# Southeastern United States Seismic Network Bulletin

## Number 39

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# BULLETIN NUMBER 39

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**SEISMICITY OF THE SOUTHEASTERN UNITED STATES DURING 2004** included 54 tectonic earthquakes (not induced) with magnitudes exceeding 2.0. The largest earthquake reported during the year was $M_D$ = 4.6 occurring on November 7, 2004. The epicenter was near Union, 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 2004, covered by SEUSSN Bulletins 1 through 39.

**SOUTHEASTERN U.S. EARTHQUAKES DURING 2004** lists hypocentral parameters, magnitudes, and arrival times for tectonic earthquakes in the southeastern United States.

**SOUTHEASTERN U.S. RESERVOIR ACTIVITY DURING 2004** 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. 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 39 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-ninth SOUTHEASTERN UNITED STATES SEISMIC NETWORK BULLETIN and covers the period from January through December, 2004. The organizations supplying data for this Bulletin are Auburn University, College of Charleston, Delaware Geological Survey, Georgia Institute of Technology, Maryland Geological Survey, Millersville University, United States Geological Survey (National Earthquake Information Center), 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).

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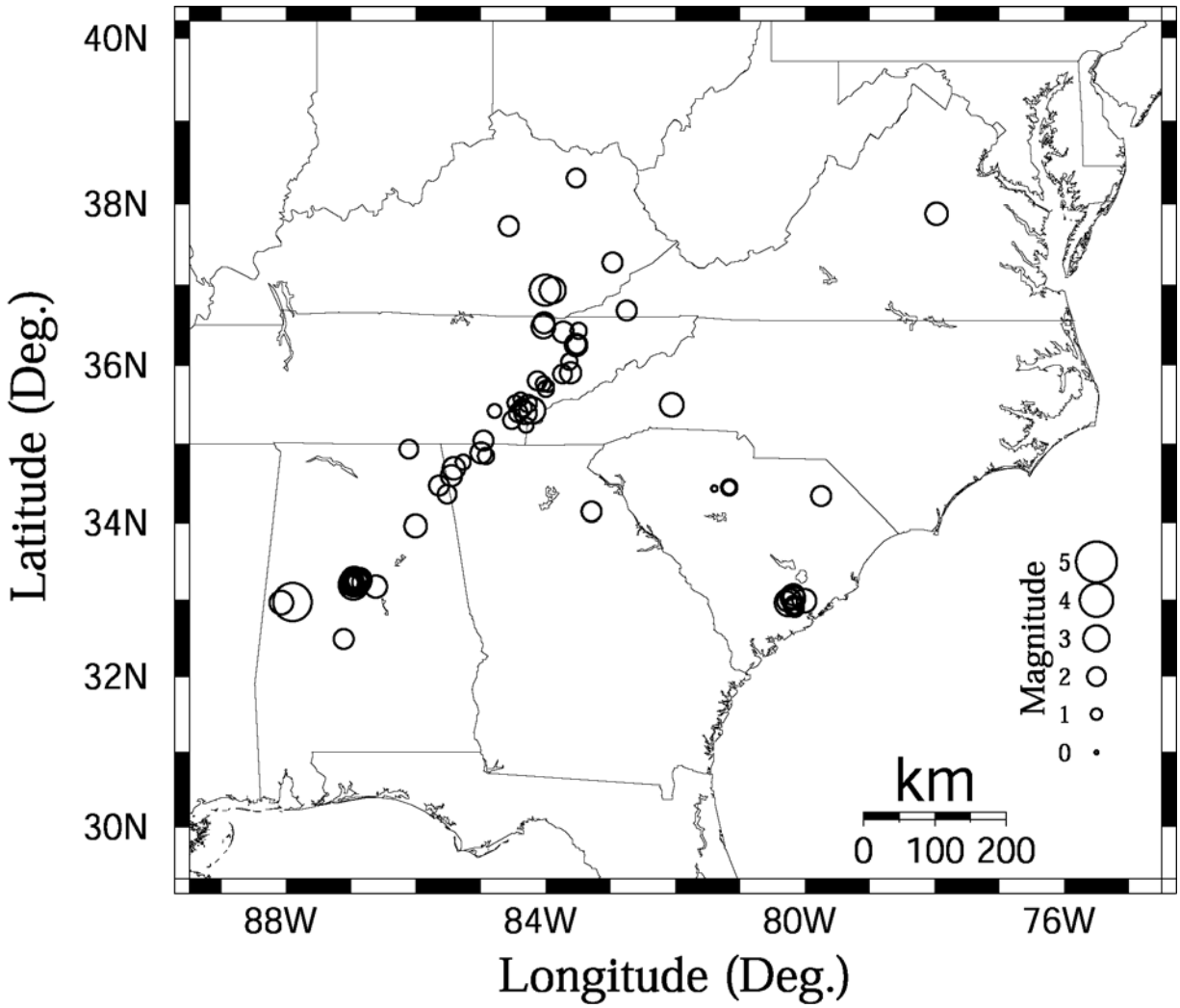


**FIGURE 1**. Epicenters of earthquakes (M ≥ 0.0) in the southeastern United States for this report period.

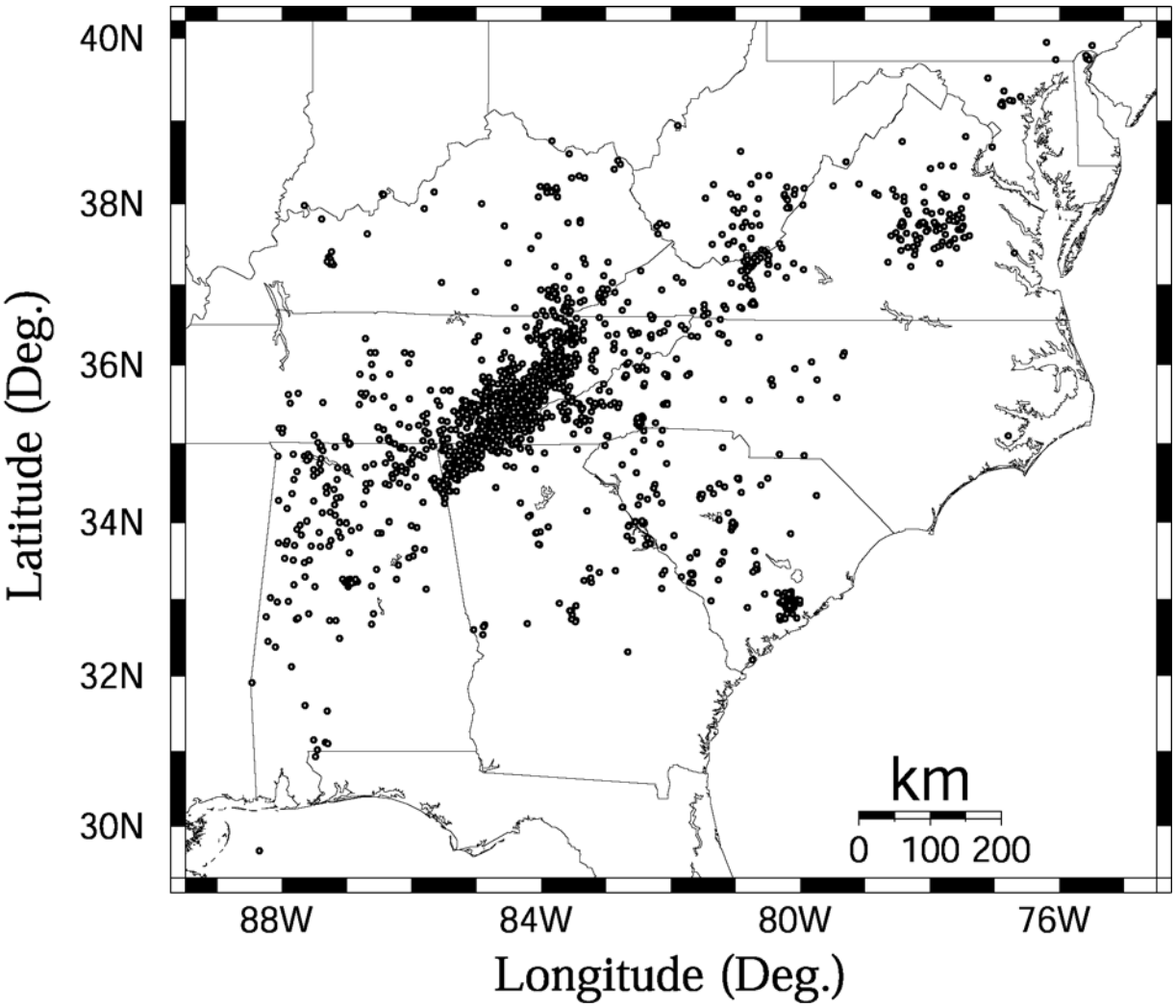


**FIGURE 2.** Epicenters of earthquakes (M ≥ 0.0) in the southeastern United States from July 1977 through this report period.

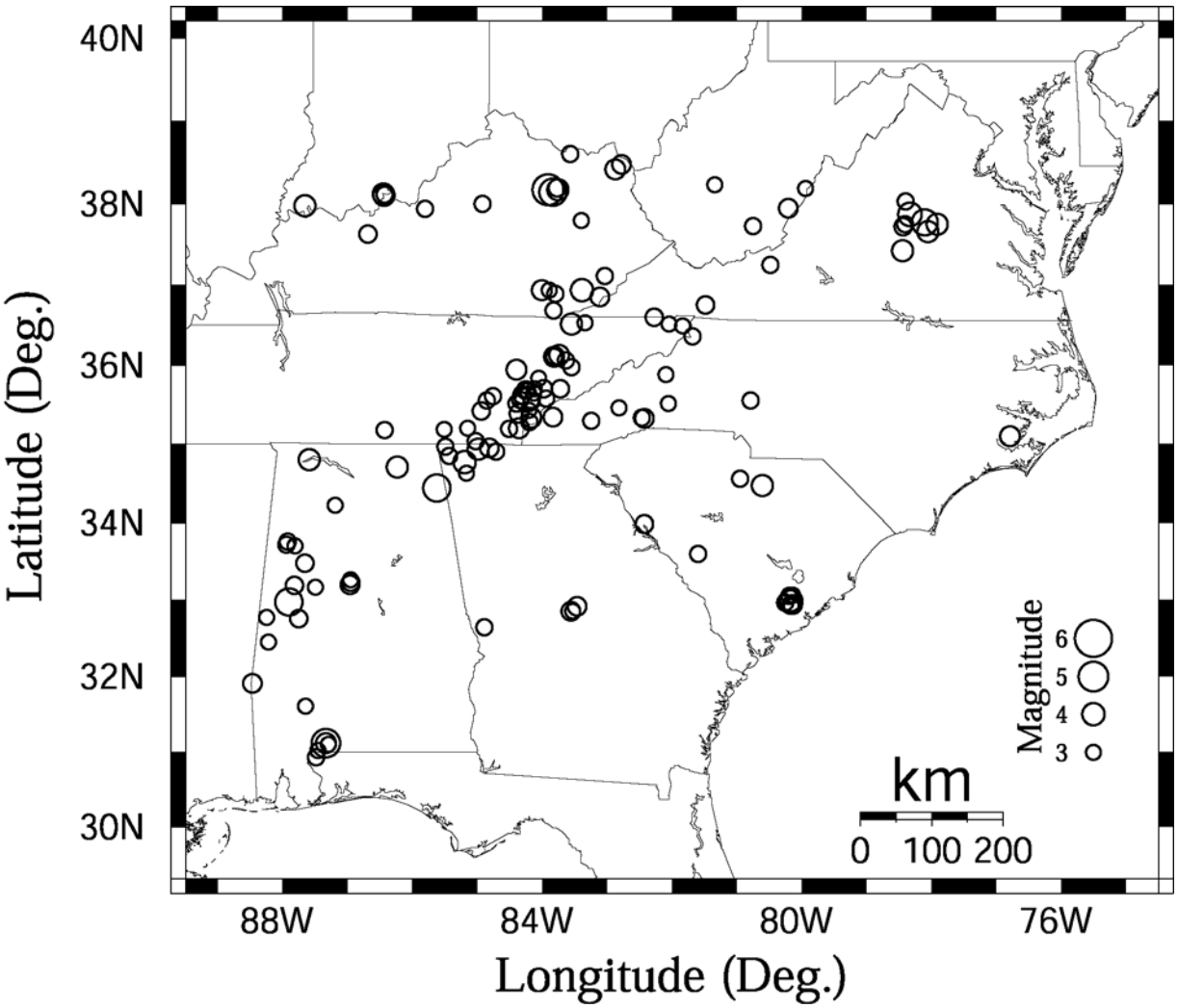


**FIGURE 3.** Epicenters of earthquakes (M ≥ 3.0) in the southeastern United States from July 1977 through this report period.

## SEUSSN EARTHQUAKE CATALOG STATISTICS

**TABLE 1.** SEUSSN Report Period Earthquake Catalog Statistics

| Period: January through December 2004 (1 year) | Tectonic |
|---|---|
| Number of Earthquakes with M ≥ 0.0 | 78 |
| Number of Earthquakes with M ≥ 2.0 | 54 |
| Number of Earthquakes with M ≥ 3.0 | 8 |
| Number of Earthquakes with M ≥ 4.0 | 1 |
| Number of Felt Earthquakes | 4 |
| Number of Earthquakes with Known ERZ ≤ 5.0 km | 47 |

Largest Earthquake: 7 November 2004; 11:20 – Union, AL, $M_D$ = 4.6

| Period: July 1977 through December 2004 (27.5 years) | Tectonic |
|---|---|
| Number of Earthquakes with M ≥ 0.0 | 2169 |
| Number of Earthquakes with M ≥ 2.0 | 892 |
| Number of Earthquakes with M ≥ 3.0 | 132 |
| Number of Earthquakes with M ≥ 4.0 | 11 |
| Number of Felt Earthquakes | 236 |
| Number of Earthquakes with Known ERZ ≤ 5.0 km | 1571 |

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

## SOUTHEASTERN U.S. EARTHQUAKES DURING 2004

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.

### *****2004 JANUARY 12; 01:55 – WHITE OAK, 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 | 040112 | 015516.9 | 34.452 | 81.164 | 2.5 | 10 | 17 | 313 | 0.0 | D | C/D | 2.2 | 360 | 2.2 | 19.3 | | | 1.4 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | | PHASE | ARRIVAL TIME (RES) | |
|---|---|---|---|---|---|---|---|---|---|
| USC | MR07 | 17.3 | 239 | iPd | 01:55:19.68 | (-0.03 ) | iSn | 01:55:21.94 | ( 0.04 ) |
| USC | MR01 | 18.0 | 222 | iPd | :19.83 | ( 0.00 ) | iSn | :22.10 | (-0.01 ) |
| USC | MR10 | 20.5 | 231 | iPd | :20.22 | ( 0.00 ) | iSn | :22.78 | (-0.02 ) |
| USC | JSC | 20.9 | 205 | iPd | :20.29 | ( 0.01 ) | iSu | :22.91 | ( 0.00 ) |
| USC | MR02 | 29.4 | 192 | iPd | :21.71 | ( 0.10 ) | iSn | :25.30 | ( 0.01 ) |

### *****2004 JANUARY 13; 18:19 – 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 | 040113 | 181926.9 | 33.017 | 80.219 | 7.5 | 12 | 6 | 103 | 0.0 | B | A/B | 0.2 | 360 | 0.2 | 0.7 | | | 2.2 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | | PHASE | ARRIVAL TIME (RES) | |
|---|---|---|---|---|---|---|---|---|---|
| USC | SVS | 6.1 | 207 | iPd | 18:19:28.95 | (-0.04 ) | iSn | 18:19:29.88 | ( 0.00 ) |
| USC | RGR | 12.4 | 169 | iPd | :29.83 | ( 0.00 ) | iSd | :31.49 | ( 0.20 ) |
| USC | CSU | 14.3 | 104 | iPu | :30.04 | ( 0.08 ) | iSn | :32.16 | ( 0.00 ) |
| USC | TWB | 15.3 | 45 | iPu | :30.03 | (-0.09 ) | iSn | :31.95 | ( 0.03 ) |
| USC | DRC | 18.7 | 302 | iPd | :31.09 | (-0.01 ) | iSn | :33.82 | ( 0.03 ) |
| USC | WAS | 19.5 | 195 | iPd | :31.09 | (-0.02 ) | iSn | :34.05 | ( 0.21 ) |

### *****2004 JANUARY 21; 09:24 – 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040121 | 092421.8 | 35.396 | 84.305 | 7.2 | 16 | 16 | 192 | 0.1 | D | C/D | 2.3 | 270 | 1.4 | 4.8 | C | | 2.5 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | | PHASE | ARRIVAL TIME (RES) | |
|---|---|---|---|---|---|---|---|---|---|
| CERI | ETT | 15.7 | 240 | iPd | 09:24:24.65 | (-0.01 ) | eS | 09:24:26.94 | ( 0.16 ) |
| CERI | CPCT | 20.6 | 287 | eP | :25.42 | ( 0.04 ) | eS | :28.06 | ( 0.02 ) |
| CERI | GRBT | 32.4 | 18 | eP | :27.23 | ( 0.00 ) | eS | :31.17 | (-0.08 ) |
| CERI | BCRT | 47.8 | 329 | eP | :29.69 | (-0.01 ) | | | |
| CERI | GMG | 67.9 | 209 | eP | :33.11 | ( 0.17 ) | eS | :40.80 | (-0.40 ) |
| CERI | DYTN | 72.3 | 279 | eP | :34.13 | ( 0.51 ) | eS | :42.36 | (-0.02 ) |
| CERI | BHT | 77.4 | 312 | eP | :34.42 | (-0.03 ) | eS | :43.70 | (-0.12 ) |
| CERI | RCGA | 105.8 | 244 | eP | :39.25 | ( 0.27 ) | | | |
| CERI | CMGA | 108.0 | 218 | eP | :39.31 | (-0.02 ) | eS | :52.18 | (-0.05 ) |

### *****2004 JANUARY 30; 03:59 – NOBLE, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040130 | 035927.1 | 34.775 | 85.271 | 0.0 | 5 | 23 | 216 | 0.4 | D | D/D | 19.0 | 242 | 3.2 | 99.0 | D | | 1.5 | | |
| UTK | 040130 | 035924.5 | 34.668 | 85.422 | 8.5 | 10 | 111 | 180 | 0.3 | D | C/D | 1.7 | 328 | 0.8 | 1.6 | B | | 2.2 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| CERI | RCGA | 23.4 | 342 | eP | 03:59:30.28 (-0.67X) | eS | 03:59:34.52 ( 0.71 ) |
| CERI | CMGA | 27.2 | 127 | eP | :31.66 ( 0.08 ) | | |
| CERI | GMG | 55.8 | 80 | eP | :37.13 ( 0.82X) | eS | :46.28 ( 3.14X) |
| CERI | SWET | 77.7 | 309 | eP | :51.65 (11.72X) | | |
| CERI | DYTN | 81.1 | 12 | eP | :40.01 (-0.48 ) | | |
| CERI | ETT | 96.3 | 50 | eP | :43.30 ( 0.29 ) | | |
| CERI | SHAL | 127.8 | 253 | eP | :42.43 (-5.61X) | | |
| CERI | GRBT | 139.7 | 44 | eP | :49.96 ( 0.02 ) | | |
| UTK | SWET | 76.6 | 323 | iPu | 03:59:51.64 (14.63X) | eS | 03:59:58.82 (12.53X) |
| UTK | SHAL | 111.4 | 257 | iPd | 04:00:42.45 (-0.06 ) | eS | 04:00:56.06 ( 0.30 ) |
| UTK | ORT | 171.2 | 36 | eP | :52.55 ( 0.61 ) | eS | :01:12.90 ( 0.84 ) |
| UTK | CRTN | 222.5 | 40 | eP | :58.85 (-1.14 ) | eS | :25.64 (-0.15 ) |
| UTK | LRAL | 232.6 | 219 | eP | :01:01.05 (-0.32 ) | eS | :28.83 ( 0.64 ) |
| UTK | PLAL | 245.3 | 279 | eP | :03.13 ( 0.19 ) | iS | :30.63 (-0.27 ) |

## *****2004 FEBRUARY 02; 17:13 – BLAIR, 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 | 040202 | 171338.6 | 34.436 | 81.396 | 2.8 | 10 | 10 | 343 | 0.0 | D | C/D | 1.5 | 360 | 1.5 | 2.6 | | | 0.3 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| USC | MR07 | 9.7 | 137 | iPu | 17:13:40.18 (-0.01 ) | iSn | 17:13:41.46 ( 0.01 ) |
| USC | MR10 | 12.3 | 154 | iPu | :40.54 (-0.05 ) | iSn | :42.19 ( 0.02 ) |
| USC | MR01 | 14.8 | 141 | iPu | :40.98 ( 0.00 ) | iSn | :42.88 ( 0.02 ) |
| USC | JSC | 21.2 | 144 | iPu | :41.99 ( 0.00 ) | iSd | :44.62 (-0.05 ) |
| USC | MR02 | 31.0 | 150 | iPu | :43.59 ( 0.05 ) | iSn | :47.52 ( 0.10 ) |

## *****2004 FEBRUARY 06; 08:17 – SILURIA, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040206 | 081739.8 | 33.236 | 86.847 | 5.0 | 5 | 26 | 165 | 0.1 | D | D/D | 25.6 | 251 | 21.7 | 99.0 | D | | 2.0 | | |
| UTK | 040206 | 081739.2 | 33.104 | 86.815 | 25.3 | 7 | 19 | 227 | 0.2 | D | D/D | 9.2 | 29 | 2.4 | 6.0 | D | | 2.3 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| CERI | LRAL | 26.4 | 212 | eP | 08:17:44.27 ( 0.00 ) | | |
| CERI | PWLA | 223.6 | 330 | eP | :18:15.34 (-0.21 ) | eS | 08:18:43.08 ( 1.51X) |
| CERI | PLAL | 224.4 | 330 | eP | :15.30 (-0.36X) | eS | :43.01 ( 1.25X) |
| CERI | RCGA | 237.4 | 35 | eP | :18.35 ( 0.92X) | S | :48.89 ( 4.09X) |
| CERI | GMG | 270.1 | 47 | eP | :21.41 (-0.17 ) | eS | :56.21 ( 4.23X) |
| CERI | OXF | 276.0 | 302 | eP | :22.54 ( 0.32 ) | | |
| CERI | ETT | 319.8 | 43 | eP | :29.08 ( 1.34X) | | |
| CERI | WVT | 329.5 | 345 | eP | :31.44 ( 2.55X) | | |
| CERI | BCRT | 349.6 | 36 | eP | :32.04 ( 0.59 ) | | |
| UTK | LRAL | 18.7 | 246 | iPd | 08:17:44.25 ( 0.03 ) | iS | 08:17:47.88 (-0.02 ) |
| UTK | PLAL | 238.7 | 331 | iP- | :15.12 (-0.12 ) | eS | :41.22 (-0.22 ) |
| UTK | SWET | 248.1 | 19 | | | S-P | 28.0 SEC ( 0.84 ) |
| UTK | OXF | 286.5 | 304 | eP | :21.52 ( 0.40 ) | eS | :53.90 ( 2.28 ) |
| UTK | GOGA | 313.8 | 83 | eP | :28.72 ( 4.22X) | eS | :18:07.07 ( 9.61X) |

## *****2004 FEBRUARY 12; 11:03 – 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 | 040212 | 110335.2 | 32.908 | 80.157 | 9.1 | 10 | 2 | 133 | 0.1 | B | B/B | 0.9 | 360 | 0.9 | 0.5 | | | 2.0 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME | (RES) | PHASE | ARRIVAL TIME | (RES) |
|---|---|---|---|---|---|---|---|---|---|
| USC | MGS | 1.8 | 127 | iPd | 11:03:37.27 | ( 0.04 ) | iSn | 11:03:38.01 | (-0.03 ) |
| USC | RGR | 3.5 | 269 | iPu | :37.21 | (-0.07 ) | iSd | :38.06 | ( 0.03 ) |
| USC | CSB | 11.8 | 43 | iPu | :37.96 | (-0.04 ) | iSn | :39.95 | (-0.03 ) |
| USC | CSU | 11.8 | 43 | iPu | :38.00 | (-0.02 ) | iSn | :40.08 | ( 0.04 ) |
| USC | WAS | 12.7 | 238 | iPd | :38.56 | ( 0.10 ) | iSn | : 40.40 | (-0.05 ) |

*******2004 FEBRUARY 29; 12:40 – 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 | 040229 | 124005.3 | 32.936 | 80.168 | 7.7 | 10 | 4 | 152 | 0.0 | C | B/C | 0.7 | 360 | 0.7 | 0.7 | | | 2.0 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME | (RES) | PHASE | ARRIVAL TIME | (RES) |
|---|---|---|---|---|---|---|---|---|---|
| USC | RGR | 4.0 | 218 | iPd | 12:40:07.12 | (-0.04 ) | iSd | 12:40:07.78 | ( 0.01 ) |
| USC | MGS | 4.9 | 149 | iPu | :07.25 | (-0.03 ) | iSn | :08.12 | ( 0.02 ) |
| USC | CSU | 10.7 | 58 | iPu | :07.80 | (-0.01 ) | iSn | :09.65 | ( 0.07 ) |
| USC | WAS | 13.8 | 225 | iPd | :08.60 | ( 0.03 ) | iSn | :10.51 | (-0.10 ) |
| USC | TWB | 20.8 | 17 | iPd | :09.42 | ( 0.02 ) | iSn | :11.76 | (-0.15 ) |

*******2004 MARCH 10; 03:06 – CLINTON, 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 | 040310 | 030648.0 | 32.971 | 88.081 | 0.0 | 6 | 212 | 320 | 0.2 | D | C/D | 1.9 | 8 | 0.9 | 2.7 | C | | 2.6 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME | (RES) | PHASE | ARRIVAL TIME | (RES) |
|---|---|---|---|---|---|---|---|---|---|
| UTK | SHAL | 212.3 | 40 | iP- | 03:07:22.35 | ( 0.00 ) | iS | 03:07:47.52 | (-0.01 ) |
| UTK | PLAL | 223.1 | 0 | iPd | :23.87 | (-0.17 ) | iS | :50.57 | ( 0.19 ) |
| UTK | SWET | 318.3 | 38 | eP | :36.66 | ( 0.19 ) | eS | :08:12.30 | ( 0.57 ) |

*******2004 MARCH 13; 17:05 – WHITE OAK, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040313 | 170504.8 | 36.528 | 84.023 | 24.7 | 8 | 19 | 246 | 0.0 | D | D/D | 9.3 | 2 | 1.5 | 6.3 | D | | 2.3 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME | (RES) | PHASE | ARRIVAL TIME | (RES) |
|---|---|---|---|---|---|---|---|---|---|
| CERI | WMTN | 18.9 | 226 | iPd | 17:05:09.84 | ( 0.00 ) | | | |
| CERI | CPRT | 43.1 | 163 | eP | :12.48 | (-0.38X) | | | |
| CERI | ASTN | 53.9 | 114 | eP | :14.22 | (-0.02 ) | eS | 17:05:21.16 | ( 0.01 ) |
| CERI | GRBT | 96.0 | 189 | eP | :20.44 | (-0.02 ) | | | |
| CERI | BCRT | 98.2 | 211 | eP | :20.80 | ( 0.01 ) | | | |
| CERI | BHT | 110.7 | 228 | eP | :22.80 | ( 0.08 ) | | | |
| CERI | CPCT | 127.8 | 201 | eP | :25.80 | ( 0.50X) | eS | :41.18 | ( 0.95X) |
| CERI | ETT | 138.9 | 196 | eP | :26.96 | (-0.07 ) | | | |
| CERI | DYTN | 150.1 | 220 | eP | :28.67 | (-0.06 ) | | | |

*******2004 MARCH 13; 17:07 – REMY, TENNESSEE*******

UTK This earthquake was preceded by a smaller foreshock about two 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040313 | 170757.5 | 36.480 | 84.034 | 8.9 | 16 | 38 | 132 | 0.1 | D | D/C | 3.2 | 333 | 1.4 | 5.1 | C | | 2.7 | | |
| UTK | 040313 | 170758.3 | 36.500 | 83.963 | 13.8 | 15 | 35 | 122 | 0.6 | D | D/C | 0.9 | 336 | 0.4 | 1.0 | A | | 2.6 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME | (RES) | PHASE | ARRIVAL TIME | (RES) |
|---|---|---|---|---|---|---|---|---|---|
| CERI | CPRT | 38.4 | 159 | eP | 17:08:05.49 | (-0.21 ) | | | |
| CERI | ASTN | 52.9 | 109 | iPu | :07.25 | ( 0.00 ) | | | |
| CERI | GTTN | 81.2 | 156 | eP | :11.93 | ( 0.01 ) | eS | 17:08:22.53 | (-0.74 ) |
| CERI | GRBT | 90.6 | 189 | eP | :13.40 | ( 0.26 ) | | | |
| CERI | BCRT | 93.1 | 212 | eP | :13.64 | ( 0.05 ) | | | |
| CERI | BHT | 106.5 | 230 | eP | :15.73 | (-0.19 ) | | | |
| CERI | CPCT | 122.5 | 201 | eP | :18.29 | ( 0.06 ) | eS | :33.91 | ( 0.12 ) |
| CERI | ETT | 133.6 | 197 | eP | :20.01 | (-0.06 ) | eS | :36.67 | (-0.54 ) |
| CERI | DYTN | 145.5 | 221 | eP | :21.55 | (-0.17 ) | | | |
| CERI | ROKY | 158.8 | 3 | eP | :23.37 | (-0.11 ) | | | |
| CERI | GMG | 188.5 | 198 | eP | :28.35 | ( 0.46 ) | | | |
| CERI | RCGA | 204.9 | 216 | eP | :30.97 | ( 1.17 ) | | | |
| CERI | SOKY | 207.4 | 305 | eP | :30.84 | ( 0.83X) | | | |
| CERI | FLKY | 217.4 | 7 | eP | :31.81 | ( 0.55X) | | | |
| CERI | SWET | 221.5 | 231 | eP | :33.05 | ( 0.91 ) | | | |
| CERI | PKKY | 229.0 | 22 | eP | :33.70 | ( 0.67X) | | | |
| UTK | CRTN | 35.1 | 162 | iPu | 17:08:05.07 | ( 0.71 ) | iS | 17:08:07.97 | (-0.90 ) |
| UTK | ORT | 72.4 | 205 | eP+ | :10.01 | (-0.10 ) | iS | :19.18 | ( 0.33 ) |
| UTK | EGT | 89.4 | 138 | iPu | :13.20 | ( 0.36 ) | eS | :23.56 | ( 0.01 ) |
| UTK | SWET | 227.8 | 232 | iPu | :33.08 | (-1.01 ) | iS | :09:00.78 | ( 0.65 ) |
| UTK | WCI | 284.8 | 313 | eP | :32.67 | (-8.40X) | eS | :10.97 | (-1.23 ) |
| UTK | BLA | 325.6 | 75 | eP | :45.68 | (-0.47 ) | eS | :21.28 | ( 0.28 ) |
| UTK | SHAL | 331.6 | 227 | iP- | :45.90 | (-0.95 ) | eS | :24.54 | ( 2.33X) |
| UTK | PLAL | 408.3 | 247 | iP+ | :56.02 | (-0.27 ) | eS | :33.87 | (-4.67X) |
| UTK | LRAL | 474.2 | 217 | eP | :09:04.10 | (-0.31 ) | eS | :50.88 | (-1.71 ) |

*******2004 MARCH 14; 13:39 – CEDAR BLUFF, 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 | 040314 | 1339 | 54.2 | 34.361 | 85.516 | 9.7 | 15 | 100 | 105 | 0.2 | C | B/D | 0.5 | 348 | 0.3 | 1.8 | B | | 2.0 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME | (RES) | PHASE | ARRIVAL TIME | (RES) |
|---|---|---|---|---|---|---|---|---|---|
| UTK | SHAL | 100.2 | 275 | iPd | 13:40:10.35 | (-0.04 ) | iS | 13:40:22.33 | ( 0.02 ) |
| UTK | SWET | 102.2 | 338 | eP | :10.72 | (-0.01 ) | iS | :22.76 | (-0.13 ) |
| UTK | MYNC | 149.7 | 58 | iP- | :18.20 | (-0.02 ) | eS | :35.63 | (-0.23 ) |
| UTK | LRAL | 201.3 | 223 | eP | :26.48 | ( 0.15 ) | eS | :49.23 | (-0.51 ) |
| UTK | ORT | 204.2 | 32 | iP- | :27.61 | ( 0.80 ) | eS | :50.55 | ( 0.01 ) |
| UTK | GOGA | 216.9 | 118 | eP | :28.85 | ( 0.11 ) | eS | :53.33 | (-0.53 ) |
| UTK | PLAL | 244.5 | 287 | eP | :32.72 | ( 0.31 ) | eS | :41:00.52 | ( 0.30 ) |
| UTK | EGT | 264.7 | 49 | eP | :35.72 | ( 0.72 ) | eS | :07.21 | ( 2.51X) |

*******2004 MARCH 19; 07:00 – ALABASTER, ALABAMA*******

UTK This event is a foreshock of the magnitude 3.0 earthquake that occurred the following day.

| 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 | 040319 | 0700 | 54.4 | 33.238 | 87.008 | 0.0 | 9 | 23 | 126 | 0.5 | C | C/C | 1.4 | 279 | 0.7 | 3.4 | C | | 1.6 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME | (RES) | PHASE | ARRIVAL TIME | (RES) |
|---|---|---|---|---|---|---|---|---|---|
| UTK | LRAL | 22.5 | 178 | iP- | 07:00:57.88 | (-0.22 ) | iS | 07:01:01.45 | ( 0.60 ) |
| UTK | SHAL | 137.8 | 16 | iP | :01:16.37 | (-0.56 ) | iS | :34.24 | ( 0.71 ) |
| UTK | PLAL | 217.2 | 333 | iP- | :29.12 | (-0.32 ) | eS | :55.52 | ( 0.36 ) |
| UTK | OXF | 263.3 | 303 | eP | :36.56 | ( 0.59 ) | eS | :02:08.76 | ( 2.52 ) |
| UTK | GOGA | 330.3 | 86 | eP | :48.05 | ( 3.81X) | eS | :20.38 | (-0.16 ) |

*******2004 MARCH 20; 07:10 – ALABASTER, ALABAMA*******

UTK This event is a foreshock of the magnitude 3.0 earthquake that occurred about 3.5 hours later.

| 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 | 040320 | 071038 | .2 | 33.212 | 86.996 | 12.6 | 11 | 20 | 153 | 0.4 | C | C/C | 1.5 | 287 | 0.7 | 1.3 | B | | 1.7 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| UTK | LRAL | 19.6 | 181 | iPd | 07:10:41.70 (-0.30 ) | iS | 07:10:45.23 ( 0.44 ) |
| UTK | SHAL | 140.2 | 15 | eP | :11:01.06 ( 0.30 ) | eS | :11:17.30 ( 0.02 ) |
| UTK | PLAL | 220.2 | 333 | eP | :12.87 (-0.32 ) | eS | :38.97 ( 0.37 ) |
| UTK | SWET | 243.0 | 23 | eP | :15.42 (-0.62 ) | eS | :43.60 ( 0.07 ) |
| UTK | OXF | 265.8 | 304 | eP | :21.41 ( 2.61X) | eS | :52.61 ( 4.29X) |
| UTK | GOGA | 329.4 | 85 | eP | :31.42 ( 4.78X) | eS | :12:03.95 ( 2.07 ) |
| UTK | MYNC | 335.6 | 51 | | | eS | :04.12 ( 0.84 ) |
| UTK | ORT | 388.0 | 39 | eP | :43.18 ( 9.29X) | eS | :14.48 ( 0.06 ) |

*******2004 MARCH 20; 09:09 – ALABASTER, ALABAMA*******

UTK This event is a foreshock of the magnitude 3.0 earthquake that occurred about 1.5 hours later.

| 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 | 040320 | 090943 | .8 | 33.251 | 86.980 | 0.0 | 14 | 24 | 119 | 1.0 | D | D/C | 1.0 | 282 | 0.4 | 1.9 | B | | 2.4 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| UTK | LRAL | 24.0 | 184 | iP- | 09:09:47.48 (-0.33 ) | iS | 09:09:51.13 ( 0.38 ) |
| UTK | SHAL | 135.7 | 15 | iP- | :10:05.44 (-0.62 ) | eS | :10:24.44 ( 2.01 ) |
| UTK | PLAL | 217.1 | 333 | eP | :18.12 (-0.77 ) | eS | :45.02 ( 0.42 ) |
| UTK | SWET | 238.4 | 24 | eP | :20.34 (-1.94 ) | eS | :49.92 (-0.37 ) |
| UTK | OXF | 264.7 | 303 | eP | :24.73 (-0.88 ) | eS | :58.38 ( 2.37 ) |
| UTK | GOGA | 327.6 | 86 | eP | :34.47 ( 1.10 ) | eS | :11:10.22 ( 0.79 ) |
| UTK | MYNC | 331.7 | 52 | eP | :33.87 (-0.05 ) | eS | :09.95 (-0.44 ) |
| UTK | ORT | 383.7 | 39 | eP | :44.26 ( 3.95X) | eS | :17.90 (-3.54X) |

*******2004 MARCH 20; 10:40 – ALABASTER, ALABAMA*******

UTK Felt at Alabaster, Helena and Pelham.

| 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 | 040320 | 104034 | .8 | 33.267 | 86.955 | 0.0 | 16 | 26 | 113 | 0.5 | D | D/C | 0.7 | 277 | 0.4 | 1.4 | B | | 3.0 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| UTK | LRAL | 26.1 | 189 | iPd | 10:40:39.08 (-0.07 ) | eS | 10:40:42.53 ( 0.19 ) |
| UTK | SHAL | 133.3 | 14 | iPd | :57.02 ( 0.34 ) | iS | :41:13.70 ( 0.92 ) |
| UTK | PLAL | 216.5 | 332 | eP+ | :41:09.52 (-0.29 ) | eS | :36.07 ( 0.61 ) |
| UTK | SWET | 235.8 | 23 | iPd | :11.98 (-0.89 ) | eS | :40.36 (-0.23 ) |
| UTK | OXF | 265.7 | 302 | eP | :16.31 (-0.42 ) | eS | :48.16 ( 0.94 ) |
| UTK | GOGA | 325.1 | 86 | eP | :25.42 ( 1.36 ) | eS | :42:01.22 ( 1.33 ) |
| UTK | MYNC | 328.8 | 52 | iP | :24.30 (-0.25 ) | eS | :59.87 (-0.88 ) |
| UTK | ORT | 380.8 | 39 | eP | :30.28 (-0.67 ) | eS | :43:11.52 (-0.30 ) |

*******2004 MARCH 20; 14:10 – ALABASTER, ALABAMA*******

UTK This event is an aftershock of the magnitude 3.0 earthquake that occurred about 3.5 hours 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 | 040320 | 141047.9 | 33.227 | 87.031 | 0.9 | 8 | 22 | 162 | 0.4 | C | C/C | 1.6 | 259 | 0.9 | 3.7 | C | | 1.8 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| UTK | LRAL | 21.5 | 172 | iP- | 14:10:51.23 (-0.22 ) | eS | 14:10:54.83 ( 0.74 ) |
| UTK | SHAL | 139.6 | 16 | eP | :11:11.08 ( 0.39 ) | eS | :11:27.12 (-0.34 ) |
| UTK | PLAL | 217.3 | 334 | eP | :22.52 (-0.42 ) | eS | :48.97 ( 0.36 ) |
| UTK | GOGA | 322.6 | 85 | eP | :39.57 ( 1.63X) | eS | :12:14.17 (-0.21 ) |
| UTK | MYNC | 337.2 | 52 | eP | :41.70 ( 3.15X) | eS | :18.05 ( 2.61X) |
| UTK | ORT | 388.8 | 39 | | | eS | :25.50 (-0.92 ) |

*******2004 MARCH 20; 19:22 – ALABASTER, ALABAMA*******

UTK This event is an aftershock of the magnitude 3.0 earthquake that occurred about 9 hours 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 | 040320 | 192222.1 | 33.242 | 87.019 | 0.0 | 12 | 23 | 128 | 0.4 | C | C/C | 1.3 | 273 | 0.8 | 3.6 | C | | 2.0 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| UTK | LRAL | 23.1 | 175 | iPd | 19:22:25.68 (-0.22 ) | eS | 19:22:29.33 ( 0.61 ) |
| UTK | SHAL | 137.6 | 16 | eP | :44.83 ( 0.21 ) | eS | :23:01.40 ( 0.20 ) |
| UTK | PLAL | 216.3 | 333 | iP- | :56.62 (-0.40 ) | eS | :22.87 ( 0.23 ) |
| UTK | SWET | 240.8 | 24 | | | eS | :28.26 (-0.90 ) |
| UTK | OXF | 262.2 | 303 | eP | :23:05.08 ( 1.53 ) | eS | :36.88 ( 3.16X) |
| UTK | GOGA | 331.3 | 86 | eP | :13.25 ( 1.18 ) | eS | :48.25 (-0.21 ) |
| UTK | MYNC | 335.2 | 52 | eP | :13.60 ( 1.00 ) | eS | :48.33 (-1.05 ) |

*******2004 MARCH 21; 18:11 – SPINDALE, 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 | 040321 | 181134.2 | 35.502 | 82.053 | 9.2 | 14 | 121 | 172 | 0.4 | D | C/D | 0.5 | 324 | 0.3 | 0.9 | A | | 2.7 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| UTK | EGT | 121.1 | 292 | iPd | 18:11:53.60 (-0.19 ) | eS | 18:12:08.37 ( 0.20 ) |
| UTK | CRTN | 179.1 | 296 | iPu | :12:02.86 (-0.06 ) | eS | :24.19 ( 0.24 ) |
| UTK | MYNC | 194.7 | 256 | ePd | :04.95 (-0.42 ) | eS | :27.82 (-0.32 ) |
| UTK | ORT | 208.8 | 283 | iPu | :07.62 ( 0.04 ) | eS | :31.94 ( 0.10 ) |
| UTK | BLA | 239.6 | 37 | ePd | :12.80 ( 0.84 ) | eS | :38.77 (-0.64 ) |
| UTK | GOGA | 265.8 | 210 | iPu | :15.15 ( 0.01 ) | eS | :45.23 ( 0.33 ) |
| UTK | SHAL | 432.0 | 255 | iPd | :34.79 (-0.86 ) | iS | :13:20.39 ( 0.00 ) |

*******2004 MARCH 24; 10:30 – 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 | 040324 | 103059.0 | 36.041 | 83.633 | 12.0 | 8 | 26 | 164 | 0.2 | C | C/C | 1.1 | 18 | 0.4 | 4.5 | C | | 1.7 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| UTK | CRTN | 25.7 | 313 | iPd | 10:31:03.54 (-0.09 ) | eS | 10:31:06.92 (-0.14 ) |
| UTK | EGT | 34.0 | 117 | iP | :05.02 ( 0.11 ) | eS | :09.34 ( 0.06 ) |
| UTK | ORT | 62.3 | 257 | iP | :09.35 ( 0.08 ) | eS | :17.12 ( 0.30 ) |
| UTK | MYNC | 116.3 | 203 | iP | :17.57 (-0.21 ) | iS | :31.24 (-0.31 ) |

******2004 MARCH 26; 11:56 – ALABASTER, ALABAMA*******

UTK  This event is an aftershock of the magnitude 3.0 earthquake that occurred 6 days 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 | 040326 | 115640.9 | 33.242 | 86.981 | 0.0 | 8 | 23 | 160 | 0.2 | C | C/C | 2.3 | 291 | 1.2 | 6.4 | D | | 1.6 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| UTK | LRAL | 23.0 | 184 | eP | 11:56:44.28 (-0.46 ) | iS | 11:56:47.63 ( 0.07 ) |
| UTK | SHAL | 136.7 | 15 | eP | :57:03.51 ( 0.19 ) | eS | :57:19.85 ( 0.06 ) |
| UTK | PLAL | 217.9 | 333 | eP | :15.67 (-0.45 ) | eS | :41.87 (-0.05 ) |
| UTK | SWET | 239.4 | 24 | eP | :27.06 ( 7.53X) | eS | :47.70 ( 0.07 ) |
| UTK | OXF | 265.2 | 303 | eP | :29.63 ( 6.86X) | eS | :54.21 ( 1.00 ) |

*******2004 MARCH 29; 23:15 – WHITE OAK, 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 | 040329 | 231540.7 | 34.451 | 81.164 | 1.8 | 10 | 17 | 313 | 0.1 | D | C/D | 2.0 | 360 | 2.O | 29.0 | | | 1.6 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| USC | MR07 | 17.2 | 239 | iPd | 23:15:43.47 (-0.04 ) | iSn | 23:15:45.76 ( 0.08 ) |
| USC | MR01 | 17.9 | 223 | iPd | :43.60 (-0.03 ) | iSn | :45.88 ( 0.00 ) |
| USC | MR10 | 20.4 | 231 | iPd | :44.01 (-0.01 ) | iSn | :46.57 ( 0.00 ) |
| USC | JSC | 20.8 | 205 | iPd | :44.06 (-0.01 ) | iSu | :46.58 (-0.10 ) |
| USC | MR02 | 29.2 | 192 | iPd | :45.50 ( 0.07 ) | iSn | :49.13 ( 0.04 ) |

*******2004 MARCH 30; 04:17 – 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 | 040330 | 041726.1 | 36.429 | 83.493 | 22.2 | 6 | 40 | 291 | 0.2 | D | C/D | 2.0 | 347 | 1.2 | 2.2 | B | | 1.7 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| UTK | CRTN | 40.2 | 231 | iPu | 04:17:33.56 ( 0.10 ) | iS | 04:17:38.80 (-0.06 ) |
| UTK | EGT | 61.2 | 163 | ePu | :36.63 ( 0.10 ) | eS | :44.12 (-0.06 ) |
| UTK | ORT | 93.0 | 232 | ePu | :40.81 (-0.49 ) | eS | :52.71 ( 0.29 ) |

******2004 MARCH 30; 20:46 – SELMA, 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 | 040330 | 204648.7 | 32.493 | 87.123 | 9.8 | 10 | 61 | 245 | 0.7 | D | D/D | 2.2 | 305 | 1.0 | 2.1 | B | | 2.1 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| UTK | LRAL | 61.3 | 11 | eP | 20:46:59.48 ( 0.70 ) | eS | 20:47:05.98 (-0.23 ) |
| UTK | SHAL | 220.6 | 13 | iP- | :47:23.00 (-0.85 ) | eS | :49.14 (-0.24 ) |
| UTK | PLAL | 290.0 | 343 | iPu | :31.82 (-0.72 ) | eS | :48:04.82 ( 0.39 ) |
| UTK | OXF | 308.7 | 317 | iPd | :34.93 ( 0.08 ) | eS | :08.96 ( 0.54 ) |
| UTK | GOGA | 356.7 | 72 | eP | :46.68 ( 5.91X) | eS | :23.08 ( 4.41 ) |
| UTK | MYNC | 398.6 | 43 | eP | :58.87 (12.88X) | eS | :31.14 ( 3.46 ) |

******2004 APRIL 02; 00:43 – ALABASTER, ALABAMA*******

UTK  This event is an aftershock of the magnitude 3.0 earthquake that occurred on March 20.

| 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 | 040402 | 004319.4 | 33.255 | 86.988 | 0.0 | 11 | 24 | 120 | 0.5 | C | C/C | 1.1 | 264 | 0.6 | 2.6 | B | | 1.9 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| UTK | LRAL | 24.4 | 182 | eP | 00:43:23.18 (-0.27 ) | eS | 00:43:26.28 (-0.16 ) |
| UTK | SHAL | 135.5 | 15 | eP | :41.49 (-0.11 ) | eS | :58.35 ( 0.41 ) |
| UTK | PLAL | 216.3 | 333 | eP- | :54.07 (-0.28 ) | iS | :44:20.87 ( 0.89 ) |
| UTK | SWET | 238.3 | 24 | eP | :55.98 (-1.86X) | eS | :26.58 ( 0.75 ) |
| UTK | OXF | 263.8 | 303 | eP | :59.68 (-1.40 ) | eS | :32.88 ( 1.49 ) |
| UTK | GOGA | 328.3 | 86 | eP | :44:10.58 ( 1.55 ) | eS | :45.83 ( 0.68 ) |
| UTK | MYNC | 332.1 | 52 | eP | :16.71 ( 7.17X) | eS | :43.19 (-2.84X) |
| UTK | ORT | 383.8 | 39 | eP | :20.18 ( 4.28X) | eS | :53.54 (-3.50X) |

*******2004 APRIL 10; 07:29 – FRIENDSVILLE, 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 | 040410 | 072926.9 | 35.802 | 84.127 | 4.9 | 6 | 20 | 225 | 0.2 | D | C/D | 4.3 | 246 | 0.9 | 11.6 | D | | 2.0 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| UTK | ORT | 20.0 | 307 | iPu | 07:29:30.34 ( 0.00 ) | iS | 07:29:32.87 (-0.00 ) |
| UTK | CRTN | 51.1 | 30 | iPu | :35.30 (-0.10 ) | iS | :41.73 ( 0.06 ) |
| UTK | EGT | 75.7 | 81 | iPd | :40.02 ( 0.67 ) | eS | :48.13 (-0.42 ) |

*******2004 APRIL 16; 01:54 – 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 | 040416 | 015404.7 | 35.568 | 84.381 | 27.7 | 5 | 39 | 220 | 0.2 | D | C/D | 5.7 | 329 | 0.7 | 5.5 | D | | 1.4 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| UTK | ORT | 38.6 | 10 | iPu | 01:54:11.94 (-0.26 ) | iS | 01:54:17.84 ( 0.11 ) |
| UTK | CRTN | 85.5 | 35 | iP | :19.22 ( 0.34 ) | eS | :29.10 (-0.15 ) |
| UTK | EGT | 104.8 | 69 | eP | :25.49 ( 3.68X) | eS | :37.63 ( 3.31X) |
| UTK | SWET | 146.2 | 255 | eP | :21.58 (-6.50X) | iS | :45.34 ( 0.23 ) |

******2004 APRIL 23; 15:43 – BELL SPRING, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040423 | 154332.7 | 35.522 | 84.474 | 18.3 | 7 | 9 | 194 | 0.1 | D | D/D | 2.6 | 259 | 0.6 | 2.2 | B | | 1.5 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| CERI | CPCT | 9.1 | 209 | iPu | 15:43:35.98 ( 0.00 ) | eS | 15:43:38.47 ( 0.05X) |
| CERI | ETT | 21.8 | 176 | iPu | :37.28 (-0.01 ) | | |
| CERI | BCRT | 28.6 | 341 | iPu | :38.17 ( 0.02 ) | | |
| CERI | GRBT | 30.2 | 56 | eP | :38.34 (-0.02X) | eS | :42.82 ( 0.28X) |
| CERI | DYTN | 56.2 | 267 | eP | :42.01 (-0.14 ) | eS | :49.08 (-0.06X) |
| CERI | BHT | 56.7 | 312 | eP | :42.09 (-0.14 ) | eS | :49.26 (-0.02X) |
| CERI | GMG | 75.3 | 194 | eP | :44.87 (-0.23 ) | eS | :55.87 ( 1.64 ) |
| CERI | RCGA | 100.0 | 233 | | | eS | :44:01.06 ( 0.29X) |

*******2004 APRIL 27; 01:11 – GOIN, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040427 | 011150.4 | 36.417 | 83.730 | 15.5 | 12 | 25 | 233 | 0.1 | D | D/D | 3.8 | 336 | 0.8 | 3.5 | C | | 2.4 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| CERI | ASTN | 24.9 | 113 | iPu | 01:11:55.20 ( 0.00 ) | | |
| CERI | CPRT | 31.9 | 205 | iPd | :56.29 (-0.01 ) | | |
| CERI | GTTN | 67.3 | 175 | eP | :12:01.49 (-0.06 ) | | |
| CERI | GRBT | 92.5 | 207 | eP | :05.16 (-0.26 ) | | |
| CERI | BCRT | 105.0 | 227 | iPu | :07.40 ( 0.03 ) | eS | 01:12:21.60 ( 1.78X) |
| CERI | BHT | 125.1 | 241 | eP | :10.47 (-0.03 ) | | |
| CERI | CPCT | 128.9 | 214 | eP | :10.79 (-0.29 ) | | |
| CERI | ETT | 137.6 | 209 | eP | :12.11 (-0.33 ) | eS | :29.34 ( 0.74 ) |
| CERI | DYTN | 160.2 | 231 | eP | :15.80 (-0.16 ) | | |
| CERI | GMG | 192.3 | 207 | eP | :20.94 (-0.02 ) | eS | :46.16 ( 3.00X) |
| CERI | RCGA | 216.8 | 223 | eP | :24.71 ( 0.29 ) | eS | :53.35 ( 4.22X) |

## *****2004 APRIL 29; 04:38 – 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 | 040429 | 043847.0 | 35.425 | 84.790 | 37.2 | 6 | 69 | 331 | 0.2 | D | D/D | 99.0 | 320 | 1.3 | 99.0 | D | | 1.4 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| UTK | ORT | 69.5 | 39 | iPd | 04:38:59.42 (-0.02 ) | iS | 04:39:08.25 (-0.20 ) |
| UTK | CRTN | 121.5 | 45 | iPu | :39:07.19 ( 0.22 ) | iS | :21.80 ( 0.33 ) |
| UTK | EGT | 145.1 | 68 | eP | :10.18 (-0.37 ) | eS | :27.02 (-0.62 ) |

## *****2004 APRIL 29; 09:41 – ATHENS, 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 | 040429 | 094108.6 | 34.189 | 83.348 | 0.0 | 12 | 190 | 249 | 0.8 | D | D/D | 2.8 | 288 | 1.1 | 3.4 | C | | 2.4 | | |
| WSRC | 040429 | 094111.1 | 34.141 | 83.288 | 2.3 | 17 | 169 | 315 | 0.1 | D | C/D | 2.7 | 360 | 2.7 | 3.3 | D | | 2.2 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| UTK | MYNC | 121.5 | 324 | eP | 09:41:37.21 ( 8.69X) | eS | 09:41:41.69 (-1.59X) |
| UTK | EGT | 190.0 | 1 | eP | :38.86 (-0.54 ) | eS | :42:02.81 ( 0.77 ) |
| UTK | ORT | 209.9 | 336 | eP | :43.00 ( 0.49 ) | eS | :07.43 ( 0.02 ) |
| UTK | CRTN | 227.6 | 349 | eP- | :44.34 (-0.96 ) | eS | :11.57 (-0.57 ) |
| UTK | SHAL | 300.7 | 276 | eP | :54.57 (-0.24 ) | eS | :26.84 (-1.63 ) |
| UTK | LRAL | 362.1 | 250 | eP | :42:04.39 ( 2.04 ) | eS | :41.42 (-0.10 ) |
| UTK | BLA | 427.3 | 37 | iP- | :23.09 (12.64X) | eS | :43:05.64 (10.11X) |
| UTK | PLAL | 442.6 | 283 | eP | :11.32 (-0.96 ) | eS | :58.52 (-0.17 ) |
| WSRC | TAL | 169.1 | 120 | | 09:41:38.04 ( 0.03 ) | S | 09:41:58.97 (-0.02 ) |
| WSRC | MBY | 172.3 | 127 | | :38.48 (-0.01 ) | | |
| WSRC | SRAV | 174.3 | 121 | | :38.78 ( 0.00 ) | S | :42:00.28 (-0.09 ) |
| WSRC | MR10 | 180.9 | 83 | | :39.12 (-0.10 ) | S | :01.73 ( 0.58 ) |
| WSRC | SRPN | 181.4 | 119 | | :39.76 (-0.08 ) | S | :02.38 ( 0.13 ) |
| WSRC | NPRS | 181.7 | 122 | | :40.37 ( 0.49 ) | S | :02.57 ( 0.24 ) |
| WSRC | SRPD | 182.5 | 126 | | :40.10 (-0.03 ) | | |
| WSRC | MR01 | 184.7 | 83 | | :39.71 ( 0.02 ) | S | :02.10 ( 0.12 ) |
| WSRC | JSC | 187.5 | 85 | | :40.13 ( 0.10 ) | S | :02.45 (-0.14 ) |
| WSRC | SRPW | 189.7 | 123 | | :41.17 (-0.03 ) | | |
| WSRC | DXN | 196.2 | 127 | | :42.27 ( 0.09 ) | S | :05.54 (-1.03 ) |

## *****2004 APRIL 30; 02:55 – 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 | 040430 | 025557.9 | 34.602 | 85.454 | 0.0 | 12 | 81 | 167 | 0.3 | D | C/D | 1.0 | 323 | 0.6 | 1.9 | B | | 2.4 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| UTK | SWET | 80.9 | 327 | iPu | 02:56:11.22 (-0.06 ) | eS | 02:56:21.14 (-0.04 ) |
| UTK | ORT | 178.8 | 35 | iP | :27.23 ( 0.30 ) | eS | :48.64 ( 0.38 ) |
| UTK | LRAL | 225.1 | 220 | eP | :34.34 ( 0.12 ) | eS | :57:00.97 ( 0.20 ) |
| UTK | CRTN | 230.0 | 39 | eP+ | :34.01 (-1.00 ) | eS | :02.29 ( 0.18 ) |
| UTK | EGT | 243.4 | 53 | eP | :37.18 ( 0.02 ) | eS | :06.20 ( 0.48 ) |
| UTK | PLAL | 243.6 | 281 | eP | :37.22 ( 0.14 ) | iS | :05.72 ( 0.14 ) |

## *****2004 APRIL 30; 13:26 – CLINCHPORT, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040430 | 132610.6 | 36.679 | 82.748 | 3.5 | 10 | 76 | 335 | 0.2 | D | D/D | 99.0 | 25 | 20.1 | 99.0 | D | | 2.1 | | |
| UTK | 040429 | 132616.0 | 36.568 | 83.114 | 12.8 | 7 | 76 | 312 | 0.1 | C | B/D | 1.0 | 41 | 0.6 | 2.4 | B | | 2.2 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| CERI | ASTN | 76.0 | 239 | eP | 13:26:23.13 ( 0.02 ) | | |
| CERI | CPRT | 117.0 | 241 | eP | :29.67 (-0.07 ) | eS | 13:26:45.09 ( 1.18 ) |
| CERI | GTTN | 126.8 | 221 | eP | :31.69 ( 0.43 ) | | |
| CERI | GRBT | 171.5 | 230 | eP | :38.22 (-0.07 ) | eS | :58.45 (-0.18 ) |
| CERI | BCRT | 193.1 | 239 | eP | :41.44 (-0.22 ) | | |
| CERI | CPCT | 210.1 | 230 | eP | :44.17 (-0.12 ) | | |
| CERI | ETT | 215.0 | 226 | eP | :45.12 ( 0.05 ) | | |
| CERI | BHT | 216.8 | 246 | eP | :45.70 ( 0.34 ) | | |
| CERI | DYTN | 248.9 | 239 | eP | :50.03 ( 0.23X) | | |
| CERI | GMG | 266.1 | 221 | eP | :52.28 ( 0.27X) | eS | :27:21.44 (-0.72X) |
| UTK | EGT | 75.8 | 193 | iP- | 13:26:28.30 (-0.09 ) | iS | 13:26:37.56 ( 0.03 ) |
| UTK | CRTN | 76.9 | 238 | iPd | :28.67 ( 0.13 ) | iS | :37.71 (-0.08 ) |
| UTK | MYNC | 189.4 | 209 | iPd | :46.06 (-0.16 ) | eS | :27:08.59 ( 0.38 ) |
| UTK | SWET | 295.3 | 240 | eP | :59.58 (-0.63 ) | eS | :34.88 ( 2.48X) |

## *****2004 MAY 01; 04:16 – 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 | 040501 | 041628.3 | 32.995 | 80.003 | 10.7 | 14 | 6 | 265 | 0.1 | C | B/D | 0.6 | 360 | 0.6 | 0.5 | | | 2.7 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| USC | CSU | 6.4 | 261 | iPd | 04:16:30.51 (-0.13 ) | iSn | 04:16:32.31 ( 0.04 ) |
| USC | TWB | 16.2 | 325 | iPu | :31.96 ( 0.10 ) | iSn | :33.98 ( 0.04 ) |
| USC | MGS | 16.9 | 230 | iPu | :32.13 (-0.02 ) | iSn | :35.43 ( 0.98 ) |
| USC | RGR | 20.4 | 242 | iPd | :32.64 (-0.02 ) | iSd | :35.95 ( 0.73 ) |
| USC | SVS | 23.1 | 263 | iPd | :33.10 ( 0.00 ) | iSn | :35.93 (-0.19 ) |
| USC | WAS | 30.1 | 237 | iPd | :34.22 (-0.06 ) | iSn | :38.59 ( 0.19 ) |
| USC | HBF | 31.3 | 260 | iPd | :34.29 (-0.02 ) | iSn | :38.05 ( 0.01 ) |

## *****2004 MAY 07; 22:43 – CATASKA, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040507 | 224324.8 | 35.240 | 84.297 | 8.4 | 17 | 17 | 177 | 0.1 | C | C/C | 2.0 | 330 | 1.5 | 2.8 | C | | 1.5 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| CERI | ETT | 17.3 | 304 | iPu | 22:43:27.96 | ( 0.00 ) | eS | 22:43:30.27 (-0.05 ) |
| CERI | CPCT | 31.0 | 319 | eP | :30.01 | (-0.02 ) | eS | :34.15 ( 0.23 ) |
| CERI | GRBT | 49.1 | 11 | eP | :32.78 | (-0.12 ) | eS | :38.80 (-0.12 ) |
| CERI | GMG | 53.9 | 219 | eP | :33.82 | ( 0.11 ) | eS | :40.45 ( 0.13 ) |
| CERI | BCRT | 63.6 | 337 | eP | :35.17 | (-0.06 ) | eS | :42.97 ( 0.00 ) |
| CERI | DYTN | 77.5 | 291 | eP | :37.46 | ( 0.01 ) | eS | :46.80 (-0.03 ) |
| CERI | GTTN | 85.5 | 42 | eP | :38.76 | ( 0.01 ) | eS | :49.30 ( 0.26 ) |
| CERI | BHT | 90.4 | 320 | eP | :39.47 | (-0.06 ) | | |
| CERI | CPRT | 108.5 | 20 | eP | :42.56 | ( 0.11 ) | | |
| CERI | ASTN | 141.7 | 31 | eP | :48.02 | ( 0.41 ) | | |

## *****2004 MAY 08; 11:25 – 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 | 040508 | 112521.7 | 32.923 | 80.175 | 5.8 | 12 | 2 | 108 | 0.0 | B | A/B | 0.3 | 360 | 0.3 | 0.6 | | | 1.9 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| USC | RGR | 2.4 | 226 | iPu | 11:25:23.20 ( 0.04 ) | iSd | 11:25:23.82 ( 0.37 ) |
| USC | MGS | 4.2 | 131 | iPd | :23.38 ( 0.01 ) | iSn | :23.91 (-0.02 ) |
| USC | SVS | 8.5 | 307 | iPd | :23.88 (-0.05 ) | iSn | :24.96 ( 0.02 ) |
| USC | CSU | 12.0 | 54 | iPd | :24.29 ( 0.00 ) | iSn | :26.24 ( 0.13 ) |
| USC | WAS | 12.3 | 227 | iPd | 24.69 ( 0.06 ) | iSn | :26.35 (-0.04 ) |
| USC | HBF | 15.0 | 281 | iPd | :24.89 (-0.02 ) | iSn | :26.71 ( 0.25 ) |

## *****2004 MAY 09; 05:46 – 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040509 | 054643.6 | 35.307 | 84.515 | 18.9 | 17 | 6 | 127 | 0.0 | B | B/B | 1.3 | 326 | 0.9 | 1.7 | B | | 1.9 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| CERI | ETT | 5.8 | 69 | iPu | 05:46:46.84 ( 0.01 ) | eS | 05:46:49.20 (-0.03 ) |
| CERI | CPCT | 15.9 | 358 | eP | :47.52 (-0.04 ) | eS | :50.34 (-0.16 ) |
| CERI | GRBT | 49.9 | 35 | eP | :52.07 (-0.05 ) | eS | :58.63 ( 0.23 ) |
| CERI | BCRT | 51.2 | 354 | eP | :52.49 ( 0.17 ) | | |
| CERI | GMG | 51.3 | 196 | eP | :52.29 (-0.09 ) | eS | :58.55 (-0.30 ) |
| CERI | DYTN | 56.3 | 291 | iPu | :53.10 ( 0.01 ) | | |
| CERI | BHT | 72.7 | 328 | iPu | :55.58 (-0.02 ) | eS | :47:04.49 ( 0.05 ) |
| CERI | RCGA | 84.4 | 244 | eP | :57.57 ( 0.20 ) | eS | 07.83 ( 0.33 ) |
| CERI | GTTN | 95.2 | 54 | eP | :59.13 ( 0.06 ) | | |
| CERI | CPRT | 110.4 | 31 | eP | :47:01.48 (-0.01 ) | | |
| CERI | ASTN | 147.1 | 39 | eP | :07.18 ( 0.12 ) | | |

## ****2004 MAY 09; 08:56 – ALABASTER, ALABAMA*****

NEIC Felt (III) at Bessemer and Helena.

| 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 | 040509 | 085609.9 | 33.271 | 86.899 | 0.0 | 11 | 28 | 148 | 0.7 | D | D/C | 0.8 | 291 | 0.6 | 1.5 | B | | 2.7 | | |
| NEIC | 040509 | 085610.4 | 33.231 | 86.960 | 5.0F | 12 | 22 | | 0.4 | | | 6.6 | 144 | 6.4 | | | | 3.3 | | 3 |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| UTK | LRAL | 27.8 | 199 | eP | 08:56:13.91 | (-0.59 ) | eS | 08:56:17.89 | (-0.02 ) |
| UTK | PLAL | 218.6 | 331 | iP | :44.97 | (-0.23 ) | eS | :57:11.82 | ( 0.75 ) |
| UTK | SWET | 233.4 | 22 | eP | :47.02 | (-0.53 ) | eS | :16.44 | ( 1.42 ) |
| UTK | OXF | 269.9 | 301 | eP | :51.67 | (-0.64 ) | eS | :25.05 | ( 1.88 ) |
| UTK | MYNC | 324.4 | 51 | iPd | :59.57 | ( 0.48 ) | eS | :35.85 | ( 0.96 ) |
| UTK | WCI | 550.2 | 5 | eP | :58:32.60 | ( 5.72X) | eS | :58:25.35 | ( 2.38 ) |
| | | | | | | | | | |
| NEIC | LRAL | 22.2 | 189 | P | 08:56:14.23 | (-0.1 ) | S | 08:56:17.64 | ( X) |
| NEIC | PLAL | 220.2 | 332 | P | :44.88 | ( 0.3 ) | S | :57:11.76 | ( X) |
| NEIC | SWET | 240.2 | 23 | Pn | :47.08 | ( 0.0 ) | S | :16.45 | ( X) |
| NEIC | OXF | 268.0 | 303 | Pn | :51.21 | ( 0.8 ) | | | |
| NEIC | WVT | 331.4 | 346 | Pn | :58.40 | ( 0.0 ) | S | :38.02 | ( X) |
| NEIC | CPCT | 332.5 | 42 | Pn | :58.73 | ( 0.2 ) | | | |
| NEIC | MET | 344.7 | 308 | | | | Sg | :46.08 | (-4.1X) |
| NEIC | HALT | 369.2 | 324 | Pn | :57:02.47 | (-0.5 ) | | | |
| NEIC | UTMT | 387.0 | 334 | Pn | :08.23 | ( 3.0X) | | | |
| NEIC | HBAR | 427.0 | 308 | Pn | :10.06 | (-0.1 ) | | | |
| NEIC | UALR | 526.0 | 291 | Pn | :22.51 | ( 0.1 ) | | | |
| | | | | Pg | :33.97 | ( X) | | | |
| NEIC | USIN | 529.3 | 353 | Pg | :34.18 | (-7.4X) | S | :58:37.83 | ( X) |
| NEIC | SIUC | 538.2 | 338 | Pn | :23.35 | (-0.5 ) | S | :37.29 | ( X) |
| NEIC | JSC | 540.4 | 76 | Pn | :24.25 | ( 0.0 ) | Sn | :14.62 | ( X) |
| NEIC | WCI | 558.2 | 6 | Pn | :29.34 | ( 3.0X) | | | |
| NEIC | FVM | 613.8 | 330 | Pn | :29.88 | (-3.4X) | | | |
| NEIC | MIAR | 628.3 | 285 | Pn | :34.94 | (-0.2 ) | Sn | :44.49 | ( X) |
| NEIC | CCM | 660.5 | 325 | Pn | :37.87 | (-1.2X) | | | |
| NEIC | WMOK | 1104.2 | 282 | Pn | :58:31.43 | (-2.4X) | | | |

## *****2004 MAY 25; 13:55 – 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040525 | 135507 | .6 | 35.900 | 83.614 | 19.4 | 16 | 11 | 191 | 0.2 | D | D/D | 3.5 | 307 | 3.0 | 3.6 | C | | 2.4 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | | PHASE | ARRIVAL TIME (RES) | |
|---|---|---|---|---|---|---|---|---|---|
| CERI | GTTN | 10.8 | 206 | eP | 13:55:11.84 | ( 0.52 ) | | | |
| CERI | ASTN | 49.0 | 15 | eP | :16.41 | ( 0.30 ) | | | |
| CERI | GRBT | 58.3 | 245 | iPd | :17.42 | (-0.04 ) | | | |
| CERI | BCRT | 88.2 | 261 | eP | :22.15 | ( 0.12 ) | eS | 13:55:33.15 | ( 0.54 ) |
| CERI | CPCT | 96.1 | 239 | eP | :23.10 | (-0.14 ) | eS | :35.51 | ( 0.80 ) |
| CERI | ETT | 99.3 | 230 | eP | :23.55 | (-0.21 ) | eS | :35.59 | ( 0.02 ) |
| CERI | MYNC | 102.8 | 207 | eP | :24.33 | ( 0.03 ) | | | |
| CERI | BHT | 119.8 | 268 | eP | :27.04 | ( 0.11 ) | eS | :42.27 | ( 1.27 ) |
| CERI | DYTN | 141.3 | 252 | eP | :30.11 | (-0.10 ) | eS | :48.45 | ( 1.80X) |
| CERI | GMG | 149.8 | 220 | eP | :31.47 | (-0.09 ) | eS | :49.80 | ( 0.84 ) |
| CERI | SWET | 223.4 | 251 | eP | :42.64 | ( 0.52 ) | | | |

## ****2004 MAY 26; 09:29 – ALABASTER, 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 | 040526 | 092950 | .4 | 33.272 | 86.894 | 0.9 | 10 | 28 | 149 | 0.5 | C | C/C | 1.4 | 282 | 0.7 | 2.6 | B | | 2.4 | | |
| NEIC | 040526 | 092950 | .6 | 33.243 | 86.885 | 5.0F | 826 | | | 0.8 | | | 12.1 | 121 | 8.6 | | | | 2.5 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| UTK | LRAL | 28.1 | 200 | iP+ | 09:29:54.89 | (-0.20 ) | eS | 09:29:58.57 | ( 0.05 ) |
| UTK | PLAL | 218.8 | 330 | iP- | :25.22 | (-0.50 ) | eS | :52.27 | ( 0.72 ) |
| UTK | SWET | 233.1 | 22 | eP | :28.02 | ( 0.02 ) | eS | :56.48 | ( 1.10 ) |
| UTK | OXF | 270.2 | 301 | eP | :33.45 | ( 0.65 ) | eS | :30:04.73 | ( 1.11 ) |
| UTK | MYNC | 324.0 | 51 | eP | :40.40 | ( 0.93 ) | eS | :17.83 | ( 2.66 ) |
| NEIC | LRAL | 25.6 | 205 | P | 09:29:54.92 | (-0.2 ) | | | |
| NEIC | PLAL | 222.4 | 331 | P | :30:24.37 | (-0.7 ) | S | 09:30:51.41 | ( X) |
| NEIC | SWET | 235.7 | 22 | Pn | :27.48 | ( 0.7 ) | | | |
| NEIC | OXF | 272.4 | 302 | Pn | :32.49 | ( 1.2 ) | | | |
| NEIC | CPCT | 326.9 | 41 | Pn | :37.48 | (-0.6 ) | | | |
| NEIC | MYNC | 325.8 | 51 | Pn | :38.25 | ( 0.4 ) | | | |
| NEIC | WVT | 331.4 | 345 | Pn | :38.53 | (-0.1 ) | | | |
| NEIC | CCM | 663.9 | 325 | Pn | :31:18.90 | (-0.8 ) | | | |
| NEIC | BLO | 658.3 | 3 | Pn | :19.98 | ( 1.0X) | | | |
| NEIC | MIAR | 634.9 | 285 | Lg | :32:43.23 | (87.1X) | | | |

******2004 MAY 28; 01:20 – ALABASTER, ALABAMA*******

NEIC Felt at Bessemer.

| 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 | 040528 | 012021.4 | 33.268 | 86.893 | 0.0 | 10 | 28 | 150 | 0.5 | C | C/C | 1.3 | 289 | 0.7 | 2.4 | B | | 2.5 | | |
| NEIC | 040528 | 012022.0 | 33.225 | 86.901 | 5.0F | 7 | 23 | | 0.4 | | | 12.0 | 120 | 7.9 | | | 2.6 | | | F |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | | PHASE | ARRIVAL TIME (RES) | |
|---|---|---|---|---|---|---|---|---|---|
| UTK | LRAL | 27.6 | 201 | eP | 01:20:25.89 | (-0.11 ) | eS | 01:20:28.96 | (-0.42 ) |
| UTK | PLAL | 219.2 | 330 | eP | :56.22 | (-0.61 ) | iS | :21:23.12 | ( 0.35 ) |
| UTK | SWET | 233.6 | 22 | eP | :58.52 | (-0.59 ) | eS | :27.26 | ( 0.67 ) |
| UTK | OXF | 270.5 | 301 | eP | :21:03.45 | (-0.47 ) | eS | :35.75 | ( 0.91 ) |
| UTK | MYNC | 324.2 | 51 | eP | :09.98 | (-0.61 ) | eS | :48.70 | ( 2.31 ) |
| UTK | WCI | 550.5 | 5 | eP | :51.24 | (12.79X) | eS | 22:39.19 | ( 4.61X) |
| NEIC | LRAL | 23.4 | 203 | P | 01:20:25.94 | (-0.1 ) | | | |
| NEIC | PLAL | 223.5 | 331 | P | :56.07 | (-0.5 ) | | | |
| NEIC | SWET | 238.0 | 22 | Pn | :58.42 | (-0.1 ) | | | |
| NEIC | OXF | 272.4 | 302 | Pn | :21:03.24 | ( 0.6 ) | | | |
| NEIC | MYNC | 328.0 | 51 | Pn | :09.52 | ( 0.0 ) | | | |
| NEIC | WVT | 333.6 | 346 | Pn | :09.99 | (-0.2 ) | | | |
| NEIC | CPCT | 330.3 | 41 | Pn | :10.07 | ( 0.3 ) | | | |
| NEIC | WCI | 558.2 | 6 | Pn | :37.63 | (-0.4X) | | | |
| NEIC | CCM | 665.0 | 325 | Pn | :49.88 | (-1.3X) | | | |

*******2004 JUNE 07; 08:06 – ALNWICK, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040607 | 080656.5 | 35.767 | 84.032 | 13.5 | 12 | 18 | 129 | 0.1 | C | C/B | 2.3 | 316 | 1.1 | 4.2 | C | | 1.5 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | | PHASE | ARRIVAL TIME (RES) | |
|---|---|---|---|---|---|---|---|---|---|
| CERI | GRBT | 18.1 | 235 | iPd | 08:07:14.00 | ( 0.00 ) | | | |
| CERI | GTTN | 33.4 | 81 | eP | :02.32 | (-0.02 ) | eS | 08:07:06.84 | ( 0.16 ) |
| CERI | CPRT | 45.3 | 18 | eP | :04.12 | (-0.09 ) | eS | :09.84 | (-0.10 ) |
| CERI | BCRT | 49.2 | 270 | eP | :04.72 | ( 0.01 ) | eS | :11.05 | ( 0.26 ) |
| CERI | CPCT | 56.6 | 232 | eP | :05.54 | (-0.32 ) | | | |
| CERI | ETT | 62.2 | 218 | eP | :06.54 | (-0.20 ) | eS | :14.38 | ( 0.08 ) |
| CERI | ASTN | 79.8 | 39 | eP | :09.97 | ( 0.46 ) | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| CERI | GMG | 115.9 | 210 | eP | :15.43 | ( 0.24 ) |

*******2004 JUNE 08; 21:37 – NOTCHY CREEK, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040608 | 213736.8 | 35.464 | 84.345 | 17.5 | 14 | 16 | 146 | 0.0 | C | B/C | 1.0 | 353 | 0.6 | 1.9 | B | 1.9 | | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| CERI | CPCT | 16.2 | 264 | eP | 21:37:40.64 ( 0.00 ) | eS | 21:37:43.54 ( 0.07 ) |
| CERI | ETT | 18.3 | 213 | eP | :40.95 ( 0.04 ) | | |
| CERI | GRBT | 26.9 | 30 | iPd | :41.94 (-0.01 ) | | |
| CERI | BCRT | 39.5 | 328 | iPu | :43.73 (-0.01 ) | | |
| CERI | DYTN | 67.9 | 273 | eP | :48.02 ( 0.00 ) | eS | :56.28 (-0.01 ) |
| CERI | BHT | 69.7 | 310 | eP | :48.18 (-0.13 ) | eS | :56.87 ( 0.08 ) |
| CERI | GTTN | 72.6 | 58 | iPu | :48.77 ( 0.00 ) | eS | :57.97 ( 0.41 ) |
| CERI | GMG | 73.0 | 204 | eP | :48.81 (-0.04 ) | eS | :57.41 (-0.30 ) |
| CERI | ASTN | 123.8 | 39 | eP | :56.85 ( 0.17 ) | | |

*******2004 JUNE 08; 21:59 – NOTCHY CREEK, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040608 | 215952.5 | 35.461 | 84.355 | 19.4 | 12 | 15 | 146 | 0.0 | C | C/C | 1.3 | 258 | 1.0 | 4.0 | C | 2.0 | | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| CERI | CPCT | 15.2 | 265 | eP | 21:59:56.40 (-0.03 ) | | |
| CERI | ETT | 17.5 | 211 | iPd | :56.71 ( 0.01 ) | | |
| CERI | GRBT | 27.6 | 31 | eP | :57.71 (-0.17 ) | | |
| CERI | BCRT | 39.3 | 329 | iPu | :59.48 ( 0.00 ) | | |
| CERI | DYTN | 67.0 | 273 | eP | 22:00:03.75 ( 0.14 ) | | |
| CERI | BHT | 69.3 | 310 | eP | :03.90 (-0.06 ) | eS | 22:00:12.58 ( 0.16 ) |
| CERI | GMG | 72.3 | 204 | eP | :04.43 (-0.02 ) | eS | :13.12 (-0.15 ) |
| CERI | GTTN | 73.5 | 58 | eP | :04.52 (-0.10 ) | eS | :13.71 ( 0.15 ) |
| CERI | ASTN | 124.6 | 39 | eP | :12.71 ( 0.23 ) | | |

*******2004 JUNE 11; 08:51 – SEYMOUR, TENNESSEE*******

UTK This earthquake was felt near Seymour.

| SRCE | DATE | HRMN SEC | LAT-N | LON-W | DPTH | PH | DMN | GAP | RMS | Q | SQD | ERH1 | AZ | ERH2 | ERZ | Q | MN | MD | MAGT | I |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040611 | 085140.6 | 35.885 | 83.735 | 2.8 | 13 | 10 | 117 | 0.1 | C | C/C | 3.2 | 263 | 1.3 | 8.4 | D | 2.0 | | | |
| UTK | 040611 | 085139.6 | 35.902 | 83.668 | 0.0 | 6 | 58 | 294 | 0.2 | D | C/D | 1.4 | 30 | 0.7 | 3.1 | C | 2.5 | | | F |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| CERI | GTTN | 10.2 | 143 | iPu | 08:51:42.34 ( 0.00 ) | | |
| CERI | CPRT | 32.8 | 337 | eP | :45.94 (-0.09 ) | | |
| CERI | GRBT | 47.9 | 241 | eP | :48.65 ( 0.17 ) | | |
| CERI | ASTN | 54.3 | 25 | eP | :49.67 ( 0.13 ) | | |
| CERI | BCRT | 77.2 | 260 | eP | :53.35 ( 0.07 ) | eS | 08:52:03.30 ( 0.60 ) |
| CERI | CPCT | 86.1 | 236 | eP | :54.68 (-0.02 ) | | |
| CERI | ETT | 90.0 | 227 | eP | :55.41 ( 0.06 ) | | |
| CERI | MYNC | 96.8 | 202 | eP | :56.37 (-0.07 ) | | |
| CERI | DYTN | 130.4 | 251 | iPd | :52:01.79 (-0.02 ) | | |
| CERI | GMG | 141.8 | 217 | eP | :04.03 ( 0.40 ) | eS | :20.68 ( 0.07 ) |
| CERI | RCGA | 177.9 | 236 | eP | :10.25 ( 0.95 ) | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| UTK | ORT | 57.5 | 271 | iPd | 08:51:49.25 | ( 0.11 ) | iS | 08:51:56.08 | (-0.09 ) |
| UTK | MYNC | 101.0 | 205 | iPd | :56.26 | (-0.03 ) | iS | :52:08.64 | ( 0.02 ) |
| UTK | SWET | 218.9 | 250 | iP | :52:14.70 | (-0.30 ) | eS | :41.54 | ( 0.61 ) |
| UTK | WCI | 350.6 | 318 | | | | eS | :53:13.99 | ( 3.86X) |

******2004 JUNE 21; 09:49 – FORT PAYNE, 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 | 040621 | 094919.0 | 34.471 | 85.647 | 6.1 | 10 | 87 | 155 | 0.3 | D | C/D | 0.8 | 335 | 0.5 | 3.4 | C | | 2.2 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | | PHASE | ARRIVAL TIME (RES) | |
|---|---|---|---|---|---|---|---|---|---|
| UTK | SWET | 86.7 | 343 | iP | 09:49:33.02 | (-0.14 ) | iS | 09:49:43.80 | ( 0.17 ) |
| UTK | MYNC | 154.3 | 64 | eP | :43.94 | ( 0.04 ) | iS | :50:02.04 | (-0.13 ) |
| UTK | ORT | 201.1 | 37 | eP | :52.03 | ( 0.77 ) | eS | :15.77 | ( 0.88 ) |
| UTK | LRAL | 202.5 | 219 | eP- | :51.27 | (-0.21 ) | iS | :15.64 | ( 0.39 ) |
| UTK | PLAL | 229.6 | 285 | eP | :55.72 | ( 0.02 ) | eS | :21.02 | (-1.36 ) |

*******2004 JUNE 26; 21:05 – LIBERTY HILL, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040626 | 210506.6 | 35.396 | 84.428 | 11.2 | 15 | 8 | 87 | 0.1 | B | B/A | 1.4 | 236 | 0.6 | 1.5 | B | | 2.0 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | | PHASE | ARRIVAL TIME (RES) | |
|---|---|---|---|---|---|---|---|---|---|
| CERI | ETT | 8.1 | 198 | iPd | 21:05:08.87 | (-0.01 ) | | | |
| CERI | CPCT | 10.4 | 305 | iPu | :09.07 | ( 0.00 ) | eS | 21:05:11.14 | ( 0.20 ) |
| CERI | GRBT | 37.3 | 34 | eP | :12.68 | (-0.21 ) | | | |
| CERI | BCRT | 43.2 | 342 | eP | :13.78 | (-0.02 ) | | | |
| CERI | MYNC | 45.0 | 142 | eP | :14.11 | ( 0.02 ) | | | |
| CERI | DYTN | 61.2 | 280 | eP | :16.65 | ( 0.01 ) | eS | :24.17 | ( 0.08 ) |
| CERI | GMG | 63.1 | 201 | eP | :16.74 | (-0.23 ) | eS | :24.29 | (-0.36 ) |
| CERI | BHT | 69.6 | 318 | eP | :17.86 | (-0.11 ) | eS | :26.56 | ( 0.19 ) |
| CERI | GTTN | 83.0 | 56 | eP | :19.92 | (-0.18 ) | | | |
| CERI | CPRT | 97.9 | 30 | eP | :22.27 | (-0.23 ) | | | |
| CERI | ASTN | 134.4 | 40 | eP | :28.84 | ( 0.64 ) | | | |

*******2004 JUNE 28; 22:44 – PARKS STORE, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040628 | 224418.2 | 35.044 | 84.961 | 10.3 | 18 | 33 | 88 | 0.1 | C | C/C | 1.6 | 20 | 0.7 | 17.5 | D | | 2.2 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | | PHASE | ARRIVAL TIME (RES) | |
|---|---|---|---|---|---|---|---|---|---|
| CERI | GMG | 33.3 | 127 | eP | 22:44:24.09 | ( 0.15 ) | eS | 22:44:28.48 | ( 0.30 ) |
| CERI | RCGA | 36.2 | 258 | iPd | :24.36 | ( 0.00 ) | | | |
| CERI | CMGA | 46.6 | 188 | eP | :26.20 | ( 0.22 ) | eS | :31.66 | (-0.06 ) |
| CERI | DYTN | 51.0 | 346 | iPu | :26.69 | ( 0.00 ) | | | |
| CERI | ETT | 55.7 | 56 | iPd | :27.39 | (-0.03 ) | eS | :34.38 | ( 0.16 ) |
| CERI | CPCT | 60.2 | 41 | eP | :28.15 | ( 0.03 ) | eS | :35.73 | ( 0.31 ) |
| CERI | MYNC | 76.0 | 87 | eP | :30.71 | ( 0.08 ) | | | |
| CERI | BCRT | 87.4 | 23 | eP | :32.58 | ( 0.17 ) | eS | 43.23 | ( 0.38 ) |
| CERI | GRBT | 98.5 | 45 | eP | :33.83 | (-0.34 ) | | | |
| CERI | GTTN | 145.2 | 54 | eP | :41.54 | (-0.01) | | | |
| CERI | CPRT | 157.5 | 38 | eP | :43.85 | ( 0.29 ) | es | :45:02.50 | ( 0.38 ) |
| CERI | ASTN | 195.8 | 43 | eP | :50.11 | ( 0.69 ) | | | |

******2004 JULY 04; 04:23 – ALABASTER, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| 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 | 040704 | 042315.8 | 33.269 | 86.873 | 0.2 | 10 | 29 | 153 | 1.0 | D | D/C | 1.3 | 288 | 0.6 | 2.0 | B | | 2.6 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| UTK | LRAL | 28.5 | 204 | iPd | 04:23:20.16 (-0.33 ) | eS | 04:23:24.76 ( 0.78 ) |
| UTK | PLAL | 220.0 | 330 | eP | :50.17 (-1.12 ) | eS | :24:17.52 ( 0.23 ) |
| UTK | SWET | 232.7 | 22 | eP | :53.00 (-0.31 ) | eS | 22.84 ( 2.15 ) |
| UTK | OXF | 272.1 | 301 | eP | :58.43 (-0.00 ) | eS | :31.98 ( 2.50 ) |
| UTK | MYNC | 322.7 | 51 | eP | :24:06.21 ( 1.49 ) | eS | :44.29 ( 3.93 ) |

## *****2004 JULY 20; 09:13 – 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 | 040720 | 091314.4 | 32.972 | 80.248 | 10.3 | 20 | 0 | 68 | 0.1 | A | A/A | 0.4 | 360 | 0.4 | 0.4 | | | 3.1 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| USC | SVS | 0.4 | 178 | iPu | 09:13:16.64 ( 0.02 ) | iSn | 09:13:17.44 (-0.13 ) |
| USC | HBF | 8.3 | 251 | iPd | :17.16 ( 0.06 ) | iSn | :18.60 ( 0.42 ) |
| USC | RGR | 8.8 | 145 | iPu | :17.15 (-0.03 ) | iSd | :18.58 ( 0.13 ) |
| USC | WAS | 14.0 | 189 | iPu | :17.94 (-0.05 ) | iSn | :19.97 (-0.23 ) |
| USC | NHSC | 16.3 | 24 | iPu | :18.17 ( 0.14 ) | iSn | :20.59 (-0.64 ) |
| USC | CSB | 16.7 | 85 | iPu | :18.05 (-0.01 ) | iSn | :20.03 (-0.62 ) |
| USC | CSU | 16.7 | 85 | iPu | :18.10 ( 0.02 ) | iSn | :20.08 (-0.62 ) |
| USC | DRC | 19.9 | 319 | iPu | :18.93 (-0.06 ) | iSn | :21.66 (-0.29 ) |
| USC | TRSC | 22.9 | 119 | iPu | :19.04 ( 0.01 ) | iSn | :21.87 (-1.17 ) |
| USC | ADSC | 28.0 | 129 | iPd | :19.79 (-0.02 ) | iSn | :23.83 (-0.61 ) |

## *****2004 AUGUST 13; 04:11 – 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 | 040813 | 041105.1 | 32.982 | 80.276 | 7.0 | 12 | 3 | 174 | 0.1 | B | A/C | 0.4 | 360 | 0.4 | 0.5 | | | 2.2 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| USC | SVS | 3.0 | 121 | iPd | 04:11:06.90 ( 0.05 ) | iSn | 04:11:07.39 (-0.07 ) |
| USC | HBF | 6.6 | 234 | iPd | :07.00 (-0.15 ) | iSn | :07.85 ( 0.09 ) |
| USC | RGR | 11.3 | 137 | iPu | :07.91 ( 0.07 ) | iSu | :09.21 ( 0.06 ) |
| USC | MGS | 15.7 | 127 | iPd | :08.55 (-0.03 ) | iSn | :10.33 (-0.24 ) |
| USC | CSU | 19.2 | 89 | iPd | :08.84 (-0.11 ) | iSn | :11.42 (-0.34 ) |
| USC | TWB | 21.8 | 48 | iPu | :09.50 ( 0.11 ) | iSn | :12.29 ( 0.27 ) |

## *****2004 AUGUST 18; 03:43 – 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 | 040818 | 034342.4 | 33.023 | 80.171 | 7.7 | 13 | 9 | 151 | 0.1 | B | A/C | 0.3 | 360 | 0.3 | 0.8 | | | 2.5 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| USC | SVS | 9.4 | 230 | iPd | 03:43:44.90 (-0.02 ) | iSn | 03:43:46.14 (-0.04 ) |
| USC | CSU | 10.2 | 113 | iPu | :44.84 (-0.01 ) | iSn | :46.51 (-0.07 ) |
| USC | TWB | 12.1 | 32 | iPd | :45.18 ( 0.06 ) | iSn | :46.53 ( 0.00 ) |
| USC | RGR | 12.9 | 190 | iPd | :45.42 ( 0.00 ) | iSd | :47.04 ( 0.10 ) |
| USC | MGS | 14.1 | 168 | iPd | :45.66 ( 0.03 ) | iSn | :47.47 ( 0.02 ) |
| USC | HBF | 17.2 | 241 | iPd | :46.82 ( 0.75X) | iSn | :48.24 ( 0.27 ) |
| USC | WAS | 21.6 | 206 | iPd | :46.87 (-0.08 ) | iSn | :49.90 (-0.07 ) |

## *****2004 AUGUST 19; 10:37 – CHEROKEE HEIGHTS, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040819 | 103740 | 2 | 35.703 | 83.992 | 12.6 | 12 | 19 | 146 | 0.1 | D | D/C | 2.6 | 340 | 1.3 | 3.6 | C | | 1.6 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME | (RES) | PHASE | ARRIVAL TIME | (RES) |
|---|---|---|---|---|---|---|---|---|---|
| CERI | GRBT | 18.8 | 260 | iPd | 10:37:43.89 | ( 0.00 ) | | | |
| CERI | GTTN | 31.8 | 67 | eP | :45.69 | (-0.10 ) | eS | 10:37:50.02 | ( 0.10 ) |
| CERI | CPRT | 51.4 | 11 | eP | :48.71 | (-0.13 ) | | | |
| CERI | BCRT | 53.3 | 278 | eP | :49.01 | (-0.04 ) | eS | :55.66 | ( 0.07 ) |
| CERI | CPCT | 55.6 | 240 | eP | :49.23 | (-0.17 ) | | | |
| CERI | ETT | 59.3 | 225 | eP | :49.96 | (-0.02 ) | eS | :57.56 | ( 0.35 ) |
| CERI | ASTN | 83.4 | 34 | eP | :54.31 | ( 0.51 ) | | | |
| CERI | DYTN | 102.5 | 257 | eP | :56.66 | (-0.12 ) | | | |
| CERI | GMG | 111.8 | 214 | eP | :58.59 | ( 0.31 ) | | | |

*******2004 AUGUST 19; 23:51 - ALABAMA*******

NEIC Felt (III) at Bessemer, Helena, McCalla and Montevallo; (II) at Alabaster. Felt in Jefferson and Shelby Counties. MW = 3.6 SLM;NEIC. MN = 3.5 NEIC.

| SRCE | DATE | HRMN | SEC | LAT-N | LON-W | DPTH | PH | DMN | GAP | RMS | Q | SQD | ERH1 | AZ | ERH2 | ERZ | Q | MN | MD | MAGT | I |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NEIC | 040819 | 235149 | 4 | 33.203 | 86.968 | 5.0F | 16 | 19 | | 1.0 | | | 9.1 | 214 | 7.3 | | | 3.5 | | | 3 |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME | (RES) |
|---|---|---|---|---|---|---|
| NEIC | LRAL | 18.9 | 189 | P | 23:51:53.46 | ( 0.7 ) |
| NEIC | PLAL | 223.4 | 333 | Pn | :52:23.95 | ( 0.1 ) |
| NEIC | OXF | 268.0 | 303 | Pn | :30.12 | ( 0.6 ) |
| NEIC | CPCT | 335.8 | 41 | Pn | :37.58 | (-0.3 ) |
| NEIC | MET | 346.9 | 309 | Pn | :38.14 | (-1.1 ) |
| NEIC | HALT | 371.4 | 325 | Pn | :41.10 | (-1.1 ) |
| NEIC | UTMT | 389.2 | 334 | Pn | :45.56 | ( 1.1 ) |
| NEIC | GLAT | 401.4 | 329 | Pn | :46.00 | ( 0.0 ) |
| NEIC | HBAR | 428.1 | 309 | Pn | :48.33 | (-0.9 ) |
| NEIC | GNAR | 414.8 | 318 | Pn | :49.07 | ( 1.4 ) |
| NEIC | UALR | 526.0 | 291 | Pn | :53:00.64 | (-0.8 ) |
| NEIC | JSC | 542.7 | 76 | Pn | :01.73 | (-1.7 ) |
| NEIC | USIN | 532.6 | 353 | Pn | :03.24 | ( 1.1 ) |
| NEIC | WCI | 560.4 | 6 | Pn | :06.80 | ( 1.0 ) |
| NEIC | FVM | 616.0 | 330 | Pn | :11.88 | (-0.7 ) |
| NEIC | NHSC | 633.8 | 89 | Pn | :15.28 | ( 0.6 ) |
| NEIC | TWB | 640.5 | 89 | Pn | :17.17 | ( 1.7X) |
| NEIC | CCM | 662.7 | 326 | Pn | :17.22 | (-1.1X) |
| NEIC | BLO | 663.9 | 3 | Pn | :23.62 | ( 5.2X) |
| NEIC | ELN | 720.6 | 50 | Pn | :24.78 | (-0.7X) |
| NEIC | FWV | 740.6 | 47 | Pn | :27.39 | (-0.6X) |
| NEIC | DWPF | 773.9 | 135 | Pn | :30.33 | (-1.7X) |
| NEIC | KSU1 | 1085.3 | 310 | Pn | :54:09.12 | (-1.4X) |
| NEIC | WMOK | 1104.2 | 282 | Pn | :11.07 | (-1.7X) |

*******2004 AUGUST 20; 01:56 – 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 | 040820 | 015621 | 3 | 32.933 | 80.152 | 6.9 | 10 | 4 | 119 | 0.0 | B | A/B | 0.3 | 360 | 0.3 | 0.7 | | | 1.9 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME | (RES) | PHASE | ARRIVAL TIME | (RES) |
|---|---|---|---|---|---|---|---|---|---|
| USC | MGS | 4.1 | 166 | iPd | 01:56:23.18 | ( 0.00 ) | iSn | 01:56:23.85 | ( 0.00 ) |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| USC | RGR | 4.9 | 234 | iPd | :23.28 | ( 0.06 ) | iSd | :23.97 | ( 0.14 ) |
| USC | CSU | 9.6 | 52 | iPu | :23.70 | ( 0.05 ) | iSn | :25.21 | (-0.05 ) |
| USC | SVS | 9.8 | 293 | iPu | :23.87 | (-0.02 ) | iSn | :25.15 | ( 0.01 ) |
| USC | WAS | 14.7 | 230 | iPd | :24.76 | ( 0.00 ) | iSn | :26.82 | (-0.05 ) |

*******2004 AUGUST 28; 05:06 - ALABAMA*******

NEIC Felt at Alabaster, Bessemer and Helena.

| SRCE | DATE | HRMN | SEC | LAT-N | LON-W | DPTH | PH | DMN | GAP | RMS | Q | SQD | ERH1 | AZ | ERH2 | ERZ | Q | MN | MD | MAGT | I |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NEIC | 040828 | 0506 | 43.7 | 33.221 | 86.924 | 5.0F | | 8 | | 0.5 | | | 13.3 | 94 | 8.1 | | | 2.8 | | | F |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| NEIC | LRAL | 22.2 | 199 | P | 05:06:47.38 (-0.1 ) | S | 05:06:52.21 ( X) |
| NEIC | PLAL | 222.4 | 332 | Pn | :07:18.02 (-0.1 ) | Sn | :07:44.70 ( X) |
| NEIC | OXF | 271.3 | 303 | Pn | :24.76 ( 0.6 ) | Sn | :56.91 ( X) |
| NEIC | WVT | 333.6 | 346 | Pn | :31.56 (-0.3 ) | | |
| NEIC | CPCT | 331.4 | 41 | Pn | :31.94 ( 0.3 ) | | |
| NEIC | HALT | 371.4 | 324 | Pn | :36.56 ( 0.0 ) | Sg | :08:28.88 ( X) |
| NEIC | GLAT | 401.4 | 328 | Pn | :39.54 (-0.7 ) | Sg | :38.63 ( X) |
| NEIC | GNAR | 415.9 | 318 | Pn | :42.43 ( 0.3 ) | Sg | :42.76 ( X) |
| | | | | Pg | :51.57 ( X) | | |
| NEIC | HBAR | 430.3 | 308 | Pn | :46.68 ( 2.9X) | S | :41.09 ( X) |
| NEIC | UTMT | 389.2 | 333 | Pg | :47.36 (-3.4X) | S | :30.59 ( X) |
| NEIC | UALR | 529.3 | 291 | Pn | :56.07 ( 0.0X) | Sg | :09:12.32 ( X) |
| | | | | Pg | :08:09.56 ( X) | | |
| NEIC | JSC | 538.2 | 76 | Pn | :07:56.38 (-0.7X) | Sg | :13.46 ( X) |
| NEIC | WCI | 558.2 | 6 | Pn | :08:01.01 ( 1.3X) | Sg | :20.86 ( X) |
| NEIC | FVM | 616.0 | 330 | Pn | :07.05 ( 0.2X) | Sg | :39.49 ( X) |
| NEIC | USIN | 530.4 | 353 | Pg | :07.48 (-7.6X) | Sg | :09.18 ( X) |
| NEIC | BLO | 661.6 | 3 | | | Sg | :46.65 (-8.0 ) |
| NEIC | PWV | 702.8 | 48 | | | Sg | :58.83 (-7.8 ) |
| NEIC | ELN | 716.1 | 50 | | | Sg | :10:05.19 (-5.3 ) |
| NEIC | FWV | 736.1 | 47 | | | Sg | :12.35 (-3.9 ) |
| NEIC | BLA | 739.5 | 51 | | | Sg | :14.96 (-2.1 ) |

******2004 AUGUST 28; 05:54 – COLUMBIANA, ALABAMA*******

UTK Event may be mining related.

| 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 | 040828 | 0554 | 11.1 | 33.180 | 86.626 | 13.8 | 6 | 38 | 279 | 0.3 | D | C/D | 5.3 | 343 | 1.6 | 5.2 | C | 2.5 | | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| UTK | LRAL | 38.3 | 245 | eP | 05:54:17.83 ( 0.13 ) | eS | 05:54:22.21 (-0.33 ) |
| UTK | PLAL | 240.6 | 327 | iP- | :48.41 (-0.07 ) | eS | :55:15.61 (-0.02 ) |
| UTK | OXF | 296.9 | 301 | eP- | :54.69 (-0.73 ) | eS | :28.24 ( 0.60 ) |
| UTK | WCI | 558.7 | 2 | eP | :55:19.36 (-8.34X) | eS | :45.06 (-38.4X) |

*******2004 SEPTEMBER 17; 15:21 – GRAY, KENTUCKY*******

NEIC Felt (V) at Gray; (IV) at Barbourville, Corbin, London and Rockholds; (III) at Manchester and Williamsburg.

UTC Felt in several southeastern Kentucky counties and also in Caliborne, Campbell and Knox Counties, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040917 | 152143.6 | 36.933 | 84.004 | 1.3 | 21 | 60 | 96 | 0.2 | D | C/D | 2.2 | 259 | 1.2 | 6.7 | D | | 4.3 | | |
| NEIC | 040917 | 152143.6 | 36.932 | 84.006 | | 22 | | | | | | | | | | | 3.7 | | | 5 |
| UTK | 040917 | 152145.0 | 36.997 | 83.900 | 27.4 | 10 | 139 | 119 | 0.6 | D | D/D | 1.2 | 350 | 0.8 | 2.5 | B | | 4.1 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| CERI | WMTN | 60.0 | 195 | eP | 15:21:54.02 ( 0.48 ) | | |
| CERI | ASTN | 82.2 | 145 | iPu | :57.25 ( 0.02 ) | | |
| CERI | CPRT | 86.8 | 173 | eP | :58.11 ( 0.08 ) | | |
| CERI | ROKY | 108.6 | 4 | eP | :22:01.37 (-0.07 ) | | |
| CERI | GTTN | 128.0 | 166 | eP | :04.57 (-0.01 ) | | |
| CERI | BHKY | 130.1 | 340 | eP | :05.94 ( 1.05 ) | | |
| CERI | BCRT | 139.3 | 202 | eP | :06.07 (-0.29 ) | | |
| CERI | GRBT | 140.7 | 187 | eP | :06.49 (-0.09 ) | | |
| CERI | FLKY | 167.2 | 8 | eP | :10.31 (-0.43 ) | | |
| CERI | CPCT | 171.0 | 196 | eP | :14.33 ( 2.98X) | | |
| CERI | PKKY | 182.3 | 28 | eP | :14.11 ( 0.98 ) | | |
| CERI | ETT | 182.9 | 193 | eP | :12.95 (-0.28 ) | | |
| CERI | SOKY | 186.1 | 291 | eP | :14.36 ( 0.65 ) | | |
| CERI | DYTN | 187.5 | 212 | eP | :13.77 (-0.19 ) | | |
| CERI | GMG | 237.4 | 195 | eP | :21.18 (-0.52 ) | | |
| CERI | WCI | 247.8 | 306 | eP | :23.30 ( 0.37 ) | | |
| CERI | RCGA | 248.7 | 210 | eP | :22.88 (-0.16 ) | | |
| CERI | SWET | 257.7 | 223 | eP | :24.51 ( 0.33 ) | | |
| CERI | SMKY | 295.6 | 282 | eP | :29.88 ( 1.03 ) | | |
| CERI | BLO | 332.6 | 319 | eP | :33.73 ( 0.23 ) | | |
| CERI | USIN | 342.6 | 291 | eP | :36.10 ( 1.36 ) | | |
| CERI | MCWV | 473.1 | 49 | eP | :50.58 (-0.48 ) | | |
| NEIC | CPCT | 171.2 | 196 | P | 15:22:13.84 ( 1.7 ) | S | 15:22:34.97 ( X) |
| NEIC | WCI | 248.0 | 306 | Pn | :23.01 ( 1.3 ) | | |
| NEIC | SWET | 258.0 | 223 | Pn | :24.13 ( 1.2 ) | | |
| NEIC | ELN | 291.3 | 83 | Pn | :26.28 (-0.8 ) | | |
| NEIC | FWV | 292.5 | 75 | Pn | :26.37 (-0.9 ) | | |
| NEIC | BLA | 320.3 | 83 | Pn | :29.07 (-1.6 ) | | |
| NEIC | BLO | 332.5 | 319 | Pn | :32.07 (-0.1 ) | | |
| NEIC | USIN | 343.6 | 291 | Pn | :34.17 ( 0.7 ) | | |
| NEIC | WVT | 353.6 | 257 | Pn | :35.98 ( 1.2 ) | | |
| NEIC | ACSO | 377.0 | 13 | Pn | :38.18 ( 0.5 ) | | |
| NEIC | UTMT | 439.2 | 263 | Pn | :48.26 ( 2.9 ) | | |
| NEIC | MCWV | 473.7 | 49 | Pn | :48.37 (-1.2 ) | | |
| NEIC | GLAT | 478.2 | 263 | Pn | :51.72 ( 1.6 ) | | |
| NEIC | HALT | 491.5 | 258 | Pn | :55.80 ( 4.0 ) | | |
| NEIC | LRAL | 511.5 | 213 | Pn | :53.87 (-0.4 ) | | |
| NEIC | PVMO | 512.6 | 265 | Pn | :55.83 ( 1.5 ) | | |
| NEIC | NHSC | 549.3 | 139 | Pn | :59.29 ( 0.3 ) | | |
| NEIC | OXF | 558.2 | 243 | Pn | :59.76 (-0.2 ) | | |
| NEIC | MET | 570.5 | 251 | Pn | :23:03.18 ( 1.6 ) | | |
| NEIC | FVM | 579.3 | 284 | Pn | :04.16 ( 1.4 ) | | |
| NEIC | SLM | 580.5 | 291 | Pn | 04.09 ( 1.3 ) | | |
| NEIC | HBAR | 617.2 | 258 | Lg | :34.22 (86.9 ) | | |
| NEIC | ALLY | 620.5 | 31 | Pn | :06.85 (-0.9 ) | | |
| NEIC | CCM | 651.6 | 283 | Pn | :12.32 ( 0.7 ) | | |
| NEIC | ERPA | 671.6 | 30 | Pn | :12.10 (-1.9 ) | | |
| NEIC | SSPA | 671.6 | 50 | Pn | :12.75 (-1.3 ) | | |
| NEIC | UALR | 789.5 | 255 | Pn | :28.87 ( 0.2 ) | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NEIC | GENY | 836.2 | 37 | Pn | :32.85 | (-1.5 ) | | | |
| NEIC | JFWS | 851.8 | 323 | Pn | :35.40 | (-0.9 ) | | | |
| NEIC | BINY | 902.9 | 47 | Lg | :53.69 | (131.0 ) | | | |
| NEIC | MIAR | 905.2 | 256 | Pn | :42.38 | (-0.4 ) | | | |
| NEIC | SADO | 961.9 | 24 | Pn | :47.25 | (-2.6 ) | Sn | :25:21.95 | ( X) |
| NEIC | CPNY | 970.8 | 61 | Lg | :10.10 | (139.2 ) | | | |
| NEIC | PAL | 984.1 | 60 | Lg | :26:09.02 | (136.4 ) | | | |
| NEIC | ACCN | 1134.2 | 48 | Pn | :24:08.91 | (-2.2 ) | | | |
| NEIC | PTN | 1138.7 | 39 | Pn | :10.51 | (-1.2 ) | | | |
| NEIC | NCB | 1138.7 | 44 | Pn | :11.20 | (-0.5 ) | | | |
| NEIC | QUA2 | 1162.0 | 56 | Lg | :53.91 | (159.4 ) | | | |
| NEIC | LOZ | 1165.4 | 40 | Lg | :27:01.88 | (166.9 ) | | | |
| NEIC | BRYW | 1206.5 | 59 | Lg | :05.95 | (165.9 ) | | | |
| NEIC | HRV | 1232.1 | 56 | Lg | :24.02 | (180.9 ) | | | |
| NEIC | HNH | 1246.5 | 49 | Lg | :23.53 | (178.6 ) | | | |
| NEIC | FFD | 1276.6 | 52 | Lg | :37.04 | (188.5 ) | | | |
| NEIC | KSU1 | 1332.0 | 286 | Pn | :09.65 | (-1.2 ) | | | |
| NEIC | ULM | 1759.2 | 331 | Pn | :22.35 | (-5.1 ) | Sn | :28:11.25 | ( X) |
| NEIC | TXAR | 2013.8 | 251 | P | :25:57.15 | ( 0.6 ) | | | |
| NEIC | PDAR | 2271.8 | 295 | P | :22.95 | ( 0.5 ) | | | |
| NEIC | NVAR | 3013.5 | 284 | P | :29.15 | ( 1.0 ) | | | |
| NEIC | ARCES | 6920.0 | 22 | P | :32:07.39 | ( 0.9 ) | | | |
| | | | | | | | | | |
| UTK | TLDM | 139.1 | 194 | eP | 15:22:06.73 | (-0.56 ) | eS | 15:22:22.30 | (-1.22 ) |
| UTK | CPCT | 180.5 | 198 | eP | :14.24 | ( 0.62 ) | eS | :34.97 | ( 0.56 ) |
| UTK | WCI | 255.6 | 303 | eP | :23.02 | ( 0.13 ) | | | |
| UTK | SWET | 269.2 | 223 | eP | :24.15 | (-0.47 ) | | | |
| UTK | ELN | 281.0 | 84 | eP | :26.28 | ( 0.20 ) | | | |
| UTK | FWV | 281.5 | 76 | eP | :26.37 | ( 0.22 ) | | | |
| UTK | BLA | 310.2 | 85 | eP | :29.07 | (-0.60 ) | | | |
| UTK | BLO | 333.5 | 317 | eP | :32.07 | (-0.44 ) | | | |

*******2004 SEPTEMBER 18; 14:02 – AMBURGEY, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040918 | 140241 | 3.3 | 37.281 | 82.969 | 0.0 | 10 | 110 | 204 | 0.3 | D | D/D | 9.4 | 269 | 3.0 | 11.0 | D | | 2.2 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| CERI | ROKY | 109.5 | 310 | eP | 14:03:00.29 ( 0.94 ) | | |
| CERI | ASTN | 115.1 | 203 | eP | :00.23 (-0.03 ) | | |
| CERI | PKKY | 122.5 | 357 | eP | :01.37 (-0.05 ) | | |
| CERI | WMTN | 144.6 | 228 | eP | :07.09 ( 2.11X) | | |
| CERI | BHKY | 159.3 | 302 | eP | :06.96 (-0.30 ) | | |
| CERI | GTTN | 174.5 | 201 | eP | :09.54 (-0.16 ) | | |
| CERI | GRBT | 209.5 | 212 | eP | :14.91 (-0.23X) | | |
| CERI | BCRT | 221.3 | 221 | eP | :17.04 ( 0.06 ) | | |
| CERI | BHT | 236.3 | 229 | eP | :19.33 (-0.03 ) | | |
| CERI | CPCT | 246.3 | 215 | eP | :23.97 (3.40X) | | |
| CERI | ETT | 254.6 | 212 | eP | :21.91 ( 0.27 ) | | |
| CERI | MYNC | 266.1 | 203 | eP | :23.55 ( 0.48 ) | | |
| CERI | DYTN | 275.1 | 224 | eP | :24.18 (-0.02 ) | | |

*******2004 SEPTEMBER 20; 23:26 – CEDAR GROVE, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040920 | 232618 | 7 | 34.690 | 85.419 | 10.0 | 15 | 32 | 145 | 0.2 | D | D/C | 4.7 | 306 | 3.5 | 7.7 | D | | 2.5 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME | (RES) | PHASE | ARRIVAL TIME | (RES) |
|---|---|---|---|---|---|---|---|---|---|
| CERI | RCGA | 32.4 | 11 | eP | 23:26:24.02 | (-0.24 ) | | | |
| CERI | GMG | 71.1 | 74 | eP | :30.41 | ( 0.02 ) | | | |
| CERI | DYTN | 93.7 | 18 | eP | :33.76 | (-0.18 ) | | | |
| CERI | ETT | 112.8 | 51 | eP | :37.09 | ( 0.15 ) | | | |
| CERI | BHT | 137.2 | 18 | eP | :40.57 | (-0.23 ) | eS | 23:26:57.01 | ( 0.01 ) |
| CERI | BCRT | 141.9 | 32 | eP | :41.70 | ( 0.18 ) | | | |
| CERI | GRBT | 155.9 | 45 | eP | :43.91 | ( 0.20 ) | | | |
| CERI | SHTN | 196.2 | 45 | eP | :49.79 | (-0.19 ) | | | |
| CERI | GTTN | 202.3 | 52 | eP | :51.08 | ( 0.12 ) | | | |
| CERI | WMTN | 221.7 | 30 | eP | :53.81 | (-0.08 ) | | | |
| CERI | LRAL | 234.6 | 219 | eP | :55.23 | (-0.21 ) | | | |
| CERI | PWLA | 244.1 | 278 | eP | :56.41 | (-0.22 ) | | | |
| CERI | ASTN | 253.1 | 44 | eP | :57.80 | (-0.01 ) | | | |
| CERI | WVT | 265.5 | 307 | eP | :59.84 | ( 0.55 ) | | | |

## *****2004 SEPTEMBER 23; 19:10 – PLUMMERS LANDING, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 040923 | 191011.0 | | 38.317 | 83.530 | 11.0 | 7 | 23 | 138 | 0.1 | D | D/C | 5.7 | 343 | 2.2 | 14.9 | D | | 2.0 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME | (RES) | PHASE | ARRIVAL TIME | (RES) |
|---|---|---|---|---|---|---|---|---|---|
| CERI | FLKY | 22.8 | 302 | eP | 19:10:15.05 | (-0.07 ) | eS | 19:10:18.35 | ( 0.18 ) |
| CERI | PKKY | 44.0 | 80 | eP | :18.40 | ( 0.02 ) | | | |
| CERI | ROKY | 57.1 | 218 | eP | :20.49 | ( 0.05 ) | | | |
| CERI | BHKY | 91.0 | 250 | eP | :25.47 | (-0.32 ) | | | |
| CERI | WMTN | 219.2 | 195 | eP | :45.79 | ( 0.01 ) | | | |
| CERI | ASTN | 220.9 | 179 | eP | :45.65 | (-0.33 ) | | | |

## *****2004 SEPTEMBER 24; 09:23 – 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 | 040924 | 092332.1 | | 34.891 | 84.995 | 15.0F | 6 | 82 | 147 | 0.2 | D | C/D | 1.7 | 4 | 0.3 | 33.3 | D | | 2.4 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME | (RES) | PHASE | ARRIVAL TIME | (RES) |
|---|---|---|---|---|---|---|---|---|---|
| UTK | MYNC | 81.7 | 75 | iPd | 09:23:45.38 | (-0.06 ) | iS | 09:23:55.35 | ( 0.09 ) |
| UTK | SWET | 92.8 | 293 | iPu | :46.94 | (-0.23 ) | iS | :58.42 | ( 0.16 ) |
| UTK | LRAL | 276.9 | 223 | eP | :24:13.73 | (-0.06 ) | eS | :24:45.53 | ( 1.41 ) |

## *****2004 OCTOBER 10; 06:38 – CEDAR VALLEY, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 041010 | 063822.4 | | 34.854 | 84.923 | 23.6 | 13 | 23 | 202 | 0.1 | D | C/D | 2.7 | 25 | 1.2 | 3.7 | C | | 1.7 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME | (RES) | PHASE | ARRIVAL TIME | (RES) |
|---|---|---|---|---|---|---|---|---|---|
| CERI | GMG | 23.1 | 88 | iPd | 06:38:27.79 | ( 0.01 ) | | | |
| CERI | RCGA | 41.2 | 289 | eP | :29.97 | ( 0.00 ) | eS | 06:38:35.61 | ( 0.08 ) |
| CERI | ETT | 67.5 | 39 | eP | :33.46 | (-0.32 ) | eS | :42.16 | ( 0.06 ) |
| CERI | DYTN | 72.4 | 348 | eP | :34.31 | (-0.19 ) | eS | :43.30 | (-0.04 ) |
| CERI | BCRT | 106.0 | 17 | eP | :39.66 | ( 0.09 ) | eS | :52.09 | ( 0.00 ) |
| CERI | GRBT | 112.4 | 36 | eP | :39.91 | (-0.64 ) | | | |
| CERI | GTTN | 156.0 | 47 | eP | :46.79 | (-0.46 ) | | | |
| CERI | WMTN | 185.4 | 21 | | | | eS | :39:13.96 | ( 0.83 ) |
| CERI | ASTN | 209.5 | 38 | eP | :54.99 | ( 0.21 ) | | | |

## *****2004 OCTOBER 12; 10:27 – MECHANICSVILLE, 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 | 041012 | 102745.8 | 34.342 | 79.749 | 2.0 | 12 | 137 | 284 | 1.7 | D | D/D | 2.0 | 360 | 2.0 | 1.5 | | | 2.1 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | | PHASE | ARRIVAL TIME (RES) | |
|---|---|---|---|---|---|---|---|---|---|
| USC | MR02 | 137.4 | 264 | iPu | 10:28:06.34 | (-1.33 ) | iSn | 10:28:14.94 | (-9.78 ) |
| USC | JSC | 139.3 | 268 | iPd | :07.69 | (-0.28 ) | iSu | :17.48 | (-7.77 ) |
| USC | MR01 | 142.3 | 270 | iPd | :08.65 | ( 0.19 ) | iSn | :19.84 | (-6.28 ) |
| USC | MR10 | 146.2 | 270 | iPu | :09.60 | ( 0.53 ) | iSn | :20.62 | (-6.58 ) |
| DRC | DRC | 149.1 | 204 | iPu | :10.73 | ( 0.78 ) | iSn | :19.31 | (-8.46 ) |
| USC | RGR | 164.3 | 195 | iPu | :13.84 | ( 1.79 ) | iSn | :28.32 | (-2.95 ) |

## *****2004 OCTOBER 19; 06:57 – STONE, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 041019 | 065713.1 | 37.728 | 84.568 | 26.5 | 10 | 35 | 109 | 0.2 | C | D/B | 4.6 | 264 | 3.2 | 5.3 | C | | 2.1 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | | PHASE | ARRIVAL TIME (RES) | |
|---|---|---|---|---|---|---|---|---|---|
| CERI | BHKY | 34.5 | 9 | eP | 06:57:20.13 | ( 0.07 ) | | | |
| CERI | ROKY | 60.0 | 70 | eP | :23.47 | (-0.07 ) | | | |
| CERI | FLKY | 105.5 | 43 | eP | :30.55 | ( 0.27 ) | | | |
| CERI | SOKY | 125.4 | 260 | eP | :32.74 | (-0.55 ) | | | |
| CERI | WMTN | 150.3 | 166 | eP | :36.87 | (-0.29 ) | eS | 06:57:54.90 | ( 0.28 ) |
| CERI | ASTN | 183.4 | 148 | eP | :42.37 | ( 0.37 ) | | | |
| CERI | BCRT | 217.7 | 180 | eP | :46.00 | (-0.26 ) | | | |
| CERI | GRBT | 230.3 | 172 | eP | :47.88 | ( 0.06 ) | | | |
| CERI | DYTN | 252.6 | 191 | eP | :51.40 | ( 0.77 ) | | | |

## *****2004 NOVEMBER 07; 11:20 – UNION, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 041107 | 112025.7 | 32.976 | 87.913 | 11.4 | 15 | 86 | 236 | 0.2 | D | D/D | 16.4 | 7 | 2.4 | 12.8 | D | | 4.6 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | | PHASE | ARRIVAL TIME (RES) | |
|---|---|---|---|---|---|---|---|---|---|
| CERI | LRAL | 85.8 | 85 | eP | 11:20:39.69 | ( 0.02 ) | | | |
| CERI | OXF | 219.6 | 321 | eP | :37.00 | (-0.06 ) | | | |
| CERI | PWLA | 222.7 | 356 | eP | :21:01.33 | ( 0.50 ) | | | |
| CERI | EBZ | 222.7 | 356 | eP | :07.61 | ( 0.33 ) | | | |
| CERI | COLT | 281.7 | 325 | eP | :08.34 | ( 0.15 ) | | | |
| CERI | SWET | 308.5 | 36 | eP | :11.58 | (-0.01 ) | | | |
| CERI | CMGA | 323.5 | 55 | eP | :13.20 | (-0.26 ) | | | |
| CERI | RCGA | 324.6 | 46 | eP | :13.46 | (-0.14 ) | | | |
| CERI | SFTN | 327.9 | 324 | eP | :13.75 | (-0.20 ) | | | |
| CERI | SFTN | | | eP | :13.71 | (-0.24 ) | | | |
| CERI | HALT | 350.9 | 338 | eP | :16.78 | (-0.06 ) | | | |
| CERI | GMG | 365.6 | 54 | eP | :18.82 | ( 0.03 ) | | | |
| CERI | DYTN | 381.2 | 42 | eP | :20.77 | ( 0.08 ) | | | |
| CERI | ETT | 411.8 | 50 | eP | :24.24 | (-0.27 ) | | | |
| CERI | FMKY | 419.1 | 348 | eP | :24.74 | (-0.63 ) | | | |

## *****2004 NOVEMBER 11; 03:28 – HYTOP, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 041111 | 032805.5 | 34.935 | 86.108 | 8.7 | 9 | 35 | 163 | 0.1 | D | D/C | 4.5 | 330 | 2.8 | 8.2 | D | | 2.0 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME | (RES) | PHASE | ARRIVAL TIME | (RES) |
|---|---|---|---|---|---|---|---|---|---|
| CERI | SWET | 35.1 | 27 | iPd | 03:28:11.39 | (-0.01 ) | eS | 03:28:15.92 | ( 0.12 ) |
| CERI | RCGA | 69.5 | 86 | eP | :16.73 | (-0.14 ) | | | |
| CERI | CMGA | 104.0 | 109 | eP | :22.23 | (-0.11 ) | | | |
| CERI | DYTN | 111.2 | 56 | eP | :23.40 | (-0.08 ) | eS | :36.54 | (-0.16 ) |
| CERI | BCRT | 167.0 | 56 | eP | :32.26 | ( 0.01 ) | | | |
| CERI | PWLA | 178.8 | 272 | eP | :34.26 | ( 0.19 ) | | | |
| CERI | GRBT | 192.2 | 64 | eP | :37.14 | ( 0.98 ) | | | |

*******2004 NOVEMBER 13; 19:19 – RAINBOW CITY, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 041113 | 1919 | 18.8 | 33.957 | 86.001 | 5.0F | 15 | 116 | 172 | 0.2 | D | D/D | 3.9 | 318 | 1.5 | 6.9 | D | | 2.5 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME | (RES) | PHASE | ARRIVAL TIME | (RES) |
|---|---|---|---|---|---|---|---|---|---|
| CERI | CMGA | 116.1 | 50 | eP | 19:19:37.52 | (-0.14 ) | eS | 19:19:51.46 | (-0.12 ) |
| CERI | RCGA | 128.0 | 28 | eP | :39.33 | (-0.22 ) | | | |
| CERI | LRAL | 138.0 | 222 | eP | :41.05 | (-0.06 ) | | | |
| CERI | SWET | 139.8 | 3 | eP | :41.26 | (-0.16 ) | | | |
| CERI | GMG | 158.3 | 50 | eP | :44.09 | (-0.27 ) | eS | :20:02.79 | (-0.36 ) |
| CERI | DYTN | 189.5 | 26 | eP | :48.99 | (-0.22 ) | | | |
| CERI | ETT | 207.7 | 43 | eP | :52.24 | ( 0.18 ) | eS | :16.66 | ( 0.28 ) |
| CERI | CPCT | 214.0 | 39 | eP | :53.22 | ( 0.21 ) | | | |
| CERI | PWLA | 220.9 | 301 | eP | :54.01 | (-0.07 ) | | | |
| CERI | BHT | 232.6 | 24 | eP | :55.80 | (-0.02 ) | | | |
| CERI | BCRT | 239.3 | 33 | eP | :56.63 | ( 0.02 ) | | | |
| CERI | GRBT | 252.1 | 40 | eP | :58.63 | ( 0.42 ) | | | |

*******2004 NOVEMBER 17; 05:00 – HAMMER STONE, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 041117 | 0500 | 39.9 | 36.262 | 83.520 | 11.1 | 12 | 8 | 166 | 0.1 | D | D/C | 8.4 | 248 | 2.6 | 15.1 | D | | 2.0 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME | (RES) | PHASE | ARRIVAL TIME | (RES) |
|---|---|---|---|---|---|---|---|---|---|
| CERI | ASTN | 8.3 | 29 | iPd | 05:00:42.28 | ( 0.00 ) | | | |
| CERI | CPRT | 34.4 | 250 | eP | :45.86 | (-0.07 ) | | | |
| CERI | GTTN | 51.6 | 195 | eP | :48.56 | ( 0.04 ) | eS | 05:00:55.35 | ( 0.48 ) |
| CERI | WMTN | 61.1 | 286 | eP | :50.19 | ( 0.18 ) | | | |
| CERI | GRBT | 89.3 | 223 | eP | :54.31 | (-0.13 ) | | | |
| CERI | BCRT | 110.0 | 240 | eP | :57.66 | (-0.04 ) | | | |
| CERI | CPCT | 127.7 | 225 | eP | :01:00.26 | (-0.22 ) | | | |
| CERI | ETT | 133.9 | 219 | eP | :01.14 | (-0.33 ) | | | |
| CERI | BHT | 135.3 | 251 | eP | :01.75 | ( 0.04 ) | | | |
| CERI | DYTN | 165.7 | 239 | eP | :06.10 | (-0.34 ) | | | |
| CERI | GMG | 187.0 | 214 | eP | :09.56 | (-0.21 ) | | | |

*******2004 NOVEMBER 17; 05:09 – SYCAMORE SPRING, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 041117 | 0509 | 15.4 | 36.249 | 83.527 | 9.6 | 18 | 10 | 167 | 0.1 | D | D/C | 3.4 | 286 | 1.9 | 4.2 | C | | 2.5 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME | (RES) | PHASE | ARRIVAL TIME | (RES) |
|---|---|---|---|---|---|---|---|---|---|
| CERI | ASTN | 9.8 | 28 | iPd | 05:09:17.76 | ( 0.00 ) | | | |
| CERI | CPRT | 33.4 | 252 | eP | :21.22 | ( 0.00 ) | | | |
| CERI | GTTN | 50.1 | 195 | eP | :24.00 | ( 0.23 ) | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| CERI | WMTN | 61.0 | 287 | eP | :25.55 | ( 0.04 ) | |
| CERI | GRBT | 87.9 | 224 | eP | :29.67 | (-0.05 ) | eS 05:09:41.04 ( 0.81 ) |
| CERI | BCRT | 108.7 | 241 | eP | :33.16 | ( 0.14 ) | |
| CERI | CPCT | 126.2 | 226 | eP | :35.64 | (-0.13 ) | |
| CERI | ETT | 132.4 | 220 | eP | :36.39 | (-0.37 ) | |
| CERI | BHT | 134.3 | 252 | eP | :37.12 | ( 0.05 ) | |
| CERI | DYTN | 164.5 | 240 | eP | :41.58 | (-0.22 ) | |
| CERI | GMG | 185.5 | 214 | eP | :44.82 | (-0.27 ) | |
| CERI | ROKY | 187.6 | 349 | eP | :45.48 | ( 0.09 ) | |
| CERI | RCGA | 217.2 | 230 | eP | :49.87 | (-0.09 ) | |
| CERI | CMGA | 225.9 | 218 | eP | :50.46 | (-0.68 ) | |
| CERI | PKKY | 240.9 | 10 | eP | :52.66 | (-0.33 ) | |
| CERI | SWET | 245.9 | 243 | eP | :54.27 | ( 0.62 ) | |
| CERI | SOKY | 259.5 | 304 | eP | :55.79 | ( 0.48 ) | |

## *****2004 NOVEMBER 25; 22:58 – 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 | 041125 | 225845.9 | 33.053 | 80.190 | 12.9 | 12 | 11 | 122 | 0.1 | B | B/B | 0.5 | 360 | 0.5 | 1.2 | | | 2.7 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| USC | TWB | 10.6 | 50 | iPd | 22:58:48.92 (-0.03 ) | iSn | 22:58:50.60 ( 0.01 ) |
| USC | SVS | 10.9 | 210 | iPu | :49.06 (-0.12 ) | iSn | :51.46 ( 0.47 ) |
| USC | CSU | 13.4 | 124 | iPu | :49.30 ( 0.04 ) | iSn | :51.52 (-0.17 ) |
| USC | RGR | 16.2 | 181 | iPd | :49.80 ( 0.00 ) | iSd | :51.99 ( 0.01 ) |
| USC | HBF | 17.8 | 229 | iPu | :50.02 ( 0.05 ) | iSn | :52.32 ( 0.13 ) |
| USC | DRC | 19.5 | 288 | iPd | :50.53 ( 0.02 ) | iSn | :53.28 (-0.22 ) |

## *****2004 NOVEMBER 30; 23:59 – BAILEY'S SWITCH, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 041130 | 235934.2 | 36.936 | 83.893 | 10.0 | 8 | 64 | 152 | 0.0 | D | C/D | 1.5 | 358 | 1.0 | 33.3 | D | | 3.0 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| CERI | WMTN | 63.6 | 203 | iPd | 23:59:44.67 ( 0.03 ) | | |
| CERI | ASTN | 77.2 | 151 | iPu | :46.79 ( 0.00 ) | | |
| CERI | CPRT | 86.5 | 179 | eP | :48.29 (-0.03 ) | | |
| CERI | ROKY | 108.0 | 358 | eP | :51.73 ( 0.10 ) | | |
| CERI | GTTN | 126.4 | 171 | eP | :54.60 ( 0.05 ) | | |
| CERI | BHKY | 133.4 | 336 | eP | :55.25 (-0.38 ) | | |
| CERI | GRBT | 142.7 | 191 | eP | :57.02 (-0.07 ) | | |
| CERI | BCRT | 143.6 | 205 | eP | :56.70 (-0.54 ) | | |

## *****2004 DECEMBER 03; 01:27 – CENTRAL 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VTSO | 041203 | 012714.0 | 37.878 | 77.963 | 10.0F | 9 | 52 | 197 | 0.4 | D | D/D | 13.7 | 351 | 1.4 | 11.0 | D | | 2.5 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| VTSO | CVVA | 52.5 | 288 | eP | 01:27:22.50 (-0.27 ) | eS | 01:27:29.32 ( 0.14 ) |
| VTSO | CBN | 63.2 | 55 | eP | :24.23 (-0.27 ) | eS | :32.49 ( 0.32 ) |
| VTSO | BLA | 229.4 | 252 | ep | :47.80 (-0.42 ) | eS | :28:14.59 ( 1.49 ) |
| VTSO | FWV | 253.3 | 263 | eP | :51.88 ( 0.72 ) | eS | :21.64 ( 3.46X) |

| | | | | | | |
|---|---|---|---|---|---|---|
| VTSO | ELN | 255.1 | 256 | eP | :51.39 ( 0.03 ) | eS :21.32 ( 2.79X) |
| VTSO | MCWV | 256.5 | 321 | eP | :28:04.00 ( 12.50X) | eS :25.28 ( 6.51X) |
| VTSO | PWV | 278.9 | 258 | eP | :55.38 ( 1.08 ) | eS :29:28.69 ( 5.08X) |
| VTSO | SSPA | 306.2 | 1 | eP | :29:01.59 ( 4.03X) | eS :38.44 ( 9.18X) |

## *****2004 DECEMBER 07; 22:23 – 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 | 041207 | 222350.8 | 32.920 | 80.163 | 7.0 | 12 | 3 | 106 | 0.1 | B | A/B | 0.4 | 360 | 0.4 | 0.6 | | | 2.2 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| USC | MGS | 3.2 | 141 | iPu | 22:23:52.55 (-0.02 ) | iSn | 22:23:54.09 ( 0.91 ) |
| USC | RGR | 3.3 | 244 | iPu | :52.47 (-0.06 ) | iSd | :53.00 (-0.02 ) |
| USC | SVS | 9.6 | 304 | iPd | :53.40 ( 0.08 ) | iSn | :54.29 (-0.26 ) |
| USC | CSU | 11.3 | 50 | iPd | :53.42 ( 0.04 ) | iSn | :54.72 (-0.46 ) |
| USC | WAS | 13.0 | 231 | iPd | :53.97 ( 0.01 ) | iSn | :55.87 ( 0.02 ) |
| USC | HBF | 16.2 | 281 | iPd | :54.19 (-0.11 ) | iSn | :56.09 ( 0.05 ) |

## *****2004 DECEMBER 10; 07:13 – 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 | 041210 | 071300.9 | 33.075 | 80.172 | 10.3 | 8 | 14 | 321 | 0.0 | C | B/D | 1.0 | 360 | 1.0 | 1.3 | | | 2.4 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| USC | SVS | 13.8 | 211 | iPu | 07:13:04.32 ( 0.02 ) | iSn | 07:13:06.19 (-0.03 ) |
| USC | RGR | 18.7 | 186 | iPd | :05.08 ( 0.09 ) | iSd | :07.35 ( 0.01 ) |
| USC | MGS | 19.9 | 172 | iPu | :05.14 (-0.06 ) | iSn | :07.44 (-0.39 ) |
| USC | WAS | 27.0 | 200 | iPd | :06.35 (-0.04 ) | iSn | :10.16 ( 0.02 ) |

## *****2004 DECEMBER 12; 10:25 – HOPEWELL MILL, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 041212 | 102522.5 | 35.518 | 84.270 | 19.2 | 9 | 19 | 197 | 0.0 | D | C/D | 1.4 | 286 | 0.6 | 3.5 | C | | 1.8 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| CERI | GRBT | 18.5 | 21 | iPd | 10:25:26.79 ( 0.01 ) | | |
| CERI | ETT | 27.1 | 218 | iPd | : 27.84 (-0.01 ) | eS | 10:25:31.81 ( 0.02 ) |
| CERI | BCRT | 39.1 | 315 | iPu | :29.44 (-0.01 ) | eS | :34.64 ( 0.04 ) |
| CERI | DYTN | 74.7 | 268 | eP | :34.84 ( 0.04 ) | eS | :43.93 ( 0.09 ) |
| CERI | RCGA | 115.1 | 239 | eP | :41.40 ( 0.36 ) | | |
| CERI | SWET | 154.7 | 258 | eP | :47.11 (-0.01 ) | | |

## *****2004 DECEMBER 23; 06:54 – CHESTNUT VALLEY, 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 041223 | 065420.7 | 35.429 | 84.204 | 7.7 | 11 | 26 | 121 | 0.0 | C | C/C | 1.6 | 300 | 0.5 | 5.3 | C | | 3.0 | | |
| UTK | 041223 | 065420.7 | 35.430 | 84.207 | 8.1 | 14 | 29 | 104 | 0.1 | B | A/C | 0.3 | 253 | 0.2 | 0.8 | A | | 2.8 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| CERI | ETT | 25.5 | 243 | iPd | 06:54:25.03 (-0.02 ) | | |
| CERI | GRBT | 27.2 | 1 | iPu | :25.29 ( 0.00 ) | | |
| CERI | CPCT | 28.9 | 275 | eP | :25.69 ( 0.12 ) | eS | 06:54:29.67 ( 0.46 ) |
| CERI | MYNC | 40.0 | 170 | eP | :27.53 ( 0.19 ) | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CERI | BCRT | 50.3 | 318 | iPu | :28.97 | ( 0.00 ) | | | |
| CERI | GTTN | 64.6 | 49 | eP | :31.20 | (-0.09 ) | | | |
| CERI | DYTN | 80.9 | 275 | eP | :33.93 | ( 0.04 ) | | | |
| CERI | CPRT | 85.8 | 20 | eP | :34.49 | (-0.25 ) | | | |
| CERI | RCGA | 115.7 | 245 | eP | :39.43 | ( 0.03 ) | | | |
| CERI | SWET | 158.9 | 262 | eP | :46.18 | (-0.04 ) | | | |
| | | | | | | | | | |
| UTK | CPCT | 28.7 | 274 | eP | 06:54:25.50 | (-0.06 ) | eS | 06:54:29.24 | ( 0.06 ) |
| UTK | TLDM | 38.9 | 353 | iP | :27.12 | (-0.05 ) | iS | :32.04 | ( 0.06 ) |
| UTK | MYNC | 40.1 | 170 | iP | :27.45 | (-0.06 ) | iS | :32.32 | (-0.04 ) |
| UTK | SWET | 158.7 | 262 | iPd | :46.08 | (-0.11 ) | eS | :55:04.92 | ( 0.01 ) |
| UTK | GOGA | 234.0 | 163 | eP | :57.84 | ( 0.04 ) | eS | :25.04 | ( 0.26 ) |
| UTK | PLAL | 355.8 | 263 | eP | :55:17.86 | ( 5.05X) | eS | :50.76 | ( 0.00 ) |
| UTK | LRAL | 369.7 | 225 | eP | :16.88 | ( 2.35 ) | eS | :56:02.18 | ( 8.46X) |
| UTK | BLA | 393.2 | 59 | iPd | :16.65 | (-0.83 ) | eS | :55:58.63 | (-0.20 ) |

## *****2004 DECEMBER 30; 04:43 – 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERI | 041230 | 044317 | .1 | 35.732 | 83.960 | 17.5 | 9 | 22 | 154 | 0.0 | D | D/C | 3.8 | 343 | 1.1 | 4.2 | C | | 1.0 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | | PHASE | ARRIVAL TIME (RES) | |
|---|---|---|---|---|---|---|---|---|---|
| CERI | GRBT | 22.4 | 253 | iPd | 04:43:21.63 | (-0.01 ) | | | |
| CERI | GTTN | 28.0 | 71 | eP | :22.43 | (-0.01 ) | eS | 04:43:26.49 | ( 0.10 ) |
| CERI | CPRT | 47.6 | 9 | eP | :24.99 | (-0.34 ) | | | |
| CERI | BCRT | 55.8 | 274 | eP | :26.43 | (-0.02 ) | eS | :33.48 | ( 0.13 ) |
| CERI | CPCT | 59.8 | 239 | eP | :27.01 | (-0.03 ) | | | |
| CERI | ETT | 63.6 | 225 | eP | :27.69 | ( 0.05 ) | | | |
| CERI | DYTN | 106.0 | 256 | eP | :34.24 | ( 0.05 ) | | | |

## SOUTHEASTERN U.S. RESERVOIR ACTIVITY DURING 2004

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.

### *****2004 JANUARY 20; 05:45 - 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 | 040120 | 0545 | 27.6 | 34.351 | 81.320 | 1.1 | 10 | 2 | 144 | 0.0 | C | B/C | 0.4 | 360 | 0.4 | 1.1 | | | 1.0 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | | PHASE | ARRIVAL TIME (RES) | |
|---|---|---|---|---|---|---|---|---|---|
| USC | MR10 | 2.3 | 224 | iPd | 05:45:28.10 | ( 0.04 ) | iSn | 05:45:28.37 | (-0.02 ) |
| USC | MR07 | 2.4 | 349 | iPu | :28.10 | ( 0.03 ) | iSn | :28.38 | (-0.03 ) |
| USC | MR01 | 3.1 | 133 | iPd | :28.23 | ( 0.04 ) | iSn | :28.61 | (-0.01 ) |
| USC | JSC | 9.5 | 144 | iPu | :29.20 | ( 0.00 ) | iSd | :30.30 | (-0.11 ) |
| USC | MR02 | 19.4 | 155 | iPu | :30.83 | ( 0.07 ) | iSn | :33.18 | (-0.02 ) |

### *****2004 FEBRUARY 02; 15:45 - 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 | 040202 | 1545 | 52.2 | 34.350 | 81.344 | 1.7 | 7 | 2 | 235 | 0.1 | C | B/D | 0.7 | 360 | 0.7 | 0.8 | | | 0.9 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | | PHASE | ARRIVAL TIME (RES) | |
|---|---|---|---|---|---|---|---|---|---|
| USC | MR10 | 1.6 | 159 | iPu | 15:45:52.55 | (-0.03 ) | iSn | 15:45:52.90 | ( 0.01 ) |
| USC | MR07 | 3.0 | 35 | iPu | :52.69 | (-0.06 ) | iSd | :53.10 | ( 0.08 ) |
| USC | MR01 | 4.8 | 114 | iPd | :53.10 | ( 0.08 ) | iSn | :53.72 | ( 0.04 ) |
| USC | JSC | 10.8 | 135 | iPu | :54.02 | ( 0.08 ) | iSd | :55.20 | (-0.12 ) |

### *****2004 MARCH 11; 08:54 - 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 | 040311 | 0854 | 47.3 | 34.357 | 81.346 | 0.9 | 10 | 2 | 248 | 0.1 | C | B/D | 0.6 | 360 | 0.6 | 1.3 | | | 1.0 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | | PHASE | ARRIVAL TIME (RES) | |
|---|---|---|---|---|---|---|---|---|---|
| USC | MR10 | 2.4 | 161 | iPd | 08:54:47.76 | (-0.01) | iSn | 08:54:48.10 | (-0.01 ) |
| USC | MR07 | 2.5 | 50 | iPu | :47.77 | (-0.01 ) | iSn | :48.05 | (-0.08 ) |
| USC | MR01 | 5.4 | 121 | iPd | :48.30 | ( 0.06 ) | iSn | :49.01 | ( 0.07 ) |
| USC | JSC | 11.5 | 137 | iPd | :49.24 | ( 0.05 ) | iSd | :50.57 | (-0.08 ) |
| USC | MR02 | 21.1 | 150 | iPu | :50.96 | ( 0.24 ) | iSn | :53.37 | ( 0.00 ) |

### *****2004 APRIL 04; 09:18 - 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 | 040404 | 0918 | 55.3 | 34.339 | 81.329 | 10.0 | 10 | 1 | 119 | 0.1 | C | C/B | 2.3 | 360 | 2.3 | 1.7 | | | 2.5 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | | PHASE | ARRIVAL TIME (RES) | |
|---|---|---|---|---|---|---|---|---|---|
| USC | MR10 | 0.8 | 247 | iPu | 09:18:56.97 | ( 0.01) | iSn | 09:18:58.07 | (-0.16 ) |
| USC | MR01 | 3.2 | 105 | iPd | :57.15 | ( 0.11 ) | iSn | :58.391 | ( 0.03 ) |
| USC | MR07 | 3.7 | 6 | iPu | :57.00 | (-0.06 ) | iSn | :58.45 | ( 0.05 ) |
| USC | JSC | 9.0 | 135 | iPd | :57.43 | (-0.07 ) | iSd | :59.07 | (-0.12 ) |
| USC | MR02 | 18.6 | 150 | iPu | :58.74 | ( 0.03 ) | iSn | :19:01.19 | (-0.16 ) |

## *****2004 JULY 09; 01:25 - 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 | 040709 | 0125 | 36.8 | 34.309 | 81.292 | 2.1 | 8 | 3 | 150 | 0.0 | C | B/C | 1.0 | 360 | 1.0 | 1.3 | | | 0.9 | | |

| SRCE | STA | DIST (KM) | AZM | PHASE | ARRIVAL TIME (RES) | PHASE | ARRIVAL TIME (RES) |
|---|---|---|---|---|---|---|---|
| USC | MR01 | 2.6 | 353 | iPu | 01:25:37.36 (-0.02 ) | iSn | 01:25:37.84 ( 0.02 ) |
| USC | JSC | 4.2 | 136 | iPd | :37.54 (-0.04 ) | iSd | :38.18 ( 0.00 ) |
| USC | MR10 | 5.2 | 306 | iPd | :37.74 ( 0.00 ) | iSn | :38.45 (-0.01 ) |
| USC | MR02 | 14.0 | 156 | iPd | :39.14 ( 0.04 ) | iSn | :40.97 ( 0.08 ) |

## 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 operated by the various groups contributing to the SEUSSN bulletin.

| Sta. Name | Lat. N. Dg-Min | Long. W Dg-Min | Elev. (m) | Type* | State | Operator | Locality |
|---|---|---|---|---|---|---|---|
| ADSC | 32.8119 | -80.0167 | 6 | sm | SC | CERI | |
| ASTN | 36.3270 | -83.476 | 730 | sp | TN | CERI | Avondale Springs, TN |
| ATTN | 35.4433 | -84.6301 | 282 | sm | TN | CERI | |
| BCRT | 35.7660 | -84.576 | 409 | sp | TN | CERI | Bacon Ridge, TN |
| BHKY | 38.0350 | -84.505 | 284 | sp | KY | UKY | Bowman Hall, KY |
| BHT | 35.8630 | -84.94 | 732 | sp | TN | CERI | Blowhole, TN |
| BLA | 37.2110 | -80.421 | 634 | sp,sm,bb | VA | VTSO/USNSN | Blacksburg, VA |
| BRBC | 35.7380 | -82.286 | 1976 | sp | NC | CERI | Mount Mitchell, NC |
| BVD | 39.7748 | -75.4993 | 58 | sp | DE | DGS | Bellevue State Park, DE |
| BWD | 39.7995 | -75.5767 | 63 | sp | DE | DGS | Brandywine Creek St. Park, DE |
| C1SC | 32.7980 | -79.959 | 5 | sm | SC | CERI | Charleston, SC |
| C2SC | 32.7990 | -79.964 | 2 | sm | SC | CERI | Charleston, SC |
| CBN | 38.2050 | -77.373 | 70 | sm,bb | VA | USNSN | Corbin, VA |
| CCRT | 35.4660 | -84.053 | 915 | sp | TN | CERI | Cow Camps Ridge, TN |
| CMGA | 34.6290 | -85.034 | 478 | sp | TN | CERI | |
| COW | 33.3840 | -80.701 | 60 | sp | SC | USC | Cow Castle Creek, SC |
| CPCT | 35.4500 | -84.522 | 275 | bb | TN | CERI | Cooper Cave, TN |
| CPRT | 36.5530 | -83.892 | | sp | TN | CERI | |
| CSB | 32.9860 | -80.071 | -82 | sp | SC | USC | Charleton Southern Univ, SC |
| CSTN | 35.1010 | -85.2365 | 203 | sm | TN | CERI | |
| CSU | 32.9860 | -80.071 | 7 | sp | SC | USC | Charleston Southern Univ., SC |
| CVVA | 38.0220 | -78.532 | 159 | sm | VA | CERI | Charlottesville, VA |
| DEMA | 39.3187 | -75.6098 | 12 | sp | DE | DGS | DE Emergency Mgmt. DE |
| DRC | 33.1080 | -80.388 | 20 | sp | SC | USC | Dorchester, SC |
| DWPF | 28.1100 | -81.433 | -142 | sm,bb | FL | USNSN | Disney Wilderness Preserve, FL |
| DXN | 33.0538 | -81.622 | 61 | sp | GA | WSRC | Girard, GA |
| DYTN | 35.4910 | -85.092 | 580 | sp | TN | CERI | Dayton, TN |
| ELK | 33.3480 | -81.3472 | 88 | sp | SC | WSRC | Elko, SC |
| ELN | 37.2790 | -80.751 | 634 | sp | VA | VTSO | Prospectdale, VA |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ETT | 35.3260 | -84.455 | 588 | sp | TN | CERI | Etowah, TN |
| FLKY | 38.4260 | -83.751 | 280 | sp | KY | UKY | Flemingsburg, KY |
| FMKY | 36.6640 | -88.909 | 52 | sp | KY | UKY | Fulgham, KY |
| FWV | 37.5810 | -80.812 | 756 | sp | WV | VTSO | Forrest Hill, WV |
| GBT | 35.6680 | -84.208 | 357 | sp | TN | CERI | |
| GFM | 36.1110 | -81.807 | 1726 | sp | TN | CERI | Grandfather Mountain, NC |
| GMG | 34.8630 | -84.67 | 1097 | sp | GA | CERI | Grassy Mountain, GA |
| GOGA | 33.4110 | -83.467 | 150 | sm,bb | GA | USNSN | Godfrey, GA |
| GRBT | 35.6740 | -84.197 | 329 | sp | TN | CERI | Greenback, TN |
| GTTN | 35.8120 | -83.667 | 917 | sp | TN | CERI | Green Top, TN |
| HAW | 33.3600 | -81.61 | 85 | sp | SC | WSRC | Hawthorne fire tower, SC |
| HBF | 32.9480 | -80.337 | -89 | sp | SC | USC | Harts Bluff, SC |
| HEKY | 37.8150 | -87.592 | 94 | sp,sm | KY | UKY | |
| JSC | 34.2790 | -81.258 | 160 | sp | SC | USC | Jenkinsville, SC |
| LAKY | 37.0790 | -88.969 | 88 | sp | KY | UKY | |
| LHS | 34.4790 | -80.808 | | sp | SC | USC | Liberty Hill, SC |
| LLKY | 36.9220 | -88.097 | 177 | sp | KY | UKY | Land-Between-the-Lakes, KY |
| LOKY | 37.2370 | -88.295 | 230 | sp | KY | UKY | Lockhart, KY |
| LRAL | 33.0350 | -86.998 | 130 | sm,bb | AL | USNSN | Lakeview Retreat, AL |
| LVKY | 36.9700 | -88.829 | 92 | sp | KY | UKY | |
| MCWV | 39.6580 | -79.846 | 280 | sm,bb | WV | USNSN | Mount Chateau, WV |
| MGS | 32.8980 | -80.141 | 9 | sp | SC | USC | Middleton Gardens, SC |
| MMC | 34.7800 | -82.915 | 280 | sp | SC | USC | Morgan Memorial Church, SC |
| MOB | 33.1933 | -81.8148 | 67 | sp | GA | WSRC | Waynesboro, GA |
| MOKY | 37.6470 | -87.901 | 204 | sp | KY | UKY | Morgansfield, KY |
| MR01 | 34.3320 | -81.296 | 131 | sp | SC | USC | Monticello Reservoir, SC |
| MR02 | 34.1930 | -81.23 | 84 | sp | SC | USC | Monticello Reservoir, SC |
| MR07 | 34.3710 | -81.325 | 134 | sp | SC | USC | Monticello Reservoir, SC |
| MR10 | 34.3360 | -81.338 | 137 | sp | SC | USC | Monticello Reservoir, SC |
| MVKY | 38.6460 | -83.761 | 213 | sm | KY | SLU | Maysville, KY |
| MVL | 39.9993 | -76.349 | 91 | sp | PA | MVU | Millersville, PA |
| MYNC | 35.0740 | -84.128 | 550 | sm,bb | NC | USNSN | Murphy, NC |
| NED | 39.7263 | -75.7362 | 90 | sp | DE | DGS | Newark, De |
| NHSC | 33.1070 | -80.178 | 12 | sm,bb | SC | USNSN | New Hope, SC |
| NPRS | 33.2570 | -81.6381 | 79 | sp | SC | WSRC | Savannah River Lab., SC |
| OXF | 34.5120 | -89.409 | 101 | sm,bb | MS | USNSN | Oxford, MS |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PAKY | 37.0680 | -88.772 | 98 | sp | KY | UKY | Paducah, KY |
| PKKY | 38.3830 | -83.034 | 336 | sp | KY | UKY | Potato Knob, KY |
| PLAL | 34.9820 | -88.076 | 165 | sm,bb | AL | SLU | Pickwick Lake, AL |
| PLVA | 36.6660 | -81.16 | 1353 | sp | VA | CERI | Point Lookout, VA |
| PWV | 37.3350 | -81.049 | 820 | sp | WV | VTSO | Princeton, WV |
| RBNC | 35.3570 | -82.986 | 1829 | sp | NC | CERI | Richland Balsam, NC |
| RCGA | 34.9760 | -85.348 | 460 | sp | GA | CERI | Rock City, GA |
| RGR | 32.9080 | -80.194 | -61 | sp | SC | USC | |
| RICH | 35.9190 | -82.819 | 968 | sp | TN | CERI | Rich Mountain, NC |
| ROKY | 37.9090 | -83.926 | 433 | sp | KY | UKY | Rotten Point, KY |
| SDMD | 39.4102 | -76.8403 | 215 | sp | MD | MGS | Soldiers Delight, MD |
| SHTN | 35.9330 | -83.9672 | 271 | sm | TN | CERI | Sandy Hook, TN |
| SMKY | 37.4230 | -87.276 | 158 | sp | KY | UKY | Sacramento, KY |
| SOKY | 37.5260 | -85.965 | 304 | sp | KY | UKY | Sonora, KY |
| SRAV | 33.3250 | -81.6800 | 91 | sp | SC | WSRC | Savannah River Lab., SC |
| SRPD | 33.1550 | -81.7125 | 31 | sp | SC | WSRC | Savannah River Lab., SC |
| SRPN | 33.3290 | -81.5888 | 95 | sp | SC | WSRC | Savannah River Lab., SC |
| SRPW | 33.2023 | -81.5782 | 77 | sp | SC | WSRC | Savannah River Lab., SC |
| SWET | 35.2160 | -85.932 | 581 | bb | TN | CERI | Sewanee, TN |
| TAL | 33.3777 | -81.7075 | 125 | SP | sc | WSRC | Savannah River Lab., SC |
| TP1H | 33.0180 | -80.135 | | sp | SC | USC | |
| TP1T | 33.0180 | -80.062 | | sp | SC | USC | |
| TRSC | 32.8718 | -80.0336 | 7 | sm | TN | CERI | |
| TRYN | 35.2670 | -82.246 | 915 | sp | NC | CERI | Tryon Peak, NC |
| TWB | 33.1150 | -80.103 | 9 | sp | SC | USC | Tillman's/White's Bay, SC |
| TZTN | 36.5440 | -83.549 | 394 | sm,bb | TN | USNSN | |
| VSAP | 37.1310 | -88.813 | 113 | sp,sm | KY | UKY | Tazewell, TN |
| WAS | 32.8470 | -80.272 | 9 | sp | SC | USC | West Ashley, SC |
| WIKY | 36.9740 | -89.084 | 116 | sp,sm | KY | UKY | |
| WMTN | 36.4100 | -84.176 | 830 | sp | TN | CERI | Walnut Mountain, TN |
| WMV | 37.1090 | -80.97 | 1157 | sp | VA | VTSO | Walker Mountain, VA |
| WVT | 500.0000 | -87.83 | 153 | bb | TN | SLU | Waverly, TN |
| 2405 | 36.3100 | -82.37 | | sm | TN | NSMP | |
| 2412 | 35.2700 | -85.7 | | sm | KY | NSMP | |
| 2510 | 35.5900 | -82.48 | | sm | NC | NSMP | |
| 2511 | 39.4100 | -77.91 | | sm | WV | NSMP | |

| | | | | | |
|---|---|---|---|---|---|
| 2531 | 33.8000 | -84.31 | sm | GA | NSMP |
| 2541 | 33.9800 | -80.96 | sm | SC | NSMP |
| 2543 | 32.8350 | -80.047 | sm | SC | NSMP |
| 2544 | 32.7810 | -79.932 | sm | SC | NSMP |
| 2544 | 32.7810 | -79.932 | sm | SC | NSMP |
| 2549 | 37.3270 | -80.735 | sm | VA | NSMP |
| 2551 | 39.0910 | -77.759 | sm | VA | NSMP |
| 2552 | 33.0250 | -80.176 | sm | SC | NSMP |

*Station types:
bb=broadband
; sm=strong
motion;
sp=short
period

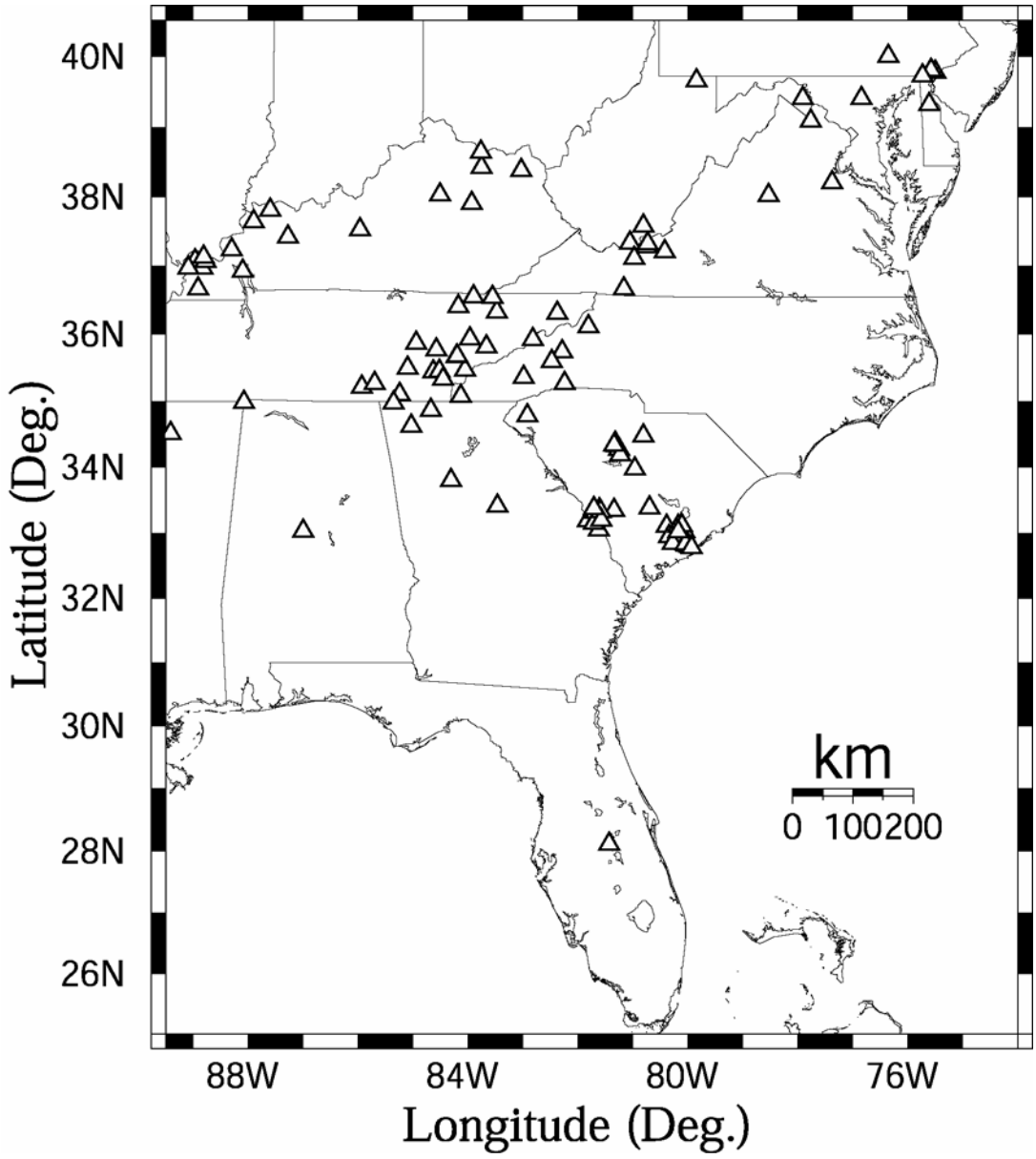


**FIGURE 4.** Seismic stations (triangles) in the SEUSSN. Triangles indicate stations operating during the report period.

## 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 39, 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,

MW: Magnitude based on seismic moment,

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 - United States Geological Survey, 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
USNSN - National Earthquake Information Center, NEIC, 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