
16 June (E) Southern Nevada	
Origin time:	14 00 00.849
Epicenter:	37.11 N., 116.02 W.
Depth:	0 km
Magnitude:	4.3ML(B)
Nevada Test Site explosion "KESTI" at	
37°06'51.22" N., 116°00'59.68" W., surface	
elevation 1338 m, depth of burial 289 m.	
24 June (E) Southern Nevada	
Origin time:	14 15 00.090
Epicenter:	37.24 N., 116.37 W.
Depth:	0 km
Magnitude:	5.6mb(G), 4.5MS(G), 5.6ML(B)
Nevada Test Site explosion "NEBBIOLO" at	
37°14'10.38" N., 116°22'12.63" W., surface	
elevation 2065 m, depth of burial 640 m.	
NEW JERSEY	
12 April (G) Western New Jersey	
Origin time:	22 14 31.0
Epicenter:	40.02 N., 74.81 W.
Depth:	5 km
Magnitude:	2.8Mn(L)

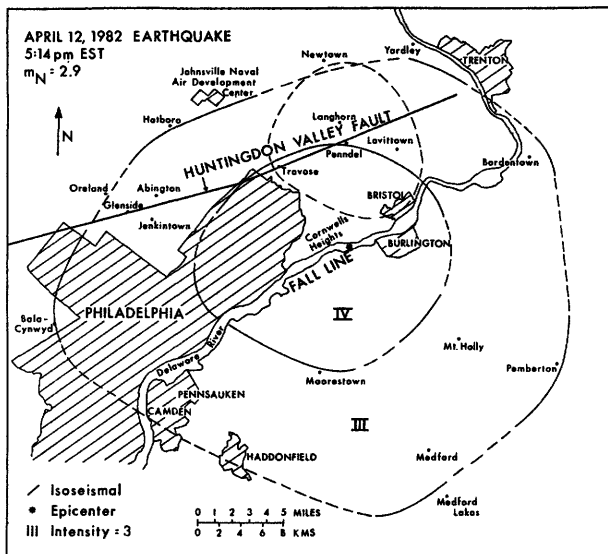


FIGURE 8.--Isoseismal map for the western New Jersey earthquake of 12 April 1982, 22 14 31.0 UTC. Roman numerals represent Modified Mercalli intensities between isoseismals (provided by R. Bischke, Temple University).

Table 2.--Summary of macroseismic data for U. S. earthquakes, April-June 1982--Continued

NEW JERSEY--Continued

Felt in Burlington, Camden, and Mercer Counties, New Jersey and in Bucks and Montgomery Counties, Pennsylvania (fig.8).

Intensity V:

New Jersey

Hainesport--hanging pictures fell, many glassware and dishes were broken.

Maple Shade--few merchandise items were thrown from store shelves, few small objects were overturned and fell, few glassware and dishes were broken.

Pennsylvania

Croyden--few windows were cracked, few small objects were overturned and fell, water was splashed onto sides of lakes, ponds, or swimming pools.

Intensity IV:

New Jersey--Bordentown, Magnolia, Pemberton, Rancocas, Riverton, Roebing.

Pennsylvania--Bensalem, Langhorne, Levittown.

Intensity III:

New Jersey--Beverly, Jobstown, Juliustown, Kirkwood, Marlton, Medford, Moorestown, Mount Holly, Palmyra, Riverside, Wil-
lingboro.

Table 2.--Summary of macroseismic data for U. S. earthquakes, April-June 1982--Continued

NEW JERSEY--Continued

Pennsylvania--Bryn Athyn, Cheltenham, Wyn-
cote.

Intensity II:

Pennsylvania--Jenkintown, Minisinic Hills.

Felt:

New Jersey--Lumberton.

NEW MEXICO

18 May (G) Western New Mexico

Origin time: 06 00 08.5

Epicenter: 34.17 N., 106.95 W.

Depth: 9 km

Magnitude: 2.8ML(G)

Intensity IV: Socorro (press report).

18 May (G) Western New Mexico

Origin time: 06 08 38.4

Epicenter: 34.20 N., 106.90 W.

Depth: 6 km

Magnitude: 2.8ML(G)

Intensity IV: Socorro (press report).

24 May (G) Western New Mexico

Origin time: 06 32 51.7

Epicenter: 34.17 N., 106.95 W.

Depth: 6 km

Magnitude: 2.9ML(G)

Felt at Socorro (telephone report).

31 May (G) Northwestern New Mexico

Origin time: 09 37 08.5

Epicenter: 35.10 N., 106.80 W.

Depth: 6 km

Magnitude: 2.0ML(G)

Intensity IV: West Mesa section of Albu-
querque (press report).

OKLAHOMA

3 May (T) Southern Oklahoma

Origin time: 07 54 50.0

Epicenter: 34.07 N., 96.38 W.

Depth: 5 km

Magnitude: 3.0Mn(T)

Intensity V: Durant (T).

Table 2.—Summary of macroseismic data for U. S. earthquakes,
April-June 1982--Continued

PENNSYLVANIA	
12 April (G) Western New Jersey	
Origin time: 22 14 31.0	
See New Jersey listing.	
12 May Eastern Pennsylvania	
Origin time: 17 01	
Epicenter: Not located	
Depth: None computed	
Magnitude: None computed	
Felt in the Northampton and Upper Southampton Townships near Philadelphia (press report). R. Bischke, Temple University, reported a felt area extending from Bristol north to Newtown and from Trevoise east to Levittown.	
12 May (Y) Southeastern Pennsylvania	
Origin time: 18 29 33.0	
Epicenter: 40.41 N., 77.96 W.	
Depth: 0 km	
Magnitude: 3.0MD(Y)	
Explosion set off by the Pennsylvania Sand Corporation near Mt. Union, Pennsylvania. Computed origin time.	

SOUTH CAROLINA	
13 April (G) Central South Carolina	
Origin time: 09 25 19.0	
Epicenter: 34.29 N., 81.38 W.	
Depth: 5 km	
Magnitude: 2.7Mn(G)	
Intensity III: Jenkinsville, Little Mountain.	

TENNESSEE	
17 April (K) Western Tennessee	
Origin time: 01 22 54.9	
Epicenter: 35.91 N., 89.06 W.	
Depth: 5 km	
Magnitude: 2.8Mn(G), 2.8MD(K)	
Intensity IV: Dyer (press report).	
1 May (K) Western Tennessee	
Origin time: 13 05 28.0	
Epicenter: 35.63 N., 89.73 W.	
Depth: 12 km	
Magnitude: 2.8MD(K)	
Felt at Garland (K).	

Table 2.—Summary of macroseismic data for U. S. earthquakes,
April-June 1982--Continued

TENNESSEE--Continued	
6 May (K) Western Tennessee	
Origin time: 02 56 08.3	
Epicenter: 36.33 N., 89.47 W.	
Depth: 6 km	
Magnitude: 1.2MD(K)	
Felt at Ridgely (K).	
2 June (K) Western Tennessee	
Origin time: 11 55 45.4	
Epicenter: 36.46 N., 89.54 W.	
Depth: 1 km	
Magnitude: 2.6MD(K)	
Felt at Ridgely (K).	

UTAH	
24 May (U) Southwestern Utah	
Origin time: 12 13 27.0	
Epicenter: 38.71 N., 112.04 W.	
Depth: 9 km	
Magnitude: 4.7mb(G), 4.0ML(U)	

This earthquake was felt principally in the Sevier Valley between Aurora, 16 miles northeast of the epicenter, and Joseph, 11 miles southwest of the epicenter. A field investigation conducted by Bruce N. Kaliser of the Utah Geological and Mineral Survey indicated minor building damage was observed in Annabella, Central, Elsinore, Glenwood, Monroe, and Sigurd. The bulk of the building damage was in Annabella, Elsinore, and Monroe. This was the strongest earthquake to occur in this area since the one on October 4, 1967.

Intensity VI:

Anabella--bricks fell from several fireplace chimneys (press report), hanging pictures fell, many small objects were overturned and fell, many glassware and dishes were broken, heavy and light furniture or appliances were overturned, stone or brick fences fell or exhibited open cracks. A double-car garage roof was shifted 1 inch to the north, the south and west walls were cracked and bowed outward in the upper half, window separation in the north wall was about 1 1/2 inches (press report). In many homes, television appliances and stereo units were turned on and required unplugging to turn units off (press report).

Table 2.--Summary of macroseismic data for U. S. earthquakes,
April-June 1982--Continued

UTAH--Continued
Central--objects on shelves were tipped over (press report).
Elsinore--interior wall was separated from ceiling or floor, few merchandise items were thrown from store shelves, few small objects were overturned and fell, few glassware and dishes were broken.
Glenwood--chimney bricks fell, hairline cracks in plaster or stucco interior walls, light furniture or small appliances were overturned, few small objects were overturned and fell, hanging pictures were swung out of place.
Monroe--several windows were broken (press report), three water lines leaked (press report), few small objects were overturned.
Sigurd--objects on shelves were tipped over, a person in a field leaning over an irrigation line was pitched to the ground (press report).
<u>Intensity V:</u>
Koosharem--few windows were cracked, few small objects were overturned and fell, few glassware and dishes were broken, hairline cracks in plaster or stucco interior walls.
<u>Intensity IV:</u> Aurora, Manti, Richfield.
<u>Intensity III:</u> Greenwich, Mayfield.
<u>Intensity II:</u> Cedar City.
<u>Felt:</u> Joseph and Salt Lake City (all press reports).

VIRGINIA

- 6 May (V) Eastern Virginia
 Origin time: 07 18 10.9
 Epicenter: 37.85 N., 77.58 W.
 Depth: 10 km
 Magnitude: 2.0MD(V)
Intensity II: Montpelier.
- 16 June (V) Central Virginia
 Origin time: 18 40 58.6
 Epicenter: 38.13 N., 78.84 W.
 Depth: 11 km
 Magnitude: 2.1MD(V)
Intensity II: Fishersville.

WASHINGTON

- 14 April (W) Puget Sound area
 Origin time: 07 22 43.4
 Epicenter: 47.65 N., 122.52 W.

Table 2.--Summary of macroseismic data for U. S. earthquakes,
April-June 1982--Continued

WASHINGTON--Continued
Depth: 26 km
Magnitude: 3.1ML(G)
<u>Intensity IV:</u> Bainbridge Island (press report), Ballard (press report), Bremerton, Magnolia (press report), North Kitsap, Olalla, Port Gamble, Port Orchard, Seattle, South Kitsap (press report).
<u>Intensity III:</u> Dockton, Quilcene, Wauna.
<u>Intensity II:</u> Monroe.
<u>Felt:</u> Lake City, Port Angeles (all press reports), Queen Anne.
31 May (W) Southwestern Washington
Origin time: 05 10 40.9
Epicenter: 46.35 N., 122.23 W.
Depth: 11 km
Magnitude: 2.7MD(W)
Felt at Glenoma and Randle (W).
4 June (W) Puget Sound area
Origin time: 07 44 55.8
Epicenter: 47.71 N., 122.09 W.
Depth: 7 km
Magnitude: 2.9MD(W), 2.5ML(G)
<u>Intensity IV:</u> Kirkland, Redmond, Woodenville (all press reports).
4 June (W) Puget Sound area
Origin time: 16 10 34.1
Epicenter: 47.71 N., 122.12 W.
Depth: 6 km
Magnitude: 3.1MD(W), 2.6ML(G)
<u>Intensity IV:</u> Bothell and Redmond (press reports).

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- CALIFORNIA: Clarence R. Allen, Seismological Laboratory, California Institute of Technology, Pasadena.
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- CANADA: Staff of Earth Physics Branch, Seismological Service of Canada, Ottawa.

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- MONTANA:** Anthony Qamar, University of Montana, Missoula.
- NEW YORK:** Lynn R. Sykes and Alan L. Kafka, Lamont-Doherty Geological Observatory, Columbia University, Palisades.
- OKLAHOMA:** James E. Lawson, Jr., Oklahoma Geophysical Observatory, Oklahoma Geological Survey, Leonard.
- PENNSYLVANIA:** Shelton Alexander, Pennsylvania State University, University Park.
- TENNESSEE:** A. Johnson, Tennessee Earthquake Information Center, Memphis State University, Memphis.
- UTAH:** Department of Geology and Geophysics, University of Utah, Salt Lake City.
- VIRGINIA:** G. A. Bollinger, Department of Geological Sciences, Virginia Polytechnic Institute and State University, Blacksburg.
- WASHINGTON:** Robert S. Crosson, Geophysics Program, University of Washington, Seattle.

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