UNITED STATES DEPARTMENT OF THE INTERIOR

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Updated Earthquake Calalogue for the States of Florida and Georgia

by

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INTRODUCTION

The data file used to compile the state seismicity maps which were published as a Miscellaneous Field Studies series by the U.S. Geological Survey has undergone continual revisions since publication began in 1977. Many of these revisions were based on recent studies of historic earthquakes that provided better estimates of intensity, magnitudes, locations, and source parameters than was given in older literature accounts for a particular earthquake. Relocations of historic earthquakes have also had a modifying effect on the data file in the sense the earthquakes are, in some instances, now listed in a different state than the original file.

This report is designed to present the current estimates of epicenter, magnitudes, and intensity for each earthquake in the earthquake catalogue for the States of Florida and Georgia through 1980. The format is similar to the format of the published map editions of the U.S. Geological Survey Miscellaneous Field Studies series. This has been done so that the current issues of the published maps may be updated with the changes given in this report.

CATALOGUE

The historical earthquake catalogue for the States of Florida and Georgia are listed in Appendix A and Appendix B. Prior to 1965 the catalogue contains all felt and non-felt earthquakes. Subsequent to 1964 restrictions based on magnitude are placed on the earthquakes listed in the catalogue. Instrumentally recorded earthquakes, which were not known to be felt, are listed if the magnitude was greater than or equal to 2.5. The earthquake was also included in the catalogue if the earthquake was felt, regardless of the given magnitude, or if the magnitude was not given. Some aftershocks following large earthquakes are listed but, in many instances, the list of aftershocks is incomplete.

In the explanation of the catalogue, the underlined words correspond to the major headers shown in Appendices A and B.

EXPLANATION OF CATALOGUE

Leaders: (..) indicate information is not available.

DATE: Date of the earthquake.

ORIGIN TIME: Hour,minute, and second, respectively, in Universal Time (UTC).

LAT: North geographic latitude of the epicenter in degrees.

LONG: West geographic longitude of the epicenter in degrees. An asterisk (*) to the right of the longitude indicates the coordinates were assigned by the compiler. An (x) indicates the earthquake is an non-tectonic event.

DEPTH: Depth of the earthquake in kilometers.

HYPOCENTER:

QUAL: Quality of the estimated accuracy of epicenter location.

Instrumental hypocenters are estimated to be accurate within the following degree ranges of latitude and longitude. Letter-coded range estimates are:

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.

Non-instrumental epicenters determined from felt data are estimated to be accurate within the following degree ranges of latitude and longitude. Letter-coded range estimates are:

F = 0.0-0.5
G = 0.5-1.0
H = 1.0-2.0
I = 2.0 or larger.

REF: Source reference number for the epicenter location (Appendix E).

MAGNITUDE:

USGS: USGS mb magnitudes (Gutenberg and Richter, 1956) published in the Preliminary Determination of Epicenters (PDE) by the U.S. Geological Survey, Golden, Colorado and predecessor organzations.

OTHER: Other magnitudes. To the right of the magnitude value is the source code of the contributed magnitude followd by a numerical code which specifies magnitude type.

MAGNITUDE SOURCE CODES

ATL-Georgia Institute of Technology, Atlanta, Ga.

BLA-Virginia Polytechnic Institute and State University, Blacksburg, Va.

DEW-Dewey, J. W. and Gordon, D.W., 1980, Instrumental seismicity of eastern North America, U.S. Geological Survey (unpublished data).

GB--Bollinger, G. A., 1979, Seismological Society of America Bulletin, v. 69, no. 1, p. 45-63.

GS--National Earthquake Information Service (and predecessor organizations), U.S. Geological Survey, Golden, Colo.

JLM-Jones, F. B., Long, L. T., and Mckee, J. H., 1977, Seismological Society of America Bulletin, v. 67, no. 6, p. 1503-1513.

TAR-Tarr, A. C., Talwani, Pradeep, Rhea, Susan, Carver, David, and Amick, David, 1981, Results of recent South Carolina seismological studies: Seismological Society of America Bulletin, v. 71, no. 6, p. 1883-1902.

MAGNITUDE TYPES

1 = ML (Richter,1958)
2 = mbLg (Nuttli,1973)
3 = MS (Bath,1966)
4 = mb (Gutenberg and Richter,1956)
5 = mbLg modified
6 = coda length or duration

INTENSITY:

MM: The maximum Modified Mercalli intensity (Wood and Neumann, 1931) as Roman numerals for the earthquake. An "F" indicates the earthquake was felt, but information was not available to assign an intensity value. An asterisk (*) appears to the right of the intensity value if the intensity was assigned by the compiler.

REF: Source reference number of the intensity value (Appendix E).

SUMMARY OF SEISMICITY

The summary of seismicity is listed in Appendix C for Florida and in Appendix D for Georgia. The listings are an abbreviated form of the historical earthquake catalogues for the respective states which were used to compile the summaries. The summaries were compiled by rounding the latitude and longitude to the nearest tenth of a degree. Identical locations were grouped together and counted.

These tabulations, arranged by increasing latitudes, summarize the seismicity according to the maximum intensity experienced at locations within the two states. Non-tectonic events are not included in these listings.

The data listed in the summaries are shown in Figures 1 and 2 on which the plotted numbers or alphabetic characters, representing the maximum intensity values, are centered at the earthquake coordinates.

To update the published editions of the maps of Florida (Stover and others, 1979) and Georgia (Stover and others, 1979) from the summaries, the year corresponds to the year shown below the triangle; the intensity value corresponds to the value shown to the left of the triangle; and count corresponds to the value shown to the right of the triangle.

In the explanation below, the underlined words correspond to the headers shown in Appendices C and D.

EXPLANATION OF APPENDICES C AND D

Leaders: (..) indicate information is not available.

DATE: Year,month,day, respectively, of the earthquake which is the most current date for which the maximum intensity was known.

ORIGIN TIME: Origin time in hour, minute, second, respectively, in Universal Time (UTC).

COORDINATES:

LAT: North geographic latitude of the epicenter in degrees.

LONG: West geographic longitude of the epicenter in

degrees. An asterisk (*) appears to the right of the longitude if the coordinates were assigned by the compiler.

REE: Quality of the estimated accuracy of the epicenter followed by the source reference number for the epicenter location (Appendix E).

Instrumental hypocenters are estimated to be accurate within the following degree ranges of latitude and longitude. Letter-coded range estimates are:

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.

Non-instrumental epicenters determined from felt data are estimated to be accurate within the following degree ranges of latitude and longitude. Letter-coded range estimates are:

F = 0.0-0.5
G = 0.5-1.0
H = 1.0-2.0
I = 2.0 or larger.

IQ: The maximum Modified Mercalli intensity (Wood and Neumann, 1931) in arabic numerals at that location. An "F" indicates the earthquake was felt, but information was not available to assign an intensity value. An asterisk (*) to the right of the intensity value if the intensity was assigned by the compiler.

IREE: The source reference number for the intensity (Appendix E).

COUNT: The number of earthquakes that occurred at that location.

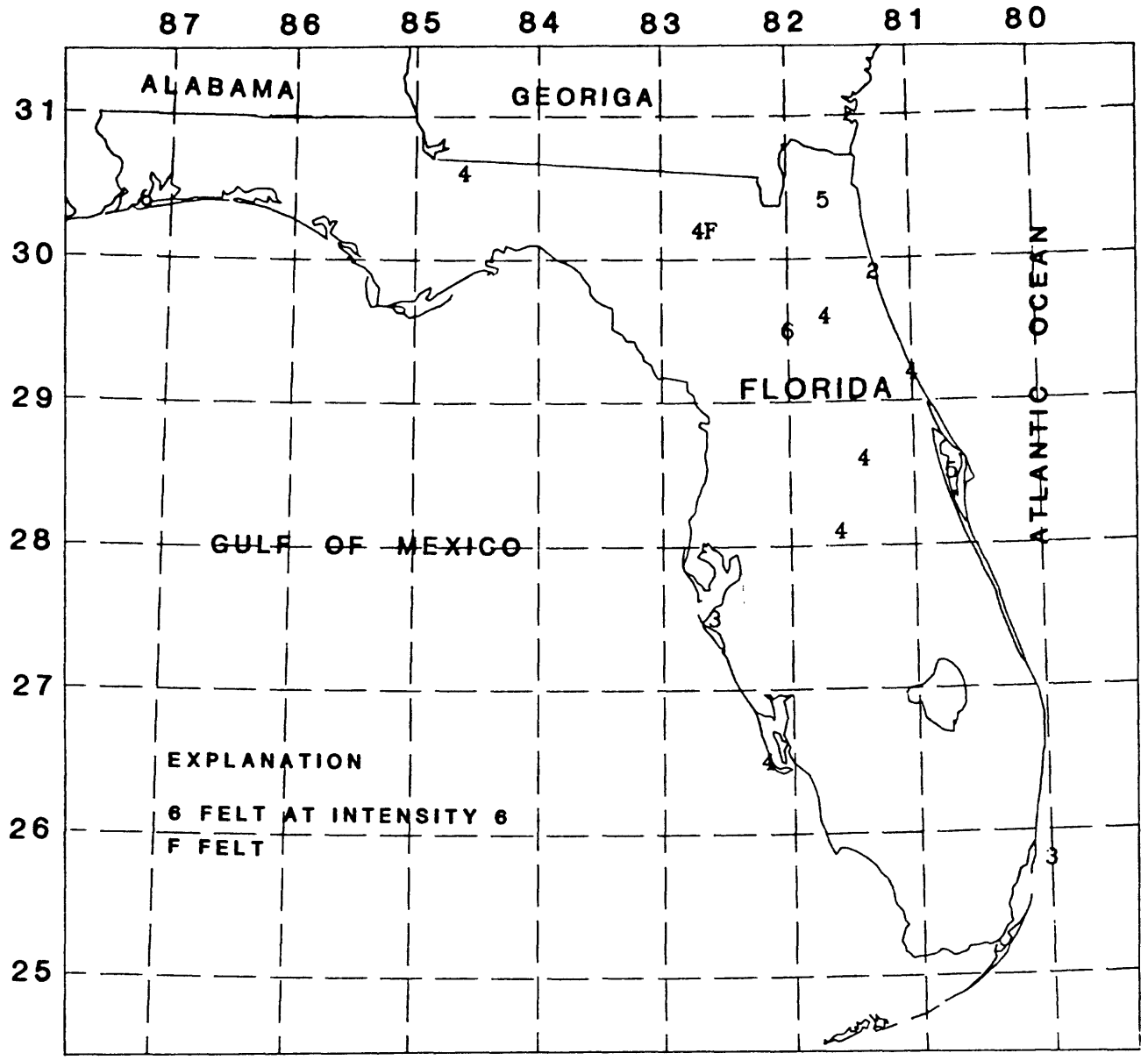

Figure 1.--Maximum Modified Mercalli (MM) intensity experienced at sites in Florida from historical earthquakes, 1780-1980, plotted from Appendix C. Intensities less than 10 are given in arabic numerals.

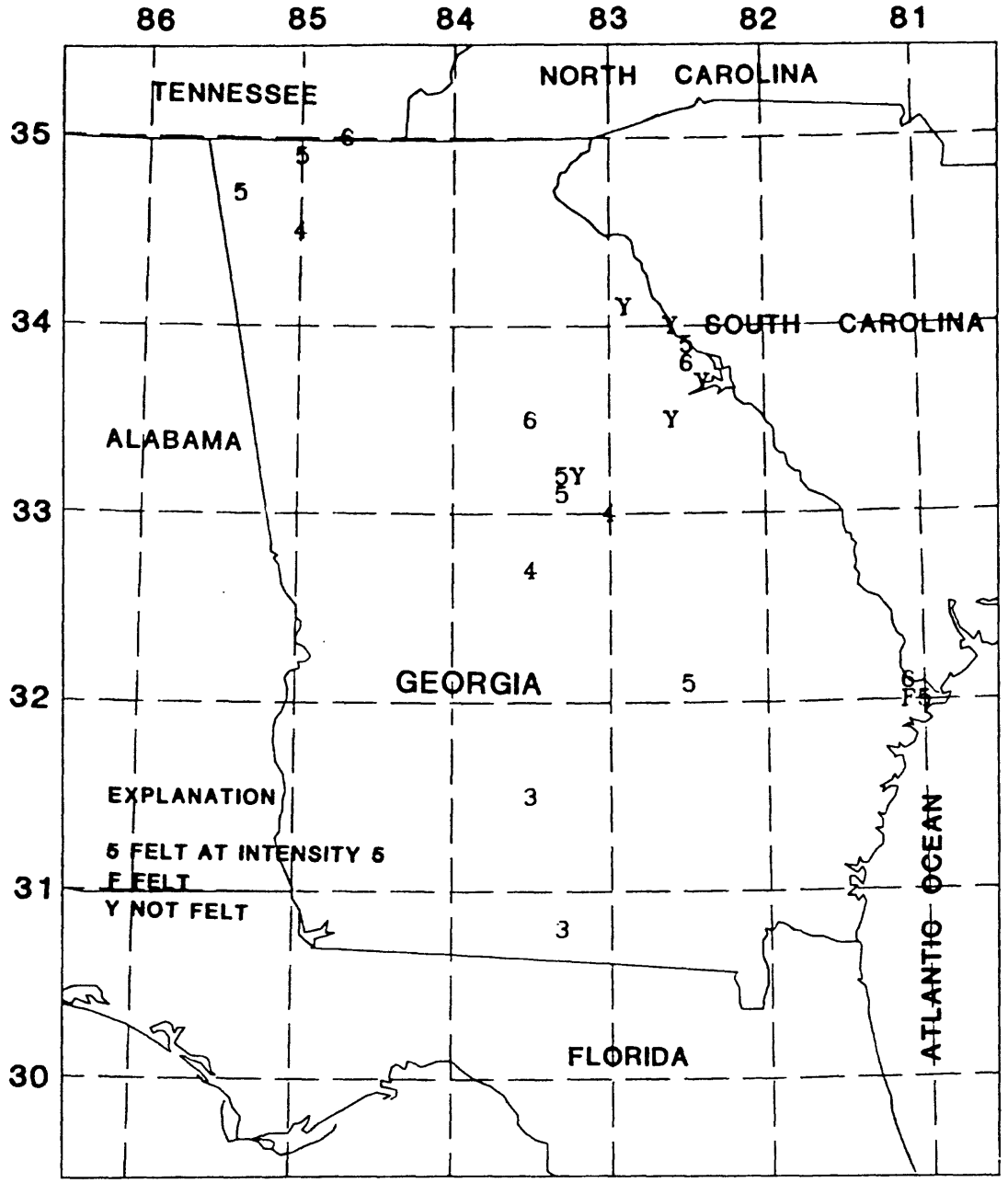

Figure 2.--Maximum Modified Mercalli (MM) intensity experienced at sites in Georgia from historical earthquakes, 1826-1980, plotted from Appendix D. Intensities less than 10 are given in arabic numerals.

REFERENCES

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, R. 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 Geophysics Research, v.78, no. 5, p. 876-885.

Richter, C. F., 1958, Elementary Seismology: San Francisco, Calif., W. H. Freeman and Co., Inc., 768p.

Stover, C. W., Reagor, G., and Algermissen, S.T., 1979, Seismicity map of the state of Florida: U.S. Geological Survey Miscellaneous Field Studies Map MF-1056.

Stover, C. W., Reagor, G., Algermissen, S. T., and Long, L. T., 1979, Seismicity map of the state of Georgia: U.S. Geological Survey Miscellaneous Field Studies Map MF-1060.

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

Chronological listing of earthquakes for the State of Florida

DATE			ORIGIN TIME(UTC)			LAT.	LONG.	DEPTH	HYPOCENTER		MAGNITUDE		INTENSITY	
YEAR	MONTH	DAY	H	M	S	(N.)	(W.)	(KM)	QUAL	REF	USGS	OTHER	MM	REF
1780	FEB	06	..	..	..	30.4	87.2 *	..	C	101	..	.. ..	VI*	101
1879	JAN	13	04	45	..	29.5	82.0	..	H	38	..	.. ..	VI	38
1879	JAN	13	04	55	..	29.5	82.0	..	H	38	..	.. ..	F	38
1886	JAN	08	18	34	..	30.4	81.7	..	H	103	..	.. ..	F	84
1886	SEP	01	..	..	..	30.4	81.7 *	..	H	69	..	.. ..	IV	69
1886	SEP	03	21	..	..	30.4	81.7 *	..	H	84	..	.. ..	IV	69
1886	SEP	04	09	..	..	30.4	81.7	..	H	103	..	.. ..	IV	69
1886	SEP	05	..	..	..	30.4	81.7 *	..	H	69	..	.. ..	IV	69
1886	SEP	08	..	..	..	30.4	81.7 *	..	H	69	..	.. ..	IV	69
1886	SEP	09	18	47	..	30.4	81.7	..	H	103	..	.. ..	IV	69
1893	JUN	21	07	07	..	30.4	81.7 *	..	H	84	..	.. ..	IV	69
1900	OCT	10	..	..	..	30.3	81.7 x	..	H	84	..	.. ..	V	84
1900	OCT	10	..	..	..	30.3	81.7 x	..	H	84	..	.. ..	III*	84
1900	OCT	10	..	..	..	30.3	81.7 x	..	H	84	..	.. ..	III*	84
1900	OCT	10	..	..	..	30.3	81.7 x	..	H	84	..	.. ..	III*	84
1900	OCT	10	..	..	..	30.3	81.7 x	..	H	84	..	.. ..	III*	84
1900	OCT	10	..	..	..	30.3	81.7 x	..	H	84	..	.. ..	III*	84
1900	OCT	10	..	..	..	30.3	81.7 x	..	H	84	..	.. ..	III*	84
1900	OCT	10	..	..	..	30.3	81.7 x	..	H	84	..	.. ..	III*	84
1900	OCT	31	16	15	..	30.4	81.7	..	H	38	..	.. ..	V	38
1902	MAY	21	..	..	..	29.9	81.3 *	..	H	84	..	.. ..	...	..
1902	MAY	21	00	..	..	29.9	81.3 *	..	H	84	..	.. ..	II	84
1905	SEP	04	09	..	..	27.5	82.6 *	..	H	84	..	.. ..	III	84
1930	JUL	19	18	53	..	25.8	81.4 x	..	H	103	..	.. ..	V	103
1935	NOV	14	03	10	..	29.6	81.7 *	..	H	69	..	.. ..	IV	69
1935	NOV	14	03	30	..	29.6	81.7 *	..	H	69	..	.. ..	IV	69
1940	DEC	27	01	..	..	28.0	82.5 x	..	H	13	..	.. ..	...	..
1942	JAN	19	19	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69
1942	JAN	19	..	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69
1942	JAN	19	..	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69
1942	JAN	19	..	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69
1942	JAN	19	..	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69
1942	JAN	19	..	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69
1942	JAN	19	..	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69
1942	JAN	19	..	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69
1942	JAN	19	..	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69
1942	JAN	19	..	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69
1942	JAN	19	..	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69
1942	JAN	19	..	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69
1942	JAN	19	..	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69

Chronological listing of earthquakes for the State of Florida (con't.)

DATE			ORIGIN TIME(UTC)			LAT.	LONG.	DEPTH	HYPOCENTER		MAGNITUDE		INTENSITY	
YEAR	MONTH	DAY	H	M	S	(N.)	(W.)	(KM)	QUAL	REF	USGS	OTHER	MM	REF
1942	JAN	19	..	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69
1942	JAN	19	..	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69
1942	JAN	19	..	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69
1942	JAN	19	..	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69
1942	JAN	19	..	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69
1942	JAN	19	..	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69
1942	JAN	19	..	..	..	26.5	81.0 x	..	I	69	..	.. ..	IV*	69
1945	DEC	22	15	25	..	25.8	80.0 *	..	H	18	..	.. ..	III*	18
1948	NOV	08	17	44	..	26.5	82.2 *	..	H	21	..	.. ..	IV*	21
1952	NOV	18	20	12	..	30.6	84.6	..	H	103	..	.. ..	IV	25
1953	MAR	26	..	..	..	28.6	81.4	..	H	103	..	.. ..	IV	104
1973	OCT	27	06	21	02.0	28.48	80.65	005	C	201	..	3.5JLM 5	V	46
1973	DEC	05	11	30	..	30.5	86.5 x	..	I	46	..	.. ..	III*	46
1975	DEC	04	11	57	..	29.2	81.0 *	..	G	90	..	2.9BLA 2	IV	90
1978	JAN	12	21	10	..	28.1	81.6 *	..	G	240	..	.. ..	IV	240
1978	NOV	06	23	00	..	30.20	82.65	..	F	240	..	.. ..	IV	240
1978	NOV	14	20	14	..	30.2	82.6 *	..	G	240	..	.. ..	F	240
1978	NOV	16	19	00	..	30.2	82.6 *	..	G	240	..	.. ..	F	240

Appendix B

Chronological listing of earthquakes for the State of Georgia

DATE			ORIGIN TIME(UTC)			LAT.	LONG.		DEPTH	HYPOCENTER		MAGNITUDE		INTENSITY	
YEAR	MONTH	DAY	H	M	S	(N.)	(W.)		(KM)	QUAL	REF	USGS	OTHER	MM	REF
1826	OCT	15	..	..	..	32.0	81.1	*	..	H	84	..	.. ..	F	84
1872	JUN	17	20	00	..	33.1	83.3		..	G	38	..	.. ..	V	38
1875	JUL	28	23	05	..	33.1	83.3		..	H	86	..	.. ..	III	86
1875	NOV	02	02	55	..	33.8	82.5		..	G	38	..	.. ..	VI	38
1884	MAR	31	10	00	..	33.1	83.3		..	H	86	..	.. ..	III	86
1885	OCT	17	22	30	..	33.0	83.0		..	H	86	..	.. ..	IV	86
1903	JAN	24	01	15	..	32.1	81.1		..	G	38	..	.. ..	VI	38
1909	OCT	08	10	00	..	34.9	85.0	*	..	H	84	..	.. ..	V*	84
1912	JUN	20	..	..	..	32.0	81.0		..	H	38	..	.. ..	V	38
1912	OCT	23	01	15	..	32.7	83.5		..	H	84	..	.. ..	IV	84
1913	MAR	13	05	..	..	34.5	85.0		..	I	103	..	.. ..	IV	103
1914	MAR	05	20	05	..	33.5	83.5		..	G	38	..	.. ..	VI	38
1914	MAR	05	21	00	..	33.5	83.5		..	F	289	..	.. ..	...	..
1928	MAY	23	10	15	..	30.8	83.3		..	H	1	..	.. ..	III*	1
1933	JUN	09	11	30	..	33.3	83.5	x	..	H	86	..	.. ..	IV	102
1943	JUL	29	03	30	..	33.4	82.0	x	..	H	16	..	.. ..	III*	16
1958	APR	08	17	..	..	31.5	83.5		..	H	29	..	.. ..	III*	29
1963	OCT	08	06	01	43.4	33.9	82.5		..	C	110	..	3.2JLM 5	...	..
1964	FEB	17	22	47	..	34.7	85.4		..	D	203	..	3.3JLM 5	...	..
1964	FEB	18	09	31	10.4	34.67	85.39		001	A	201	4.4	4.0GB 2	V	35
1964	MAR	07	18	02	58.6	33.72	82.39		005	B	201	..	3.3JLM 5	...	..
1964	MAR	13	01	20	17.5	33.19	83.31		001	B	201	4.4	3.9JLM 5	V	35
1965	APR	07	07	41	10.2	33.9	82.5		..	C	110	..	.. ..	...	..
1965	JUL	22	23	55	33.3	33.2	83.2		..	C	115	..	.. ..	...	..
1965	NOV	08	12	58	01.0	33.2	83.2		..	C	115	..	3.3JLM 5	...	..
1965	NOV	08	13	04	11.5	33.2	83.2		..	C	115	..	.. ..	...	..
1969	MAY	05	17	14	..	33.9	82.5		..	H	86	..	.. ..	...	..
1969	MAY	09	..	..	..	33.95	82.58		..	B	164	..	3.3ATL 2	...	..
1969	MAY	18	..	..	..	33.95	82.58	*	..	F	164	..	3.5ATL 2	...	..
1969	NOV	04	18	58	23	33.2	83.2		..	C	115	..	.. ..	...	..
1969	NOV	08	01	52	..	33.9	82.5		..	C	115	..	.. ..	...	..
1971	APR	16	07	31	..	33.9	82.5		..	B	110	..	.. ..	...	..
1973	OCT	08	13	38	..	33.9	82.5		..	B	110	..	.. ..	...	..
1974	AUG	02	08	52	11.1	33.91	82.53		004	A	201	4.3	4.1GB 2	V	47
1975	APR	01	21	09	..	33.2	83.2		..	D	203	..	3.9JLM 5	...	..
1976	FEB	04	19	53	53.0	34.97	84.70		014	A	201	..	3.6DEW 2	VI	49
1976	DEC	27	06	57	15.2	32.06	82.50		014	A	201	..	3.7BLA 2	V	49
1978	JUN	05	21	37	44.6	33.54	82.59		023	A	290	..	2.6TAR 6	...	..
1980	SEP	10	19	49	46.4	34.12	82.94		013	B	322	..	2.5GS 6	...	..

Appendix C

Summary of seismicity - State of Florida

DATE YEAR	MO	DA	ORIGIN TIME (UTC)	COORDINATES LAT.	LON.	REF	IO	IREF	COUNT
1945	12	22	15 25 ..	25.8N	80.0W*	H 18	3*	18	1
1948	11	08	17 44 ..	26.5N	82.2W*	H 21	4*	21	1
1905	09	04	09	27.5N	82.6W*	H 84	3	84	1
1978	01	12	21 10 ..	28.1N	81.6W*	G240	4	240	1
1973	10	27	06 21 02.0	28.5N	80.7W	C201	5	46	1
1953	03	26	.. .. ..	28.6N	81.4W	H103	4	104	1
1975	12	04	11 57 ..	29.2N	81.0W*	G 90	4	90	1
1879	01	13	04 45 ..	29.5N	82.0W	H 38	6	38	2
1935	11	14	03 30 ..	29.6N	81.7W*	H 69	4	69	2
1902	05	21	00	29.9N	81.3W*	H 84	2	84	2
1978	11	16	19 00 ..	30.2N	82.6W*	G240	F	240	2
1978	11	06	23 00 ..	30.2N	82.7W	F240	4	240	1
1900	10	31	16 15 ..	30.4N	81.7W	H 38	5	38	9
1780	02	06	.. .. ..	30.4N	87.2W*	G101	6*	101	1
1952	11	18	20 12 ..	30.6N	84.6W	H103	4	25	1

Appendix D

Summary of seismicity - State of Georgia

DATE YEAR	MO	DA	ORIGIN TIME (UTC)	COORDINATES LAT.	LON.	REF	IO	IREF	COUNT
1928	05	23	10 15 ..	30.8N	83.3W	H 1	3*	1	1
1958	04	08	17	31.5N	83.5W	H 29	3*	29	1
1912	06	20	.. .. ..	32.0N	81.0W	H 38	5	38	1
1826	10	15	.. .. ..	32.0N	81.1W*	H 84	F	84	1
1903	01	24	01 15 ..	32.1N	81.1W	G 38	6	38	1
1976	12	27	06 57 15.2	32.1N	82.5W	A201	5	49	1
1912	10	23	01 15 ..	32.7N	83.5W	H 84	4	84	1
1885	10	17	22 30 ..	33.0N	83.0W	H 86	4	86	1
1872	06	17	20 00 ..	33.1N	83.3W	G 38	5	38	3
1975	04	01	21 09 ..	33.2N	83.2W	D203	.	..	5
1964	03	13	01 20 17.5	33.2N	83.3W	B201	5	35	1
1978	06	05	21 37 44.6	33.5N	82.6W	A290	.	..	1
1914	03	05	20 05 ..	33.5N	83.5W	G 38	6	38	2
1964	03	07	18 02 58.6	33.7N	82.4W	B201	.	..	1
1875	11	02	02 55 ..	33.8N	82.5W	G 38	6	38	1
1974	08	02	08 52 11.1	33.9N	82.5W	A201	5	47	7
1969	05	18	.. .. ..	34.0N	82.6W*	F164	.	..	2
1980	09	10	19 49 46.4	34.1N	82.9W	B322	.	..	1
1913	03	13	05	34.5N	85.0W	I103	4	103	1
1964	02	18	09 31 10.4	34.7N	85.4W	A201	5	35	2
1909	10	08	10 00 ..	34.9N	85.0W*	H 84	5*	84	1
1976	02	04	19 53 53.0	35.0N	84.7W	A201	6	49	1

APPENDIX E

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