EARTHQUAKE ACTIVITY IN THE YELLOWSTONE REGION

Preliminary Epicenters

April 1 – June 30, 2022

Prepared by the University of Utah Seismograph Stations and funded by
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September 30, 2022

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.

- 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).

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April 1 – June 30, 2022

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During the three-month period April 1 through June 30, 2022, the University of Utah Seismograph Stations (UUSS) located 377 earthquakes within the Yellowstone region (Figure 1). The total includes one earthquake in the magnitude 4 range, no earthquakes in the magnitude 3 range and 16 earthquakes in the magnitude 2 range. The largest event to occur during this period was a magnitude 4.2 earthquake on May 11. One earthquake was reported felt in the region during the report period (see Table 1, a cumulative tabulation of earthquakes that were felt in the Yellowstone region during 2022). 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 *https://quake.utah.edu/earthquake-center/quarterly-seismicity-reports*.

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

M_L 4.2	May 11	07:32 MDT	21.8 mi NE of Lake, YNP

Notable Swarm Seismicity

During the report period, there were ten 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 earthquakes occur as part of a seismic swarm [Farrell et al., 2009].

A. A swarm of 14 earthquakes ($-0.3 \leq M \leq 1.4$) occurred about 6.2 mi N of the South Entrance, YNP from April 6th – 7th.
B. A swarm of 22 earthquakes ($-0.4 \leq M \leq 2.1$) occurred about 9.6 mi NE of West Yellowstone, MT from April 9th – 11th.
C. A swarm of 10 earthquakes ($0.2 \leq M \leq 1.8$) occurred about 4.4 mi SW of the South Entrance, YNP from April 11th – 16th.
D. A swarm of 19 earthquakes ($-0.4 \leq M \leq 1.9$) occurred about 5.0 mi N of West Yellowstone, MT from April 12th – 14th.
E. A swarm of 10 earthquakes ($0.2 \leq M \leq 2.3$) occurred about 5.6 mi N of West Yellowstone, MT from May 8th – 9th.
F. A swarm of 14 earthquakes ($0.3 \leq M \leq 2.0$) occurred about 7.9 mi W of Old Faithful, YNP from May 17th – 18th.
G. A swarm of 11 earthquakes ($0.2 \leq M \leq 1.5$) occurred about 5.6 mi NNE of the South Entrance, YNP on June 7th.
H. A swarm of 52 earthquakes ($0.2 \leq M \leq 2.4$) occurred about 6.8 mi NW of Norris Geyser Basin, YNP from June 9th – 14th.
I. A swarm of 14 earthquakes ($0.3 \leq M \leq 1.6$) occurred about 6.7 mi NW of Norris Geyser Basin, YNP from June 10th – 13th.
J. A swarm of 28 earthquakes ($-0.1 \leq M \leq 1.4$) occurred about 6.9 mi NW of Norris Geyser Basin, YNP from June 20th – 30th.

These swarms are labeled in Figure 1.

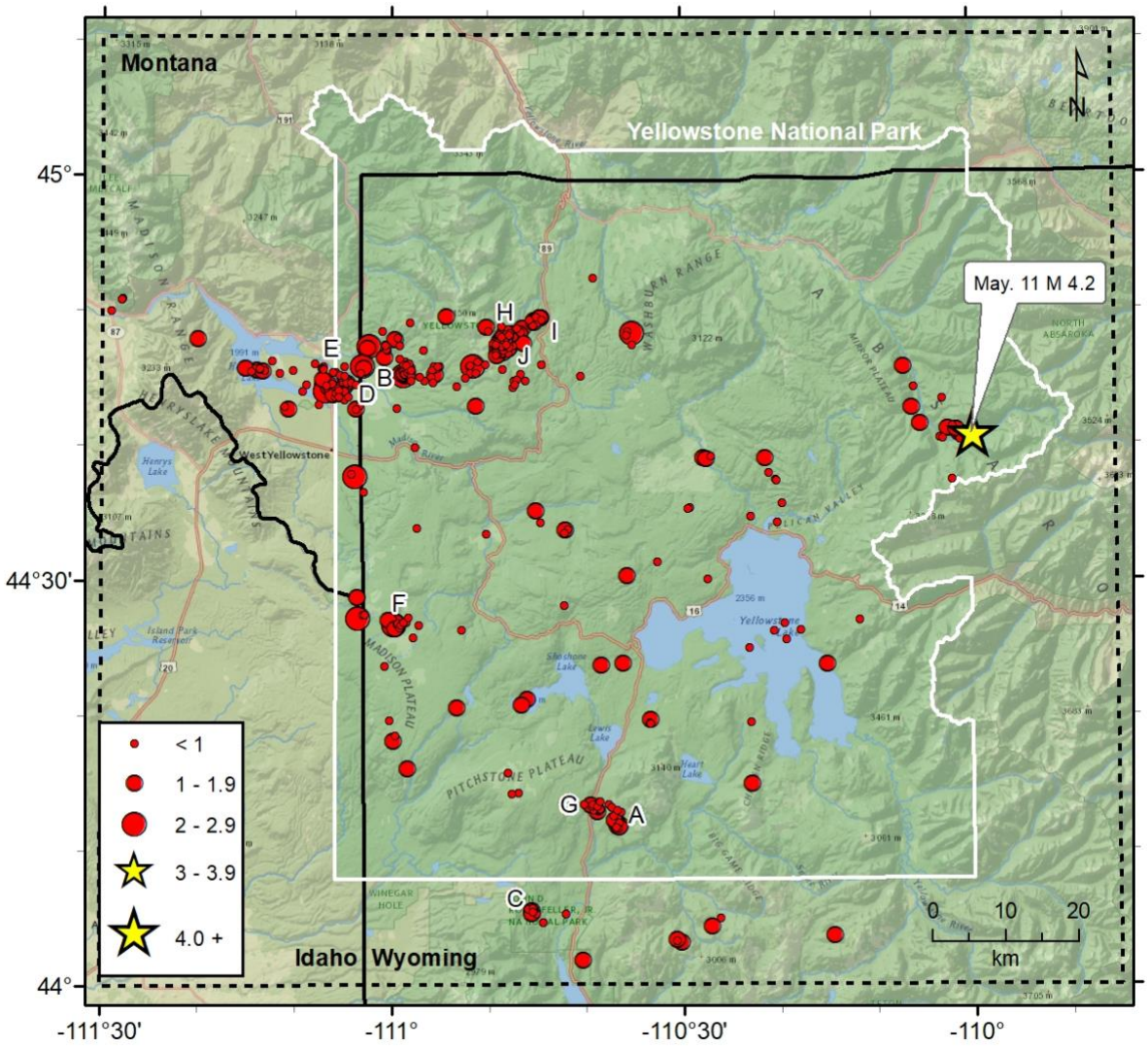

Figure 1. Epicenters of earthquakes located by the University of Utah Seismograph Stations, April 1, 2022, through June 30, 2022. Earthquake swarms (labeled A–J) are discussed in the text.

Table 1

EARTHQUAKES FELT IN THE YELLOWSTONE REGION
January 1, 2022, to June 30, 2022

Date	Time†	Felt Information‡	Latitude	Longitude	Magnitude§
May 11	07:32 MDT 13:32 UTC	Yellowstone. Felt (V) at Yellowstone National Park.	44º 40.86′	109º 59.78′	M_L 4.2

† 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), compiled by the U.S. Geological Survey (USGS); *ShakeMap* indicates the availability of computer-generated maps of ground-shaking (*https://quake.utah.edu*), 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/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
June 30, 2022

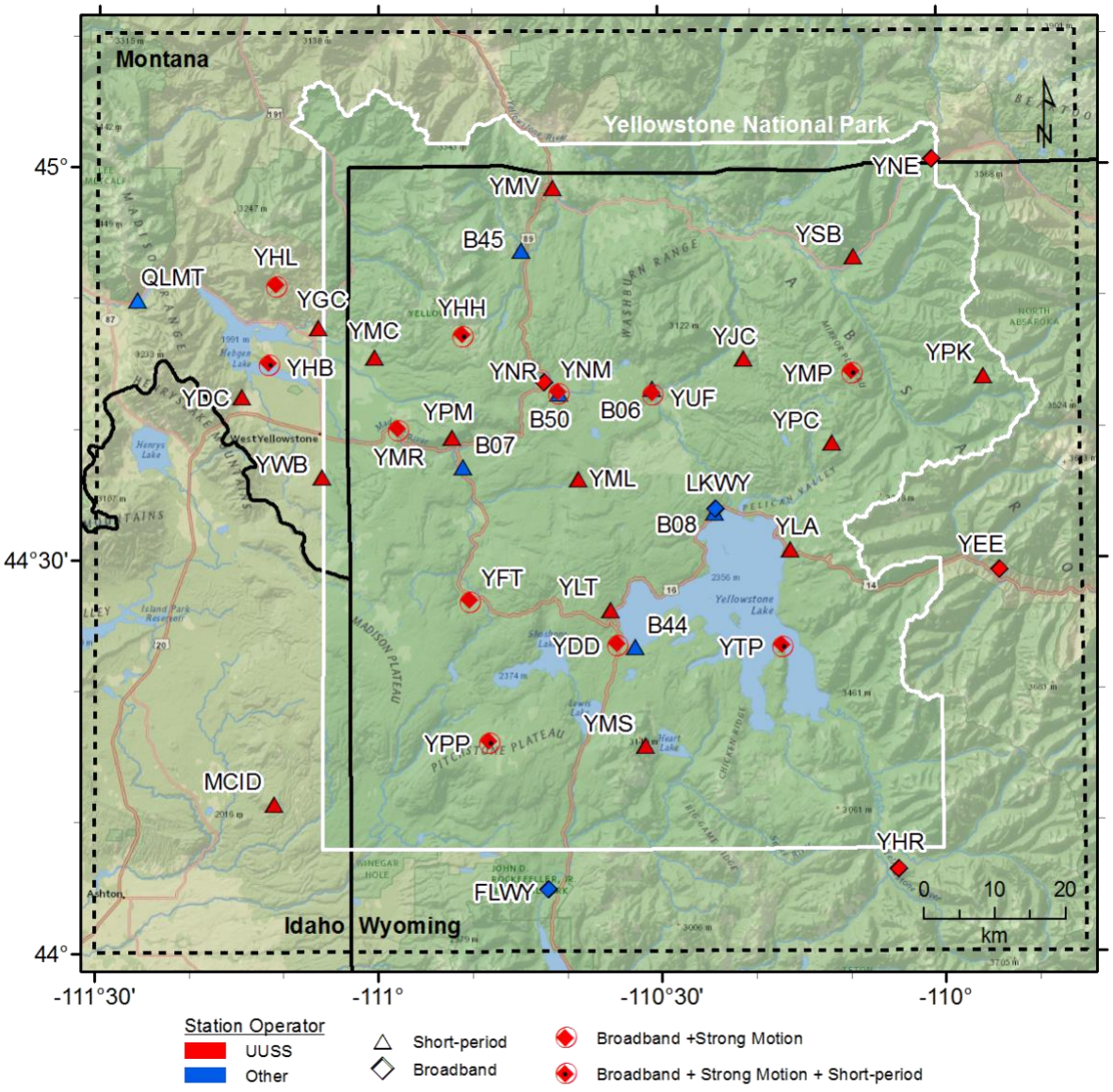

Figure 2. Seismograph stations of the Yellowstone Seismic Network as of June 30, 2022.

Table 2. Earthquakes in the Yellowstone Region: April 1–June 30, 2022

DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
220401	03:34:29.12	44º40.52’	110º03.20’	12.1	0.9	10	153	11	0.14
220401	09:27:04.34	44º49.98’	111º29.16’	9.7	0.6	8	213	18	0.27
220401	10:38:20.28	44º37.69’	111º03.80’	10.6	2.2W	33	53	4	0.21
220401	10:40:16.03	44º37.94’	111º04.20’	9.9	0.7	17	120	4	0.20
220402	11:55:48.46	44º49.51’	110º54.39’	9.2	1.1W	23	108	6	0.19
220403	14:58:19.75	44º50.84’	111º28.08’	10.0*	0.7	15	134	20	0.12
220404	00:01:24.58	44º45.24’	110º58.59’	9.9	1.8W	20	98	2	0.17
220405	19:56:57.66	44º42.74’	111º03.71’	10.1	1.4W	17	74	7	0.16
220405	21:05:11.08	44º19.74’	110º33.34’	5.8	1.2	16	91	7	0.11
220405	22:29:52.51	44º45.21’	110º55.51’	6.9	1.6W	21	98	6	0.14
220406	07:05:29.00	44º25.67’	110º19.31’	7.1	0.7	8	114	5	0.12
220406	14:25:41.65	44º44.32’	111º06.79’	13.5	0.8W	14	96	6	0.14
220406	21:31:33.67	44º13.41’	110º39.53’	12.4	1.1	11	110	11	0.14
220406	21:39:29.52	44º12.98’	110º38.76’	11.1	0.9	13	117	11	0.18
220406	22:00:41.53	44º13.15’	110º38.66’	11.2	0.8	13	128	11	0.18
220406	22:03:14.38	44º13.70’	110º38.56’	6.4	-0.3	6	130	10	0.05
220406	22:03:19.38	44º13.42’	110º39.21’	12.5	0.8	14	111	11	0.21
220406	22:03:33.99	44º13.48’	110º39.38’	13.2	0.4	14	110	11	0.25
220406	22:03:49.73	44º13.53’	110º40.20’	14.1	0.0	11	106	12	0.10
220406	22:06:43.47	44º13.18’	110º38.51’	9.7	0.6	14	129	10	0.19
220406	22:10:59.07	44º13.68’	110º38.65’	4.5	0.7	12	130	10	0.16
220406	22:21:37.70	44º12.97’	110º38.86’	11.3	1.4	16	116	11	0.15
220406	22:32:30.89	44º13.05’	110º38.71’	11.7	0.7	13	128	11	0.19
220406	23:56:40.60	44º13.13’	110º38.59’	11.3	0.6	18	116	10	0.22
220407	02:07:49.87	44º13.05’	110º39.24’	11.6	0.6	12	127	11	0.19
220407	02:29:16.78	44º45.10’	110º55.95’	7.6	0.2	11	138	6	0.15
220407	02:29:21.08	44º44.70’	110º55.78’	5.2	0.1	9	127	6	0.14
220407	03:38:08.44	44º13.38’	110º39.43’	9.4	0.5	16	119	13	0.24
220407	13:56:15.57	44º38.99’	110º21.36’	2.0*	1.5W	21	89	11	0.18
220407	15:13:06.12	44º43.01’	111º03.32’	9.8	0.5W	15	92	6	0.20
220407	15:16:25.17	44º42.71’	111º03.73’	9.4	0.1	18	98	7	0.19
220407	16:02:02.25	44º39.88’	110º57.68’	6.6	0.2	14	80	1	0.18
220407	19:42:41.91	44º45.73’	110º07.03’	13.5	1.0	9	130	4	0.17
220407	19:59:47.66	44º26.27’	110º20.51’	4.9	0.6	12	93	7	0.07
220408	21:56:02.87	44º01.99’	110º40.37’	6.9	1.0	14	136	6	0.13
220409	18:56:49.50	44º45.83’	110º58.04’	11.2	0.7W	12	133	3	0.10
220409	18:59:09.44	44º45.19’	110º58.79’	10.3	2.1W	31	98	2	0.17
220409	18:59:33.08	44º45.20’	110º58.63’	9.8	1.8W	28	98	2	0.18
220409	19:15:15.62	44º44.80’	110º56.64’	3.6	0.6	8	131	5	0.08
220409	19:15:50.22	44º45.10’	110º57.10’	5.7	-0.3	5	141	4	0.05
220409	20:05:56.31	44º45.93’	110º58.56’	9.0	0.0	6	181	2	0.09
220409	20:08:38.38	44º45.25’	110º58.88’	10.0	1.7W	21	99	2	0.16
220409	20:19:28.01	44º45.44’	110º58.41’	10.3	1.0W	15	99	3	0.13
220409	21:08:20.08	44º45.28’	110º58.76’	10.1	0.7W	12	99	2	0.13
220409	22:30:13.11	44º45.19’	110º58.75’	11.8	1.8W	18	71	2	0.19

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DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
220409	22:30:29.58	44º45.46’	110º58.19’	10.5	0.9	6	128	3	0.05
220409	23:50:45.31	44º45.57’	110º58.01’	10.2	-0.1	9	129	3	0.07
220410	02:50:22.60	44º45.44’	111º05.78’	12.3	0.4	6	252	7	0.11
220410	03:04:31.50	44º44.70’	111º04.73’	12.2	0.3	10	95	6	0.14
220410	03:08:52.31	44º44.26’	111º05.03’	11.2	1.3W	16	68	7	0.15
220410	04:14:30.81	44º46.20’	110º58.64’	11.6	0.3	7	195	3	0.11
220410	04:59:12.69	44º46.00’	110º58.84’	10.8	0.2	9	188	2	0.12
220410	08:05:12.78	44º45.14’	110º57.99’	8.7	0.1	13	141	3	0.17
220410	08:12:10.13	44º45.48’	110º58.44’	9.7	0.3	19	127	3	0.19
220410	10:21:51.74	44º44.71’	111º04.21’	11.4	0.2W	14	98	5	0.13
220410	10:54:22.61	44º44.51’	111º03.71’	10.6	0.1W	14	96	5	0.12
220410	11:41:54.47	44º44.52’	111º04.33’	10.2	0.5W	18	93	6	0.17
220410	13:48:12.99	44º45.79’	110º58.03’	10.8	0.4	14	133	3	0.12
220410	22:59:06.95	44º48.26’	110º48.19’	6.5	0.4	12	193	4	0.11
220411	02:26:40.84	44º45.29’	110º58.74’	11.4	1.7W	26	71	2	0.18
220411	04:33:48.68	44º45.88’	110º58.31’	10.6	0.4	8	176	3	0.09
220411	05:10:54.22	44º45.63’	110º58.33’	10.3	0.1	8	164	3	0.08
220411	07:07:22.65	44º46.08’	110º58.23’	10.4	0.3	8	184	3	0.13
220411	19:30:17.43	44º05.44’	110º45.62’	9.6	1.2	21	75	5	0.17
220411	20:00:12.03	44º45.42’	110º58.38’	9.7	0.4	16	127	3	0.17
220412	01:14:46.04	44º46.00’	110º44.52’	3.3	-0.1	11	180	5	0.28
220412	04:47:36.61	44º05.69’	110º45.44’	8.2	0.6	14	74	5	0.11
220412	07:52:25.05	44º05.82’	110º45.54’	9.7	0.6	6	118	5	0.04
220412	22:54:00.86	44º44.06’	111º05.26’	9.4	0.6W	17	78	7	0.20
220412	23:41:51.88	44º44.28’	111º05.66’	11.2	0.2	13	99	7	0.12
220413	01:48:57.52	44º44.12’	111º05.48’	11.6	0.2	13	78	7	0.09
220413	01:49:10.90	44º43.63’	111º04.55’	11.6	-0.4	5	227	7	0.07
220413	02:50:24.00	44º43.75’	111º06.08’	11.5	1.0W	18	72	7	0.15
220413	03:10:09.63	44º43.91’	111º05.73’	11.9	1.9W	27	71	7	0.14
220413	03:15:21.42	44º43.96’	111º05.71’	12.0	0.5	15	74	7	0.12
220413	03:17:33.90	44º43.62’	111º05.89’	11.1	0.4	14	74	8	0.12
220413	03:45:47.11	44º44.03’	111º05.42’	11.5	0.4	14	76	7	0.11
220413	04:00:10.68	44º44.21’	111º05.36’	11.0	1.0W	21	80	7	0.18
220413	05:00:39.49	44º36.59’	111º02.94’	7.5	0.9W	17	71	4	0.19
220413	05:09:35.79	44º43.97’	111º05.20’	10.8	0.6	16	77	7	0.15
220413	11:51:41.42	44º44.04’	111º05.46’	12.3	0.3	14	96	7	0.13
220413	12:09:32.49	44º33.91’	110º57.41’	11.3	0.2	10	146	10	0.14
220413	14:44:56.80	44º44.19’	111º05.29’	10.1	0.6W	16	93	7	0.16
220413	16:06:48.92	44º44.03’	111º04.97’	12.9	0.3	14	79	7	0.14
220413	20:28:59.90	44º43.94’	111º05.86’	9.2	0.2	12	103	7	0.11
220413	23:23:29.07	44º43.77’	111º05.14’	11.2	0.4	15	98	7	0.11
220414	02:34:32.34	44º43.82’	111º05.30’	11.3	1.2W	21	74	7	0.17
220414	03:16:43.39	44º44.30’	111º05.90’	11.1	0.8W	19	100	8	0.17
220414	04:44:13.30	44º43.39’	111º04.91’	8.3	0.1	12	228	7	0.17
220414	05:13:34.81	44º05.42’	110º45.21’	8.7	0.7	17	74	4	0.17

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DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
220414	06:20:31.63	44º05.64’	110º45.69’	8.8	1.8W	24	74	5	0.15
220414	06:29:25.86	44º05.40’	110º42.19’	14.9	0.5	9	143	1	0.22
220414	06:30:29.28	44º05.77’	110º46.08’	8.9	0.6	14	76	6	0.11
220414	14:08:56.82	44º05.77’	110º45.55’	9.4	0.8	13	74	5	0.15
220415	17:46:32.14	44º15.84’	110º48.11’	3.6	0.6	9	107	1	0.11
220416	02:04:48.30	44º05.59’	110º45.58’	9.9	0.8	15	74	5	0.10
220416	02:05:11.67	44º05.55’	110º45.60’	9.4	0.2	9	76	5	0.07
220416	09:30:15.70	44º44.53’	111º08.85’	13.4	0.0	12	119	4	0.10
220417	22:40:14.85	44º26.40’	110º52.84’	10.6	0.8W	15	95	4	0.25
220417	22:56:58.29	44º48.21’	110º48.79’	4.8	0.7	8	255	3	0.15
220418	01:17:01.81	44º45.62’	111º10.28’	8.5	0.8	14	97	2	0.19
220418	21:29:04.75	44º39.01’	110º27.52’	4.3	1.1	19	119	8	0.14
220418	21:37:20.03	44º39.22’	110º27.05’	4.8	0.8	12	171	8	0.17
220418	23:10:11.61	44º39.03’	110º27.75’	4.9	1.7W	25	103	8	0.16
220419	05:51:55.38	44º35.33’	110º29.37’	4.7	0.5	10	121	8	0.08
220419	05:52:24.50	44º35.38’	110º29.18’	4.8	0.6	13	123	7	0.12
220420	01:49:59.65	44º47.11’	111º00.55’	9.5	0.5	10	247	3	0.12
220420	03:47:19.02	44º46.50’	111º00.81’	9.4	1.4W	18	106	2	0.16
220420	03:57:37.11	44º47.48’	111º00.74’	9.6	0.4	8	252	4	0.11
220420	03:58:12.28	44º46.45’	110º59.20’	6.0	-0.7	6	217	2	0.09
220420	05:21:57.86	44º47.38’	111º00.58’	10.4	0.8	15	153	3	0.15
220422	04:32:38.39	44º30.09’	110º27.37’	2.1	0.7	18	65	8	0.16
220422	04:59:10.28	44º42.77’	110º59.50’	8.9	-0.6	7	131	5	0.08
220422	09:08:47.99	44º14.27’	110º47.66’	3.7	-0.1	9	90	4	0.20
220422	09:09:01.55	44º14.39’	110º47.04’	4.8	0.8	14	74	4	0.25
220422	13:36:06.60	44º49.14’	110º58.11’	5.5	0.5	12	188	7	0.11
220422	21:08:22.83	44º48.80’	110º48.69’	6.9	0.3	10	110	4	0.11
220423	06:38:10.91	44º27.26’	111º03.57’	13.7	2.0W	30	80	17	0.21
220423	06:49:34.30	44º27.52’	111º03.08’	15.2	0.6W	16	147	17	0.17
220423	08:15:22.57	44º27.56’	111º02.82’	14.8	0.2	11	146	17	0.16
220424	23:59:01.04	44º45.90’	110º55.11’	6.7	0.5	11	129	6	0.13
220425	15:23:14.28	44º45.72’	110º55.40’	6.0	0.6	14	102	6	0.13
220425	15:30:26.28	44º45.84’	110º55.26’	6.8	0.2	9	128	6	0.11
220425	15:45:27.20	44º45.89’	110º55.70’	9.2	0.7	13	131	6	0.12
220425	17:18:20.77	44º45.60’	110º55.87’	7.6	0.4	8	153	6	0.10
220427	09:59:23.03	44º25.04’	110º23.11’	8.0	0.4	8	106	8	0.03
220427	10:18:13.43	44º19.47’	110º33.38’	6.4	0.6	16	91	7	0.10
220427	10:55:20.51	44º19.50’	110º33.42’	6.2	0.7	16	90	7	0.10
220427	11:01:45.29	44º45.34’	110º58.78’	10.4	0.9W	15	99	2	0.13
220427	17:02:42.76	44º44.01’	111º09.25’	11.3	0.0	9	118	4	0.15
220428	08:25:37.77	44º47.20’	111º02.57’	7.4	1.9W	26	79	4	0.18
220429	18:36:31.20	44º44.83’	110º58.07’	6.2	0.1	11	128	3	0.10
220429	22:35:15.50	44º26.35’	110º17.83’	9.0	-0.4	9	139	5	0.18
220429	22:35:52.99	44º26.86’	110º19.47’	4.5	-0.2	8	122	7	0.11
220429	22:43:11.58	44º44.84’	110º47.34’	4.6	0.3	11	245	7	0.12

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DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
220430	07:00:46.62	44º18.60’	110º59.70’	11.5	0.9W	14	117	16	0.22
220430	08:41:46.75	44º47.35’	111º02.40’	7.2	2.5W	30	131	4	0.16
220430	09:53:19.33	44º33.53’	110º50.23’	8.1	0.4W	9	142	7	0.20
220430	11:30:10.70	44º50.87’	111º27.94’	10.1	0.9	13	135	3	0.17
220430	12:39:33.54	44º41.32’	110º01.96’	12.9	0.8	7	117	10	0.07
220430	17:19:10.39	44º47.32’	111º00.51’	9.9	0.6W	12	153	3	0.12
220502	15:41:32.64	44º41.50’	110º05.25’	6.8	1.8W	12	75	8	0.15
220503	19:41:52.73	44º43.08’	111º07.64’	6.5	0.2W	13	119	7	0.17
220505	17:11:42.88	44º47.40’	111º00.71’	10.4	0.0	9	153	3	0.11
220507	04:15:49.31	44º33.81’	110º41.83’	7.1	0.9	18	76	6	0.16
220508	12:11:11.00	44º37.40’	110º20.24’	6.3	0.3	7	128	9	0.10
220508	14:57:18.67	44º44.30’	111º06.63’	11.2	1.5W	18	72	6	0.17
220508	15:30:04.41	44º44.60’	111º06.27’	12.3	0.9W	11	91	6	0.12
220508	15:33:07.14	44º44.87’	111º07.21’	13.4	1.3W	11	97	5	0.13
220508	16:05:22.12	44º44.60’	111º06.25’	11.7	0.5W	11	91	6	0.08
220508	16:39:37.53	44º44.52’	111º06.43’	11.6	0.8W	16	75	6	0.13
220508	16:41:34.91	44º44.04’	111º06.88’	10.6	2.2W	22	69	7	0.15
220508	17:02:37.67	44º44.39’	111º06.85’	11.9	2.3W	21	66	6	0.14
220508	21:18:45.97	44º44.47’	111º06.83’	11.4	0.2	11	70	6	0.14
220509	13:50:52.63	44º44.61’	111º04.65’	11.0	1.0W	18	93	6	0.16
220509	13:57:38.95	44º44.83’	111º04.56’	11.1	0.8W	15	98	6	0.11
220510	09:51:48.30	44º35.68’	110º19.65’	4.9	0.9	10	92	7	0.08
220511	11:35:33.79	44º47.05’	111º00.51’	9.3	0.9W	17	148	3	0.15
220511	13:32:02.23	44º40.86’	109º59.78’	13.9	4.2W	31	113	8	0.22
220511	13:38:35.31	44º41.12’	110º02.46’	11.1	1.5	8	99	11	0.16
220511	18:22:09.54	44º43.40’	110º03.00’	5.0	0.5	8	154	9	0.08
220512	01:41:36.93	44º28.22’	110º42.18’	4.8	0.7	14	67	10	0.11
220512	10:49:47.23	44º33.58’	110º42.21’	5.6	0.5	15	78	7	0.15
220513	01:32:25.91	44º46.07’	111º07.98’	10.3	-0.1	8	87	4	0.14
220513	01:35:57.33	44º37.48’	110º20.33’	5.1	0.6	7	129	9	0.04
220515	08:00:53.30	44º45.69’	111º07.13’	10.1	-0.3	11	73	4	0.20
220515	08:42:17.37	44º45.76’	111º07.22’	10.6	0.2W	17	76	4	0.18
220515	10:35:35.50	44º45.70’	111º07.31’	10.7	0.8W	18	76	4	0.16
220515	21:01:55.83	44º45.69’	111º13.76’	4.3	0.2	14	191	3	0.17
220515	21:11:59.87	44º45.63’	111º13.69’	5.0	0.5	10	189	3	0.13
220515	21:45:24.95	44º45.75’	111º15.17’	7.8	1.4W	18	169	5	0.22
220515	22:49:29.01	44º45.45’	111º06.12’	18.3	0.1	11	84	4	0.20
220516	03:37:24.06	44º45.52’	111º14.61’	5.2	0.8W	13	209	4	0.19
220516	03:42:50.49	44º45.71’	111º14.21’	6.2	0.9W	15	200	3	0.19
220516	08:51:47.59	44º14.99’	110º22.91’	11.5	1.1	19	72	12	0.18
220517	21:56:46.09	44º26.78’	110º59.16’	5.4*	0.8W	10	124	12	0.30
220518	00:58:42.21	44º35.20’	110º45.18’	5.2	1.6W	23	71	8	0.18
220518	07:16:50.06	44º26.96’	110º58.83’	8.8	0.7W	12	131	12	0.20
220518	07:22:32.04	44º25.83’	110º57.89’	10.5	0.3	8	216	11	0.22
220518	07:38:44.90	44º47.63’	110º49.04’	4.8	0.7	9	248	3	0.08

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DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
220518	09:45:15.37	44º27.08’	111º00.38’	16.1	1.4W	22	130	19	0.14
220518	09:45:47.56	44º27.31’	110º58.35’	7.6	0.3	13	210	11	0.26
220518	09:46:26.39	44º26.72’	110º59.55’	12.1	1.5W	24	126	12	0.22
220518	09:48:29.79	44º26.86’	110º59.39’	8.5	0.9W	15	125	12	0.29
220518	09:52:11.24	44º26.47’	110º59.66’	12.0	1.1W	21	127	13	0.22
220518	09:55:03.23	44º26.56’	110º59.20’	12.2	0.8W	14	124	12	0.24
220518	10:19:42.01	44º26.96’	110º58.55’	9.5	0.7W	12	121	11	0.16
220518	10:35:34.98	44º26.82’	110º59.53’	12.7	0.9W	13	125	12	0.24
220518	10:39:09.88	44º26.96’	110º59.58’	12.2	1.5W	20	126	13	0.23
220518	13:59:01.80	44º26.76’	110º59.76’	11.7	2.0W	25	127	13	0.23
220518	19:58:36.01	44º26.84’	110º59.70’	6.9	1.6W	21	127	13	0.24
220519	14:22:01.64	44º45.61’	111º14.00’	5.8	1.8W	22	116	3	0.23
220519	18:11:06.81	44º45.56’	111º13.25’	4.9	0.7	17	180	2	0.17
220519	19:35:36.88	44º45.54’	111º13.43’	4.7	1.3W	14	184	2	0.19
220519	20:25:54.86	44º33.74’	110º42.08’	7.0	1.2	13	103	7	0.21
220520	00:22:46.62	44º30.33’	110º35.72’	3.4	1.6W	13	74	8	0.14
220520	18:06:39.85	44º03.27’	110º30.25’	10.1	1.2	11	110	16	0.11
220521	01:38:03.90	44º03.50’	110º30.74’	10.5	1.1	19	108	15	0.14
220521	05:56:14.15	44º44.78’	110º46.18’	5.3	0.1	8	243	8	0.11
220521	05:56:33.43	44º44.52’	110º47.27’	2.8	-0.8	6	243	7	0.11
220521	09:06:51.28	44º03.42’	110º30.74’	9.6	0.7	15	109	15	0.15
220523	00:02:32.78	44º42.90’	110º51.34’	5.1	1.2	9	88	6	0.08
220523	06:57:48.21	44º45.88’	111º07.14’	12.2	0.2	11	77	4	0.11
220523	12:01:50.21	44º26.77’	110º57.25’	11.2	0.2	10	114	9	0.16
220524	11:52:42.21	44º45.08’	111º05.36’	12.5	0.4W	13	92	5	0.12
220524	11:52:58.95	44º45.84’	111º04.90’	10.5	-0.4	9	120	6	0.17
220524	11:58:28.42	44º45.16’	111º04.93’	11.7	0.3W	14	113	6	0.09
220524	12:29:06.19	44º45.21’	111º05.38’	11.4	0.4W	12	112	7	0.10
220525	01:14:58.93	44º34.73’	110º22.88’	5.3	0.7	9	109	3	0.21
220525	02:10:24.40	44º21.29’	110º46.11’	3.8	1.2	11	92	10	0.09
220525	02:11:21.58	44º20.82’	110º46.67’	2.8	1.2	17	85	9	0.11
220525	04:35:59.22	44º04.80’	110º44.44’	9.3	0.3	17	81	3	0.14
220525	04:53:35.94	44º04.78’	110º44.51’	9.4	0.4	16	83	3	0.14
220525	11:03:12.31	44º37.43’	110º02.02’	6.0*	0.0	6	108	13	0.06
220526	19:23:22.00	44º48.50’	111º00.97’	8.4	0.8W	15	169	5	0.17
220527	00:45:04.39	44º34.32’	110º44.69’	7.6	0.7	10	84	9	0.09
220528	04:42:35.85	44º41.09’	110º01.60’	13.6	1.1	10	98	10	0.08
220528	10:27:24.81	44º44.85’	110º47.03’	8.3	0.2	10	163	7	0.11
220528	10:27:35.95	44º44.33’	110º47.50’	3.2	-0.5	6	147	7	0.06
220529	01:22:48.38	44º47.83’	110º59.67’	4.5	1.2W	13	162	4	0.10
220529	06:53:21.12	44º45.15’	110º40.44’	2.1	0.5	14	180	4	0.15
220529	11:04:59.99	44º34.33’	110º20.16’	4.8	0.6	9	93	5	0.10
220530	20:08:08.68	44º47.88’	111º20.11’	13.2	1.1W	17	169	12	0.16
220531	12:45:15.63	44º13.48’	110º37.69’	11.8	0.8	12	139	9	0.18
220531	12:45:32.73	44º13.27’	110º37.42’	10.8	0.5	12	144	9	0.21

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DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
220531	12:49:35.00	44º12.94’	110º36.47’	11.9	0.4	10	155	8	0.14
220531	13:11:08.64	44º13.06’	110º36.87’	11.8	0.3	11	139	9	0.16
220531	13:11:24.46	44º12.96’	110º37.04’	11.8	0.8	12	139	9	0.15
220601	12:15:44.69	44º45.63’	110º55.65’	10.0	0.8W	12	126	6	0.10
220601	23:35:50.16	44º28.82’	111º03.62’	14.4	1.1W	14	144	14	0.15
220603	00:49:42.47	44º47.97’	110º59.41’	8.1	0.7W	15	165	5	0.09
220603	03:18:47.70	44º47.43’	110º59.21’	9.0	-0.8	5	157	4	0.04
220603	03:57:46.26	44º46.27’	111º12.45’	14.3	0.2	11	171	2	0.13
220603	16:13:56.10	44º27.05’	110º11.67’	8.0	0.2	9	86	9	0.14
220605	13:01:37.63	44º23.80’	110º15.05’	6.8	1.1	20	155	3	0.20
220605	14:22:40.56	44º16.14’	110º58.40’	7.6	1.0	8	115	13	0.13
220606	12:57:55.40	44º43.61’	111º05.54’	11.5	0.0	15	102	8	0.18
220606	17:42:13.71	44º40.77’	110º01.28’	13.0	1.4	11	161	10	0.18
220607	15:43:28.79	44º44.39’	110º53.30’	4.9	0.6	10	137	6	0.11
220607	17:11:29.88	44º48.12’	110º35.71’	2.0*	0.9	16	169	11	0.12
220607	17:31:16.64	44º11.96’	110º36.81’	8.4	0.9	9	158	10	0.16
220607	17:31:45.02	44º12.30’	110º37.13’	4.9	1.0	10	155	10	0.17
220607	17:32:08.26	44º12.19’	110º36.61’	5.1	0.7	8	159	9	0.11
220607	17:33:16.29	44º11.77’	110º36.68’	7.5	1.1	11	160	10	0.19
220607	17:34:06.19	44º11.94’	110º36.51’	7.5	1.3	16	129	10	0.15
220607	17:36:31.45	44º11.85’	110º36.82’	7.5	1.2	13	159	10	0.16
220607	17:39:11.21	44º12.26’	110º36.96’	5.0	1.5	13	156	10	0.11
220607	17:42:50.09	44º11.71’	110º36.71’	7.9	0.7	9	161	10	0.20
220607	17:47:56.64	44º13.35’	110º38.92’	4.9*	0.2	8	122	11	0.14
220607	20:15:52.09	44º11.84’	110º36.94’	9.4	0.4	8	158	10	0.17
220607	20:17:57.92	44º12.67’	110º37.21’	5.9	0.3	9	152	9	0.16
220607	20:21:07.53	44º48.27’	110º35.15’	6.1	2.2W	22	146	12	0.16
220608	16:44:56.52	44º44.23’	110º05.94’	2.0	0.9	5	110	5	0.32
220608	23:30:04.91	44º48.42’	110º35.61’	3.2*	0.9	19	147	12	0.15
220609	20:27:59.98	44º45.90’	110º51.64’	5.7	2.0W	24	86	3	0.16
220609	22:16:13.19	44º47.08’	110º48.63’	5.4	1.0	17	103	3	0.19
220610	02:06:28.67	44º47.12’	110º47.92’	8.1	1.2W	20	185	4	0.19
220610	03:25:52.88	44º45.41’	110º51.31’	1.2	0.2	6	99	4	0.02
220610	13:39:57.90	44º45.93’	110º51.90’	6.2	0.9W	11	93	3	0.14
220610	15:05:46.08	44º48.19’	110º48.13’	5.8	0.9W	8	278	4	0.12
220610	17:23:12.64	44º46.22’	110º51.11’	7.5	0.7	9	184	2	0.09
220610	21:31:41.25	44º45.85’	110º52.02’	5.2	0.9	7	156	3	0.17
220611	02:10:45.06	44º40.67’	110º00.84’	11.8	1.1	7	178	9	0.08
220611	02:16:33.79	44º49.07’	110º45.33’	8.0	1.1W	8	272	8	0.07
220611	03:31:52.44	44º47.64’	110º48.17’	5.6	1.1	18	188	4	0.18
220611	06:25:57.79	44º48.12’	110º47.72’	6.5	0.6	12	218	5	0.15
220611	07:20:25.38	44º47.40’	110º48.49’	8.3	2.0W	20	103	3	0.14
220611	09:29:20.30	44º47.60’	110º48.44’	7.7	2.2W	27	131	3	0.16
220611	09:56:00.07	44º47.65’	110º48.23’	6.9	2.1W	29	104	4	0.18
220611	10:01:44.10	44º49.27’	110º45.74’	7.7	0.3	6	289	8	0.04

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220611	10:06:57.23	44º47.41’	110º48.11’	8.3	2.4W	21	145	4	0.20
220611	10:09:37.53	44º49.42’	110º45.15’	8.0	0.8W	8	274	9	0.05
220611	10:19:55.85	44º47.66’	110º48.39’	7.9	1.6W	17	104	4	0.15
220611	10:30:54.81	44º48.91’	110º45.36’	7.9	0.4	5	296	8	0.02
220611	10:31:48.69	44º48.66’	110º46.45’	7.9	1.4W	15	231	7	0.10
220611	10:39:16.42	44º47.38’	110º49.27’	5.3	0.2	9	271	2	0.14
220611	10:44:55.29	44º47.73’	110º47.99’	6.2	0.7	16	213	4	0.19
220611	10:49:59.40	44º47.07’	110º48.44’	5.1	0.6	7	210	3	0.05
220611	10:50:55.01	44º47.80’	110º48.87’	5.6	0.9W	11	209	3	0.15
220611	10:51:26.44	44º47.86’	110º47.83’	6.4	1.1W	15	214	4	0.17
220611	10:57:20.05	44º47.38’	110º48.68’	5.6	0.7	11	222	3	0.17
220611	11:09:46.23	44º47.95’	110º47.82’	6.4	0.5	14	216	4	0.18
220611	11:34:21.73	44º48.00’	110º47.36’	7.6	1.0W	16	219	5	0.18
220611	11:52:12.51	44º47.60’	110º48.11’	6.2	1.4W	19	145	4	0.20
220611	13:06:08.35	44º47.81’	110º48.32’	6.0	0.6	10	262	4	0.17
220611	13:45:10.66	44º48.17’	110º47.98’	5.5	0.8	16	217	4	0.19
220611	14:25:15.09	44º47.67’	110º48.14’	5.1	0.5	11	212	4	0.19
220611	16:07:14.60	44º47.98’	110º48.34’	6.4	0.6	11	263	4	0.15
220611	17:17:42.81	44º46.03’	110º50.32’	2.0	0.7	7	213	3	0.06
220611	19:33:53.59	44º46.86’	110º47.92’	4.0	0.9	8	206	4	0.11
220612	01:44:09.81	44º47.87’	110º47.80’	6.1	1.0W	15	215	4	0.18
220612	03:11:52.90	44º42.73’	111º10.79’	7.2	1.4W	18	86	4	0.17
220612	04:23:01.05	44º48.04’	110º48.66’	5.7	0.2	10	276	3	0.11
220612	06:00:35.89	44º48.25’	110º47.60’	8.0	1.1W	14	220	5	0.15
220612	07:16:32.81	44º47.13’	110º48.60’	7.8	2.3W	25	144	3	0.17
220612	07:37:13.54	44º47.27’	110º47.88’	6.1	0.3	12	261	4	0.19
220612	08:43:08.72	44º47.31’	110º48.21’	6.7	1.6W	22	154	4	0.20
220612	09:15:40.45	44º47.07’	110º56.70’	2.2	0.8	8	206	6	0.15
220612	09:15:44.01	44º45.66’	110º48.60’	2.1	0.6	12	160	4	0.19
220612	09:34:19.61	44º47.30’	110º48.08’	8.0	1.9W	22	154	4	0.19
220612	10:33:14.40	44º47.50’	110º49.21’	5.4	0.2	11	221	2	0.14
220612	10:52:24.38	44º47.33’	110º48.68’	6.4	0.4	15	205	3	0.19
220612	11:19:20.25	44º47.78’	110º47.97’	6.0	0.4	14	213	4	0.19
220612	11:32:13.41	44º46.91’	110º49.20’	4.9	0.6	12	217	3	0.17
220612	11:46:02.84	44º48.12’	110º48.42’	5.1	1.0W	15	214	4	0.16
220612	11:53:33.23	44º48.35’	110º47.74’	6.2	0.6	14	220	5	0.17
220612	12:42:36.37	44º45.36’	111º11.67’	11.7	0.4	12	149	1	0.19
220612	13:42:34.25	44º47.49’	110º48.31’	5.7	1.5W	19	187	4	0.19
220612	13:51:48.06	44º48.70’	110º47.02’	6.5	0.7	9	284	6	0.09
220612	17:04:46.55	44º47.39’	110º47.44’	4.9	0.8	8	227	5	0.14
220612	19:40:19.41	44º49.42’	110º44.69’	9.1	1.0	9	274	9	0.06
220612	21:46:24.05	44º46.90’	110º48.90’	3.9	0.8	6	220	3	0.13
220613	00:57:54.03	44º47.58’	110º49.57’	5.1	0.9	8	204	2	0.14
220613	01:21:08.24	44º48.28’	110º46.76’	8.2	1.2W	12	225	6	0.13
220613	03:20:34.29	44º49.31’	110º44.53’	7.9	0.4	6	275	9	0.02

Table 2. Earthquakes in the Yellowstone Region: April 1–June 30, 2022

DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
220613	03:49:41.67	44º47.64’	110º48.15’	7.8	2.4W	22	146	4	0.16
220613	03:51:17.23	44º49.16’	110º45.24’	8.3	1.6W	11	242	8	0.10
220613	03:53:20.35	44º49.46’	110º44.59’	8.6	1.4W	10	276	9	0.08
220613	04:35:45.96	44º49.08’	110º44.85’	7.9	0.8	8	273	9	0.06
220613	04:39:32.30	44º48.92’	110º45.52’	8.1	0.7	7	265	8	0.06
220613	05:02:57.99	44º45.41’	110º51.88’	0.9	0.9	6	116	4	0.08
220613	05:03:54.07	44º49.26’	110º45.27’	8.9	1.5W	10	273	8	0.09
220613	05:47:48.73	44º49.52’	110º45.05’	8.2	0.7	8	275	9	0.04
220613	10:00:26.49	44º46.67’	110º49.19’	4.8	1.0W	8	207	3	0.12
220614	02:58:01.75	44º37.96’	110º20.97’	3.9	0.8	9	135	9	0.07
220614	10:11:31.84	44º47.45’	110º47.97’	5.2	0.8	8	220	4	0.05
220615	20:45:42.51	44º47.46’	110º35.12’	5.9*	0.9	9	214	21	0.25
220616	17:28:57.92	44º45.30’	110º46.67’	5.3	0.9W	15	175	7	0.19
220616	23:18:25.48	44º23.76’	110º38.42’	-1.0	1.6	6	93	5	0.13
220616	23:22:01.86	44º23.92’	110º36.15’	2.0	1.4	10	91	2	0.11
220617	06:08:57.38	44º48.00’	110º48.14’	7.1	0.4	11	213	4	0.09
220618	00:54:31.39	44º23.73’	111º00.74’	8.4	0.8W	9	133	15	0.12
220619	04:06:19.42	44º42.72’	110º06.15’	7.7	1.3	9	130	5	0.08
220619	06:06:03.75	44º31.43’	110º32.63’	7.4	0.6	8	179	10	0.05
220620	04:11:43.67	44º19.57’	110º22.93’	11.1	0.6	10	159	11	0.06
220620	13:09:21.42	44º47.81’	110º48.24’	7.4	0.7	13	211	4	0.16
220620	13:09:43.62	44º47.32’	110º48.41’	5.9	0.6	13	205	3	0.16
220620	14:18:35.18	44º47.79’	110º47.95’	8.4	1.2W	17	212	4	0.17
220620	15:50:53.89	44º47.98’	110º47.86’	8.1	1.0W	13	214	4	0.14
220620	15:55:23.45	44º46.69’	110º49.22’	4.5	0.4	7	185	3	0.09
220620	16:14:09.16	44º47.41’	110º48.34’	6.7	0.4	11	207	4	0.17
220620	16:19:00.51	44º47.75’	110º48.24’	7.5	0.5	14	210	4	0.15
220620	17:12:17.25	44º47.74’	110º48.38’	6.8	0.3	11	210	4	0.13
220620	18:37:37.84	44º47.50’	110º48.16’	5.7	0.1	10	208	4	0.14
220620	20:31:25.95	44º47.33’	110º48.55’	5.7	0.5	15	205	3	0.14
220621	01:25:47.36	44º04.45’	110º27.10’	14.0	1.2	11	205	20	0.11
220621	02:28:23.07	44º05.08’	110º26.25’	17.1	0.9	14	209	21	0.14
220621	19:31:27.23	44º48.08’	110º47.22’	6.3	0.9W	11	265	5	0.16
220622	12:13:26.07	44º47.46’	110º47.89’	5.0	0.6	10	227	4	0.11
220622	13:30:05.10	44º47.75’	110º48.08’	7.5	0.7	18	211	4	0.16
220622	15:17:27.86	44º48.60’	110º47.97’	7.3	0.9	12	232	5	0.12
220623	07:57:35.15	44º47.95’	110º47.78’	8.4	1.2W	14	214	4	0.12
220623	08:52:34.70	44º48.07’	110º48.05’	7.9	0.4	11	214	4	0.09
220623	11:04:12.54	44º48.01’	110º48.01’	7.8	0.8W	12	214	4	0.09
220623	11:27:31.71	44º48.06’	110º48.03’	7.8	0.4	11	214	4	0.08
220623	13:22:06.11	44º47.95’	110º47.91’	8.2	1.2W	16	171	4	0.11
220623	15:09:24.09	44º48.04’	110º47.33’	6.9	0.6	13	217	5	0.12
220623	21:12:31.01	44º47.58’	110º46.42’	6.0	1.0	9	237	6	0.20
220624	20:34:17.14	44º47.98’	110º47.86’	7.9	1.4	12	214	4	0.12
220625	01:44:21.98	44º45.04’	110º52.37’	0.4	0.2	6	106	5	0.10

Table 2. Earthquakes in the Yellowstone Region: April 1–June 30, 2022

DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
220625	02:16:50.01	44º19.75’	111º00.28’	11.2	0.8	6	181	17	0.12
220625	03:33:57.46	44º45.71’	111º02.99’	8.6	1.3W	20	125	3	0.17
220625	23:14:05.22	44º40.37’	110º01.18’	13.3	0.5	6	180	10	0.07
220626	06:34:31.12	44º47.44’	110º48.42’	5.5	0.8	19	207	3	0.19
220626	06:37:16.58	44º48.04’	110º47.91’	8.0	0.7	11	214	4	0.09
220627	15:54:36.50	44º48.74’	110º50.23’	4.7	1.2W	18	211	3	0.13
220628	03:59:31.69	44º45.84’	111º03.08’	9.4	2.0W	25	118	4	0.14
220628	05:00:57.60	44º42.89’	111º11.14’	8.6	0.9W	17	86	4	0.17
220628	13:30:53.31	44º48.44’	110º50.05’	4.4	-0.1	7	241	2	0.08
220628	13:33:13.37	44º20.60’	110º53.30’	2.1	1.2	9	114	10	0.33
220628	23:13:54.57	44º48.42’	110º46.70’	7.1	0.8W	13	223	6	0.15
220629	02:44:51.23	44º45.37’	111º03.25’	7.4	0.9W	19	119	4	0.20
220629	22:22:02.13	44º18.20’	110º59.86’	8.2	1.7	11	130	16	0.15
220630	01:35:48.94	44º52.41’	110º39.12’	2.2*	0.9	8	187	17	0.13
220630	12:08:45.18	44º48.16’	110º47.89’	7.4	0.3	8	215	4	0.09
220630	14:08:13.85	44º40.47’	110º02.93’	13.4	0.8	10	93	11	0.14
220630	23:17:31.52	44º03.74’	110º14.55’	12.1	1.3	9	142	14	0.09

number of earthquakes = 377

* indicates poor depth control

W indicates Wood-Anderson data used for magnitude calculation

Table 3
UNIVERSITY OF UTAH YELLOWSTONE SEISMIC NETWORK
Operating Seismograph Stations
June 30, 2022

SEED Station	Location	SEED Channel	No. of Channels	Network Code	Latitude	Longitude	Elevation (meters)	Sensor	Digitizer	Telemetry	Sponsor
B206*	Canyon206bwy2008, Yellowstone, WY	EH[ZEN]	3	PB	44° 46.66′	110° 30.70′	2400	IESE-S2	Q330	Digital	PBO
B207*	Madisn207bwy2007, Yellowstone, WY	EH[ZEN]	3	PB	44° 37.14′	110° 50.91′	2182	IESE-S2	Q330	Digital	PBO
B208*	Lakejn208bwy2008, Yellowstone, WY	EH[ZEN]	3	PB	44° 33.61′	110° 24.09′	2406	IESE-S2	Q330	Digital	PBO
B944*	Grantt944bwy2008, Yellowstone, WY	EH[ZEN]	3	PB	44° 23.38′	110° 32.63′	2365	IESE-S2	Q330	Digital	PBO
B945*	Panthr944swy2008, Yellowstone, WY	EH[ZEN]	3	PB	44° 53.64′	110° 44.65′	2249	IESE-S2	Q330	Digital	PBO
B950*	Norris950bwy2013, Yellowstone, WY	EH[ZEN]	3	PB	44° 42.77′	110° 40.71′	2328	IESE-S2	Q330	Digital	PBO
FLWY*	Flagg Ranch, WY	BH[ZEN]	3	IW	44° 04.96′	110° 41.96′	2078	3ESP	RT-130	Digital	ANSS
IMW*	Indian Meadows, WY	BH[ZEN]	3	IW	43° 53.58′	110° 56.58′	2670	3ESP	RT-130	Digital	ANSS
LKWY*	Lake, WY	BH[ZEN]	3	US	44° 33.91′	110° 24.00′	2424	STS-2	Q330	Digital	USGS
LOHW*	National Elk Refuge, WY	BH[ZEN]	3	IW	43° 36.76′	110° 36.30′	2245	3ESP	RT-130	Digital	ANSS
MCID	Moose Creek, ID	EHZ	1	WY	44° 11.45′	111° 11.03′	2137	L4C	PSN	Analog	USGS
MOOW*	Moose Ponds, WY	BH[ZEN]	3	IW	43° 44.92′	110° 44.69′	2128	3ESP	RT-130	Digital	ANSS
QLMT*	Earthquake Lake, MT	EHZ	1	MB	44° 49.84′	111° 25.80′	2064	L4C	-	Analog	MBMT
REDW*	Red-Top Meadows, WY	BH[ZEN]	3	IW	43° 21.74′	110° 51.18′	2322	3ESP	RT-130	Digital	ANSS
SNOW*	Snow King Mountain, WY	BH[ZEN]	3	IW	43° 27.75′	110° 45.31′	2390	3ESP	RT-130	Digital	ANSS
TPAW*	Teton Pass, WY	BH[ZEN]	3	IW	43° 29.41′	110° 57.04′	2512	3ESP	RT-130	Digital	ANSS
TPMT*	Teepe Creek, MT	EHZ	1	MB	44° 43.79′	111° 39.94′	2518	L4C	-	Analog	MBMT
YDC	Denny Creek, MT	EHZ	1	WY	44° 42.51′	111° 14.60′	2025	L4C	PSN	Analog	USGS
YDD	Grant Junction, Yellowstone, WY	HH[ZEN]	3	WY	44° 24.00′	110° 34.80′	2400	STS-2	Q330	Digital	NSF
		EN[ZEN]	3					Episensor			
YEE	East Entrance (YNP), WY	HH[ZEN]	3	WY	44° 29.12′	109° 53.81′	2270	Compact PH	Centaur	Digital	USGS
YFT	Old Faithful (YNP), WY	HH[ZEN]	3	WY	44° 27.05′	110° 50.24′	2292	Compact PH	Centaur	Digital	USGS
		EN[ZEN]	3					Titan			
YGC	Grayling Creek, MT	EHZ	1	WY	44° 47.77′	111° 06.45′	2075	L4C	PSN	Analog	USGS
YHB	Horse Butte, MT	EHZ	1	WY	44° 45.07′	111° 11.71′	2157	L4C	PSN	Analog	USGS
		HH[ZEN]	3					Compact	Centaur	Digital	
		EN[ZEN]	3					Titan			
YHH	Holmes Hill (YNP), WY	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			

SEED Station	Location	SEED Channel	No. of Channels	Network Code	Latitude	Longitude	Elevation (meters)	Sensor	Digitizer	Telemetry	Sponsor
YHL	Hebgen Lake, MT	HH[ZEN]	3	WY	44° 51.05′	111° 10.98′	2691	Trillium 120	Q330	Digital	USGS
		EN[ZEN]	3					Titan			
YHR	Hawk's Rest, WY	HH[ZEN]	3	WY	44° 06.36′	110° 04.90′	2976	Trillium 120	Q330	Digital	USGS
YJC	Joseph′s Coat (YNP), WY	EH[ZEN]	3	WY	44° 45.33′	110° 20.95′	2684	S13	PSN	Analog	USGS
YLA	Lake Butte (YNP), WY	EHZ	1	WY	44° 30.76′	110° 16.12′	2580	L4C	PSN	Analog	USGS
YLT	Little Thumb Creek (YNP), WY	EHZ	1	WY	44° 26.25′	110° 35.28′	2439	L4C	PSN	Analog	USGS
YMC	Maple Creek (YNP), WY	EH[ZEN]	3	WY	44° 45.53′	111° 00.41′	2073	S13	PSN	Analog	USGS
YML	Mary Lake (YNP), WY	EH[ZEN]	3	WY	44° 36.20′	110° 38.63′	2653	S13	PSN	Analog	USGS
YMP	Mirror Plateau (YNP), WY	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	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	EHZ	1	WY	44° 15.84′	110° 31.67′	3106	L4C	PSN	Analog	USGS
YMV	Mammoth Vault (YNP), WY	EHZ	1	WY	44° 58.42′	110° 41.33′	1829	L4C	PSN	Analog	USGS
YNE	Northeast Entrance (YNP), WY	HH[ZEN]	3	WY	45° 00.46′	110° 00.48′	2343	Compact	Centaur	Digital	USGS
YNM	Norris Museum (YNP), WY	HH[ZEN]	3	WY	44° 43.59′	110° 42.22′	2311	Trillium 240	Q330	Digital	USGS
YNR	Norris Junction (YNP), WY	HH[ZEN]	3	WY	44° 42.93′	110° 40.75′	2336	Trillium 120	Q330	Digital	USGS
		EN[ZEN]	3					Titan			
YPC	Pelican Cone (YNP), WY	EHZ	1	WY	44° 38.88′	110° 11.55′	2932	L4C	PSN	Analog	USGS
YPK	Parker Peak (YNP), WY	EH[ZEN]	3	WY	44° 43.91′	109° 55.32′	2897	L4C	PSN	Analog	USGS
YPM	Purple Mountain (YNP), WY	EHZ	1	WY	44° 39.43′	110° 52.12′	2582	L4C	PSN	Analog	USGS
YPP	Pitchstone Plateau (YNP), WY	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	EHZ	1	WY	44° 53.04′	110° 09.06′	2072	L4C	PSN	Analog	USGS
YTP	The Promontory (YNP), WY	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	HH[ZEN]	3	WY	44° 42.76′	110° 30.71′	2394	Trillium 120	Centaur	Digital	USGS
		EN[ZEN]	3					Titan			
YWB	West Boundary (YNP), WY	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: 150 data channels from 46 stations were being recorded at the end of this report period

EXPLANATION OF TABLE

UURSN Code: Station code formerly used in routine processing. Owing to software limitations, the station code may not be the same 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
Compact PH	Nanometrics Compact Posthole 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)
Centaur	Nanometrics Centaur (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
NSF	National Science Foundation

Network Changes During April 1–June 30, 2022

None