EARTHQUAKE ACTIVITY IN THE YELLOWSTONE REGION

Preliminary Epicenters

January 1 – March 31, 2021

Prepared by the University of Utah Seismograph Stations and funded by
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June 29, 2021

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 14 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, 2021

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During the three-month period January 1 through March 31, 2021, the University of Utah Seismograph Stations (UUSS) located 270 earthquakes within the Yellowstone region (Figure 1). The total includes 1 earthquake in the magnitude 3 range, and 12 earthquakes in the magnitude 2 range. The largest event to occur during this period was a magnitude 3.2 earthquake on January 6. 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 2021). 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 3.2	January 06	08:38 MST	2.2 mi NE of Norris Geyser Basin, YNP

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 13 earthquakes ($-0.1 \leq M \leq 1.2$) occurred about 10.2 mi NNE of Old Faithful, YNP from January 4th – 5th.
B. A swarm of 10 earthquakes ($-0.4 \leq M \leq 1.7$) occurred about 2.2 mi NE of Norris Geyser Basin, YNP on January 6th.
C. A swarm of 20 earthquakes ($0.6 \leq M \leq 2.3$) occurred about 12.2 mi NNE of Old Faithful, YNP from January 23rd – 24th.
D. A swarm of 11 earthquakes ($-0.4 \leq M \leq 2.1$) occurred about 7.6 mi W of Old Faithful, YNP from March 26th – 27th.

These swarms are labeled in Figure 1.

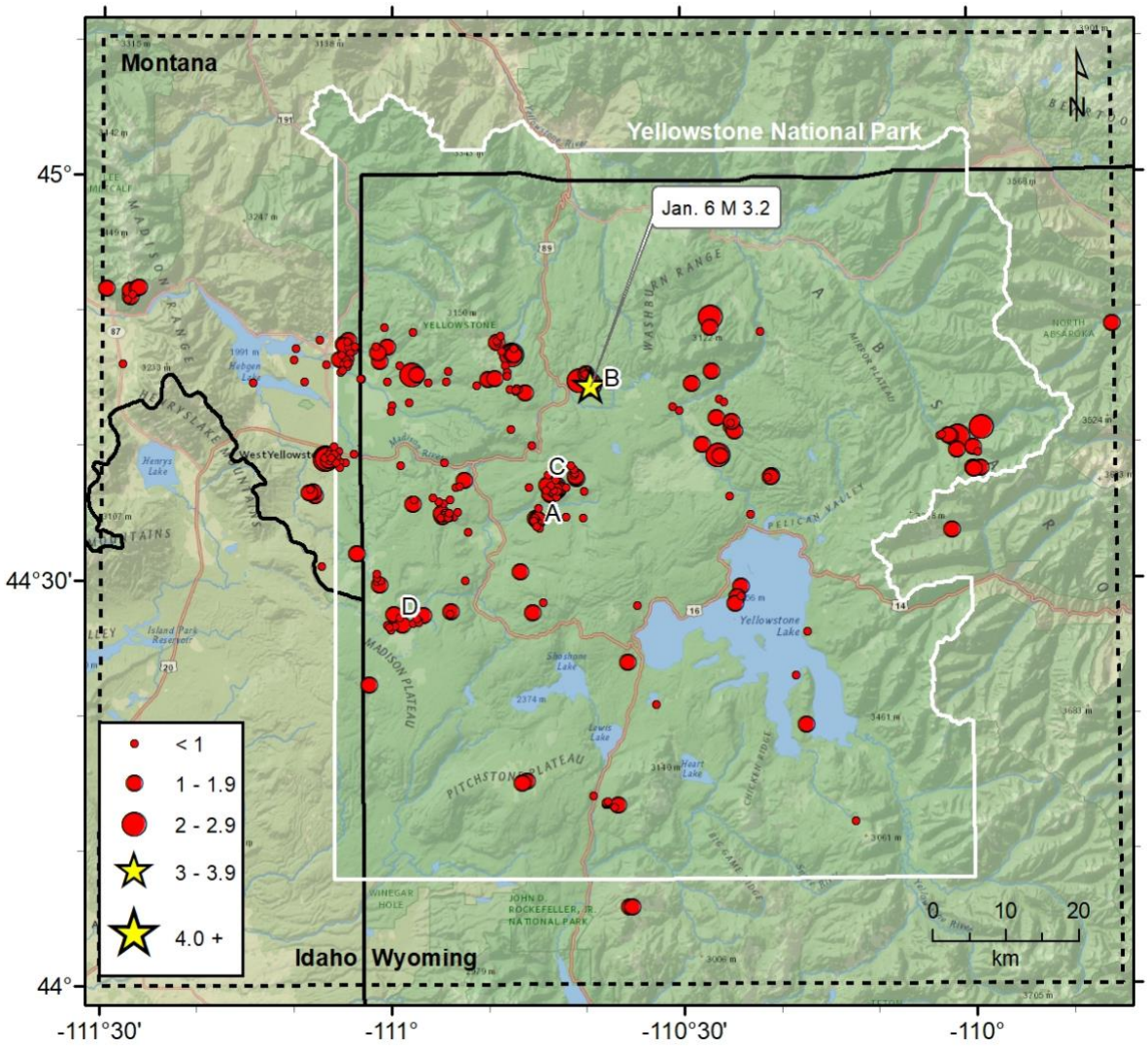

Figure 1. Epicenters of earthquakes located by the University of Utah Seismograph Stations, January 1, 2021, through March 31, 2021. Earthquake swarms (labeled A–D) are discussed in the text.

Table 1

EARTHQUAKES FELT IN THE YELLOWSTONE REGION
January 1, 2021, to March 31, 2021

Date	Time†	Felt Information‡	Latitude	Longitude	Magnitude§
February 09	00:18 MST 07:18 UTC	Yellowstone. Felt (II) at West Yellowstone, MT.	44º 39.00′	111º 06.90′	M_L 2.2

† 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
March 31, 2021

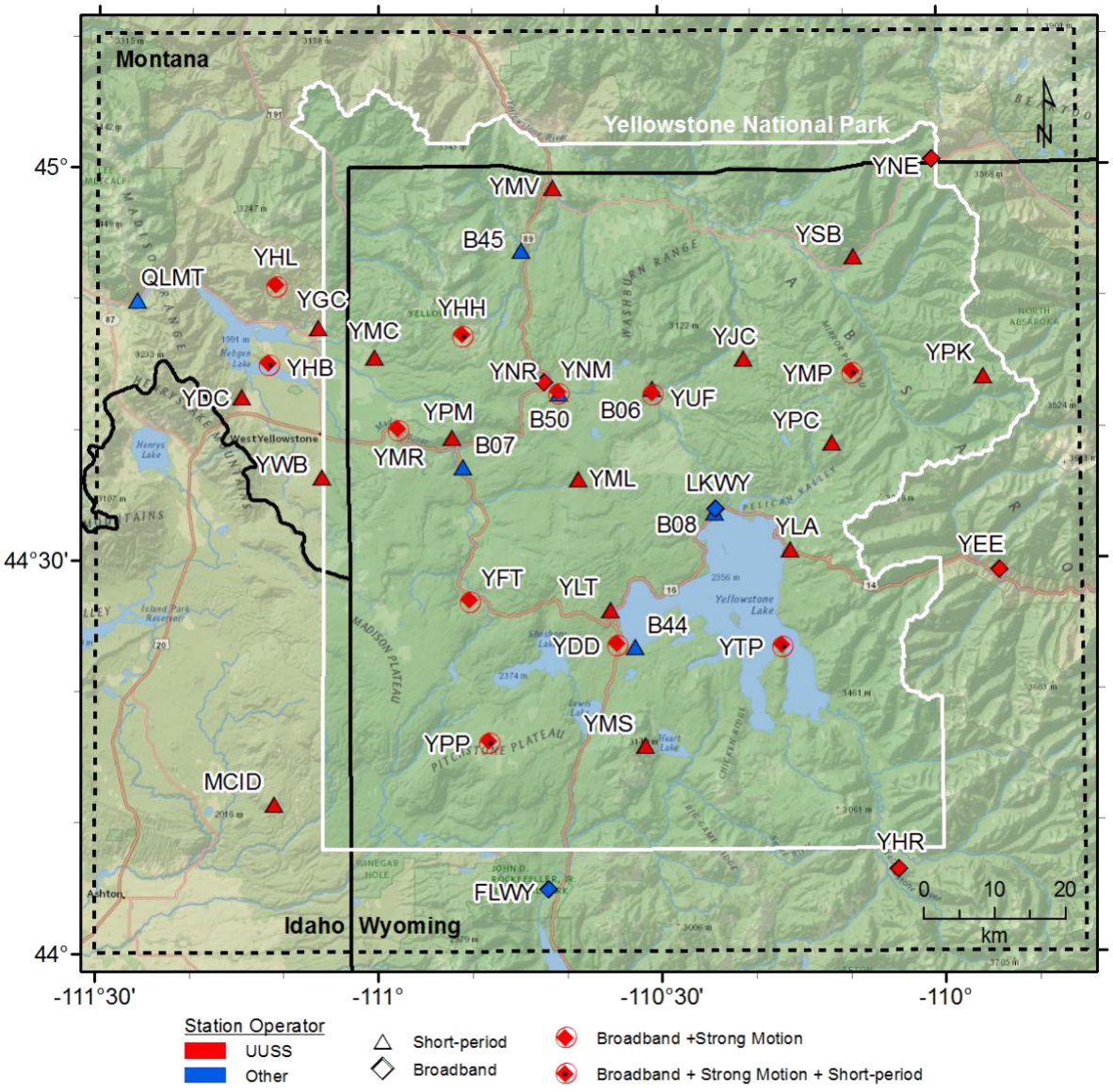

Figure 2. Seismograph stations of the Yellowstone Seismic Network as of March 31, 2021.

Table 2. Earthquakes in the Yellowstone Region: January 1–March 31, 2021

DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
210101	23:39:15.38	44º46.02’	111º06.84’	10.2	0.8	18	115	3	0.17
210102	05:34:38.50	44º47.31’	111º00.54’	5.8	1.5W	20	133	3	0.15
210102	08:09:29.78	44º46.44’	111º04.36’	8.9	0.5	13	131	4	0.18
210102	08:17:19.98	44º45.43’	111º05.28’	7.7	0.5	13	97	5	0.18
210102	10:37:56.12	44º45.86’	111º04.66’	7.9	0.5	10	113	4	0.12
210102	10:50:52.81	44º46.11’	111º04.99’	8.3	0.8	15	113	4	0.17
210102	16:06:45.32	44º28.20’	110º34.63’	5.1	0.9	16	71	4	0.10
210102	18:17:48.32	44º32.02’	111º03.59’	14.8	1.6W	16	141	9	0.19
210103	08:23:25.28	44º45.56’	111º05.18’	7.4	0.3	9	101	4	0.13
210103	16:46:09.66	44º39.40’	111º03.98’	12.8	0.6	11	191	8	0.17
210104	12:56:12.68	44º34.44’	110º45.31’	3.5	0.4	10	119	9	0.14
210104	13:00:52.05	44º34.43’	110º44.92’	6.3	0.9	13	82	9	0.11
210104	13:33:33.56	44º05.92’	110º35.65’	7.2	1.5	15	154	9	0.09
210104	15:12:47.88	44º34.48’	110º44.94’	6.7	1.2W	18	95	9	0.16
210104	15:20:23.75	44º34.58’	110º45.16’	5.8	1.5W	21	94	9	0.15
210104	15:32:30.87	44º34.67’	110º45.25’	6.3	0.8	15	97	9	0.19
210104	16:37:08.48	44º35.35’	110º44.89’	5.0	0.7	13	146	9	0.11
210104	17:06:22.44	44º34.56’	110º44.97’	5.8	1.0	18	95	9	0.13
210104	20:12:22.65	44º34.05’	110º45.09’	4.4	0.3	11	145	10	0.08
210104	22:03:49.32	44º35.11’	110º43.55’	2.1	0.4	12	81	7	0.20
210104	22:03:58.91	44º34.71’	110º42.00’	5.8	0.9	13	162	5	0.21
210104	22:04:30.52	44º36.57’	110º43.50’	2.2	0.9	11	84	10	0.18
210105	06:44:50.17	44º33.92’	110º44.75’	6.4	0.5	7	94	9	0.09
210105	07:53:52.40	44º46.08’	111º04.68’	8.6	0.1	14	117	4	0.14
210105	11:00:38.49	44º34.59’	110º45.18’	7.9	0.9	14	96	9	0.18
210105	11:57:16.61	44º05.87’	110º35.35’	6.8*	1.0	10	247	19	0.10
210106	13:04:47.03	44º45.37’	110º39.87’	2.1	-0.1	11	185	5	0.17
210106	13:04:58.11	44º45.29’	110º39.99’	2.1	--	12	183	4	0.13
210106	15:38:32.48	44º44.49’	110º39.40’	4.7	3.2W	36	64	3	0.17
210106	15:45:47.61	44º40.03’	110º45.51’	2.6	0.3	11	108	8	0.13
210106	15:47:27.97	44º45.43’	110º39.97’	3.5	0.9	14	185	5	0.15
210106	16:11:18.56	44º45.27’	110º39.83’	2.4	1.8W	14	183	4	0.14
210106	16:11:30.64	44º45.47’	110º40.03’	2.0	-0.3	10	185	5	0.21
210106	16:13:00.05	44º45.36’	110º39.90’	2.2	-0.4	11	185	4	0.25
210106	16:27:09.29	44º44.49’	110º39.48’	4.6	2.4W	25	73	3	0.17
210106	17:48:56.12	44º45.35’	110º40.13’	3.1	0.2	15	186	4	0.15
210106	17:55:26.24	44º44.93’	110º39.65’	3.7	1.9W	29	82	4	0.17
210106	23:50:33.35	44º38.58’	110º59.08’	9.7	0.1	9	107	3	0.17
210107	01:52:19.52	44º45.52’	110º54.15’	7.9	0.4	12	140	5	0.13
210107	01:52:23.72	44º44.75’	110º54.36’	2.0	0.5	8	121	6	0.07
210107	05:10:48.88	44º46.16’	111º04.41’	8.2	0.4	15	124	4	0.15
210107	16:17:49.34	44º27.76’	110º53.92’	5.4	1.1	14	98	5	0.15
210107	16:49:02.62	44º47.65’	110º49.14’	3.2	1.5W	15	209	3	0.19
210111	09:49:02.78	44º46.40’	111º05.38’	8.7	1.7W	19	81	3	0.14
210111	20:49:28.96	44º51.56’	111º26.51’	12.1	1.6	22	91	23	0.15

Table 2. Earthquakes in the Yellowstone Region: January 1–March 31, 2021

DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
210112	21:12:49.75	44º44.49’	110º51.18’	2.3	-0.1	9	134	5	0.11
210115	09:39:55.83	44º45.45’	110º48.04’	1.4	0.3	14	99	5	0.17
210116	04:03:19.80	44º45.94’	110º48.29’	2.0	0.5	11	101	4	0.13
210117	11:20:53.97	44º22.96’	110º18.31’	9.9	0.8	13	177	2	0.15
210120	03:26:47.95	44º28.45’	110º44.34’	2.4	0.2	10	86	8	0.09
210120	12:32:42.97	44º27.66’	110º45.51’	3.9	1.1	16	72	6	0.13
210121	01:03:13.68	44º41.98’	110º26.37’	3.6	1.0	16	119	6	0.16
210121	15:02:38.21	44º46.26’	111º01.24’	9.0	1.3W	19	116	2	0.17
210122	05:07:28.70	44º47.43’	111º04.90’	6.4	1.1W	19	162	2	0.16
210122	17:10:51.18	44º47.26’	111º04.53’	6.3	0.7W	20	133	3	0.11
210122	17:21:03.43	44º46.94’	111º04.78’	5.7	1.6W	22	109	3	0.19
210123	00:35:03.06	44º47.76’	111º04.57’	6.8	1.4W	20	139	2	0.15
210123	10:41:07.65	44º46.89’	111º04.39’	6.8	0.7	17	145	3	0.13
210123	13:47:19.04	44º47.50’	111º05.05’	6.9	1.5W	20	165	2	0.18
210123	23:10:57.63	44º36.75’	110º43.22’	7.8	0.5	16	121	6	0.12
210123	23:20:40.17	44º36.73’	110º44.09’	5.4	-0.1	10	110	7	0.30
210123	23:20:55.22	44º37.02’	110º43.63’	4.9	0.4	15	81	7	0.22
210124	01:49:38.98	44º36.43’	110º43.63’	6.8	1.2W	18	55	7	0.17
210124	03:30:59.58	44º36.90’	110º41.98’	12.0	0.9W	11	95	5	0.19
210124	03:32:21.77	44º37.83’	110º43.89’	2.4	0.9W	11	111	8	0.19
210124	03:33:08.44	44º36.74’	110º43.20’	7.8	1.1W	15	80	6	0.18
210124	03:33:35.71	44º36.50’	110º43.33’	7.5	1.4W	16	62	6	0.19
210124	03:33:49.38	44º36.22’	110º42.98’	5.0	0.6	7	122	6	0.10
210124	03:34:32.48	44º36.65’	110º43.02’	7.5	0.7	12	82	6	0.13
210124	03:35:10.08	44º36.55’	110º43.50’	6.9	1.3W	17	63	7	0.17
210124	03:40:42.05	44º36.69’	110º43.08’	8.5	1.7W	24	54	6	0.20
210124	03:43:29.91	44º37.05’	110º43.53’	6.1	0.4	12	83	7	0.18
210124	03:45:39.28	44º36.65’	110º42.90’	8.7	0.5	9	113	6	0.14
210124	03:46:16.97	44º37.50’	110º43.07’	8.4	0.2	10	96	6	0.18
210124	03:50:51.78	44º36.93’	110º43.79’	5.3	1.8W	14	70	7	0.17
210124	04:03:03.79	44º36.37’	110º43.59’	6.5	1.3W	14	64	7	0.19
210124	04:05:52.22	44º36.78’	110º42.92’	8.2	1.4W	18	60	6	0.15
210124	04:09:16.91	44º36.88’	110º43.14’	7.3	2.0W	27	50	6	0.20
210124	05:08:14.47	44º37.04’	110º43.93’	6.6	1.5W	18	63	7	0.19
210124	05:43:04.03	44º47.69’	111º04.60’	7.0	0.7W	12	178	2	0.07
210124	05:57:06.18	44º45.15’	110º48.09’	0.4	0.0	5	156	6	0.04
210124	08:25:10.10	44º19.30’	110º17.26’	9.4	1.2	15	173	8	0.15
210125	01:55:59.57	44º31.08’	111º07.32’	15.0	0.2	11	181	10	0.12
210125	15:55:24.71	44º47.08’	111º03.96’	6.2	0.8	14	156	3	0.14
210125	18:27:01.53	44º37.58’	110º21.13’	5.3	0.9	11	101	8	0.13
210126	09:12:11.07	44º36.81’	111º08.42’	9.2	0.8	16	103	3	0.15
210126	10:35:37.49	44º36.61’	111º08.17’	9.0	1.2W	18	103	3	0.18
210126	18:50:24.86	44º36.30’	111º08.01’	7.6	1.3W	22	104	3	0.19
210127	05:23:11.63	44º36.55’	111º08.55’	6.6	1.1	16	105	3	0.16
210127	21:04:49.66	44º46.38’	111º04.78’	5.2	0.2	8	176	3	0.06

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DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
210127	21:39:43.52	44º39.28’	110º26.23’	5.0	2.0W	20	71	9	0.16
210128	08:15:34.48	44º40.48’	110º02.18’	13.6	1.6	12	98	11	0.22
210131	15:44:23.75	44º39.20’	111º06.63’	8.7	0.9	14	95	5	0.13
210131	16:10:11.99	44º39.23’	111º06.63’	7.9	0.6	19	95	5	0.21
210131	21:34:09.99	44º39.12’	111º06.95’	9.3	0.5	11	161	5	0.17
210131	21:37:58.83	44º48.73’	111º00.77’	8.9	0.0	11	173	6	0.10
210131	22:21:16.70	44º39.23’	111º06.20’	8.2	0.5	15	156	5	0.18
210131	22:28:57.01	44º35.75’	110º54.69’	12.5	0.4	10	97	6	0.13
210201	21:54:46.29	44º39.24’	111º06.24’	7.8	0.7	15	149	5	0.17
210202	10:08:55.63	44º41.15’	109º58.93’	17.5	2.4W	19	114	7	0.14
210204	08:29:44.06	44º40.67’	110º03.02’	11.7	0.8	10	152	11	0.19
210204	08:32:38.97	44º44.23’	110º47.11’	2.5	0.1	13	148	8	0.17
210204	11:17:37.89	44º44.78’	111º09.07’	8.7	0.3	18	98	4	0.21
210204	12:30:10.23	44º39.12’	111º06.85’	9.2	2.3W	29	55	5	0.17
210204	12:41:19.44	44º39.98’	111º06.04’	7.8	0.5	12	207	7	0.21
210204	14:04:21.27	44º39.12’	111º06.30’	8.9	0.5	14	95	5	0.16
210204	21:02:31.89	44º38.76’	111º04.81’	10.4	0.8	13	183	5	0.16
210205	00:56:52.72	44º39.08’	111º06.70’	8.3	2.1W	25	95	5	0.17
210205	01:03:21.31	44º39.19’	111º05.72’	9.2	0.6	16	136	5	0.19
210205	01:11:52.07	44º39.60’	111º06.44’	8.2	0.8	14	208	6	0.18
210205	06:27:15.76	44º47.37’	111º03.88’	5.4	0.7	12	116	3	0.09
210205	21:57:02.12	44º39.15’	110º26.02’	5.4	1.6W	17	109	9	0.16
210206	00:01:21.33	44º39.37’	111º06.52’	9.2	0.5	12	158	6	0.18
210206	18:44:47.59	44º46.03’	111º27.90’	13.5	0.4	15	96	8	0.09
210207	20:17:39.77	44º51.55’	111º29.65’	12.5	1.0	7	137	6	0.13
210209	06:57:13.83	44º47.19’	111º10.00’	10.6	0.2	15	88	5	0.12
210209	07:18:43.26	44º38.99’	111º06.88’	9.7	2.2W	38	60	5	0.17
210209	11:05:17.44	44º38.91’	111º06.53’	8.1	0.7	15	95	5	0.15
210209	19:58:40.35	44º38.88’	111º06.56’	8.5	1.4W	19	95	5	0.19
210209	23:03:44.48	44º38.87’	111º05.39’	9.4	0.8	15	165	5	0.19
210209	23:05:09.54	44º46.72’	111º05.20’	8.7	-0.1	13	195	7	0.15
210210	04:23:50.06	44º36.92’	110º45.86’	2.8	0.8	12	172	7	0.11
210210	10:00:47.03	44º38.77’	111º05.84’	7.2	0.6	10	170	4	0.13
210210	19:43:27.81	44º36.17’	110º55.79’	9.8	0.0	9	266	7	0.07
210210	20:07:56.74	44º35.92’	110º55.18’	9.9	0.3	11	268	6	0.08
210210	21:06:04.29	44º38.40’	111º05.40’	0.0	0.6	7	193	4	0.17
210212	16:22:05.00	44º48.36’	110º21.78’	2.7	0.5	14	143	6	0.21
210212	16:44:34.01	44º28.29’	110º24.57’	3.0	1.1	14	78	10	0.10
210212	21:56:22.56	44º28.79’	110º24.35’	3.9	1.3	10	93	9	0.12
210213	02:22:03.58	44º40.54’	110º02.32’	12.6	1.2	20	157	11	0.15
210213	03:35:24.22	44º39.44’	111º06.00’	9.3	0.3	9	163	6	0.19
210213	04:05:39.91	44º39.39’	111º06.35’	8.4	0.6	16	94	6	0.18
210213	06:36:59.35	44º39.39’	111º06.40’	7.7	0.6	13	158	6	0.17
210213	16:13:54.33	44º39.23’	111º06.37’	9.3	0.7	16	94	5	0.19
210213	18:37:30.16	44º47.35’	111º01.72’	7.9	0.7	10	197	4	0.13

Table 2. Earthquakes in the Yellowstone Region: January 1–March 31, 2021

DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
210214	06:44:33.11	44º29.51’	110º23.91’	2.0	1.9W	19	63	8	0.26
210215	19:11:14.81	44º28.82’	110º23.92’	4.5	0.9	13	92	9	0.15
210216	23:12:49.88	44º39.60’	111º05.50’	8.1	0.9W	18	154	6	0.17
210216	23:45:20.84	44º27.43’	110º56.74’	7.8	1.6W	24	111	9	0.22
210217	21:43:15.29	44º48.10’	110º48.73’	3.6	0.0	8	211	3	0.19
210217	22:33:06.10	44º34.64’	110º40.19’	6.3	0.9	13	130	4	0.12
210218	12:58:37.57	44º44.69’	111º14.42’	11.7	0.6	16	113	4	0.19
210219	20:41:35.79	44º23.98’	110º35.66’	2.6	1.2	9	121	2	0.11
210220	22:26:45.38	44º43.17’	110º58.22’	1.3	-0.4	6	153	5	0.05
210222	16:19:36.83	44º27.61’	110º53.98’	4.3	0.8	8	186	5	0.11
210222	17:53:13.63	44º44.09’	110º47.16’	2.5	0.0	11	144	8	0.18
210224	01:23:40.45	44º44.05’	110º47.21’	2.4	0.6	11	142	8	0.12
210224	05:21:06.87	44º43.86’	110º46.23’	9.0	1.2W	16	139	5	0.15
210224	05:22:44.38	44º44.19’	110º46.91’	2.5	0.5	12	148	8	0.16
210226	06:07:49.17	44º51.69’	111º26.32’	10.7	1.4	14	103	20	0.10
210226	07:32:58.15	44º44.99’	111º03.23’	6.6	0.3	18	129	4	0.15
210226	10:01:23.47	44º46.96’	110º48.64’	1.8	0.2	9	103	3	0.13
210226	12:50:27.87	44º50.94’	111º27.18’	7.7	1.9W	15	123	3	0.16
210226	14:16:38.65	44º51.16’	111º26.99’	8.6	0.9	15	99	3	0.09
210226	15:25:07.90	44º51.45’	111º27.15’	9.1	1.7	17	100	3	0.18
210227	06:08:53.06	44º44.94’	111º03.16’	6.3	0.9W	16	87	4	0.19
210227	09:25:27.83	44º13.53’	110º37.96’	8.0	0.8	12	137	9	0.08
210227	09:26:24.67	44º13.72’	110º37.85’	4.4	0.4	11	135	9	0.12
210227	09:26:30.64	44º14.12’	110º39.30’	3.2*	0.9	8	120	11	0.13
210227	09:26:55.90	44º13.54’	110º38.01’	4.3	0.7	13	136	9	0.09
210227	09:27:27.56	44º13.64’	110º38.00’	5.3	0.6	11	135	9	0.10
210227	09:28:52.34	44º13.27’	110º37.08’	4.9	0.4	11	147	9	0.15
210227	09:29:00.18	44º13.45’	110º36.72’	2.3	1.0	11	149	8	0.14
210227	09:38:26.33	44º13.53’	110º37.81’	7.1	0.9	14	138	9	0.11
210227	19:26:14.50	44º44.02’	110º47.19’	2.2	0.3	12	142	8	0.14
210301	08:53:27.87	44º44.16’	110º47.76’	2.5	0.6	9	139	7	0.14
210301	14:30:12.52	44º47.77’	110º49.10’	3.5	0.2	11	206	3	0.19
210301	21:42:48.94	44º35.68’	110º57.79’	10.8	1.6W	25	75	8	0.18
210302	04:21:59.15	44º44.17’	110º47.19’	2.3	0.2	11	146	8	0.14
210302	12:02:52.51	44º44.90’	110º50.03’	5.6	1.5W	21	74	5	0.20
210302	15:11:27.78	44º41.24’	110º47.66’	5.2	0.9W	18	83	7	0.15
210303	04:12:08.62	44º39.54’	110º01.45’	11.2	1.1	17	167	11	0.18
210303	21:31:39.82	44º49.45’	110º26.93’	7.6	2.4W	26	107	11	0.19
210303	21:47:07.94	44º22.31’	111º02.35’	2.8*	0.9	16	140	18	0.22
210305	18:02:48.76	44º41.02’	110º24.50’	5.5	1.3W	20	95	9	0.18
210305	18:03:27.96	44º43.37’	110º26.11’	4.7	0.0	10	153	6	0.12
210305	18:03:37.33	44º41.36’	110º24.81’	4.2	1.6W	21	101	8	0.19
210305	18:03:55.33	44º41.61’	110º24.95’	4.8	0.8	12	138	8	0.16
210305	18:04:06.69	44º43.22’	110º25.60’	-0.1	-0.2	6	149	7	0.13
210305	18:04:11.57	44º41.71’	110º24.82’	4.7	1.0	14	139	8	0.12

Table 2. Earthquakes in the Yellowstone Region: January 1–March 31, 2021

DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
210305	18:24:30.23	44º45.46’	110º26.83’	2.0	1.0	12	174	7	0.19
210305	23:30:32.75	44º50.79’	111º27.48’	9.6	0.9	9	294	3	0.18
210306	11:00:56.87	44º37.62’	110º20.84’	5.4	1.1	14	74	9	0.13
210307	08:40:41.32	44º47.59’	110º49.02’	2.5	0.9W	18	103	3	0.13
210307	17:51:59.94	44º47.87’	111º07.47’	7.2	0.7W	13	224	8	0.09
210308	08:43:41.15	44º48.40’	110º57.79’	5.7	0.6	13	249	6	0.14
210308	18:35:49.49	44º30.24’	111º01.53’	15.7	0.5	11	151	13	0.13
210309	04:19:44.44	44º26.20’	110º17.15’	2.1	-0.7	5	170	5	0.09
210309	16:53:14.20	44º34.73’	110º54.96’	10.5	0.6	14	143	7	0.20
210309	18:38:33.36	44º30.53’	111º01.59’	16.4	0.1	9	150	12	0.17
210309	21:29:19.30	44º34.80’	110º54.77’	12.0	1.8W	22	74	7	0.15
210309	22:11:54.33	44º40.04’	110º27.89’	4.4	1.5W	15	164	6	0.22
210310	01:14:45.85	44º34.96’	110º54.88’	12.4	1.5W	20	73	7	0.13
210310	03:42:50.65	44º36.96’	110º53.42’	8.2	-0.1	11	183	3	0.04
210310	04:14:51.36	44º45.25’	110º57.39’	7.6	1.2W	23	69	4	0.16
210310	12:15:54.14	44º34.92’	110º54.63’	12.0	0.8W	15	125	6	0.12
210310	13:25:46.88	44º44.67’	110º56.29’	2.5	0.2	12	126	6	0.07
210310	20:47:16.76	44º35.03’	110º54.05’	9.5	0.0	10	158	6	0.11
210311	02:11:44.92	44º34.71’	110º54.24’	11.3	0.1	11	159	6	0.16
210311	10:30:11.58	44º30.07’	111º01.21’	15.4	0.7	14	131	13	0.13
210311	11:27:22.05	44º29.98’	111º01.60’	15.1	0.9	16	134	13	0.13
210311	14:13:20.24	44º29.70’	111º01.26’	14.0	1.0W	17	124	14	0.14
210311	14:43:33.47	44º35.06’	110º54.55’	11.3	0.9W	18	124	6	0.13
210311	22:35:56.67	44º48.70’	110º27.03’	9.3	1.6W	16	103	10	0.20
210312	01:20:43.83	44º45.27’	110º57.88’	8.5	2.1W	33	69	3	0.13
210312	05:02:25.35	44º34.74’	110º53.61’	12.4	0.4	15	161	6	0.13
210312	19:43:15.81	44º35.09’	110º53.22’	11.6	-0.1	10	154	5	0.15
210312	19:43:49.49	44º37.04’	110º53.00’	8.2	--	6	227	3	0.03
210313	00:17:12.07	44º34.84’	110º54.25’	11.5	0.3	11	126	6	0.16
210313	05:27:02.54	44º44.80’	110º40.53’	2.7	2.1W	18	174	3	0.13
210314	09:55:21.80	44º34.71’	110º54.06’	10.5	0.4	12	127	6	0.18
210316	20:17:35.88	44º34.92’	110º54.48’	11.8	0.9W	22	114	6	0.15
210316	20:17:43.77	44º37.44’	110º52.55’	7.9	1.0	11	160	2	0.25
210316	23:50:25.53	44º46.84’	111º01.47’	7.7	0.9W	15	125	3	0.12
210317	16:34:25.36	44º36.22’	110º25.04’	3.8	0.6	13	112	5	0.16
210317	17:06:13.40	44º37.99’	110º41.09’	4.7	0.2	11	132	5	0.12
210317	17:06:48.40	44º37.88’	110º41.09’	5.1	0.7	12	105	4	0.14
210317	17:07:01.98	44º38.28’	110º41.22’	2.0	0.0	10	125	5	0.17
210317	17:07:28.25	44º38.52’	110º41.44’	6.4	-0.2	10	122	6	0.11
210317	17:08:42.59	44º36.62’	110º40.11’	8.5	0.1	10	112	2	0.19
210317	17:09:07.29	44º37.86’	110º41.18’	5.0	0.6	16	136	4	0.14
210317	17:18:20.03	44º37.73’	110º41.04’	5.2	1.4W	20	54	4	0.15
210317	17:39:05.46	44º33.59’	110º02.04’	9.9	1.0	10	103	14	0.13
210317	17:41:16.18	44º37.53’	110º40.92’	5.5	1.8W	24	54	4	0.15
210317	18:41:52.01	44º36.00’	110º53.95’	9.3	0.3	12	206	5	0.11

Table 2. Earthquakes in the Yellowstone Region: January 1–March 31, 2021

DATE	ORIGIN TIME	LATITUDE	LONGITUDE	DEPTH	MAG	NO	GAP	DMN	RMS
210318	10:27:14.97	44º34.90'	110º22.94'	9.5	0.2	9	112	3	0.16
210318	23:09:10.39	44º39.67'	109º59.79'	14.3	1.8	14	109	10	0.19
210319	03:49:10.88	44º39.13'	111º06.34'	6.9	0.2	8	206	5	0.17
210319	06:32:14.71	44º46.68'	110º47.46'	3.3	1.4W	18	92	5	0.18
210319	07:54:11.78	44º46.73'	110º47.36'	3.9	1.2W	18	92	5	0.18
210319	09:24:13.26	44º47.17'	110º47.38'	2.1	0.1	10	218	5	0.12
210319	15:13:23.99	44º46.85'	110º47.66'	4.3	1.8	19	100	5	0.17
210319	23:00:56.72	44º46.74'	110º47.55'	4.4	2.0W	21	93	5	0.18
210320	08:00:35.22	44º42.97'	110º59.97'	9.1	0.9W	15	70	5	0.13
210322	10:49:28.79	44º45.97'	110º59.25'	7.2	0.1	9	172	2	0.16
210322	18:06:08.09	44º42.55'	111º00.14'	7.9	0.6	12	142	5	0.10
210322	18:45:32.89	44º36.05'	110º57.75'	11.3	0.1	11	147	8	0.08
210323	10:17:23.81	44º44.92'	110º49.39'	5.9	1.0W	11	133	5	0.15
210323	21:41:36.52	44º39.37'	109º59.29'	10.5	0.6	11	172	10	0.18
210324	15:13:36.73	44º40.59'	110º03.21'	12.4	0.9	10	152	11	0.16
210324	20:45:43.94	44º38.12'	109º59.07'	15.7	1.5	20	111	12	0.17
210325	04:53:49.98	44º38.09'	109º59.72'	15.3	1.0	12	108	12	0.13
210325	10:46:44.97	44º38.17'	109º59.85'	15.7	1.6	22	108	12	0.16
210325	18:01:00.30	44º40.51'	110º01.40'	13.0	2.3W	23	103	10	0.20
210325	19:56:50.46	44º44.73'	111º00.54'	7.7	0.7W	17	95	2	0.15
210325	21:20:27.87	44º12.20'	110º12.32'	5.0*	0.8	16	232	22	0.13
210326	10:11:35.40	44º46.35'	111º10.13'	9.9	0.4	16	157	3	0.21
210326	15:47:31.02	44º38.77'	110º54.61'	2.7	--	10	118	5	0.05
210326	15:47:32.72	44º33.66'	110º52.16'	24.7	--	7	200	7	0.10
210326	15:48:14.80	44º30.03'	110º52.47'	1.9*	--	9	224	13	0.32
210326	15:50:06.24	44º27.56'	110º59.76'	12.5	1.1W	13	126	13	0.16
210326	15:51:30.35	44º26.78'	110º58.97'	11.0	1.1W	13	123	12	0.18
210326	15:53:42.50	44º27.09'	110º57.26'	10.8	0.4	12	113	9	0.17
210326	15:59:59.96	44º27.28'	110º59.21'	10.3	0.7W	12	123	12	0.19
210326	16:07:25.53	44º26.77'	111º00.45'	9.5	0.9W	12	131	14	0.26
210326	16:07:25.63	44º26.40'	111º00.09'	5.3*	0.9W	13	129	13	0.19
210326	18:29:24.06	44º27.22'	110º57.42'	11.8	--	7	142	10	0.09
210326	18:31:55.93	44º26.86'	110º57.82'	12.1	0.7W	10	120	10	0.18
210326	18:32:51.86	44º26.70'	110º59.67'	8.0	0.6	13	126	13	0.27
210326	23:08:47.49	44º42.56'	110º30.19'	2.0	-0.1	10	190	1	0.16
210326	23:08:59.99	44º42.83'	110º30.90'	1.9	-0.2	10	121	0	0.17
210326	23:09:21.74	44º44.55'	110º28.94'	3.3	1.7W	13	182	4	0.14
210327	00:18:05.81	44º26.62'	111º00.30'	4.5*	0.6	15	131	13	0.24
210327	00:18:35.40	44º26.98'	110º57.24'	10.8	0.2	12	141	9	0.18
210327	03:27:43.55	44º15.04'	110º46.58'	2.1	1.1	10	98	3	0.11
210327	03:28:03.14	44º15.22'	110º46.13'	2.9	1.4W	17	96	3	0.12
210328	06:41:02.45	44º37.68'	110º20.74'	5.2	1.2	12	75	9	0.11
210330	09:39:46.69	44º48.68'	109º45.23'	15.0	1.6	13	265	16	0.19
210331	07:42:14.69	44º20.89'	110º32.78'	4.9	0.8	15	95	6	0.13
210331	08:56:39.86	44º30.67'	110º46.69'	5.1	1.8W	19	70	8	0.21

number of earthquakes = 270
* 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, 2021

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	Centaur	Digital	USGS
YFT	Old Faithful (YNP), WY	HH[ZEN]	3	WY	44° 27.05′	110° 50.24′	2292	Compact	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	40T	ANSS-130	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
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, 2021

None