



INTRODUCTION

The earthquake data shown on this map and listed in table 1 are a list of earthquakes that were originally used in preparing the Seismic Risk Studies in the United States (Algermissen, 1969) which have been recompiled and updated through 1977. These data have been reexamined which resulted in some revisions of epicenters and intensities as well as assignment of intensities to earthquakes that previously had none assigned. Intensity values were updated from new and additional data sources that were not available at the time of original compilation. Some epicenters were relocated on the basis of new information. The data shown in table 1 are estimates of the most accurate epicenter, magnitude, and intensity of each earthquake, on the basis of historical and current information. Some of the aftereffects from large earthquakes are listed but are incomplete in many instances, especially for ones that occurred before seismic instruments were in universal usage.

The data in table 1 were used to compile the seismicity map. The latitude and longitude were rounded to the nearest tenth of a degree and sorted so that all identical locations were grouped together and counted. A triangle represents the epicenter plotted to a tenth of a degree. The number of earthquakes at each location is shown on the map by the number to the right of the triangle. A Roman numeral to the left of a triangle is the maximum Modified Mercalli intensity (Wood and Neumann, 1931) of all earthquakes located at that geographic position. The absence of an intensity value indicates that no intensities have been assigned to earthquakes at that location. A year shown below a triangle is the latest year for which the maximum intensity was recorded.

EXPLANATION OF THE TABLES

The data are listed chronologically in table 1 in the following categories: date, origin time, N. latitude, W. longitude, depth, hypocenter quality and referenced data sources, magnitude, and intensity (Modified Mercalli) and intensity source references. Table 1 has some basic limitations in terms of the size (magnitude or intensity) of the earthquakes listed. Prior to 1965 all recorded felt earthquakes are listed; after 1965 only felt earthquakes or those with magnitudes above the 2.5-3.0 range are listed; the lower magnitude levels apply mostly to the eastern United States. If no magnitude was computed and the earthquake was felt it was included in the earthquake list. Low magnitude events located in recent years with dense seismograph networks have not been included.

Listed below is an explanation of the symbols and codes used in the tables:

1. Leaders (.) indicate information not available.
2. Latitude and longitude are listed to a hundredth of a degree if they have been published with that degree of accuracy, or greater; however, most historical events have been published only to the nearest degree or tenth of a degree and are therefore listed at this accuracy in table 1. An asterisk (\*) to the right of the longitude indicates that the latitude and longitude were not given in the source reference, but were assigned by the compiler of the data file.
3. The letter code in the HYPOCENTER, QUAL, and INT columns is defined below:
  - a. Determination of instrumental hypocenters are estimated to be accurate within the ranges of latitude and longitude listed below; each range is letter coded as indicated:

A	0.0°-0.1°
B	0.1°-0.2°
C	0.2°-0.5°
D	0.5°-1.0°
E	1.0° or larger
  - b. Determination of noninstrumental epicenters from felt data are estimated to be accurate within the ranges of latitude and longitude listed below; each range is letter coded as indicated:

F	0.0°-0.5°
G	0.5°-1.0°
H	1.0°-2.0°
I	2.0° or larger
4. The reference identification numbers in the HYPOCENTER, REF, and INTENSITY, REF columns indicate the source of the hypocenter and intensity. They are listed in numerical order in table 2.
5. The magnitudes listed under "USGS" are mb values (Gutenberg and Richter, 1956) published in the Preliminary Determination of Epicenters (PDE) by the National Earthquake Information Service, U. S. Geological Survey and predecessor organizations. Associated with the magnitude values listed under "USGS" are the source code and type. Type is defined by 1 = M<sub>0</sub> (Richter, 1958), 2 = mb (Nuttli, 1973), 3 = MS (Rath, 1966), 4 = mb (Gutenberg and Richter, 1956), and 5 = mb modified. No magnitudes were published for earthquakes in Wisconsin.
6. An asterisk (\*) in the INTENSITY, RM column indicates that the intensity was assigned by the compiler on the basis of the available data at the time the catalog was compiled.

REFERENCES

Algermissen, S. T., 1969, Seismic risk studies in the United States: Fourth World Conference on Earthquake Engineering, Santiago, Chile, January 13-18, 1969, Proceedings, v. 1, p. 14-27.

Bath, Markus, 1966, Earthquake energy and magnitude, in v. 7 of Physics and chemistry of the Earth: Oxford and New York, Pergamon Press, p. 115-165.

Gutenberg, B., and Richter, C. F., 1956, Magnitude and energy of earthquakes: Annali di Geofisica, v. 9, no. 1, p. 1-15.

Nuttli, O. W., 1973, Seismic wave attenuation and magnitude relations for eastern North America: Journal of Geophysical Research, v. 78, no. 5, p. 676-685.

Richter, C. F., 1958, Elementary Seismology: San Francisco, Calif., W. H. Freeman and Co., Inc., 266 p.

Wood, H. O., and Neumann, F., 1931, Modified Mercalli Intensity Scale of 1931: Seismological Society of America Bulletin, v. 21, no. 4, p. 277-283.

Table 1.—Chronological listing of Earthquakes for the State of Wisconsin

DATE	ORIGIN TIME(UTC)	LAT.	LONG.	DEPTH	HYPOCENTER	MAGNITUDE	INTENSITY
YEAR MONTH DAY	H M S	N. (°)	W. (°)	(KM)	QUAL	REF	RM REF
1899 OCT 12	...	42.6	87.8	..	H 105	...	IIII 105
1905 MAR 14	04 30	..	45.0	87.7	..	H 105	V 38
1906 APR 22	...	43.1	87.9	..	H 105	...	IIII 105
1906 APR 24	...	43.0	87.9	..	H 105	...	IIII 105
1907 JAN 10	...	45.1	87.7	..	G 105	...	IIII 105
1914 OCT 07	21	..	43.1	89.4	..	G 105	IV 105
1916 NOV 31	22 45	..	43.1	89.3	..	G 105	II 105
1922 JUL 07	...	43.8	88.5	..	G 105	...	V 105
1931 OCT 18	21 12	..	43.1	89.4	..	G 105	III 105
1933 DEC 07	05 55	..	42.9	89.2	..	G 105	IV 105
1943 FEB 09	23 21	..	45.3	86.2	..	G 16	III 16
1947 MAY 06	21 27	..	43.0	87.9	..	H 105	IV 105
1948 JAN 15	17 40	..	43.1	89.7	..	G 105	IV 105
1956 JUL 18	21 30	..	43.6	87.8	..	F 105	IV 29
1956 OCT 13	...	..	42.9	87.9	..	G 105	IV 29
1957 JAN 08	16 00	..	43.5	88.8	..	G 105	IV 105

Table 2.—List of data sources

NO.	REFERENCE
16.	Bodie, R. B., 1945, United States Earthquakes 1943, U. S. Department of Commerce, Coast and Geodetic Survey, Serial No. 672, p. 1-47.
29.	Brace, R. J., and Cloud, W. K., 1958, United States Earthquakes 1956, U. S. Department of Commerce, Coast and Geodetic Survey, p. 1-78.
38.	Coffman, J. L., and von Bak, C. A., 1973, Earthquake History of the United States, U. S. Department of Commerce, National Oceanic and Atmospheric Administration, No. 41-1 (through 1970), p. 1-208.
105.	Doeckel, J., 1970, Earthquakes of the stable interior, with emphasis on the midcontinent, v. 2, A dissertation presented to the faculty of the graduate college in the University of Nebraska in partial fulfillment of requirements for the degree of Doctor of Philosophy, University Microfilms Ltd., Ann Arbor, Michigan, p. 1-332.