# EARTHQUAKE ACTIVITY IN THE YELLOWSTONE REGION

Preliminary Epicenters

January 1 – March 31, 2015

Prepared by the University of Utah Seismograph Stations and funded by
the U.S. Geological Survey (Cooperative Agreement No. G13AC00018)

June 18, 2015

**Foreword and Data Explanation**

This report contains an epicenter map (Figure 1) and listings of earthquakes (Tables 1 and 2) detected and located in the Yellowstone region (lat. 44° 00′ – 45° 10′ N, long. 109° 45′ – 111° 30′ W). The computer program HYPOINVERSE-2000 (F. W. Klein, 2012, U.S. Geological Survey Open-File Report 02-171 revised) was used to process the earthquake data. This report also includes maps and a table of operating seismograph stations in the University of Utah's Yellowstone seismic network (Figure 2, Table 3).

The earthquake listing in Table 2 is estimated to be systematically complete above magnitude 1.5 within Yellowstone. *These data are preliminary—both the locations and magnitudes in this table are subject to revision.*

The following data are listed for each earthquake in Table 2:

- Date (yymmdd) and origin time in Coordinated Universal Time (UTC). To convert to local time, subtract seven hours for Mountain Standard Time (MST) and six hours for Mountain Daylight Time (MDT). During the report period, local time was MST from January 1st through March 7th and MDT from March 8th through March 31st.

- Earthquake location coordinates in degrees and minutes of north latitude and west longitude, and depth in kilometers below sea level. Note that prior to October 1, 2012 the earthquake depths in these quarterly reports were computed relative to a datum of 2000 m above sea level.

- "*" indicates poor depth resolution: no recording stations within 10 km or twice the depth.

- MAG, the computed Richter local magnitude ($M_L$) for each earthquake. "W" indicates that peak amplitude measurements from Wood-Anderson records were used. Otherwise, the estimate is calculated from signal durations and is more correctly identified as coda magnitude ($M_C$). The notation "--" indicates that a reliable magnitude estimate could not be made.

- NO, the number of P and S readings used in the solution.

- GAP, the largest azimuthal separation in degrees between recording stations used in the solution.

- DMN, the epicentral distance in kilometers to the closest station.

- RMS, the weighted root-mean-square of the travel-time residuals in seconds:

$$RMS = \left( \frac{\sum_i (W_i R_i)^2}{\sum_i (W_i)^2} \right)^{\frac{1}{2}}$$

where: $R_i$ is the observed minus the computed arrival time for the i-th P or S reading, and $W_i$ is the relative weight given to the i-th P or S arrival time (0.0 for no weight through 1.0 for full weight).

# EARTHQUAKE ACTIVITY IN THE YELLOWSTONE REGION
## January 1 – March 31, 2015

by J. Farrell, R. Burlacu, P. M. Roberson, J. M. Hale, and K. J. Goddard
with contributions by
K. D. Koper, R. B. Smith, J. C. Pechmann, and K. L. Pankow

University of Utah Seismograph Stations
115 South 1460 East, Room 107 FASB
Salt Lake City, UT 84112-0102
Tele: (801) 581-6274 FAX: (801) 585-5585
email: *burlacu@seis.utah.edu*
URL: *http://www.seis.utah.edu* (aka *quake.utah.edu*)

During the three-month period January 1 through March 31, 2015, the University of Utah Seismograph Stations (UUSS) located 307 earthquakes within the Yellowstone region (Figure 1). The total includes 8 earthquakes in the magnitude 2 range. The largest event to occur during this period was a magnitude 2.4 earthquake on February 2nd. No earthquakes were reported felt during the report period (see Table 1, a cumulative tabulation of earthquakes during 2015 that were felt in the Yellowstone region). Additional information on earthquakes within the Yellowstone region is available from the University of Utah Seismograph Stations.

### Online Information

A complete copy of this report, including maps and the earthquake catalog, is available on the UUSS web site at *http://www.quake.utah.edu/EQCENTER/QUARTERLY/quarterly.htm*.

*Note*: On October 1, 2012 UUSS began using the ANSS Quake Monitoring System (AQMS) software package for data acquisition and data processing. The primary effect on the data reported herein comes from computing the earthquake locations with a newer version of the computer program HYPOINVERSE-2000 (F. W. Klein, 2012, U.S. Geological Survey Open-File Report 02-171 revised) and a revised and expanded set of velocity models. As implemented at UUSS, this new version of the location program accounts for station elevation differences more accurately and reports focal depths relative to sea level instead of the 2000 m elevation datum used previously.

For earthquakes of magnitude 3 and larger in the Yellowstone region, the U. S. Geological Survey automatically posts a Community Internet Intensity Map (CIIM) on its "Did You Feel It?" web page at http://earthquake.usgs.gov/earthquakes/dyfi/. We encourage anyone who feels an earthquake to report their observations on this interactive web site; felt information is available by zip code on the CIIM site or can be obtained from UUSS directly.

**Earthquakes of Magnitude 3.0 or Larger**

None

**Notable Swarm Seismicity**

During the report period, there was one earthquake swarm in the Yellowstone region. For reporting purposes, we use the Mogi definition [Mogi, 1963] of a swarm and require each swarm to have ten or more earthquakes. Note that typically, around 50% of Yellowstone seismicity occurs as swarm seismicity [Farrell et al., 2009].

A. A swarm of 136 earthquakes ($-0.7 \leq M \leq 1.9$) occurred about 5 miles N of West Yellowstone, MT on January 21st - 22nd.

This swarm is labeled in Figure 1.

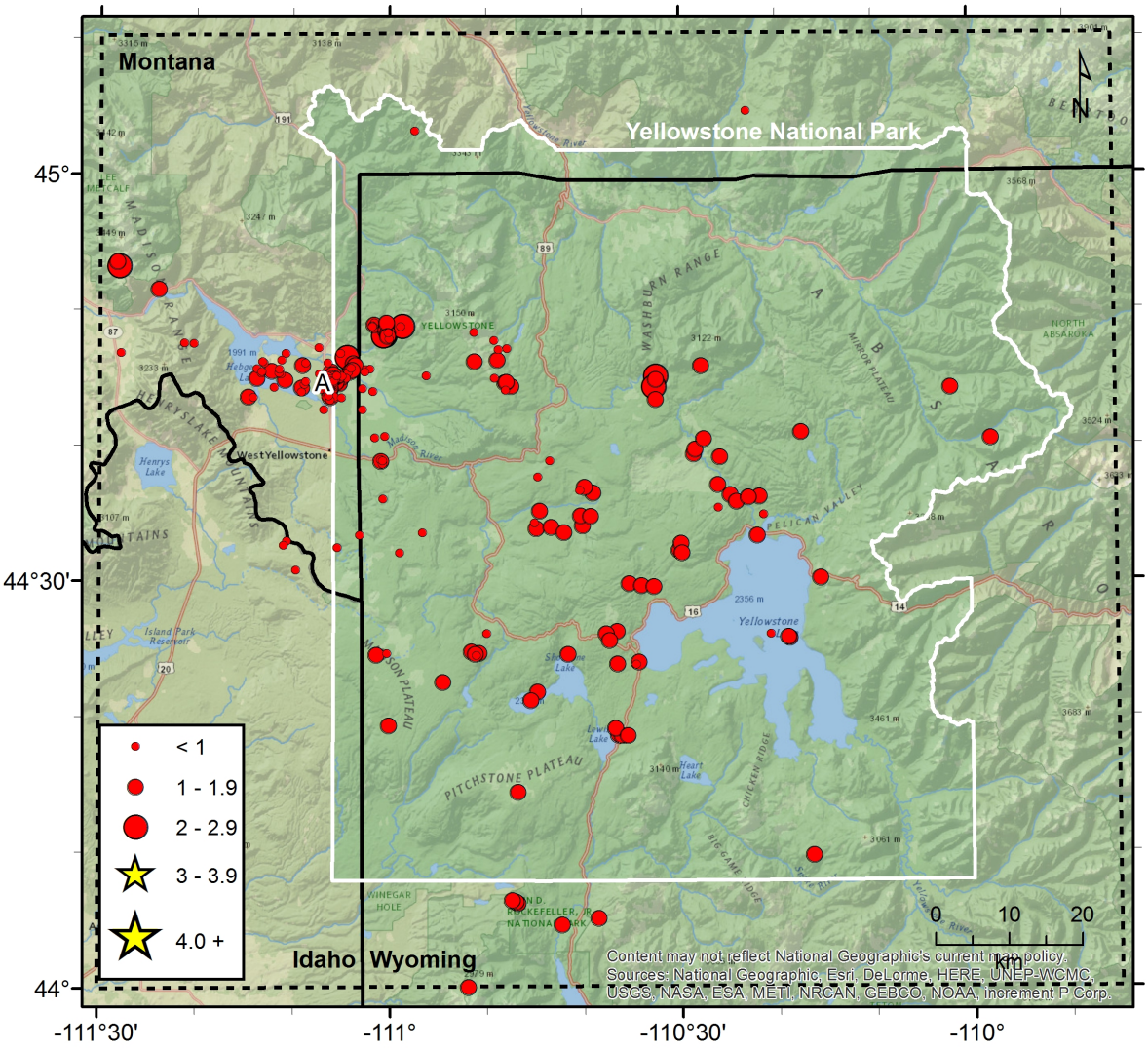


**Figure 1.** Earthquake epicenters located by the University of Utah Seismograph Stations, January 1, 2015 through March 31, 2015. The earthquake swarm labeled A is discussed in the text.

**Table 1**

**EARTHQUAKES FELT IN THE YELLOWSTONE REGION**
**January 1, 2015 to March 31, 2015**

| Date | Time† | Felt Information‡ | Latitude | Longitude | Magnitude§ |
|---|---|---|---|---|---|
| | | | | | |

† Times are listed both as Local Time—Mountain Standard Time (MST) or Mountain Daylight Time (MDT)—and as Coordinated Universal Time (UTC).
? Indicates on-line reports that appear questionable given the distance from the source
‡ *CIIM* indicates the availability of a Community Internet Intensity Map (http://earthquake.usgs.gov/earthquakes/dyfi/archives.php), compiled by the U.S. Geological Survey (USGS); *ShakeMap* indicates the availability of computer-generated maps of ground-shaking (*http://www.seis.utah.edu/shake/archive*), produced by the University of Utah Seismograph Stations (UUSS). Roman numerals correspond to the Modified Mercalli intensity scale. Unless otherwise indicated, felt information is from the USGS (1) CIIM reports and/or (2) PDE Monthly (or) Weekly Listing Files (http://earthquake.usgs.gov/research/data/pde.php).
§ Richter local magnitude ($M_L$) or coda magnitude ($M_C$) determined by UUSS. If labeled "NEIC," data are from the National Earthquake Information Center of the USGS.

# Yellowstone Seismic Network
# March 31, 2015

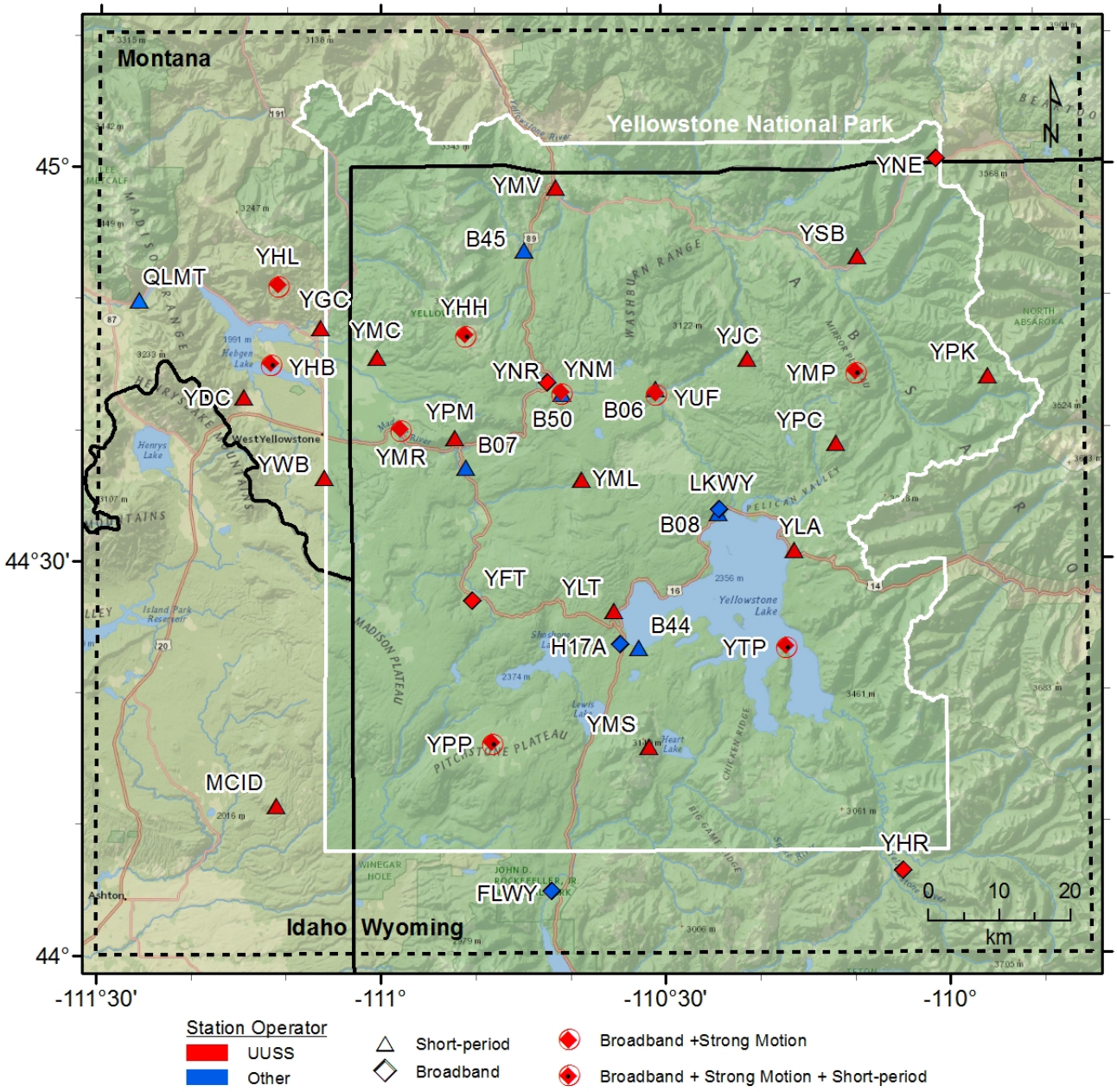


**Figure 2**

**Table 2. Earthquakes in the Yellowstone Region: January 1–March 31, 2015**

| DATE | ORIGIN TIME | LATITUDE | LONGITUDE | DEPTH | MAG | NO | GAP | DMN | RMS |
|---|---|---|---|---|---|---|---|---|---|
| 150101 | 06:38:27.56 | 44º43.97' | 111º09.15' | 11.6 | 0.4 | 12 | 85 | 4 | 0.12 |
| 150101 | 22:41:49.52 | 44º44.38' | 110º47.49' | 8.2 | 1.1W | 8 | 146 | 7 | 0.10 |
| 150101 | 22:43:09.54 | 44º44.11' | 110º48.06' | 2.9 | 0.0 | 5 | 139 | 7 | 0.02 |
| 150101 | 22:43:22.61 | 44º44.67' | 110º48.13' | 6.0 | 1.0W | 11 | 146 | 6 | 0.16 |
| 150101 | 22:51:04.64 | 44º44.70' | 110º47.96' | 8.5 | 1.0W | 9 | 148 | 6 | 0.10 |
| 150102 | 23:52:52.81 | 44º35.21' | 110º44.56' | 9.8 | 1.5 | 13 | 87 | 8 | 0.19 |
| 150103 | 00:59:04.53 | 44º34.85' | 110º40.30' | 6.5 | 1.4 | 9 | 118 | 4 | 0.18 |
| 150103 | 00:59:39.25 | 44º34.82' | 110º39.27' | 3.0* | 1.1 | 5 | 233 | 15 | 0.16 |
| 150105 | 03:09:02.96 | 44º47.86' | 111º00.10' | 7.5 | 0.4 | 16 | 161 | 4 | 0.15 |
| 150105 | 04:50:08.56 | 44º36.38' | 110º24.87' | 2.1 | 1.5 | 8 | 148 | 5 | 0.08 |
| 150108 | 20:42:33.61 | 44º26.33' | 110º36.60' | 4.0 | 1.7 | 9 | 189 | 2 | 0.04 |
| 150110 | 08:14:42.99 | 44º26.15' | 110º37.72' | 0.4 | 1.2 | 7 | 131 | 3 | 0.13 |
| 150110 | 18:37:19.30 | 44º44.19' | 110º02.05' | 5.7 | 1.4 | 9 | 139 | 9 | 0.12 |
| 150111 | 05:34:55.98 | 44º49.06' | 111º01.65' | 8.5 | -0.2 | 12 | 176 | 7 | 0.08 |
| 150111 | 17:36:40.92 | 44º45.32' | 111º11.29' | 9.5 | 0.2 | 12 | 100 | 1 | 0.17 |
| 150112 | 03:32:10.07 | 44º46.22' | 110º51.27' | 8.3 | 1.0W | 19 | 79 | 2 | 0.16 |
| 150112 | 06:30:42.42 | 44º45.42' | 111º04.34' | 8.3 | 0.7W | 14 | 109 | 5 | 0.17 |
| 150112 | 15:15:01.22 | 44º48.85' | 111º01.82' | 7.1 | -0.3 | 10 | 172 | 6 | 0.13 |
| 150113 | 04:28:01.16 | 44º32.68' | 111º11.00' | 11.7 | 0.3 | 5 | 168 | 9 | 0.05 |
| 150113 | 23:59:59.01 | 44º45.64' | 111º11.43' | 7.8 | -0.1 | 9 | 157 | 1 | 0.11 |
| 150114 | 14:49:36.53 | 44º40.44' | 109º57.95' | 16.4 | 1.2 | 10 | 161 | 7 | 0.19 |
| 150115 | 01:27:49.51 | 44º32.99' | 111º10.67' | 13.1 | 0.3 | 12 | 164 | 9 | 0.07 |
| 150115 | 05:01:43.81 | 44º47.75' | 110º49.24' | 4.9 | 0.7 | 16 | 186 | 3 | 0.14 |
| 150115 | 17:10:10.30 | 44º04.71' | 110º42.34' | 9.5 | 1.0 | 14 | 123 | 1 | 0.12 |
| 150116 | 08:13:49.47 | 44º33.63' | 110º42.03' | 6.6 | 1.1W | 13 | 77 | 7 | 0.16 |
| 150116 | 21:47:00.54 | 44º45.94' | 111º09.05' | 11.6 | 1.1W | 16 | 60 | 4 | 0.11 |
| 150117 | 18:22:00.52 | 44º45.31' | 111º07.29' | 8.9 | 0.4 | 15 | 70 | 5 | 0.14 |
| 150117 | 22:51:04.93 | 44º45.46' | 111º04.13' | 9.5 | 1.2W | 13 | 112 | 5 | 0.11 |
| 150119 | 06:49:59.95 | 44º26.17' | 110º50.04' | 1.8 | 0.6 | 7 | 129 | 2 | 0.05 |
| 150119 | 08:15:17.60 | 44º24.06' | 110º34.35' | 1.8 | 1.3W | 16 | 57 | 1 | 0.18 |
| 150119 | 08:15:47.40 | 44º23.88' | 110º34.64' | 2.0 | -- | 8 | 186 | 0 | 0.10 |
| 150121 | 02:26:42.68 | 44º45.01' | 111º06.24' | 12.1 | 1.0W | 11 | 84 | 5 | 0.10 |
| 150121 | 02:30:42.03 | 44º44.98' | 111º06.61' | 8.4 | -0.1 | 9 | 109 | 7 | 0.14 |
| 150121 | 02:31:23.80 | 44º44.58' | 111º06.34' | 11.1 | 1.1W | 14 | 75 | 6 | 0.12 |
| 150121 | 02:36:48.43 | 44º44.70' | 111º06.00' | 11.6 | 0.8W | 12 | 81 | 6 | 0.12 |
| 150121 | 02:37:02.12 | 44º44.87' | 111º05.96' | 11.0 | 0.7 | 13 | 86 | 5 | 0.13 |
| 150121 | 02:37:07.44 | 44º44.25' | 111º07.22' | 8.5 | 0.5 | 10 | 67 | 6 | 0.20 |
| 150121 | 02:37:31.65 | 44º44.65' | 111º06.41' | 8.0 | 0.1 | 11 | 104 | 7 | 0.15 |
| 150121 | 02:38:01.47 | 44º44.80' | 111º06.20' | 11.9 | 1.6W | 17 | 78 | 6 | 0.13 |
| 150121 | 02:40:31.08 | 44º45.04' | 111º05.94' | 11.9 | 1.5W | 14 | 83 | 5 | 0.12 |
| 150121 | 02:40:47.85 | 44º44.62' | 111º06.07' | 11.0 | 1.2 | 13 | 79 | 6 | 0.10 |
| 150121 | 02:41:45.23 | 44º44.84' | 111º06.20' | 11.8 | 1.4W | 13 | 79 | 5 | 0.11 |
| 150121 | 02:44:41.02 | 44º44.18' | 111º06.18' | 8.8 | 1.1W | 15 | 73 | 7 | 0.17 |
| 150121 | 02:47:05.10 | 44º44.08' | 111º05.91' | 9.9 | 0.8W | 12 | 74 | 7 | 0.15 |
| 150121 | 02:47:13.55 | 44º44.34' | 111º06.27' | 8.7 | 0.5 | 12 | 74 | 6 | 0.16 |

**Table 2. Earthquakes in the Yellowstone Region: January 1–March 31, 2015**

| DATE | ORIGIN TIME | LATITUDE | LONGITUDE | DEPTH | MAG | NO | GAP | DMN | RMS |
|---|---|---|---|---|---|---|---|---|---|
| 150121 | 02:47:50.00 | 44º44.15’ | 111º06.87’ | 9.5 | 0.7W | 12 | 68 | 7 | 0.16 |
| 150121 | 02:47:59.84 | 44º44.69’ | 111º06.30’ | 9.4 | 0.9 | 10 | 79 | 6 | 0.15 |
| 150121 | 02:48:39.25 | 44º44.31’ | 111º07.02’ | 10.4 | 0.4 | 11 | 68 | 6 | 0.17 |
| 150121 | 02:48:45.57 | 44º44.68’ | 111º06.11’ | 11.6 | 1.6W | 15 | 79 | 6 | 0.09 |
| 150121 | 02:49:36.08 | 44º44.88’ | 111º05.89’ | 12.5 | 1.2W | 13 | 84 | 5 | 0.11 |
| 150121 | 02:51:32.74 | 44º45.11’ | 111º05.95’ | 13.4 | 0.2 | 12 | 84 | 5 | 0.10 |
| 150121 | 02:51:54.63 | 44º45.02’ | 111º05.73’ | 9.9 | 0.1 | 11 | 112 | 7 | 0.11 |
| 150121 | 02:52:53.97 | 44º44.95’ | 111º05.95’ | 11.3 | 0.4 | 11 | 83 | 5 | 0.12 |
| 150121 | 02:53:06.57 | 44º44.70’ | 111º05.95’ | 9.5 | 0.5 | 8 | 123 | 6 | 0.11 |
| 150121 | 02:54:08.42 | 44º44.68’ | 111º06.10’ | 11.0 | 1.1W | 15 | 79 | 6 | 0.14 |
| 150121 | 02:54:20.50 | 44º44.64’ | 111º06.15’ | 6.1 | 0.2 | 9 | 105 | 6 | 0.17 |
| 150121 | 02:56:59.22 | 44º45.00’ | 111º05.96’ | 12.1 | 1.6W | 19 | 83 | 5 | 0.09 |
| 150121 | 02:58:32.71 | 44º44.54’ | 111º06.56’ | 9.8 | 0.1 | 11 | 101 | 7 | 0.15 |
| 150121 | 02:58:56.55 | 44º44.48’ | 111º06.27’ | 8.7 | 0.2 | 9 | 101 | 7 | 0.06 |
| 150121 | 02:59:25.64 | 44º45.12’ | 111º06.03’ | 11.4 | 0.6W | 11 | 108 | 8 | 0.06 |
| 150121 | 02:59:34.07 | 44º45.22’ | 111º05.77’ | 12.3 | 0.3 | 10 | 110 | 7 | 0.08 |
| 150121 | 03:01:18.81 | 44º44.71’ | 111º06.55’ | 8.5 | 0.2 | 10 | 77 | 6 | 0.13 |
| 150121 | 03:01:32.43 | 44º44.93’ | 111º05.68’ | 12.1 | 1.7W | 15 | 87 | 5 | 0.15 |
| 150121 | 03:04:42.09 | 44º45.13’ | 111º05.47’ | 14.2 | 1.0W | 10 | 96 | 5 | 0.28 |
| 150121 | 03:06:27.24 | 44º44.70’ | 111º06.12’ | 9.3 | 0.5 | 13 | 81 | 6 | 0.14 |
| 150121 | 03:06:37.28 | 44º43.54’ | 111º06.56’ | 3.3 | -0.1 | 6 | 196 | 7 | 0.05 |
| 150121 | 03:06:58.45 | 44º44.20’ | 111º07.09’ | 9.4 | 0.1 | 13 | 68 | 6 | 0.19 |
| 150121 | 03:08:59.25 | 44º42.67’ | 111º06.85’ | 2.4 | -0.4 | 7 | 158 | 8 | 0.12 |
| 150121 | 03:09:16.85 | 44º43.99’ | 111º06.29’ | 2.5 | -0.1 | 8 | 143 | 7 | 0.08 |
| 150121 | 03:09:32.17 | 44º43.37’ | 111º06.22’ | 4.3 | -0.5 | 7 | 145 | 8 | 0.35 |
| 150121 | 03:09:57.54 | 44º43.71’ | 111º06.34’ | 2.6 | -0.5 | 8 | 136 | 8 | 0.08 |
| 150121 | 03:10:38.14 | 44º44.69’ | 111º06.11’ | 9.3 | 0.0 | 14 | 80 | 6 | 0.17 |
| 150121 | 03:11:08.07 | 44º44.79’ | 111º05.91’ | 10.0 | 0.4W | 12 | 84 | 6 | 0.15 |
| 150121 | 03:11:15.06 | 44º44.02’ | 111º06.30’ | 8.3 | 1.0W | 12 | 78 | 7 | 0.14 |
| 150121 | 03:16:53.91 | 44º44.78’ | 111º06.15’ | 8.1 | -0.2 | 11 | 82 | 6 | 0.14 |
| 150121 | 03:18:47.74 | 44º44.36’ | 111º06.57’ | 9.1 | 0.5W | 10 | 76 | 6 | 0.14 |
| 150121 | 03:22:01.45 | 44º44.77’ | 111º06.07’ | 10.1 | 0.8 | 13 | 82 | 6 | 0.15 |
| 150121 | 03:30:48.17 | 44º44.78’ | 111º06.15’ | 10.1 | 0.5W | 11 | 104 | 7 | 0.11 |
| 150121 | 03:40:34.50 | 44º45.15’ | 111º06.36’ | 10.0 | -0.2 | 10 | 107 | 7 | 0.08 |
| 150121 | 03:40:40.21 | 44º45.05’ | 111º06.16’ | 8.9 | 0.7W | 11 | 107 | 7 | 0.13 |
| 150121 | 03:43:11.30 | 44º44.72’ | 111º06.44’ | 8.2 | -0.2 | 9 | 105 | 7 | 0.14 |
| 150121 | 03:43:37.76 | 44º44.46’ | 111º06.81’ | 8.6 | 0.2 | 9 | 100 | 7 | 0.11 |
| 150121 | 03:45:01.98 | 44º44.15’ | 111º06.54’ | 9.1 | -0.4 | 7 | 96 | 7 | 0.10 |
| 150121 | 03:45:38.32 | 44º44.79’ | 111º05.81’ | 7.1 | -0.6 | 6 | 122 | 7 | 0.10 |
| 150121 | 03:53:41.17 | 44º45.05’ | 111º05.95’ | 9.2 | 0.1 | 9 | 112 | 7 | 0.12 |
| 150121 | 03:56:46.27 | 44º44.70’ | 111º06.26’ | 9.3 | 0.7W | 11 | 105 | 7 | 0.12 |
| 150121 | 03:58:11.96 | 44º44.95’ | 111º06.10’ | 9.5 | -0.3 | 11 | 106 | 7 | 0.14 |
| 150121 | 03:58:30.34 | 44º45.08’ | 111º05.84’ | 10.3 | 0.2 | 10 | 109 | 7 | 0.09 |
| 150121 | 04:02:13.88 | 44º44.61’ | 111º06.59’ | 7.2 | 0.0 | 8 | 102 | 7 | 0.14 |
| 150121 | 04:02:33.41 | 44º44.89’ | 111º05.88’ | 9.2 | 0.5 | 12 | 87 | 5 | 0.14 |

**Table 2. Earthquakes in the Yellowstone Region: January 1–March 31, 2015**

| DATE | ORIGIN TIME | LATITUDE | LONGITUDE | DEPTH | MAG | NO | GAP | DMN | RMS |
|---|---|---|---|---|---|---|---|---|---|
| 150121 | 04:03:22.66 | 44º44.88’ | 111º06.21’ | 7.8 | 0.0 | 11 | 105 | 7 | 0.14 |
| 150121 | 04:03:34.55 | 44º44.94’ | 111º06.24’ | 11.9 | 1.9W | 22 | 62 | 5 | 0.11 |
| 150121 | 04:05:11.50 | 44º44.70’ | 111º05.96’ | 9.4 | 0.7W | 11 | 105 | 8 | 0.11 |
| 150121 | 04:05:39.52 | 44º44.91’ | 111º06.23’ | 8.5 | -0.2 | 9 | 121 | 7 | 0.11 |
| 150121 | 04:05:52.22 | 44º44.93’ | 111º06.13’ | 9.6 | 0.5W | 11 | 106 | 7 | 0.11 |
| 150121 | 04:06:04.70 | 44º43.62’ | 111º06.66’ | 6.7 | 0.2 | 6 | 173 | 7 | 0.09 |
| 150121 | 04:06:16.88 | 44º45.03’ | 111º06.79’ | 5.6 | -0.1 | 5 | 163 | 7 | 0.01 |
| 150121 | 04:07:46.32 | 44º44.92’ | 111º06.39’ | 9.4 | 0.3 | 10 | 109 | 7 | 0.14 |
| 150121 | 04:08:11.21 | 44º45.05’ | 111º05.89’ | 10.7 | 0.7W | 9 | 113 | 7 | 0.05 |
| 150121 | 04:08:37.26 | 44º44.81’ | 111º06.02’ | 9.8 | -0.5 | 8 | 108 | 8 | 0.11 |
| 150121 | 04:08:57.00 | 44º44.98’ | 111º05.72’ | 10.9 | 0.9W | 12 | 108 | 7 | 0.12 |
| 150121 | 04:09:09.14 | 44º44.69’ | 111º05.80’ | 9.4 | 0.0 | 12 | 105 | 7 | 0.12 |
| 150121 | 04:10:36.16 | 44º44.95’ | 111º06.08’ | 8.6 | 0.0 | 12 | 106 | 8 | 0.13 |
| 150121 | 04:13:19.11 | 44º45.00’ | 111º05.71’ | 12.1 | 1.2W | 16 | 86 | 5 | 0.10 |
| 150121 | 04:14:02.41 | 44º44.91’ | 111º06.03’ | 11.4 | 1.2W | 15 | 82 | 5 | 0.12 |
| 150121 | 04:14:26.64 | 44º45.17’ | 111º05.55’ | 7.4 | -- | 7 | 111 | 8 | 0.04 |
| 150121 | 04:14:27.55 | 44º45.05’ | 111º05.00’ | 4.1 | 1.2W | 5 | 169 | 5 | 0.02 |
| 150121 | 04:14:57.11 | 44º44.27’ | 111º06.23’ | 4.9 | 0.0 | 6 | 98 | 7 | 0.11 |
| 150121 | 04:15:11.50 | 44º45.03’ | 111º06.15’ | 10.5 | 0.6W | 9 | 81 | 5 | 0.09 |
| 150121 | 04:17:27.25 | 44º44.95’ | 111º05.78’ | 9.7 | 0.0 | 8 | 111 | 7 | 0.10 |
| 150121 | 04:17:45.63 | 44º45.17’ | 111º05.93’ | 10.0 | 0.0 | 7 | 115 | 7 | 0.12 |
| 150121 | 04:18:40.61 | 44º45.05’ | 111º06.41’ | 9.8 | 0.3 | 9 | 106 | 7 | 0.10 |
| 150121 | 04:19:10.70 | 44º45.24’ | 111º06.07’ | 10.8 | 0.0 | 8 | 110 | 8 | 0.10 |
| 150121 | 04:19:16.32 | 44º45.50’ | 111º06.06’ | 11.6 | 1.6 | 7 | 112 | 8 | 0.15 |
| 150121 | 04:19:54.21 | 44º45.12’ | 111º05.99’ | 8.1 | 0.4 | 9 | 113 | 7 | 0.14 |
| 150121 | 04:20:18.91 | 44º44.55’ | 111º06.26’ | 9.4 | -0.4 | 7 | 126 | 7 | 0.10 |
| 150121 | 04:26:57.67 | 44º44.92’ | 111º06.10’ | 9.9 | 0.6W | 12 | 106 | 7 | 0.12 |
| 150121 | 04:30:35.00 | 44º44.41’ | 111º05.95’ | 8.0 | 0.3 | 9 | 101 | 8 | 0.13 |
| 150121 | 04:33:48.85 | 44º44.35’ | 111º05.80’ | 8.1 | 0.5W | 11 | 100 | 8 | 0.12 |
| 150121 | 04:34:08.85 | 44º45.11’ | 111º06.14’ | 10.6 | 0.8W | 9 | 113 | 7 | 0.08 |
| 150121 | 04:36:54.52 | 44º45.01’ | 111º05.95’ | 9.3 | 0.2 | 11 | 107 | 7 | 0.12 |
| 150121 | 04:50:48.68 | 44º44.52’ | 111º05.98’ | 8.0 | 0.0 | 9 | 157 | 8 | 0.14 |
| 150121 | 04:53:09.63 | 44º44.84’ | 111º06.14’ | 9.2 | 0.2 | 9 | 108 | 7 | 0.12 |
| 150121 | 04:57:18.58 | 44º44.68’ | 111º05.93’ | 8.7 | 0.4W | 10 | 106 | 8 | 0.12 |
| 150121 | 04:57:35.22 | 44º44.58’ | 111º06.35’ | 7.6 | 0.0 | 9 | 103 | 7 | 0.11 |
| 150121 | 05:00:41.05 | 44º44.92’ | 111º05.82’ | 9.2 | 0.0 | 7 | 110 | 7 | 0.09 |
| 150121 | 05:02:47.50 | 44º44.89’ | 111º05.89’ | 9.5 | 0.7W | 12 | 110 | 7 | 0.13 |
| 150121 | 05:04:59.41 | 44º45.20’ | 111º05.78’ | 11.8 | 0.5 | 9 | 110 | 7 | 0.06 |
| 150121 | 05:05:14.01 | 44º44.93’ | 111º05.70’ | 11.3 | 1.3W | 14 | 86 | 5 | 0.11 |
| 150121 | 05:11:15.41 | 44º45.02’ | 111º05.95’ | 11.6 | 1.5W | 17 | 83 | 5 | 0.09 |
| 150121 | 05:14:36.18 | 44º44.49’ | 111º05.84’ | 7.3 | 0.1 | 10 | 103 | 7 | 0.12 |
| 150121 | 05:18:40.23 | 44º45.08’ | 111º05.92’ | 11.0 | 1.0W | 12 | 109 | 7 | 0.09 |
| 150121 | 05:19:07.10 | 44º44.92’ | 111º05.63’ | 10.9 | -0.1 | 9 | 111 | 7 | 0.10 |
| 150121 | 05:19:56.86 | 44º45.13’ | 111º05.63’ | 10.9 | 0.7W | 11 | 110 | 7 | 0.10 |
| 150121 | 05:25:44.39 | 44º44.66’ | 111º06.77’ | 6.7 | -0.7 | 6 | 103 | 7 | 0.14 |

**Table 2. Earthquakes in the Yellowstone Region: January 1–March 31, 2015**

| DATE | ORIGIN TIME | LATITUDE | LONGITUDE | DEPTH | MAG | NO | GAP | DMN | RMS |
|---|---|---|---|---|---|---|---|---|---|
| 150121 | 05:25:54.12 | 44º44.63’ | 111º06.25’ | 6.7 | -0.1 | 7 | 104 | 7 | 0.08 |
| 150121 | 05:36:37.89 | 44º44.39’ | 111º06.28’ | 7.3 | -0.3 | 9 | 100 | 7 | 0.16 |
| 150121 | 05:44:48.14 | 44º44.72’ | 111º06.02’ | 8.3 | 0.4W | 10 | 107 | 8 | 0.10 |
| 150121 | 06:00:46.06 | 44º44.93’ | 111º05.66’ | 9.7 | 0.0 | 13 | 108 | 7 | 0.11 |
| 150121 | 06:14:25.92 | 44º45.11’ | 111º05.26’ | 11.8 | 0.6W | 10 | 111 | 7 | 0.10 |
| 150121 | 06:35:45.57 | 44º44.47’ | 111º06.34’ | 8.8 | 0.5W | 12 | 75 | 6 | 0.14 |
| 150121 | 06:42:50.11 | 44º44.75’ | 111º05.68’ | 11.4 | 1.1W | 17 | 85 | 6 | 0.15 |
| 150121 | 07:07:30.68 | 44º44.61’ | 111º06.20’ | 8.0 | 0.3 | 9 | 104 | 7 | 0.11 |
| 150121 | 07:26:39.11 | 44º44.93’ | 111º05.92’ | 11.4 | 1.1W | 13 | 83 | 5 | 0.13 |
| 150121 | 07:26:52.40 | 44º44.58’ | 111º06.32’ | 12.1 | 0.0 | 6 | 125 | 6 | 0.07 |
| 150121 | 07:27:35.09 | 44º45.28’ | 111º05.86’ | 12.9 | 1.0W | 9 | 93 | 5 | 0.09 |
| 150121 | 07:27:46.16 | 44º45.13’ | 111º06.46’ | 12.0 | 0.6 | 8 | 83 | 5 | 0.09 |
| 150121 | 07:31:31.86 | 44º44.52’ | 111º06.22’ | 9.0 | 0.5W | 7 | 157 | 7 | 0.16 |
| 150121 | 07:43:32.57 | 44º45.01’ | 111º06.16’ | 10.4 | 0.1 | 10 | 111 | 7 | 0.10 |
| 150121 | 08:15:30.09 | 44º44.67’ | 111º05.58’ | 11.1 | 1.1W | 15 | 86 | 6 | 0.13 |
| 150121 | 08:34:19.41 | 44º44.32’ | 111º06.10’ | 7.2 | 0.1 | 10 | 100 | 8 | 0.16 |
| 150121 | 10:22:14.09 | 44º44.83’ | 111º05.96’ | 11.2 | 1.3W | 16 | 82 | 5 | 0.11 |
| 150121 | 10:32:40.21 | 44º45.06’ | 111º05.78’ | 11.4 | 0.7W | 10 | 86 | 5 | 0.04 |
| 150121 | 10:54:39.32 | 44º44.74’ | 111º06.20’ | 9.1 | 0.9W | 12 | 89 | 6 | 0.15 |
| 150121 | 10:56:54.30 | 44º44.83’ | 111º05.72’ | 10.6 | 0.6W | 11 | 85 | 6 | 0.11 |
| 150121 | 10:57:53.04 | 44º44.58’ | 111º06.07’ | 7.9 | 0.7 | 10 | 104 | 8 | 0.16 |
| 150121 | 10:58:11.11 | 44º46.12’ | 111º06.41’ | 8.7 | 0.1 | 9 | 130 | 7 | 0.20 |
| 150121 | 10:59:25.72 | 44º44.73’ | 111º06.22’ | 9.2 | 0.6W | 9 | 106 | 7 | 0.13 |
| 150121 | 11:00:01.84 | 44º44.47’ | 111º06.09’ | 6.5 | 0.3 | 8 | 102 | 8 | 0.14 |
| 150121 | 11:01:20.50 | 44º44.23’ | 111º06.18’ | 8.4 | 1.0W | 11 | 74 | 7 | 0.15 |
| 150121 | 11:04:02.49 | 44º45.04’ | 111º05.69’ | 12.1 | 0.9W | 11 | 87 | 5 | 0.09 |
| 150121 | 11:05:00.79 | 44º45.06’ | 111º05.82’ | 11.1 | 1.0W | 12 | 85 | 5 | 0.11 |
| 150121 | 11:12:28.14 | 44º44.39’ | 111º06.16’ | 8.1 | 0.8 | 10 | 101 | 8 | 0.13 |
| 150121 | 11:21:54.84 | 44º44.57’ | 111º06.25’ | 8.4 | 0.0 | 10 | 103 | 7 | 0.13 |
| 150121 | 13:49:24.14 | 44º45.03’ | 111º05.90’ | 10.7 | 0.9W | 14 | 84 | 5 | 0.13 |
| 150121 | 18:49:56.53 | 44º44.26’ | 111º06.22’ | 8.6 | 1.1W | 13 | 73 | 7 | 0.16 |
| 150122 | 11:13:58.54 | 44º43.57’ | 111º06.17’ | 11.9 | 1.3W | 16 | 74 | 8 | 0.13 |
| 150123 | 06:09:44.76 | 44º05.22’ | 110º38.59’ | 7.2 | 1.6W | 15 | 136 | 5 | 0.14 |
| 150123 | 06:55:35.58 | 44º51.54’ | 111º23.92’ | 4.0 | 1.5 | 11 | 217 | 4 | 0.15 |
| 150127 | 06:56:28.83 | 44º49.07’ | 111º00.33’ | 6.7 | 1.1W | 19 | 179 | 6 | 0.16 |
| 150127 | 17:28:25.20 | 44º47.52’ | 111º20.29’ | 11.5 | 0.4 | 9 | 120 | 8 | 0.12 |
| 150130 | 23:46:52.94 | 44º36.96’ | 110º39.90’ | 5.5 | 1.4W | 18 | 58 | 2 | 0.13 |
| 150131 | 09:02:00.50 | 44º35.87’ | 110º24.22’ | 3.2 | 1.0 | 10 | 189 | 4 | 0.10 |
| 150131 | 09:02:11.97 | 44º36.16’ | 110º23.02’ | 4.1 | 1.0 | 8 | 199 | 4 | 0.13 |
| 150131 | 09:02:32.61 | 44º36.25’ | 110º21.85’ | 3.7 | 1.6W | 10 | 185 | 5 | 0.08 |
| 150131 | 19:51:06.69 | 44º21.26’ | 110º45.51’ | 6.3 | 1.0 | 11 | 114 | 10 | 0.22 |
| 150131 | 22:48:40.12 | 44º43.57’ | 111º14.16’ | 13.2 | 0.8 | 11 | 118 | 2 | 0.12 |
| 150131 | 22:51:36.87 | 44º43.61’ | 111º14.64’ | 14.3 | 1.3W | 19 | 96 | 2 | 0.13 |
| 150201 | 20:19:15.68 | 44º40.98’ | 110º17.55’ | 4.9 | 1.1 | 7 | 145 | 9 | 0.04 |
| 150201 | 20:53:17.96 | 44º45.89’ | 110º27.83’ | 3.7 | 1.6W | 11 | 203 | 6 | 0.14 |

**Table 2. Earthquakes in the Yellowstone Region: January 1–March 31, 2015**

| DATE | ORIGIN TIME | LATITUDE | LONGITUDE | DEPTH | MAG | NO | GAP | DMN | RMS |
|---|---|---|---|---|---|---|---|---|---|
| 150202 | 05:17:03.76 | 44º46.53' | 111º04.43' | 11.6 | 2.4W | 30 | 67 | 3 | 0.17 |
| 150202 | 05:34:48.66 | 44º45.58' | 111º03.88' | 8.9 | 1.0W | 15 | 118 | 5 | 0.13 |
| 150202 | 08:08:58.66 | 44º45.72' | 111º04.06' | 7.7 | 0.0 | 12 | 122 | 5 | 0.17 |
| 150202 | 11:20:26.15 | 44º32.80' | 110º29.95' | 8.4 | 1.5W | 13 | 113 | 8 | 0.10 |
| 150202 | 21:58:07.93 | 44º30.22' | 110º15.58' | 2.0 | 1.2 | 8 | 225 | 1 | 0.05 |
| 150203 | 02:09:54.70 | 44º45.47' | 111º02.61' | 9.1 | 0.3 | 14 | 123 | 3 | 0.16 |
| 150204 | 07:19:27.58 | 44º35.43' | 110º26.09' | 9.2 | 0.1 | 7 | 186 | 4 | 0.09 |
| 150205 | 21:20:32.94 | 44º45.01' | 111º05.12' | 10.1 | 0.0 | 11 | 111 | 6 | 0.14 |
| 150205 | 21:41:00.46 | 44º44.61' | 111º05.21' | 10.6 | 1.6W | 17 | 88 | 6 | 0.14 |
| 150206 | 03:42:56.68 | 44º06.41' | 110º47.05' | 11.6 | 1.1 | 10 | 111 | 7 | 0.20 |
| 150206 | 03:43:22.32 | 44º06.31' | 110º46.88' | 11.6 | 1.2 | 10 | 111 | 7 | 0.21 |
| 150206 | 07:51:58.80 | 44º34.10' | 110º40.12' | 5.5 | 1.5W | 16 | 66 | 5 | 0.10 |
| 150206 | 23:18:23.74 | 44º06.54' | 110º47.45' | 10.6 | 1.0 | 13 | 103 | 8 | 0.22 |
| 150207 | 10:15:29.95 | 44º45.00' | 111º04.52' | 8.8 | 0.4 | 11 | 117 | 6 | 0.16 |
| 150208 | 06:02:21.82 | 44º21.89' | 110º44.83' | 2.2* | 1.4 | 9 | 93 | 11 | 0.07 |
| 150208 | 15:30:10.09 | 44º46.13' | 111º08.72' | 9.1 | 0.1 | 10 | 102 | 4 | 0.11 |
| 150209 | 07:23:38.21 | 44º48.79' | 110º58.92' | 5.8 | -0.1 | 6 | 179 | 6 | 0.10 |
| 150211 | 01:52:07.34 | 44º53.25' | 111º28.03' | 8.7 | 2.4W | 30 | 90 | 7 | 0.19 |
| 150211 | 08:59:09.42 | 44º09.80' | 110º16.47' | 5.7* | 1.0 | 14 | 113 | 17 | 0.12 |
| 150211 | 10:05:33.26 | 44º37.71' | 110º44.72' | 8.1 | 0.8W | 12 | 79 | 8 | 0.11 |
| 150211 | 23:29:44.41 | 44º44.00' | 111º01.79' | 9.6 | -0.1 | 7 | 135 | 3 | 0.08 |
| 150212 | 11:13:55.88 | 44º30.85' | 111º09.74' | 15.2 | 0.9 | 13 | 162 | 11 | 0.17 |
| 150213 | 00:41:48.70 | 44º39.38' | 110º28.63' | 2.9 | 1.4W | 12 | 106 | 7 | 0.11 |
| 150213 | 00:58:42.80 | 44º47.57' | 111º21.26' | 10.2 | 0.6 | 5 | 138 | 7 | 0.02 |
| 150213 | 01:42:50.87 | 44º39.73' | 110º28.49' | 4.9 | 1.4W | 12 | 108 | 6 | 0.20 |
| 150213 | 02:34:25.77 | 44º29.68' | 110º34.05' | -2.6 | 1.2W | 7 | 117 | 7 | 0.09 |
| 150213 | 02:34:57.92 | 44º29.63' | 110º32.79' | 4.6 | 1.0 | 13 | 93 | 7 | 0.09 |
| 150213 | 02:38:10.96 | 44º29.83' | 110º35.34' | 3.7 | 1.4 | 7 | 198 | 7 | 0.08 |
| 150215 | 02:49:48.31 | 44º45.61' | 111º02.52' | 9.7 | 0.6 | 18 | 125 | 3 | 0.18 |
| 150215 | 03:05:21.90 | 44º44.21' | 111º02.85' | 7.8 | -0.2 | 6 | 221 | 4 | 0.08 |
| 150215 | 06:38:33.17 | 44º45.67' | 111º02.07' | 10.2 | 0.3 | 16 | 127 | 2 | 0.14 |
| 150215 | 21:14:40.77 | 44º45.00' | 111º13.78' | 11.2 | 1.9W | 21 | 77 | 3 | 0.17 |
| 150215 | 23:00:07.81 | 44º45.37' | 111º13.33' | 7.9 | 0.2 | 7 | 151 | 2 | 0.07 |
| 150215 | 23:02:27.66 | 44º45.46' | 111º13.28' | 7.3 | 0.2 | 8 | 152 | 2 | 0.11 |
| 150215 | 23:04:48.36 | 44º44.33' | 111º11.98' | 5.2 | 0.3 | 7 | 146 | 1 | 0.08 |
| 150216 | 12:32:51.42 | 44º48.36' | 110º51.29' | 8.6 | 0.8W | 16 | 114 | 2 | 0.16 |
| 150218 | 18:36:26.58 | 44º46.83' | 111º10.75' | 9.4 | 0.8 | 13 | 77 | 4 | 0.13 |
| 150219 | 12:32:27.90 | 44º45.24' | 111º05.63' | 11.3 | 0.6 | 12 | 90 | 5 | 0.16 |
| 150219 | 14:00:32.33 | 44º45.15' | 111º04.99' | 11.6 | -0.2 | 9 | 112 | 6 | 0.13 |
| 150219 | 17:16:06.29 | 44º48.30' | 111º00.51' | 6.1 | 2.3W | 30 | 122 | 5 | 0.14 |
| 150220 | 08:11:04.09 | 44º48.50' | 111º00.42' | 5.5 | 1.2W | 16 | 171 | 5 | 0.12 |
| 150220 | 14:09:08.69 | 44º34.00' | 110º43.39' | 5.9 | 1.8 | 11 | 85 | 8 | 0.10 |
| 150220 | 15:31:23.78 | 44º19.42' | 111º00.16' | 2.1* | 1.2 | 7 | 122 | 17 | 0.09 |
| 150220 | 19:15:54.61 | 44º48.15' | 111º00.54' | 5.2 | 2.4W | 27 | 120 | 5 | 0.15 |
| 150220 | 19:30:13.08 | 44º48.12' | 111º00.70' | 5.4 | 2.0W | 28 | 121 | 5 | 0.15 |

**Table 2. Earthquakes in the Yellowstone Region: January 1–March 31, 2015**

| DATE | ORIGIN TIME | LATITUDE | LONGITUDE | DEPTH | MAG | NO | GAP | DMN | RMS |
|---|---|---|---|---|---|---|---|---|---|
| 150220 | 23:30:43.29 | 45º04.61’ | 110º23.02’ | 4.5* | 0.9 | 8 | 149 | 28 | 0.20 |
| 150221 | 08:41:24.48 | 44º24.71’ | 111º00.35’ | 5.1* | 0.9W | 10 | 121 | 14 | 0.09 |
| 150221 | 08:42:06.98 | 44º24.61’ | 111º01.41’ | 2.8* | 1.1W | 6 | 161 | 16 | 0.09 |
| 150221 | 19:54:11.33 | 44º48.08’ | 111º00.25’ | 5.1 | 1.1W | 14 | 164 | 5 | 0.14 |
| 150221 | 21:27:42.18 | 44º40.50’ | 110º27.58’ | 2.0 | 1.1 | 7 | 125 | 6 | 0.13 |
| 150222 | 01:27:08.12 | 44º46.20’ | 111º13.16’ | 10.5 | -0.1 | 9 | 99 | 3 | 0.09 |
| 150222 | 01:27:15.85 | 44º46.11’ | 111º13.05’ | 10.6 | 0.6 | 12 | 97 | 3 | 0.12 |
| 150222 | 03:09:31.95 | 44º42.69’ | 111º02.88’ | 9.2 | 0.3 | 10 | 145 | 6 | 0.13 |
| 150222 | 12:50:01.32 | 44º38.91’ | 110º43.52’ | 7.1 | 0.2 | 5 | 176 | 8 | 0.02 |
| 150222 | 17:21:46.39 | 44º48.52’ | 111º00.42’ | 5.1 | 1.4W | 17 | 171 | 5 | 0.15 |
| 150223 | 08:17:56.66 | 44º45.67’ | 111º13.78’ | 12.3 | 0.8 | 15 | 109 | 3 | 0.15 |
| 150224 | 08:23:19.66 | 44º44.76’ | 111º08.73’ | 13.7 | 0.3 | 14 | 92 | 4 | 0.16 |
| 150226 | 01:09:31.82 | 44º46.08’ | 111º03.81’ | 10.2 | 1.5W | 20 | 127 | 5 | 0.14 |
| 150226 | 02:41:43.79 | 45º03.20’ | 110º57.40’ | 20.7 | 0.6 | 7 | 195 | 23 | 0.10 |
| 150226 | 04:12:03.18 | 44º46.33’ | 110º48.91’ | 4.8 | 1.5W | 20 | 81 | 3 | 0.19 |
| 150226 | 08:31:10.39 | 44º44.86’ | 111º10.87’ | 12.8 | 1.0W | 15 | 64 | 1 | 0.12 |
| 150226 | 11:27:35.76 | 44º44.99’ | 110º49.18’ | 8.6 | 0.1 | 8 | 137 | 5 | 0.05 |
| 150227 | 07:44:12.66 | 44º47.23’ | 111º07.37’ | 11.6 | 0.4 | 13 | 122 | 7 | 0.15 |
| 150227 | 21:14:00.01 | 44º36.71’ | 110º40.39’ | 6.4 | -- | 11 | 57 | 2 | 0.14 |
| 150228 | 02:56:55.89 | 44º40.71’ | 111º00.54’ | 10.7 | 0.6 | 16 | 102 | 4 | 0.15 |
| 150228 | 03:12:20.76 | 44º45.18’ | 110º56.26’ | 7.2 | 0.1 | 15 | 120 | 5 | 0.13 |
| 150228 | 03:49:26.98 | 44º34.34’ | 110º45.11’ | 6.2 | 0.6 | 8 | 141 | 9 | 0.12 |
| 150228 | 04:30:12.85 | 44º46.85’ | 111º27.85’ | 13.3 | 0.8 | 8 | 90 | 6 | 0.03 |
| 150228 | 14:11:31.55 | 44º44.28’ | 111º09.11’ | 8.7 | 1.9W | 22 | 63 | 4 | 0.15 |
| 150228 | 14:15:03.36 | 44º44.55’ | 111º08.88’ | 9.2 | 0.9W | 14 | 78 | 4 | 0.18 |
| 150228 | 14:17:44.30 | 44º37.11’ | 110º26.15’ | 4.7 | 1.0 | 7 | 143 | 7 | 0.09 |
| 150301 | 09:37:41.78 | 44º47.11’ | 110º48.81’ | 5.5 | -0.1 | 9 | 201 | 3 | 0.16 |
| 150301 | 10:55:59.75 | 44º40.60’ | 111º01.59’ | 7.5 | 0.4 | 12 | 85 | 5 | 0.19 |
| 150303 | 02:11:47.98 | 44º33.92’ | 110º44.90’ | 6.8 | 1.9 | 7 | 95 | 9 | 0.10 |
| 150303 | 03:55:23.24 | 44º23.94’ | 110º36.56’ | 1.9 | 1.3W | 18 | 55 | 3 | 0.13 |
| 150303 | 23:40:08.39 | 44º48.35’ | 111º00.18’ | 5.2 | 0.2 | 12 | 169 | 5 | 0.12 |
| 150304 | 09:07:44.63 | 44º53.57’ | 111º28.25’ | 7.6 | 1.5W | 18 | 109 | 8 | 0.16 |
| 150304 | 23:18:07.66 | 44º45.95’ | 111º03.62’ | 9.6 | 1.1W | 16 | 126 | 4 | 0.13 |
| 150305 | 03:45:51.83 | 44º39.13’ | 110º25.94’ | 4.3 | 1.9W | 17 | 128 | 9 | 0.15 |
| 150305 | 07:34:30.03 | 44º48.29’ | 111º00.26’ | 5.9 | 1.1W | 11 | 168 | 5 | 0.12 |
| 150305 | 12:45:51.03 | 44º36.11’ | 111º00.73’ | 5.6 | 0.6 | 8 | 87 | 7 | 0.06 |
| 150306 | 08:23:39.36 | 44º48.89’ | 111º00.33’ | 5.8 | 1.3W | 20 | 117 | 6 | 0.17 |
| 150306 | 22:29:53.53 | 44º47.17’ | 110º47.89’ | 2.9 | 0.4 | 8 | 215 | 4 | 0.14 |
| 150307 | 13:16:38.77 | 44º22.60’ | 110º54.54’ | 2.0 | 1.6W | 6 | 209 | 10 | 0.18 |
| 150307 | 13:17:01.67 | 44º24.73’ | 110º50.84’ | 2.0 | 1.7 | 6 | 175 | 4 | 0.05 |
| 150307 | 13:20:15.57 | 44º24.84’ | 110º51.60’ | 2.6 | 1.3 | 9 | 92 | 5 | 0.09 |
| 150307 | 13:21:24.51 | 44º24.58’ | 110º51.12’ | 1.7 | 0.9 | 6 | 115 | 5 | 0.04 |
| 150307 | 13:22:13.99 | 44º24.66’ | 110º51.24’ | 1.7 | 1.1 | 6 | 115 | 5 | 0.02 |
| 150307 | 14:49:05.98 | 44º24.64’ | 110º41.67’ | 3.6 | 1.1 | 10 | 110 | 9 | 0.09 |
| 150310 | 14:05:41.54 | 44º32.53’ | 111º05.48’ | 14.5 | 0.2 | 13 | 137 | 7 | 0.09 |

**Table 2. Earthquakes in the Yellowstone Region: January 1–March 31, 2015**

| DATE | ORIGIN TIME | LATITUDE | LONGITUDE | DEPTH | MAG | NO | GAP | DMN | RMS |
|---|---|---|---|---|---|---|---|---|---|
| 150311 | 01:01:48.57 | 44º45.36’ | 111º11.48’ | 9.3 | -0.1 | 14 | 79 | 1 | 0.16 |
| 150311 | 01:25:50.81 | 44º45.52’ | 111º12.23’ | 12.1 | 1.5W | 18 | 60 | 1 | 0.16 |
| 150311 | 19:30:06.30 | 44º33.61’ | 110º56.67’ | 11.3 | 0.4 | 10 | 94 | 10 | 0.08 |
| 150313 | 08:10:26.30 | 44º46.33’ | 111º11.19’ | 7.7 | 0.0 | 7 | 194 | 2 | 0.09 |
| 150314 | 02:00:42.02 | 44º33.35’ | 110º22.10’ | 4.3 | 1.9W | 21 | 68 | 3 | 0.16 |
| 150315 | 14:30:00.86 | 44º00.12’ | 110º51.97’ | 8.4 | 1.6W | 21 | 131 | 16 | 0.13 |
| 150315 | 20:23:48.89 | 44º14.49’ | 110º46.83’ | 3.1 | 1.3 | 8 | 111 | 4 | 0.04 |
| 150317 | 11:30:06.74 | 44º46.81’ | 111º05.11’ | 8.9 | 0.0 | 11 | 131 | 7 | 0.12 |
| 150317 | 20:16:48.82 | 44º38.67’ | 111º00.80’ | 9.4 | 0.0W | 8 | 137 | 5 | 0.10 |
| 150317 | 20:16:53.45 | 44º38.88’ | 111º00.95’ | 9.2 | 1.0W | 12 | 133 | 5 | 0.17 |
| 150317 | 20:17:13.85 | 44º38.90’ | 111º00.77’ | 8.6 | 0.0 | 11 | 133 | 4 | 0.14 |
| 150317 | 20:23:45.56 | 44º38.99’ | 111º01.01’ | 9.3 | 0.6 | 15 | 130 | 5 | 0.15 |
| 150318 | 16:17:48.37 | 44º33.42’ | 111º03.13’ | 15.4 | 0.5 | 14 | 130 | 7 | 0.17 |
| 150319 | 22:09:38.39 | 44º36.53’ | 110º39.04’ | 3.0 | 1.4W | 11 | 110 | 1 | 0.18 |
| 150320 | 06:22:15.53 | 44º34.91’ | 110º21.43’ | 4.0 | 0.6 | 8 | 136 | 4 | 0.06 |
| 150320 | 13:39:46.71 | 44º43.41’ | 110º32.54’ | 4.9 | 1.8W | 9 | 170 | 3 | 0.13 |
| 150321 | 16:27:31.03 | 44º18.66’ | 110º35.53’ | 6.5 | 1.1 | 14 | 66 | 7 | 0.25 |
| 150321 | 16:29:16.70 | 44º18.67’ | 110º36.17’ | 6.2 | 1.5W | 14 | 61 | 8 | 0.19 |
| 150321 | 16:34:50.18 | 44º18.69’ | 110º36.50’ | 4.4 | 1.6W | 13 | 62 | 8 | 0.14 |
| 150322 | 06:39:25.50 | 44º48.83’ | 110º58.74’ | 8.2 | 2.0W | 24 | 127 | 6 | 0.19 |
| 150323 | 04:19:39.01 | 44º44.36’ | 110º32.75’ | 4.3 | 2.0W | 10 | 187 | 4 | 0.15 |
| 150323 | 07:25:34.47 | 44º45.12’ | 110º32.52’ | 7.2 | 2.2W | 14 | 135 | 5 | 0.16 |
| 150323 | 14:03:07.71 | 44º44.86’ | 110º32.52’ | 7.0 | 1.5 | 13 | 134 | 4 | 0.17 |
| 150325 | 03:23:06.56 | 44º48.95’ | 111º01.65’ | 7.1 | 1.4W | 19 | 128 | 7 | 0.14 |
| 150325 | 03:44:20.54 | 44º48.90’ | 111º01.66’ | 6.1 | 0.9W | 16 | 172 | 6 | 0.15 |
| 150325 | 04:00:53.52 | 44º48.78’ | 111º01.83’ | 6.0 | -0.3 | 11 | 170 | 6 | 0.16 |
| 150325 | 22:11:33.09 | 44º19.19’ | 110º36.77’ | 0.5 | 1.1 | 8 | 97 | 9 | 0.10 |
| 150326 | 07:53:09.95 | 44º43.56’ | 111º05.03’ | 12.4 | -0.2 | 9 | 164 | 7 | 0.29 |
| 150326 | 07:53:27.00 | 44º43.64’ | 111º05.73’ | 9.9 | 0.3W | 13 | 89 | 8 | 0.18 |
| 150326 | 14:04:27.53 | 44º43.53’ | 111º05.65’ | 11.4 | 0.6W | 18 | 75 | 8 | 0.14 |
| 150327 | 02:46:01.06 | 44º25.66’ | 110º37.39’ | 3.8 | 1.0W | 8 | 151 | 3 | 0.12 |
| 150328 | 05:01:32.23 | 44º25.88’ | 110º18.96’ | 11.2 | 1.2 | 12 | 128 | 5 | 0.10 |
| 150328 | 06:04:01.84 | 44º25.81’ | 110º18.80’ | 11.3 | 1.5W | 15 | 131 | 5 | 0.14 |
| 150328 | 10:51:18.05 | 44º26.12’ | 110º20.74’ | 3.0 | 0.6 | 10 | 118 | 7 | 0.10 |
| 150329 | 14:07:06.73 | 44º32.26’ | 110º30.16’ | 2.0 | 1.9W | 22 | 59 | 8 | 0.09 |
| 150329 | 14:41:13.60 | 44º32.11’ | 110º29.87’ | 4.6 | 1.2 | 17 | 69 | 8 | 0.12 |
| 150329 | 15:54:13.29 | 44º32.12’ | 110º59.00’ | 13.9 | 0.2 | 13 | 108 | 12 | 0.10 |

number of earthquakes = 307
* indicates poor depth control
W indicates Wood-Anderson data used for magnitude calculation

**Table 3**
**UNIVERSITY OF UTAH YELLOWSTONE SEISMIC NETWORK**
## Operating Seismograph Stations
## March 31, 2015

| UURSN Code | Location | SEED Station | SEED Channel | No. of Channels | Network Code | Latitude | Longitude | Elevation (meters) | Sensor | Digitizer | Telemetry | Sponsor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B206* | Canyon206bwy2008, Yellowstone, WY | B206 | EH[ZEN] | 3 | PB | 44° 46.66′ | 110° 30.70′ | 2400 | IESE-S2 | Q330 | Digital | PBO |
| B207* | Madisn207bwy2007, Yellowstone, WY | B207 | EH[ZEN] | 3 | PB | 44° 37.14′ | 110° 50.91′ | 2182 | IESE-S2 | Q330 | Digital | PBO |
| B208* | Lakejn208bwy2008, Yellowstone, WY | B208 | EH[ZEN] | 3 | PB | 44° 33.61′ | 110° 24.09′ | 2406 | IESE-S2 | Q330 | Digital | PBO |
| B944* | Grantt944bwy2008, Yellowstone, WY | B944 | EH[ZEN] | 3 | PB | 44° 23.38′ | 110° 32.63′ | 2365 | IESE-S2 | Q330 | Digital | PBO |
| B945* | Panthr944swy2008, Yellowstone, WY | B945 | EH[ZEN] | 3 | PB | 44° 53.64′ | 110° 44.65′ | 2249 | IESE-S2 | Q330 | Digital | PBO |
| B950* | Norris950bwy2013, Yellowstone, WY | B950 | EH[ZEN] | 3 | PB | 44° 42.77′ | 110° 40.71′ | 2328 | IESE-S2 | Q330 | Digital | PBO |
| FLWY* | Flagg Ranch, WY | FLWY | BH[ZEN] | 3 | IW | 44° 04.96′ | 110° 41.96′ | 2078 | 3ESP | RT-130 | Digital | ANSS |
| H17A* | Grant Junction, Yellowstone, WY | H17A | BH[ZEN] | 3 | TA | 44° 24.00′ | 110° 34.80′ | 2400 | STS-2 | Q330 | Digital | ES |
| IMW | Indian Meadows, WY | IMW | BH[ZEN] | 3 | IW | 43° 53.58′ | 110° 56.58′ | 2670 | 3ESP | RT-130 | Digital | ANSS |
| LKWY* | Lake, WY | LKWY | BH[ZEN] | 3 | US | 44° 33.91′ | 110° 24.00′ | 2424 | STS-2 | Q330 | Digital | USGS |
| LOHW* | National Elk Refuge, WY | LOHW | BH[ZEN] | 3 | IW | 43° 36.76′ | 110° 36.30′ | 2245 | 3ESP | RT-130 | Digital | ANSS |
| MCID | Moose Creek, ID | MCID | EHZ | 1 | WY | 44° 11.45′ | 111° 11.03′ | 2137 | L4C | PSN | Analog | USGS |
| QLMT* | Earthquake Lake, MT | QLMT | EHZ | 1 | MB | 44° 49.84′ | 111° 25.80′ | 2064 | L4C | - | Analog | MBMT |
| REDW* | Red-Top Meadows, WY | REDW | BH[ZEN] | 3 | IW | 43° 21.74′ | 110° 51.18′ | 2322 | 3ESP | RT-130 | Digital | ANSS |
| RRI2* | Red Ridge, ID | RRI2 | BH[ZEN] | 3 | IW | 43° 20.84′ | 111° 19.20′ | 2547 | 3ESP | RT-130 | Digital | ANSS |
| TPMT* | Teepe Creek, MT | TPMT | EHZ | 1 | MB | 44° 43.79′ | 111° 39.94′ | 2518 | L4C | - | Analog | MBMT |
| YDC | Denny Creek, MT | YDC | EHZ | 1 | WY | 44° 42.51′ | 111° 14.60′ | 2025 | L4C | PSN | Analog | USGS |
| YFT | Old Faithful (YNP), WY | YFT | HH[ZEN] | 3 | WY | 44° 27.05′ | 110° 50.24′ | 2292 | Trillium 120 | 72A-07 | Digital | USGS |
| | | | EN[ZEN] | 3 | | | | | Titan | | | |
| | | | EHZ | 1 | | | | | L4C | None | None | |
| YGC | Grayling Creek, MT | YGC | EHZ | 1 | WY | 44° 47.77′ | 111° 06.45′ | 2075 | L4C | PSN | Analog | USGS |
| YHB | Horse Butte, MT | YHB | EHZ | 1 | WY | 44° 45.07′ | 111° 11.71′ | 2157 | L4C | PSN | Analog | USGS |
| | | | HH[ZEN] | 3 | | | | | 40T | ANSS-130 | Digital | |
| | | | EN[ZEN] | 3 | | | | | Titan | | | |
| YHH | Holmes Hill (YNP), WY | YHH | EHZ | 1 | WY | 44° 47.30′ | 110° 51.03′ | 2717 | S13 | PSN | Analog | USGS |
| | | | HH[ZEN] | 3 | | | | | Trillium 120 | Q330 | Digital | |
| | | | EN[ZEN] | 3 | | | | | Titan | | | |
| YHL | Hebgen Lake, MT | YHL | HH[ZEN] | 3 | WY | 44° 51.05′ | 111° 10.98′ | 2691 | Trillium 120 | Q330 | Digital | USGS |
| | | | EN[ZEN] | 3 | | | | | Titan | | | |

| UURSN Code | Location | SEED Station | SEED Channel | No. of Channels | Network Code | Latitude | Longitude | Elevation (meters) | Sensor | Digitizer | Telemetry | Sponsor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| YHR | Hawk's Rest, WY | YHR | HH[ZEN] | 3 | WY | 44° 06.36′ | 110° 04.90′ | 2976 | Trillium 120 | Q330 | Digital | USGS |
| YJC | Joseph′s Coat (YNP), WY | YJC | EH[ZEN] | 3 | WY | 44° 45.33′ | 110° 20.95′ | 2684 | S13 | PSN | Analog | USGS |
| YLA | Lake Butte (YNP), WY | YLA | EHZ | 1 | WY | 44° 30.76′ | 110° 16.12′ | 2580 | L4C | PSN | Analog | USGS |
| YLT | Little Thumb Creek (YNP), WY | YLT | EHZ | 1 | WY | 44° 26.25′ | 110° 35.28′ | 2439 | L4C | PSN | Analog | USGS |
| YMC | Maple Creek (YNP), WY | YMC | EH[ZEN] | 3 | WY | 44° 45.53′ | 111° 00.41′ | 2073 | S13 | PSN | Analog | USGS |
| YML | Mary Lake (YNP), WY | YML | EH[ZEN] | 3 | WY | 44° 36.20′ | 110° 38.63′ | 2653 | L4C | PSN | Analog | USGS |
| YMP | Mirror Plateau (YNP), WY | YMP | EHZ | 1 | WY | 44° 44.38′ | 110° 09.40′ | 2774 | S13 | PSN | Analog | USGS |
| | | | HH[ZEN] | 3 | | | | | Trillium 120 | Q330 | Digital | |
| | | | EN[ZEN] | 3 | | | | | Titan | | | |
| YMR | Madison River (YNP), WY | YMR | HH[ZEN] | 3 | WY | 44° 40.12′ | 110° 57.90′ | 2149 | Trillium 120 | Q330 | Digital | USGS |
| | | | EN[ZEN] | 3 | | | | | Titan | | | |
| YMS | Mount Sheridan (YNP), WY | YMS | EHZ | 1 | WY | 44° 15.84′ | 110° 31.67′ | 3106 | L4C | PSN | Analog | USGS |
| YMV | Mammoth Vault (YNP), WY | YMV | EHZ | 1 | WY | 44° 58.42′ | 110° 41.33′ | 1829 | L4C | PSN | Analog | USGS |
| YNE | Northeast Entrance (YNP), WY | YNE | HH[ZEN] | 3 | WY | 45° 00.46′ | 110° 00.48′ | 2343 | Compact | Taurus | Digital | USGS |
| YNM | Norris Museum (YNP), WY | YNM | HH[ZEN] | 3 | WY | 44° 43.59′ | 110° 42.22′ | 2311 | Trillium 240 | Q330 | Digital | USGS |
| YNR | Norris Junction (YNP), WY | YNR | HH[ZEN] | 3 | WY | 44° 42.93′ | 110° 40.75′ | 2336 | Trillium 120 | RT-130 | Digital | USGS |
| | | | EN[ZEN] | 3 | | | | | Titan | | | |
| YPC | Pelican Cone (YNP), WY | YPC | EHZ | 1 | WY | 44° 38.88′ | 110° 11.55′ | 2932 | L4C | PSN | Analog | USGS |
| YPK | Parker Peak (YNP), WY | YPK | EH[ZEN] | 3 | WY | 44° 43.91′ | 109° 55.32′ | 2897 | L4C | PSN | Analog | USGS |
| YPM | Purple Mountain (YNP), WY | YPM | EHZ | 1 | WY | 44° 39.43′ | 110° 52.12′ | 2582 | L4C | PSN | Analog | USGS |
| YPP | Pitchstone Plateau (YNP), WY | YPP | EHZ | 1 | WY | 44° 16.26′ | 110° 48.27′ | 2707 | S13 | PSN | Analog | USGS |
| | | | HH[ZEN] | 3 | | | | | Trillium 120 | Q330 | Digital | |
| | | | EN[ZEN] | 3 | | | | | Titan | | | |
| YSB | Soda Butte (YNP), WY | YSB | EHZ | 1 | WY | 44° 53.04′ | 110° 09.06′ | 2072 | L4C | PSN | Analog | USGS |
| YTP | The Promontory (YNP), WY | YTP | EHZ | 1 | WY | 44° 23.51′ | 110° 17.10′ | 2384 | L4 | PSN | Analog | USGS |
| | | | HH[ZEN] | 3 | | | | | Trillium 120 | Q330 | Digital | |
| | | | EN[ZEN] | 3 | | | | | Titan | | | |
| YUF | Upper Falls (YNP), WY | YUF | HH[ZEN] | 3 | WY | 44° 42.76′ | 110° 30.71′ | 2394 | 3ESP | ANSS-130 | Digital | USGS |
| | | | EN[ZEN] | 3 | | | | | Titan | | | |
| YWB | West Boundary (YNP), WY | YWB | EHZ | 1 | WY | 44° 36.35′ | 111° 06.05′ | 2310 | L4C | PSN | Analog | USGS |

* Station operated by another agency and recorded as part of the Yellowstone Seismic Network
Network Statistics: 139 data channels from 43 stations were being recorded at the end of this report period

## EXPLANATION OF TABLE

**UURSN Code:** Station code formerly used in routine processing. Due to processing software limitations, the station code may not be the station code used by the original operator. For multi-component stations, the vertical, east-west, and north-south high gain (low gain) components are identified by an appended Z(V), E(L), and N(M), respectively, in UUSS phase files.

**Location:** General description of station location. YNP = Yellowstone National Park.

**SEED Station:** The SEED (Standard for the Exchange of Earthquake Data) station code used by the original operator.

**SEED Channel:** The SEED format uses three letters to name seismic channels. See <<http://www.iris.edu/manuals/SEEDManual_V2.4.pdf>> for information about the SEED channel naming convention. Relevant sections are reproduced below. In the SEED convention, each letter describes one aspect of the instrumentation and its digitization. The first letter specifies the general sampling rate and the response band of the instrument. Band codes used in this table include:

| Band Code | Band Type | Sample Rate | Corner Period |
|---|---|---|---|
| E | Extremely short period | ≥ 80 Hertz | < 10 seconds |
| H | High broadband | ≥ 80 Hertz | ≥ 10 seconds |
| B | Broadband | ≥ 10 to < 80 Hertz | ≥10 seconds |
| S | Short period | ≥ 10 to < 80 Hertz | < 10 seconds |

The second letter specifies the family to which the sensor belongs. Sensor families used in this table are:

| Instrument Code | Description |
|---|---|
| H | High gain seismometer |
| L | Low gain seismometer |
| N | Accelerometer |

The third letter specifies the physical configuration of the members of a multiple axis instrument package. Channel orientations used in this table are:

Z E N Traditional (Vertical, East-West, North-South)

**Number of Channels:** Total number of waveform channels recorded.

**Network Code:** The FDSN (Federation of Digital Seismographic Networks) registered network code. See <<http://www.iris.edu/dms/nodes/dmc/services/network_codes>> for information about registered seismograph network codes. Network codes referenced in this table:

| Network Code | Network name; Network operator or responsible organization |
|---|---|
| IE | Idaho National Laboratory Seismic Network |
| IU | IRIS/USGS Network; USGS Albuquerque Seismological Laboratory |
| IW | Intermountain West Network, U.S. Geological Survey |

| | |
|---|---|
| MB | Montana Regional Seismic Network; Montana Bureau of Mines and Geology |
| PB | Plate Boundary Observatory |
| UU | University of Utah Regional Network; University of Utah |
| US | US National Network; USGS National Earthquake Information Center |
| WY | Yellowstone Wyoming Seismic Network; University of Utah |

**Latitude, Longitude:** Sensor location in degrees and decimal minutes; North latitude, West longitude.

**Elevation:** Sensor altitude in meters above sea level.

| **Sensor** | **Description** |
|---|---|
| L4, L4C | Mark Products L4 or L4C short-period seismometer |
| S13, 18300 | Geotech S13 or 18300 short-period seismometer |
| Ranger | Kinemetrics Ranger short-period seismometer |
| 40T | Guralp CMG-40T broadband seismometer |
| 3T | Guralp CMG-3T broadband seismometer |
| 3ESP | Guralp CMG-3ESP broadband seismometer |
| STS-2 | Streckheisen STS-2 broadband seismometer |
| FBA23 | Kinemetrics FBA-23 accelerometer |
| EpiSensor | Kinemetrics EpiSensor accelerometer |
| Applied Mems | Applied Mems accelerometer |
| PA-23 | Geotech PA-23 accelerometer |
| Compact | Nanometrics Compact broadband seismometer |
| Trillium 120 | Nanometrics Trillium 120 broadband seismometer |
| Trillium 240 | Nanometrics Trillium 240 broadband seismometer |
| Titan | Nanometrics Titan accelerometer |
| Observer | Refraction Technology (REF TEK) Model 151 Observer broadband seismometer |
| IESE-S2 | Institute of Earth Science and Engineering S-2 model borehole seismometer |

| **Digitizer** | **Description** |
|---|---|
| K2 | Kinemetrics Altus Series K2 (19-bit resolution field digitizer) |
| Etna | Kinemetrics Altus Series Etna (18-bit resolution field digitizer) |
| 72A-07 | Refraction Technology (REF TEK) model 72A-07 (24-bit field digitizer) |
| 72A-08 | Refraction Technology (REF TEK) model 72A-08 (24-bit field digitizer) |
| ANSS-130 | Refraction Technology (REF TEK) model 130-ANSS/02 (24-bit resolution field digitizer) |
| RT-130 | Refraction Technology (REF TEK) model RT-130 (24-bit resolution field digitizer) |
| Q330 | Quanterra, Inc Q330 digitizer (24-bit resolution field digitizer) |
| SMART-24 | Geotech SMART-24 digitizer (24-bit resolution field digitizer) |
| PSN | PSN-ADC-SERIAL version III (16-bit resolution field digitizer) |
| Basalt | Kinemetrics Basalt (24-bit resolution field digitizer) |
| Taurus | Nanometrics Taurus (24-bit resolution field digitizer) |

| **Telemetry** | **Description** |
|---|---|
| Analog | Data transmission is analog along part of the transmission pathway |

| | |
|---|---|
| Digital | Data are converted to digital form at the station site |
| None | On-site recording system |

**Sponsor (or Operator for stations marked by * in preceding columns)**

| | |
|---|---|
| USGS | U.S. Geological Survey |
| Utah | State of Utah |
| ANSS | Advanced National Seismic System |
| INL | Idaho National Laboratory |
| MBMT | Montana Bureau of Mines and Geology |
| PBO | Plate Boundary Observatory |
| ES | EarthScope |

**NETWORK CHANGES DURING JANUARY 1-MARCH 31, 2015**

None