EARTHQUAKE ACTIVITY IN THE YELLOWSTONE REGION

Preliminary Epicenters

January 1 – March 31, 2022

Prepared by the University of Utah Seismograph Stations and funded by
the U.S. Geological Survey (Cooperative Agreement No. G21AC10068)

June 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 MST through 02:00 (2:00 a.m.) on March 13 and MDT thereafter.

- 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, 2022

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During the three-month period January 1 through March 31, 2022, the University of Utah Seismograph Stations (UUSS) located 442 earthquakes within the Yellowstone region (Figure 1). The total includes no earthquakes in the magnitude 3 range and 19 earthquakes in the magnitude 2 range. The largest event to occur during this period was a magnitude 2.9 earthquake on March 15. No earthquakes were 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

None

Notable Swarm Seismicity

During the report period, there were four 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 23 earthquakes ($-0.1 \leq M \leq 1.9$) occurred about 2.5 mi S of Old Faithful, YNP on Feb. 12th.
B. A swarm of 39 earthquakes ($0.5 \leq M \leq 2.2$) occurred about 8.9 mi SE of Grant Village, YNP from Feb. 28th – Mar. 5th.
C. A swarm of 10 earthquakes ($0.5 \leq M \leq 2.9$) occurred about 5.2 mi NE of Lake, YNP from Mar. 15th – 18th.
D. A swarm of 116 earthquakes ($-0.9 \leq M \leq 2.6$) occurred about 11.3 mi NE of West Yellowstone, MT from Mar. 28th – 31st.

These swarms are labeled in Figure 1.

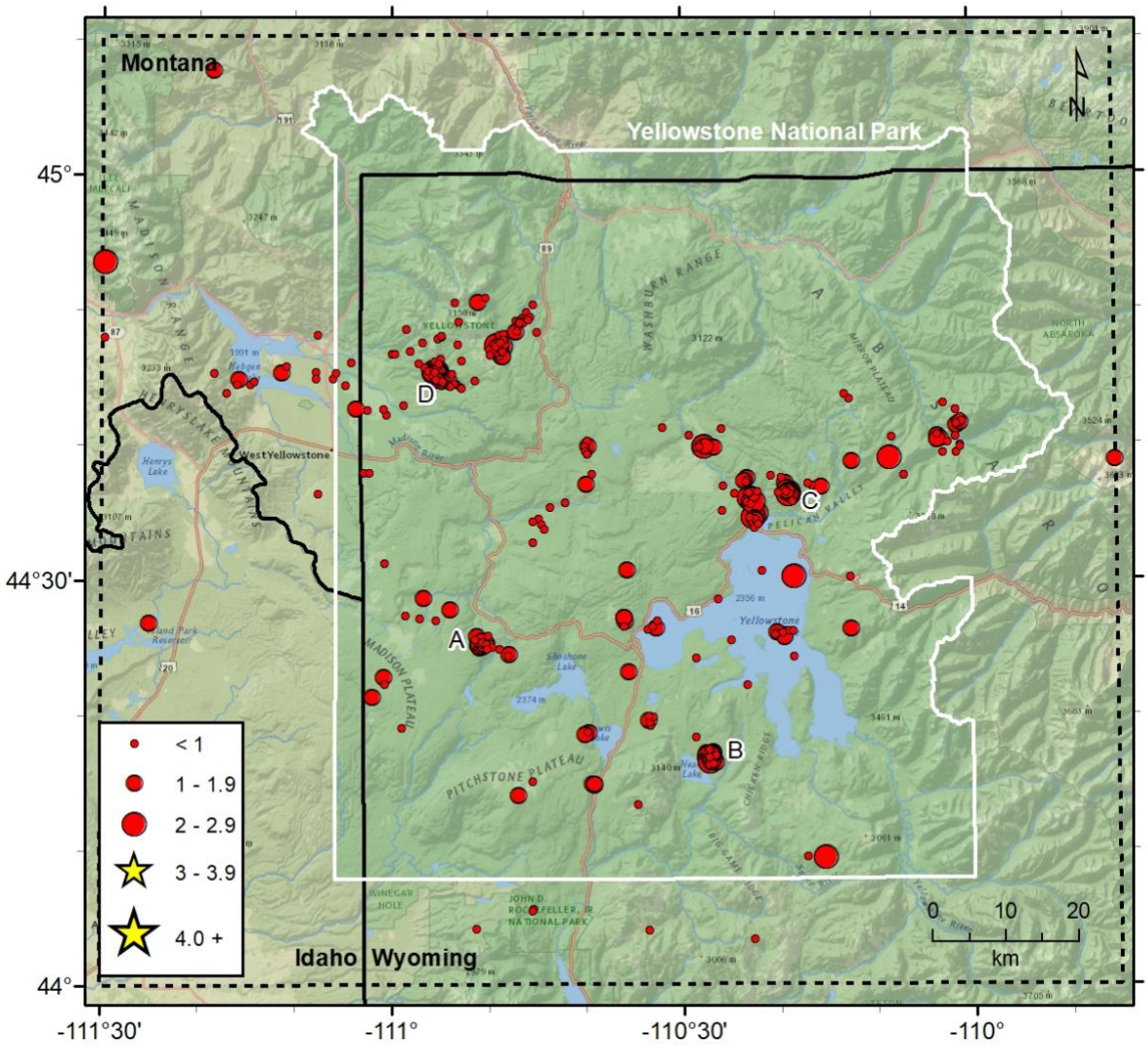

Figure 1. Epicenters of earthquakes located by the University of Utah Seismograph Stations, January 1, 2022, through March 31, 2022. Earthquake swarms (labeled A–D) are discussed in the text.

Table 1

EARTHQUAKES FELT IN THE YELLOWSTONE REGION
January 1, 2022, to March 31, 2022

Date	Time†	Felt Information‡	Latitude	Longitude	Magnitude§
None					

† 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
March 31, 2022

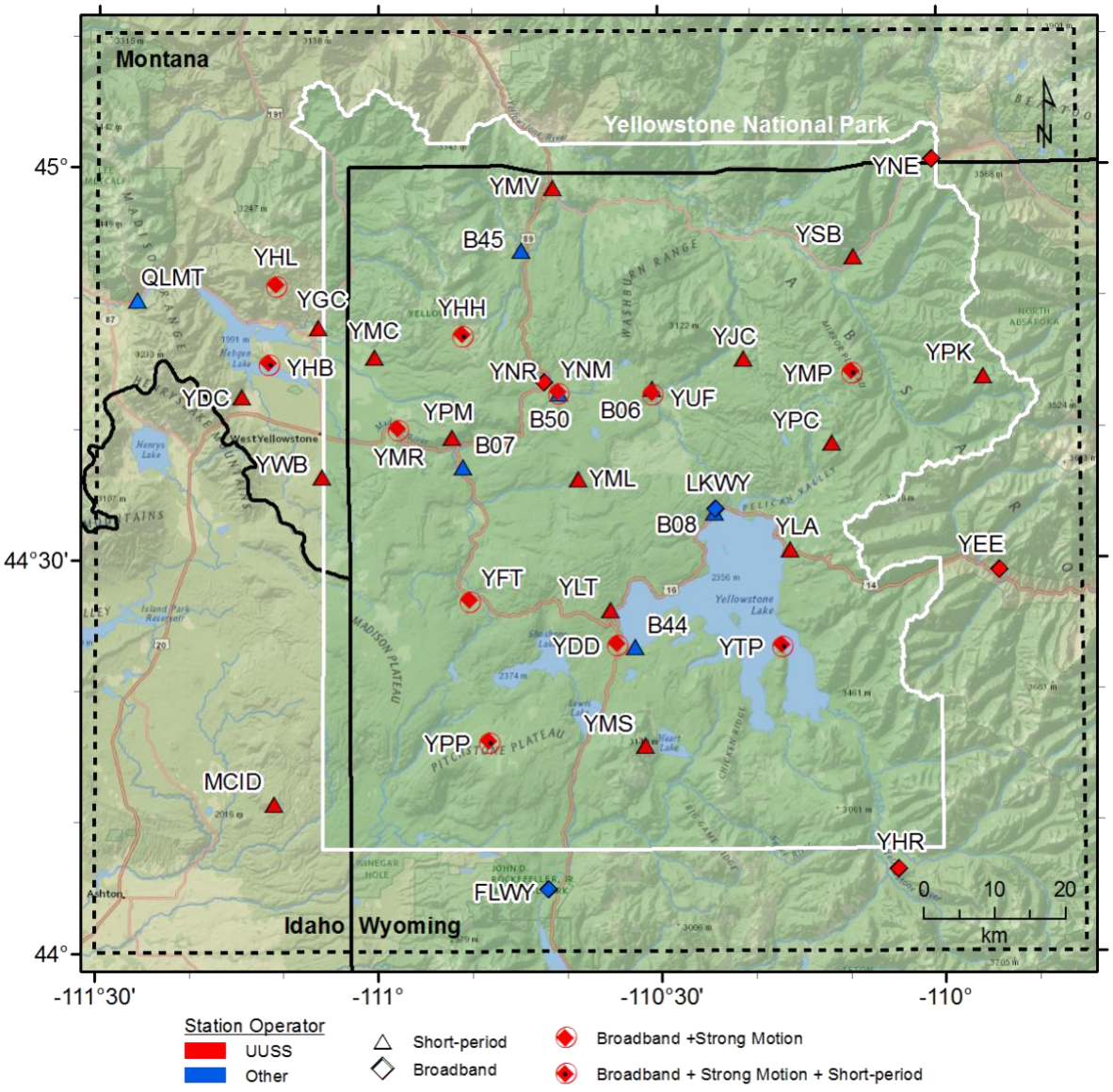

Figure 2. Seismograph stations of the Yellowstone Seismic Network as of March 31, 2022.

Table 2. Earthquakes in the Yellowstone Region: January 1–March 31, 2022

DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
220101	07:36:45.56	44º09.49’	110º15.37’	10.7*	2.3W	18	167	25	0.17
220102	00:19:36.48	45º07.74’	111º18.53’	5.5*	1.6W	18	184	32	0.13
220105	09:36:40.60	44º46.32’	110º52.79’	5.7	0.3	8	149	3	0.07
220105	13:44:01.93	44º40.56’	110º01.67’	12.7	0.8	11	100	10	0.17
220105	17:54:07.70	44º27.06’	110º32.60’	3.7	0.9	12	96	4	0.12
220105	17:54:44.75	44º26.64’	110º33.09’	5.0	0.5	9	93	3	0.13
220105	17:54:52.78	44º26.46’	110º32.76’	4.7	1.1	10	92	3	0.13
220105	19:39:11.65	44º30.79’	110º35.71’	3.5	1.7W	20	74	8	0.11
220105	23:15:11.49	44º23.23’	110º35.55’	2.3	0.9	14	107	2	0.12
220106	01:43:10.76	44º47.36’	110º48.74’	8.1	2.5W	32	62	3	0.19
220106	02:36:30.94	44º47.59’	110º48.71’	5.6	0.1	7	229	3	0.05
220107	00:40:51.27	44º47.19’	110º49.15’	5.1	0.8	9	211	2	0.09
220107	04:43:46.21	44º49.23’	110º46.49’	8.3	0.4	7	270	7	0.06
220107	07:09:32.20	44º46.91’	110º48.89’	4.8	0.6	12	199	3	0.14
220107	07:51:38.44	44º46.92’	110º49.15’	5.1	0.6	18	99	3	0.14
220107	16:15:29.54	44º46.82’	110º48.75’	4.8	1.4	13	100	3	0.13
220108	09:05:23.55	44º48.50’	110º47.05’	7.7	0.2	6	293	6	0.02
220108	15:22:48.75	44º40.72’	110º03.53’	11.5	-0.1	7	120	12	0.13
220108	15:22:53.07	44º40.61’	110º03.53’	14.9	1.3	10	90	10	0.10
220108	17:10:09.64	44º47.49’	110º48.51’	5.4	0.3	8	226	3	0.08
220109	09:40:44.80	44º47.04’	110º49.07’	6.9	1.6W	21	100	3	0.16
220109	10:08:49.96	44º47.33’	110º48.69’	5.6	0.6	10	220	3	0.11
220109	16:16:56.82	44º34.38’	110º45.42’	4.5	0.5	7	111	9	0.07
220110	05:41:04.85	44º15.00’	110º39.35’	11.2	1.1	14	117	17	0.10
220110	06:11:23.37	44º15.00’	110º39.21’	11.4	1.0	13	117	17	0.10
220110	06:52:49.23	44º14.88’	110º39.16’	11.0	1.2	16	110	17	0.10
220110	14:41:31.64	44º49.43’	110º46.49’	8.4	0.6	7	263	7	0.06
220111	13:16:51.77	44º46.71’	110º49.86’	4.0	0.3	6	173	2	0.05
220111	15:09:53.07	44º47.99’	111º29.85’	12.5	0.4	7	98	6	0.06
220111	23:07:01.51	44º44.92’	111º07.90’	9.8	-0.3	12	68	5	0.13
220112	02:54:52.41	44º36.44’	111º07.68’	7.6	0.8W	15	102	14	0.13
220112	09:22:27.37	44º39.40’	110º01.57’	12.4	0.9	10	107	12	0.12
220112	09:23:08.55	44º39.36’	110º02.96’	5.8*	0.0	6	163	13	0.16
220112	11:45:42.25	44º49.09’	110º46.75’	7.9	0.2	8	270	7	0.06
220112	12:17:42.99	44º43.76’	110º13.18’	-0.6	0.5	5	231	9	0.07
220112	12:18:47.32	44º43.39’	110º12.65’	-0.1	0.6	5	227	8	0.03
220112	12:30:29.29	44º47.03’	110º49.16’	6.7	1.1W	20	100	3	0.18
220112	12:54:46.65	44º19.69’	110º33.60’	4.9	1.1	15	131	7	0.12
220112	12:55:01.28	44º19.56’	110º33.50’	4.9	0.7	16	89	7	0.15
220112	12:56:21.63	44º19.97’	110º33.11’	4.3	-0.1	9	132	6	0.11
220112	12:56:48.38	44º20.03’	110º33.54’	5.1	-0.4	11	129	6	0.14
220112	13:13:12.21	44º19.31’	110º33.32’	4.4	0.9	12	91	7	0.06
220112	16:58:15.53	44º47.43’	110º49.10’	8.6	2.1W	30	88	3	0.21
220112	17:23:28.96	44º49.42’	110º45.99’	8.0	0.2	8	272	8	0.07
220112	17:58:12.58	44º38.99’	110º08.53’	4.2	2.0W	19	71	4	0.12

Table 2. Earthquakes in the Yellowstone Region: January 1–March 31, 2022

DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
220112	21:04:51.24	44º37.76’	110º07.00’	0.8	0.5	8	154	6	0.18
220112	21:05:00.52	44º38.77’	110º12.41’	1.7	1.4	5	142	1	0.04
220113	01:33:06.08	44º50.56’	110º51.07’	11.8	1.2W	21	89	6	0.18
220113	02:01:11.55	44º45.38’	111º11.48’	10.8	1.4W	18	146	1	0.15
220113	10:59:24.47	44º47.08’	110º49.06’	6.1	1.4W	21	100	3	0.19
220113	12:47:29.25	44º48.98’	110º46.88’	7.9	0.3	8	236	6	0.07
220113	13:52:20.37	44º44.84’	110º51.41’	0.5	0.5	9	94	5	0.26
220113	15:37:41.16	44º47.49’	110º48.27’	6.5	0.3	7	227	4	0.10
220113	17:24:19.80	44º50.45’	110º45.34’	9.8	0.5	8	275	10	0.09
220113	17:25:35.96	44º33.84’	110º44.28’	6.3	0.3	8	91	9	0.12
220113	18:09:03.17	44º47.01’	110º48.55’	4.7	0.4	12	207	3	0.15
220114	07:54:46.25	44º47.33’	110º49.27’	5.0	0.4	13	102	2	0.11
220114	13:47:43.20	44º30.27’	110º12.68’	4.6	0.7	11	112	5	0.21
220114	14:56:04.35	44º44.49’	111º04.86’	8.6	-0.1	10	179	6	0.12
220115	07:11:43.53	44º46.65’	110º48.82’	8.0	0.8	9	85	10	0.07
220115	07:45:24.69	44º46.56’	110º48.67’	6.5	1.4W	14	118	10	0.09
220116	18:31:28.51	44º46.55’	110º48.58’	7.7	1.2	16	118	10	0.10
220118	21:05:46.06	44º47.20’	110º48.95’	5.6	0.5	9	268	3	0.10
220119	07:22:22.86	44º47.68’	110º48.92’	6.5	0.7	11	234	3	0.08
220119	10:18:05.32	44º49.50’	110º45.65’	8.2	0.2	10	243	8	0.06
220119	14:14:26.49	44º49.24’	110º47.17’	8.4	0.6	10	237	6	0.06
220119	14:14:40.59	44º49.30’	110º45.90’	8.1	-0.5	5	281	8	0.01
220119	14:51:29.33	44º35.77’	110º42.09’	3.4	--	7	105	5	0.15
220119	14:52:03.56	44º35.43’	110º43.63’	8.6	0.5	11	99	7	0.15
220119	17:01:26.04	44º47.05’	110º48.94’	5.3	0.7	12	205	3	0.14
220119	17:43:48.59	44º48.15’	110º48.95’	8.1	0.6	14	106	3	0.13
220119	21:26:58.05	44º39.93’	110º28.19’	2.6	-0.2	7	184	6	0.18
220119	21:27:06.86	44º40.06’	110º28.28’	4.7	0.7	8	184	6	0.16
220119	21:27:14.16	44º40.31’	110º03.59’	10.8	1.1	11	89	11	0.19
220119	22:40:01.94	44º26.88’	111º25.08’	18.2	1.1	20	135	31	0.18
220120	00:26:32.94	44º33.86’	110º22.53’	4.2	0.6	15	73	2	0.11
220120	13:37:29.73	44º04.31’	110º51.29’	7.8	0.8	11	97	13	0.12
220120	23:40:46.42	44º22.28’	110º23.30’	8.0	0.2	16	129	9	0.13
220121	08:37:50.03	44º47.48’	110º53.21’	8.2	0.4	12	111	3	0.15
220121	13:25:25.82	44º48.26’	110º48.31’	7.3	0.4	9	297	4	0.09
220122	01:29:49.11	44º37.89’	110º39.28’	7.0	0.5	8	203	3	0.14
220122	16:28:56.79	44º24.35’	110º18.52’	8.5	0.9	20	93	2	0.17
220122	18:49:32.14	44º26.39’	110º12.59’	6.0	1.3	6	259	8	0.19
220122	18:58:38.20	44º46.82’	111º00.05’	9.1	-0.1	6	146	2	0.07
220122	19:00:06.62	44º46.82’	110º59.75’	9.2	-0.4	6	147	2	0.06
220123	10:12:11.20	44º47.23’	110º48.88’	5.8	1.0	20	101	3	0.17
220123	17:07:58.88	44º13.50’	110º34.67’	3.7	0.2	9	161	6	0.27
220123	18:33:53.21	44º49.11’	110º46.33’	7.4	0.4	10	239	7	0.08
220124	01:48:00.93	44º46.17’	111º04.22’	10.4	0.8W	14	126	4	0.13
220124	21:50:49.93	44º48.26’	110º48.47’	5.8	0.4	15	192	4	0.13

Table 2. Earthquakes in the Yellowstone Region: January 1–March 31, 2022

DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
220125	02:02:43.88	44º50.96’	110º50.31’	5.5	0.3	12	129	7	0.13
220125	08:32:43.83	44º37.12’	110º39.89’	7.0	1.1W	17	84	2	0.20
220125	15:39:44.14	44º47.11’	110º49.22’	5.4	0.6	18	101	2	0.18
220127	03:27:23.19	44º03.53’	110º22.73’	8.1*	0.6	13	190	26	0.12
220127	06:14:30.12	44º22.88’	111º00.91’	3.3*	1.1W	14	132	16	0.21
220127	07:54:18.57	44º22.40’	111º00.81’	2.5*	0.8	9	187	17	0.08
220127	07:54:25.11	44º21.44’	111º02.09’	1.9*	1.5W	12	160	19	0.11
220127	12:55:03.74	44º48.19’	110º48.88’	6.2	0.5	11	191	3	0.12
220128	07:41:33.95	44º40.39’	110º03.28’	13.7	1.1	7	102	11	0.08
220128	21:44:00.67	44º30.29’	110º18.41’	0.3	2.3	5	123	3	0.17
220129	00:23:55.11	44º36.51’	110º20.04’	5.7	0.2	7	116	8	0.04
220129	18:41:41.38	44º47.93’	110º48.40’	5.4	0.4	10	189	4	0.08
220130	00:24:59.55	44º47.12’	110º49.41’	4.8	0.5	15	101	2	0.15
220130	13:50:19.22	44º48.61’	110º58.53’	5.6	0.8	22	125	6	0.17
220131	17:02:16.57	44º47.27’	110º49.19’	5.3	1.0	15	102	2	0.17
220201	05:56:43.93	44º45.39’	111º05.78’	10.0	0.4	14	89	4	0.12
220204	10:32:58.86	44º34.20’	110º22.14’	3.0	0.4	11	92	3	0.12
220204	10:33:31.39	44º34.69’	110º23.04’	4.5	-0.6	7	162	2	0.19
220204	15:08:49.47	44º47.87’	110º48.42’	6.1	0.3	10	239	4	0.14
220206	06:55:11.29	44º18.44’	110º28.69’	8.7	0.5	19	150	6	0.13
220206	11:26:28.32	44º48.42’	110º45.02’	4.3	0.6	15	104	8	0.22
220206	22:35:02.29	44º44.75’	111º14.30’	16.6	0.0	7	269	3	0.12
220207	00:30:35.79	44º41.48’	110º01.60’	13.4	0.6	7	94	9	0.08
220207	03:34:54.22	44º42.56’	110º01.59’	11.2	0.5	6	170	9	0.08
220207	03:35:40.40	44º41.44’	110º01.28’	13.3	0.8	8	97	9	0.11
220207	07:30:28.66	44º42.00’	110º01.12’	12.4	0.8	10	92	8	0.16
220207	08:48:34.91	44º31.32’	111º00.82’	14.8	0.4	13	123	12	0.12
220208	11:38:27.79	44º34.63’	110º22.61’	3.7	2.1W	22	66	3	0.15
220208	11:41:13.72	44º34.62’	110º22.51’	2.9	1.5	19	69	3	0.11
220208	11:43:55.35	44º34.93’	110º22.36’	3.1	2.8W	26	69	3	0.22
220208	11:50:14.39	44º34.41’	110º22.36’	3.1	0.6	15	76	3	0.11
220208	12:21:42.75	44º34.48’	110º22.39’	3.3	1.0	15	94	3	0.08
220208	13:16:57.38	44º34.57’	110º22.50’	3.3	0.8	16	95	3	0.07
220208	13:23:28.65	44º34.50’	110º22.41’	1.3	0.5	9	95	3	0.11
220208	15:23:25.45	44º34.56’	110º22.56’	2.9	1.1	19	96	3	0.09
220209	02:35:38.69	44º39.81’	110º28.51’	2.0	0.5	8	106	6	0.34
220209	09:10:01.12	44º27.24’	110º36.05’	3.3	1.0	13	79	2	0.08
220209	09:10:46.93	44º27.26’	110º36.09’	2.0	1.8W	14	57	7	0.10
220209	09:11:19.96	44º26.67’	110º36.09’	2.6	0.4	8	138	1	0.13
220209	09:11:30.21	44º26.43’	110º33.61’	1.5	0.7	9	124	2	0.12
220209	09:11:47.44	44º26.98’	110º35.96’	3.8	1.2	22	43	2	0.14
220209	13:46:53.34	44º19.15’	110º59.05’	2.0*	0.8	10	130	15	0.12
220210	23:46:44.69	44º27.45’	110º58.61’	7.4	0.7	12	120	11	0.23
220211	14:35:23.79	44º42.26’	111º00.60’	12.0	0.6	11	106	6	0.08
220212	06:26:46.54	44º25.68’	110º51.43’	5.4	0.8	13	136	3	0.23

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DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
220212	06:49:24.57	44º25.11’	110º51.00’	4.2	1.2	18	90	4	0.18
220212	06:54:30.71	44º25.55’	110º50.73’	2.5	1.0	10	187	3	0.06
220212	06:54:47.57	44º25.96’	110º50.08’	2.2	0.7	8	185	2	0.03
220212	08:01:48.42	44º25.29’	110º51.14’	3.9	1.8	22	91	4	0.22
220212	08:26:51.07	44º25.16’	110º50.76’	1.8	0.8	12	130	4	0.07
220212	08:30:27.31	44º25.48’	110º49.82’	1.6	0.9	12	179	3	0.14
220212	08:31:14.36	44º25.00’	110º48.87’	0.3	-0.1	6	107	4	0.11
220212	08:32:05.33	44º25.36’	110º50.73’	1.9	0.7	12	133	3	0.08
220212	08:32:18.62	44º25.37’	110º50.90’	1.9	1.2	11	133	3	0.06
220212	08:32:42.94	44º25.36’	110º51.03’	3.8	1.1	18	90	3	0.12
220212	08:44:53.51	44º25.23’	110º51.03’	4.2	1.7W	26	88	4	0.18
220212	08:51:20.37	44º25.43’	110º50.55’	2.0	0.7	10	88	3	0.06
220212	08:58:15.73	44º25.11’	110º49.66’	1.5	0.6	14	85	4	0.18
220212	09:27:06.71	44º25.45’	110º50.69’	2.3	0.6	11	88	3	0.07
220212	09:42:28.11	44º25.87’	110º51.24’	3.6	1.9W	19	90	3	0.18
220212	09:49:05.04	44º25.36’	110º49.76’	1.5	0.7	8	167	3	0.14
220212	10:04:49.22	44º25.01’	110º50.15’	1.6	0.5	10	113	4	0.13
220212	10:07:57.58	44º25.24’	110º50.51’	2.8	1.1	14	89	3	0.09
220212	10:11:23.43	44º25.14’	110º50.70’	1.9	1.1	13	89	4	0.07
220212	11:33:02.21	44º25.09’	110º50.95’	3.7	1.2	17	90	4	0.23
220212	13:26:43.50	44º25.39’	110º50.24’	1.8	1.0	16	88	3	0.14
220212	13:47:59.51	44º25.36’	110º50.25’	2.8	0.6	7	170	3	0.07
220212	17:02:56.36	44º44.97’	111º06.09’	12.4	0.6	12	81	5	0.11
220212	19:36:39.56	44º36.41’	110º24.62’	2.1	0.1	8	165	5	0.09
220213	04:11:07.73	44º24.28’	110º28.65’	4.8	0.9	19	100	6	0.12
220213	04:59:41.05	44º37.75’	110º20.86’	6.0	0.1	8	132	9	0.07
220213	21:06:07.98	44º53.57’	111º29.75’	9.7*	2.0W	18	88	23	0.14
220215	01:40:36.56	44º42.73’	111º00.86’	11.5	0.3	8	156	5	0.07
220215	07:05:43.37	44º47.13’	110º49.89’	5.5	0.5	17	103	2	0.21
220215	08:11:54.64	44º49.90’	110º46.05’	8.0	0.5	6	282	8	0.02
220215	23:22:04.69	44º44.87’	111º15.93’	12.6	1.4W	17	122	5	0.16
220216	12:54:15.69	44º45.43’	111º07.89’	11.2	0.5	13	76	5	0.11
220217	17:16:09.69	44º27.22’	110º57.16’	5.8	0.7	13	140	9	0.19
220220	11:44:56.27	44º37.18’	110º19.33’	5.0	1.8	22	88	9	0.11
220220	12:02:39.57	44º36.32’	110º18.95’	1.6	2.4W	17	96	8	0.26
220220	12:10:14.65	44º37.05’	110º16.57’	2.0*	0.8	10	124	12	0.19
220220	14:47:44.34	44º24.57’	110º47.94’	2.1	1.1	16	96	5	0.13
220221	16:31:06.32	44º30.74’	110º21.82’	3.2	0.5	14	73	6	0.15
220221	16:40:14.20	44º34.58’	110º44.81’	5.8	0.7	15	93	9	0.14
220222	02:34:43.88	44º36.52’	110º19.11’	5.3	1.0	11	93	9	0.08
220222	02:35:00.63	44º37.58’	110º19.75’	1.9	0.5	6	131	9	0.21
220222	02:35:49.52	44º36.63’	110º19.09’	4.9	1.2	11	93	9	0.07
220222	02:41:33.50	44º36.54’	110º19.29’	5.6	0.5	6	106	8	0.04
220222	02:45:03.66	44º36.69’	110º19.48’	6.6	0.6	6	119	8	0.02
220222	05:12:38.49	44º14.14’	110º46.99’	2.2	1.1	11	77	4	0.18

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DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
220223	02:51:47.31	44º47.77’	110º48.42’	8.0	0.5	13	188	4	0.13
220224	19:09:20.90	44º24.46’	110º48.05’	2.0	0.6	12	99	6	0.21
220225	11:09:40.37	44º40.55’	110º08.27’	29.5	0.4	10	69	7	0.12
220228	07:27:53.83	44º39.85’	110º26.75’	4.7	1.9W	18	124	8	0.14
220228	16:58:54.57	44º16.84’	110º26.92’	6.1	1.1	16	144	7	0.14
220228	18:42:51.40	44º35.40’	110º23.06’	3.7	0.5	11	101	4	0.18
220228	23:48:08.67	44º17.14’	110º26.62’	7.0	0.5	11	177	7	0.17
220228	23:48:22.19	44º17.14’	110º27.15’	2.2	1.1	12	174	6	0.10
220301	00:46:31.26	44º38.03’	111º02.33’	8.2	0.5	18	79	6	0.21
220301	03:38:25.31	44º26.18’	110º20.34’	3.0	0.9	7	114	7	0.08
220301	04:33:37.98	44º37.97’	111º02.97’	7.5	0.7	12	139	5	0.13
220301	06:32:22.37	44º25.99’	110º20.32’	0.0	0.9	10	117	6	0.22
220301	06:52:10.29	44º26.11’	110º20.26’	4.2	1.1	15	94	6	0.14
220301	08:09:36.04	44º25.77’	110º19.52’	7.4	1.1	12	99	5	0.08
220301	08:15:02.93	44º25.92’	110º19.51’	7.7	1.5	13	101	5	0.09
220301	13:00:41.06	44º26.15’	110º19.68’	5.9	0.4	7	117	6	0.05
220302	01:25:28.40	44º16.95’	110º27.43’	6.7	1.2	15	99	6	0.16
220302	01:25:48.18	44º26.02’	110º20.43’	2.9	0.3	6	122	6	0.17
220302	01:54:29.07	44º16.82’	110º27.20’	6.2	2.2W	19	100	6	0.17
220302	01:55:52.36	44º17.14’	110º27.32’	4.3	0.9	14	98	6	0.11
220302	02:01:57.19	44º16.57’	110º27.15’	5.4	1.0	15	101	6	0.18
220302	02:06:11.72	44º16.88’	110º27.59’	7.1	0.8	15	100	6	0.20
220302	02:09:54.57	44º16.98’	110º27.31’	5.7	0.8	13	99	6	0.13
220302	02:15:22.25	44º17.20’	110º27.40’	4.4	0.9	11	172	6	0.07
220302	02:51:33.81	44º17.07’	110º27.45’	4.5	0.6	12	173	6	0.10
220302	03:09:28.28	44º17.32’	110º27.70’	5.0	0.8	12	170	6	0.11
220302	03:24:19.41	44º17.25’	110º27.59’	4.4	1.5	14	171	6	0.09
220302	03:25:21.39	44º17.49’	110º27.78’	4.1	0.7	14	169	6	0.14
220302	04:10:21.38	44º17.27’	110º27.57’	3.8	0.8	10	171	6	0.11
220302	04:17:12.09	44º17.20’	110º27.61’	4.8	0.9	11	171	6	0.08
220302	04:39:04.56	44º16.91’	110º27.35’	4.8	1.0	12	203	6	0.08
220302	04:52:57.57	44º16.47’	110º26.93’	4.3	--	25	129	6	0.14
220302	05:24:27.45	44º16.60’	110º27.18’	4.9	2.0W	17	195	6	0.12
220302	05:29:05.45	44º17.16’	110º27.72’	4.0	0.7	10	196	6	0.13
220302	06:55:25.31	44º17.01’	110º27.43’	4.3	1.7	13	201	6	0.08
220302	07:00:16.92	44º16.98’	110º27.42’	4.9	0.7	9	202	6	0.09
220302	07:07:47.34	44º16.56’	110º26.67’	6.2	1.5	12	198	7	0.17
220302	07:59:40.10	44º17.62’	110º27.43’	6.5	0.6	8	189	7	0.08
220302	08:15:42.52	44º41.25’	110º25.93’	2.0*	0.8	9	231	19	0.19
220302	08:25:33.19	44º17.24’	110º27.52’	5.4	0.6	11	196	6	0.08
220302	12:04:07.55	44º17.10’	110º27.01’	7.0	1.0	11	187	7	0.09
220302	12:04:35.58	44º16.99’	110º27.30’	4.5	2.1W	17	159	6	0.09
220302	12:08:43.72	44º17.42’	110º27.76’	4.2	0.6	10	169	6	0.13
220302	12:09:17.82	44º17.54’	110º27.35’	4.3	0.5	12	170	7	0.08
220302	14:52:24.29	44º17.04’	110º27.25’	4.0	0.8	12	174	6	0.10

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DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
220302	18:19:15.19	44º38.72’	109º45.20’	8.6	1.1	6	277	16	0.20
220302	21:34:27.79	44º39.90’	110º27.68’	6.6	2.0W	18	97	7	0.21
220302	21:50:55.12	44º17.41’	110º27.19’	3.9	0.9	10	172	7	0.08
220302	22:09:20.40	44º40.71’	110º29.24’	6.3	0.7	11	176	4	0.18
220302	22:09:45.76	44º41.30’	110º31.96’	3.1	0.4	9	193	3	0.16
220302	22:19:49.70	44º39.89’	110º27.54’	6.3	1.6W	18	105	7	0.20
220303	02:19:46.29	44º46.09’	110º57.22’	5.8	-0.5	6	177	4	0.09
220303	02:32:06.16	44º46.98’	110º58.14’	8.6	0.3	11	151	4	0.10
220303	07:21:39.07	44º16.38’	110º27.20’	6.3	0.6	16	163	6	0.18
220303	13:16:44.39	44º17.16’	110º27.32’	6.3	0.9	16	127	6	0.17
220303	13:18:00.08	44º17.22’	110º26.88’	4.5	1.2	14	186	7	0.11
220303	13:25:53.59	44º17.34’	110º26.93’	4.4	1.6W	18	98	7	0.10
220303	15:24:06.10	44º17.10’	110º27.01’	4.3	1.1	14	187	7	0.07
220303	23:37:33.52	44º32.85’	110º45.42’	5.6	0.4	16	99	11	0.16
220304	00:23:14.71	44º17.56’	110º27.29’	4.7	0.6	15	157	7	0.11
220304	07:20:31.43	44º43.91’	111º17.13’	10.8	0.6W	19	121	4	0.20
220304	15:49:56.75	44º44.52’	111º16.11’	16.9	0.3	11	251	6	0.15
220304	15:52:56.07	44º44.50’	111º14.72’	15.1	0.6	13	130	4	0.24
220304	21:51:41.21	44º16.79’	110º27.17’	4.2	0.6	14	101	6	0.08
220305	04:14:45.91	44º16.94’	110º27.35’	4.2	0.5	17	99	6	0.09
220305	14:24:37.14	44º47.64’	110º56.86’	5.6	0.6	12	223	6	0.11
220305	15:25:39.41	44º45.89’	111º10.92’	10.6	0.5	18	143	2	0.19
220306	04:48:25.35	44º36.85’	110º15.61’	4.7	1.0	12	121	7	0.10
220306	10:30:13.19	44º28.70’	110º56.78’	4.0	1.1W	16	109	9	0.22
220306	13:27:11.99	44º34.16’	110º44.60’	4.0	0.5	9	107	9	0.05
220307	14:59:01.87	44º16.56’	110º27.23’	5.5	0.6	17	68	6	0.15
220308	03:03:36.27	44º15.21’	110º45.55’	6.2	0.5	8	128	4	0.09
220308	03:23:05.55	44º16.40’	110º27.29’	6.0	0.3	17	178	6	0.22
220308	22:49:51.53	44º41.67’	110º00.93’	14.0	0.7	7	97	8	0.06
220308	23:00:18.32	44º41.53’	110º01.19’	12.6	1.2	11	96	9	0.12
220308	23:16:03.52	44º41.37’	110º01.58’	12.4	1.3	15	95	10	0.16
220309	12:37:23.57	44º48.21’	111º07.72’	9.2	0.4	11	133	2	0.15
220311	05:57:48.43	44º48.05’	110º54.89’	8.4	0.6	11	117	5	0.15
220311	17:49:49.78	44º47.88’	110º55.29’	9.0	0.8W	14	117	6	0.14
220311	20:21:48.85	44º18.84’	110º39.82’	7.7	0.9	12	114	11	0.17
220311	20:21:57.41	44º18.75’	110º39.69’	8.2	1.5W	12	113	11	0.13
220311	20:23:04.62	44º18.66’	110º40.10’	7.7	1.1	13	72	12	0.14
220312	06:54:19.09	44º46.44’	110º54.97’	4.4	-0.1	10	174	5	0.10
220312	14:56:07.36	44º05.64’	110º45.52’	8.7	0.3	9	74	5	0.07
220312	15:16:21.31	44º05.76’	110º45.47’	8.7	0.7	11	74	5	0.13
220313	02:23:23.87	44º09.58’	110º17.26’	11.1	0.9	13	132	18	0.13
220314	22:09:15.39	44º48.10’	110º54.89’	7.5	0.2	12	181	5	0.13
220315	02:44:11.42	44º27.07’	110º55.45’	3.3	0.8	11	199	7	0.10
220315	02:47:49.54	44º27.88’	110º54.02’	2.8	1.4	15	98	5	0.16
220315	20:30:14.82	44º36.47’	110º18.98’	5.8	2.8W	25	94	9	0.23

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DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
220315	20:34:06.58	44º36.30’	110º18.85’	2.2	1.1	13	95	9	0.21
220315	20:47:49.00	44º36.46’	110º19.16’	5.0	1.4	11	94	8	0.14
220315	20:48:10.19	44º36.83’	110º19.23’	5.6	1.7	11	123	9	0.09
220315	20:50:33.41	44º36.26’	110º18.71’	3.0	1.1	15	96	9	0.17
220315	21:12:06.34	44º04.22’	110º33.61’	8.8	0.9	13	153	11	0.18
220315	21:54:28.56	44º36.74’	110º19.25’	5.2	0.7	9	120	9	0.08
220315	22:01:23.00	44º36.40’	110º18.86’	2.2	0.7	14	95	9	0.18
220315	22:41:05.28	44º35.85’	110º18.56’	2.3	0.5	9	108	8	0.07
220317	21:16:03.12	44º35.78’	110º22.62’	5.2	2.1W	20	85	4	0.21
220317	21:22:49.88	44º35.73’	110º23.37’	4.2	0.5	10	104	4	0.10
220317	21:26:05.55	44º36.07’	110º22.99’	4.3	2.2W	19	88	5	0.18
220317	22:50:26.51	44º36.50’	110º23.05’	4.3	-0.5	8	112	6	0.12
220317	22:50:31.21	44º36.48’	110º23.32’	1.5	0.8	9	113	5	0.14
220317	22:50:41.65	44º36.40’	110º23.09’	4.5	0.9	8	112	5	0.05
220317	23:12:30.46	44º36.25’	110º22.83’	4.2	1.1	12	110	5	0.12
220317	23:17:31.81	44º35.81’	110º23.33’	3.0	0.4	10	104	4	0.06
220318	00:29:26.66	44º35.17’	110º25.91’	5.3	-0.1	6	163	4	0.06
220318	00:29:28.56	44º37.18’	110º16.98’	4.5	0.8	11	124	8	0.05
220318	01:12:44.36	44º35.65’	110º22.90’	4.6	0.2	9	105	4	0.10
220318	20:00:15.29	44º28.62’	110º26.31’	3.1	-0.1	9	104	10	0.09
220319	05:48:52.66	44º25.64’	110º24.98’	4.7*	0.6	15	101	11	0.12
220319	23:54:37.61	44º39.47’	110º39.71’	6.6	0.7	16	69	6	0.15
220319	23:55:34.48	44º39.44’	110º39.82’	5.6	0.7	11	107	6	0.06
220321	15:54:59.16	44º39.91’	110º39.68’	7.9	1.2W	19	67	5	0.20
220322	23:49:14.67	44º39.36’	110º39.85’	5.7	0.0	8	101	6	0.04
220323	06:12:02.03	44º39.91’	110º01.19’	12.7	0.8	9	107	11	0.12
220323	10:20:55.27	44º43.00’	110º02.95’	6.7	0.2	6	208	9	0.10
220323	13:55:45.94	44º48.37’	110º47.21’	6.7	1.6W	25	102	5	0.23
220323	14:02:19.21	44º49.15’	110º46.91’	3.8	0.5	14	200	6	0.09
220323	22:21:44.83	44º39.93’	110º40.06’	6.1	0.3	13	88	5	0.14
220324	14:00:17.59	44º40.18’	110º02.44’	15.1	0.5	8	131	12	0.07
220324	18:41:34.46	44º39.87’	110º40.03’	5.3	0.4	13	97	5	0.13
220324	19:38:07.60	44º36.53’	110º22.23’	3.7	0.5	10	114	6	0.14
220325	18:24:42.74	44º39.58’	110º39.96’	5.9	0.1	12	90	6	0.09
220326	01:10:08.92	44º39.58’	110º40.05’	6.1	0.2	12	91	6	0.12
220326	20:20:31.64	44º45.35’	111º18.42’	11.2	0.5W	11	231	7	0.12
220327	04:08:27.12	44º39.85’	110º40.02’	6.4	0.6	13	88	5	0.14
220327	14:20:38.10	44º47.28’	110º49.36’	5.4	0.5	15	103	2	0.18
220328	17:21:21.68	44º49.19’	110º53.11’	7.4	0.6	7	206	4	0.04
220328	20:30:37.53	44º44.69’	110º54.66’	2.1	-0.3	7	121	7	0.06
220328	22:03:37.01	44º45.27’	110º55.55’	8.6	1.2W	21	99	6	0.20
220329	04:42:41.21	44º45.50’	110º55.17’	7.7	0.1	6	147	6	0.09
220329	05:14:28.73	44º45.63’	110º55.62’	7.3	0.0	7	153	6	0.06
220329	05:14:57.79	44º46.23’	110º55.52’	9.9	0.5	8	171	6	0.07
220329	05:22:40.10	44º46.02’	110º55.00’	9.4	0.3	12	131	6	0.13

Table 2. Earthquakes in the Yellowstone Region: January 1–March 31, 2022

DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
220329	05:24:53.11	44º45.31’	110º55.58’	10.6	1.3W	20	67	6	0.16
220329	05:25:53.04	44º45.62’	110º55.51’	8.9	0.6	12	101	6	0.13
220329	05:26:05.83	44º44.36’	110º52.89’	2.6	-0.1	5	144	6	0.20
220329	05:26:09.00	44º45.23’	110º55.45’	9.3	0.9W	13	99	7	0.15
220329	05:28:09.92	44º45.52’	110º56.29’	6.1	0.5	9	101	5	0.07
220329	05:28:31.54	44º44.43’	110º54.03’	2.0	-0.5	7	127	7	0.12
220329	05:28:45.85	44º45.82’	110º56.64’	4.3	0.6	10	102	5	0.07
220329	05:28:48.84	44º45.69’	110º55.83’	7.3	1.4W	14	127	6	0.18
220329	05:32:07.62	44º46.05’	110º55.20’	10.8	0.8W	13	132	6	0.11
220329	05:32:22.88	44º50.55’	110º53.49’	4.3	-0.1	6	238	7	0.04
220329	05:33:28.37	44º45.57’	110º55.14’	8.0	0.6	10	149	6	0.10
220329	05:34:05.78	44º45.17’	110º55.72’	4.1	-0.1	5	219	7	0.07
220329	05:34:09.92	44º45.31’	110º53.78’	8.2	-0.4	8	130	5	0.23
220329	05:41:13.08	44º46.05’	110º55.39’	10.6	0.6	8	165	6	0.09
220329	05:42:40.73	44º45.56’	110º55.35’	8.4	1.0W	18	100	7	0.19
220329	05:43:00.53	44º45.37’	110º56.05’	7.6	1.4W	18	99	6	0.18
220329	05:45:13.86	44º45.02’	110º55.61’	6.9	0.8W	15	101	6	0.19
220329	05:45:17.66	44º45.34’	110º55.86’	6.0	0.9W	9	136	6	0.18
220329	05:45:41.00	44º45.28’	110º55.56’	7.2	0.5	10	141	6	0.16
220329	05:47:17.68	44º45.42’	110º55.64’	7.9	1.3W	21	99	6	0.18
220329	06:07:30.47	44º44.88’	110º55.18’	4.9	0.4	12	129	7	0.16
220329	06:08:19.44	44º45.48’	110º55.29’	7.4	0.3	18	100	7	0.20
220329	06:18:29.00	44º45.47’	110º55.32’	10.2	2.6W	28	100	7	0.18
220329	06:20:21.11	44º44.92’	110º54.98’	5.8	0.8	18	129	7	0.20
220329	06:21:00.45	44º45.40’	110º55.63’	9.4	0.8	16	99	6	0.15
220329	06:21:41.52	44º44.98’	110º54.62’	6.0	0.4	10	183	6	0.19
220329	06:22:04.13	44º44.45’	110º54.86’	2.1	0.3	9	117	7	0.10
220329	06:26:25.43	44º45.34’	110º55.27’	7.6	0.3	16	99	7	0.19
220329	06:27:26.45	44º45.41’	110º55.33’	7.5	0.2	11	145	7	0.19
220329	06:28:53.45	44º45.34’	110º55.56’	7.4	0.4	19	99	6	0.19
220329	06:34:16.87	44º45.61’	110º55.40’	6.2	0.5	16	100	7	0.20
220329	06:34:46.20	44º45.55’	110º55.43’	10.4	2.3W	28	100	7	0.17
220329	06:35:16.47	44º44.51’	110º54.17’	2.2	0.4	9	114	7	0.14
220329	06:35:22.44	44º44.74’	110º54.11’	5.5	1.2	10	112	6	0.12
220329	06:39:41.76	44º45.69’	110º55.43’	7.6	-0.1	10	154	7	0.20
220329	06:39:51.51	44º44.83’	110º55.32’	2.0	-0.4	9	129	7	0.13
220329	06:48:37.34	44º45.14’	110º55.25’	7.1	0.1	11	137	7	0.17
220329	06:48:56.68	44º44.84’	110º55.16’	4.7	0.2	11	129	7	0.12
220329	06:49:46.24	44º45.26’	110º55.44’	7.7	0.4	17	99	7	0.20
220329	06:50:38.82	44º45.33’	110º55.93’	9.1	1.0W	16	99	6	0.16
220329	06:51:01.30	44º44.60’	110º54.54’	2.4	-0.4	10	118	7	0.13
220329	07:06:12.52	44º45.02’	110º55.18’	6.3	0.2	12	133	7	0.16
220329	07:06:38.75	44º45.03’	110º55.09’	2.3	-0.4	11	132	7	0.19
220329	07:07:21.62	44º45.19’	110º55.50’	7.7	0.5	19	98	6	0.22
220329	07:08:29.22	44º45.53’	110º55.37’	9.1	1.1W	15	100	7	0.13

Table 2. Earthquakes in the Yellowstone Region: January 1–March 31, 2022

DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
220329	07:12:12.12	44º45.32’	110º55.45’	8.1	0.0	15	119	7	0.20
220329	07:12:53.91	44º45.51’	110º55.68’	7.6	1.2W	19	100	6	0.17
220329	07:13:06.85	44º44.69’	110º54.45’	6.8	0.6	14	112	7	0.20
220329	07:16:04.65	44º45.10’	110º55.01’	6.5	0.4	11	135	7	0.20
220329	07:16:31.41	44º45.43’	110º55.61’	6.5	-0.2	9	147	6	0.08
220329	07:18:40.48	44º45.64’	110º55.38’	8.8	0.7	18	100	7	0.20
220329	07:19:38.83	44º45.28’	110º54.94’	7.2	0.3	13	139	6	0.25
220329	07:23:04.74	44º45.26’	110º54.97’	7.0	0.6	12	139	6	0.18
220329	07:25:49.99	44º45.83’	110º55.54’	9.1	0.7W	16	129	6	0.16
220329	07:26:02.33	44º44.96’	110º55.12’	5.1	0.7	11	131	7	0.16
220329	07:27:56.06	44º45.10’	110º55.14’	7.5	0.5	10	135	7	0.21
220329	07:28:10.49	44º44.59’	110º54.76’	2.3	-0.7	8	120	7	0.10
220329	07:28:35.04	44º44.86’	110º54.82’	2.4	-0.7	9	126	7	0.11
220329	07:28:47.84	44º44.62’	110º54.62’	2.6	-0.5	8	120	7	0.12
220329	07:29:46.22	44º44.79’	110º54.80’	5.9	0.6	13	124	7	0.23
220329	07:30:17.73	44º44.84’	110º55.06’	6.3	0.4	13	128	7	0.23
220329	07:30:22.53	44º44.44’	110º54.87’	2.0	-0.2	8	117	7	0.14
220329	07:33:49.33	44º44.91’	110º55.46’	6.5	--	12	131	7	0.22
220329	07:38:19.63	44º45.34’	110º55.20’	6.7	1.3	17	98	7	0.21
220329	07:38:33.04	44º45.13’	110º55.15’	8.8	2.0W	28	98	7	0.17
220329	08:12:41.81	44º45.86’	110º55.42’	9.8	0.6	9	159	6	0.11
220329	08:13:48.84	44º45.87’	110º55.30’	9.9	0.4	11	128	6	0.11
220329	08:15:24.04	44º44.64’	110º55.16’	4.7	0.5	11	111	7	0.17
220329	08:28:35.81	44º44.71’	110º54.72’	2.3	-0.6	8	123	7	0.07
220329	08:29:06.29	44º45.00’	110º54.95’	2.4	0.1	10	131	7	0.12
220329	08:29:12.82	44º44.59’	110º54.72’	2.3	0.4	10	120	7	0.10
220329	09:05:27.34	44º45.78’	110º55.18’	9.5	0.4	10	126	6	0.09
220329	09:06:04.36	44º44.86’	110º54.89’	2.2	-0.3	9	127	7	0.13
220329	09:12:36.00	44º45.26’	110º56.00’	9.0	1.0W	19	99	6	0.18
220329	09:12:52.91	44º44.66’	110º54.62’	2.3	-0.3	8	121	7	0.08
220329	09:13:09.75	44º45.35’	110º55.39’	7.7	0.6W	14	101	7	0.15
220329	09:13:15.98	44º44.51’	110º54.86’	2.1	0.1	8	118	7	0.09
220329	09:17:26.95	44º45.09’	110º54.97’	4.3	0.2	10	133	7	0.13
220329	09:49:56.34	44º45.10’	110º55.46’	9.0	1.2W	22	97	7	0.18
220329	09:51:49.57	44º44.68’	110º54.82’	2.6	-0.4	8	122	7	0.14
220329	09:51:55.86	44º43.00’	110º58.85’	8.7	0.3	10	120	5	0.14
220329	09:52:15.66	44º44.98’	110º55.01’	6.9	0.7	12	131	7	0.18
220329	09:54:39.30	44º45.92’	110º55.40’	10.2	0.4	11	131	6	0.11
220329	10:46:00.02	44º45.61’	110º55.56’	9.7	1.7W	25	101	6	0.16
220329	10:46:21.70	44º45.22’	110º55.26’	7.3	1.3	10	126	7	0.15
220329	10:48:08.19	44º46.05’	110º55.12’	9.4	-0.1	8	163	6	0.08
220329	10:48:21.99	44º45.75’	110º54.82’	9.6	0.6	9	152	6	0.10
220329	10:52:29.67	44º45.61’	110º54.89’	8.4	0.5	13	122	6	0.09
220329	10:57:09.64	44º45.24’	110º55.27’	6.3	1.6W	21	98	7	0.15
220329	11:08:47.30	44º45.05’	110º54.89’	5.5	0.3	8	132	7	0.11

Table 2. Earthquakes in the Yellowstone Region: January 1–March 31, 2022

DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
220329	11:39:45.82	44º45.06’	110º54.90’	5.3	0.5	8	132	7	0.10
220329	12:59:38.50	44º45.60’	110º54.86’	8.6	0.3	13	122	6	0.10
220329	13:07:21.59	44º45.88’	110º55.14’	8.2	0.3	13	129	6	0.09
220329	13:23:15.98	44º45.56’	110º54.85’	8.3	0.3	9	146	6	0.09
220329	13:31:40.80	44º45.35’	110º55.24’	7.2	0.3	10	142	7	0.10
220329	13:37:19.21	44º44.50’	110º53.25’	3.6	0.4	7	107	6	0.14
220329	13:39:58.70	44º45.89’	110º54.98’	8.9	0.6W	15	128	6	0.11
220329	13:41:06.56	44º45.71’	110º55.38’	8.7	0.9W	11	126	6	0.11
220329	13:41:40.62	44º45.59’	110º55.70’	8.3	0.1	8	125	6	0.10
220329	13:42:24.24	44º45.99’	110º55.55’	10.4	0.6	8	164	6	0.10
220329	13:44:04.95	44º45.46’	110º55.12’	7.8	0.8	10	145	6	0.10
220329	14:24:58.80	44º45.15’	110º55.23’	9.3	1.8W	21	98	7	0.14
220329	15:04:11.09	44º45.19’	110º54.93’	5.8	0.3	9	136	6	0.11
220329	15:11:24.35	44º45.55’	110º55.18’	9.6	0.3	12	122	6	0.09
220329	17:06:58.09	44º42.65’	111º02.52’	8.1	0.6	11	185	6	0.13
220329	17:15:26.38	44º42.74’	111º03.74’	10.2	1.3W	19	74	7	0.16
220330	05:31:37.03	44º44.72’	110º54.76’	2.0	--	7	123	7	0.05
220330	05:31:38.65	44º44.64’	110º53.60’	10.9	0.2	6	131	6	0.07
220330	06:12:47.20	44º39.78’	110º01.22’	11.3	0.5	6	185	11	0.14
220330	08:53:32.03	44º45.49’	110º55.63’	8.0	0.6	10	149	6	0.11
220330	08:53:46.22	44º44.73’	110º54.83’	3.1	-0.3	7	124	7	0.04
220330	11:45:37.50	44º45.30’	110º55.53’	6.6	0.3	9	143	6	0.10
220330	21:32:10.54	44º40.39’	110º39.78’	5.1	0.5	12	99	7	0.17
220331	05:28:24.44	44º45.58’	110º55.71’	8.5	0.8	9	152	6	0.11
220331	05:28:38.06	44º44.23’	110º52.84’	2.3	-0.9	6	147	6	0.19
220331	06:09:33.11	44º45.91’	110º55.07’	9.2	0.3	7	159	6	0.10
220331	12:23:13.00	44º26.31’	110º19.05’	11.2	0.6	12	72	6	0.09
220331	15:36:31.45	44º26.31’	110º18.56’	11.9	0.4	10	111	6	0.10
220331	17:21:23.88	44º37.28’	110º23.32’	4.3	0.6	13	121	7	0.09
220331	17:21:56.17	44º37.29’	110º23.35’	3.6	--	7	121	7	0.06
220331	17:21:57.70	44º37.36’	110º23.62’	3.7	1.0	14	120	7	0.18
220331	17:28:34.30	44º37.39’	110º23.32’	4.6	0.6	13	121	7	0.10
220331	17:28:42.97	44º37.01’	110º25.70’	2.3	0.7	8	128	7	0.09
220331	17:29:03.81	44º37.33’	110º23.34’	4.0	0.9	8	121	7	0.08
220331	17:31:27.33	44º37.52’	110º23.32’	4.8	1.1	18	123	7	0.16
220331	17:37:46.04	44º37.31’	110º23.32’	5.1	0.9	13	121	7	0.13
220331	18:21:04.57	44º37.17’	110º23.38’	4.4	0.7	11	119	7	0.09

number of earthquakes = 442

* 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, 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 January 1–March 31, 2022

None