Southeastern United States Seismic Network Bulletin

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SEISMICITY OF THE SOUTHEASTERN UNITED STATES DURING 2002 included 69 tectonic (not induced) earthquakes and 29 reservoir associated earthquakes with magnitudes exceeding 1.0. The largest earthquake reported during the year was MD = 3.0 occurring on May 5, 2002. The epicenter was near York, Alabama.

Figure 1 is an epicenter map of earthquakes located during the report period. Figures 2 and 3 are cumulative epicenter maps for the period from July 1977 through December 2002, covered by SEUSSN Bulletins 1 through 37.

SOUTHEASTERN U.S. EARTHQUAKES DURING 2002 lists hypocentral parameters, magnitudes, and arrival times for tectonic earthquakes in the southeastern United States.

SOUTHEASTERN U.S. RESERVOIR ACTIVITY DURING 2002 lists hypocentral parameters, magnitudes, and arrival times for earthquakes near the reservoirs in South Carolina.

SEISMIC STATION LISTING AND NETWORK MAPS contains a listing of seismic stations potentially operational during the report period and maps showing the locations of stations of contributing operators in the region. The SEUSSN monitoring area is considered to include all of Florida, Georgia, Alabama, South Carolina, North Carolina, Virginia, West Virginia (south of latitude 37.72 deg North), Maryland, and Delaware; and includes Tennessee and Kentucky (east of longitude 87 degrees West).

INTERNET ACCESS TO SOUTHEASTERN U.S. EARTHQUAKE CATALOG INFORMATION AND ELECTRONIC VERSIONS OF THE BULLETIN describes how to download southeastern U.S. earthquake catalogs and electronic versions of the SEUSSN Bulletins via the Virginia Tech Seismological Observatory website ***http://www.geol.vt.edu/outreach/vtso***. Hypocentral parameters of events in Bulletin 37 are accessible via the ANSS catalog at ***http://quake.geo.berkeley.edu/anss***.

DEFINITIONS AND NETWORK OPERATOR CODES contains definitions of various terms and abbreviations used in the Bulletin as well as a listing of codes for network operators and/or contributors.

Acknowledgments

This report is the thirty-seventh SOUTHEASTERN UNITED STATES SEISMIC NETWORK BULLETIN and covers the period from January through December, 2002. The organizations supplying data for this Bulletin are Auburn University, Charleston Southern University, Delaware Geological Survey, Georgia Institute of Technology, Maryland Geological Survey, Millersville University, United States Geological Survey, University of Memphis (Center for Earthquake Research and Information), University of South Carolina, University of Tennessee/Tennessee Valley Authority- Joint Institute for Energy and Environment, Virginia Polytechnic Institute and State University (Virginia Tech Seismological Observatory), and the Westinghouse Savannah River Company.

Several of the plots in this report were generated using the Generic Mapping Tools (GMT) software package developed by Wessel and Smith (1991).

References

Bollinger, G. A., Frederick C. Davison, Jr., Matthew S. Sibol, and Jeffrey B. Birch, (1989), Magnitude recurrence relations for the southeastern United States and its subdivisions, Journal of Geophysical Research, 94, pp. 2857-2873.

Chapman, M. C., J. A. Snoke, and G. A. Bollinger, (1988), A procedure for calibrating short-period telemetered seismograph systems, Bulletin of the Seismological Society of America, 78, pp. 2077-2088.

Hoaglin, David C., Frederick Mosteller, and John W. Tukey, (1983), Understanding Robust And Exploratory Data Analysis, John Wiley & Sons, New York, NY, 447 pp.

Lahr, J. C., (1980), HYPOELLIPSE/VAX: A computer program for determining local earthquake hypocentral parameters, magnitude, and first-motion pattern, U.S. Geological Survey Open-File Report 80-59, 59 pp.

Lee, W. H. K., and J. C. Lahr, (1974), HYPO71: A computer program for determining hypocenter, magnitude, and first motion pattern of local earthquakes, U.S. Geological Survey Open-File Report 75-311, Revised: January 1974, 134 pp.

Lee, W. H. K., and S. W. Stewart, (1981), Principles and Applications of Microearthquake Networks, Academic Press, New York, NY, 293 pp.

Nuttli, O. W., (1973), Seismic wave attenuation and magnitude relations for eastern North America, Journal of Geophysical Research, 78, pp. 876-885.

Shedlock, Kaye M., (1987), Earthquakes recorded by the South Carolina Seismic Network (1974-1986), U.S. Geological Survey Open-File Report 87-437, 92 pp.

Wessel, P., and W. H. F. Smith, (1991), Free software helps map and display data, EOS Trans. Am. Geophys. Union, 72, pp. 441, 445-446.

FIGURE 1. Epicenters of earthquakes ($M \geq 0.0$) in the southeastern United States for this report period.

FIGURE 2. Epicenters of earthquakes ($M \geq 0.0$) in the southeastern United States from July 1977 through this report period.

FIGURE 3. Epicenters of earthquakes ($M \geq 3.0$) in the southeastern United States from July 1977 through this report period.

SEUSSN EARTHQUAKE CATALOG STATISTICS

TABLE 1. SEUSSN Report Period Earthquake Catalog Statistics

Period: January through December 2002 (1 year)	Tectonic
Number of Earthquakes with M ≥ 0.0	69
Number of Earthquakes with M ≥ 2.0	43
Number of Earthquakes with M ≥ 3.0	2
Number of Earthquakes with M ≥ 4.0	0
Number of Felt Earthquakes	2
Number of Earthquakes with Known ERZ ≤ 5.0 km	63

Largest Earthquake: 5 May 2002; 21:20 - near York, AL, MD = 3.0, felt over a small area

Period: July 1977 through December 2002 (25.5 years)	Tectonic
Number of Earthquakes with M ≥ 0.0	2044
Number of Earthquakes with M ≥ 2.0	808
Number of Earthquakes with M ≥ 3.0	118
Number of Earthquakes with M ≥ 4.0	8
Number of Felt Earthquakes	232
Number of Earthquakes with Known ERZ ≤ 5.0 km	1486

Largest Earthquake: 27 July 1980; 18:52 - Sharpsburg, KY, mb= 5.2, MMI= VII

SOUTHEASTERN U.S. EARTHQUAKES DURING 2002

Events are listed chronologically (this also applies to multiple hypocenter locations for the same event). All times are Universal Coordinated Time. Most entries in the listing are self-explanatory. Items that might require further explanation are defined in the section entitled DEFINITIONS AND NETWORK OPERATOR CODES.

*****2002 JANUARY 01; 16:36 – ATHENS, ALABAMA*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020101	163621.5	34.705	87.027	16.9	14	36	109	0.3	C	C/C	0.4	7	0.3	0.8	C		1.8		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)		PHASE	ARRIVAL TIME (RES)	
UTK	MSAL	36.0	64	iP-	16:36:28.11	(0.22)	iS	16:36:32.15	(-0.45)
UTK	SHAL	49.3	128	eP+	:29.98	(0.10)	eS	:36.00	(-0.05)
UTK	PLAL	100.7	288	iP	:37.12	(-0.73)	iS	:50.07	(0.22)
UTK	PDTN	124.7	59	eP	:41.81	(0.20)	eS	:56.70	(0.33)
UTK	WVT	174.2	335	eP	:48.80	(-0.45)	iS	:37:09.00	(-0.41)
UTK	LRAL	185.2	179				iS	:12.09	(-0.23)
UTK	ANTN	230.4	45	eP	:57.56	(0.22)	eS	:22.65	(-0.75)
UTK	ORT	281.4	61	eP	:37:02.99	(-0.61)			

*****2002 JANUARY 07; 17:09 – CHARLESTON, SOUTH CAROLINA*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020107	170912.2	32.932	80.150	5.8	10	4	117	0.1	B	A/B	0.3	360	0.3	0.6			0.7		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
USC	MGS	3.8	168	iPd	17:09:13.85	(0.00)	iSd	17:09:14.28	(-0.09)
USC	RGR	4.9	238	iPd	:13.92	(-0.01)	iSd	:14.57	(0.15)
USC	CSU	9.5	51	iPu	:14.54	(0.13)	iSd	:15.89	(-0.04)
USC	SVS	10.1	294	iPd	:14.64	(-0.06)	iSd	:15.86	(-0.04)
USC	WAS	14.8	231	iPd	:15.47	(-0.02)	iSn	:17.32	(-0.30)

*****2002 JANUARY 11; 13:30 – CHARLESTON, SOUTH CAROLINA*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020111	133022.1	32.937	80.147	6.1	16	4	121	0.1	B	A/B	0.3	360	0.3	0.5			2.7		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
USC	MGS	4.3	173	iPu	13:30:23.72	(-0.09)	iSu	13:30:24.42	(0.00)
USC	RGR	5.5	234	iPd	:23.88	(-0.03)	iSd	:24.52	(0.02)
USC	CSU	9.0	52	iPd	:24.34	(0.12)	iSu	:25.63	(-0.06)
USC	CSB	9.0	52	iPd	:24.29	(0.09)	iSd	:25.66	(0.03)
USC	SVS	10.1	290	iPd	:24.55	(-0.05)	iSu	:25.80	(-0.03)
USC	WAS	15.4	230	iPd	:25.49	(0.03)	iSd	:27.74	(0.05)
USC	HBF	17.5	274	iPd	:25.65	(-0.08)	iSu	:27.70	(0.09)
USC	TWB	20.2	12	iPd	:26.15	(-0.13)	iSd	:28.48	(0.06)

*****2002 JANUARY 11; 13:53 – CHARLESTON, SOUTH CAROLINA*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020111	135358.9	32.938	80.149	6.7	10	4	124	0.1	B	A/B	0.4	360	0.4	0.7			2.0		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
USC	MGS	4.5	170	iPd	13:54:00.69	(-0.06)	iSn	13:54:01.41	(-0.02)
USC	RGR	5.4	231	iPd	:00.73	(-0.07)	iSd	:01.50	(0.07)
USC	CSU	9.1	54	iPd	:01.21	(0.09)	iSn	:02.63	(-0.03)
USC	SVS	9.8	290	iPd	:01.42	(-0.02)	iSd	:02.66	(-0.01)
USC	WAS	15.2	229	iPd	:02.34	(0.03)	iSn	:04.55	(0.01)

*****2002 JANUARY 16; 17:22 – WINFIELD, ALABAMA *****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020116	172228.2	33.910	87.776	0.0	9	121	151	0.3	D	C/D	0.8	237	0.4	2.3	B		1.9		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	LRAL	121.1	143				eS	17:23:02.81	(-0.01)
UTK	PLAL	122.1	347	eP	17:22:48.17	(-0.11)	eS	:03.07	(-0.03)
UTK	SHAL	122.8	62				S-P	15.3 SEC	(0.55)
UTK	MSAL	145.2	44				S-P	16.4 SEC	(-0.95)
UTK	OXF	164.6	294	eP	:55.94	(0.92)	eS	:14.95	(0.26)
UTK	SWET	222.8	49	eP	:23:03.60	(-0.62)			
UTK	WVT	246.3	359				eS	:36.58	(0.08)

*******2002 JANUARY 20; 18:44 – CLEVELAND, TENNESSEE*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020120	184438.0	35.124	84.986	5.7	14	78	100	0.3	C	B/D	1.2	6	0.2	2.1	B		2.0		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	MYNC	78.5	94	eP	18:44:51.31 (0.46)	iS	18:45:00.11 (-0.23)
UTK	PDTN	80.3	282	eP		S-P	9.5 SEC (-0.13)
UTK	SWET	86.8	277	iP	:52.30 (0.12)	iS	:02.48 (-0.18)
UTK	ORT	106.9	35			S-P	12.6 SEC (-0.05)
UTK	ANTN	118.4	349			S-P	14.3 SEC (0.21)
UTK	MSAL	157.1	259			S-P	19.4 SEC (0.96)
UTK	SHAL	166.5	243			S-P	21.3 SEC (1.77)
UTK	GOGA	235.9	143	eP	:45:15.65 (0.03)	eS	:43.52 (0.55)
UTK	WVT	280.8	294	eP	:22.47 (1.32)	eS	:52.65 (0.12)
UTK	PLAL	282.3	268			eS	:52.77 (-0.08)

*******2002 JANUARY 21; 06:04 – SWEETWATER, TENNESSEE*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020121	060416.0	35.560	84.438	9.6	4	41	225	0.1	D	C/D	6.4	320	1.3	21.8	D		1.7		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	ORT	40.6	17			S-P	4.9 SEC (-0.05)
UTK	MYNC	60.9	152	iP	06:04:26.08 (0.05)	iS	06:04:33.38 (-0.05)
UTK	EGT	109.9	70			S-P	13.3 SEC (0.30)

*******2002 JANUARY 22; 23:11 – CHARLESTON, SOUTH CAROLINA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020122	231145.4	32.935	80.146	6.7	10	4	123	0.0	B	A/B	0.3	360	0.3	0.7			1.1		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	MGS	4.2	174	iPd	23:11:47.23 (-0.03)	iSd	23:11:47.94 (0.03)
USC	RGR	5.5	236	iPu	:47.38 (0.02)	iSd	:48.19 (0.19)
USC	CSU	9.0	51	iPu	:47.65 (0.01)	iSn	:49.13 (-0.04)
USC	SVS	10.3	291	iPu	:48.08 (0.04)	iSn	:49.30 (-0.03)
USC	WAS	15.4	230	iPu	:48.91 (0.04)	iSn	:51.06 (-0.05)

*******2002 JANUARY 28; 04:38 – SPRING CITY, TENNESSEE*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020128	043847.9	35.688	84.856	10.2	6	56	192	0.1	D	C/D	2.5	6	0.5	99.0	D		1.6		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	ORT	55.6	64	eP	04:38:56.96 (-0.07)	iS	04:39:03.80 (-0.00)
UTK	ANTN	63.5	328	iP	:58.26 (-0.02)	eS	:06.08 (0.10)
UTK	MYNC	95.0	136			S-P	11.2 SEC (-0.05)
UTK	EGT	142.8	80	eP	:39:11.81 (0.97)		
UTK	WVT	272.9	281			S-P	26.9 SEC (-3.54X)

*******2002 JANUARY 28; 07:49 – CHARLESTON, SOUTH CAROLINA*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020128	074906	8.8	33.018	80.157	4.7	18	9	89		B	B/B	0.2	360	0.2	1.1			2.4		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
USC	CSU	8.8	114	iPu	07:49:08.98	(0.18)	iSd	07:49:10.06	(-0.10)
USC	NHSC	10.0	349	iPd	:09.06	(0.07)	iSu	:11.43	(0.28)
USC	SVS	10.2	237	iPu	:09.18	(-0.04)	iSd	:10.43	(0.04)
USC	TWB	11.8	25	iPd	:09.36	(-0.17)	iSu	:10.64	(0.10)
USC	RGR	12.7	196	iPd	:09.66	(0.03)	iSu	:10.96	(-0.03)
USC	MGS	13.4	174	iPd	:09.89	(0.12)	iSu	:11.47	(0.12)
USC	HBF	18.2	245	iPu	:10.42	(-0.09)	iSu	:12.47	(0.00)
USC	WAS	21.8	210	iPu	:11.21	(-0.03)	iSd	:14.21	(-0.06)
USC	DRC	23.8	295	iPd	:11.82	(0.05)	iSu	:15.08	(0.01)

*****2002 JANUARY 29; 06:50– DUNLAP, TENNESSEE*****

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020129	065058	.1	35.369	85.277	10.8	7	89	256	0.2	D	C/D	2.1	236	0.6	99.0	D		1.9		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	ANTN	89.2	3	eP	06:51:12.88	(0.25)	eS	06:51:23.19	(-0.10)
UTK	ORT	106.5	55	eP	:14.86	(-0.50)	eS	:28.14	(0.15)
UTK	MYNC	109.6	107	eP	:16.54	(0.69)	iS	:28.81	(-0.04)
UTK	CRTN	159.2	54	eP	:23.73	(0.05)			

*****2002 JANUARY 31; 12:17 – PINEVILLE, KENTUCKY*****

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020131	121754	.2	36.782	83.596	17.0	12	68	162	0.3	D	C/D	1.3	329	0.7	1.6	B		2.4		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	CRTN	68.2	199	eP-	12:18:05.63	(0.13)	iS	12:18:13.69	(-0.12)
UTK	EGT	101.3	165	iPd	:10.72	(0.01)	eS	:22.92	(0.10)
UTK	SLTN	137.2	105	eP	:16.60	(0.24)	eS	:31.87	(-0.63)
UTK	MYNC	195.5	194	iPd	:24.91	(-0.34)	eS	:48.43	(0.64)
UTK	WCI	291.3	304				eS	:19:09.16	(0.15)
UTK	GOGA	374.1	178	eP	:50.07	(2.36)			
UTK	SHAL	376.9	227	eP	:49.13	(1.05)	eS	:27.65	(0.35)

*****2002 FEBRUARY 02; 18:29 – CHARLESTON, SOUTH CAROLINA*****

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020202	182903	.9	33.014	80.159	7.7	12	9	139	0.1	B	A/C	0.4	360	0.4	0.7			2.2		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
USC	CSU	8.8	110	iPd	18:29:06.18	(0.01)	iSd	18:29:07.77	(0.04)
USC	SVS	9.7	239	iPu	:06.51	(0.02)	iSu	:07.70	(-0.09)
USC	RGR	12.2	196	iPd	:06.84	(0.01)	iSd	:08.32	(0.05)
USC	TWB	12.4	25	iPd	:06.84	(-0.08)	iSd	:08.28	(0.14)
USC	HBF	17.8	246	iPd	:07.70	(0.01)	iSu	:09.80	(0.14)
USC	WAS	21.3	210	iPu	:08.40	(0.05)	iSu	:11.23	(-0.16)

*****2002 FEBRUARY 10; 18:26 – WINFIELD, ALABAMA*****

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020210	1826	23.8	33.964	87.724	3.5	22	116	145	0.5	D	D/D	0.4	7	0.3	1.2	A		2.6		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	SHAL	115.8	63	iP-	18:26:42.52	(-0.14)	iS	18:26:56.87	(0.26)
UTK	PLAL	117.5	344	eP	:42.82	(-0.11)	eS	:57.37	(0.31)
UTK	LRAL	123.2	147	eP+	:43.88	(0.05)	eS	:59.93	(1.33)
UTK	MSAL	137.6	44	iPd	:46.12	(0.01)	eS	:27:02.18	(-0.36)
UTK	OXF	166.7	292	eP	:50.83	(0.13)	eS	:10.95	(0.47)
UTK	SWET	215.3	49	eP	:57.88	(-0.50)	eS	:25.62	(1.92)
UTK	WVT	240.5	358	eP	:27:01.13	(-1.05)	eS	:29.93	(-0.19)
UTK	MYNC	352.4	69	eP	:15.59	(-0.42)	eS	:54.01	(-0.05)
UTK	ORT	379.7	54	eP	:16.50	(-2.86)	eS	:28:00.19	(0.35)
UTK	GOGA	399.5	98	eP	:19.93	(-1.84)	eS	:04.80	(0.78)
UTK	EGT	457.9	61	eP	:27.31	(-1.77)	eS	:14.12	(-2.55)

*****2002 FEBRUARY 17; 07:00– SWEETWATER, TENNESSEE*****

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020217	0700	43.9	35.699	84.543	5.4	27	32	73	0.5	C	C/C	0.4	327	0.3	0.7	A		2.5		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	ORT	31.8	43	iPd	07:00:49.24	(0.01)	iS	07:00:53.64	(0.46)
UTK	MYNC	79.0	151	iP+	:56.88	(0.07)	iS	:01:06.16	(-0.21)
UTK	CRTN	84.3	49	iP	:57.31	(-0.35)	eS	:07.46	(-0.39)
UTK	EGT	114.8	78	eP	:01:02.80	(0.23)	iS	:15.53	(-0.82)
UTK	SWET	137.0	247	eP+	:06.28	(0.22)	eS	:22.82	(0.46)
UTK	MSAL	215.6	245	eP	:18.41	(-0.05)	eS	:43.97	(0.30)
UTK	SLTN	233.3	69	eP+	:20.68	(-0.58)	iS	:48.81	(0.35)
UTK	SHAL	234.5	234	eP	:20.40	(-0.97)	eS	:49.14	(0.52)
UTK	GOGA	272.3	158	eP	:26.03	(0.02)	eS	:57.45	(0.79)
UTK	WVT	300.5	280	eP	:29.05	(-0.44)	eS	:02:02.53	(-0.14)
UTK	WCI	322.2	330	eP	:34.06	(1.89)			
UTK	PLAL	330.8	257	eP	:33.12	(-0.10)	eS	:09.02	(-0.11)
UTK	LRAL	371.9	218	eP	:39.68	(1.40)	eS	:16.56	(-1.32)
UTK	BLA	405.8	64	eP	:40.32	(-2.20)			
UTK	OXF	462.7	255				iS	:36.43	(-0.83)

*****2002 FEBRUARY 21; 05:15– DECATUR, TENNESSEE*****

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020221	0515	24.0	35.452	84.861	2.5	14	71	118	0.3	D	C/D	0.5	310	0.3	2.2	B		2.3		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	ORT	71.5	45	eP	05:15:35.83	(-0.00)	eS	05:15:44.81	(0.22)
UTK	MYNC	78.7	122	eP	:37.26	(0.25)	eS	:46.51	(-0.12)
UTK	CRTN	124.0	48	eP	:43.68	(-0.58)	eS	:58.80	(-0.39)
UTK	MSAL	178.3	248	eP	:52.85	(0.02)	eS	:16:14.26	(0.27)
UTK	SHAL	195.1	235	iPu	:55.37	(-0.11)	eS	:19.04	(0.46)
UTK	WVT	278.8	287	eP	:16:05.65	(-1.59)	eS	:38.70	(-0.00)
UTK	PLAL	297.3	261				eS	:42.72	(0.07)
UTK	LRAL	332.6	217				eS	:47.96	(-2.21)

*****2002 FEBRUARY 25; 01:53– KNOXVILLE, TENNESSEE*****

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020225	015316.0		36.021	83.837	9.5	10	20	105	0.2	C	C/C	1.1	341	0.3	3.4	C		1.7		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	CRTN	19.9	359	iPd	01:53:19.56	(-0.05)	iS	01:53:22.20	(-0.09)
UTK	ORT	44.0	254	eP	:23.29	(-0.04)	iS	:28.88	(0.12)
UTK	EGT	50.4	105	eP	:24.56	(0.17)	eS	:31.00	(0.40)
UTK	MYNC	108.3	194	eP	:33.71	(0.19)	eS	:46.01	(-0.38)
UTK	SLTN	161.3	73	eP	:42.08	(0.17)	eS	:54:00.69	(-0.22)

*******2002 MARCH 06; 00:00 – SAVANNAH RIVER SITE, SOUTH CAROLINA*******

WSRC Most likely aftershock associated with the 2001-2002 Upper Three Runs sequence at the Savannah River Site

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
WSRC	020306	000031.1		33.331	81.679	4.6	13	1	203	0.1	C	B/D	0.5	310	0.3	0.4			1.4		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
WSRC	SRAV	0.7	187		00:00:31.90	(-0.04)	S	00:00:32.70	(0.09)
WSRC	HAW	7.2	63		:32.52	(0.06)	S	:33.44	(-0.09)
WSRC	SRPN	8.4	92		:32.75	(-0.01)	S	:33.12	(-0.96)
WSRC	NPRS	9.1	155		:32.85	(-0.01)	S	:34.15	(-0.10)
WSRC	SRPW	17.1	147		:34.34	(0.12)			
WSRC	SRPD	19.8	189		:34.64	(0.00)			
WSRC	MBY	19.9	220		:34.40	(-0.12)	S	:36.86	(-0.34)
WSRC	DXN	31.2	170		:36.56	(0.09)			

*******2002 MARCH 13; 20:57 – CHARLESTON, SOUTH CAROLINA*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020313	205726.7		32.919	80.153	7.6	12	4	222	0.2	C	B/D	0.5	360	0.5	0.6			2.2		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
USC	RGR	4.1	251	iPu	20:57:28.47	(-0.12)	iSd	20:57:29.36	(0.15)
USC	SVS	10.4	301	iPu	:29.34	(-0.06)	iSd	:30.69	(-0.07)
USC	WAS	13.7	234	iPd	:29.92	(0.01)	iSd	:31.94	(-0.07)
USC	HBF	17.1	281	iPu	:30.31	(-0.06)	iSu	:32.42	(0.17)
USC	NHSC	20.9	354	iPu	:31.47	(0.61)	iSu	:34.25	(-0.27)
USC	TWB	22.2	12	iPu	:31.07	(-0.22)	iSu	:33.57	(-0.17)

*******2002 MARCH 24; 10:50– MARYVILLE, TENNESSEE*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020324	105004.7		35.804	84.051	10.6	6	26	162	0.1	C	C/C	4.3	289	0.4	17.5	D		1.6		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	ORT	25.7	297	iP	10:50:09.21	(-0.03)	iS	10:50:12.60	(0.01)
UTK	CRTN	47.8	23	eP	:12.65	(-0.02)	iS	:18.52	(-0.03)
UTK	MYNC	81.3	185	eP	:18.03	(0.09)	iS	:27.58	(-0.11)

*******2002 MARCH 24; 14:08– ATHENS, TENNESSEE*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020324	140857.4	35.506	84.565	4.4	15	51	130	0.2	C	B/D	0.5	304	0.3	1.7	B		2.0		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	ORT	50.6	28	eP	14:09:05.93 (0.12)	iS	14:09:12.14 (0.11)
UTK	MYNC	62.3	140	iPu	:07.68 (-0.01)		
UTK	CRTN	101.0	40	iP	:13.68 (-0.22)	eS	:25.84 (-0.26)
UTK	PDTN	119.5	258	eP	:17.07 (0.22)	eS	:31.15 (-0.02)
UTK	MSAL	205.5	250	eP	:29.36 (-1.06)	eS	:55.31 (0.69)
UTK	SHAL	220.8	238	eP	:31.35 (-1.49)	eS	:58.56 (-0.11)
UTK	SLTN	243.8	64	eP	:35.64 (-0.59)	eS	:10:04.06 (-0.42)
UTK	GOGA	253.3	156	eP	:37.63 (0.34)	iS	:07.03 (0.73)

*****2002 MARCH 26; 05:38– HARROGATE, TENNESSEE*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020326	053809.0	36.583	83.698	10.0	9	44	239	0.4	D	C/D	1.9	332	0.7	2.2	B		1.9		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	CRTN	44.4	197	eP-	05:38:16.16 (-0.27)	eS	05:38:22.12 (0.18)
UTK	EGT	83.8	154	eP	:22.22 (-0.46)	eS	:32.48 (-0.26)
UTK	ORT	92.5	216			eS	:35.35 (0.29)
UTK	SLTN	142.1	96	eP	:33.03 (1.14)	eS	:48.37 (-0.30)
UTK	MYNC	171.9	193	eP	:36.28 (-0.27)	eS	:56.53 (-0.20)

*****2002 MARCH 27; 07:10– MURPHY, NORTH CAROLINA*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020327	071049.9	35.244	84.227	5.8	10	21	194	0.2	D	C/D	2.1	251	0.4	4.6	C		1.7		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	MYNC	20.9	154	iP	07:10:53.50 (0.03)	iS	07:10:56.08 (-0.05)
UTK	ORT	74.2	355	iP	:11:02.19 (0.17)	iS	:11:10.73 (-0.27)
UTK	EGT	111.4	49			eS	:20.61 (-0.77)
UTK	CRTN	111.7	18	eP	:08.33 (0.30)	eS	:21.59 (0.18)
UTK	GOGA	214.9	161			eS	:49.31 (-0.10)
UTK	SLTN	232.2	54	eP	:26.92 (-0.13)	eS	:54.09 (-0.01)

*****2002 MARCH 27; 08:25– WILLIAMSON, WEST VIRGINIA*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020327	082503.3	37.753	82.171	7.7	10	145	247	0.3	D	C/D	2.5	349	1.0	2.0	B		2.1		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	SLTN	145.4	178	eP	08:25:26.58 (-0.22)		
UTK	BLA	166.1	111	eP	:30.53 (0.50)	eS	08:25:50.00 (0.39)
UTK	CRTN	227.5	221	iP-	:39.60 (-0.06)	eS	:26:06.33 (0.27)
UTK	EGT	228.7	206	eP	:40.91 (1.03)	eS	:06.53 (0.08)
UTK	ORT	279.3	224			iS	:16.96 (-0.26)
UTK	MYNC	345.1	211	eP	:56.25 (2.01)	eS	:31.80 (0.51)

*****2002 APRIL 01; 13:00– MORRISTOWN, TENNESSEE*****

UTK Very small but felt earthquake occurred near the intersection of Hamblen, Greene and Cocke Counties. This earthquake was followed by several smaller, felt, aftershocks which ceased around 9:30 am EST. These earthquakes all occurred at very shallow depths (probably less than one kilometer).

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020401	130052.3	36.182	83.162	0.0	7	34	160	0.7	D	D/C	1.1	236	0.6	5.9	D		1.6		F

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	EGT	33.5	201	iP	13:00:57.47	(-0.34)	iS	13:01:02.21	(0.30)
UTK	CRTN	61.1	272	eP	:01:02.07	(-0.29)	eS	:10.19	(0.36)
UTK	SLTN	97.9	72				eS	:23.39	(2.94)
UTK	ORT	107.3	254	eP	:12.40	(2.46)	eS	:26.41	(3.39)

*******2002 APRIL 06; 20:49 – DALTON, GEORGIA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020406	204951.7	34.716	85.022	0.0	21	91	123	0.4	D	C/D	0.4	358	0.2	1.0	A		2.2		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	MYNC	90.9	64	iP	20:50:06.92	(0.21)	iS	20:50:17.19	(-0.64)
UTK	SWET	99.9	304	eP+	:08.26	(0.09)	eS	:20.26	(-0.12)
UTK	ORT	147.6	26	iP-	:16.12	(0.33)	eS	:33.68	(0.15)
UTK	SHAL	148.3	258	eP	:15.90	(0.01)	iS	:33.68	(-0.02)
UTK	MSAL	151.8	276	iP-	:16.46	(0.01)	iS	:34.35	(-0.31)
UTK	CRTN	196.5	33	eP	:23.28	(-0.22)	eS	:45.97	(-0.90)
UTK	GOGA	203.9	135	iP	:24.79	(0.14)	iS	:48.71	(-0.14)
UTK	EGT	204.6	50	eP	:25.68	(0.86)	eS	:50.44	(1.29)
UTK	PLAL	280.8	277				eS	:51:08.45	(1.17)
UTK	WVT	299.4	302	eP	:36.73	(-1.00)	eS	:11.60	(0.35)
UTK	SLTN	325.4	53	eP	:41.95	(0.89)	eS	:16.81	(-0.21)

*******2002 APRIL 07; 01:56 – JEFFERSON CITY, TENNESSEE*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020407	015612.7	36.081	83.540	23.2	6	30	136	0.1	C	B/C	1.2	31	0.3	1.5	B		1.1		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	EGT	29.6	132	iP	01:56:18.72	(-0.05)	iS	01:56:23.27	(0.03)
UTK	CRTN	30.1	296	iPu	:18.74	(-0.04)	iS	:23.27	(0.02)
UTK	ORT	71.6	255				eS	:33.53	(0.11)
UTK	SLTN	133.7	72				eS	:50.87	(1.03)

*******2002 APRIL 09; 18:20 – SUMITON, ALABAMA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020409	182017.6	33.808	87.103	1.1	18	83	117	0.4	D	C/D	0.4	282	0.3	1.5	B		2.0		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	SHAL	83.3	34	eP	18:20:31.66	(0.28)	iS	18:20:41.59	(0.01)
UTK	LRAL	86.3	173	iPu	:31.92	(0.06)	iS	:42.35	(-0.06)
UTK	MSAL	121.8	19	eP	:37.88	(0.33)	iS	:51.91	(-0.38)
UTK	PLAL	158.0	326	iP+	:43.05	(-0.23)	iS	:21:02.30	(0.14)
UTK	SWET	189.6	34	iP	:47.70	(-0.59)	iS	:11.02	(0.19)

UTK	OXF	226.5	291	eP	:53.40	(-0.69)	eS	:20.47	(-0.24)
UTK	WVT	266.0	346	iPd	:58.85	(-0.56)	eS	:31.03	(1.19)
UTK	MYNC	307.4	62				eS	:35.92	(-2.82)
UTK	GOGA	340.3	96				eS	:43.66	(-2.04)
UTK	ORT	346.1	47	eP	:21:08.26	(-1.06)	eS	:44.60	(-2.38)

*****2002 APRIL 17; 23:36 – LAFAYETTE, GEORGIA*****

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020417	2336	32.1	34.674	85.079	2.8	15	98	92	0.5	D	C/D	0.8	336	0.3	1.7	B		1.9		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	MYNC	97.7	63	iP	23:36:48.36 (0.21)	eS	23:36:59.19 (-0.82)
UTK	SHAL	142.3	260	eP	:55.15 (-0.10)	iS	:37:12.18 (-0.07)
UTK	MSAL	147.2	278	eP	:56.43 (0.40)	eS	:13.21 (-0.39)
UTK	ORT	154.2	27			eS	:15.28 (-0.22)
UTK	CRTN	203.3	33	eP	:37:05.66 (0.77)	eS	:29.38 (0.46)
UTK	GOGA	204.4	133			eS	:26.66 (-2.54)
UTK	EGT	211.6	49	eP	:07.65 (1.41)	eS	:32.91 (1.66)
UTK	LRAL	254.1	225	eP	:11.60 (-0.69)	eS	:42.07 (0.57)
UTK	WVT	297.6	304			eS	:50.85 (0.07)

*****2002 APRIL 20; 07:28 – ROGERSVILLE, ALABAMA*****

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020420	0728	30.7	34.811	87.403	10.3	9	64	141	0.2	D	C/D	0.7	17	0.3	4.8	C		1.8		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	PLAL	64.4	287	iP	07:28:41.35 (0.10)	iS	07:28:48.90 (-0.13)
UTK	MSAL	66.8	86	eP	:41.93 (0.29)	iS	:49.72 (0.01)
UTK	SHAL	84.6	120	iP	:44.45 (0.00)	iS	:54.12 (-0.45)
UTK	WVT	151.4	345	iPd	:55.22 (0.24)	eS	:29:12.45 (-0.33)
UTK	OXF	186.9	260			eS	:22.70 (0.29)

*****2002 APRIL 28; 00:02 – CHARLESTON, SOUTH CAROLINA*****

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020428	0002	11.5	32.935	80.153	6.9	10	4	121		B	A/B	0.4	360	0.4	0.7			2.3		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	MGS	4.3	165	iPu	00:02:13.37 (-0.02)	iSu	00:02:13.94 (-0.14)
USC	RGR	5.0	231	iPu	:13.41 (-0.01)	iSu	:14.22 (0.19)
USC	CSU	9.5	54	iPu	:13.95 (0.12)	iSd	:15.42 (-0.01)
USC	SVS	9.6	292	iPu	:14.00 (-0.05)	iSd	:15.19 (-0.10)
USC	HBF	16.9	275	iPd	:15.09 (-0.04)	iSu	:17.03 (0.05)

*****2002 MAY 05; 20:46– PARRISH, ALABAMA*****

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020505	2046	59.6	33.700	87.279	16.3	20	78	135	0.4	D	C/D	0.4	267	0.3	0.7	A		2.6		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	LRAL	78.3	160	iPu	20:47:12.44 (0.05)	iS	20:47:21.89 (0.07)

UTK	SHAL	102.5	37	eP	:16.33	(0.14)	eS	:29.09	(0.69)
UTK	MSAL	138.9	24	eP+	:22.07	(0.17)	iS	:38.03	(-0.19)
UTK	PLAL	160.0	333	iP	:24.61	(-0.55)	iS	:44.21	(0.43)
UTK	SWET	208.8	36	eP	:32.18	(-0.49)	eS	:57.82	(1.11)
UTK	OXF	216.2	295	eP	:33.78	(0.12)	eS	:58.83	(0.40)
UTK	WVT	274.2	350	iP-	:39.81	(-1.01)	eS	:48:12.21	(1.38)
UTK	MYNC	327.4	61	eP	:47.39	(-0.03)	iS	:22.69	(0.44)
UTK	GOGA	355.5	94				eS	:28.01	(-0.15)
UTK	CRTN	419.0	48	eP	:58.07	(-0.63)	eS	:41.58	(-0.18)
UTK	SLTN	560.2	56	eP	:48:15.56	(-0.65)			

*****2002 MAY 06; 22:26 – OHIO*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
VTSO	020506	222651.5	38.949	81.889	5.0F	16	171	169	0.7	D	D/D	4.0	247	1.9	14.9	D		3.0		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)		PHASE	ARRIVAL TIME (RES)	
VTSO	ACSO	170.7	327	eP	22:27:19.03	(-0.31)	eS	22:27:39.35	(0.51)
VTSO	FWV	178.7	148	eP	:21.31	(0.70)	eS	:42.41	(1.42)
VTSO	MCWV	193.1	65	eP	:22.51	(-0.26)	eS	:44.89	(0.22)
VTSO	PWV	193.6	157	eP	:23.16	(0.27)	eS	:45.60	(0.73)
VTSO	ELN	210.3	151	eP	:25.05	(-0.38)	eS	:49.17	(-0.03)
VTSO	WMV	219.6	158	eP	:26.31	(-0.59)	eS	:50.96	(-0.72)
VTSO	BLA	231.9	146	eP	:27.70	(-1.04)	eS	:53.52	(-1.31)
VTSO	SSPA	390.5	60	eP	:52.66	(3.95)	eS	:28:37.66	(8.57)

*****2002 MAY 08; 18:18– BRYSON CITY, NORTH CAROLINA*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020508	181855.2	35.408	83.577	5.4	15	60	129	0.4	D	C/D	0.7	304	0.3	2.9	C		2.1		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)		PHASE	ARRIVAL TIME (RES)	
UTK	EGT	60.3	25	iP-	18:19:04.95	(-0.18)	eS	18:19:12.18	(-0.31)
UTK	MYNC	62.3	234	eP	:05.21	(-0.22)	eS	:13.24	(0.22)
UTK	ORT	86.2	310				eS	:20.09	(0.41)
UTK	CRTN	91.0	345	eP	:10.40	(0.36)	eS	:21.48	(0.45)
UTK	ANTN	171.9	300				eS	:43.16	(-0.02)
UTK	SLTN	174.6	48	eP	:23.90	(0.57)	eS	:44.75	(0.77)
UTK	SWET	215.2	265	eP-	:29.52	(-0.17)	eS	:54.76	(-0.11)
UTK	GOGA	221.7	177	eP	:32.54	(1.84)	eS	:56.56	(0.02)
UTK	WVT	392.8	283	eP	:53.06	(0.90)			

*****2002 MAY 15; 06:34– MADISONVILLE, TENNESSEE*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020515	063450.6	35.542	84.078	15.3	23	30	102	0.5	C	C/B	0.2	290	0.2	0.5	A		2.6		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)		PHASE	ARRIVAL TIME (RES)	
UTK	TKL	30.4	65	iPd	06:34:56.15	(0.06)	iS	06:35:00.43	(0.28)
UTK	ORT	45.6	333	iPu	:58.41	(0.07)	iS	:04.48	(0.42)
UTK	MYNC	52.1	185	iP	:59.13	(-0.22)	iS	:06.01	(0.20)
UTK	EGT	81.1	60	eP-	:35:03.26	(-0.61)	iS	:13.41	(-0.23)
UTK	ANTN	125.4	304	iP	:10.19	(-0.61)	eS	:25.74	(0.08)
UTK	SWET	172.3	258	ePu	:17.54	(-0.59)	iS	:38.24	(0.09)
UTK	SLTN	202.9	60	eP	:21.93	(-0.94)	eS	:46.31	(-0.00)
UTK	GOGA	243.0	166	iP-	:27.91	(-0.17)	iS	:55.68	(0.34)
UTK	SHAL	261.2	243	eP	:29.21	(-1.14)	eS	:36:01.05	(1.79)
UTK	WCI	359.2	326				eS	:18.73	(-1.41)

UTK	PLAL	369.0	261	eP	:45.66	(2.04)	eS	:21.71	(-0.51)
UTK	BLA	376.8	59	eP	:47.94	(3.30)			
UTK	LRAL	386.7	225	eP	:49.24	(3.43)			

*******2002 MAY 16; 07:05– MADISONVILLE, TENNESSEE*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020516	070530.1	35.615	84.218	18.8	12	34	174	0.1	C	B/C	0.4	261	0.3	1.3	A		1.9		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	ORT	33.7	347	iP+	07:05:36.37	(0.03)	iS	07:05:40.90	(-0.01)
UTK	TKL	40.5	83	iP	:37.28	(-0.02)	iS	:42.65	(0.07)
UTK	MYNC	60.5	172	iP	:40.43	(0.12)	iS	:47.71	(-0.09)
UTK	CRTN	73.3	28	iP	:42.24	(-0.03)	eS	:51.09	(-0.10)
UTK	EGT	89.0	69	eP	:44.09	(-0.66)	eS	:55.13	(-0.35)
UTK	SLTN	210.2	63	eP	:06:02.51	(-0.86)	eS	:06:28.64	(1.12)

*******2002 MAY 18; 07:02– RUTLEDGE, TENNESSEE*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020518	070231.5	36.303	83.351	6.3	10	45	176	0.4	C	C/C	0.8	327	0.6	3.4	C		2.0		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	EGT	44.8	174	iP-	07:02:38.80	(-0.17)	iS	07:02:44.59	(0.09)
UTK	ORT	96.4	243	eP	:47.07	(-0.14)	eS	:59.51	(0.69)
UTK	SLTN	111.5	82	eP	:50.23	(0.56)	eS	:03:02.65	(-0.38)
UTK	MYNC	153.4	208	eP	:55.86	(-0.39)	eS	:14.43	(0.02)
UTK	ANTN	169.7	266	eP+	:58.47	(-0.35)	eS	:19.70	(0.85)

*******2002 MAY 20; 04:08– MCMINNVILLE, TENNESSEE*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020520	040815.1	35.545	85.607	4.0	22	47	92	0.5	C	C/C	0.5	313	0.2	1.0	A		2.5		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	SWET	47.0	219	eP	04:08:23.02	(0.10)	eS	04:08:28.88	(0.18)
UTK	ANTN	77.3	26	iP	:27.78	(-0.05)	iS	:37.22	(-0.02)
UTK	ORT	124.5	71	eP	:35.28	(-0.11)			
UTK	MYNC	144.3	111	eP	:38.65	(0.14)	eS	:55.63	(-0.08)
UTK	SHAL	153.3	217	eP	:39.37	(-0.55)	eS	:58.49	(0.35)
UTK	EGT	212.6	79	eP	:49.18	(-0.13)	eS	:09:13.98	(-0.36)
UTK	PLAL	233.2	255	eP	:51.31	(-1.17)	eS	:19.26	(-0.41)
UTK	WCI	303.3	347	eP	:09:02.57	(1.36)	eS	:37.07	(2.32)
UTK	LRAL	306.5	205	eP	:00.72	(-0.89)	eS	:34.65	(-0.79)
UTK	GOGA	307.7	140	eP	:03.49	(1.74)	eS	:35.56	(-0.14)
UTK	SLTN	329.7	71	eP	:04.35	(-0.25)			
UTK	OXF	365.4	253	eP	:06.68	(-2.19)	eS	:46.14	(-1.86)

*******2002 MAY 21; 20:35– YORK, ALABAMA*******

UTK Minor earthquake felt over 10 square mile area of western portions of Sumter County. One report of pictures shaken off walls.

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I

UTK	020521	203531.9	32.456	88.221	27.4	21	131	259	0.6	D	D/D	2.0	355	0.9	1.6	B	3.0		F

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	LRAL	131.4	60	eP	20:35:53.34	(0.27)	eS	20:36:08.09	(-0.36)
UTK	OXF	253.4	334	eP-	:36:09.81	(0.25)	eS	:37.21	(0.27)
UTK	SHAL	266.0	34	iP	:10.60	(-0.55)	eS	:40.75	(1.06)
UTK	PLAL	280.6	3	eP	:11.76	(-1.17)	eS	:43.01	(0.24)
UTK	MSAL	301.6	28	eP	:14.76	(-0.77)	eS	:47.05	(-0.21)
UTK	SWET	372.4	34	eP	:23.46	(-0.83)	eS	:37:03.58	(1.16)
UTK	WVT	409.2	5	eP	:28.36	(-0.43)	eS	:08.51	(-1.69)
UTK	GOGA	457.1	75	eP	:36.86	(2.17)	eS	:24.01	(3.60)
UTK	MYNC	477.6	51				eS	:26.35	(1.49)
UTK	ORT	526.4	42	eP	:42.94	(-0.32)	eS	:32.76	(-2.48)
UTK	TKL	542.9	48	iPd	:48.35	(3.07)	eS	:38:39.65	(0.91)

*****2002 MAY 30; 08:23 – CHARLESTON, SOUTH CAROLINA*****

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020530	0823	13.0	32.964	80.205	10.1	12	4	161		C	B/C	0.5	360	0.5	0.5			2.0		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
USC	SVS	4.1	278	iPu	08:23:15.28	(-0.04)	iSn	08:23:16.33	(-0.03)
USC	RGR	6.3	171	iPu	:15.46	(-0.02)	iSd	:16.58	(0.04)
USC	MGS	9.4	140	iPd	:15.85	(0.00)	iSn	:17.10	(-0.22)
USC	HBF	12.1	262	iPd	:16.09	(-0.03)	iSn	:17.64	(0.07)
USC	CSU	12.8	79	iPu	:16.16	(0.06)	iSn	:18.00	(-0.28)
USC	WAS	14.4	206	iPd	:16.51	(-0.03)	iSd	:18.68	(-0.17)

*****2002 JUNE 09; 10:52– MARYVILLE, TENNESSEE*****

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020609	1052	09.5	35.731	84.130	5.5	14	33	98	0.4	C	C/C	0.5	349	0.3	1.3	A		2.5		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	TKL	33.2	104	iP	10:52:14.90	(-0.16)	iS	10:52:19.48	(0.30)
UTK	MYNC	72.9	180	iPu	:21.35	(-0.08)	iS	:30.20	(-0.07)
UTK	SWET	173.3	251	eP-	:36.56	(-0.82)	iS	:58.84	(0.99)
UTK	GOGA	264.4	167	eP	:49.98	(-0.64)	iS	:53:20.48	(-0.06)
UTK	WCI	339.3	325	eP	:59.65	(-0.21)			
UTK	PLAL	368.1	258	eP	:53:01.50	(-1.91)			
UTK	BLA	370.7	63	eP	:04.62	(0.84)	eS	:41.47	(-1.84)
UTK	LRAL	398.7	222	eP	:05.19	(-1.99)	eS	:50.99	(1.80)

*****2002 JULY 07; 02:40 – CHARLESTON, SOUTH CAROLINA*****

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020707	0240	51.1	33.043	80.134	10.8	12	8	117		B	A/B	0.5	360	0.5	0.9			2.9		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
USC	TWB	8.4	20	iPd	02:40:53.83	(-0.05)	iSn	02:40:55.00	(0.07)
USC	CSB	8.6	137	iPd	:53.66	(0.01)	iSn	:55.35	(-0.08)
USC	SVS	13.5	232	iPd	:54.27	(-0.19)	iSn	:56.16	(-0.24)
USC	RGR	16.1	201	iPd	:54.86	(0.06)	iSd	:56.89	(0.03)

USC	DRC	24.8	287	iPu	:56.31	(-0.06)	iSn	:59.91	(-0.01)
USC	WAS	25.3	211	iPd	:56.30	(0.05)	iSn	:59.84	(-0.02)

*****2002 JULY 10; 20:55– BRYSON CITY, NORTH CAROLINA*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020710	205532.9	35.411	83.585	0.0	14	32	129	0.4	C	C/C	0.5	303	0.3	2.3	B		2.1		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	TKL	32.3	328	iP	20:55:38.15	(-0.12)	iS	20:55:42.05	(-0.18)
UTK	EGT	60.2	25	eP	:42.79	(-0.09)	iS	:50.00	(-0.25)
UTK	MYNC	62.0	233	eP	:43.00	(-0.18)	eS	:51.00	(0.24)
UTK	ORT	85.5	310	iP	:47.58	(0.52)	eS	:57.74	(0.22)
UTK	SLTN	174.8	49	eP	:56:01.51	(0.14)	eS	:56:23.82	(1.54)
UTK	GOGA	222.1	177	iP	:08.93	(0.16)	eS	:34.43	(-0.57)
UTK	SHAL	296.3	249	eP	:19.07	(0.46)	eS	:52.11	(0.25)

*****2002 JULY 16; 02:08 – CHARLESTON, SOUTH CAROLINA*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020716	020839.5	32.938	80.138	6.7	20	4	134		B	A/B	0.3	360	0.3	0.5			2.8		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
USC	MGS	4.5	184	iPu	02:08:41.19	(-0.10)	iSn	02:08:41.87	(-0.09)
USC	RGR	6.3	237	iPd	:41.43	(-0.03)	iSu	:42.29	(0.12)
USC	CSB	8.2	50	iPd	:41.51	(-0.02)	iSn	:43.04	(0.13)
USC	CSU	8.2	50	iPd	:41.56	(0.01)	iSn	:43.23	(0.26)
USC	SVS	10.9	288	iPu	:42.19	(0.05)	iSn	:43.39	(-0.10)
USC	WAS	16.1	231	iPd	:43.07	(0.07)	iSn	:45.30	(-0.05)
USC	HBF	18.3	273	iPu	:43.26	(0.00)	iSn	:45.36	(0.08)
USC	NHSC	19.1	349	iPd	:43.43	(0.15)	iSu	:46.54	(-0.13)
USC	TWB	19.9	9	iPd	:43.46	(-0.18)	iSn	:45.70	(-0.07)
USC	DRC	30.0	309	iPu	:45.62	(0.07)	iSn	:49.64	(-0.08)

*****2002 JULY 16; 02:20 – CHARLESTON, SOUTH CAROLINA*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020716	022012.0	32.938	80.138	7.2	16	4	135		B	A/B	0.3	360	0.3	0.5			2.3		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
USC	MGS	4.5	184	iPu	02:20:13.89	(-0.07)	iSn	02:20:14.58	(-0.10)
USC	RGR	6.3	237	iPd	:14.14	(0.02)	iSd	:15.03	(0.15)
USC	CSU	8.2	50	iPd	:14.25	(0.07)	iSn	:15.78	(0.13)
USC	CSB	8.2	50	iPd	:14.21	(0.04)	iSn	:15.75	(0.16)
USC	SVS	10.9	288	iPd	:14.80	(0.02)	iSn	:16.10	(-0.06)
USC	WAS	16.1	231	iPd	:15.76	(0.13)	iSn	:17.90	(-0.10)
USC	HBF	18.3	273	iPu	:15.88	(-0.02)	iSn	:18.06	(0.14)
USC	TWB	19.8	9	iPd	:16.15	(-0.09)	iSn	:18.38	(-0.01)

*****2002 JULY 24; 11:31– KNOXVILLE, TENNESSEE*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020724	113121.8	35.939	83.837	14.0	10	32	164	0.2	C	B/C	0.6	21	0.3	2.0	B		1.7		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	TKL	31.7	170	eP	11:31:27.08	(-0.28)	iS	11:31:31.65	(0.14)
UTK	ORT	42.3	266	iP+	:28.94	(-0.03)	iS	:34.35	(0.08)
UTK	EGT	48.8	95	eP	:30.02	(0.02)	eS	:36.40	(0.31)
UTK	MYNC	99.5	195	eP	:38.17	(0.26)	eS	:49.57	(-0.20)
UTK	SLTN	164.2	70	eP	:50.07	(1.94)	eS	:32:07.04	(-0.34)

*****2002 JULY 26; 21:07 – CHARLESTON, SOUTH CAROLINA*****

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020726	2107	03.0	33.060	80.195	10.0	18	11	128	0.1	B	A/B	0.2	360	0.2	0.5			3.0		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
USC	TWB	10.5	54	iPd	21:07:05.87	(-0.13)	iSd	21:07:07.26	(0.08)
USC	SVS	11.3	206	iPd	:06.07	(0.00)	iSn	:07.75	(0.05)
USC	CSU	14.2	125	iPu	:06.30	(0.03)	iSn	:07.96	(-0.64)
USC	CSB	14.2	125	iPu	:06.26	(0.01)	iSn	:07.92	(-0.62)
USC	RGR	16.9	180	iPd	:06.83	(-0.01)	iSd	:08.90	(-0.07)
USC	HBF	17.9	226	iPd	:07.03	(0.06)	iSn	:09.31	(0.24)
USC	MGS	18.6	164	iPu	:07.19	(0.04)	iSn	:09.57	(-0.04)
USC	DRC	18.9	286	iPu	:07.50	(0.11)	iSn	:10.11	(-0.11)
USC	WAS	24.7	197	iPd	:08.12	(0.00)	iSn	:11.10	(-0.55)

*****2002 AUGUST 04; 01:56– KNOXVILLE, TENNESSEE*****

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020804	0156	54.2	35.881	84.023	20.8	10	26	152	0.1	C	B/C	0.6	17	0.4	1.1	A		2.0		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	ORT	25.6	277	iP	01:56:59.48	(-0.03)	iS	01:57:03.46	(0.04)
UTK	TKL	33.4	138	eP	:57:00.43	(-0.09)	iS	:05.22	(0.04)
UTK	EGT	65.5	88	eP	:04.84	(-0.40)	eS	:13.51	(0.16)
UTK	MYNC	90.0	186	eP	:09.03	(0.07)	eS	:19.76	(0.01)
UTK	SLTN	182.2	69	iP-	:23.05	(-0.08)	eS	:45.39	(1.25)

*****2002 AUGUST 16; 13:40– SPRING CITY, TENNESSEE*****

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020816	1340	12.4	35.664	84.849	4.4	21	56	102	0.5	D	C/D	0.4	276	0.3	1.1	A		2.5		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	ORT	56.2	61	iP	13:40:21.76	(0.04)	iS	13:40:29.24	(0.63)
UTK	MYNC	92.6	135	iPu	:27.81	(0.25)	iS	:38.66	(-0.12)
UTK	TKL	97.4	90	ePd	:28.08	(-0.23)	iS	:39.93	(-0.15)
UTK	CRTN	108.7	57	ePu	:29.88	(-0.25)	eS	:43.31	(0.06)
UTK	EGT	142.7	79	ePd	:35.02	(-0.54)	eS	:52.07	(-0.51)
UTK	SLTN	260.6	70	iP	:53.00	(-0.32)			
UTK	WVT	274.0	282	eP	:55.81	(0.95)	eS	:41:24.71	(-1.03)
UTK	GOGA	280.3	153	eP	:55.99	(0.37)	eS	:28.19	(1.12)
UTK	PLAL	302.9	256	eP	:41:00.05	(1.63)	eS	:32.45	(0.54)
UTK	WCI	313.0	335	eP	:59.70	(0.04)	eS	:42:34.00	(-0.04)
UTK	OXF	435.0	254	eP	:42:17.56	(2.87)	eS	:56.83	(-3.23)

*******2002 AUGUST 19; 06:37– VONORE, TENNESSEE*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020819	063705.4	35.529	84.067	0.0	11	30	194	0.4	D	C/D	1.6	306	0.3	1.5	B		1.9		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	TKL	30.2	62	iPu	06:37:10.10 (-0.33)	iS	06:37:13.95 (-0.17)
UTK	MYNC	50.8	186	iP	:13.89 (0.05)	eS	:19.04 (-1.01)
UTK	EGT	80.9	59	iP	:18.12 (-0.70)	iS	:28.77 (0.05)
UTK	SLTN	202.8	59	eP	:38.61 (0.32)	eS	:38:03.45 (1.04)
UTK	GOGA	241.3	167	eP	:45.24 (0.94)	eS	:13.22 (0.63)
UTK	LRAL	386.4	225			eS	:46.34 (2.77)

*******2002 AUGUST 27; 14:07– SPRING CITY, TENNESSEE*******

UTK This small earthquake occurred in essentially the same location as the magnitude 2.5 earthquake of August 16.

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020827	140735.6	35.659	84.845	8.8	18	56	134	0.3	D	C/D	0.7	306	0.5	1.4	B		2.1		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	ORT	56.2	60	eP	14:07:44.88 (0.01)	iS	14:07:52.17 (0.43)
UTK	MYNC	92.0	135	iP+	:50.84 (0.25)	eS	:08:01.59 (-0.01)
UTK	TKL	97.0	90	iP-	:51.10 (-0.26)	iS	:02.88 (-0.06)
UTK	CRTN	108.7	56	iP	:53.20 (-0.01)	eS	:06.68 (0.54)
UTK	EGT	142.4	79	iP	:58.02 (-0.54)	eS	:15.24 (-0.17)
UTK	SHAL	210.2	230	eP	:08:08.95 (-0.26)	eS	:33.52 (-0.12)
UTK	SLTN	260.5	70	eP	:15.99 (-0.05)	eS	:45.98 (0.54)
UTK	WVT	274.5	282	eP	:19.51 (1.87)	eS	:48.36 (0.15)
UTK	GOGA	279.6	153	eP	:18.94 (0.66)	eS	:51.41 (2.10)

*******2002 SEPTEMBER 01; 18:21– ATHENS, TENNESSEE*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020901	182120.0	35.426	84.628	10.0	13	60	105	0.3	C	B/D	0.4	330	0.3	1.6	B		2.0		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	MYNC	60.0	130	iP	18:21:30.29 (0.38)	eS	18:21:36.51 (-0.69)
UTK	ORT	61.2	29	iP	:30.07 (-0.01)	iS	:37.78 (0.28)
UTK	TKL	81.7	71	eP	:33.22 (-0.10)	iS	:42.90 (-0.19)
UTK	CRTN	111.6	39	eP	:37.81 (-0.23)		
UTK	SWET	120.8	259	eP	:39.72 (0.22)	eS	:53.58 (-0.21)
UTK	GOGA	247.6	154			eS	:22:27.04 (0.36)
UTK	SLTN	252.9	63	iP	:59.25 (-0.14)	eS	:28.85 (0.83)
UTK	WVT	299.8	286			eS	:38.76 (0.94)

*******2002 SEPTEMBER 04; 02:22– MAYNARDVILLE, TENNESSEE*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020904	022217.0	36.247	83.766	3.3	9	9	209	0.2	D	C/D	2.0	308	0.8	2.4	B		1.9		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	CRTN	8.5	232	iPd	02:22:18.40 (-0.13)	iS	02:22:19.72 (0.05)

UTK	ORT	61.3	233			eS	:35.75 (1.09)
UTK	TKL	65.3	181	eP	:28.77 (0.96)	iS	:35.85 (0.04)
UTK	MYNC	134.2	194	eP	:39.47 (0.64)	iS	:54.72 (-0.18)
UTK	SLTN	149.3	81	eP	:40.77 (-0.48)	eS	:59.91 (0.83)

*******2002 SEPTEMBER 09; 01:34– MARSHALL, NORTH CAROLINA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020909	013434.0	35.863	82.681	10.0	15	56	184	0.2	C	B/D	0.8	331	0.3	2.6	B		2.3		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	EGT	55.8	274	iPd	01:34:43.51 (0.22)	eS	01:34:50.46 (0.33)
UTK	SLTN	81.8	38	eP	:47.48 (0.09)	eS	:57.26 (0.03)
UTK	TKL	101.4	257	iP	:50.22 (-0.22)	iS	:35:02.58 (0.09)
UTK	CRTN	111.0	290	eP	:51.59 (-0.37)	eS	:05.11 (-0.01)
UTK	ORT	146.7	272	eP	:57.35 (-0.23)	eS	:14.74 (-0.11)
UTK	MYNC	157.8	237	ePd	:59.26 (-0.09)	eS	:18.32 (0.41)
UTK	BLA	251.7	53	eP	:35:12.30 (-0.88)	eS	:42.38 (0.73)
UTK	SWET	303.4	257	eP	:20.22 (0.67)		

*******2002 SEPTEMBER 09; 01:53– MARSHALL, NORTH CAROLINA*******

UTK Aftershock of magnitude 2.3 event 18 minutes earlier.

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020909	015312.0	35.871	82.690	17.1	9	55	198	0.2	D	C/D	1.2	333	0.3	2.9	C		1.9		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	EGT	55.0	274	eP	01:53:21.52 (0.24)	eS	01:53:28.35 (0.22)
UTK	SLTN	81.7	39	iPd	:25.46 (0.05)	eS	:35.27 (-0.02)
UTK	TKL	100.8	257	eP	:28.10 (-0.25)	iS	:40.35 (-0.02)
UTK	CRTN	109.9	290			eS	:42.80 (-0.07)
UTK	MYNC	157.6	236	iP	:37.22 (0.02)	eS	:56.59 (1.04)

*******2002 SEPTEMBER 20; 23:58– LAKE JUNALUSKA, TENNESSEE*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	020920	235804.9	35.667	82.949	0.1	8	41	289	0.2	D	C/D	1.4	270	1.1	5.0	C		1.8		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	EGT	40.8	310	eP	23:58:11.50 (-0.12)	eS	23:58:16.63 (0.02)
UTK	TKL	74.7	269	eP	:17.40 (0.19)	eS	:26.20 (-0.15)
UTK	CRTN	99.8	307	eP	:21.50 (0.16)	eS	:34.32 (0.79)
UTK	MYNC	125.7	239	iP	:25.94 (0.44)	eS	:40.72 (-0.03)

*******2002 SEPTEMBER 21; 02:57 – CHARLESTON, SOUTH CAROLINA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020921	025728.6	32.922	80.163	8.2	12	3	108		B	A/B	0.4	360	0.4	0.6			2.0		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	RGR	3.3	241	iPu	02:57:30.60 (0.02)	iSd	02:57:31.29 (0.07)

USC	MGS	3.4	143	iPd	:30.56	(-0.06)	iSn	:31.01	(-0.38)
USC	SVS	9.5	303	iPu	:31.30	(0.03)	iSn	:32.55	(-0.01)
USC	CSU	11.2	51	iPd	:31.32	(0.01)	iSn	:32.65	(-0.53)
USC	WAS	13.2	231	iPd	:31.97	(0.14)	iSn	:33.78	(-0.10)
USC	HBF	16.1	280	iPu	:31.14	(-1.06)	iSn	:32.25	(-1.75)

*****2002 OCTOBER 01; 02:03 – CHARLESTON, SOUTH CAROLINA*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	021001	020307.8	32.925	80.170	5.7	10	3	110		B	A/B	0.3	360	0.3	0.6			1.1		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	RGR	3.0	231	iPd	02:03:09.29 (-0.03)	iSd	02:03:09.76 (0.12)
USC	MGS	4.0	138	iPd	:09.44 (-0.01)	iSn	:09.90 (-0.09)
USC	SVS	8.8	303	iPd	:10.11 (0.02)	iSn	:11.06 (-0.08)
USC	CSU	11.5	54	iPd	:10.34 (0.03)	iSn	:12.08 (0.02)
USC	WAS	12.9	228	iPd	:10.78 (0.02)	iSn	:12.44 (-0.22)

*****2002 OCTOBER 02; 21:55– TELLICO PLAINS, TENNESSEE*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	021002	215519.9	35.385	84.346	19.3	12	40	114	0.1	C	B/C	0.6	259	0.4	1.6	B		2.1		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	MYNC	39.7	150	eP	21:55:27.04 (0.06)	eS	21:55:32.12 (-0.09)
UTK	ORT	58.4	4	eP	:29.81 (0.09)	iS	:36.97 (-0.01)
UTK	TKL	60.1	59	eP	:29.80 (-0.18)	iS	:37.47 (0.05)
UTK	CRTN	101.3	27	eP	:36.78 (0.42)	eS	:48.52 (0.10)
UTK	EGT	110.8	59	eP	:37.14 (-0.72)		
UTK	SLTN	232.7	59	eP	:55.91 (0.10)	eS	:56:22.65 (0.70)
UTK	PLAL	342.6	264	eP	:56:09.57 (0.32)		

*****2002 OCTOBER 14; 03:23– DECATUR, TENNESSEE*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	021014	032311.5	35.536	84.852	3.0	22	83	88	0.6	D	D/D	0.5	356	0.2	0.9	A		2.6		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	MYNC	83.5	128	iP	03:23:25.59 (0.36)	iS	03:23:35.32 (-0.08)
UTK	TKL	98.7	82	eP	:27.58 (-0.08)	iS	:39.43 (-0.19)
UTK	SWET	104.3	250	eP	:28.78 (0.20)	eS	:41.80 (0.58)
UTK	EGT	146.4	73	eP	:35.05 (-0.24)	eS	:53.58 (0.79)
UTK	SHAL	201.2	233	iPd	:42.95 (-0.95)	eS	:24:08.29 (0.61)
UTK	GOGA	267.8	151	iPu	:53.17 (-0.16)	eS	:24.22 (0.46)
UTK	WVT	277.0	285	eP	:53.51 (-0.95)	eS	:25.06 (-0.66)
UTK	PLAL	299.6	259	eP	:58.42 (1.17)	eS	:31.02 (0.47)
UTK	WCI	325.8	336	eP	:24:03.64 (3.17)	eS	:35.04 (-1.09)
UTK	LRAL	340.5	216	eP	:59.73 (-2.56)	eS	:25:37.50 (-1.76)
UTK	OXF	431.0	256			eS	:57.63 (-0.94)
UTK	BLA	438.9	64	eP	:25:14.58 (0.11)		

*****2002 OCTOBER 18; 15:55– WILLIAMSBURG, KENTUCKY*****

UTK This event appears to have been preceded by a foreshock about 43 minutes earlier; however, the possible foreshock is too small to be reliably located.

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	021018	155534	5	36.624	84.081	6.9	13	52	210	0.4	D	C/D	1.0	318	0.7	1.9	B		1.8		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	CRTN	51.8	155	iPu	15:55:43.28	(0.21)	eS	15:55:49.18	(-0.21)
UTK	ORT	81.8	194				eS	:57.58	(-0.16)
UTK	EGT	106.7	139	eP	:52.83	(0.93)	eS	:56:06.46	(1.78)
UTK	TKL	110.7	165	eP	:52.22	(-0.26)	iS	:05.63	(-0.06)
UTK	MYNC	172.0	181	eP	:56:01.56	(-0.61)	eS	:22.36	(-0.09)
UTK	SLTN	176.7	96	eP	:02.36	(-0.59)	eS	:23.50	(-0.30)
UTK	SWET	228.7	227				eS	:38.22	(0.60)
UTK	BLA	332.6	78	eP	:23.26	(-0.70)			

*******2002 NOVEMBER 08; 03:09– SEVIERVILLE, TENNESSEE*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	021108	030912	2	35.893	83.587	19.8	12	26	153	0.2	C	B/C	0.5	342	0.3	0.6	A		2.3		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	EGT	26.1	88	iPd	03:09:17.70	(0.18)	iS	03:09:21.36	(-0.11)
UTK	ORT	64.8	272	iPu	:23.07	(0.04)	eS	:30.89	(-0.12)
UTK	MYNC	103.2	209	eP	:28.74	(-0.20)	iS	:41.27	(0.07)
UTK	SLTN	145.4	65	iP	:35.47	(0.01)	eS	:52.29	(-0.13)
UTK	SHAL	318.8	240	eP	:57.67	(-0.91)	eS	:10:33.77	(1.41)
UTK	PLAL	419.8	257	eP	:10:10.92	(-0.10)	eS	:54.57	(0.70)

*******2002 NOVEMBER 22; 01:24– TAZEWELL, TENNESSEE*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	021122	012434	6	36.381	83.592	3.2	9	59	207	0.5	D	C/D	1.1	335	0.4	1.8	B		1.8		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	EGT	59.5	154	iP-	01:24:44.56	(0.13)	eS	01:24:52.75	(1.02)
UTK	ORT	82.8	231	eP	:48.20	(0.01)	iS	:58.78	(0.52)
UTK	SLTN	132.2	87	eP	:55.52	(-0.61)	iS	:25:12.54	(0.55)
UTK	MYNC	152.9	199	eP	:58.93	(-0.44)	eS	:17.13	(-0.46)
UTK	SWET	247.9	239	eP	:25:13.98	(0.01)			

*******2002 NOVEMBER 22; 13:49– ROGERSVILLE, TENNESSEE*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	021122	134950	2	36.512	83.013	0.0	14	73	167	0.7	D	D/D	1.1	323	0.2	1.0	A		2.5		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME	(RES)	PHASE	ARRIVAL TIME	(RES)
UTK	EGT	72.5	201	iP-	13:50:02.13	(-0.05)	iS	13:50:11.12	(0.07)
UTK	MYNC	188.7	213	eP	:19.65	(-1.14)	eS	:42.12	(-1.15)
UTK	WMV	193.9	69	iPd	:21.35	(-0.29)	iS	:44.97	(0.24)
UTK	FWV	229.0	58	ePd	:26.56	(-0.59)	iS	:55.00	(0.84)
UTK	BLA	243.8	71	eP	:28.34	(-1.10)	eS	:58.39	(0.39)
UTK	SWET	300.3	242	eP	:36.14	(-0.26)	iS	:51:11.62	(1.58)

UTK	GOGA	346.5	187			eS	:18.62 (-1.19)
UTK	PLAL	488.3	251	eP	:59.02 (-0.51)		

*****2002 NOVEMBER 27; 21:44 – LAFAYETTE, GEORGIA*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	021127	214443.8	34.598	85.476	6.9	10	105	135	0.2	D	C/D	1.5	348	0.4	1.8	B		1.8		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	SHAL	105.0	260	iP-	21:45:00.69 (-0.13)	iS	21:45:13.44 (0.07)
UTK	MYNC	134.2	66	iP-	:05.74 (0.30)	eS	:20.96 (-0.40)
UTK	GOGA	227.6	125	eP	:19.83 (-0.27)	iS	:46.55 (0.02)
UTK	PLAL	241.7	281	eP	:22.17 (0.22)	eS	:49.77 (0.04)
UTK	WVT	273.2	309	iP	:25.46 (-0.38)	eS	:56.16 (-0.30)

*****2002 NOVEMBER 29; 06:42 – CHARLESTON, SOUTH CAROLINA*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	021129	064204.4	33.049	80.177	9.1	12	10	115		B	A/B	0.3	360	0.3	0.7			2.5		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	TWB	10.0	44	iPd	06:42:07.07 (-0.14)	iSn	06:42:08.32 (0.05)
USC	SVS	11.1	216	iPd	:07.33 (0.00)	iSn	:08.87 (-0.01)
USC	CSB	12.2	125	iPd	:07.35 (0.09)	iSn	:08.59 (-0.67)
USC	RGR	15.8	186	iPd	:07.97 (-0.01)	iSu	:09.93 (0.00)
USC	DRC	20.7	288	iPu	:09.06 (0.04)	iSn	:12.03 (0.00)
USC	WAS	24.1	201	iPd	:09.38 (0.01)	iSn	:12.34 (-0.47)

*****2002 DECEMBER 08; 01:17– ETOWAH, TENNESSEE*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	021208	011703.0	35.289	84.712	18.0	19	58	99	0.4	D	C/D	0.4	4	0.3	0.9	A		2.5		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	MYNC	58.3	114	iP	01:17:12.96 (0.11)	iS	01:17:20.09 (0.02)
UTK	ORT	78.2	28	iP	:15.90 (0.01)	iS	:25.73 (0.37)
UTK	SWET	111.3	266	iP+	:20.90 (-0.20)	iS	:34.52 (0.17)
UTK	EGT	145.0	62	eP	:25.69 (-0.65)	eS	:43.74 (0.44)
UTK	SHAL	197.2	242	eP+	:33.24 (-1.05)	iS	:57.61 (0.64)
UTK	GOGA	237.7	151	eP	:39.53 (-0.09)	eS	:18:07.43 (1.21)
UTK	SLTN	266.8	61	eP	:41.79 (-1.55)		
UTK	WVT	297.2	289	eP	:46.81 (-0.16)	eS	:19.71 (0.79)
UTK	PLAL	308.4	265	eP	:48.03 (-0.32)	eS	:21.33 (0.02)
UTK	LRAL	326.9	221	eP	:49.18 (-1.45)	eS	:24.48 (-0.78)

*****2002 DECEMBER 13; 06:01– VONORE, TENNESSEE*****

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
UTK	021213	060130.0	35.559	84.115	12.8	8	54	141	0.1	D	C/D	1.5	302	0.3	1.1	B		2.4		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
UTK	MYNC	53.8	181	iP	06:01:39.06 (0.12)	iS	06:01:45.46 (-0.07)

UTK	EGT	83.1	63	iP	:43.47	(-0.09)	iS	:53.59	(0.05)
UTK	GOGA	245.5	166	eP	:02:07.45	(-0.61)	eS	:02:35.88	(0.15)
UTK	WVT	341.6	282	eP	:20.11	(0.21)	eS	:56.76	(0.54)

*******2002 DECEMBER 16; 05:32 – CHARLESTON, SOUTH CAROLINA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	021216	053230.8	33.049	80.184	8.5	14	6	161	0.1	B	A/C	0.3	360	0.3	0.8			2.8		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	NHSC	6.4	5	iPd	05:32:32.92 (0.03)	iSd	05:32:34.67 (-0.24)
USC	SVS	10.8	214	iPd	:33.66 (0.03)	iSn	:35.10 (0.00)
USC	RGR	15.7	183	iPd	:34.35 (0.01)	iSd	:36.30 (0.03)
USC	MGS	17.2	167	iPu	:34.63 (0.00)	iSn	:36.78 (-0.08)
USC	HBF	17.9	231	iPd	:34.68 (0.02)	iSn	:36.73 (0.04)
USC	DRC	20.2	289	iPu	:35.34 (0.04)	iSn	:38.14 (-0.07)
USC	WAS	23.9	200	iPd	:35.70 (-0.03)	iSn	:38.64 (-0.49)

SOUTHEASTERN U.S. RESERVOIR ACTIVITY DURING 2002

Events are listed chronologically (this also applies to multiple hypocenter locations for the same event). All times are Universal Coordinated Time. Most entries in the listing are self-explanatory. Items that might require further explanation are defined in the section entitled DEFINITIONS AND NETWORK OPERATOR CODES.

*******2002 MARCH 23; 09:15 - MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020323	091501.6	34.334	81.316	0.7	12	2	108	0.0	B	A/B	0.3	360	0.3	0.6			1.6		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	MR01	1.9	97	iPd	09:15:01.93 (0.04)	iSu	09:15:02.13 (-0.02)
USC	MR10	2.0	278	iPd	:01.96 (0.04)	iSu	:02.19 (-0.02)
USC	MR07	4.3	349	iPu	:02.27 (-0.02)	iSd	:02.73 (-0.14)
USC	MR05	7.5	193	iPu	:02.78 (-0.02)	iSu	:03.73 (-0.05)
USC	JSC	7.7	138	iPu	:02.80 (-0.03)	iSu	:03.82 (-0.01)
USC	MR02	17.5	153	iPu	:04.42 (0.04)	iSd	:06.62 (0.04)

*******2002 MARCH 23; 22:17 - MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020323	221720.2	34.331	81.315	0.3	8	2	150	0.0	C	B/C	0.5	360	0.5	1.1			1.1		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	MR10	2.2	285	iPd	22:17:20.58 (0.01)	iSd	22:17:20.86 (-0.01)
USC	MR07	4.6	348	iPu	:20.97 (-0.01)	iSu	:21.59 (0.00)
USC	MR05	7.3	194	iPd	:21.41 (0.00)	iSu	:22.38 (0.01)
USC	JSC	7.4	138	iPd	:21.44 (0.01)	iSu	:22.35 (-0.06)

*******2002 MARCH 24; 00:25 - MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020324	002524.6	34.329	81.316	0.7	12	2	98	0.0	B	A/B	0.3	360	0.3	0.5			1.2		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	MR01	1.9	81	iPd	00:25:24.91 (0.02)	iSu	00:25:25.14 (-0.01)
USC	MR10	2.1	292	iPu	:24.94 (0.01)	iSu	:25.21 (-0.03)
USC	MR07	4.8	350	iPd	:25.37 (0.00)	iSu	:25.99 (-0.01)
USC	MR05	7.0	194	iPd	:25.69 (-0.03)	iSu	:26.65 (0.02)
USC	JSC	7.4	136	iPd	:25.77 (0.00)	iSd	:26.55 (-0.17)
USC	MR02	17.1	152	iPu	:27.38 (0.08)	iSd	:29.42 (-0.03)

*******2002 MARCH 25; 22:37 - MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020325	2237	07.5	34.327	81.319	1.3	8	2	139	0.0	C	B/C	0.5	360	0.5	1.4			1.0		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	MR10	2.0	300	iPd	22:37:07.84 (-0.01)	iSd	22:37:08.15 (-0.01)
USC	MR07	5.0	354	iPd	:08.29 (-0.01)	iSd	:08.97 (0.01)
USC	MR05	6.8	192	iPd	:08.59 (0.01)	iSn	:09.52 (0.06)
USC	JSC	7.4	133	iPu	:08.70 (0.02)	iSd	:09.62 (-0.01)

*******2002 MARCH 29; 00:54 - MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020329	0054	37.9	34.335	81.315	2.0	12	2	113	0.0	B	A/B	0.3	360	0.3	0.5			1.4		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	MR01	1.8	100	iPu	00:54:38.20 (-0.10)	iSu	00:54:38.67 (0.02)
USC	MR10	2.1	275	iPu	:38.27 (-0.07)	iSu	:38.77 (0.05)
USC	MR07	4.3	347	iPu	:38.65 (0.04)	iSu	:39.36 (0.15)
USC	MR05	7.7	194	iPd	:39.10 (-0.03)	iSn	:40.12 (-0.01)
USC	JSC	7.7	140	iPu	:39.13 (-0.01)	iSu	:40.17 (0.02)
USC	MR02	17.5	154	iPd	:40.74 (0.06)	iSu	:42.91 (0.02)

*******2002 MARCH 29; 00:55- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020329	0055	05.9	34.335	81.312	2.0	12	2	120		B	A/B	0.4	360	0.4	0.5			1.1		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	MR01	1.5	104	iPd	00:55:06.20 (-0.07)	iSu	00:55:06.63 (0.03)
USC	MR10	2.4	273	iPd	:06.24 (-0.13)	iSd	:06.84 (0.07)
USC	MR07	4.3	343	iPu	:06.63 (0.01)	iSu	:07.24 (0.03)
USC	JSC	7.6	141	iPu	:07.12 (0.00)	iSd	:08.07 (-0.04)
USC	MR05	7.8	195	iPu	:07.12 (-0.03)	iSd	:08.25 (0.09)
USC	MR02	17.5	155	iPd	:08.80 (0.13)	iSd	:10.89 (0.01)

*******2002 MARCH 31; 02:10- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020331	0210	14.3	34.334	81.318	0.9	8	2	264	0.0	C	B/D	0.7	360	0.7	1.9			1.0		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	MR01	2.0	96	iPd	02:10:14.69 (-0.02)	iSu	02:10:15.00 (0.00)
USC	MR05	7.5	192	iPd	:15.53 (-0.03)	iSn	:16.53 (0.01)
USC	JSC	7.8	138	iPd	:15.60 (-0.01)	iSd	:16.58 (-0.03)

USC	MR02	17.5	153	iPd	:17.26	(0.09)	iSn	:19.20	(-0.18)

*******2002 MARCH 31; 13:21- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020331	132108.2	34.332	81.316	1.7	10	2	157	0.0	B	A/C	0.4	360	0.4	0.9			1.3		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)		PHASE	ARRIVAL TIME (RES)	
USC	MR01	1.9	92	iPd	13:21:08.57	(-0.06)	iSu	13:21:08.99	(0.03)
USC	MR07	4.5	350	iPd	:08.96	(-0.02)	iSn	:09.61	(0.01)
USC	MR05	7.4	193	iPd	:09.41	(-0.02)	iSu	:10.40	(0.00)
USC	JSC	7.6	137	iPu	:09.48	(0.01)	iSu	:10.45	(-0.02)
USC	MR02	17.4	153	iPd	:11.07	(0.07)	iSu	:13.17	(-0.01)

*******2002 MARCH 31; 17:14- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020331	171421.1	34.333	81.317	2.4	10	2	157	0.1	B	A/C	0.5	360	0.5	0.7			1.6		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)		PHASE	ARRIVAL TIME (RES)	
USC	MR01	1.9	95	iPd	17:14:21.51	(-0.12)	iSu	17:14:22.08	(0.04)
USC	MR07	4.4	350	iPd	:21.93	(0.00)	iSu	:22.59	(0.03)
USC	MR05	7.5	193	iPd	:22.38	(-0.01)	iSu	:23.39	(0.00)
USC	JSC	7.7	138	iPu	:22.41	(-0.02)	iSu	:23.46	(0.01)
USC	MR02	17.5	153	iPd	:24.03	(0.08)	iSu	:26.09	(-0.08)

*******2002 APRIL 01; 06:35- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020401	063546.9	34.334	81.316	1.1	10	2	155	0.0	C	B/C	0.5	360	0.5	1.2			1.1		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)		PHASE	ARRIVAL TIME (RES)	
USC	MR01	1.8	96	iPd	06:35:47.25	(-0.03)	iSu	06:35:47.57	(0.01)
USC	MR07	4.3	349	iPd	:47.63	(-0.03)	iSn	:48.27	(0.04)
USC	MR05	7.5	193	iPu	:48.15	(-0.02)	iSu	:49.15	(0.01)
USC	JSC	7.7	139	iPu	:48.18	(-0.01)	iSd	:49.20	(0.02)
USC	MR02	17.5	153	iPd	:49.95	(0.21)	iSd	:51.94	(0.01)

*******2002 APRIL 01; 07:10- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020401	071048.9	34.333	81.316	2.5	10	2	156	0.1	B	A/C	0.4	360	0.4	0.7			1.7		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)		PHASE	ARRIVAL TIME (RES)	
USC	MR01	1.8	93	iPd	07:10:49.37	(-0.09)	iSu	07:10:49.94	(0.07)
USC	MR07	4.4	349	iPd	:49.75	(-0.02)	iSu	:50.42	(0.00)
USC	MR05	7.4	193	iPu	:50.23	(0.01)	iSu	:51.20	(-0.01)
USC	JSC	7.6	138	iPu	:50.27	(0.03)	iSd	:51.22	(-0.04)
USC	MR02	17.4	153	iPu	:51.88	(0.12)	iSd	:53.91	(-0.06)

*******2002 APRIL 03; 17:12- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020403	171212.8	34.336	81.316	1.3	12	2	115	0.0	B	A/B	0.3	360	0.3	0.6			1.3		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)		PHASE	ARRIVAL TIME (RES)	
USC	MR01	1.9	103	iPu	17:12:13.11	(-0.06)	iSu	17:12:13.49	(0.01)
USC	MR10	2.0	272	iPd	:13.12	(-0.07)	iSn	:13.52	(0.02)
USC	MR07	4.1	348	iPd	:13.48	(-0.01)	iSu	:14.09	(0.04)
USC	MR05	7.7	193	iPd	:14.03	(-0.03)	iSu	:15.09	(0.03)
USC	JSC	7.9	140	iPu	:14.09	(0.01)	iSd	:15.10	(0.01)
USC	MR02	17.7	154	iPu	:15.69	(0.05)	iSu	:17.91	(0.05)

*******2002 APRIL 07; 12:26- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020407	1226	10.5	34.334	81.319	2.7	12	2	104	0.1	B	A/B	0.3	360	0.3	0.5			1.3		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)		PHASE	ARRIVAL TIME (RES)	
USC	MR10	1.7	278	iPu	12:26:10.96	(-0.10)	iSu	12:26:11.55	(0.07)
USC	MR01	2.2	97	iPd	:11.02	(-0.09)	iSd	:11.59	(0.03)
USC	MR07	4.2	353	iPd	:11.38	(0.02)	iSd	:11.99	(0.00)
USC	MR05	7.5	190	iPu	:11.84	(0.01)	iSu	:12.81	(-0.03)
USC	JSC	8.0	137	iPd	:11.91	(0.01)	iSu	:12.95	(-0.01)
USC	MR02	17.7	152	iPu	:13.51	(0.10)	iSu	:15.54	(-0.11)

*******2002 APRIL 08; 02:04- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020408	0204	06.9	34.333	81.320	1.6	10	2	171	0.1	B	A/C	0.5	360	0.5	0.8			1.0		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)		PHASE	ARRIVAL TIME (RES)	
USC	MR10	1.6	283	iPu	02:04:07.20	(-0.06)	iSu	02:04:07.61	(0.04)
USC	MR01	2.3	94	iPd	:07.31	(-0.03)	iSn	:07.74	(0.03)
USC	MR05	7.4	190	iPu	:08.08	(-0.03)	iSn	:09.06	(-0.01)
USC	JSC	8.0	136	iPu	:08.15	(-0.05)	iSd	:09.17	(-0.06)
USC	MR02	17.6	152	iPu	:09.89	(0.18)	iSd	:11.82	(-0.11)

*******2002 APRIL 14; 16:49- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020414	1649	34.2	34.338	81.321	2.1	12	2	112	0.1	B	A/B	0.3	360	0.3	0.5			2.3		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)		PHASE	ARRIVAL TIME (RES)	
USC	MR10	1.5	262	iPd	16:49:34.56	(-0.05)	iSd	16:49:35.00	(0.05)
USC	MR01	2.5	107	iPu	:34.59	(-0.12)	iSd	:35.15	(0.02)
USC	MR07	3.8	355	iPd	:34.95	(0.07)	iSu	:35.60	(0.17)
USC	MR05	7.9	189	iPd	:35.47	(-0.03)	iSd	:36.50	(-0.04)
USC	JSC	8.4	138	iPd	:35.52	(-0.06)	iSu	:36.69	(0.02)
USC	MR02	18.2	152	iPd	:37.12	(0.01)	iSu	:39.53	(0.13)

*******2002 APRIL 15; 04:20- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020415	0420	19.4	34.334	81.321	2.2	11	2	101	0.1	B	A/B	0.3	360	0.3	0.6			1.5		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)		PHASE	ARRIVAL TIME (RES)	
USC	MR10	1.6	280	iPu	04:20:19.80	(-0.09)	iSu	04:20:20.32	(0.08)
USC	MR01	2.3	96	iPu	:19.90	(-0.07)	iSu	:20.40	(0.02)
USC	MR07	4.2	355	iPd	:20.22	(0.00)			

USC	MR05	7.5	190	iPd	:20.72	(0.01)	iSd	:21.64	(-0.05)
USC	JSC	8.0	136	iPd	:20.82	(0.03)	iSd	:21.82	(-0.02)
USC	MR02	17.7	152	iPd	:22.40	(0.09)	iSd	:24.55	(0.00)

*******2002 APRIL 15; 04:20- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020415	042038	.1	34.337	81.322	1.7	12	1	107	0.0	B	A/B	0.3	360	0.3	0.6			1.8		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)		PHASE	ARRIVAL TIME (RES)	
USC	MR10	1.4	268	iPd	04:20:38.43	(0.01)	iSd	04:20:38.69	(-0.02)
USC	MR01	2.5	103	iPu	:38.51	(-0.03)	iSd	:38.99	(0.06)
USC	MR07	3.9	356	iPu	:38.74	(-0.01)	iSn	:39.47	(0.17)
USC	MR05	7.8	188	iPd	:39.35	(0.01)	iSn	:40.37	(0.02)
USC	JSC	8.3	137	iPd	:39.41	(-0.02)	iSd	:40.43	(-0.08)
USC	MR02	18.0	152	iPu	:41.03	(0.08)	iSu	:43.10	(-0.12)

*******2002 APRIL 15; 04:59- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020415	045932	.7	34.339	81.321	1.9	11	2	115	0.0	B	A/B	0.3	360	0.3	0.6			1.1		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)		PHASE	ARRIVAL TIME (RES)	
USC	MR10	1.5	259	iPd	04:59:33.10	(-0.03)	iSu	04:59:33.48	(0.03)
USC	MR01	2.5	109	iPd	:33.21	(-0.02)	iSu	:33.65	(0.01)
USC	MR07	3.7	354	iPu	:33.37	(-0.02)			
USC	MR05	8.0	189	iPd	:34.04	(-0.01)	iSu	:35.06	(-0.03)
USC	JSC	8.5	139	iPd	:34.13	(0.02)	iSd	:35.18	(-0.03)
USC	MR02	18.2	153	iPu	:35.73	(0.07)	iSu	:37.95	(0.00)

*******2002 APRIL 18; 04:12- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020418	0412	15.5	34.334	81.314	1.2	12	2	113	0.0	B	A/B	0.3	360	0.3	0.7			1.2		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	MR01	1.7	99	iPd	04:12:15.86 (-0.03)	iSd	04:12:16.18 (0.01)
USC	MR10	2.2	276	iPd	:15.89 (-0.06)	iSd	:16.31 (0.04)
USC	MR07	4.3	347	iPu	:16.27 (-0.01)	iSn	:16.85 (0.00)
USC	MR05	7.6	194	iPu	:16.77 (-0.02)	iSu	:17.78 (0.01)
USC	JSC	7.7	140	iPd	:16.80 (0.01)	iSu	:17.78 (0.01)
USC	MR02	17.5	154	iPu	:18.41 (0.05)	iSd	:20.47 (-0.09)

*******2002 APRIL 30; 06:12- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020430	0612	14.3	34.338	81.322	1.4	10	1	203	0.1	C	A/D	0.5	360	0.5	0.8			1.0		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	MR10	1.5	263	iPd	06:12:14.53 (-0.11)	iSn	06:12:15.00 (0.09)
USC	MR01	2.5	106	iPu	:14.70 (-0.07)	iSn	:15.15 (0.02)
USC	MR05	7.9	188	iPd	:15.59 (-0.01)	iSn	:16.56 (-0.06)
USC	JSC	8.4	138	iPd	:15.67 (-0.01)	iSd	:16.74 (-0.02)
USC	MR02	18.1	152	iPd	:17.40 (0.18)	iSn	:19.47 (-0.04)

*******2002 MAY 02; 03:09- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020502	0309	07.5	34.338	81.321	2.1	10	2	205	0.0	C	A/D	0.5	360	0.5	0.6			1.1		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	MR10	1.5	262	iPd	03:09:07.81 (-0.08)	iSn	03:09:08.30 (0.07)
USC	MR01	2.5	107	iPd	:07.96 (-0.03)	iSn	:08.41 (0.00)
USC	MR05	7.9	189	iPd	:08.77 (-0.01)	iSu	:09.79 (-0.03)
USC	JSC	8.4	138	iPd	:08.88 (0.03)	iSd	:09.94 (-0.01)
USC	MR02	18.2	152	iPu	:10.47 (0.08)	iSd	:12.67 (-0.01)

*******2002 MAY 04; 05:56- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN	SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020504	0556	29.3	34.336	81.318	1.7	12	2	111	0.0	B	A/B	0.3	360	0.3	0.6			1.1		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	MR10	1.8	272	iPu	05:56:29.66 (-0.02)	iSn	05:56:30.04 (0.02)
USC	MR01	2.1	102	iPd	:29.66 (-0.05)	iSn	:30.06 (0.00)
USC	MR07	4.1	350	iPd	:29.97 (-0.02)	iSn	:30.58 (0.02)
USC	MR05	7.7	191	iPd	:30.51 (-0.04)	iSn	:31.55 (0.00)
USC	JSC	8.0	139	iPu	:30.67 (0.08)	iSd	:31.61 (-0.01)
USC	MR02	17.7	153	iPd	:32.10 (-0.02)	iSn	:34.38 (0.03)

*******2002 SEPTEMBER 05; 21:45- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020905	214557.8	34.341	81.308	2.5	10	2	231	0.0	C	B/D	0.8	360	0.8	0.6			1.2		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	MR01	1.5	131	iPd	21:45.58.25 (-0.05)	iSu	21:45.58.71 (0.03)
USC	MR10	2.8	260	iPu	:58.41 (-0.01)	iSn	:58.89 (-0.02)
USC	JSC	7.9	146	iPu	:59.13 (-0.02)	iSu	:46:00.22 (0.03)
USC	MR05	8.5	197	iPd	:59.30 (0.06)	iSn	:00.35 (0.00)
USC	MR02	17.9	156	iPu	:46:00.75 (0.04)	iSn	:02.89 (-0.08)

*******2002 SEPTEMBER 07; 03:41- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020907	034100.8	34.333	81.312	0.7	10	2	173	0.0	C	B/C	0.8	360	0.8	1.3			1.6		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	MR01	1.5	93	iPd	03:41:01.08 (0.05)	iSn	03:41:01.25 (-0.01)
USC	MR10	2.4	280	iPd	:01.21 (0.04)	iSn	:01.44 (-0.05)
USC	JSC	7.4	140	iPu	:01.95 (-0.02)	iSu	:02.92 (-0.01)
USC	MR05	7.5	196	iPu	:01.95 (-0.04)	iSn	:02.99 (0.03)
USC	MR02	17.2	154	iPu	:03.56 (0.03)	iSn	:05.69 (-0.01)

*******2002 SEPTEMBER 08; 03:21- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020908	032158.5	34.331	81.312	1.6	10	2	161	0.0	B	A/C	0.5	360	0.5	0.8			1.3		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	MR01	1.5	86	iPu	03:21:58.87 (-0.03)	iSn	03:21:59.19 (-0.01)
USC	MR10	2.4	285	iPd	:58.97 (-0.03)	iSn	:59.43 (0.05)
USC	JSC	7.3	139	iPu	:59.73 (0.00)	iSd	:22:00.67 (-0.01)
USC	MR05	7.3	196	iPd	:59.71 (-0.03)	iSn	:00.66 (-0.03)
USC	MR02	17.1	154	iPu	:22:01.32 (0.05)	iSn	:03.45 (0.04)

*******2002 SEPTEMBER 09; 20:14- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020909	201439.0	34.335	81.309	2.9	10	1	192	0.1	C	B/D	0.7	360	0.7	0.7			1.0		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	MR01	1.2	106	iPd	20:14:39.50 (0.00)	iSn	20:14:39.88 (-0.03)
USC	MR10	2.7	273	iPu	:39.64 (0.01)	iSn	:40.14 (0.01)
USC	JSC	7.4	143	iPd	:40.35 (0.09)	iSd	:41.26 (-0.01)
USC	MR05	7.8	198	iPd	:40.31 (-0.02)	iSn	:41.23 (-0.16)
USC	MR02	17.3	155	iPd	:41.68 (-0.10)	iSn	:44.03 (0.06)

*******2002 SEPTEMBER 19; 14:53- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020919	145331.4	34.340	81.343	1.7	10	1	287	0.1	C	A/D	0.5	360	0.5	0.5			1.3		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	MR10	0.6	124	iPu	14:53:31.64 (-0.11)	iSn	14:53:32.06 (0.06)
USC	MR01	4.4	101	iPd	:32.22 (0.00)	iSn	:32.83 (0.00)
USC	MR05	8.0	174	iPu	:32.78 (0.01)	iSn	:33.79 (-0.02)
USC	JSC	10.0	130	iPd	:33.08 (0.01)	iSd	:34.31 (-0.04)
USC	MR02	19.3	147	iPu	:34.62 (0.08)	iSn	:36.95 (-0.01)

*******2002 SEPTEMBER 20; 06:18- MONTICELLO RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	020920	061804.1	34.328	81.356	2.3	10	2	260	0.1	C	B/D	0.5	360	0.5	0.7			1.9		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	MR10	1.9	63	iPd	06:18:04.59 (-0.01)	iSn	06:18:04.96 (-0.03)
USC	MR01	5.6	86	iPd	:05.10 (0.02)	iSn	:05.93 (0.08)
USC	MR05	7.1	163	iPu	:05.24 (-0.06)	iSn	:06.31 (0.07)
USC	JSC	10.2	120	iPd	:05.77 (-0.01)	iSd	:07.01 (-0.09)
USC	MR02	19.0	142	iPu	:07.20 (0.04)	iSn	:09.55 (-0.01)

*******2002 OCTOBER 10; 17:35 - JOCASSE RESERVOIR, SOUTH CAROLINA*******

SRCE	DATE	HRMN SEC	LAT-N	LON-W	DPTH	PH	DMN	GAP	RMS	Q	SQD	ERH1	AZ	ERH2	ERZ	Q	MN	MD	MAGT	I
USC	201010	173536.1	35.094	82.984	6.5	6	11	331	0.0	C	B/D	1.1	360	1.1	1.9			1.6		

SRCE	STA	DIST (KM)	AZM	PHASE	ARRIVAL TIME (RES)	PHASE	ARRIVAL TIME (RES)
USC	JVW	11.4	186	ePd	17:35:38.30 (-0.06)	eSu	17:35:40.14 (0.03)
USC	BG3	12.2	157	ePu	:38.44 (0.00)	eSu	:40.25 (-0.01)
USC	SMT	18.2	176	ePu	:39.42 (0.06)	eSu	:41.88 (-0.02)

SEISMIC STATION LISTING AND NETWORK MAPS

Stations potentially operational in the SEUSSN during the report period are listed below. A list of operator code definitions may be found in the section entitled DEFINITIONS AND NETWORK OPERATOR CODES. After the station listing is a plot of all the stations, followed by maps of individual networks (with station identification codes) operated by the various groups contributing to the SEUSSN bulletin.

Sta. Code	Lat. N (Dg-Min)	Lon. W (Dg-Min)	Elev. (M)	Dates Open-Close	Current Operator	Locality
ABTN	35-53.13	86-06.54	363	8409-	TVA/UTK	Auburntown, TN
ANTN	36-10.30	85-13.88	612	8305	TVA/UTK	Anderson, TN
ASTN	36-19.61	83-28.53	753	-	CERI	Avondale Springs, TN
BG3	34-59.58	82-55.90	366	86 -	DPC	Lake Jocassee, SC
BHT	35-51.78	84-56.39	732	-	CERI	Blowhole, TN
BLA	37-12.68	80-25.21	634	6209-	VTSO/NEIC	Blacksburg, VA
BRBC	35-44.34	82-17.16	1976	8205-	CERI	Blue Ridge Broadcasting Co.
BVD	39-46.49	75-29.96	58	8502-	DGS	Bellevue State Park, DE
BWD	39-47.97	75-34.60	63	8502-	DGS	Brandywine Creek State Park, DE
CBN	38-12.30	77-22.40	70	0105 -	NEIC	Corbin, VA
CCK	35-01.37	82-59.49	701	9201-	USC	Bad Creek Res., SC

CEH	35-53.46	79-05.58	152	7508-	UNC/NEIC	Chapel Hill, NC
COW	33-22.90	80-41.96	60	7710-	USC	Cow Castle Creek, SC
CPCT	35-26.99	84-31.31	275	-	CERI	Cooper Cave, TN
CRTN	36-11.99	83-50.44	488	8403-	TVA/UTK	Comb Ridge, TN
CVVA	38-01.31	78-31.93	159	-	CERI	Charlottesville, VA
CSB	32-59.22	80-04.31	83	9705-	CSU-NEIC	Charleston Southern Univ., SC
CSU	32-59.22	80-04.31	7	9705-	CSU-NEIC	Charleston Southern Univ., SC
DEMA	39-19.12	75-36.59	12	9910-	DGS	DE Emergency Mgmt Agency, DE
DRC	33-06.45	80-23.30	20	8303-	CSU-NEIC	Dorchester, SC
DYTN	35-29.47	85-05.54	580	-	CERI	Dayton, TN
DXN	33-03.23	81-37.32	61	9607-	WSRC	Girard, GA
DWPF	28-06.61	81-25.97	-142	9808	NEIC-IRIS	Disney World, FL
ELK	33-20.88	81-20.83	88	9511--	WSRC	Elko, SC
ELN	37-13.70	80-45.10	634	9612 -	VTSO	Prospectdale, VA
ETT	35-19.56	84-27.30	588	-	CERI	Etowah, TN
FDKY	36-47.40	85-47.65	306	8703 -	TVA/UTK	Freedom, KY
FWV	37-34.90	80.48.70	756	9612-	VTSO	Forrest Hill, WV
GFM	36-06.66	81-48.42	1726	8205-	CERI	Grandfather Mtn., NC
GMG	34-51.76	84-40.22	1097	8511-	GIT-CERI	Grassy Mountain, GA
GOGA	33-24.67	83-28.00	150	94 -	NEIC	Godfrey, GA
GRBT	35-40.45	84-11.82	329	-	CERI	Greenback, TN
GTTN	35-48.73	83-39.99	917	-	CERI	Green Top, TN
HAKY	37-06.34	86-35.10	169	8706 -	TVA/UTK	Hadley, KY
HAW	33-21.60	81-36.60	85	0010-	WSRC	Hawthorne Fire Tower, SC
HBF	32-56.85	80-19.96	-89	7303-	USC	Harts Bluff, SC
JSC	34-16.90	81-15.62	120	7405-	USC	Jenkinsville, SC
JVW	34-59.54	82-59.86	554	9111-	USC	Bad Creek Res., SC
LAL	34-26.20	87-20.23	320	8903-	TVA	Leola, AL
LRAL	33-02.09	86-59.87	130	0107-	NEIC	Lakeview Retreat, AL
MCWV	39-39.49	79-50.74	280	94 -	NEIC	Mont Chateau, WV
MGS	32-53.87	80-08.46	9	7603-	CSU -USC	Middleton Gardens, SC
MMC	34-46.79	82-54.91	280	8707-	DPC	Morgan Memorial Church, SC
MOB	33-11.60	81-48.89	67	9510-	WSRC	Waynesboro, GA
MOTN	36-37.08	87-59.20	177	8308-	TVA/UTK	Model, TN
MR01	34-19.91	81-17.74	131	7711-	USC -SCEG	Monticello Res., SC
MR02	34-11.58	81-13.81	84	7711-	USC -SCEG	Monticello Res., SC
MR05	34-16.05	81-20.05	103	7807-	USC -SCEG	Monticello Res., SC
MR07	34-22.32	81-19.50	134	7807-	USC -SCEG	Monticello Res., SC
MR10	34-20.18	81-20.25	137	7807-	USC -SCEG	Monticello Res., SC
MSAL	34-50.80	86-40.41	260	8307	TVA/UTK	Monte Sano, AL
MVL	39-59.52	76-21.04	91	7410-	MVU	Millersville, PA
MYNC	35-04.43	89-07.67	550	94 -	NEIC	Murphy, NC
NED	39-43.58	75-44.17	90	7211-	DGS	Newark, DE
NHSC	33-06.40	80-10.67	12	0007-	NEIC	New Hope, SC
NPRS	33-15.42	81-38.28	79	91 -	WSRC	Savannah River Lab, SC
OLT	35-09.00	85-01.44	445	9308 -	TVA/UTK	Ooltewah, TN
ORT	35-54.57	84-18.29	370	8307 -	TVA/UTK	Oak Ridge, TN
PDTN	35-16.40	85-50.97	335	8509 -	TVA/UTK	Piedmont, TN
PKNC	36-02.77	81-09.45	785	8211-	CERI	Pores Knob, NC
PLAL	34-58.94	88-04.53	165	9807-	SLU	Pickwick Lake, AL
PWLA	34-58.80	88-03.84	204	8005-	CERI	Pickwick Lake, AL
PWV	37-20.16	81-02.86	820	9001-	VTSO	Princeton, WVA
RCGA	34-58.57	85-20.90	460	-	CERI	Rock City, GA
RBNC	35-21.42	82-59.16	1829	8205-	CERI	Richland Balsam, NC
RGRS	32-54.45	80-11.65	-52	8606-	CSU-NEIC	(Roger Stewart) SC
RICH	35-55.17	82-49.12	968	8306-	CERI	Rich Mountain, NC
SDMD	39-24.61	76-50.42	215	-	MGS	Soldiers Delight, MD
SLTN	36-26.59	82-07.23	1280	8401 -	TVA/UTK	Elizabethton, TN
SMNC	35-35.01	81-38.16	722	9907-	CERI	South Mountain, NC
SMSC	34-55.85	82-58.26	498	7704-	USC	Smeltzer Mtn. (Jocassee), SC
SMT	34-55.85	82-58.26	498	-	USC	Smeltzer Mtn, SC

SOKY	37-31.56	85-57.90	204	8410-	UK	Sonora, KY
SRAV	33-19.50	81-40.80	91	-	WSRC	Savannah River Lab, SC
SRPD	33-09.30	81-42.75	31	7608-	WSRC	Savannah River Lab, SC
SRPN	33-19.74	81-35.33	95	7608-	WSRC	Savannah River Lab, SC
SRPW	33-12.14	81-34.69	77	7608-	WSRC	Savannah River Lab, SC
SVS	32-58.10	80-14.89	3	7603-	USC	Slandsville, SC
SWET	35-12.98	85-55.92	581	0005-	CERI	Sewanee, TN
TCT	36-00.32	87-33.17	245	8803-	TVA/UTK	Tennessee City, TN
TKL	35-39.48	83-46.44	350	78 -	UTK	Tuckaleechee Caverns, TN
TQTN	35-30.96	84-43.55	260	8607 -	TVA/UTK	Tranquillity, TN
TRYN	35-14.76	82-16.02	915	8303	CERI	Tryon Peak, NC
TWB	33-06.88	80-06.18	9	8803-	CSU -USC	Tillman's/White's Bay, SC
WAS	32-50.81	80-16.30	9	8303-	CSU-NEIC	West Ashley, SC
WMTN*	35-14.88	84-58.39	378	8507-9306	TVA	White Oak Mountain, TN
WMTN*	36-24.61	84-10.54	830	-	CERI	White Oak Mountain, TN
WMV	37-06.51	80-58.23	1157	8210-	VTSO	Walker Mtn., VA
WVT	36-07.8	87-49.80	153	94	NEIC	Waverly, TN

* Note: 2 stations with very different locations. Periods of operation do not overlap. TVA station is closed.

FIGURE 4. Seismic stations (triangles) in the SEUSSN. Triangles indicate stations operating during the report period.

FIGURE 5. University of South Carolina Seismic Network.

FIGURE 6. Westinghouse Savannah River Site network.

FIGURE 7. Virginia Tech Seismic Network.

FIGURE 8. Stations of Delaware Geological Survey, Millersville University, Maryland Geological Survey and CERI-ANSS (CVVA)

FIGURE 9. University of Tennessee/TVA JIEE seismic network

FIGURE 10. Center for Earthquake Research and Information (CERI) seismic network.

INTERNET ACCESS TO SOUTHEASTERN U.S. EARTHQUAKE CATALOG INFORMATION AND ELECTRONIC VERSIONS OF THE BULLETIN

Southeastern U. S. Seismic Network Bulletins

Text files of SEUSSN Bulletins No. 1 through 37, are accessible at

http://www.geol.vt.edu/outreach/vtso/.

Catalog of Southeastern United States Earthquakes

A catalog of pre-instrumental and instrumentally located earthquakes in the southeastern U.S. region is available at **http://www.geol.vt.edu/outreach/vtso/**. The catalog is a synthesis of information contained in the U.S. Geological Survey State Seismicity Map Series (Stover, C. W., B. G. Reagor, and S. T. Algermissen, 1984, "United States Earthquake Data File," U.S. Geological Survey Open File Report 84-225) and earthquake hypocenter parameters and magnitudes determined by regional seismic network operators in the region. For the period subsequent to July, 1977, the catalog is composed of data appearing in the SEUSSN Bulletins. An important aspect of the Southeastern U.S. Catalog is the estimation of magnitude for a large number of pre-instrumental shocks in the region. These estimates were derived using the region specific relationships between felt area, maximum intensity, and mb(Lg) magnitude developed by Sibol et al. (Bull. Seism. Soc. Am., 77, 1987, pp. 1635-1654).

The Southeastern U.S. Catalog of earthquakes subsequent to July, 1977, is incorporated into the ANSS Composite Catalog, accessible at **http://quake.geo.berkeley.edu/anss/.**

DEFINITIONS AND NETWORK OPERATOR CODES

Below are some entries in this Bulletin that might require definition. Also given is a detailed listing of agencies or groups (and their letter codes) that supply information to this Bulletin.

AZM: Azimuthal angle from epicenter to station as measured from north (in deg),

DEP: Focal depth estimate (in km); FXD indicates that the depth was held fixed during the epicentral determination,

DIST (KM) Epicentral distance (in km) between the epicenter and a station,

ERROR ELLIPSE: Semi-axes, expressed as lengths (km) and azimuths (deg), of the vertical projection of the error ellipsoid (Lahr, 1980). Horizontal axes are expressed as the semi-major axis (ERHMAX), it's azimuth (AZ), and the semi-minor axis (ERHMIN). The vertical axis (ERZ) is the largest vertical deviation of the error ellipsoid from the hypocenter. A quality measure (Q) for the ellipsoid based on the length of the largest semi-axis (ERHMAX, ERHMIN, or ERZ) may also be supplied. For this Bulletin the following statistics apply for error estimates:
CERI, UTK, and VTSO: Error ellipse projected semi-axes from HYPOELLIPSE corresponding to a chi-square statistic (68%) with one degree of freedom,
GIT: Error ellipse projected semi-axes from LOCA, and
USC: Standard error estimates from HYPO71.
NEIC and NEIC: Unknown,

GAP: The largest azimuthal separation (in deg) between recording stations,

HYPOELLIPSE: Computer hypocenter location program (Lahr, 1980),

HYPO71: Computer hypocenter location program (Lee and Lahr, 1974),

LOCA: Computer hypocenter location program developed at the Georgia Institute of Technology,

MBN or mb(Lg): Body wave magnitude determination using Nuttli's formulas for the Lg phase (Nuttli, 1973),

MDB, MDL, MD: Duration/coda length magnitude that approximates either the mb, ML, or an unknown magnitude scale, respectively. As of June 1986 (SEUSSN Bulletin 17), those using a duration magnitude approximating mb(Lg) are CERI, DGS, GIT, UTK and VTSO. Specifically:

CERI: MDB = -2.36 + 2.23 Log(D) + 0.12 Log(K) (MDB > 2.6)
MDB = -3.38 + 2.74 Log(D) (MDB < 2.7)

VTSO, UTK, and GIT: MDB = -3.45 + 2.85 Log(D) where D is signal duration measured from the P-wave arrival time to the time when the signal returns to background noise, and K is the epicentral distance in kilometers. Those using a duration magnitude approximating ML are USC and NEIC.
Specifically:
NEIC: MDL = -0.87 + 2.0 Log(D) + 0.0035 X where D is signal duration measured from the P-wave arrival time to the time when the signal returns to twice background noise, and X is the epicentral distance in kilometers. For more information please see SEUSSN Bulletin 17 (page 1) or contact the agency making the estimate for details on their specific procedure,

ML: Local magnitude; contact the agency or group making the estimate for details on their specific procedure,

NO: Number of P, S, and S-P readings used in locating the event,

PHASE: Phase descriptions for either P or S waves, or S-P times. Included under this heading may also be the descriptors; 'i' for an impulsive arrival or 'e' for an emergent arrival. Preliminary first motions may also be given for P wave polarities. These include; 'u', 'c', or '+' for a compressional first arrival, and 'd' or '-' for a dilatational first arrival. '?' indicates that the arrival time is questionable.

Q: Solution quality of the hypocenter (the average of the SQD quality measures, see below; Lee and Lahr, 1974),

RES: Arrival time residual (the difference between the observed and the calculated arrival time, in seconds). An "X" following the value of the arrival time residual means that the arrival time was not used to compute the location of that event,

RMS: Root-mean-square of the weighted arrival time residuals (in sec),

S-P: Difference between the S and P wave arrival times (in sec),

SQD: Measures of the statistical quality of the solution (S), and of the distribution of stations (D) around the hypocenter (Lee and Lahr, 1974),

*XXXX: Code indicating the agency or group that made the hypocentral/magnitude determination; a listing of agencies and groups that operate seismographs in the SEUSSN and/or who supply information to this BULLETIN follows.

Operator Codes

AUAL - Auburn University, AL
CERI - Center for Earthquake Research and Information, TN
CPL - Carolina Power and Light Company, NC
CSU - Charleston Southern University, SC (formerly BCC, Baptist College at Charleston-changed 1991)
DGS - Delaware Geological Survey, DE

DPC - Duke Power Company, SC
GIT - Georgia Institute of Technology, GA
GSA - Geological Survey of Alabama, AL
GSW - Georgia Southwestern College, GA
IRIS - Incorporated Research Institutions for Seismology, DC
MGS - Maryland Geological Survey, MD
MVU - Millersville University, PA
NASA - National Aeronautics and Space Administration/Goddard Space Flight Center, WV
NEIC - National Earthquake Information Center, NEIC, CO
SCEG - South Carolina Electric and Gas Company, SC
SLU - St. Louis University, MO
TCC - Tidewater Community College, VA
USC - University of South Carolina, SC
NEIC - United States Geological Survey, CO
UTK - University of Tennessee/Tennessee Valley Authority- Joint Institute for Energy and Environment
UTM - University of Tennessee at Martin, TN
VP - Virginia Power, VA
VTSO - Virginia Tech Seismological Observatory, VA
VSCC - Volunteer State Community College, TN
WAL - Washington and Lee University, VA
WSRC - Westinghouse Savannah River Company, SC
WVGS - West Virginia Geological and Economic Survey, WV
WVU - West Virginia University, WV