EARTHQUAKE ACTIVITY IN THE YELLOWSTONE REGION

Preliminary Epicenters

October 1 – December 31, 2014

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

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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 MDT from October 1st through November 1st and MST from November 2nd through December 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
October 1 – December 31, 2014

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During the three-month period October 1 through December 31, 2014, the University of Utah Seismograph Stations (UUSS) located 294 earthquakes within the Yellowstone region (Figure 1). The total includes 19 earthquakes in the magnitude 2 range. The largest event to occur during this period was a magnitude 2.7 earthquake on October 29th. Earthquakes of magnitude 3.0 or larger (plotted as stars and specifically labeled on Figure 1) are listed below. No earthquakes were reported felt during the report period (see Table 1, a cumulative tabulation of earthquakes during 2014 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 were six earthquake swarms 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 13 earthquakes ($-0.2 \leq M \leq 1.6$) occurred about 8 miles NE of West Yellowstone, MT on October 13th - 17th.

B. A swarm of 15 earthquakes ($0.7 \leq M \leq 2.7$) occurred about 11 miles SW of West Thumb Geyser Basin, YNP on October 29th - 30th.

C. A swarm of 18 earthquakes ($0.3 \leq M \leq 1.7$) occurred about 8 miles W of Old Faithful, YNP on November 5th.

D. A swarm of 18 earthquakes ($0.5 \leq M \leq 2.0$) occurred about 15 miles NE of Old Faithful, YNP on November 22nd - 25th.

E. A swarm of 12 earthquakes ($0.3 \leq M \leq 2.0$) occurred about 8 miles NW of Old Faithful, YNP on November 27th - 28th.

F. A swarm of 14 earthquakes ($0.5 \leq M \leq 1.9$) occurred about 5 miles S of Lake Jct., YNP on November 27th - 28th.

These six swarms are labeled in Figure 1.

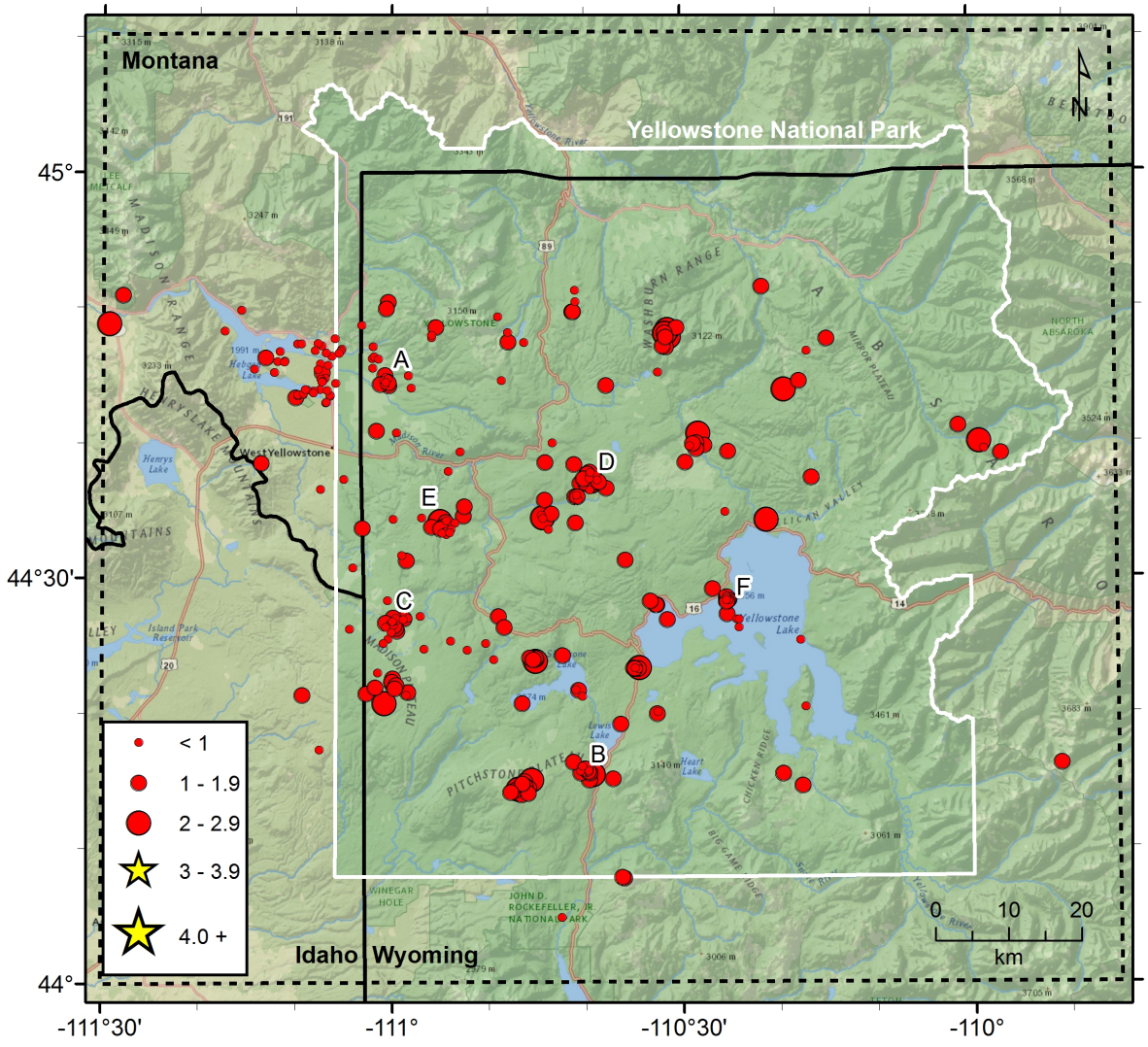

Figure 1. Earthquake epicenters located by the University of Utah Seismograph Stations. Earthquakes of magnitude 3.0 and larger are depicted as yellow stars. Earthquake swarms labeled A-F are discussed in the text.

Table 1

EARTHQUAKES FELT IN THE YELLOWSTONE REGION
January 1, 2014 to December 31, 2014

Date	Time†	Felt Information‡	Latitude	Longitude	Magnitude§
January 11 January 12	18:46 MST 01:46 UTC	Yellowstone. Felt (III) at Yellowstone National Park, WY.	44º 48.37′	110º 31.37′	M_L 3.4
March 30	06:34 MDT 12:34 UTC	Yellowstone. Felt (III) at West Yellowstone, MT.	44º 46.33′	110º 41.08′	M_W 4.8
March 30	09:12 MDT 15:12 UTC	Yellowstone. Felt (IV) at West Yellowstone, MT.	44º 46.83′	110º 43.31′	M_L 3.7
June 03	03:33 MDT 09:33 UTC	Yellowstone. Felt (III) at Yellowstone National Park, WY.	44º 47.78′	110º 45.94′	M_L 3.4
June 04	06:16 MDT 12:16 UTC	Yellowstone. Felt (IV) at Yellowstone National Park, WY.	44º 47.25′	110º 45.94′	M_L 3.5

† 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
December 31, 2014

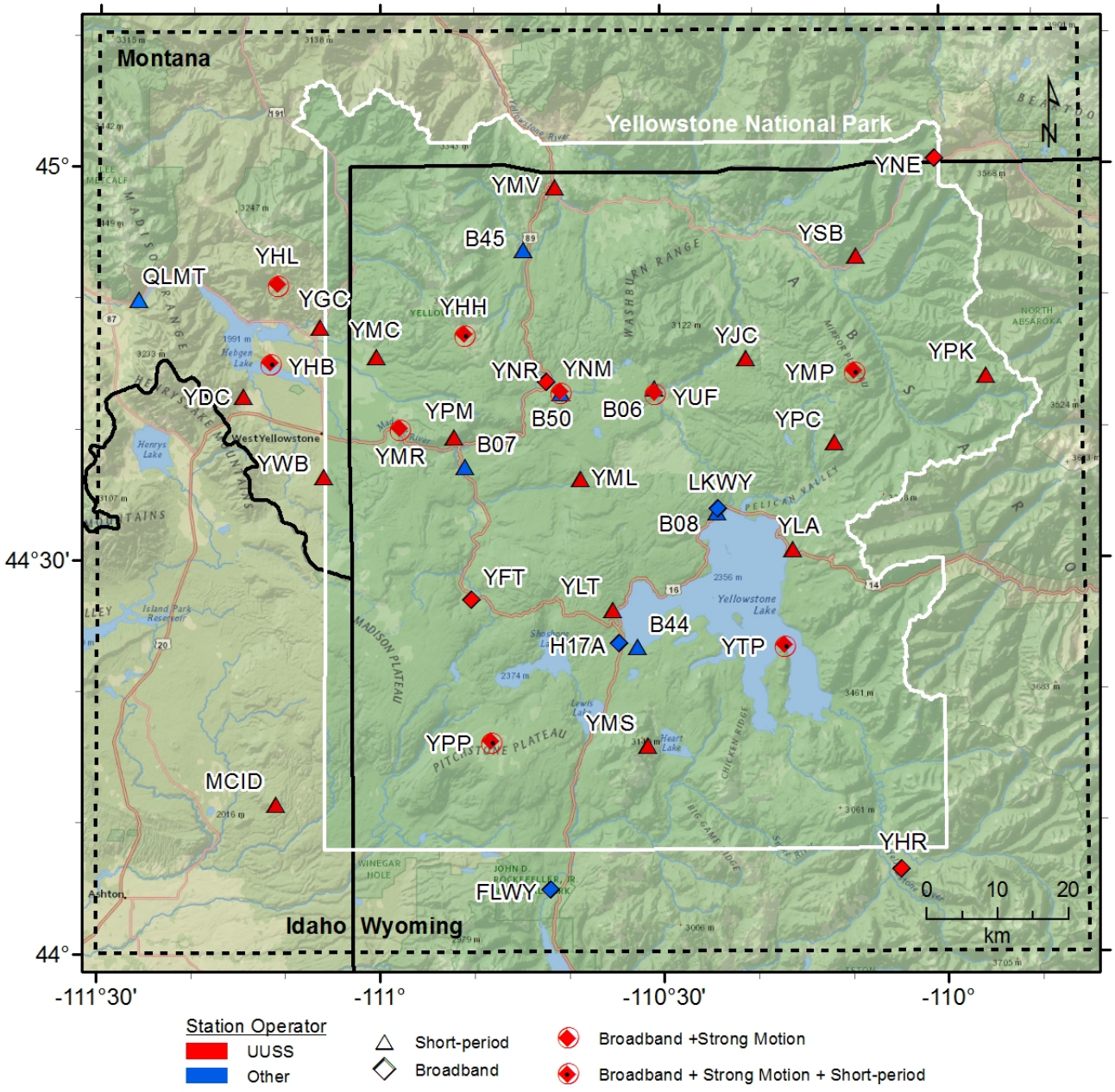

Figure 2

Table 2. Earthquakes in the Yellowstone Region: October 1–December 31, 2014

DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
141001	11:03:08.96	44º44.81’	111º06.94’	13.4	0.5	12	101	6	0.10
141003	00:12:30.08	44º46.95’	111º05.25’	8.3	0.6	12	146	2	0.07
141003	00:25:00.38	44º46.81’	111º05.33’	7.2	0.3	9	147	2	0.09
141003	13:14:22.47	44º47.44’	110º46.34’	2.1	0.4	10	230	6	0.18
141004	07:31:00.86	44º21.59’	110º58.39’	1.0*	1.2W	6	156	15	0.15
141004	07:34:24.51	44º21.94’	111º01.75’	2.2*	1.1W	9	135	18	0.15
141004	07:35:15.37	44º22.23’	110º59.98’	7.0*	1.5W	11	126	16	0.16
141004	07:38:17.75	44º44.35’	111º01.22’	7.3	1.0W	15	72	3	0.14
141004	07:44:53.24	44º23.03’	111º01.50’	8.9	0.6	6	157	17	0.31
141004	07:45:17.20	44º22.36’	111º00.04’	7.5*	1.2	9	148	16	0.22
141004	07:49:04.38	44º21.49’	111º02.71’	1.9*	1.4	8	159	20	0.10
141004	07:54:02.15	44º22.60’	110º59.97’	5.8*	1.2	7	159	15	0.05
141004	08:05:06.92	44º22.11’	110º59.62’	5.1*	1.1	8	141	16	0.18
141004	08:40:28.07	44º47.36’	111º09.44’	11.3	0.3	13	106	5	0.11
141004	09:02:16.32	44º47.33’	111º09.81’	11.1	0.3	12	102	5	0.10
141004	12:25:03.58	44º49.33’	110º49.03’	4.1	0.9	9	220	5	0.14
141004	15:18:33.99	44º21.38’	110º58.59’	5.5*	0.9	8	176	15	0.07
141005	07:52:01.55	44º45.44’	111º07.70’	11.0	0.2	9	102	5	0.07
141005	19:41:17.05	44º14.38’	110º47.28’	4.4	1.5	11	79	4	0.19
141006	20:55:53.86	44º49.95’	111º00.61’	8.1	1.2W	13	192	8	0.18
141008	09:39:11.18	44º43.56’	111º06.48’	10.7	0.0	12	88	8	0.12
141008	10:53:23.15	44º20.46’	110º17.26’	7.9	0.6	9	225	6	0.11
141008	15:46:26.75	44º21.85’	110º59.78’	3.1*	1.0	7	141	16	0.07
141009	23:38:28.60	44º34.91’	110º25.52’	5.6	0.5	9	183	3	0.15
141010	13:10:52.12	44º43.49’	111º06.48’	10.4	0.2	11	86	9	0.13
141010	17:02:09.11	44º50.45’	110º40.96’	1.1*	0.3	9	223	14	0.25
141011	11:05:04.90	44º43.97’	111º07.49’	13.8	0.6	12	86	7	0.12
141011	15:51:46.81	44º39.55’	110º28.46’	2.3	1.5W	9	108	7	0.11
141011	18:06:54.00	44º50.93’	111º27.95’	14.3	1.8	22	67	3	0.17
141011	20:39:08.35	44º37.93’	110º54.19’	11.7	0.8	13	97	4	0.19
141011	20:39:54.13	44º39.38’	110º52.96’	6.4	--	10	136	5	0.18
141013	14:12:31.30	44º17.34’	111º07.55’	3.7*	0.7	7	160	12	0.14
141013	15:29:53.63	44º44.51’	111º00.67’	7.4	-0.2	9	104	2	0.17
141013	18:03:16.13	44º47.75’	111º05.93’	13.0	0.7	10	139	1	0.08
141014	01:24:30.05	44º44.80’	111º00.46’	8.1	0.4	14	65	1	0.14
141014	03:09:23.02	44º43.71’	111º08.17’	13.9	0.1	12	89	8	0.10
141014	13:08:50.13	44º44.89’	111º00.67’	8.0	0.6	18	66	1	0.16
141014	15:48:25.93	44º44.63’	111º00.88’	8.4	0.6	17	69	2	0.16
141014	21:01:58.58	44º46.39’	111º01.87’	9.2	0.8W	14	137	3	0.16
141014	21:02:08.91	44º44.98’	110º58.34’	3.5	0.4	7	133	3	0.03
141014	21:14:34.69	44º46.26’	111º02.07’	8.2	0.9W	12	134	3	0.16
141014	21:15:26.15	44º46.21’	111º01.43’	9.0	0.3	11	135	2	0.14
141014	22:05:39.69	44º44.57’	111º00.54’	7.3	1.2W	15	61	2	0.18
141015	06:40:25.21	44º45.05’	111º00.76’	9.5	1.6W	23	78	1	0.19
141015	15:10:12.82	44º44.27’	111º00.33’	8.3	1.1W	15	66	2	0.14

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DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
141015	15:27:55.47	44º44.47'	111º00.39'	8.1	1.0W	15	66	2	0.17
141017	04:34:01.78	44º33.70'	111º03.12'	9.6	1.0W	13	127	6	0.10
141017	12:48:32.64	44º43.92'	111º08.85'	11.5	0.2	15	69	4	0.11
141017	12:49:05.01	44º43.58'	111º09.29'	11.7	0.2	14	72	4	0.13
141017	12:51:54.39	44º43.70'	111º09.22'	13.1	0.0	12	82	4	0.12
141017	13:00:02.22	44º43.52'	111º09.82'	12.1	0.6	15	79	4	0.14
141017	13:20:54.52	44º44.34'	111º00.80'	8.5	-0.1	13	67	2	0.10
141017	13:47:35.90	44º43.37'	111º10.00'	13.2	1.4W	16	74	4	0.10
141017	14:46:59.08	44º43.59'	111º09.83'	11.9	0.2	12	79	4	0.13
141018	02:31:06.51	44º47.08'	110º31.57'	3.9	1.9W	15	157	8	0.25
141018	07:05:19.83	44º38.42'	110º41.15'	4.9	1.0	11	80	5	0.24
141018	09:08:35.14	44º35.33'	110º52.51'	3.5	1.5W	19	67	4	0.20
141020	12:21:14.66	44º46.77'	111º11.66'	12.0	0.8W	15	81	3	0.14
141020	19:00:09.56	44º39.83'	110º27.63'	5.5	1.6W	18	116	7	0.24
141021	06:48:55.89	44º40.01'	110º43.42'	7.5	0.8	11	69	6	0.22
141021	08:26:24.91	44º43.94'	110º19.37'	6.1	2.2W	12	76	3	0.14
141022	02:50:19.89	44º25.20'	110º50.34'	3.0	0.5	8	113	3	0.09
141022	12:27:44.33	44º20.78'	111º00.81'	11.6	2.2W	23	65	19	0.12
141023	01:43:10.75	44º15.53'	110º19.62'	3.1*	1.3	12	225	15	0.10
141023	01:57:03.31	44º46.64'	111º05.52'	7.3	0.2	9	114	2	0.11
141023	17:32:57.37	44º23.32'	110º34.58'	2.2	1.4	7	116	3	0.09
141023	17:33:12.45	44º23.40'	110º34.47'	2.4	2.4	8	114	2	0.08
141023	17:34:19.31	44º23.37'	110º35.02'	1.8	1.5W	16	73	1	0.11
141023	17:34:41.13	44º23.32'	110º34.93'	1.8	1.2	8	147	1	0.07
141023	17:34:48.95	44º23.35'	110º34.92'	1.8	--	6	266	1	0.13
141023	17:36:18.00	44º23.32'	110º34.76'	1.7	1.7W	15	107	1	0.17
141023	17:49:51.94	44º23.31'	110º34.54'	2.2	0.3	11	108	3	0.11
141024	11:24:37.03	44º47.66'	110º14.90'	10.9	1.6	6	268	9	0.03
141024	13:16:13.20	44º44.55'	110º17.77'	7.4	1.5	5	212	4	0.03
141027	15:00:22.11	44º48.74'	111º03.18'	13.4	0.9W	13	212	5	0.23
141028	05:13:08.79	44º51.28'	110º41.00'	3.4*	0.3	8	228	15	0.09
141028	05:19:23.97	44º49.71'	110º41.24'	8.7	1.7W	20	69	13	0.24
141028	07:01:37.49	44º49.72'	110º41.28'	5.1*	1.8W	16	86	13	0.21
141028	23:25:32.28	44º34.78'	110º43.51'	10.7	1.0	6	146	7	0.31
141029	01:54:36.22	44º34.43'	110º44.40'	2.0	0.9W	7	91	8	0.13
141029	09:12:05.49	44º33.61'	110º43.82'	3.6	0.9W	8	89	9	0.09
141029	15:50:57.80	44º14.50'	110º45.92'	7.6	1.5	13	97	5	0.29
141029	20:36:59.91	44º15.51'	110º39.24'	4.6	2.4W	23	105	10	0.13
141029	20:45:51.29	44º15.75'	110º40.56'	7.8	0.7	9	139	10	0.13
141029	20:46:21.13	44º15.60'	110º39.61'	2.2*	1.4	11	158	12	0.07
141029	21:14:05.39	44º15.85'	110º39.85'	2.3*	1.3	10	154	11	0.04
141029	21:15:29.10	44º15.78'	110º39.80'	3.5*	1.9W	16	100	11	0.08
141029	21:24:35.03	44º15.71'	110º39.76'	4.4*	1.2	9	156	11	0.06
141029	21:55:06.19	44º15.49'	110º39.33'	6.9	2.7W	26	105	10	0.20
141029	22:00:57.56	44º15.79'	110º39.76'	4.9*	0.9	9	110	11	0.04

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DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
141029	22:03:28.04	44º16.10'	110º40.40'	5.9	0.7	5	149	10	0.06
141029	22:03:35.42	44º16.44'	110º41.29'	11.7	1.2	8	133	9	0.11
141029	22:07:19.14	44º15.69'	110º39.73'	2.9*	0.9	8	156	11	0.03
141029	22:08:37.77	44º15.94'	110º40.10'	2.9*	1.0	8	152	11	0.06
141030	00:13:37.73	44º15.91'	110º40.23'	4.3*	1.6W	13	97	11	0.07
141030	00:21:03.68	44º15.09'	110º39.65'	8.7	1.9W	19	94	11	0.21
141030	02:04:23.70	44º15.61'	110º40.51'	12.0	1.4	13	88	10	0.16
141031	07:51:23.65	44º38.51'	111º13.57'	11.6	1.3W	16	110	8	0.12
141103	09:42:48.68	44º40.90'	111º01.65'	7.6	1.1	16	62	5	0.19
141103	15:51:01.58	44º37.32'	111º05.04'	7.2	0.4	7	187	2	0.12
141104	17:30:03.32	44º43.87'	111º08.14'	13.1	0.5	11	70	5	0.12
141105	04:47:47.33	44º28.38'	111º00.47'	2.8*	0.7	6	138	14	0.05
141105	04:48:13.21	44º26.11'	110º59.53'	12.1	1.4W	14	129	13	0.15
141105	04:51:46.18	44º26.34'	110º59.60'	5.1*	1.1W	12	127	13	0.18
141105	04:54:15.60	44º26.81'	110º59.91'	3.8*	0.7	11	128	13	0.19
141105	04:54:54.47	44º27.06'	110º59.65'	5.1*	0.6	8	151	13	0.15
141105	04:57:39.70	44º26.03'	111º00.12'	2.2*	0.5	7	129	13	0.15
141105	04:57:56.95	44º26.95'	110º58.86'	5.8*	--	7	147	12	0.09
141105	04:59:51.75	44º26.84'	111º00.13'	9.3	1.7W	19	121	13	0.25
141105	05:01:56.42	44º24.78'	110º56.71'	1.6	--	6	155	10	0.02
141105	05:02:35.23	44º26.97'	110º59.48'	5.4*	0.7	8	126	12	0.08
141105	05:04:50.59	44º25.52'	111º00.44'	5.3*	0.8W	7	131	14	0.14
141105	05:05:34.43	44º26.25'	111º04.39'	3.9*	0.8W	8	208	19	0.19
141105	05:05:44.44	44º27.03'	110º58.76'	12.0	1.6	9	121	11	0.25
141105	05:07:42.55	44º27.22'	110º57.12'	10.9	0.8W	7	140	9	0.04
141105	05:08:31.46	44º26.71'	111º00.68'	4.2*	1.4W	12	133	14	0.34
141105	05:10:31.33	44º26.53'	110º59.88'	6.2*	0.8W	8	151	13	0.08
141105	05:13:19.28	44º26.49'	110º59.81'	5.2*	1.0W	8	127	13	0.12
141105	05:32:17.81	44º26.41'	111º00.70'	4.4*	0.6	8	153	14	0.17
141105	07:56:40.37	44º27.12'	110º59.92'	11.9	1.5W	15	95	13	0.18
141105	07:58:47.23	44º26.84'	111º00.02'	6.2*	0.3	6	152	13	0.32
141106	02:15:51.82	44º36.60'	111º07.45'	6.6	0.4	11	155	2	0.08
141106	04:46:47.24	44º34.49'	110º56.95'	2.0	0.5	8	88	9	0.15
141106	07:26:51.30	44º44.45'	111º05.89'	12.4	0.6W	16	80	6	0.16
141106	08:25:27.08	44º20.77'	110º46.59'	3.6	1.8W	10	95	9	0.16
141106	11:06:28.77	44º25.40'	110º17.76'	9.9	0.8	12	146	4	0.12
141106	21:31:31.65	44º37.01'	110º40.52'	6.4	1.8	12	66	3	0.11
141107	07:06:51.86	44º37.07'	110º39.91'	5.9	1.3W	13	57	2	0.11
141108	08:07:43.74	44º25.36'	110º53.98'	7.3	0.6	7	100	6	0.15
141108	13:51:28.52	44º26.95'	110º24.11'	6.0*	0.0	6	240	12	0.09
141109	10:05:45.57	44º26.95'	110º24.38'	6.0	0.6	7	116	12	0.07
141109	11:22:22.13	44º27.35'	110º25.34'	6.0*	1.2	7	111	12	0.05
141111	01:16:08.04	44º36.04'	110º41.04'	5.5	1.6	17	72	3	0.20
141111	01:16:33.07	44º36.16'	110º40.91'	6.1*	--	6	170	13	0.15
141111	02:18:26.01	44º36.05'	110º40.83'	6.2	1.3W	15	75	3	0.13

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DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
141111	02:47:03.23	44º35.78'	110º40.74'	5.5	0.7	9	148	3	0.15
141113	18:29:22.83	44º50.46'	111º00.37'	3.6	1.3	14	200	9	0.14
141115	04:18:11.81	44º36.52'	110º39.53'	5.5	0.6	10	113	1	0.14
141115	05:33:19.00	44º44.75'	111º07.39'	9.1	0.3	8	148	6	0.12
141115	14:40:42.93	44º46.00'	111º11.21'	10.7	0.1	11	83	2	0.18
141115	16:21:51.36	44º46.03'	111º11.89'	12.8	0.2	13	84	2	0.15
141115	16:27:07.64	44º46.07'	111º11.13'	9.6	0.4	9	112	2	0.24
141116	13:24:02.24	44º37.40'	110º16.56'	3.3	1.4	7	110	7	0.14
141116	18:33:42.94	44º21.37'	111º09.29'	15.5	1.0	12	164	19	0.11
141116	21:38:10.21	44º25.19'	111º00.91'	6.0*	0.4	6	160	15	0.09
141117	02:10:51.34	44º27.07'	110º58.40'	4.6*	0.3	7	184	11	0.09
141117	07:45:48.61	44º48.29'	111º17.40'	9.6	0.3	11	133	10	0.13
141117	12:46:03.97	44º36.66'	110º37.82'	8.1	1.2	5	241	1	0.00
141117	18:56:40.00	44º21.29'	110º40.34'	2.2	0.9	8	160	9	0.26
141117	19:38:12.49	44º29.22'	110º26.83'	2.4	1.1	9	139	9	0.08
141117	20:51:00.46	44º21.75'	110º40.75'	4.1	1.2W	11	100	9	0.12
141117	21:31:56.98	44º39.43'	109º58.65'	14.7	0.9	7	209	9	0.21
141117	21:37:21.07	44º21.78'	110º41.05'	2.1	0.8	8	116	9	0.13
141118	13:06:16.03	44º39.10'	109º56.86'	15.8	1.8	14	212	9	0.20
141119	02:12:00.20	44º34.64'	110º52.61'	2.2	1.6	8	121	5	0.15
141119	21:50:59.22	44º45.25'	111º07.27'	10.9	1.7W	19	58	5	0.14
141120	00:09:06.29	44º45.88'	111º07.47'	11.9	0.9W	14	64	4	0.09
141120	01:23:32.93	44º46.44'	111º06.25'	11.4	0.7	14	89	2	0.11
141120	02:26:39.03	44º44.58'	111º07.25'	12.9	0.3	11	98	6	0.16
141120	08:01:06.64	44º46.31'	111º13.14'	12.1	1.2W	17	69	3	0.13
141122	04:37:05.59	44º37.18'	110º39.35'	6.3	2.0W	18	100	2	0.10
141122	06:25:57.82	44º37.33'	110º39.44'	6.3	2.0W	19	101	2	0.16
141123	06:30:30.03	44º37.20'	110º39.95'	5.5	1.7W	17	83	2	0.15
141123	20:21:45.75	44º44.07'	110º58.03'	2.2	-0.6	6	134	4	0.04
141123	23:17:59.79	44º37.68'	110º39.57'	4.8	0.9	11	161	3	0.10
141124	00:54:14.19	44º16.19'	109º50.93'	6.3*	1.9	15	251	37	0.13
141124	05:30:08.63	44º37.26'	110º38.79'	6.2	0.7	10	184	2	0.12
141124	10:48:50.41	44º45.24'	111º12.22'	9.0	0.6	14	85	1	0.17
141124	16:03:14.59	44º48.17'	110º47.98'	4.7	0.4	7	241	4	0.08
141124	16:18:52.15	44º47.49'	110º47.94'	4.2	1.4W	16	100	4	0.15
141125	00:40:58.73	44º37.87'	110º39.53'	11.4	1.5W	19	57	10	0.15
141125	01:17:50.02	44º37.38'	110º39.56'	4.8	0.5	9	154	2	0.15
141125	01:28:33.44	44º37.83'	110º39.48'	4.2	--	11	106	3	0.12
141125	01:56:07.86	44º37.73'	110º39.76'	4.5	1.4	8	156	3	0.11
141125	02:27:17.31	44º37.15'	110º38.69'	5.9	1.4	10	189	2	0.18
141125	03:22:59.62	44º37.48'	110º39.82'	6.5	1.6W	28	57	3	0.19
141125	03:31:42.53	44º37.51'	110º39.76'	5.6	1.6W	13	95	3	0.12
141125	04:25:01.01	44º37.35'	110º39.67'	5.8	1.8W	21	57	2	0.16
141125	04:42:31.85	44º37.37'	110º40.17'	4.1	1.2	8	136	3	0.22
141125	05:16:14.74	44º37.11'	110º38.59'	7.7	1.2	7	195	1	0.12

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141125	09:11:37.30	44º37.61’	110º38.90’	6.3	0.7	8	183	2	0.11
141125	14:37:19.72	44º37.27’	110º39.35’	6.8	1.8W	9	102	2	0.16
141125	17:11:03.37	44º37.39’	110º39.51’	6.4	1.9W	14	99	2	0.20
141126	04:28:15.42	44º26.92’	110º31.56’	2.8	1.6W	15	85	5	0.10
141126	07:09:58.75	44º40.02’	109º59.12’	14.6	2.3W	21	185	9	0.21
141126	09:26:12.35	44º41.20’	110º01.24’	10.7	1.1	6	196	9	0.09
141127	03:33:10.91	44º33.35’	110º54.84’	3.3	0.3	7	140	9	0.07
141127	04:04:59.99	44º33.84’	110º54.63’	6.5	1.2W	14	80	8	0.17
141127	04:17:15.55	44º33.48’	110º54.42’	4.8	0.7	9	136	8	0.07
141127	04:37:04.52	44º33.66’	110º54.96’	7.4	1.0	8	191	8	0.03
141127	08:00:46.39	44º31.70’	110º59.02’	15.4	0.5	15	110	13	0.11
141127	19:32:25.38	44º34.15’	110º54.42’	8.1	1.6W	22	77	7	0.17
141127	21:33:43.59	44º34.25’	110º55.05’	7.6	2.0W	21	79	8	0.21
141127	22:13:13.44	44º33.63’	110º53.91’	6.5	0.6	9	131	8	0.08
141127	22:18:16.05	44º33.27’	110º54.41’	6.1	0.7	10	138	9	0.12
141127	22:45:55.77	44º33.48’	110º54.55’	6.1	0.9W	10	137	8	0.07
141127	22:49:20.61	44º28.37’	110º25.26’	2.2	1.1	13	98	10	0.11
141127	22:51:10.93	44º28.34’	110º25.20’	2.1	0.8	14	99	10	0.09
141127	22:59:50.00	44º28.61’	110º25.38’	1.1	1.4W	10	95	9	0.09
141127	23:08:08.54	44º34.11’	110º53.53’	7.9	0.8W	8	116	7	0.18
141127	23:14:29.22	44º28.48’	110º25.39’	3.8	1.6W	11	80	10	0.08
141127	23:15:56.65	44º28.43’	110º25.12’	4.5	1.9W	16	62	10	0.12
141127	23:22:55.87	44º28.64’	110º25.43’	5.9	0.8	7	118	9	0.06
141127	23:49:50.79	44º28.48’	110º25.36’	5.9	0.9	7	117	10	0.06
141127	23:59:33.94	44º28.36’	110º25.43’	2.7	0.5	8	116	10	0.11
141127	23:59:55.95	44º28.36’	110º25.40’	3.1	1.4	8	98	10	0.06
141128	00:27:48.93	44º28.23’	110º25.39’	2.7	1.0	9	114	10	0.10
141128	00:43:27.53	44º28.30’	110º25.27’	2.7	1.2	13	102	10	0.08
141128	00:48:59.91	44º28.36’	110º25.26’	3.2	0.9	8	115	10	0.07
141128	01:50:49.20	44º28.48’	110º25.44’	5.9	0.5	7	117	10	0.07
141128	03:31:34.64	44º28.76’	110º25.71’	5.9	0.9	7	123	9	0.08
141128	04:22:04.41	44º30.80’	111º04.06’	15.4	0.7	7	140	11	0.06
141128	04:46:02.65	44º33.41’	110º54.03’	4.7	--	5	182	8	0.04
141128	08:16:22.72	44º34.27’	110º54.40’	9.4	0.9W	11	109	7	0.17
141129	02:20:13.95	44º34.10’	110º41.01’	7.1	1.1W	6	115	5	0.15
141129	08:58:32.45	44º47.15’	111º01.95’	7.8	0.1	8	146	4	0.07
141129	19:00:24.26	44º31.34’	110º35.85’	3.7	1.5W	14	89	10	0.13
141201	12:24:24.93	44º47.22’	111º07.31’	7.8	0.7	13	123	7	0.15
141201	23:01:13.51	44º48.38’	110º31.42’	2.0	2.0W	10	268	10	0.09
141201	23:01:13.58	44º48.09’	110º31.64’	2.7	2.0W	15	142	9	0.14
141202	05:01:36.01	44º47.14’	110º31.93’	4.4	1.8W	15	132	8	0.12
141202	07:12:59.29	44º23.98’	110º45.43’	2.0	1.1	8	123	8	0.09
141202	08:40:28.13	44º24.01’	110º45.12’	2.0	1.8W	14	80	9	0.10
141202	09:04:31.09	44º24.09’	110º45.21’	2.1	1.6W	18	102	9	0.09
141202	09:25:31.49	44º23.89’	110º45.19’	3.5	2.1W	23	79	9	0.11

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141202	09:28:14.88	44º24.14’	110º45.79’	2.0	1.3	5	119	8	0.05
141202	10:42:12.79	44º38.58’	110º29.61’	-0.4	1.9W	10	110	8	0.19
141203	11:35:23.73	44º48.52’	110º30.46’	6.5	1.8W	14	97	10	0.15
141203	16:07:44.86	44º14.67’	110º46.32’	2.5	1.5W	13	98	4	0.15
141203	16:25:06.01	44º14.10’	110º45.95’	4.2	1.4	9	117	5	0.24
141203	17:20:05.89	44º14.03’	110º46.64’	4.6	1.9	13	112	5	0.16
141203	17:20:38.14	44º14.99’	110º46.33’	2.9	1.7W	13	97	3	0.13
141203	17:25:06.22	44º14.84’	110º46.59’	3.2	1.2	8	112	3	0.08
141203	17:33:53.78	44º14.69’	110º46.30’	2.8	1.5	9	114	4	0.10
141203	19:51:20.27	44º14.42’	110º47.00’	4.6	2.0W	18	76	4	0.21
141203	20:18:19.29	44º14.18’	110º47.79’	4.4	1.2	11	111	4	0.27
141204	08:01:53.13	44º47.82’	110º31.63’	4.1	1.6W	13	140	9	0.09
141204	10:24:38.95	44º47.85’	110º31.29’	6.0	2.1W	19	104	9	0.14
141204	11:25:09.52	44º51.53’	110º21.59’	13.2	1.8W	19	77	12	0.20
141205	18:06:15.24	44º37.75’	110º39.74’	4.9	1.8W	23	58	3	0.19
141205	19:49:30.12	44º45.46’	111º14.30’	11.4	0.7	17	83	3	0.13
141206	00:02:22.35	44º34.68’	110º44.57’	5.9	0.9	9	91	8	0.12
141206	00:02:58.59	44º34.50’	110º44.41’	5.4	2.1	8	91	8	0.14
141206	00:03:25.60	44º35.80’	110º44.22’	2.2	1.4	6	204	8	0.08
141206	06:16:29.93	44º47.40’	111º07.71’	11.1	0.6	10	100	2	0.12
141206	09:56:58.72	44º46.87’	111º08.01’	9.0	-0.2	8	98	3	0.12
141207	17:09:05.63	44º26.33’	110º24.14’	2.4*	-0.1	8	126	11	0.07
141207	18:15:03.90	44º44.65’	110º48.66’	5.6	0.9W	12	138	6	0.13
141208	05:56:36.87	44º07.89’	110º36.28’	10.7	1.3	17	88	9	0.08
141208	06:32:41.62	44º07.85’	110º36.06’	10.9	1.6	10	88	10	0.07
141208	15:30:48.62	44º40.69’	110º28.28’	5.6	2.3W	26	75	5	0.16
141208	17:10:12.06	44º46.75’	110º16.95’	5.8	0.9	9	142	6	0.11
141208	18:02:23.08	44º39.75’	110º29.16’	2.6	--	10	165	6	0.12
141208	22:22:47.19	44º14.63’	110º17.63’	9.6	1.1	15	129	16	0.13
141209	10:24:16.79	44º04.92’	110º42.53’	8.8	0.8	9	85	1	0.07
141210	21:33:51.85	44º42.99’	111º06.92’	3.2	-0.1	7	127	7	0.13
141210	21:34:10.62	44º43.04’	111º06.84’	2.4	-0.1	8	121	8	0.14
141211	00:22:04.68	44º31.31’	110º58.54’	5.2*	1.7	6	287	14	0.13
141211	00:22:34.43	44º24.71’	110º52.26’	2.0	0.4	6	178	5	0.06
141211	00:24:35.74	44º27.20’	110º49.02’	1.2	1.6	7	102	2	0.04
141211	00:25:31.39	44º26.38’	110º48.42’	1.2	1.3W	9	86	3	0.14
141211	23:49:20.61	44º15.18’	110º37.19’	10.0	1.0	12	99	7	0.25
141212	20:14:29.55	44º46.67’	111º06.88’	8.0	0.3	10	86	2	0.11
141214	05:59:19.07	44º39.99’	110º28.47’	3.8	1.5W	14	107	6	0.13
141214	11:09:14.06	44º39.92’	110º28.83’	4.9	1.0W	12	104	6	0.17
141214	14:41:39.88	44º45.57’	111º02.00’	7.6	0.7W	15	126	2	0.15
141215	03:57:40.89	44º49.82’	111º15.64’	12.1	-0.3	10	158	7	0.10
141215	13:09:23.16	44º38.59’	110º44.13’	4.9	1.0	5	135	8	0.01
141215	18:02:25.65	44º15.11’	110º45.60’	4.3	2.4W	15	94	4	0.16
141216	19:29:38.48	44º19.22’	110º36.41’	2.1	1.4	10	62	9	0.16

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141217	03:41:45.37	44º40.78’	110º59.56’	5.1	0.6	13	70	3	0.19
141218	03:46:34.66	44º48.80’	111º29.40’	11.7	2.3W	23	109	5	0.14
141218	22:28:40.27	44º34.29’	110º21.27’	3.7	2.0W	12	93	4	0.07
141220	07:22:16.52	44º28.32’	110º33.30’	4.4	0.9W	12	123	5	0.08
141220	07:22:25.62	44º28.05’	110º32.72’	2.1	1.5	8	180	5	0.09
141220	07:22:34.07	44º28.02’	110º32.62’	2.3	1.8	9	179	5	0.07
141220	23:50:54.37	44º33.83’	110º55.93’	11.8	1.0W	16	84	9	0.13
141222	06:52:03.48	44º34.39’	110º59.90’	11.2	0.6	11	95	9	0.12
141222	13:55:22.19	44º43.91’	111º06.77’	11.6	--	10	92	7	0.16
141222	13:55:23.10	44º44.52’	111º07.30’	14.4	--	6	107	6	0.12
141223	00:37:49.82	44º48.14’	110º31.71’	4.7	1.7W	14	143	10	0.13
141223	02:39:19.96	44º45.23’	110º32.41’	4.7	0.6	7	255	5	0.07
141224	09:48:10.61	44º47.92’	110º31.61’	6.1	1.8W	25	105	9	0.14
141225	00:53:57.28	44º24.02’	110º49.52’	1.0	0.7	10	109	6	0.04
141227	07:53:44.25	44º20.00’	110º32.60’	5.1	1.4W	15	98	6	0.13
141227	07:54:20.92	44º20.13’	110º32.58’	3.9	0.6	9	99	6	0.09
141227	23:20:47.70	44º24.30’	110º42.38’	2.6	1.1	6	139	10	0.14
141229	13:59:12.69	44º48.58’	110º55.45’	7.8	1.6W	19	101	6	0.13
141229	14:14:08.83	44º47.81’	110º55.91’	6.4	0.7W	11	171	7	0.11
141230	04:03:39.62	44º43.97’	111º09.01’	7.4	-0.3	9	133	4	0.11
141230	13:34:11.32	44º48.00’	110º55.92’	4.6	0.2	9	175	7	0.13
141231	09:37:56.29	44º39.35’	110º25.17’	2.2	1.4W	9	205	10	0.16
141231	16:40:58.24	44º44.27’	110º37.78’	4.3	1.7W	25	94	5	0.19
141231	18:55:06.69	44º45.76’	111º06.67’	8.6	0.1	12	77	4	0.16

number of earthquakes = 294
* indicates poor depth control
W indicates Wood-Anderson data used for magnitude calculation

Table 3
UNIVERSITY OF UTAH YELLOWSTONE SEISMIC NETWORK
Operating Seismograph Stations
December 31, 2014

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 OCTOBER 1-DECEMBER 31, 2014

None