

EARTHQUAKE DATA FILE SUMMARY

KEY TO GEOPHYSICAL RECORDS DOCUMENTATION NO. 5



U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
ENVIRONMENTAL DATA SERVICE
NATIONAL GEOPHYSICAL AND SOLAR-TERRESTRIAL DATA CENTER
BOULDER, COLORADO
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COVER: Epicenters for the period 1961-1973 are plotted on a Mercator projection. All earthquake locations were determined using observations from 10 or more seismograph stations.



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**National Geophysical and Solar—Terrestrial Data Center
Boulder, Colorado
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INTRODUCTION

The Earthquake Data File is a magnetic tape file of earthquake origin times, locations, magnitudes, and related information on effects that have been compiled from many sources. It is a useful tool for providing searches of the seismicity of selected regions, for preparing lists of earthquakes of given characteristics (large magnitude, intensity, tsunami, etc.), for plotting maps, and for making statistical studies. It is a growing file, and new earthquake catalogs are added as quickly as they become available in machine-readable form. This publication is intended to describe the file in its present state of development, to provide documentation to users of the data, and to provide tabular summaries of the data in the file.

GENERAL DESCRIPTION OF FILE

The Earthquake Data File (sometimes called Hypocenter Data File) contains information on approximately 116,000 earthquakes for the period June 11, 1638, through December 31, 1974. The file includes for each event the date, origin time, geographic location, focal depth, magnitude, and intensity when available. It contains additional information on the source of the data, quality factors, associated phenomena (tsunami, volcanism, faulting, etc.), and seismic region number. In addition to earthquakes, the file contains about 500 phenomena that have surface effects similar to earthquakes, including known or suspected explosions and associated collapse phenomena, coal bumps, rockbursts, quarry blasts, and other earth disturbances. At present, data for the 1638-1899 period are practically limited to earthquakes in the United States, a few hundred in number, which had a maximum intensity of V or greater.

A number of data fields for some events are unfilled because the information is not available. Information on cultural effects, intensity, and other phenomena associated with the event has been included for earthquakes in the United States. This information has sometimes been entered for non-U.S. earthquakes, particularly since May 1968, although significant gaps still exist. Reference to the *Preliminary Determination of Epicenters* (PDE) reports*, the annual *United States Earthquakes* publications of NOAA-USGS, or the original source is recommended where more detail is needed. Additional bibliographic references to catalogs can be provided on request.

*The PDE Program was initiated in 1937 by the Coast and Geodetic Survey and continued by successor agencies--the National Ocean Survey and Environmental Research Laboratories--both of which are components of the National Oceanic and Atmospheric Administration. Since 1973, the program has been conducted by the U.S. Geological Survey.

The quality of epicenter determinations varies significantly with the time period studied. Before 1900 locations are usually noninstrumentally determined and are given as the center of the macroseismic effects. Most instrumental epicenters prior to 1961, excluding local earthquakes in California, were located to the nearest $\frac{1}{4}^{\circ}$ or $\frac{1}{2}^{\circ}$ of latitude and longitude. Reliable information on the quality of many epicenter determinations is lacking. Beginning in 1960, epicenters have been determined by computer and the accuracy is generally better. However, although stated to tenths or hundredths of a degree, the location accuracy is usually a few tenths of a degree. Since May 1968, the latitude and longitude values for most events have been listed to three decimal places. This precision is not intended to reflect the accuracy of the location of events except for local California earthquakes and special epicenter determinations. Where several sources have determined an epicenter for the same earthquake, one solution has been designated as the most reliable. Usually it is the source believed to contain the best data set for the earthquake. In some cases, data from two sources were combined to provide a more complete record.

Magnitudes from a number of different sources are included in the Earthquake Data File. Gutenberg and Richter (1954) and Richter (1958) discuss the development of the magnitude scale. Many magnitudes published by Gutenberg and Richter (1954) were later revised by Richter (1958). The revised magnitudes are used in the file even though the source is identified as Gutenberg and Richter (1954). The concept of earthquake magnitude is not restricted to one value. Several definitions are possible, depending on which seismic waves are measured. Three different magnitude scales, BODY WAVE (MB), SURFACE WAVE (MS), and LOCAL (ML), are distinguished in this file. In addition another data field, OTHER MAGNITUDE, has been included when it was unclear which scale was used. Richter (1958) and other modern seismology references provide detailed discussions of this topic. The different scales do not give exactly comparable results, and different values frequently are given for the same earthquake. It is common practice to average the individual magnitudes from each station to get a more uniform value within each scale (MB, MS, and to a lesser extent ML).

In general, the file contains earthquakes of magnitude 4.0 or less only for the United States region and for areas within dense seismic station networks. However, no claim is made for the statistical homogeneity of these events. Inclusion of earthquakes of magnitude 4.0 to 5.0 also is influenced by the proximity of seismic stations to the source or epicenter.

A maximum intensity is listed for many of the earthquakes. Each is assigned according to the Modified Mercalli Intensity Scale of 1931 (Wood and Neumann, 1931). Some of these values have been converted from reported intensities on other scales. An abridged version of the Modified Mercalli Intensity Scale of 1931 (MM) and a comparison of ratings on the Japanese, Rossi-Forel, and European (Mercalli-Cancani-Sieberg) scales are included in appendix 5.

DATA AVAILABILITY

The data file is available on magnetic tape, computer printout, and microfilm in 1) a chronological sort; 2) a geographical sort according to 10° Marsden Squares (see appendix 6); and 3) sorted by Flinn-Engdahl regions (see appendix 7). The file also can provide selected data for specific geographic areas or for any magnitude range or time period within the limits of the file (see tables 1 and 4 and "Data Formats" section). Special seismicity plots from the data file can be furnished upon request (see cover illustration and world chart on p. 4).

SUMMARY OF FILE CONTENTS

Table 2 gives the annual number of earthquakes from 1638 to 1974 by magnitude (<3.5, 3.5-3.9, 4.0-4.4... 8.5-8.9) and depth (0-70 km, 71-300 km, 301+ km). Magnitudes are first given in 1897 and depth data begin in 1899, marking the end of the preinstrumental era. The total number of events per year shows a significant increase in 1932 and 1949 and another sharp increase since 1960. These increases represent improvements in seismic instrumentation, reporting procedures, and location techniques rather than a real increase in earthquake occurrences. The seismic magnitude scale was developed for earthquakes in southern California by Prof. Charles F. Richter, California Institute of Technology, Pasadena, in the early 1930's. Later work extended the scale to earthquakes at greater distances and to earthquakes originating at focal depths in excess of 25 km. Magnitudes for the largest shocks dating back to 1897 were calculated using amplitude data from available seismograms.

Table 3 summarizes the data by magnitude for 10° Marsden Squares that contain one or more earthquakes. Known nontectonic events are counted separately, although included in the total. Also, the maximum magnitude for each 10° Marsden Square is listed. A geographical index to Marsden Squares is contained in appendix 6.

TYPICAL SEARCHES OF FILE

The file is used principally for searches by such parameters as time, geographical location, maximum intensity, or magnitude. The illustration on page 4, a plot of the epicenters of worldwide earthquakes which occurred in 1974, shows the results of a combined time-location search. A more localized search (table 1) lists all epicenters in the file within an 80-km radius of Boulder, Colo., with all pertinent data on each of the 42 earthquakes.

The file also can be searched for earthquakes in a given magnitude range. Table 4 is an example, giving in chronological order all earthquakes of magnitude 7.5 or greater.

Searches of the file are made by NGSDC on request, or users can obtain the file on magnetic tape and do their own searches.

FIGURE 1

World Seismicity and Volcanic Activity in the year 1974

Produced by NOAA/EDS/National Geophysical and Solar-Terrestrial Data Center
with earthquake epicenter data furnished by U.S. Geological Survey and
volcanic data by The Center for Short-Lived Phenomena



DATA FORMATS

The formats of data in the file are explained in appendices 1 (Magnetic Tape), 2 (Punched Cards), and 3 (Printouts). The basic file is on magnetic tape; other formats are cross-referenced to the tape format. Explanations of detailed codes (data sources, intensity, Marsden Square numbers, and Flinn-Engdahl regions) are given in appendices 4, 5, 6, and 7, respectively.

Punched cards are used to update the magnetic tape file. The card format contains the same information except for the Marsden Square number. These updates are available on a regular monthly schedule in the punched card format.

The printout format is used to present the results of many kinds of searches of the file. Tables 1 and 4 are examples.

SOURCES OF DATA

Sources of listings in the Earthquake Data File are summarized below. The source is indicated for each entry by a 2- or 3-character code or abbreviation; these are identified in the list in appendix 4. The original source should be acknowledged in studies using large blocks of data from the file.

Preliminary Determination of Epicenters

The principal data source, which includes some 80,000 earthquakes, is the *Preliminary Determination of Epicenters* (PDE) program. This is a systematic, continuing activity initiated in 1937 by the U.S. Coast and Geodetic Survey and conducted since 1973 by the U.S. Geological Survey. The epicenters are computed from arrival-time information provided by at least several of the 400 or so cooperating seismograph stations of the global network. These stations are operated by USGS, NOAA, other government agencies, colleges and universities, and many foreign institutions; many of them are part of the Worldwide Network of Standard Seismographs (WWNSS).

The source is not identified by "PDE" in the file, but by the name of the organization operating the PDE program: Coast and Geodetic Survey (CGS), prior to 1970; National Ocean Survey (NOS), 1970 to 1971; Environmental Research Laboratories (ERL), 1971 to 1973; and Geological Survey (GS), 1973 onward.

Prior to 1960, epicenters were located with an accuracy of about $\frac{1}{2}^\circ$ in latitude and longitude and ± 25 km in depth. Shallow-focus epicenters were assumed to be 25 km or 33 km deep, depending on the travel-time tables used in the computation.

Table 1. Sample geographical search of data file*

RADIUS SEARCH FOR CVH 80KM AROUND 40.02N, 105.28W

SOURCE	YEAR	MO	DA	HR	MN	SEC	LAT	LONG	DEPTH (KM)	-----MAGNITUDES-----				INT MAP	INT MAX	PHENOM OTSVNO	RN	CE	Q/S	MAR	DG	DIST (KM)
										BODY	SURF.	OTHER	LOCAL									
EQH	1882	11	08	01	30	00.02	40.000N	105.000W							V		479	F		155	05	24
CGS	1962	12	04	17	49	59.4	39.800N	104.700W	033			3.50			VI		479	D	012	119	94	55
CGS	1962	12	05	13	48	00.4	39.900N	104.600W	033			4.00PAS					479	D	015	119	94	59
CGS	1963	01	30	23	05	09.6	39.800N	104.600W	033								479	F	005	119	94	63
CGS	1963	04	08	00	03	57.1	39.900N	104.800W	020								479		009	119	94	43
CGS	1963	04	24	22	29	34.4	39.800N	104.700W	020								479	F	009	119	94	55
CGS	1963	05	25	10	44	36.7	39.800N	104.700W	010						V		479	F	016	119	94	55
CGS	1963	07	02	08	02	56.3	39.800N	104.600W	033	4.60MB				V			479	F	019	119	94	63
CGS	1964	08	04	11	13	25.2	39.700N	106.000W	033	4.00MB							479		008	119	96	71
CGS	1965	02	16	20	17	53.5	39.900N	105.100W	005	4.60MB				IV			479	F	006	119	95	20
CGS	1965	02	16	22	21	43.7	39.900N	105.100W	005	4.90MB				VI			479	D	006	119	95	27
CGS	1965	07	18	21	40	44.7	39.800N	104.800W	005	4.60MB				V			479	D	006	119	94	47
CGS	1965	07	31	13	41	42.8	39.700N	104.900W	005	4.60MB				V			479	F	005	119	94	48
CGS	1965	09	13	09	58	17.9	39.800N	104.800W	005	4.50MB				V			479	F	013	119	94	47
CGS	1965	09	14	16	36	46.8	39.800N	104.800W	005	4.70MB							479	F	006	119	94	47
CGS	1965	09	14	22	46	24.1	39.900N	104.600W	005	4.70MB				VI			479	D	015	119	94	59
CGS	1965	09	14	23	16	10.4	39.500N	104.900W	005	4.80MB							479	F	005	119	94	66
CGS	1965	09	29	18	59	56.1	39.800N	105.100W	005	4.70MB				VI			479	D	011	119	95	28
CGS	1965	09	29	19	20	40.8	39.800N	104.800W	005	4.60MB				V			479	F	005	119	94	47
CGS	1965	09	29	23	22	58.0	39.800N	104.800W	005	4.60MB				IV			479	F	005	119	94	47
CGS	1965	11	21	03	59	58.9	39.800N	104.800W	005	4.60MB							479	F	006	119	94	47
CGS	1965	11	21	04	02	28.7	39.800N	104.800W	005	4.50MB				VI			479	C	011	119	94	47
CGS	1965	11	21	04	24	48.5	39.900N	104.700W	005	4.40MB							479	F	005	119	94	51
CGS	1965	11	21	05	00	27.3	39.800N	104.900W	005	4.70MB							479	F	007	119	94	40
CGS	1966	01	02	00	13	41.8	39.900N	104.800W	005			2.10GOL		III			479	F	005	119	94	43
CGS	1966	01	05	00	37	17.8	39.800N	104.700W	005	5.00MB				V			479	F	013	119	94	55
CGS	1966	11	14	20	02	35.9	39.900N	104.700W	005	4.10MB				VI			479	D	011	119	94	51
CGS	1967	02	03	05	27	58.3	39.872N	104.794W	011	4.30MB							479	F	008	119	94	44
CGS	1967	04	10	19	00	25.5	39.941N	104.752W	005G	4.90MB				VI			479	D	034	119	94	45
CGS	1967	04	10	19	36	38.0*	39.890N	104.768W	005G	4.40MB			3.50MLGOL	III			479	F	006	119	94	46
CGS	1967	04	10	20	11	14.6-	39.858N	104.913W	005G					III			479	F	006	119	94	36
CGS	1967	04	10	23	58	40.8	39.923N	104.791W	005G	4.30MB							479	F	010	119	94	43
CGS	1967	04	27	17	24	42.3	39.911N	104.769W	005G	4.50MB			3.80MLGOL	VI			479	D	011	119	94	45
USE	1967	06	19	15	39	22.0	39.900N	104.800W	005			2.90		IV			479	F	005	119	94	43
USE	1967	08	09	13	25	06.2	39.900N	104.700W	005	5.30MB				VII			479	D	043	119	94	51
USE	1967	11	15	07	10	12.1	39.900N	104.600W	005	3.70MB				V			479	D	011	119	94	59
USE	1967	11	27	05	09	22.7	40.000N	104.700W	005	5.20MB				VI			479	D	041	155	04	49
CGS	1967	11	27	05	35	00.7	39.900N	104.700W	005	4.40MB							479		016	119	94	51
CGS	1967	11	27	05	42	53.3	39.900N	104.900W	005								479		005	119	94	35
USE	1968	07	15	18	33	12.1	39.900N	104.800W	005G			3.40		V			479	D	007	119	94	43
USE	1970	05	23	08	55	09.4	39.900N	105.100W	005G	4.10MB			3.20MLGOL	V			479	F	007	119	95	20
ERL	1971	08	08	05	22	44.0*	39.889N	104.764W	005G	4.40MB			3.80MLGOL				479	F	010	119	94	46

*See printout format (appendix 3) for explanation of headings and codes.

NOTE: Magnitude values generally are accurate to within 0.3 unit. Geographic positions prior to 1961 generally are accurate to $\frac{1}{4}$ or $\frac{1}{2}$ degree.

Since 1960, earthquake arrival times reported by cooperating stations are processed routinely by computer, with external control by a seismologist. Readings from a minimum of five seismograph stations are required for an acceptable solution or epicenter. These locations are published in initial and monthly PDE publications as soon as sufficient data have accumulated to insure a reasonable degree of accuracy. Most determinations are considered accurate to a few tenths of a degree in position and to 25 km in depth. (A complete description of the PDE computer program is provided by Engdahl and Gunst, 1966). Body-wave magnitudes (MB) have been routinely computed since April 1963. Surface-wave magnitudes (MS) have been computed as part of the PDE program since May 1968 whenever sufficient data are available. In general, these magnitudes represent an average of individual station values. Significant deviations from a computed average are deleted and a new mean value is then determined. The resultant values are probably accurate to within about 0.3 unit of magnitude.

Seismicity of the Earth and Associated Phenomena

Gutenberg and Richter (1954) describe the data tabulated in their classic reference, *Seismicity of the Earth and Associated Phenomena*. Approximately 900 epicenters for large earthquakes, covering the period 1899 through 1952, were added to the Earthquake Data File from this source.

Seismicity of the Southern California Region

Approximately 16,400 epicenters from the report by Hileman, et al (1973) have been incorporated in the Earthquake Data File. The data cover the period January 1, 1932, to December 31, 1972. The report is essentially a local bulletin summary for that period during which personnel of the California Institute of Technology's Seismological Laboratory (CIT) at Pasadena located earthquakes in the southern California region. Prior to 1961 epicentral locations were routinely determined by graphical methods, usually assuming a focal depth of 16 km. After 1961 all locations have been determined by computer techniques using least-squares methods. Many of the larger pre-1961 earthquakes have been relocated using the latest computer programs.

CIT epicenters within their local network generally are preferred over those published in the PDE and *United States Earthquakes* reports. They overlap with 2,400 epicenters from other sources and are designated as preferred.

Catalogue of Earthquakes in Northern California and Adjoining Areas

Approximately 10,400 earthquakes from the report by Bolt and Miller (1975) have been incorporated in the Earthquake Data File. The data cover the period January 1, 1910, to December 31, 1972. The report is

essentially a local bulletin summary for that period during which personnel of the University of California Seismographic Stations at Berkeley located earthquakes in northern California and adjoining areas. It incorporates modifications and additional observations that have been made since the time of publication of the original bulletins.

The University of California/Berkeley epicenters are preferred in the area of their network over approximately 2,900 epicenters originally published in the PDE and *United States Earthquakes* reports. Differences from earlier data of up to about 0.2° of latitude and longitude should be considered within normal limits of error.

Earthquake History of the United States

This summary of significant earthquakes, revised by Coffman and von Hake (1973), has provided most of the pre-1928 U.S. data now included in the Earthquake Data File. The geographic locations listed are given to the nearest tenth of a degree and usually represent the town where the highest intensity occurred. Prior to 1897, these locations should not be considered to be "epicenters," as instrumental data are not available for that period. Only those earthquakes for the period 1638-1928 (about 900) have been incorporated in the data file, because post-1927 data have been included from other, more detailed sources.

United States Earthquakes

Much of the "felt" data incorporated in the Earthquake Data File (including intensity, associated phenomena, and cultural effects) and some instrumental data have been extracted from the *United States Earthquakes* reports, published annually by the Coast and Geodetic Survey and successor organizations from 1928 through 1972 and jointly by NOAA/USGS thereafter.

Catalog of Earthquakes Along the San Andreas Fault System in Central California

A microearthquake network between Hollister and San Francisco has been operated since 1969 by the U.S. Geological Survey, Menlo Park, Calif. Approximately 14,500 epicenters have been determined for the period 1969-1973. These data will be included in the Earthquake Data File in the near future. A description of the original network is published in Eaton, et al (1970). A series of annual (through 1971) and quarterly (1972-73) catalogs have been published as "Open-File Reports" by the U.S. Geological Survey.

Other Sources

Additional sources utilized in developing the Earthquake Data File include monthly publications of the Bureau Central International de

Séismologie, Strasbourg, France, for the period 1950-61 and *The International Seismological Summary*, Kew, England, for 1950-59. Data from these sources for other time periods will be added to the file in the future.

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Table 2. Summary of data file by year and by magnitude and depth

YEAR	MAGNITUDES														TOTAL	DEPTHS (KM)			
	MAG	LESS	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	0		71	301	DEPTH	
	NOT	THAN	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO		TO	OR	NOT	
	GIVEN	3.5	3.9	4.4	4.9	5.4	5.9	6.4	6.9	7.4	7.9	8.4	8.9	70	300	MORE	GIVEN		
1638	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1643	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1663	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1727	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1732	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1737	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	
1741	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1744	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1755	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	
1758	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1774	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1786	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1788	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1791	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1792	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1793	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1794	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1795	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1796	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1802	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1804	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1805	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1810	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1811	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1812	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	
1817	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	
1818	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1820	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1824	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1826	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1827	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1835	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1836	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	
1838	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1840	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1841	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	
1843	6	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	6	
1844	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1847	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	
1852	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	
1853	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	
1854	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1855	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	
1857	4	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	
1858	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1859	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1860	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
1861	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	
1864	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	

Table 2 (Continued)

YEAR	MAGNITUDES														DEPTHS (KM)			
	MAG	LESS	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	TOTAL	0	71	301	DEPTH
	NOT	THAN	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO		TO	TO	OR	NOT
	GIVEN	3.5	3.9	4.4	4.9	5.4	5.9	6.4	6.9	7.4	7.9	8.4	8.9		70	300	MORE	GIVEN
1865	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
1866	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
1867	4	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
1868	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
1869	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
1870	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
1871	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
1872	8	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8
1873	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
1874	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
1875	6	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	6
1876	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
1877	5	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5
1878	4	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
1879	6	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	6
1880	7	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	7
1881	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
1882	7	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	7
1883	10	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	10
1884	6	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	6
1885	5	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5
1886	5	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5
1887	4	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
1889	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
1891	6	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	6
1892	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
1893	4	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
1894	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
1895	6	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	6
1896	5	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5
1897	8	0	0	0	0	0	0	0	0	0	4	4	4	20	0	0	0	20
1898	4	0	0	0	0	0	0	0	0	0	1	1	0	6	0	0	0	6
1899	6	0	0	0	0	0	0	0	0	0	6	2	1	15	2	0	0	13
1900	3	0	0	0	0	0	0	0	0	0	4	4	0	11	8	0	0	3
1901	6	0	0	0	0	0	0	0	0	0	6	2	0	14	8	0	0	6
1902	5	0	0	0	0	0	0	0	0	0	4	3	1	13	8	0	0	5
1903	10	0	0	0	0	0	0	0	0	0	3	5	0	18	5	2	1	10
1904	4	0	0	0	0	0	0	0	0	0	4	4	0	12	4	0	1	7
1905	8	0	0	0	0	0	0	0	1	2	4	2	2	19	5	4	2	8
1906	16	0	0	0	0	0	0	0	1	2	3	5	2	29	7	4	1	17
1907	7	0	0	0	0	0	0	0	5	5	4	2	0	23	3	8	4	8
1908	8	0	0	0	0	0	0	0	6	3	0	1	0	18	1	7	1	9
1909	11	0	0	0	0	0	0	0	6	7	3	2	0	29	1	12	1	15
1910	80	0	0	0	0	0	0	2	8	13	2	1	1	107	1	18	4	84
1911	54	0	0	0	0	0	1	2	12	9	6	1	2	87	7	16	4	60
1912	37	0	0	0	0	0	2	6	15	10	4	0	0	74	6	17	5	46
1913	33	0	0	0	0	0	4	4	5	5	2	2	0	55	4	11	0	40
1914	46	0	0	0	0	0	1	2	7	8	2	0	1	67	2	10	1	54
1915	64	0	0	0	0	0	1	3	10	7	4	1	0	90	3	8	3	76
1916	58	0	0	0	0	0	2	2	2	8	5	1	0	78	2	8	2	66

Table 2 (Continued)

YEAR	MAGNITUDES													TOTAL	DEPTHS (KM)			
	MAG NOT GIVEN	LESS THAN 3.5	3.5 TO 3.9	4.0 TO 4.4	4.5 TO 4.9	5.0 TO 5.4	5.5 TO 5.9	6.0 TO 6.4	6.5 TO 6.9	7.0 TO 7.4	7.5 TO 7.9	8.0 TO 8.4	8.5 TO 8.9		0 TO 70	71 TO 300	301 OR MORE	DEPTH NOT GIVEN
1917	56	0	0	0	0	0	0	0	2	2	2	1	2	65	2	2	1	60
1918	39	0	0	0	0	0	2	3	11	10	8	3	0	76	6	7	5	58
1919	43	0	0	0	0	0	1	4	6	11	1	3	0	69	5	7	0	57
1920	37	0	0	0	1	0	3	11	14	4	1	2	1	74	7	6	4	57
1921	27	0	0	0	0	0	6	12	6	6	4	1	0	62	3	9	3	47
1922	33	0	0	0	0	0	4	9	10	10	3	1	0	70	4	5	5	56
1923	29	0	0	0	0	0	15	12	13	19	2	2	0	92	8	4	3	77
1924	31	0	0	0	0	0	18	15	21	14	1	2	0	102	6	10	9	77
1925	34	0	0	0	0	0	10	23	28	15	2	0	0	112	12	12	5	83
1926	39	0	0	0	0	0	27	32	24	14	4	1	0	141	10	20	8	103
1927	38	0	0	0	0	2	28	37	34	14	1	1	0	155	16	22	9	108
1928	93	0	0	0	1	0	19	42	30	13	4	2	0	204	12	15	12	165
1929	118	0	0	0	0	1	38	38	29	12	4	1	1	242	10	16	5	211
1930	166	0	0	0	0	6	28	32	26	10	0	0	0	268	7	19	7	235
1931	123	0	0	2	1	5	76	82	50	18	7	1	0	365	10	37	13	305
1932	69	266	46	21	12	5	89	87	62	6	3	2	0	668	357	59	21	231
1933	73	126	93	107	30	21	89	107	56	9	2	0	1	714	400	51	20	243
1934	115	415	56	47	22	9	61	95	66	14	3	2	0	905	507	46	12	340
1935	57	448	92	54	17	10	36	81	32	17	4	1	0	879	619	42	19	199
1936	150	358	48	40	8	5	45	36	39	17	1	0	0	747	452	38	11	246
1937	170	223	52	32	12	7	27	44	32	17	3	1	0	620	325	49	13	233
1938	218	151	65	37	16	14	42	37	43	17	6	0	2	648	287	45	12	304
1939	234	199	66	39	24	15	81	43	33	15	2	2	1	743	327	60	15	341
1940	182	129	96	63	33	12	58	55	49	17	2	1	0	697	338	80	22	257
1941	165	135	67	49	15	13	73	67	42	18	3	1	1	649	290	62	13	284
1942	198	178	68	61	24	8	21	14	24	20	2	3	1	622	282	29	6	305
1943	174	151	71	39	13	1	19	18	35	29	9	2	0	561	224	42	6	289
1944	173	199	62	24	9	4	12	28	25	26	4	1	0	567	236	35	7	289
1945	210	190	43	25	5	9	6	12	25	25	1	1	0	552	213	34	11	294
1946	28	288	116	40	12	11	17	28	23	25	7	2	0	597	442	34	10	111
1947	32	444	81	43	15	11	8	11	12	23	3	0	0	683	520	16	7	140
1948	47	402	70	29	17	3	4	10	10	24	3	1	0	620	411	13	2	194
1949	388	490	114	33	21	6	6	20	38	30	5	1	0	1152	523	84	17	528
1950	824	808	118	59	31	7	31	49	63	25	4	3	1	2023	544	131	42	1306
1951	928	376	65	32	15	12	26	52	53	18	2	0	0	1579	391	189	36	963
1952	1416	338	112	150	68	27	46	65	64	12	3	1	1	2303	764	218	50	1271
1953	796	679	113	34	15	18	34	44	51	17	4	1	0	1806	709	73	24	1000
1954	923	543	139	154	59	48	52	58	67	11	0	0	0	2054	664	137	50	1203
1955	931	485	111	86	36	31	38	54	68	10	0	0	0	1850	427	126	62	1235
1956	943	484	87	85	130	95	65	86	51	11	4	0	0	2041	459	175	64	1303
1957	1513	579	90	50	41	93	72	79	75	18	9	2	0	2611	350	165	60	2036
1958	1700	428	80	57	54	73	86	84	60	5	4	0	1	2632	316	219	71	2026
1959	1961	507	118	106	72	100	94	70	66	9	2	1	0	3106	532	289	113	2172
1960	2510	419	84	64	50	119	126	87	79	13	1	0	1	3553	942	479	148	1984
1961	2768	760	245	192	219	203	196	102	51	10	3	0	0	4739	3357	831	202	349
1962	2284	323	105	41	42	27	14	29	31	12	0	0	0	2913	1956	604	173	180
1963	1291	381	292	1065	1057	489	183	57	5	1	0	0	0	4821	3484	860	269	208
1964	449	259	444	1350	1473	777	273	87	19	0	0	0	1	5132	3750	932	270	180
1965	422	313	416	1797	2040	1123	408	98	57	9	3	0	0	6686	5023	1124	359	180
1966	694	404	513	1594	1699	911	216	56	25	4	2	0	0	6108	4257	1200	313	338

Table 2 (Continued)

YEAR	MAGNITUDES														DEPTHS (KM)			
	MAG	LESS	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	TOTAL	0	71	301	DEPTH
	NOT	THAN	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO	TO		TC	TO	OR	NOT
	GIVEN	3.5	3.9	4.4	4.9	5.4	5.9	6.4	6.9	7.4	7.9	8.4	8.9		70	300	MORE	GIVEN
	----	----	----	----	----	----	----	----	----	----	----	----	----		----	----	----	----
1967	574	432	412	1478	1637	903	236	75	27	1	1	0	0	5776	4096	1213	270	197
1968	703	604	386	1539	1774	974	270	63	15	9	3	0	0	6340	4853	1035	259	193
1969	707	603	324	1201	1707	1034	264	74	26	14	3	1	0	5958	4434	1120	259	145
1970	306	620	195	349	1631	950	266	80	38	15	5	0	0	4958	3661	879	184	234
1971	506	807	295	803	1643	1065	276	78	35	13	6	1	0	5528	4191	927	204	206
1972	491	620	320	822	1529	1023	299	85	25	12	3	0	0	5229	3684	1062	229	254
1973	647	224	362	1009	1584	1038	299	65	30	6	7	0	0	5271	3885	1053	251	82
1974	457	207	316	941	1661	1052	260	69	30	12	2	0	0	5007	3671	1078	246	12
TOTAL	31022	16989	7051	16333	20575	12360	5100	2912	2139	867	249	95	29	115721	67388	17254	4551	26528

Table 3. Summary of data by 10° Marsden Squares and magnitude

MARSDEN SQUARE	NO MAGNITUDE	UNDER-5.0	5.0-5.4	5.5-5.9	6.0-6.4	6.5-6.9	7.0-7.4	7.5-7.9	8.0-8.4	8.5-8.9	NON-TECT	TOTAL	MAX
001		1				1						2	6.5
002	6	10	3	2	4	1						26	6.7
003	20	45	11	4	10	4						94	6.5
004	38	97	26	5	9	4	3					182	7.4
005	9	6		1								16	5.6
006	1	1										2	4.5
007	6	17	1	1	2	1						28	6.7
008	317	727	94	27	18	32	5	2				1222	7.9
009	331	284	37	20	34	30	6	2	1	1		746	8.9
010	18	58	6	9	4	1						96	6.5
011	11	65	6	7	3	1						93	6.6
012	2	1		1								4	5.6
013				2								2	5.8
018			1									1	5.2
021	5			1								6	5.5
022	1	11	2	1	1	2	3					21	7.2
023	16	9	10	5	2	1			1			44	8.1
024	689	489	772	228	80	69	41	12	5	3		2388	8.7
025	6	4	10	5	2	3	2					32	7.4
026	3	2	1	1		1						8	6.6
027	101	89	105	46	27	15	9	1				393	7.7
028	1		1	1	1							4	6.3
029	1			3	1		1					6	7.2
030	17	19	15	13	1	1						66	6.5
031	4	17	8		2							31	6.0
032	4	1										5	4.5
033	13	22	14	3	10	3	1					66	7.0
034		13	12			1						26	6.8
035	1				1							2	6.0
039	1	2			1							4	6.2
040	2	1										3	4.8
041	40	102	14	7	7	3	3	1				177	7.5
042	12	61	31	5	3	1	1					114	7.2
043	262	429	62	37	12	21	8	5	2			838	8.4
044	49	73	11	13	10	7	2	1				166	7.8
045	255	461	62	43	34	21	9	3				888	7.9
046	660	1145	175	90	76	43	20	9	6			2224	8.4
047	209	429	63	35	32	25	4	7	2			806	8.3
048	9	1		1		1						12	6.7
049	11											11	0.0
050			1									1	5.2
052	107	525	7	7	5	3						654	6.9
055		1										1	4.4
056	8											8	0.0
057	1											1	0.0
058	247	515	194	53	33	26	15		1			1084	8.1
059	6	7	2	4	1	1						21	6.8
060	309	302	257	59	36	35	8	8	2			1016	8.3
061	33	29	15	10	3	2	2	1				95	7.9
062						1						1	6.5
063	39	36	34	15	12	6	3			1		146	8.7

Table 3 (Cont.)

MARSDEN SQUARE	NO	MAGNITUDE	UNDER-5.0	5.0-5.4	5.5-5.9	6.0-6.4	6.5-6.9	7.0-7.4	7.5-7.9	8.0-8.4	8.5-8.9	NON-TECT	TOTAL	MAX
054	2			2	1		1						6	6.5
065	2			6	1	1							10	6.0
066	1	1		1	1								4	5.6
067	54	43		31	19	5	2	1					155	7.2
068	32	26		23	15	8							104	6.3
069	14	7		12	15	6	3						57	6.7
074		2											2	4.4
075	2	1			1	1	1						6	6.7
076		2		1									3	5.0
077	49	107		24	7	6	2	1					198	7.1
078		1		1									2	5.2
079	2	11		1	4	1							19	6.2
080	4	5			4	1	2						16	6.7
081	7								1				8	7.9
082	3	3											6	4.5
083	81	141		24	23	5	5		1	1			261	8.3
084	91	110		25	15	10	13	1	2				267	7.8
085	2	1			1	1							5	6.0
087	1												1	0.0
088	13	31			2	1	2					1	50	6.7
090	1												1	0.0
093	1												1	0.0
094	184	328		86	36	35	20	12	1		1		705	8.7
095	91	140		25	23	18	14	3	1				315	7.9
096	337	430		225	84	46	44	25	7	2	1		1201	8.7
097	6	1		2	1		1	1					12	7.3
098	20	37		48	13	12	8	3	1				142	7.5
099	222	106		82	63	22	17	11	6		2		531	8.7
100	39	20		28	10	8	2	1		1			109	8.4
101	12	3		5	4	4						1	29	6.2
102	39	50		41	15	6	3	5	1	1			161	8.3
103	142	172		70	37	8	4	1					434	7.1
104	2												2	0.0
105	8	24		9	1	1		1					44	7.1
106	1												1	0.0
108												6	6	5.8
109	113	50		4	10	3		1					181	7.0
110	8	36		2	6	2	1	1		2			58	8.4
111	25	21		6	5	2		1					60	7.1
112	26	41		12	10	4	1						94	6.6
113	45	30		10	3	3	2						93	6.6
115		1											1	4.2
116	35	4			1							9	49	5.7
117	140	43		6	2							7	204	5.6
118	72	37		2	3							1	115	5.6
119	122	104		2	3	1						6	238	6.4
120	827	16243		260	75	36	9	5	1			341	17797	7.7
121	1167	5266		34	11	7	4	1		1		2	6493	8.3
122	1												1	0.0
125	1												1	0.0
126	1												1	0.0

Table 3 (Cont.)

MARSDEN SQUARE	NO	MAGNITUDE	UNDER-5.0	5.0-5.4	5.5-5.9	6.0-6.4	6.5-6.9	7.0-7.4	7.5-7.9	8.0-8.4	8.5-8.9	NON-TECT	TOTAL	MAX
127	2												2	0.0
130	889	1421	244	123	85	40	23	5	5	2			2837	8.9
131	619	757	126	92	43	41	16	9	4				1707	8.4
132	20	12	4	3	1	4							44	6.7
133	2	45	11	5	4	4	1					1	73	7.3
134	31	14	20	10	10	2	3	1	1	1			93	8.6
135	94	50	26	20	10	3	1	5					209	7.9
136	42	38	23	14	11	9	3						140	7.2
137	643	604	249	102	52	33	11	5	2	1			1702	8.6
138	119	104	50	12	9	2	1	1	1				299	8.1
139	114	111	56	14	9	6	4	1					315	7.5
140	119	157	53	22	6	5	4						366	7.2
141	63	125	16	18	10	5		1					238	7.9
142	815	1055	185	90	33	31	9	1	2				2221	8.3
143	39	82	13	17	4	4	1						160	7.1
144	53	33	6	15	3	1							111	6.7
145	22	5	4	1									32	5.6
146	2	2		2									4	5.6
147	57	92	9	9	3	1							171	6.5
148	6	3	1	2	1								13	6.0
149	1	1	1										2	5.4
150	1						1						2	7.2
151	36	3											33	4.2
152	150	21	1	4	1		1					1	179	7.0
153	26	3		1								39	69	5.5
154	15	2										1	18	4.4
155	39	32	3									7	81	5.2
156	651	419	16	7	8	4	1	1				112	1219	7.7
157	705	1907	112	61	27	12	5						2829	7.3
158	15	9	2	3	3	1							33	6.5
159		1											1	4.5
161	1												1	0.0
162	3	6	1										10	5.4
163	2	13		1									17	5.5
165	372	962	240	100	54	32	12	3	2				1777	8.3
166	792	2246	433	189	102	50	36	11	2	2			3863	8.7
167	37	80	18	19	13	7	9	4					187	7.9
168	2	3		2	2	2	1						12	7.2
169	1	2	1										4	5.2
170	35	14	12	3	3	3	1	1					72	7.5
171	27	12	7	7	4	4	1	2	2	1			67	8.7
172	35	56	19	13	2	4	2		1			3	135	8.3
173	82	56	37	26	3	8		2		2		74	300	8.7
174	5	5	6	4		1						2	23	6.5
175	3	6	1	4	2							3	24	6.1
176	76	81	27	11	3	3						4	205	6.7
177	43	64	4	8	7	5	3	1					135	7.6
178	204	166	26	19	12	10	2	1					440	7.7
179	460	253	31	24	9	1							778	6.5
180	270	45	3	6	2							3	329	6.2
181	4	4										1	9	4.4

Table 3 (Cont.)

MARSDEN SQUARE	NO	MAGNITUDE	UNDER-5.0	5.0-5.4	5.5-5.9	6.0-6.4	6.5-6.9	7.0-7.4	7.5-7.9	8.0-8.4	8.5-8.9	NON-TECT	TOTAL	MAX
182	1	1											2	4.6
183	3	9		1		1							14	6.0
184	57	151	30	22		3	3	1					267	7.3
195		1											1	4.2
186	1	1	1										3	5.4
187			1										1	5.0
188		2			1								3	5.6
192		3	1									15	19	5.6
193	23	92	7	2		3							117	6.4
194	91	89	15	9		14	8	3	2	1			232	8.1
195	27	355	55	13		9	2	3					464	7.2
196	290	789	137	45		31	22	6	1	1	1		1323	8.7
197	417	522	96	43		41	35	10	2				1166	7.8
198	646	895	180	76		59	42	13	3	1	1		1916	8.6
199	233	1403	307	92		36	22	6	4	1		5	2109	8.3
200	335	410	125	61		34	29	12	2	2			1010	8.4
201	318	256	82	37		30	48	12	4	4			791	8.4
202	9	3	8	4		6	5		1				40	7.9
203	4		1	1									6	5.6
204		6	3	1		1	2						13	6.6
205	7	10	6	3		2	1		1				30	7.9
206	12	2	5	4		3	2						28	6.7
207	6	15	5	4			2						32	6.8
208	2	5	2	2									11	5.6
209		1	3									9	13	6.0
210		1										2	3	5.3
211		2	1									6	9	5.9
212		1											1	4.5
215	28	3	1									1	33	5.0
216	24	11	1	3								7	46	5.6
217	1	1		2									4	5.7
218	16	95	6	3		2							122	6.2
219	12	54	9	5		3							83	6.2
220	2	1		2									5	5.6
221	1												1	0.0
222	1	1	1	1									4	5.6
223	1	4											5	4.9
224	1												1	0.0
225	2	1	1										4	5.0
229	4	5	1										10	5.0
230	25	36	3	4		1	4						73	6.7
231	603	725	49	27		13	4	7	1	2	3		1434	8.6
232	695	501	16	13		18	6	4		1			1254	8.3
233	22	18	1	2		1	1						45	6.5
234	4	3	1			2	2						12	6.9
235				3									3	5.7
236	1	1											2	4.7
237	1	1	2										4	5.0
238	2	4	3	1			1						11	6.6
239	3	3	1				2						9	6.5
241		1											1	4.6

Table 3 (Cont.)

MARSDEN SQUARE	NO	MAGNITUDE	UNDER-5.0	5.0-5.4	5.5-5.9	6.0-6.4	6.5-6.9	7.0-7.4	7.5-7.9	8.0-8.4	8.5-8.9	NON-TECT	TCTAL	MAX
245												1	1	5.5
246												1	1	5.2
247												2	2	5.9
248				1									1	5.1
249	4	2											6	4.6
250	5												5	0.0
251	13	3											16	4.9
252	8	11	1	1									21	5.6
253	24	84	15	7		2	1	1					134	7.0
254	31	17	7	12			1						68	6.5
255	1	4	1										6	5.0
257	1												1	0.0
259		3				1							4	6.3
260	4	18			4	1	2	1					30	7.3
261	1												1	0.0
262	2	4											6	4.4
263		13	3			1							17	6.0
264		2											2	4.9
265							1						1	6.5
266	1	1			1								3	5.5
267		7											7	4.7
268		1											1	3.9
274			1										1	5.0
275		4	2		1	1							8	6.2
276	1	2			3	5	3						14	6.7
277		2											2	4.4
280		1											1	4.7
283	3				1							47	91	7.2
286	2	4	1										7	5.1
287	7	21	1		2	1							32	6.2
288	56	118	18		19	3	1						215	6.7
300						1							1	6.0
301	42	65	46		13	9	6	1					162	7.2
302	14	31	11		5	4	2	2					69	7.1
303		1											1	4.5
306	1	1						1					3	7.2
307	181	527	95		28	30	24	7	5				897	7.9
308	135	201	37		16	9	8	2	3	1			412	8.3
309	10	236	21		10	1	1						279	6.7
310	35	96	17		10	14	3						175	6.5
311	1	2	1		1	1							6	6.3
314		12	1										13	5.1
315	2		1										3	5.2
317	1	1											2	4.3
318	1												1	0.0
319	30	26	15		9	2	2		1				85	7.6
320	1159	1061	738		205	96	112	44	11	1			3427	8.1
321	739	348	346		101	49	42	16	5	1			1647	8.4
322	335	193	285		130	41	32	15	4	2	1		1038	8.6
323	503	259	376		149	59	63	20	7	2		1	1439	8.1
324	151	37	98		47	25	21	5		1			385	8.1

Table 3 (Cont.)

MARSDEN SQUARE	NO	MAGNITUDE	UNDER-5.0	5.0-5.4	5.5-5.9	6.0-6.4	6.5-6.9	7.0-7.4	7.5-7.9	8.0-8.4	8.5-8.9	NON-TECT	TOTAL	MAX
325	206	88	203	62	31	25	9	3	1				628	6.1
326	24	12	19	10	10	9	2		1				87	8.1
327	5		3	2	2	4	1		1				18	8.1
328		3	8	5		1	1						18	7.0
329	32	28	19	14	5								98	6.0
330	5												5	0.0
331	1				1								2	6.0
332	20	46	7	3	6	3							87	6.7
333	16	21	8	6	4								55	6.4
334					1								1	6.2
337	24	30	21	5	5								85	6.2
339							1						1	6.5
341			1			1							2	6.7
342	93	277	45	9	7	11	5	2					449	7.6
343	275	613	131	46	31	20	19	4	1	1			1141	8.6
344	5			2									7	5.6
345	1	1			2								4	6.2
346	1	1	1	1									4	5.8
347	6	6	5	3									20	5.6
349			1	1									2	5.5
350	3												3	0.0
352	4												4	0.0
353	907	1404	404	134	93	65	15	5	2	1			3030	8.7
354	108	82	57	14	14	13	4						292	7.2
355	1552	1638	526	150	102	116	64	12	5	1			4166	8.6
356	15	5	2	2	1		2		1				28	8.1
357	4												4	0.0
358	2												2	0.0
359	19	7	12	6	3								47	6.2
360	44	8	30	7	9	2		1					101	7.5
361	6	3	1		1	1							12	6.7
362	3		1										4	5.3
363			4										4	5.3
364	1			1									2	5.6
365	37	18	31	12	10	1							109	6.5
367	10	2	2	2	2	1							19	6.5
368	14	22	4	1	4	1							46	6.7
369	15	37	15	10	3	1							81	6.6
370	1	1			1								3	6.0
372	2			1									3	5.6
373	18	19	9	1									47	5.6
374	1				1								2	6.0
376			1	1									2	5.6
378	335	1001	143	69	41	52	20	5	1				1667	8.3
379	114	346	82	32	21	14	11	4	1				625	8.4
380		2											2	4.8
382		3											3	4.9
383	30	75	28	10	19	14							176	6.6
384	2					1							3	6.7
385												5	5	5.0
388	1												1	0.0

Table 3 (Cont.)

MARSDEN SQUARE	NO MAGNITUDE	UNDER-5.0	5.0-5.4	5.5-5.9	6.0-6.4	6.5-6.9	7.0-7.4	7.5-7.9	8.0-8.4	8.5-8.9	NON-TECT	TOTAL	MAX
389	945	1366	463	143	96	72	36	4	2	1		3128	8.6
390	376	394	120	67	44	39	19	4	1			1064	8.4
391	133	118	47	15	18	18	12	1	1			413	8.3
392	1	1		1								3	5.7
393	1			1								2	5.6
394	3	4		3	1	1						12	6.5
395	5	5	7		1							18	6.2
396	3	1				1						5	6.7
397								1				1	7.7
399	2	1	2	1		1						7	6.6
400	5	5	6	2								16	5.7
401	21	19	21	2	5	1						69	6.7
403		1										1	4.4
404	12	15	1	1	2	3						34	6.7
405	29	41	31	4	1							106	6.0
406	1											1	0.0
407		1			1							2	6.0
409	11	12	9	1	8	2						43	6.5
410				1								1	5.5
414	50	178	19	16	7	7	3					280	7.4
415	313	496	95	37	22	27	12	2	3	2		989	8.6
416	2	3										5	4.9
417	12	31	17	10	5	3	1					79	7.0
418	21	70	31	7	5	3						137	6.5
419	17	23	7	3	2	12	1					65	7.0
420		1										1	4.9
423	2											2	0.0
424	1											1	0.0
425	320	402	171	73	38	23	5	1				1033	7.6
426	186	113	116	46	26	14	7	1				509	7.9
427	2											2	0.0
428	2	1		1								4	5.5
429	15	9	1									25	5.0
430	4	3	3	1								11	5.6
431		1										1	4.5
432	1	1	2	2	1		1					8	7.3
435	5				1							6	6.0
436	23	12	16	8	5	1						65	6.5
437	1	1	1	2	5	1						10	6.5
438	22	18	12	1	18	10	4	1				86	7.9
439		4	3	2	1	1						11	6.5
440	1		1									2	5.1
441	2		2		2							6	6.4
442		4	3	3	1							11	6.3
444	3	3	2									8	5.1
445	9	19	9	4	1		1					43	7.1
447		1										1	4.7
448	1											1	0.0
451	181	58	20	16	7	12	7					301	7.3
452	13	40	28	6	4							91	6.2
453	2	11	2		1							16	6.0

Table 3 (Cont.)

MARSDEN SQUARE	NO	MAGNITUDE	UNDER-5.0	5.0-5.4	5.5-5.9	6.0-6.4	6.5-6.9	7.0-7.4	7.5-7.9	8.0-8.4	8.5-8.9	NON-TECT	TOTAL	MAX
454						3	1						4	6.5
455	3	7		3	1	4	1						19	6.7
456	1												1	0.0
461	2												2	0.0
462	31	123		27	16	6	4	3	2				212	7.6
463	47	15		32	25	6	9	3	1				138	7.9
464	2	2		1					1				6	7.5
465	7	1			2								10	5.6
466	1												1	0.0
467	17	9		7	3	1							37	6.1
468	11	1		4	1								17	5.8
469	13	2		2	1	1							19	6.0
470	16	3		5	2	4	2	1					33	7.0
471	9	8		12	3	3	2						37	6.6
472	3	1		2	1								7	5.5
474	1												1	0.0
475	5	7		5	2	5							24	6.2
476	12	11		15	6	5	2			1			52	8.3
480	12	9		12	4	3	3	1					44	7.1
481	5	5		11	2		3						26	6.7
482	154	155		234	95	30	15	10	2	1			696	8.3
483	2	3		3	1	2	2						13	6.7
484	1			2		1	1						5	6.5
485	2	2		2	1	3	2						12	6.5
486	4	1		6		1	2	1					15	7.0
487	4	3		3	3		2		2				17	7.7
491	2	4		4	1	5	1						17	6.5
492	11	18		6	7	6	3	1					52	7.0
493	17	10		10	2	6	5	1					59	7.2
494	11	3		8	5	1	1						29	6.5
495				1		1							2	6.0
496	3							1					4	7.2
499	13			4	5	5	3						30	6.9
500	20	1		6	12	1	3	3	1	1			48	8.3
501	66	8		26	22	21	5	1					149	7.0
502	14	5		7	7	4							37	6.2
503	2	3											5	4.5
504	3	1		5				1					10	7.0
505	1												1	0.0
506	1												1	0.0
507				1									1	5.4
512					1	1	1						3	6.7
513	10	28		8	2	4							52	6.3
514	4	7		12	2	1	1						27	6.5
515	9	3		8	6	5	1						32	6.5
517	5			3	1	1	1						11	6.9
518	22	10		34	14	7	3	5	1				96	7.5
519	6			4	3	1	2	3					19	7.1
521		5		2	2	1		1					11	7.0
522	4	11		9			1	1					26	7.0
525		1											1	4.9

Table 3 (Cont.)

MARSDEN SQUARE	NO MAGNITUDE	UNDER-5.0	5.0-5.4	5.5-5.9	6.0-6.4	6.5-6.9	7.0-7.4	7.5-7.9	8.0-8.4	8.5-8.9	NON-TECT	TOTAL	MAX
531	2	2	1	1								6	5.6
532	2	4	2	1	2							11	6.2
533	4			1								5	5.6
534	9	1	6	2	2							20	6.2
535	13		14	3	2	2						34	6.5
536	38	3	17	9	5	1	1					74	7.1
537		1			1	1						3	6.5
571		1										1	4.9
901	5	32	5	4	1							47	6.0
902	2				2							4	6.0
903	1											1	0.0
904		2										2	4.2
905		1										1	4.2
908		1										1	4.0
912		5										5	4.5
924	2	2	2	1								7	5.5
925	4	16	1	2								23	5.8
926	2	2	4	1								9	5.6
927	2	6	2									10	5.3
928	3	5		1								9	5.6
929		1		1	1							3	6.0
930	2			1								3	5.7
931	3	4	1									8	5.3
932	2	1	1	1								5	5.7
933		4	3	2		1						10	6.6
934		4										4	4.8
935	2	2										4	4.3
936	7	11	1	3	1							23	6.0
<hr/>													
TOTAL	30673	50769	12268	5031	2888	2130	865	247	95	30	727	115723	8.9

Table 4. Summary of earthquakes of magnitude 7.5 or greater*

SEARCH OF ENTIRE EDF FILE FOR MAG 7.5+

SOURCE	YEAR	MO	DA	HR	MIN	SEC	LAT	LONG	DEPTH	-----MAGNITUDES-----	INT	INT	PHENOM	RN	CE	Q/S	HAR	OG	DIST
									(KM)	BODY SURF. OTHER LOCAL	MAP	MAX	DTSVNO						(KM)
CFR	1897	02	07	07	36	00.02	40.000N	140.000E						227			166	00	
CFR	1897	02	19	20	48	00.02	38.000N	142.000E						228			130	82	
CFR	1897	02	19	23	48	00.02	38.000N	142.000E						228			130	82	
CFR	1897	05	13	12	30	00.02	12.000N	124.000E						251			060	24	
CFR	1897	06	12	11	06	00.02	26.000N	091.000E						317			099	61	
CFR	1897	08	05	00	12	00.02	38.000N	143.000E						229			130	83	
CFR	1897	08	15	12	00	00.02	18.000N	120.000E						249			060	80	
CFR	1897	08	16	07	54	00.02	39.000N	143.000E						229			130	93	
CFR	1897	09	20	19	06	00.02	06.000N	122.000E						259			024	62	
CFR	1897	09	21	05	12	00.02	06.000N	122.000E						259			024	62	
CFR	1897	10	18	23	48	00.02	12.000N	126.000E						248			060	26	
CFR	1897	10	20	14	24	00.02	12.000N	126.000E						248			060	26	
CFR	1898	04	22	23	36	00.02	39.000N	142.000E						228			130	92	
CFR	1898	04	29	16	18	00.02	12.000N	086.000W						075			045	26	
CFR	1899	01	24	23	43	00.02	17.000N	098.000W						059			046	78	
CFR	1899	06	14	11	09	00.02	18.000N	077.000W						086			044	87	
EQH	1899	09	04	00	22	00.02	60.000N	142.000W	025A				XI UT	002	D		231	02	
CFR	1899	09	10	17	04	00.0	60.000N	142.000W	025A					002	F		231	02	
EQH	1899	09	10	21	40	00.0	60.000N	140.000W					XI UTS	019	D		231	00	
CFR	1899	09	29	17	03	00.02	03.000S	128.500E						272			323	38	
CFR	1899	11	23	09	49	00.02	53.000N	159.000E						218			201	39	
CFR	1899	11	24	18	42	00.02	32.000N	131.000E						235			131	21	
CFR	1899	11	24	18	55	00.02	32.000N	131.000E						235			131	21	
CFR	1900	01	20	06	33	00.0	26.000N	105.000W	025A					055			083	05	
CFR	1900	05	16	20	12	00.0	20.000N	105.000W	025A					055			083	05	
CFR	1900	06	21	20	52	00.0	20.000N	080.000W	025A					085			081	00	
CFR	1900	07	29	06	59	00.0	10.000S	165.000E	025A					184			355	05	
CFR	1900	10	07	21	04	00.0	04.000S	140.000E	025A					201			321	40	
EQH	1900	10	09	12	28	00.0	60.000N	142.000W	025A				VIII	002	D		231	02	
CFR	1900	10	29	09	11	00.0	11.000N	066.000W	025A					094			043	16	
CFR	1900	12	25	05	04	00.0	43.000N	146.000E	025A					221			166	36	
CFR	1901	01	07	00	29	00.0	02.000S	082.000W	025A					104			308	22	
CFR	1901	04	05	23	30	00.0	45.000N	148.000E	025A					221			166	58	
CFR	1901	06	24	07	02	00.0	27.000N	130.000E	025A					238			095	70	
CFR	1901	08	03	09	23	00.0	40.000N	144.000E	025A					229	D		166	04	
CFR	1901	08	09	13	01	00.0	22.000S	170.000E	025A					189			390	20	
CFR	1901	09	09	13	33	00.0	40.000N	144.000E	025A					229			166	04	
CFR	1901	12	14	22	57	00.0	14.000N	122.000E	025A					249			060	42	
CFR	1901	12	31	09	02	00.0	52.000N	177.000W	025A					007			198	27	
CFR	1902	01	01	05	20	00.0	55.000N	165.000W	025A					009			197	55	
CFR	1902	01	24	23	27	00.0	08.000S	150.000E	025A					207			320	80	
CFR	1902	02	09	07	35	00.0	20.000S	174.000W	025A					173			389	04	
CFR	1902	04	19	02	23	00.0	14.000N	091.000W	025A					070			046	41	
CFR	1902	08	22	03	00	00.0	40.000N	077.000E	025A					320			173	07	
CFR	1902	09	22	01	46	00.0	18.000N	146.000E	025A					216			058	86	
CFR	1902	09	23	20	16	00.0	16.000N	093.000W	025A					061			046	63	

*See printout format (appendix 3) for explanation of headings and codes.

NOTE: Magnitude values generally are accurate to within 0.3 unit. Geographic positions prior to 1961 generally are accurate to ¼ or ½ degree.

Table 4 (Continued)

SOURCE	YEAR	MO	DA	HR	MN	SEC	LAT	LONG	DEPTH (KM)	-----MAGNITUDES-----				INT MAP	INT MAX	PHENOM DTSVNO	FN	CE	Q/S	MAR	DG	DIST (KM)
										BODY	SURF.	OTHER	LOCAL									
CFR	1902	12	12	23	10	00.0	29.000N	114.000W	025A				7.80PAS			VIII	048	0		034	94	
CFR	1903	01	04	05	07	00.0	20.000S	175.000W	400				8.00PAS				173			389	05	
CFR	1903	01	14	01	47	00.0	15.000N	098.000W	025A				8.30PAS				065			046	58	
CFR	1903	02	01	09	34	00.0	48.000N	098.000E	025A				7.80PAS				334			171	88	
CFR	1903	02	27	00	43	00.0	08.000S	106.000E	025A				8.10PAS				282			325	86	
CFR	1903	05	13	06	34	00.0	17.000S	168.000E	025A				7.90PAS				186			355	78	
CFR	1903	06	02	13	17	00.0	57.000N	156.000W	100				8.30PAS				012			196	76	
CFR	1903	08	11	04	32	54.0	36.000N	023.000E	100				8.30PAS				368			142	63	
CFR	1903	12	28	02	56	00.0	07.000N	127.000E	025A				7.80PAS				248			024	77	
G-R	1904	01	20	14	52	06.0	07.000N	079.000W					7.90PAS				083			009	79	
G-R	1904	06	07	08	17	54.0	40.000N	134.000E	350				7.90PAS				660	CCC		167	04	
G-R	1904	06	25	14	45	36.0	52.000N	159.000E	025A				8.30PAS				219			201	29	
G-R	1904	06	25	21	00	30.0	52.000N	159.000E					8.10PAS				219			201	29	
G-R	1904	06	27	00	09	00.0	52.000N	159.000E					7.90PAS				219			201	29	
G-R	1904	08	24	20	59	54.0	30.000N	130.000E	025A				7.90PAS				235			131	00	
G-R	1904	08	27	21	56	06.0	64.000N	151.000W	025A				8.30CFR			VI	001	0		232	41	
G-R	1904	12	20	05	44	18.0	08.500N	083.000W	025A				8.30PAS				078			009	83	
G-R	1905	01	22	02	43	54.0	01.000N	123.000E	090				8.40PAS				265	CCC		024	13	
G-R	1905	02	14	08	46	36.0	53.000N	174.000W	025A				7.90CFR				007			198	38	
G-R	1905	04	04	00	50	00.0	33.000N	076.000E	025				8.60PAS				303			137	36	
G-R	1905	06	02	05	39	42.0	34.000N	132.000E	100				7.90PAS				232	BCC		131	42	
G-R	1905	07	06	16	21	00.0	39.500N	142.500E	025A				7.90PAS				228			130	92	
G-R	1905	07	09	09	40	24.0	49.000N	099.000E	025A				8.40PAS				334			171	99	
G-R	1905	07	23	02	46	12.0	49.000N	098.000E	025A				8.70PAS				333			171	98	
G-R	1905	09	01	02	45	36.0	45.000N	143.000E	230				7.50PAS				224	CCC		166	53	
G-R	1906	01	21	13	49	35.0	34.000N	138.000E	340				8.40PAS				230	BCC		131	48	
G-R	1906	01	31	15	36	00.0	01.000N	081.500W	025A				8.90PAS				104			009	11	
G-R	1906	04	13	13	12	00.0	38.000N	123.000W	025A				8.30PAS			XI U	035	C		121	83	
G-R	1906	08	17	00	10	42.0	51.000N	179.000E	025A				8.30CFR				006			199	19	
G-R	1906	08	17	00	40	00.0	33.000S	072.000W	025A				8.60PAS				134			415	32	
G-R	1906	09	14	16	04	18.0	07.000S	149.000E	025A				8.40PAS				192			321	79	
G-R	1906	09	29	15	24	54.0	02.000S	079.000W	150				7.90PAS				105	CCC		307	29	
G-R	1906	11	19	07	18	18.0	22.000S	109.000E	060				7.75PAS				589			397	29	
G-R	1906	12	03	22	59	24.0	15.000N	061.000W	100				7.50PAS				092	CCC		043	51	
G-R	1906	12	22	19	21	00.0	43.500N	085.000E	025A				8.30PAS				332			172	35	
G-R	1907	04	15	06	03	06.0	17.000N	100.000W	025A				8.30PAS				059			047	70	
G-R	1907	05	25	14	02	08.0	51.500N	147.000E	600				7.90PAS				663	CCD		202	17	
G-R	1907	06	25	17	54	36.0	01.000N	127.000E	200				7.90PAS				267	CCC		024	17	
G-R	1907	09	02	16	01	30.0	52.000N	173.000E	025A				7.75PAS				005			199	23	
G-R	1907	10	16	14	57	18.0	28.000N	112.500W					7.50PAS				049			094	82	
G-R	1907	10	21	04	23	36.0	38.000N	069.000E	025A				8.10PAS				715			138	89	
G-R	1908	03	26	23	03	30.0	18.000N	039.000W	080				8.10PAS				059	BCE		046	89	
G-R	1909	02	22	09	21	42.0	18.000S	179.000W	550				7.90PAS				181	CBE		353	89	
G-R	1909	03	13	14	29	00.0	31.500N	142.500E	080				8.30PAS				211	BCC		130	12	
G-R	1909	07	07	21	37	50.0	36.500N	070.500E	230				8.10PAS				718	ABB		137	60	
G-R	1909	07	30	10	51	54.0	17.000N	100.500W					7.75PAS				059			047	70	
G-R	1909	11	10	06	13	30.0	32.000N	131.000E	190				7.90PAS				235	BBA		131	21	
G-R	1910	04	12	00	22	13.0	25.500N	122.500E	200				8.30PAS				243	BCC		096	52	
G-R	1910	06	01	05	55	30.0	20.000S	169.000E	030				7.50PAS				166	CCC		391	09	
G-R	1910	06	16	06	30	42.0	19.000S	169.500E	100				8.60PAS				186	BEB		355	99	
G-R	1910	11	03	06	02	00.0	15.000S	166.000E	080				7.90PAS				186	CCC		355	56	

Table 4 (Continued)

SOURCE	YEAR	MO	DA	HR	MN	SEC	LAT	LONG	DEPTH (KM)	-----MAGNITUDES-----				INT MAP	INT MAX	PHENOM QTSVNO	RN	CE	Q/S	MAR	DG	DIST (KM)
										BODY	SURF.	OTHER	LOCAL									
G-R	1911	01	03	23	25	45.0	43.500N	077.500E	025A			8.70PAS					330			173	37	
G-R	1911	02	18	18	41	03.0	40.000N	073.000E				7.75PAS					716			173	03	
G-R	1911	05	04	23	36	54.0	51.000N	157.000E	240			7.60PAS					218	BBB		201	17	
G-R	1911	06	07	11	02	42.0	17.500N	102.500W	025A			7.90PAS					056			047	72	
G-R	1911	06	15	14	26	00.0	29.060N	129.000E	160			8.70PAS					238	BBB		096	99	
G-R	1911	07	04	13	33	26.0	36.000N	070.500E	190			7.60PAS					718	BBB		137	60	
G-R	1911	07	12	04	07	36.0	99.000N	126.000E				7.75PAS					259			024	96	
G-R	1911	08	16	22	41	18.0	07.000N	137.000E	025A			8.10PAS					209			023	77	
G-R	1911	12	16	19	14	18.0	17.000N	100.500W	050			7.50PAS					059			047	70	
G-R	1912	05	23	02	24	06.0	21.000N	097.000E	025A			7.90PAS					296			099	17	
G-R	1912	08	09	01	29	00.0	40.500N	027.000E				7.75PAS					366			178	07	
G-R	1912	11	07	07	40	24.0	57.500N	155.000W	090			7.50PAS		V			012	F		196	75	
G-R	1912	12	07	22	46	50.0	29.000S	062.500W	620			7.50PAS					132	CCC		378	92	
G-R	1913	03	14	03	45	00.0	04.500N	126.500E	025A			8.30PAS					263	C		024	46	
G-R	1913	08	06	22	14	24.0	17.000S	074.000W	025A			7.90PAS					114			343	74	
G-R	1913	10	14	08	08	48.0	19.500S	169.000E	230			8.10PAS					186	CCC		355	99	
G-R	1913	11	10	21	12	30.0	18.000S	169.000E	080			7.50PAS					186	CCC		355	89	
G-R	1914	03	30	00	41	18.0	17.000N	092.000W	150			7.50PAS					061	BBC		046	72	
G-R	1914	05	26	14	22	42.0	02.000S	137.000E				7.90PAS					201			322	27	
G-R	1914	11	24	11	53	30.0	22.000N	143.000E	110			8.70PAS					213	BBB		094	23	
G-R	1915	05	01	05	00	00.0	47.000N	155.000E	025A			8.10PAS					222			165	75	
G-R	1915	06	06	21	29	37.0	18.500S	068.500W	160			7.60PAS					124	BBB		342	88	
G-R	1915	07	31	01	31	24.0	54.000N	162.000E				7.75PAS					218			200	42	
G-R	1915	09	07	01	20	48.0	14.000N	089.000W	080			7.90PAS					070	BBB		045	49	
G-R	1915	10	03	06	52	48.0	40.500N	117.500W				7.75PAS					037	D		156	07	
G-R	1916	01	01	13	20	36.0	04.000S	154.000E	025A			7.90PAS		X	U		193			320	44	
G-R	1916	01	13	08	20	48.0	03.000S	135.500E	025A			8.10PAS					196			322	35	
G-R	1916	02	27	20	20	48.0	12.000N	090.000W				7.50PAS					076			046	20	
G-R	1916	04	18	04	01	48.0	53.250N	170.000W	170			7.50PAS					009			198	30	
G-R	1916	06	21	21	32	30.0	28.500S	063.000W	600			7.50PAS					132	BCC		378	83	
G-R	1916	09	25	09	44	42.0	21.000S	068.000W	180			7.50PAS					124	CCC		378	18	
G-R	1917	01	30	02	45	36.0	56.500N	163.000E	025A			8.10PAS					218			200	63	
G-R	1917	05	01	18	26	30.0	29.000S	177.000W				8.60PAS					178	T		389	97	
G-R	1917	06	26	05	49	42.0	15.500S	173.000W	025A			8.70PAS					173			353	53	
G-R	1917	07	31	03	23	10.0	42.500N	131.000E	460			7.50PAS					657	BCC		167	21	
G-R	1917	08	30	04	07	15.0	07.500S	128.000E	100			7.75PAS					280	BCC		323	78	
G-R	1918	01	30	21	18	33.0	45.500N	135.000E	330			7.70PAS					661	BCC		167	55	
G-R	1918	02	07	05	20	30.0	06.500N	126.500E	120			7.50PAS					259	BCC		024	66	
G-R	1918	05	20	17	55	10.0	28.500S	071.500W	080			7.90PAS					135	BCC		379	81	
G-R	1918	07	03	06	52	05.0	03.500S	142.500E				7.50PAS					260			321	32	
G-R	1918	07	08	10	22	07.0	24.500N	091.000E				7.60PAS					315			099	41	
G-R	1918	08	15	12	18	12.0	05.500N	123.000E	025A			8.30PAS					259	C		024	53	
G-R	1918	09	07	17	16	13.0	45.500N	151.500E	025A			8.30PAS					221	D		165	51	
G-R	1918	10	11	14	14	30.0	18.500N	067.500W				7.50PAS					089	C		043	87	
G-R	1918	11	08	04	38	00.0	44.500N	151.500E	025A			7.90PAS					222			165	41	
G-R	1918	11	18	18	41	55.0	07.000S	129.000E	190			8.10PAS					280	BCC		323	79	
G-R	1918	12	04	11	47	48.0	26.000S	071.000W				7.75PAS					121			379	61	
G-R	1919	01	01	02	59	57.0	19.500S	176.500W	180			8.30PAS					181	BCC		353	96	
G-R	1919	04	30	07	17	05.0	19.000S	172.500W	025A			8.40PAS					174	T		353	92	
G-R	1919	05	03	00	52	00.0	40.500N	145.500E				7.60PAS					229			166	05	
G-R	1919	05	06	19	41	12.0	05.000S	154.000E	025A			8.10PAS					193			320	54	

Table 4 (Continued)

SOURCE	YEAR	MO	DA	HR	MN	SEC	LAT	LONG	DEPTH (KM)	-----MAGNITUDES-----				INT MAP	INT MAX	PHENOM DTSVNO	RN	CE	Q/S	MAR	DG	DIST (KM)
										BODY	SURF.	OTHER	LOCAL									
G-R	1920	02	02	11	22	18.0	04.000S	152.500E				7.70PAS					192			320	42	
G-R	1920	06	05	04	21	28.0	23.500N	122.000E	025A			8.30PAS					243			096	32	
G-R	1920	09	20	14	39	00.0	20.000S	168.000E	025A			8.30PAS					188			391	08	
G-R	1920	12	16	12	05	48.0	36.000N	105.000E	025A			8.60PAS					323			134	65	
G-R	1921	02	04	08	22	44.0	15.000N	091.000W	120			7.50PAS					062	BBB		046	51	
G-R	1921	09	11	04	01	38.0	11.000S	111.000E				7.50PAS					282			360	11	
G-R	1921	11	11	13	36	08.0	08.000N	127.000E				7.50PAS					248			024	97	
G-R	1921	11	15	20	36	38.0	36.500N	070.500E	215			8.10PAS					718	AAA		137	60	
G-R	1921	12	13	15	29	35.0	02.500S	071.000W	650			7.90PAS					111	BBB		307	21	
G-R	1922	01	17	03	50	33.0	02.500S	071.000W	650			7.60PAS					111	BBB		307	21	
G-R	1922	09	01	19	16	06.0	24.500N	122.000E				7.60PAS					243			036	42	
G-R	1922	11	11	04	32	36.0	28.500S	070.000W	025A			6.40PAS	T				136	D		379	80	
G-R	1922	12	06	13	55	36.0	36.500N	070.500E	230			7.50PAS					718	AAA		137	60	
G-R	1923	02	03	16	01	41.0	54.000N	161.000E	025A			8.40PAS					218	C		200	41	
G-R	1923	09	01	02	58	36.0	35.250N	139.500E	025A			8.30PAS					230			131	59	
G-R	1923	09	02	02	46	40.0	35.000N	139.500E				7.70PAS					230			131	59	
G-R	1923	10	07	03	23	34.0	01.750S	128.750E				7.50PAS					267			323	18	
G-R	1924	04	14	16	20	23.0	06.500N	126.500E				8.30PAS					259			024	66	
G-R	1924	06	26	01	37	34.0	36.000S	157.500E	025A			8.30PAS					167			500	67	
G-R	1924	07	24	04	55	17.0	49.500S	159.000E	050			7.50PAS					165			464	59	
G-R	1925	03	22	08	41	55.0	13.500S	168.500E	050			7.60PAS					186			355	88	
G-R	1925	10	13	17	40	34.0	11.000N	042.000W				7.50PAS					403			041	12	
G-R	1926	04	12	03	32	28.0	10.000S	161.000E				7.50PAS					193			355	01	
G-R	1926	06	26	19	46	34.0	36.500N	027.500E	100			8.30PAS					369	BCB		142	67	
G-R	1926	06	29	14	27	06.0	27.000N	127.000E	130			7.50PAS					238	BCP		096	77	
G-R	1926	10	03	19	33	01.0	49.000S	161.000E	050			7.90PAS					165			463	91	
G-R	1926	10	26	03	44	41.0	03.250S	138.500E	025A			7.90PAS					201			322	38	
G-R	1927	03	07	09	27	36.0	35.750N	134.750E	025A			7.90PAS					232			131	54	
G-R	1927	05	22	22	32	42.0	36.750N	102.000E	025A			8.30PAS					325			134	62	
G-R	1928	03	09	18	05	27.0	02.500S	088.500E	025A			8.10PAS					425			327	28	
G-R	1928	03	16	05	01	02.0	22.000S	170.500E				7.50PAS					189			390	20	
G-R	1928	03	22	04	17	00.0	16.000N	036.000W				7.50PAS					060			045	66	
G-R	1928	06	17	03	13	27.0	16.250N	039.000W	025A			7.90PAS					058			046	68	
G-R	1928	10	03	03	01	08.0	16.000N	037.000W				7.60PAS					060			046	67	
G-P	1928	12	01	04	06	10.0	35.000S	072.000W	025A			8.30PAS					135			413	52	
G-R	1929	01	13	00	03	12.0	49.750N	154.750E	140			7.70PAS					221	AAA		160	94	
G-R	1929	03	07	01	34	39.0	51.000N	170.000W	050			8.60CFR					009	F		193	10	
G-R	1929	06	16	22	47	32.0	41.750S	172.250E				7.60PAS					162			462	12	
G-P	1929	06	27	12	47	05.0	54.000S	029.500W	025A			8.30PAS					153			482	49	
G-R	1929	10	19	10	12	52.0	23.000S	069.000W	100			7.50PAS					123	C	BAE	376	39	
G-R	1929	12	17	10	58	30.0	52.500N	171.500E	025A			7.60PAS					005			199	21	
G-R	1931	01	15	01	50	41.0	16.000N	036.750W	025A			7.90PAS					060			046	66	
G-R	1931	01	27	20	03	13.0	25.600N	036.800E				7.60PAS					296			039	56	
G-R	1931	02	02	22	46	42.0	39.500S	177.000E	025A			7.90PAS					160			421	97	
G-R	1931	03	09	03	48	50.0	40.500N	142.500E				7.70PAS					228			166	02	
G-R	1931	08	10	21	15	40.0	47.000N	090.000E	025A			7.90PAS					332			171	70	
G-R	1931	10	03	13	13	13.0	10.500S	161.750E	025A			8.10PAS					193			350	01	
G-R	1931	10	10	00	19	53.0	10.000S	161.000E				7.70PAS					193			350	01	
G-R	1931	11	02	10	02	59.0	22.000N	131.500E				7.50PAS					235			131	21	
G-R	1932	05	14	13	11	00.0	00.500N	126.000E	025A			9.30PAS					266			024	06	
G-R	1932	05	26	16	09	40.0	25.500S	179.250E	600			7.90PAS					171	BCB		390	59	

Table 4 (Continued)

SOURCE	YEAR	MO	DA	HR	MN	SEC	LAT	LCNG	DEPTH (KM)	-----MAGNITUDES-----				INT MAP	INT MAX	PHENOM DISVNO	RN	CE	Q/S	MAR	CG	DIST (KM)
										BODY	SURF.	OTHER	LOCAL									
G-R	1932	06	03	10	36	50.0	19.500N	104.250W				8.10PAS			T	055				047	94	
G-R	1932	06	13	10	12	10.0	19.500N	103.500W	025A			7.90PAS			T	524				047	93	
G-R	1932	12	25	02	04	24.0	39.250N	096.500E				7.60PAS				322				135	96	
G-R	1933	02	23	08	09	12.0	20.000S	071.000W	040			7.60PAS				121				379	01	
G-R	1933	03	02	17	30	54.0	39.250N	144.500E	025			8.90PAS			T	229	C			130	94	
G-R	1933	06	24	21	54	46.0	05.500S	104.750E				7.50PAS				274				325	54	
G-R	1934	01	15	08	43	18.0	26.500N	086.500E	025A			8.40PAS				309				100	66	
G-R	1934	02	14	03	59	34.0	17.500N	119.000E	025A			7.90PAS			T	248				061	79	
G-R	1934	03	05	11	46	15.0	40.500S	175.500E				7.50PAS				159	F			462	05	
G-R	1934	07	13	01	36	24.0	08.000N	032.500W				7.70PAS			VII	080	D			005	82	
G-R	1934	07	18	19	40	15.0	11.750S	166.500E	025A			8.10PAS				184				355	16	
G-R	1935	05	30	21	32	46.0	29.500N	066.750E				7.50PAS				710				102	96	
G-R	1935	09	11	14	04	02.0	43.000N	146.500E	060			7.60PAS				221				166	36	
G-R	1935	09	20	01	46	33.0	03.500S	141.750E				7.90PAS				202				321	31	
G-R	1935	12	15	07	07	48.0	09.750S	161.000E				7.60PAS				193				319	91	
G-R	1935	12	29	02	35	22.0	00.000S	098.250E	025A			8.10PAS				274				326	08	
G-R	1936	04	01	02	09	15.0	04.500N	126.500E				7.70PAS				263				024	46	
G-R	1937	01	07	13	20	35.0	35.500N	098.000E				7.60PAS				325				135	58	
G-R	1937	04	16	03	01	37.0	21.500S	177.000W	400			8.10PAS				181	BAA			389	17	
G-R	1937	08	20	11	59	16.0	14.500N	121.500E				7.50PAS				249				060	41	
G-R	1937	12	23	13	17	56.0	16.750N	098.500W				7.50PAS				058				046	68	
G-R	1938	02	01	19	04	18.0	05.250S	130.500E	025A			8.60PAS				280				322	50	
G-R	1938	05	12	15	33	57.0	06.000S	147.750E				7.50PAS				207				321	67	
G-R	1938	05	19	17	03	21.0	01.000S	120.000E	025A			7.90PAS			T	268	C			323	10	
G-R	1938	06	10	09	53	39.0	25.500N	125.000E				7.70PAS				246				096	55	
G-P	1938	11	05	08	43	21.0	36.750N	141.750E	060			7.70PAS				228				130	61	
G-R	1938	11	05	10	50	15.0	37.250N	141.750E	060			7.70PAS				228				130	71	
G-R	1938	11	06	08	53	53.0	37.250N	142.250E	060			7.60PAS				229				130	72	
G-P	1938	11	10	20	18	43.0	55.500N	158.000W	025A			8.70CFR			VI	T	012	F			196	58
G-R	1939	01	25	03	32	14.0	36.250S	072.250W				8.30PAS				135				415	62	
G-R	1939	01	30	02	18	27.0	06.500S	155.500E	025A			7.80PAS				193				320	65	
G-R	1939	04	30	02	55	30.0	10.500S	158.500E	025A			8.10PAS				193				356	08	
G-R	1939	12	21	21	00	40.0	60.000N	123.000E	150			8.60PAS				265		ABC		024	03	
G-R	1939	12	26	23	57	21.0	39.500N	038.500E	025A			7.90PAS				366				141	98	
G-R	1940	05	24	16	33	57.0	10.500S	077.000W				8.40PAS				115				343	07	
G-R	1940	07	14	05	52	53.0	51.750N	177.500E	080			7.75PAS				006		AAA		199	17	
G-R	1940	08	01	15	08	21.0	44.500N	139.000E				7.70PAS				223				167	49	
G-R	1941	04	15	19	09	56.0	18.000N	103.000W				7.70PAS				056				047	83	
G-R	1941	06	26	11	52	03.0	12.500N	092.500E				8.70PAS				703				063	22	
G-R	1941	11	18	16	46	22.0	32.000N	132.000E	025A			7.90PAS				236				131	22	
G-R	1941	11	25	18	03	55.0	37.500N	018.500W	025A			8.40PAS				402				110	78	
G-P	1941	12	05	20	46	58.0	08.500N	083.000W				7.50PAS			IV	078	C			009	83	
G-R	1942	04	08	15	40	24.0	13.500N	121.000E	025A			7.80PAS				250				060	31	
G-R	1942	05	14	02	13	18.0	09.750S	081.500W	025A			8.30PAS				104				308	01	
G-R	1942	05	23	01	01	48.0	00.000N	124.000E	120			7.50PAS				265		ABB		024	04	
G-P	1942	08	06	23	36	59.0	14.000N	091.000W				8.30PAS				070				046	41	
G-R	1942	08	24	22	50	27.0	15.000S	076.000W				8.60PAS				114				343	56	
G-R	1942	11	10	11	41	27.0	49.500S	032.000E	025A			8.30PAS				431				476	92	
G-R	1943	02	22	03	20	45.0	17.750N	101.500W				7.50PAS				058				647	71	
G-R	1943	04	06	16	07	15.0	30.750S	072.000W				8.30PAS			T	134				415	02	
G-R	1943	05	25	23	07	36.0	07.500N	128.000E				7.90PAS				260				024	78	

Table 4 (Continued)

SOURCE	YEAR	MO	DA	HR	MN	SEC	LAT	LONG	DEPTH (KM)	-----MAGNITUDES----- BODY SURF. OTHER LOCAL	INT MAP	INT MAX	PHENOM DTSVNO	RN	CE	Q/S	MAR	OG	DIST (KM)
G-R	1943	06	09	03	06	22.0	01.000S	101.000E	050	7.60PAS				274				325	11
G-R	1943	07	23	14	53	09.0	09.500S	110.000E	090	8.10PAS				282		BBB		324	90
G-R	1943	07	29	03	02	16.0	19.250N	067.500W	025A	7.90PAS		V		089	F			043	97
G-R	1943	09	06	03	41	30.0	53.000S	159.000E	025A	7.90PAS				167				500	39
G-R	1943	09	14	02	01	12.0	22.000S	171.000E	050	7.50PAS				189				390	21
G-R	1943	09	14	07	18	08.0	30.000S	177.000W	060	7.60PAS				178				425	07
G-R	1943	11	06	08	31	37.0	06.000S	134.500E		7.60PAS				204				322	64
G-R	1943	11	26	22	20	36.0	41.000N	034.000E		7.60PAS				366				177	14
G-R	1944	03	22	00	43	18.0	08.500S	123.500E	220	7.50PAS				286		BEB		323	83
G-R	1944	05	25	12	58	05.0	02.500S	152.750E		7.50PAS				190				320	22
G-R	1944	10	05	17	28	27.0	22.500S	172.000E	120	7.50PAS				189		BBB		390	22
G-R	1944	11	24	04	49	03.0	19.000S	169.000E	170	7.50PAS				186		AAA		355	99
G-R	1944	12	07	04	35	42.0	33.750N	136.000E	025A	8.30PAS			T	233	C			131	36
G-R	1945	11	27	21	56	50.0	24.500N	063.000E	025A	8.30PAS			T	356	C			102	43
G-R	1945	12	28	17	48	45.0	06.000S	150.000E		7.80PAS				192				320	60
G-R	1946	08	02	19	18	48.0	26.500S	070.500W	050	7.90PAS				122	C			379	60
G-R	1946	08	04	17	51	05.0	19.250N	069.000W		8.10PAS			T	088	C			043	99
G-R	1946	08	08	13	28	28.0	19.500N	069.500W	025A	7.90PAS				088				043	99
G-R	1946	09	12	15	17	15.0	23.500N	096.000E		7.50PAS				296				099	36
G-R	1946	09	12	15	20	20.0	23.500N	096.000E		7.75PAS				296				099	36
G-R	1946	09	23	03	01	55.0	04.500S	153.500E		7.75PAS				190				320	43
G-R	1946	11	02	18	28	25.0	41.500N	072.500E		7.60PAS				716	D			173	12
G-R	1946	11	04	21	47	47.0	39.750N	054.500E		7.50PAS				340				139	94
G-R	1946	12	20	19	19	05.0	32.500N	134.500E	025A	8.40PAS			T	236	C			131	24
G-R	1947	03	17	08	19	32.0	33.000N	099.500E		7.70PAS				325				135	39
G-R	1947	05	06	20	30	32.0	06.500S	148.500E		7.60PAS				192				321	68
G-R	1947	07	29	13	43	22.0	28.500N	094.000E		7.90PAS				313				099	84
G-R	1948	01	24	17	46	40.0	10.500N	122.000E	025A	8.30PAS			T	254	C			060	02
G-R	1948	03	01	01	12	28.0	03.000S	127.500E	050	7.90PAS				272				323	37
G-R	1948	05	14	22	31	43.0	54.500N	161.000W	025A	7.50PAS				012				197	41
G-R	1948	09	08	15	09	11.0	21.000S	174.000W	025A	7.90PAS			T	173				389	14
G-R	1949	03	04	10	19	25.0	36.000N	070.500E	230	7.50PAS				718	D	AAA		137	60
G-R	1949	07	10	03	53	36.0	39.000N	070.500E		7.60PAS				715				137	90
G-R	1949	09	06	00	35	37.0	18.500S	174.500W	070	7.50PAS				173	F	BBB		353	84
G-R	1949	08	22	04	01	11.0	53.750N	133.250W	025A	8.10PAS			T	022	C			194	33
G-R	1949	12	17	06	53	30.0	54.000S	071.000W		7.75PAS				144	C			487	41
G-R	1949	12	17	15	07	55.0	54.000S	071.000W		7.75PAS				144	F			487	41
G-R	1950	02	23	10	20	57.0	46.000N	144.000E	340	7.90PAS			VI	663	D	BBB		166	64
G-R	1950	08	15	14	09	30.0	28.500N	096.500E	025A	8.70PAS			X	313	C			099	86
G-R	1950	10	05	16	09	31.0	11.000N	085.000W		7.70PAS			T	075	C			045	15
G-R	1950	10	08	03	23	09.0	03.750S	128.250E		7.60PAS				272	F			323	38
G-R	1950	11	02	15	27	56.0	06.500S	129.500E	050	8.10PAS				280	F			323	69
G-R	1950	12	02	19	51	49.0	18.250S	167.500E		8.10PAS				186				355	87
G-R	1950	12	09	21	38	48.0	23.500S	067.500W	100	8.30PAS			VII	127	C	BBB		378	37
G-R	1950	12	14	01	52	49.0	19.250S	175.750W	200	7.90PAS			VI	173	C	BEE		353	95
G-R	1951	11	18	09	35	47.0	30.500N	091.000E	025A	7.90PAS			IV	306	F			135	01
G-R	1951	12	08	04	14	12.0	34.000S	057.000E	025A	7.90PAS				425				438	47
G-R	1952	03	04	01	22	43.0	42.500N	143.000E	025A	8.60PAS			IX	224	C			166	23
G-R	1952	03	19	10	57	12.0	09.500N	127.250E	025A	7.90PAS			IV	248	C			024	97
PAS	1952	07	21	11	52	14.0P	35.000N	119.016W	016A	7.70MLPAS	USE		XI	039	C	A		120	59
G-R	1952	08	17	16	02	07.0	30.500N	091.500E		7.50PAS			IX	306	C			135	01

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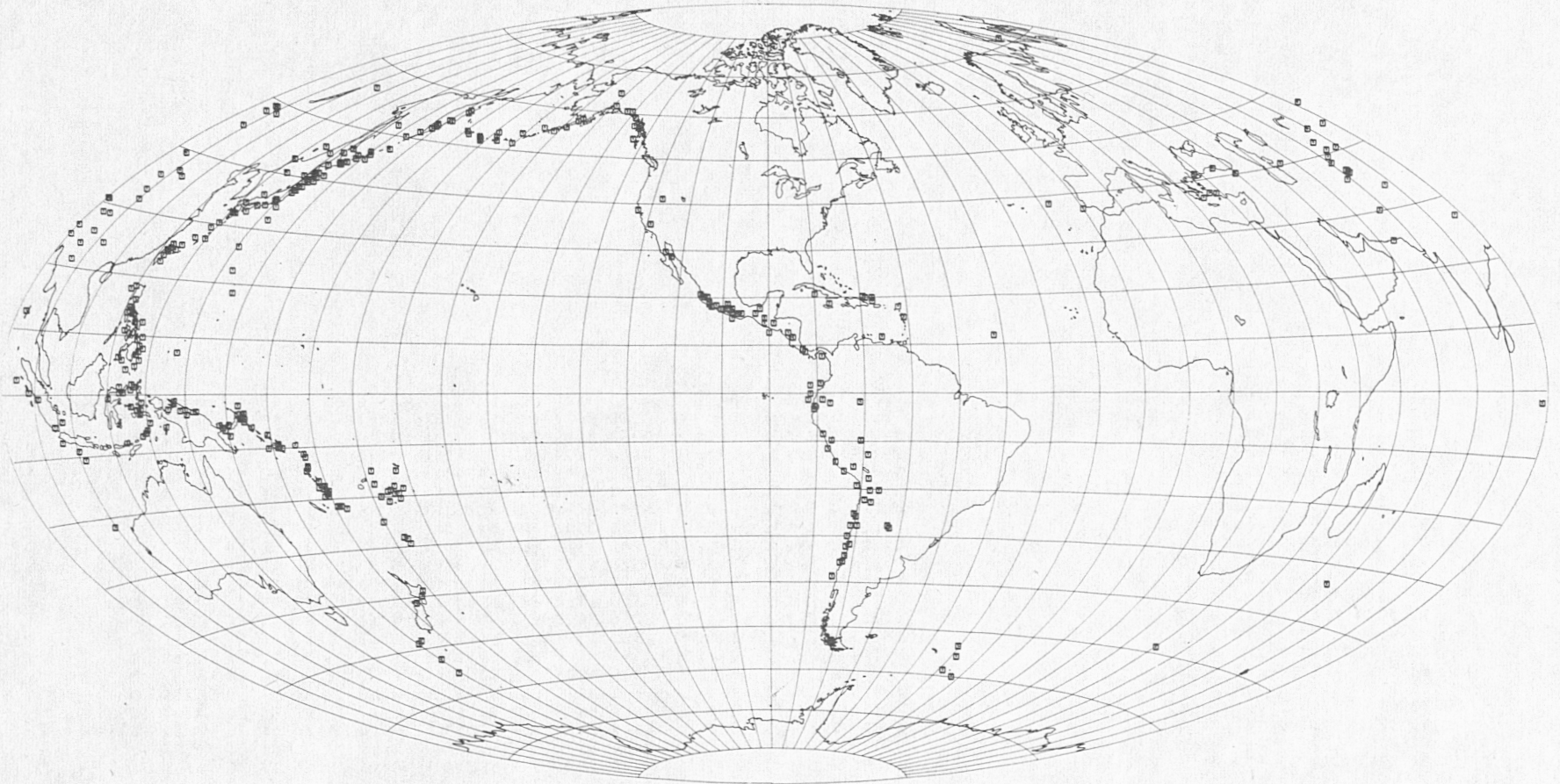
SOURCE	YEAR	MO	DA	HR	MN	SEC	LAT	LCNG	DEPTH (KM)	-----MAGNITUDES-----				INT MAP	INT MAX	PHENOM CTSVNO	RN	CE	Q/S	MAR	DG	DIST (KM)
										BODY	SURF.	OTHER	LOCAL									
G-R	1952	11	04	16	58	26.0	52.750N	159.500E	025A			8.40PAS			T	219	D			201	29	
CGS	1953	04	23	16	24	17.0	04.000S	154.000E			7.50PAS				T	193	C			320	44	
CGS	1953	05	06	17	16	43.0	36.500S	073.000W	060		7.60PAS					135	C			415	63	
ISS	1953	07	02	06	56	59.0	19.000S	169.000E	223		7.50PAS					186				355	99	
ISS	1953	11	25	17	48	54.0	33.900N	141.500E	033		8.25PAS			T		229	C			130	31	
ISS	1953	12	12	17	31	25.0	03.400S	080.600W			7.75PAS		VII			110	C			301	30	
SYK	1956	05	23	20	48	21.2	15.410S	178.730W	396		7.50PAS					181		192		353	58	
ISS	1956	06	09	23	13	51.0	35.100N	067.500E			7.60PAS					718	C			138	57	
ISS	1956	07	03	03	11	40.0	36.730N	025.800E			7.80PAS		IX			269	C			142	65	
CGS	1956	10	11	02	24	33.0	46.000N	150.500E	110		7.60PAS					221	F			165	60	
USE	1957	03	09	14	22	27.5	51.300N	175.800W			8.30PAS		VIII	T V		007	D			198	15	
CGS	1957	04	14	13	17	57.0	15.500S	173.000W			7.50PAS					173	F			353	53	
ISS	1957	04	16	04	04	03.0	04.680S	107.160E	546		7.50PAS					275				325	47	
CGS	1957	06	22	23	50	23.0	01.500S	137.000E			7.50PAS					197	D			322	17	
ISS	1957	06	27	00	09	31.0	56.350N	116.540E			7.90PAS					328	D			205	66	
ISS	1957	07	28	08	40	07.0	17.070N	099.150W			7.90PAS			T		059	C			046	79	
CGS	1957	09	24	08	21	05.0	05.500N	127.500E			7.60PAS					248	F			024	57	
ISS	1957	09	28	14	20	00.0	20.460S	178.510W	549		7.50PAS					181				389	08	
CGS	1957	11	29	22	19	38.0	21.000S	066.000W	200		7.80PAS					125	D			378	16	
BCI	1957	12	04	03	37	44.0	45.250N	099.400E			8.30PAS		X			334	C			171	59	
ISS	1957	12	17	13	50	20.0	12.370S	166.730E	120		7.80PAS					184				355	26	
ISS	1958	01	19	14	07	26.0	01.370N	079.340W			7.80PAS			T		105	C			006	19	
ISS	1958	03	11	00	26	01.0	24.620N	124.290E	077		7.50PAS					246	C			096	44	
USE	1958	07	10	06	15	51.0	58.600N	137.100W			7.90PAS		XI	T		019	C			194	87	
CGS	1958	07	26	17	37	09.0	13.500S	069.000W	620		7.50PAS					118				342	39	
ISS	1958	11	06	22	58	03.0	44.380N	148.580E	032		8.70PAS			T		221	D			166	48	
ISS	1959	04	26	20	40	37.0	24.850N	122.750E	113		7.50PAS					243	C			096	42	
CGS	1959	05	04	07	15	42.0	52.500N	159.500E	060		8.00PAS			III	T	219	C			201	29	
SYK	1959	09	14	14	09	50.0	28.670S	177.710W	073		7.75PAS					177	F	093		389	87	
CGS	1960	01	13	15	40	34.0	16.000S	072.000W	200		7.50PAS					115	C			343	62	
CGS	1960	05	22	19	11	17.0	39.500S	074.500W			8.50PAS				T	134	C			415	94	
CGS	1961	08	31	01	57	08.0	10.500S	070.700W	629		7.50PAS					112	F			343	00	
CGS	1961	09	01	00	09	34.6	59.500S	027.300W	131		7.50PAS					153				482	97	
CGS	1961	09	08	11	26	32.9	56.300S	027.100W	125		7.63PAS					153				482	67	
CGS	1964	03	23	03	36	14.0S	61.040N	147.730W	033G		8.3MS	8.50PAS	USE	X	UTS	002	C	181		231	17	
CGS	1965	01	24	00	11	12.1	02.400S	126.000E	006	6.60MB		7.63PAS			T T	270	C	045		323	26	
CGS	1965	02	04	05	01	21.8	51.300N	178.600E	040	6.00MB		7.75PAS		VI	T	006	C	071		199	18	
CGS	1955	03	14	15	53	06.6	36.300N	070.700E	219	6.60MB		7.63PAS				718	C	054		137	60	
CGS	1966	03	12	16	31	20.5	24.200N	122.600E	048	6.60MB		7.63PAS				243	C	169		096	42	
CGS	1966	06	15	00	59	46.0	10.400S	160.800E	034			7.50PAS				193	D	079		355	00	
CGS	1967	01	05	00	14	41.0	48.146N	102.897E	035D	6.00MB		7.50PAS			F	334	F	204		170	82	
CGS	1968	05	16	00	48	55.4	40.840N	143.222E	007		7.9MS				T	229	C	115		166	03	
CGS	1968	08	10	02	07	04.3	01.423N	126.222E	033N	6.30MB	7.6MS					266		067		024	16	
CGS	1968	10	07	19	20	20.3	26.288N	140.595E	516D	6.10MB		7.50PAS			V	212	F	067		094	60	
CGS	1969	01	05	13	26	39.9	07.975S	158.909E	047	6.40MB	7.1MS	7.50PAS				193	D	095		320	78	
CGS	1969	02	23	02	40	32.5	35.008N	010.573W	022	7.30MB	8.0MS	8.00PAS	LCS	VII	T	A	402	C	188		110	60
CGS	1969	08	11	21	27	39.4*	43.545N	147.353E	028	7.10MB	7.8MS	7.80PAS		VII	T	221	D	022		166	37	
CGS	1969	11	21	02	05	35.3	02.065N	094.640E	020G	6.40MB	7.7MS	7.50PAS				705		215		027	24	
CGS	1970	01	04	17	00	40.2	24.139N	102.503E	031D	5.90MB	7.5MS	7.50PAS				318	D	090		098	42	
CGS	1970	04	07	05	34	05.5	15.761N	121.717E	037	6.40MB	7.3MS	7.50PAS			VI	249	C	161		060	51	
CGS	1970	05	31	20	23	27.3	09.176S	078.823W	043G	6.60MB	7.8MS	7.60PAS		VIII		109	C	101		307	98	

Table 4 (Continued)

SOURCE	YEAR	MO	DA	HR	MN	SEC	LAT	LONG	DEPTH (KM)	-----MAGNITUDES-----				INT MAP	INT MAX	PHENOM DTSVNO	RN	CE	Q/S	MAR	DG	DIST (KM)
										BODY	SURF.	OTHER	LOCAL									
CGS	1970	08	11	10	22	20.0	14.123S	166.650E	033N	6.20MB	7.0MS	7.50BRK			IV	186	F	055	355	46		
NOS	1970	12	10	04	34	38.8	03.989S	080.724W	025D	6.30MB	7.6MS	7.10BRK				110	C	130	308	30		
NOS	1971	01	10	07	17	03.7	03.132S	139.697E	033N	7.30MB	8.1MS	7.90BRK			IX	201	D	113	322	39		
ERL	1971	07	09	03	03	18.7	32.536S	071.154W	058	6.60MB		7.50PAS		T		135	C	123	415	21		
ERL	1971	07	14	06	11	29.1	05.474S	153.885E	047		7.9MS	7.80BRK		T		190	C	115	320	53		
ERL	1971	07	26	01	23	21.3	04.940S	153.173E	048	6.30MB	7.9MS			VI	T	190	D	121	320	43		
ERL	1971	07	27	02	02	49.6	02.748S	077.429W	135D	6.30MB		7.50PAS				110	C	153	307	27		
ERL	1971	11	24	19	35	29.1	52.697N	159.187E	106	6.30MB		7.50BRK				219	F	111	201	29		
ERL	1971	12	15	08	29	55.3	55.996N	163.259E	033N	6.10MB	7.8MS	7.30PAS		T		219		200	200	53		
ERL	1972	01	25	02	06	23.3	22.455N	122.261E	033N	6.30MB	7.5MS	7.10BRK				243	C	170	096	22		
ERL	1972	06	11	16	41	00.9	03.940N	124.318E	325G	5.80MB		7.50PAS				262	F	086	024	34		
ERL	1972	07	30	21	45	14.1	56.820N	135.685W	025G	6.50MB	7.6MS	7.50PRU		TS		019	D	103	194	65		
ERL	1973	01	30	21	01	12.5	18.481N	102.996W	043	6.20MB	7.5MS	7.30PAS			T	057	C	190	047	82		
ERL	1973	02	06	10	37	10.1	31.398N	100.581E	033N	6.10MB	7.4MS	7.70PAS				307	C	078	134	10		
ERL	1973	03	17	08	30	51.8	13.372N	122.787E	033N	5.60MB	7.0MS	7.50UPP			VI	F	249	C	094	160	32	
ERL	1973	06	17	03	55	02.9	43.233N	145.785E	048D	6.50MB	7.7MS	7.70PAS			VIII	T	224	C	201	166	35	
GS	1973	10	06	15	07	37.3	60.823S	021.549W	033N	6.20MB	7.0MS	7.50PAS				156		049	518	01		
GS	1973	10	27	06	59	57.4	70.779N	054.177E	000G	6.90MB	5.5MS	7.60PAS				E	648		221	283	04	
GS	1973	12	28	13	41	45.8	14.464S	166.601E	026D	6.40MB	7.5MS	7.80BRK			VII		186	D	085	355	46	
GS	1974	10	03	14	21	29.1	12.265S	077.795W	013	6.60MB	7.6MS	7.50PAS			VII	T	115	C	165	343	27	
GS	1974	10	03	09	50	58.1	17.300N	062.000W	047	6.60MB	7.5MS	7.10PAS			VIII		092	C	186	043	72	

FIGURE 2

Earthquakes of Magnitude 7.5 or Greater [1897-1974]



APPENDIX 1
DATA FORMAT--MAGNETIC TAPE

<i>Tape Position</i>	<i>Field</i>	<i>Comments</i>
1-3	10° Marsden Square number	See appendix 6.
4-5	1° Marsden Square number	Do.
6-8	Data source (see appendix 4)	Source from which all or most of the data were obtained.
9	Blank	
10-11	First two digits of year	Examples "16", "17", "18", or "19"; combine with positions 16-17.
12-17	Date (UT/GMT)	Positions 12-13 day, 14-15 month, and 16-17 year.
18-24	Origin time (UT/GMT)	Computed, or observed if controlled explosion with shot timed. Positions 18-19 hour, 20-21 minute, and 22-24 second. Implied decimal between positions 23 and 24.
25-30	Geographic latitude (decimal degrees)	Usually given to three decimal places, although this degree of accuracy is not necessarily applicable. N/S in position 30. Implied decimal between positions 26 and 27.
31-37	Geographic longitude (decimal degrees)	Usually given to three decimal places. E/W in position 37. Implied decimal between positions 33 and 34.
38-40	Focal depth (km)	See also position 73.
41-43	Body-wave (MB) average	Implied decimal between positions 41 and 42. Value as determined by PDE program.
44-45	Scale for positions 41-43	MB

APPENDIX 1 (Cont.)

<i>Tape Position</i>	<i>Field</i>	<i>Comments</i>
46-48	Isoseismal map	Three-letter abbreviation indicating the publication of an isoseismal (intensity) map. USE, <i>United States Earthquakes</i> ; EQN, <i>Earthquake Notes</i> ; PDE, <i>Preliminary Determination of Epicenters</i> ; WEL, <i>Wellington, N.Z.</i> ; NTR, <i>Nature</i> magazine.
49	Maximum intensity	Modified Mercalli Scale or converted to MM Scale. 1-9 = I-IX, X = X, E = XI, T = XII. See appendix 5.
50-55	<u>Associated Phenomena</u>	
50	Diastrophism code	F = Surface faulting U = Uplift/subsidence D = Faulting and uplift/subsidence.
51	Tsunami code	T = Tsunami generated Q = Possible tsunami.
52	Seiche code	S = Seiche Q = Possible seiche.
53	Volcanism code	V = Earthquake associated with volcanism.
54	Nontectonic code	R = Rockburst C = Coal bump or rockburst in coal mine M = Meteoritic source E = Explosion--accidental, controlled or suspected I = Collapse L = Lights or other such visual phenomena seen.
55	Waves generated code	T = T-wave A = Acoustic wave G = Gravity wave B = Both A & G.

APPENDIX 1 (Cont.)

<i>Tape Position</i>	<i>Field</i>	<i>Comments</i>
56-58	Flinn-Engdahl geo- graphic region number	As described by Flinn et al (1974). See References and appendix 7.
59-60	Surface-wave (MS) average value	Implied decimal between positions 59 and 60. Value determined by PDE program. (IASPEI formula used).
61-62	Scale for positions 59-60	MS
63	Component Z or H	Z = MS computed from long-period vertical component H = MS computed from long-period horizontal components.
64	Cultural effects	C, D, F, or H in position 64 indicates reported Casualties, Damage or Felt information, or earthquake Heard. The notations listed here provide a brief summary of the earthquake effects on population and buildings. Casualty, damage, or felt reports associated with a particular earth- quake do not imply that the effects were noted at the epicentral position. Especially with offshore earthquakes, the maximum intensity may be reported at some distance from the source of the shock. An "F" in this position with no accompanying intensity (position 49) is likely associated with an intensity of I-III on the Modified Mercalli Scale.
65	Blank	
66-68	Other magnitude	Value obtained from various sources; unspecified magnitude type but generally MS (implied decimal between positions 66 and 67). Fractions have been converted to decimal numbers: $6\frac{1}{4} = 6.25$. For ranges, median values are listed: $6\frac{1}{2} - 6\frac{3}{4} = 6.63$.

APPENDIX 1 (Cont.)

<i>Tape Position</i>	<i>Field</i>	<i>Comments</i>
69-71	Authority for magnitude in positions 66-68	See source codes in appendix 4.
72	Special event designator	X = International Data Exchange (IDE) earthquake.
73	Depth control designator	A = Assigned D = Restrained depth based on 2 or more reported pP 's identified as such G = Depth restrained by geophysicist N = Held at 33 km (normal depth), when data not sensitive to depth for a shallow focus. S = Depth control aided by use of S -phase data.
74-76	Number of stations/ Quality	Number of P and/or P' arrivals used in hypocenter solution. Quality indicators described below.

Quality Indicators

<u>Source</u>	<u>Style</u>	<u>Probable Limits of Error</u>			
G-R (Gutenberg-Richter)	3-letter combination	Epicenter	Origin time	Depth	
		deg.	sec.	km.	
		A = Very accurate	1	5	30
		B = Good	2	8	50
		C = Fair	3	12	80
		D = Poor	>3	>12	>80
MOS (Moscow)	2-letter or letter/symbol combination in positions 74 and 76	A = Best accuracy (epi-center/depth)			
		B = Very good			
		N = Good			
		V = Fair			
		* = Poor.			

APPENDIX 1 (Cont.)

Quality Indicators (Cont.)

<u>Source</u>	<u>Style</u>	<u>Probable Limits of Error</u>
PAS (Pasadena)	Single-letter designator in position 74	A = Specially investigated B = Epicenter probably within 5 km, origin time to nearest second C = Epicenter probably within 15 km, origin time to a few seconds D = Epicenter not known within 15 km, rough location.
BRK (Berkeley), WEL (Wellington, N.Z.)	Single-letter designator in position 75	A = Accurate epicenter B = Good C = Fair D = Poor.

<i>Tape Position</i>	<i>Field</i>	<i>Comments</i>
77	Authority for time and coordinates/other quality indicators	blank = Authority same as source (positions 6-8). * = Assigned to solutions for which poor azimuth, depth control, and other factors contribute to a less reliable solution. A = Parameters of explosion supplied by U.S. Atomic Energy Commission (AEC)/Energy Research and Development Administration (ERDA). B = Parameters of epicenter supplied by University of California, Berkeley. C = Parameters of epicenter supplied by Commission de Energie Atomique, Paris, France. E = Some or all parameters of explosion (controlled or accidental) supplied by any group or individual other than AEC/ERDA. G = Parameters of epicenter supplied by the U.S. Geological Survey for any area other than Island of Hawaii.

APPENDIX 1 (Cont.)

<i>Tape Position</i>	<i>Field</i>	<i>Comments</i>
77 (cont.)	Authority for time and coordinates/other quality indicators (cont.)	<p>H = Parameters of epicenter supplied by the USGS Hawaiian Volcano Observatory.</p> <p>J = Parameters of epicenter supplied by St. Louis University.</p> <p>L = Parameters of epicenter supplied by Lamont-Doherty Geological Observatory, Palisades, NY.</p> <p>M = Hypocenter based on macroseismic information.</p> <p>P = Parameters of epicenter supplied by California Institute of Technology, Pasadena.</p> <p>R = Parameters of epicenter supplied by University of Nevada, Reno.</p> <p>S = An NEIS solution based on use of dense local networks, a local crustal model, or other methods not routinely applied by NEIS (USGS).</p> <p>U = Parameters of epicenter supplied by University of Utah, Salt Lake City.</p> <p>V = Parameters of epicenter supplied by Virginia Polytechnic Institute and State Univ., Blacksburg.</p> <p>W = Parameters of epicenter supplied by University of Washington, Seattle.</p> <p>X = No time reported.</p> <p>Z = Noninstrumental.</p>
78-80	Local magnitude	Implied decimal between positions 78 and 79.
81-82	Scale for positions 78-80	Generally ML.
83-85	Authority for value 78-80	See source codes in appendix 4.
86-90	Blank	

Blocking Factor: 50 records (90 characters each) per tape block. A sample list of a block (50 records) of a geographically sorted tape follows:

APPENDIX 1 (Cont.)

15786CGS	19280570173832148450N126659W003490MB	025	057	1
15786CGS	19130869161216948483N126474W033460MB	025	N024	2
15786CGS	19011069171111348506N126485W023470MB	025	031	3
15787GS	19281074093839448174N127684W033420MB	025	N 10*	4
15787ISS	19220951101657048000N127000W	025		5
15787CGS	19141066180218048900N127000W033410MB	025	008	6
15788GS	19220874130134548937N128603W033440MB	025	N 13*	7
15788PDE	19220753101739048500N128000W	025		8
15788PDE	19220753103720048500N128000W	025		9
157888CI	19290658190518048500N128000W	025	*	10
15788ERL	19250373155321149952N126927W033420MB	025	N011*	11
15788ERL	19301271074509948946N128812W033420MB	025	N010*	12
15788G-R	19011126013918048750N128500W	025	660PAS	13
15788CGS	19050454193457048000N128000W	025		14
15788CGS	19130457034400048500N128000W	025		15
15788CGS	19160463165411848100N128600W033	025	006	16
15788CGS	19140664014652448800N128400W033	025	008	17
15788CGS	19020965113749948300N128100W033460MB	025	009	18
15788CGS	19020965140237348400N128200W033430MB	025	013	19
15788CGS	19020965154225648300N128400W033440MB	025	012	20
15788CGS	19020965154339648200N128500W033470MB	025	011	21
15788CGS	19020965180119548300N128300W033440MB	025	013	22
15788CGS	19020965194125648400N128300W033490MB	025	011	23
15788CGS	19020965211643748400N128200W033400MB	025	010	24
15788CGS	19020965212716648400N128200W026500MB	025	014	25
15788CGS	19030965044236148400N129200W012460MB	025	012	26
15788CGS	19111162214520548900N128800W033	025	021	27
15788CGS	19171168211134748979N128882W010440MB	025	031	28
15788CGS	19221168115925848968N128729W044400MB	025	011*	29
15789ERL	19201171212442648755N129520W033550MB	02557MS	N104	30
15789ERL	19251171234012148777N129377W033510MB	025	N042	31
15789G-R	19310530102153048500N129000W	025	540PAS	32
15789G-R	19301026194155048500N129000W	025	610PAS	33
15789CGS	19050454192600046000N129000W	025		34
15789CGS	19280656225850048750N129250W	025	637PAS	35
15795OTT	19230646171319049900N125300W	025	0 730PAS	36
15796GS	19200774191559049916N126521W033400MB	025	N 12*430MLNEW	37
15796G-R	19061218084105049750N126500W	025	F 700PAS	38
15797GS	19130773025930149115N127840W033480MB	025	N011*	39
15797BCI	19251254013137049250N127000W	025		40
15797ERL	19050772101638449545N127213W027500MB	02557MS F 550BRK	067	41
15797NOS	19100371153828749320N127391W033500MB	025	N040	42
15797CGS	19300349202828049000N127500W	025		43
15797CGS	19090464004653249100N127500W033410MB	025	008	44
15797CGS	19310565032042049300N127800W011470MB	025	020	45
15797CGS	19291061140012049400N127600W056	025		46
15797CGS	19091267183149749200N127700W033400MB	025	016	47
15798GS	19300574005956049063N128386W033480MB	02542MS	N 17	48
15798GS	19130773025939149027N128008W033530MB	02551MS	N072	49
15798GS	19170874213612649113N128403W033470MB	025	N 17	50

10445

10445

APPENDIX 2

DATA FORMAT--PUNCHED CARDS

<i>Card column</i>	<i>Field*</i>	<i>Tape Position</i>
1-3	Data source (appendix 4)	6-8
4	Blank	9
5-6	First two digits of year	10-11
7-12	Date (UT/GMT)	12-17
13-19	Origin time (UT/GMT)	18-24
20-25	Geographic latitude	25-30
26-32	Geographic longitude	31-37
33-35	Focal depth (km)	38-40
36-38	Body-wave average value	41-43
39-40	MB	44-45
41-43	Isoseismal map	46-48
44	Maximum intensity (appendix 5)	49
45-50	<u>Associated Phenomena</u>	50-55
45	Diastrophism code	50
46	Tsunami code	51
47	Seiche code	52
48	Volcanism code	53
49	Nontectonic code	54
50	Waves generated code	55
51-53	Flinn-Engdahl geographic region number (appendix 7)	56-58
54-55	Surface-wave average value	59-60
56-57	MS	61-62
58	Component Z or H	63

*Refer to Data Format--Magnetic Tape (appendix 1) for description of Field and Codes.

APPENDIX 2 (Cont.)

<i>Column</i>	<i>Field</i>	<i>Tape Position</i>
59	Cultural effects	64
60	Blank	65
61-63	Other magnitude	66-68
64-66	Authority	69-71
67	Special event designator	72
68	Depth control designator	73
69-71	Number of stations/Quality	74-76
72	Authority for time and coordinates/ other quality indicators	77
73-75	Local magnitude	78-80
76-77	Generally ML	81-82
78-80	Authority	83-85

APPENDIX 3

DATA FORMAT--PRINTOUTS

<i>Field</i>	<i>Description*</i>	<i>Tape Position**</i>
SOURCE	Data source (appendix 4).	6-8
YEAR, MO, DA	Date (UT/GMT).	10-17
HR, MN, SEC	Origin time (UT/GMT). Letter or symbol following time is quality and code for time and coordinates.	18-24, 77
LAT, LONG	Geographic latitude and longitude.	25-37
DEPTH	A, G, D, or N following value designates depth control factor.	38-40, 73
MAGNITUDES	Body- and surface- (SURF.) wave values as determined by PDE programs. Authority for other magnitudes and local magnitudes according to source codes (appendix 4).	41-43, 59-60, 66-68, 78-80
INT MAP	Isoseismal map published.	46-48
INT MAX	Maximum intensity (appendix 5).	49
PHENOM DTSVNO	Associated phenomena: Diastrophism, Tsunami, Seiche, Volcanism, Nontectonic, and Waves Generated.	50-55
RN	Flinn-Engdahl geographic region number (appendix 7).	56-58
CE	Cultural effects.	64
Q/S	Quality/number of stations.	74-76
MAR DG	Marsden (10°) square and (1°) subsquare number (appendix 6).	1-5
DIST	On radius searches, the distance in km between the earthquake location and the designated point.	-

*See Data Format--Magnetic Tape (appendix 1) for detailed description.

**The programmed format used in the Earthquake Data File printouts incorporates decimal points in the origin time and coordinates and is designed to present the data in a readable style.

APPENDIX 4

CODES FOR DATA SOURCES

ADK	Adak, AK, USA	HEL	Helsinki, Finland
AEC	U.S. Atomic Energy Commission	HRB	Hurbanovo, Czechoslovakia
AGS	Alaska Seismic Studies, USGS- NCER, Menlo Park, CA, USA	HVO	Hawaiian Volcano Obsy., Hawaii National Park, HI, USA
ALG	Algiers, Algeria	ISK	Istanbul-Kandilli, Turkey
ALI	Alicante, Spain	ISS	International Seismological Summary, Kew, England, UK
ALM	Almeria, Spain	IST	Istanbul, Turkey
ALQ	Albuquerque, NM, USA	JER	Jerusalem, Israel
APA	Apatity, RSFSR, USSR	JMA	Japan Meteorological Agency, Tokyo, Japan
API	Apia, Samoa Is.	JOH	Johannesburg, South Africa
ATH	Athens Observatory, Greece	KAR	Karachi, Pakistan
BCI	Bureau Central International de Séismologie, Strasbourg, France	KEW	Kew, England, UK
BLA	Blacksburg, VA, USA	KIR	Kiruna, Sweden
BNS	Bensberg, Federal Republic of Germany	LEM	Lembang, Java, Indonesia
BOG	Bogota, Colombia	LIS	Lisbon, Portugal
BRA	Bratislava, Czechoslovakia	LJU	Ljubljana, Yugoslavia
BRK	Berkeley (Haviland), CA, USA	LWI	Lwiro, Zaire
BSS	<i>Bulletin of the Seismological Society of America</i>	MAL	Malaga, Spain
BUC	Bucharest, Romania	MAN	Manila, Philippines
BUL	Bulawayo, Rhodesia	MAT	Matsushiro, Honshu, Japan
CAN	Canberra, Australian Capital Territory, Australia	MER	Merida, Mexico
CAR	Caracas, Venezuela	MOS	Moscow, RSFSR, USSR
CFR	Charles F. Richter (see Richter, 1958, in References)	MOX	Moxa, German Democratic Republic
CGS	Coast and Geodetic Survey	NCE	National Center for Earth- quake Research (NCER), Menlo Park, CA, USA
CHC	Chapel Hill, NC, USA	NES	Northeastern Seismological Association, Weston, MA, USA
CLL	Collmburg, German Democratic Republic	NOS	National Ocean Survey
DJA	Djakarta, Java, Indonesia	NOU	Noumea, New Caledonia
EQH	<i>Earthquake History of the United States</i> (see References)	NRR	North Reno, NV, USA
ERL	Environmental Research Laboratories	OAX	Oaxaca, Mexico
GIA	Geophysical Institute, University of Alaska, Fairbanks, AK, USA	OBM	Ulan Bator, Mongolia
G-R	Gutenberg-Richter (see Gutenberg and Richter, 1954, in References)	OTT	Ottawa, Ontario, Canada
GOL	Golden (Bergen Park), CO, USA	OXF	Oxford, MS, USA
GS	U.S. Geological Survey, Denver, CO, USA	PAL	Palisades, NY, USA
		PAS	Pasadena, CA, USA
		PDE	<i>Preliminary Determination of Epicenters</i>
		PEK	Peking, China
		PET	Petropavlovsk, RSFSR, USSR
		PMG	Port Moresby, Papua

APPENDIX 4 (Cont.)

PMR	Palmer, AK, USA	STU	Stuttgart, Federal Republic of Germany
PRA	Praha (Prague), Czechoslovakia	SYK	Sykes (see References)
PRU	Pruhonice, Czechoslovakia	TAC	Tacubaya, Mexico
QUE	Quetta, Pakistan	TEH	Teheran, Iran
RAC	Raciborz, Poland	TOC	Tocklai, India
REY	Reykjavik, Iceland	TRI	Trieste, Italy
RIV	Riverview, New South Wales, Australia	TRN	Trinidad, Trinidad, W.I.
RMP	Rome (Monte Porzio Catone), Italy	TUL	Tulsa, OK, USA
ROM	Rome, Italy	UCC	Uccle, Belgium
SAN	Santiago, Chile	UGL	Uglegorsk, RSFSR, USSR
SEA	Seattle, WA, USA	UPP	Uppsala, Sweden
SHI	Shiraz, Iran	USE	<i>United States Earthquakes</i>
SHL	Shillong, India	VIC	Victoria, British Columbia, Canada
SLM	St. Louis, MO, USA	WAR	Warsaw, Poland
SNM	Socorro, NM, USA	WEL	Wellington, New Zealand
SSS	San Salvador, El Salvador	YSS	Yuzhno-Sakhalinsk, RSFSR, USSR
STR	Strasbourg, France	ZUR	Zurich, Switzerland

APPENDIX 5

MODIFIED MERCALLI INTENSITY SCALE OF 1931 (Abridged)

- I. Not felt except by a very few under especially favorable circumstances.
- II. Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.
- III. Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motorcars may rock slightly. Vibration like a passing truck. Duration estimated.
- IV. During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make creaking sound. Sensation like heavy truck striking building. Standing motorcars rocked noticeably.
- V. Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.
- VI. Felt by all; many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.
- VII. Everybody runs outdoors. Damage *negligible* in buildings of good design and construction; *slight to moderate* in well-built ordinary structures; *considerable* in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motorcars.
- VIII. Damage *slight* in specially designed structures; *considerable* in ordinary substantial buildings, with partial collapse; *great* in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motorcars disturbed.
- IX. Damage *considerable* in specially designed structures; well-designed frame structures thrown out of plumb; *great* in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.
- X. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with their foundations; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.

APPENDIX 5 (Cont.)

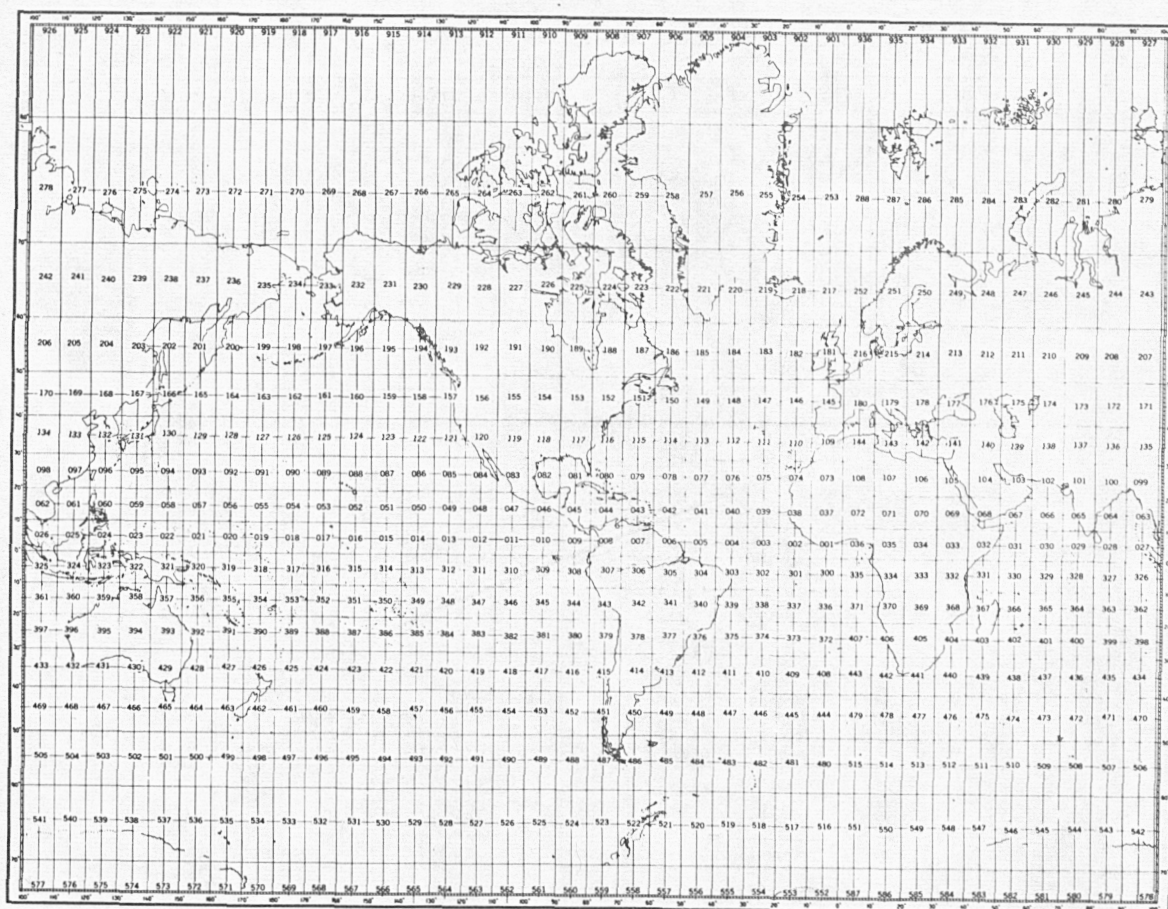
XI. Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.

XII. Damage *total*. Waves seen on ground surfaces. Lines of sight and level distorted. Objects thrown upward into air.

USA Modified Mercalli, 1931 (MM)	Japanese, 1950 (JMA)	Rossi-Forel, 1873 (RF)	European (Mercalli- Cancani-Sieberg), 1917
I	0	I	I
II	I	I-II	II
III	II	III	III
IV	II-III	IV-V	IV
V	III	V-VI	V
VI	IV	VI-VII	VI
VII	IV-V	VIII-	VII
VIII	V	VIII+ - IX-	VIII
IX	V-VI	IX+	IX
X	VI	X	X
XI	VII		XI
XII			XII

APPENDIX 6. MARSDEN SQUARE CHARTS

10° MARSDEN SQUARE CHART



1° MARSDEN SQUARE CHART



85

4

001

ONE DEGREE SQUARE

QUADRANT

MARSDEN SQUARE

APPENDIX 7

FLINN-ENGDAHL REGIONS

1	CENTRAL ALASKA	75	NICARAGUA
2	SOUTHERN ALASKA	76	OFF COAST OF CENTRAL AMERICA
3	BERING SEA	77	OFF COAST OF COSTA RICA
4	KOMANDORSKY ISLANDS REGION	78	COSTA RICA
5	NEAR ISLANDS, ALEUTIAN ISLANDS	79	NORTH OF PANAMA
6	RAT ISLANDS, ALEUTIAN ISLANDS	80	PANAMA-COSTA RICA BORDER REGION
7	ANDREANOF ISLANDS, ALEUTIAN IS.	81	PANAMA
8	PRIBILOF ISLANDS	82	PANAMA-COLOMBIA BORDER REGION
9	FOX ISLANDS, ALEUTIAN ISLANDS	83	SOUTH OF PANAMA
10	UNIMAK ISLAND REGION	84	YUCUTAN PENINSULA
11	BRISTOL BAY	85	CUBA REGION
12	ALASKA PENINSULA	86	JAMAICA REGION
13	KODIAK ISLAND REGION	87	HAITI REGION
14	KENAI PENINSULA, ALASKA	88	DOMINICAN REPUBLIC REGION
15	GULF OF ALASKA	89	MONA PASSAGE
16	ALEUTIAN ISLANDS REGION	90	PUERTO RICO REGION
17	SOUTH OF ALASKA	91	VIRGIN ISLANDS
18	SOUTHERN YUKON TERRITORY, CANADA	92	LEEWARD ISLANDS
19	SOUTHEASTERN ALASKA	93	BRITISH HONDURAS
20	OFF COAST OF SOUTHEASTERN ALASKA	94	CARIBBEAN SEA
21	WEST OF VANCOUVER ISLAND	95	WINDWARD ISLANDS
22	QUEEN CHARLOTTE ISLANDS REGION	96	NEAR NORTH COAST OF COLOMBIA
23	BRITISH COLUMBIA	97	NEAR COAST OF VENEZUELA
24	ALBERTA PROVINCE, CANADA	98	TRINIDAD
25	VANCOUVER ISLAND REGION	99	NORTHERN COLOMBIA
26	OFF COAST OF WASHINGTON	100	LAKE MARACAIBO
27	NEAR COAST OF WASHINGTON	101	VENEZUELA
28	WASHINGTON-OREGON BORDER REGION	102	NEAR WEST COAST OF COLOMBIA
29	WASHINGTON	103	COLOMBIA
30	OFF COAST OF OREGON	104	OFF COAST OF ECUADOR
31	NEAR COAST OF OREGON	105	NEAR COAST OF ECUADOR
32	OREGON	106	COLOMBIA-ECUADOR BORDER REGION
33	WESTERN IDAHO	107	ECUADOR
34	OFF COAST OF NORTHERN CALIFORNIA	108	OFF COAST OF NORTHERN PERU
35	NEAR COAST OF NORTHERN CALIF.	109	NEAR COAST OF NORTHERN PERU
36	NORTHERN CALIFORNIA	110	PERU-ECUADOR BORDER REGION
37	NEVADA	111	NORTHERN PERU
38	OFF COAST OF CALIFORNIA	112	PERU-BRAZIL BORDER REGION
39	CENTRAL CALIFORNIA	113	WESTERN BRAZIL
40	CALIFORNIA-NEVADA BORDER REGION	114	OFF COAST OF PERU
41	SOUTHERN NEVADA	115	NEAR COAST OF PERU
42	WESTERN ARIZONA	116	PERU
43	SOUTHERN CALIFORNIA	117	SOUTHERN PERU
44	CALIFORNIA-ARIZONA BORDER REGION	118	PERU-BOLIVIA BORDER REGION
45	CALIFORNIA-MEXICO BORDER REGION	119	NORTHERN BOLIVIA
46	W. ARIZ. - MEXICO BORDER REGION	120	BOLIVIA
47	OFF W. COAST OF BAJA CALIFORNIA	121	OFF COAST OF NORTHERN CHILE
48	BAJA CALIFORNIA	122	NEAR COAST OF NORTHERN CHILE
49	GULF OF CALIFORNIA	123	NORTHERN CHILE
50	NORTHWESTERN MEXICO	124	CHILE-BOLIVIA BORDER REGION
51	OFF COAST OF CENTRAL MEXICO	125	SOUTHERN BOLIVIA
52	NEAR COAST OF CENTRAL MEXICO	126	PARAGUAY
53	REVILLA GIGEDO ISLANDS REGION	127	CHILE-ARGENTINA BORDER REGION
54	OFF COAST OF JALISCO, MEXICO	128	JUJUY PROVINCE, ARGENTINA
55	NEAR COAST OF JALISCO, MEXICO	129	SALTA PROVINCE, ARGENTINA
56	NEAR COAST OF MICHOACAN, MEXICO	130	CATAMARCA PROVINCE, ARGENTINA
57	MICHOACAN, MEXICO	131	TUCUMAN PROVINCE, ARGENTINA
58	NEAR COAST OF GUERRERO, MEXICO	132	SANTIAGO DEL ESTERO PROV., ARG.
59	GUERRERO, MEXICO	133	NORTHEASTERN ARGENTINA
60	OAXACA, MEXICO	134	OFF COAST OF CENTRAL CHILE
61	CHIAPAS, MEXICO	135	NEAR COAST OF CENTRAL CHILE
62	MEXICO-GUATEMALA BORDER REGION	136	CENTRAL CHILE
63	OFF COAST OF MEXICO	137	SAN JUAN PROVINCE, ARGENTINA
64	OFF COAST OF MICHOACAN, MEXICO	138	LA RIOJA PROVINCE, ARGENTINA
65	OFF COAST OF GUERRERO, MEXICO	139	MENDOZA PROVINCE, ARGENTINA
66	NEAR COAST OF OAXACA, MEXICO	140	SAN LUIS PROVINCE, ARGENTINA
67	OFF COAST OF OAXACA, MEXICO	141	CORDOBA PROVINCE, ARGENTINA
68	OFF COAST OF CHIAPAS, MEXICO	142	URUGUAY
69	NEAR COAST OF CHIAPAS, MEXICO	143	OFF COAST OF SOUTHERN CHILE
70	GUATEMALA	144	NEAR COAST OF SOUTHERN CHILE
71	NEAR COAST OF GUATEMALA	145	S. CHILE-ARGENTINA BORDER REGION
72	HONDURAS	146	ARGENTINA
73	EL SALVADOR	147	TIERRA DEL FUEGO
74	NEAR COAST OF NICARAGUA	148	FALKLAND ISLANDS REGION

APPENDIX 7 (Cont.)

149	DRAKE PASSAGE	225	OFF COAST OF HOKKAIDO, JAPAN
150	SCOTIA SEA	226	NEAR WEST COAST OF HONSHU, JAPAN
151	SOUTH GEORGIA ISLAND REGION	227	HONSHU, JAPAN
152	SOUTH GEORGIA RISE	228	NEAR EAST COAST OF HONSHU, JAPAN
153	SOUTH SANDWICH ISLANDS REGION	229	OFF EAST COAST OF HONSHU, JAPAN
154	SOUTH SHETLAND ISLANDS	230	NEAR S. COAST OF HONSHU, JAPAN
155	ANTARCTIC PENINSULA	231	SOUTH KOREA
156	SOUTHWESTERN ATLANTIC OCEAN	232	SOUTHERN HONSHU, JAPAN
157	WEDDELL SEA	233	NEAR S. COAST OF SOUTHERN HONSHU
158	OFF W. COAST OF N. ISLAND, N.Z.	234	EAST CHINA SEA
159	NORTH ISLAND, NEW ZEALAND	235	KYUSHU, JAPAN
160	OFF E. COAST OF N. ISLAND, N.Z.	236	SHIKOKU, JAPAN
161	OFF W. COAST OF S. ISLAND, N.Z.	237	SOUTHEAST OF SHIKOKU, JAPAN
162	SOUTH ISLAND, NEW ZEALAND	238	RYUKYU ISLANDS
163	COOK STRAIT, NEW ZEALAND	239	RYUKYU ISLANDS REGION
164	OFF E. COAST OF S. ISLAND, N.Z.	240	EAST OF RYUKYU ISLANDS
165	NORTH OF MACQUARIE ISLAND	241	PHILIPPINE SEA
166	AUCKLAND ISLANDS REGION	242	NEAR SOUTHEASTERN COAST OF CHINA
167	MACQUARIE ISLANDS REGION	243	TAIWAN REGION
168	SOUTH OF NEW ZEALAND	244	TAIWAN
169	SAMOA ISLANDS REGION	245	NORTHEAST OF TAIWAN
170	SAMOA ISLANDS	246	SOUTHWESTERN RYUKYU ISLANDS
171	SOUTH OF FIJI ISLANDS	247	SOUTHEAST OF TAIWAN
172	WEST OF TONGA ISLANDS	248	PHILIPPINE ISLANDS REGION
173	TONGA ISLANDS	249	LUZON, PHILIPPINE ISLANDS
174	TONGA ISLANDS REGION	250	MINDORO, PHILIPPINE ISLANDS
175	SOUTH OF TONGA ISLANDS	251	SAMAR, PHILIPPINE ISLANDS
176	NORTH OF NEW ZEALAND	252	PALAWAN, PHILIPPINE ISLANDS
177	KERMADEC ISLANDS REGION	253	SULU SEA
178	KERMADEC ISLANDS	254	PANAY, PHILIPPINE ISLANDS
179	SOUTH OF KERMADEC ISLANDS	255	CEBU, PHILIPPINE ISLANDS
180	NORTH OF FIJI ISLANDS	256	LEYTE, PHILIPPINE ISLANDS
181	FIJI ISLANDS REGION	257	NEGROS, PHILIPPINE ISLANDS
182	FIJI ISLANDS	258	SULU ARCHIPELAGO
183	SANTA CRUZ ISLANDS REGION	259	MINDANAO, PHILIPPINE ISLANDS
184	SANTA CRUZ ISLANDS	260	EAST OF PHILIPPINE ISLANDS
185	NEW HEBRIDES ISLANDS REGION	261	BORNEO
186	NEW HEBRIDES ISLANDS	262	CELEBES SEA
187	NEW CALEDONIA	263	TALAUD ISLANDS
188	LOYALTY ISLANDS	264	NORTH OF MALMAHERA
189	LOYALTY ISLANDS REGION	265	NORTHERN CELEBES
190	NEW IRELAND REGION	266	MOLUCCA PASSAGE
191	NORTH OF SOLOMON ISLANDS	267	HALMAHERA
192	NEW BRITAIN REGION	268	CELEBES
193	SOLOMON ISLANDS	269	MOLUCCA SEA
194	DENTRECASTEAUX ISLANDS REGION	270	CERAM SEA
195	SOLOMON ISLANDS REGION	271	BURU
196	WEST NEW GUINEA REGION	272	CERAM
197	NEAR N. COAST OF WEST NEW GUINEA	273	SOUTHWEST OF SUMATRA
198	NEW GUINEA REGION	274	SOUTHERN SUMATRA
199	ADMIRALTY ISLANDS REGION	275	JAVA SEA
200	NEAR NORTH COAST OF NEW GUINEA	276	SUNDA STRAIT
201	WEST NEW GUINEA	277	JAVA
202	NEW GUINEA	278	BALI SEA
203	BISMARCK SEA	279	FLORES SEA
204	AROE ISLANDS REGION	280	BANDA SEA
205	NEAR S. COAST OF WEST NEW GUINEA	281	TANIMBAR ISLANDS REGION
206	NEAR SOUTH COAST OF NEW GUINEA	282	SOUTH OF JAVA
207	EAST NEW GUINEA REGION	283	BALI ISLAND REGION
208	ARAFURA SEA	284	SOUTH OF BALI ISLAND
209	WEST CAROLINE ISLANDS	285	SUMBAWA ISLAND REGION
210	SOUTH OF MARIANA ISLANDS	286	FLORES ISLAND REGION
211	SOUTH OF HONSHU, JAPAN	287	SUMBA ISLAND REGION
212	BONIN ISLANDS REGION	288	SAWU SEA
213	VOLCANO ISLANDS REGION	289	TIMOR
214	WEST OF MARIANA ISLANDS	290	TIMOR SEA
215	MARIANA ISLANDS REGION	291	SOUTH OF SUMBAWA ISLAND
216	MARIANA ISLANDS	292	SOUTH OF SUMBA ISLAND
217	KAMCHATKA	293	SOUTH OF TIMOR
218	NEAR EAST COAST OF KAMCHATKA	294	BURMA-INDIA BORDER REGION
219	OFF EAST COAST OF KAMCHATKA	295	BURMA-EAST PAKISTAN BORDER REG.
220	NORTHWEST OF KURIL ISLANDS	296	BURMA
221	KURIL ISLANDS	297	BURMA-CHINA BORDER REGION
222	KURIL ISLANDS REGION	298	SOUTH BURMA
223	EASTERN SEA OF JAPAN	299	SOUTHEAST ASIA
224	HOKKAIDO, JAPAN REGION	300	HAINAN ISLAND

APPENDIX 7 (Cont.)

301	SOUTH CHINA SEA	377	SPAIN
302	EASTERN KASHMIR	378	PYRENEES
303	KASHMIR-INDIA BORDER REGION	379	NEAR SOUTH COAST OF FRANCE
304	KASHMIR-TIBET BORDER REGION	380	CORSICA
305	TIBET-INDIA BORDER REGION	381	CENTRAL ITALY
306	TIBET	382	ADRIATIC SEA
307	SZECHWAN PROVINCE, CHINA	383	YUGOSLAVIA
308	NORTHERN INDIA	384	WEST OF GIBRALTAR
309	NEPAL-INDIA BORDER REGION	385	STRAIT OF GIBRALTAR
310	NEPAL	386	BALEARIC ISLANDS
311	SIKKIM	387	WESTERN MEDITERRANEAN SEA
312	BHUTAN	388	SARDINIA
313	INDIA-CHINA BORDER REGION	389	TYRRHENIAN SEA
314	INDIA	390	SOUTHERN ITALY
315	INDIA-EAST PAKISTAN BORDER REG.	391	ALBANIA
316	EAST PAKISTAN	392	GREECE-ALBANIA BORDER REGION
317	EASTERN INDIA	393	MADEIRA ISLANDS REGION
318	YUNNAN PROVINCE, CHINA	394	CANARY ISLANDS REGION
319	BAY OF BENGAL	395	MOROCCO
320	KIRGIZ-SINKIANG BORDER REGION	396	ALGERIA
321	SOUTHERN SINKIANG PROV., CHINA	397	TUNISIA
322	KANSU PROVINCE, CHINA	398	SICILY
323	NORTHERN CHINA	399	IONIAN SEA
324	KASHMIR-SINKIANG BORDER REGION	400	MEDITERRANEAN SEA
325	TSINGHAI PROVINCE, CHINA	401	NEAR COAST OF LIBYA
326	CENTRAL RUSSIA	402	NORTH ATLANTIC OCEAN
327	LAKE BAIKAL REGION	403	NORTH ATLANTIC RIDGE
328	EAST OF LAKE BAIKAL	404	AZORES ISLANDS REGION
329	EASTERN KAZAKH SSR	405	AZORES ISLANDS
330	ALMA-ATA REGION	406	CENTRAL MID-ATLANTIC RIDGE
331	KAZAKH-SINKIANG BORDER REGION	407	NORTH OF ASCENSION ISLAND
332	NORTHERN SINKIANG PROV., CHINA	408	ASCENSION ISLAND REGION
333	USSR-MONGOLIA BORDER REGION	409	SOUTH ATLANTIC OCEAN
334	MONGOLIA	410	SOUTH ATLANTIC RIDGE
335	URAL MOUNTAINS REGION	411	TRISTAN DA CUNHA REGION
336	WESTERN KAZAKH SSR	412	BOUVET ISLAND REGION
337	EASTERN CAUCASUS	413	SOUTHWEST OF AFRICA
338	CASPIAN SEA	414	SOUTHEASTERN ATLANTIC OCEAN
339	UZBEK SSR	415	EASTERN GULF OF ADEN
340	TURKMEN SSR	416	SOCOTRA REGION
341	IRAN-USSR BORDER REGION	417	ARABIAN SEA
342	TURKMEN-AFGHANISTAN BORDER REG.	418	LACCADIVE ISLANDS REGION
343	TURKEY-IRAN BORDER REGION	419	NORTHEASTERN SOMALIA
344	N.W. IRAN-USSR BORDER REGION	420	NORTH INDIAN OCEAN
345	NORTHWESTERN IRAN	421	CARLSBERG RIDGE
346	IRAN-IRAQ BORDER REGION	422	MALGIVE ISLANDS REGION
347	WESTERN IRAN	423	LACCADIVE SEA
348	IRAN	424	CEYLON
349	NORTHWESTERN AFGHANISTAN	425	SOUTH INDIAN OCEAN
350	SOUTHWESTERN AFGHANISTAN	426	CHAGOS ARCHIPELAGO REGION
351	EASTERN ARABIAN PENINSULA	427	MASCARENE ISLANDS REGION
352	PERSIAN GULF	428	ATLANTIC-INDIAN RISE
353	SOUTHERN IRAN	429	MID-INDIAN RISE
354	WESTERN PAKISTAN	430	SOUTH OF AFRICA
355	GULF OF OMAN	431	PRINCE EDWARD ISLANDS REGION
356	NEAR COAST OF WEST PAKISTAN	432	CROZET ISLANDS REGION
357	SOUTHWESTERN RUSSIA	433	KERGUELEN ISLANDS REGION
358	RUMANIA	434	AMSTERDAM-NATURALISTE RIDGE
359	BULGARIA	435	SOUTHEAST INDIAN RISE
360	BLACK SEA	436	KERGUELEN-GAUSSBERG RISE
361	CRIMEA REGION	437	SOUTH OF AUSTRALIA
362	WESTERN CAUCASUS	438	SASKATCHEWAN PROVINCE, CANADA
363	GREECE-BULGARIA BORDER REGION	439	MANITOBA PROVINCE, CANADA
364	GREECE	440	HUDSON BAY
365	AEGEAN SEA	441	ONTARIO
366	TURKEY	442	HUDSON STRAIT REGION
367	TURKEY-USSR BORDER REGION	443	NORTHERN QUEBEC
368	SOUTHERN GREECE	444	DAVIS STRAIT
369	DODECANESE ISLANDS	445	LABRADOR
370	CRETE	446	EAST OF LABRADOR
371	EASTERN MEDITERRANEAN SEA	447	SOUTHERN QUEBEC
372	CYPRUS	448	GASPE PENINSULA
373	DEAD SEA REGION	449	EASTERN QUEBEC
374	JORDAN - SYRIA REGION	450	ANTICOSTI ISLAND, CANADA
375	IRAQ	451	NEW BRUNSWICK
376	PORTUGAL	452	NOVA SCOTIA

APPENDIX 7 (Cont.)

453	PRINCE EDWARD ISLAND, CANADA	529	GUYANA
454	GULF OF ST. LAWRENCE	530	SURINAM
455	NEWFOUNDLAND	531	FRENCH GUIANA
456	MONTANA	532	EIRE
457	EASTERN IDAHO	533	UNITED KINGDOM
458	HEBGEN LAKE REGION	534	NORTH SEA
459	YELLOWSTONE NATIONAL PARK, WYO.	535	SOUTHERN NORWAY
460	WYOMING	536	SWEDEN
461	NORTH DAKOTA	537	BALTIC SEA
462	SOUTH DAKOTA	538	FRANCE
463	NEBRASKA	539	BAY OF BISCAY
464	MINNESOTA	540	NETHERLANDS
465	IOWA	541	BELGIUM
466	WISCONSIN	542	DENMARK
467	ILLINOIS	543	GERMANY
468	MICHIGAN	544	SWITZERLAND
469	INDIANA	545	NORTHERN ITALY
470	SOUTHERN ONTARIO	546	AUSTRIA
471	OHIO	547	CZECHOSLOVAKIA
472	NEW YORK	548	POLAND
473	PENNSYLVANIA	549	HUNGARY
474	NORTHERN NEW ENGLAND	550	NORTHWEST AFRICA
475	MAINE	551	SOUTHERN ALGERIA
476	SOUTHERN NEW ENGLAND	552	LIBYA
477	GULF OF MAINE	553	UNITED ARAB REPUBLIC
478	UTAH	554	RED SEA
479	COLORADO	555	WESTERN ARABIAN PENINSULA
480	KANSAS	556	CENTRAL AFRICA
481	IOWA-MISSOURI BORDER REGION	557	SUDAN
482	MISSOURI-KANSAS BORDER REGION	558	ETHIOPIA
483	MISSOURI	559	WESTERN GULF OF ADEN
484	MISSOURI-ARKANSAS BORDER REGION	560	NORTHWESTERN SOMALIA
485	EASTERN MISSOURI	561	OFF S. COAST OF NORTHWEST AFRICA
486	NEW MADRID, MISSOURI REGION	562	CAMEROON
487	CAPE GIRARDEAU, MISSOURI REGION	563	RIO MUNI
488	SOUTHERN ILLINOIS	564	CENTRAL AFRICAN REPUBLIC
489	SOUTHERN INDIANA	565	GABON
490	KENTUCKY	566	CONGO
491	WEST VIRGINIA	567	REPUBLIC OF THE CONGO
492	VIRGINIA	568	UGANDA
493	CHESAPEAKE BAY REGION	569	LAKE VICTORIA REGION
494	NEW JERSEY	570	KENYA
495	EASTERN ARIZONA	571	SOUTHERN SOMALIA
496	NEW MEXICO	572	LAKE TANGANYIKA REGION
497	TEXAS PANHANDLE REGION	573	TANZANIA
498	WEST TEXAS	574	NORTHWEST OF MALAGASAY REPUBLIC
499	OKLAHOMA	575	ANGOLA
500	CENTRAL TEXAS	576	ZAMBIA
501	ARKANSAS-OKLAHOMA BORDER REGION	577	MALAWI
502	ARKANSAS	578	SOUTHWEST AFRICA
503	LOUISIANA-TEXAS BORDER REGION	579	BOTSWANA REPUBLIC
504	LOUISIANA	580	RHODESIA
505	MISSISSIPPI	581	MOZAMBIQUE
506	TENNESSEE	582	MOZAMBIQUE CHANNEL
507	ALABAMA	583	MALAGASAY REPUBLIC
508	WESTERN FLORIDA	584	REPUBLIC OF SOUTH AFRICA
509	GEORGIA	585	LESOTHO
510	FLORIDA-GEORGIA BORDER REGION	586	SWAZILAND
511	SOUTH CAROLINA	587	OFF COAST OF SOUTH AFRICA
512	NORTH CAROLINA	588	NORTHWEST OF AUSTRALIA
513	OFF EAST COAST OF UNITED STATES	589	WEST OF AUSTRALIA
514	FLORIDA PENINSULA	590	WESTERN AUSTRALIA
515	BAHAMA ISLANDS	591	NORTHERN TERRITORY, AUSTRALIA
516	E. ARIZ. - MEXICO BORDER REGION	592	SOUTH AUSTRALIA
517	MEXICO-NEW MEXICO BORDER REGION	593	GULF OF CARPENTARIA
518	TEXAS-MEXICO BORDER REGION	594	QUEENSLAND, AUSTRALIA
519	SOUTHERN TEXAS	595	CORAL SEA
520	TEXAS GULF COAST	596	SOUTH OF SOLOMON ISLANDS
521	CHIHUAHUA, MEXICO	597	NEW CALEDONIA REGION
522	NORTHERN MEXICO	598	SOUTHWEST OF AUSTRALIA
523	CENTRAL MEXICO	599	OFF SOUTH COAST OF AUSTRALIA
524	JALISCO, MEXICO	600	NEAR SOUTH COAST OF AUSTRALIA
525	VERA CRUZ, MEXICO	601	NEW SOUTH WALES, AUSTRALIA
526	GULF OF MEXICO	602	VICTORIA, AUSTRALIA
527	GULF OF CAMPECHE	603	NEAR S.E. COAST OF AUSTRALIA
528	BRAZIL	604	NEAR EAST COAST OF AUSTRALIA

APPENDIX 7 (Cont.)

605	EAST OF AUSTRALIA	681	BAFFIN BAY
606	NORFOLK ISLAND REGION	682	BAFFIN ISLAND REGION
607	NORTHWEST OF NEW ZEALAND	683	SOUTHEAST CENTRAL PACIFIC OCEAN
608	BASS STRAIT	684	EASTER ISLAND CORDILLERA
609	TASMANIA REGION	685	EASTER ISLAND REGION
610	SOUTHEAST OF AUSTRALIA	686	WEST CHILE RISE
611	NORTH PACIFIC OCEAN	687	JUAN FERNANDEZ ISLANDS REGION
612	HAWAII REGION	688	EAST OF NORTH ISLAND, N.Z.
613	HAWAII	689	CHATHAM ISLANDS REGION
614	CAROLINE ISLANDS REGION	690	SOUTH OF CHATHAM ISLANDS
615	MARSHALL ISLANDS REGION	691	SOUTH PACIFIC CORDILLERA
616	ENIWETOK ATOLL REGION	692	SOUTHERN PACIFIC OCEAN
617	BIKINI ATOLL REGION	693	EAST CENTRAL PACIFIC OCEAN
618	GILBERT ISLANDS REGION	694	NORTHERN EASTER I. CORDILLERA
619	JOHNSON ISLAND REGION	695	WEST OF GALAPAGOS ISLANDS
620	LINE ISLANDS REGION	696	GALAPAGOS ISLANDS REGION
621	PALMYRA ISLAND REGION	697	GALAPAGOS ISLANDS
622	CHRISTMAS ISLAND REGION	698	SOUTHWEST OF GALAPAGOS ISLANDS
623	ELLICE ISLANDS REGION	699	SOUTHEAST OF GALAPAGOS ISLANDS
624	PHOENIX ISLANDS REGION	700	SOUTH OF TASMANIA
625	TEKELAU ISLANDS REGION	701	WEST OF MACQUARIE ISLAND
626	NORTHERN COOK ISLANDS	702	BALLENY ISLANDS REGION
627	COOK ISLANDS REGION	703	ANDAMAN ISLANDS REGION
628	SOCIETY ISLANDS REGION	704	NICOBAR ISLANDS REGION
629	TUBUAI ISLANDS REGION	705	OFF W. COAST OF NORTHERN SUMATRA
630	MARQUESAS ISLANDS REGION	706	NORTHERN SUMATRA
631	TUAMOTU ARCHIPELAGO REGION	707	MALAY PENINSULA
632	SOUTH PACIFIC OCEAN	708	GULF OF SIAM
633	LOMONOSOV RIDGE	709	AFGHANISTAN
634	ARCTIC OCEAN	710	WEST PAKISTAN
635	NEAR NORTH COAST OF GREENLAND	711	SOUTHWESTERN KASHMIR
636	EASTERN GREENLAND	712	INDIA-WEST PAKISTAN BORDER REG.
637	ICELAND REGION	713	CENTRAL KAZAKH SSR
638	ICELAND	714	SOUTHEASTERN UZBEK SSR
639	JAN MAYEN ISLAND REGION	715	TADZHIK SSR
640	GREENLAND SEA	716	KIRGIZ SSR
641	NORTH OF SVALBARD	717	AFGHANISTAN-USSR BORDER REGION
642	NORWEGIAN SEA	718	HINDU KUSH REGION
643	SVALBARD REGION	719	TADZHIK-SINKIANG BORDER REGION
644	NORTH OF FRANZ JOSEF LAND	720	NORTHWESTERN KASHMIR
645	FRANZ JOSEF LAND	721	FINLAND
646	NORTHERN NORWAY	722	NORWAY-USSR BORDER REGION
647	BARENTS SEA	723	FINLAND-USSR BORDER REGION
648	NOVAYA ZEMLYA	724	WESTERN RUSSIA
649	KARA SEA	725	WESTERN SIBERIA
650	NEAR COAST OF WESTERN SIBERIA	726	CENTRAL SIBERIA
651	NORTH OF SEVERNAYA ZEMLYA	727	VICTORIA LAND, ANTARCTICA
652	SEVERNAYA ZEMLYA	728	ROSS SEA
653	NEAR COAST OF CENTRAL SIBERIA	729	ANTARCTICA
654	EAST OF SEVERNAYA ZEMLYA		
655	LAPTEV SEA		
656	EASTERN RUSSIA		
657	E. RUSSIA-N.E. CHINA BORDER REG.		
658	NORTHEASTERN CHINA		
659	NORTH KOREA		
660	SEA OF JAPAN		
661	NEAR E. COAST OF EASTERN RUSSIA		
662	SAKHALIN ISLAND		
663	SEA OF OKHOTSK		
664	EASTERN CHINA		
665	YELLOW SEA		
666	OFF COAST OF EASTERN CHINA		
667	NORTH OF NEW SIBERIAN ISLANDS		
668	NEW SIBERIAN ISLANDS		
669	EAST SIBERIAN SEA		
670	NEAR N. COAST OF EASTERN SIBERIA		
671	EASTERN SIBERIA		
672	CHUKCHI SEA		
673	BERING STRAIT		
674	ST. LAWRENCE ISLAND REGION		
675	BEAUFORT SEA		
676	ALASKA		
677	NORTHERN YUKON TERRITORY, CANADA		
678	QUEEN ELIZABETH ISLANDS		
679	NORTHWEST TERRITORIES, CANADA		
680	WESTERN GREENLAND		

