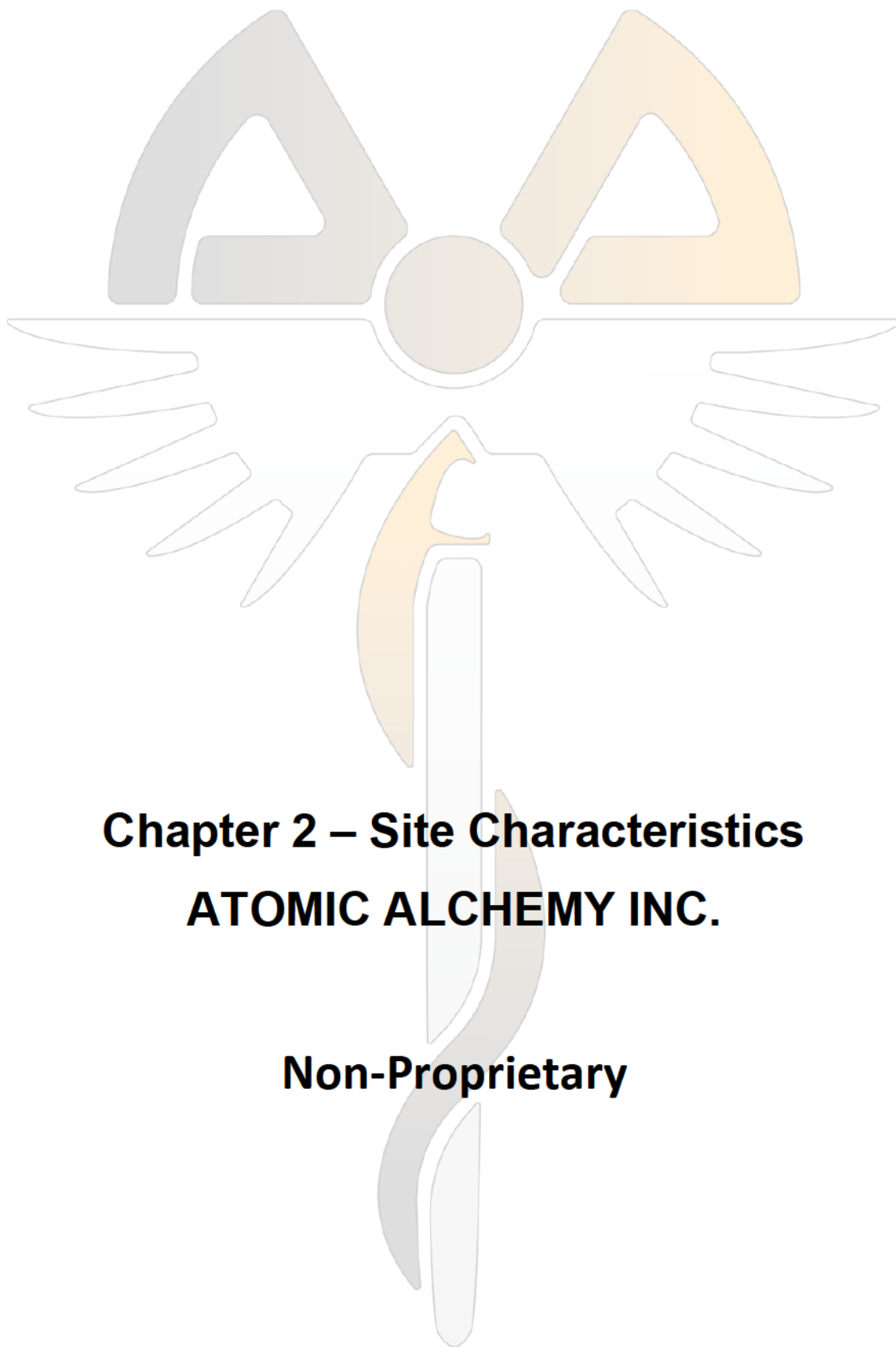




Chapter 2 – Site Characteristics

ATOMIC ALCHEMY INC.

Non-Proprietary

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TERMS

ACRONYMS & ABBREVIATIONS

Common acronyms, abbreviations, and units of measurements are not included here as it is assumed that readers are familiar with their meaning.

AAI	Atomic Alchemy Inc.
BLEVE	boiling liquid expanding vapor explosion
CFA	Central Facilities Area
CFR	<i>Code of Federal Regulations</i>
DOI	U.S. Department of the Interior
ESRP	Eastern Snake River Plane
INL	Idaho National Laboratory
MFC	Materials and Fuels Complex
NPUF	Non-power Production and Utilization Facility
NRTS	National Reactor Testing Station
NSTR	National Security Test Range
PMF	probable maximum flood
PMP	probable maximum precipitation
SRPA	Snake River Plain Aquifer
SSCs	structures, systems, and components
TAN	Test Area North
TREAT	Transient Reactor Test facility

GLOSSARY

Unique or clarified terms used in this document are listed here. Each term is italicized upon first use and marked with (see Glossary) for identification.

Region of Interest: the region around the proposed facility spanning an 8 km (5 mi) radius. [NUREG-1537, Part 1]



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2 SITE CHARACTERISTICS

2.0 INTRODUCTION

Per NUREG-1537, “Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors,” the purpose of this chapter is to provide information on the geological, seismological, hydrological, and meteorological characteristics of the site and vicinity, in conjunction with present and projected population distribution and land use and site activities and controls. The purpose is to indicate how these site characteristics have influenced plant design and operating criteria and to show the adequacy of the site characteristics from a safety viewpoint.

The Atomic Alchemy Inc. (AAI) Non-power Production and Utilization Facility (NPUF) will be located on the Idaho National Laboratory (INL) desert site, originally designated the National Reactor Testing Station (NRTS). The site, roughly 85% the area of Rhode Island, was originally chosen for the NRTS because of ideal site characteristics for building experimental reactors and performing prototypic experiments. The INL Site is perhaps one of the best characterized places in the world, with 52 reactors having been built, operated, and sometimes (intentionally) destroyed since the inception of the NRTS. Today, four reactors still operate regularly at various locations on the desert site.

Because so much of the site information is published and publicly available¹, many of the sections incorporate the required figures, tabulated data, and other information by direct reference.

2.1 GEOGRAPHY AND DEMOGRAPHY

2.1.1 Site Location and Description

2.1.1.1 Specification and Location

The proposed facility location is Bingham County, Idaho, at approximately [

] ^{PROP}. The facility is approximately [

] ^{PROP} north of Highway 20.

The proposed facility site is on the Idaho National Laboratory (INL) desert site, a U.S. Department of Energy (DOE) reservation with restricted access and a host of experimental and test facilities. Congress authorized the U.S. Department of the Interior (DOI) to “withdraw” public land to meet the needs of Federal agencies, such as DOE, using public land orders. The present-day boundary of the INL Site was created through several land transfers and land withdrawals beginning in the 1940s, resulting in the withdrawal of approximately 506,000 acres. INL lands were withdrawn from the public domain by way of Public Land Orders No. 318, 545, 637, and 1770. These public land orders have no specific time limitations. As such, DOE retains the authority to administer INL lands for the foreseeable future and is

¹ SAR-400 is not publicly accessible but has been externally released by INL for restricted use. Availability of this document can be made upon request.



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responsible for ensuring that future use and management of these lands are undertaken in accordance with these Public Land Orders.

2.1.1.2 Boundary and Zone Area Maps

The AAI Site is located within INL on approximately 172 acres of land controlled by AAI. Within this land, all facility features are located within a fenced area of approximately 23-acre, which constitutes the operations boundary (i.e., the AAI controlled area). Meitner-1 is approximately 492 ft (150 m) from the site boundary, beyond which is the unrestricted area per Title 10 of the *Code of Federal Regulations* (CFR) 50.34(a)(1)(i), "Contents of applications; technical information," which has been established at a short distance from the facility as one of the conservative elements in the assessment of potential doses to the public. For Meitner-1, the site boundary fits within the operations boundary, so a portion of what AAI defines as unrestricted is restricted to members of the public, and the only areas that are truly uncontrolled by AAI fall beyond the AAI Site.

Figure 2-1 shows the boundaries and zones applicable to the project site. The green area represents the land controlled by AAI, and the yellow area denotes the operations boundary within which all safety-related structures are located gives the rough location and size of the operations boundary, with consideration of ANSI/ANS-15.7-1977, "Research Reactor Site Evaluation," and ANSI/ANS-15.16-2015, "Emergency Planning for Research Reactors." Per Chapter 13, there is no Emergency Planning Zone for the site based on the guidance in ANSI/ANS-15.16-2015, Regulatory Guide 2.6, Rev 2, "Emergency Planning for Research and Test Reactors and Other Non-Power Production and Utilization Facilities," issued September 2017 as they relate to 10 CFR 50.54, "Conditions of Licenses," and 10 CFR Part 50 Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities."

Highways, nearby facilities, and other locations of interest are also shown in Figure 2-1.

[

]PROP

Figure 2-1: Boundaries and other locations of interest



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2.1.2 Population Distribution

Per NUREG-1537, “a map of suitable scale that identifies places of significant population grouping (such as cities and towns) within an 8-kilometer radius... should be drawn.” **Figure 2-2** shows this zone centered around the proposed site.

The AAI INL Site is located in southeastern Idaho and is in an area of low population density. No one permanently resides within the AAI INL Site, nor within the INL Site. INL’s MFC complex employs several hundred people, and the proposed site is approximately 25 miles away from Idaho Falls and approximately 50 miles away from Pocatello.

[

] ^{PROP}

Figure 2-2: The 8 km (5 mi) radius zone around the AAI Site

Idaho Falls and Pocatello are the two largest cities in southeastern Idaho. The U.S. Census Bureau states the population, as of 2020, for Idaho Falls and Pocatello as 64,818 and 56,320 people, respectively, and that Idaho Falls has experienced an annual growth rate of 1.4%, which is slightly greater than the average U.S. growth rate. The Pocatello population had an annual growth rate of 0.38%, which is significantly less than the U.S. average.

As can be seen in **Figure 2-2**, there is one permanent resident within the *region of interest* (see glossary), and very few people living within the rural region between the facility site and the nearest population centers. Because of the small size of the AAI INL Site and extremely low population density of the region, no further detailed information is included.



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The transient population within INL boundaries consists of the INL work force and motorists using the highways that cross the site. The size of the work force at INL varies with current activities and time of day. Employees at INL are a cyclic population. They are concentrated during assigned work shifts in the separate INL facilities distributed throughout the greater INL complex.

Figure 2-3 shows the region of interest in the broader context of nearby population centers.

[]^{PROP}

Figure 2-3: The 8 km radius zone around the AAI Site in relation to relevant population centers

2.2 NEARBY INDUSTRIAL, TRANSPORTATION, AND MILITARY FACILITIES

2.2.1 Locations and Routes

The Meitner-1 facility is located on the INL desert site. Figure 2-3 shows the facility location in relation to major highways and population centers in the southeast Idaho region. Figure 2-4 shows the INL Site in more detail, with the major site facilities and routes highlighted. Figure 2-5 is a simplified map of the MFC site, the closest major INL facility to Meitner-1.

MFC (formerly known as ANL-West) is the most eastern INL facility complex. INL has administrative control over an area of approximately 890 acres in the southeastern corner of INL, while the facilities themselves cover less than 60 acres.

MFC was constructed to research and develop liquid metal fast breeder reactor technology. MFC has been at INL since its inception as the National Reactor Testing Station in 1949, when the University of Chicago built and operated the EBR-I facility. MFC is the location of EBR-II, the first pool-type liquid-



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metal reactor, which operated for 30 years and was placed in shutdown mode in 1994. Currently, MFC includes a wide variety of unique facilities and capabilities that support its nuclear fuels research missions. Activities currently performed at MFC include research and development for new reactor fuels and related materials, and demonstration of various nuclear energy technologies. In addition, MFC supports DOE programs with space and defense radioisotope power systems.

The Transient Reactor Test (TREAT) facility is located just west of MFC. It is an air-cooled reactor capable of pulsed transients up to 20 GW of power that is designed to perform transient testing of nuclear fuels and materials to support advances in nuclear energy research and development (R&D) for a new generation of reactors and nuclear fuels.

MFC also houses a 250 kW TRIGA reactor used for radiography, known as NRAD.

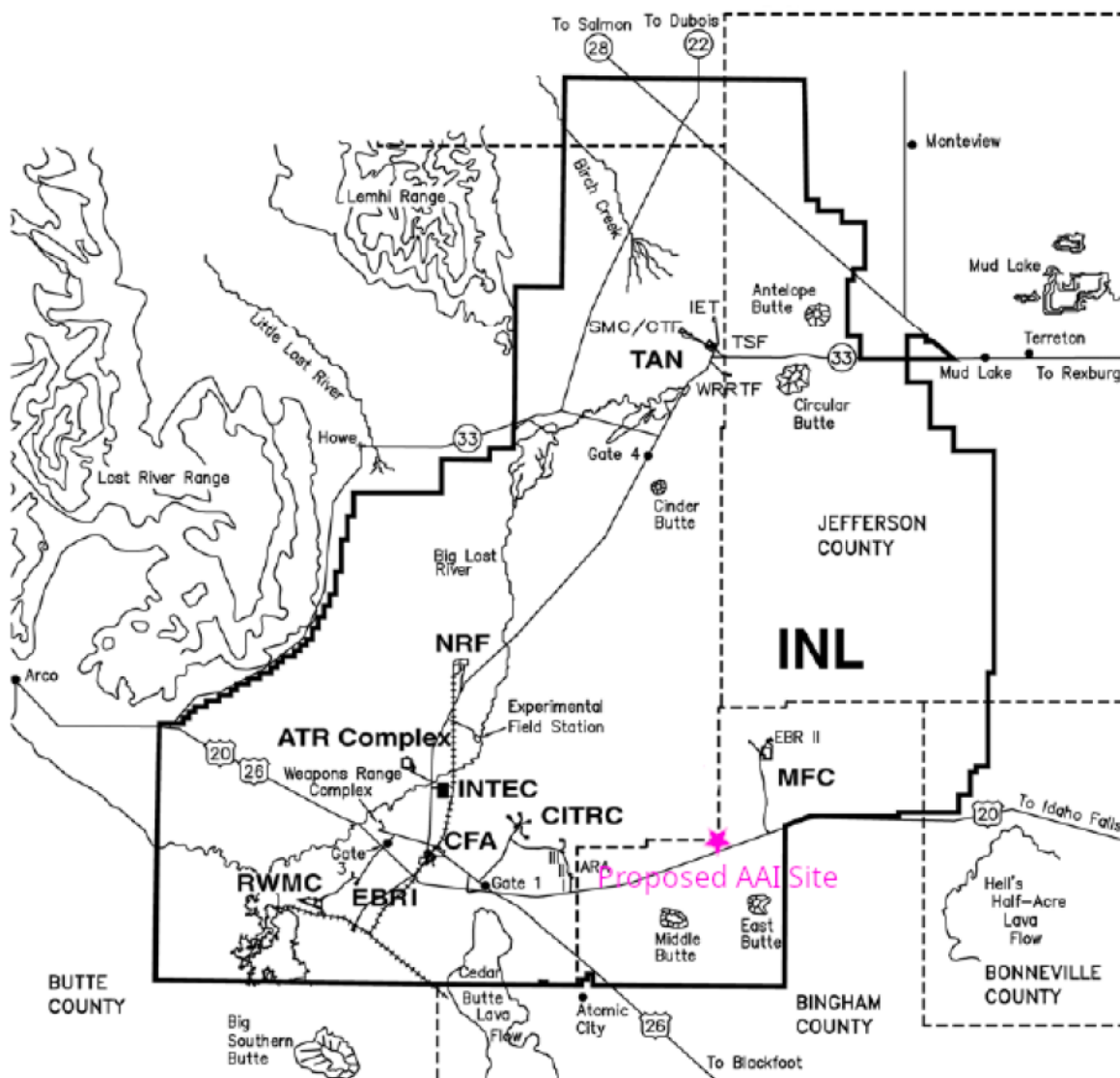


Figure 2-4: Map of INL boundary, site facilities, and county lines.



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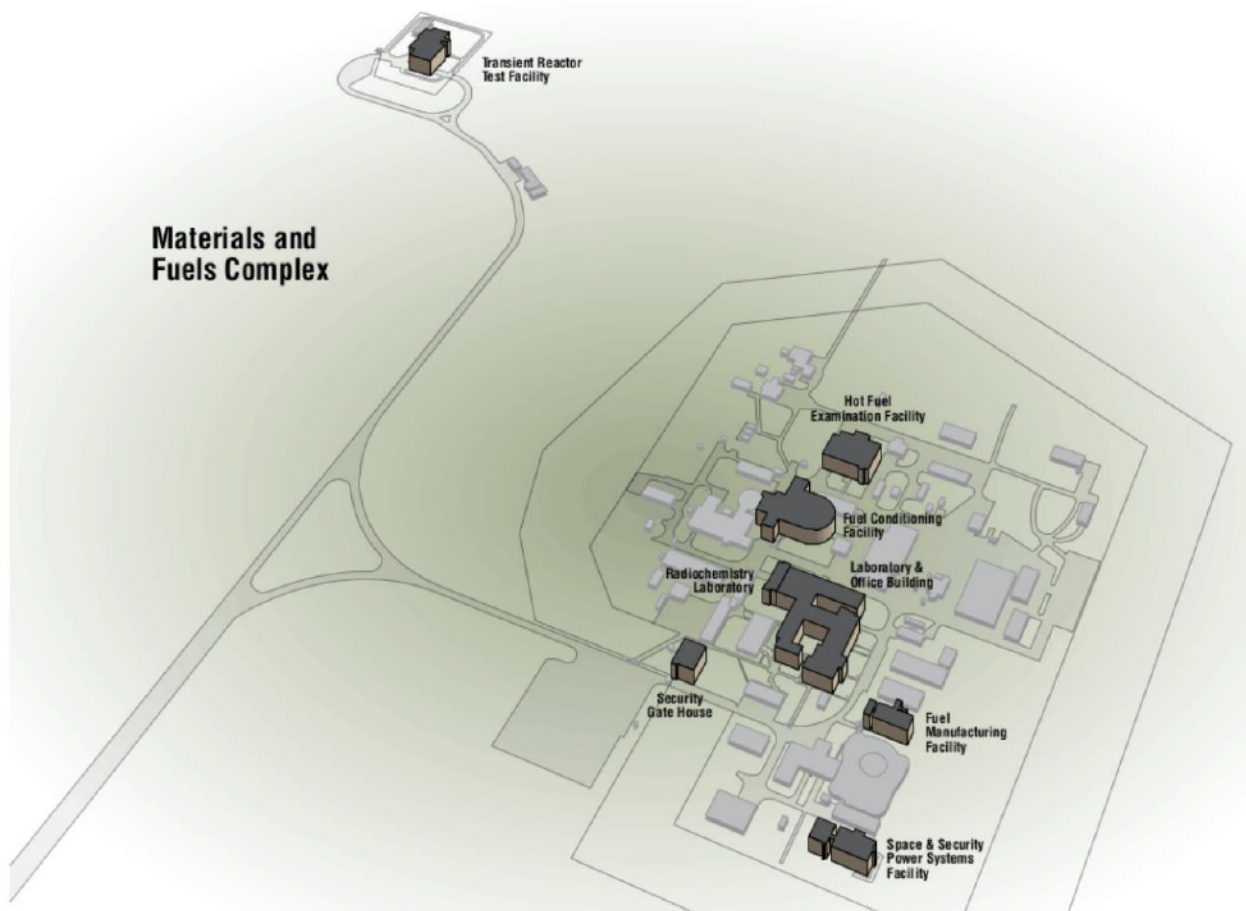


Figure 2-5: Simplified map of the Materials and Fuels Complex

2.2.2 Air Traffic

The nearest airport to the Atomic Alchemy NPUF is approximately 30 miles away in Idaho Falls. There are no existing or projected airports located between eight and 16 kilometers from the AAI NPUF, of commercial or military use, with more than $200d^2$ (where d is the distance in kilometers from the reactor site) aircraft movements per year.

An accidental aircraft impact is not considered to be a credible event. Based on the considerably more conservative criteria set forth in NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," the probability of an aircraft impact is less than 10^{-7} and needs no further analysis. The basis for this determination is as follows:

- The nearest airport is 30 miles away with operations of less than 40,000 movements per year, well within the (NUREG-0800) $1000d^2$ threshold (where d is in miles). To merit further consideration, the nearest airport would need to exceed 900,000 movements per year.
- There are no military training routes within five statute miles of the facility.



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- There are no federal airways, holding patterns, or approach patterns within two statute miles of the facility.

Additionally, publicly available sectional charts indicate a no-fly zone below 6000 feet MSL for the entire 890 square mile Idaho National Laboratory property.

2.2.3 Analysis of Potential Accidents at Facilities

Based on the information provided in sections 2.2.1, the potential accidents to be considered as design basis events are determined in this section, and the potential effects of these accidents on the nuclear facility are identified in terms of design parameter or physical phenomena. Railcar, ship, and pipeline impacts or explosions are not credible accidents because there are no railroad lines, navigable waterways, or pipelines in the vicinity of Meitner-1. The site has the potential for unexploded ordnances (UXOs), which is managed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). However, per DOE/ID-11042, "INL Site-wide Institutional Controls and Operations and Maintenance Plan for CERCLA Response Actions," a survey will be performed prior to construction and UXOs will be removed, to prevent any impact to the facility (DOE-ID 2006).

2.2.3.1 Explosions

The INL Site hosts a National Security Test Range (NSTR) which is used for testing activities in support of analyzing the effects of explosives and explosive devices, munitions, and similar items on security systems, facilities, vehicles, structures, and other materials. The test range itself is approximately 15.56 km away from the Atomic Alchemy NPUF site, well outside the range which facilities like this need be considered; therefore, no further information is provided on this facility or its activities.

The road adjacent to MFC and the TREAT reactor (Taylor Boulevard) is the road used to transport explosives to the test range; therefore this potential hazard is considered. The potential hazard was analyzed by DOE for the TREAT reactor and concluded to not pose a risk to that facility (SAR-420). AAI screens out this external hazard using the methodology employed in Regulatory Guide (RG) 1.91, "Evaluations of Explosions Postulated to Occur at Nearby Facilities and on Transportation Routes Near Nuclear Power Plants," Revision 2, issued April 2013.

The Environmental Assessment (EA) (TD&D-NS-07-013) with a Finding of No Significant Impact for the NSTR states that the new range will be authorized for up to a 20,000 lb. explosive test. It also states that tests will not routinely be that large. Per the EA:

The need for 20,000 lb. NEW limit in this EA was identified first by examining historical data from previous incidents and then determining the likely upper bound for the amount of explosives that could be assembled in a large six wheeled type truck. These are the types of vehicles most likely to be used in historical and hypothesized future attacks. For purposes of determining the appropriateness of that charge weight for testing at the INL, this EA provides the process for setting the NEW limits. Explosives are currently stored at the INL in magazines specifically designed for such storage and with attendant security systems such as entry alarms. The explosives currently stored are used for a range of purposes, such as the testing identified in the EA as currently being performed. The quantities currently stored are significantly less



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than 20,000 lbs. and even with the proposed consolidation testing activities, the quantity stored will not rise significantly. For large scale tests involving multiple thousands of pounds, the explosives will be delivered either the day before or day of the test. INL protective forces will be used to ensure security of the explosives until the test is conducted.

If it is conservatively assumed that a truck is transporting 20,000 lbs. of explosives to the test range and the minimum safe distance equation (1) from RG 1.91 is applied, the facility should be located approximately 372.2 meters from the road to avoid a 1 psi overpressure wave. The facility will be located approximately []^{PROP}. Additionally, the VIPR is located underground in a reactor pool, protecting fission product barriers from damage. If an overpressure wave damaged the facility structure, it is unlikely that the reactor itself, any safety-related structures, systems, and components (SSCs), or supporting equipment would be damaged, especially with the administration building and material processing facility between the reactor confinement structure and the highway.

[]^{PROP}

Figure 2-6: NSTR shipping path

U.S. Highway 20 is approximately []^{PROP} away from any portion of the facility housing safety-related SSCs and rarely hosts commercial shipping traffic.



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2.2.3.2 Flammable Vapor

Using the same screening methodology used in Section 2.2.3.1, AAI notes that at a distance of []^{PROP}, there are no credible scenarios involving offsite flammable vapor clouds (delayed ignition) which cause damage to the outer facility structure or safety-related SSCs within.

2.2.3.3 Toxic Chemicals

Accidents involving the release of toxic chemicals from nearby mobile sources were considered. Toxic chemicals which may be transported, however unlikely, within the vicinity of the AAI facility via U.S. Highway 20 were evaluated.

Using the same screening methodology used in Section 2.2.3.1, AAI notes that at a distance of []^{PROP}, most of the chemicals considered for the toxic cloud scenario can be effectively screened out due to being significantly further away. The only four chemicals further considered by other applicants for the truck-on-highway scenario were:

- Ammonia
- Chlorine
- Propylene Oxide
- Sulfur Dioxide

For these remaining chemicals, the ALOHA air dispersion model was used to predict the concentrations of toxic chemical clouds as they disperse downwind. The reactor building, which contains the control room, is modeled as an unsheltered, double-storied building with the default value of six air changes per hour. Monthly average values for wind speed, temperature, air moisture, etc., were used for atmospheric conditions in the ALOHA model.

For the ammonia scenario, a truck carrying 50,000 lbs released its entire contents within one minute at the closest approach on Highway 20. The control room indoor concentration would exceed the AEGL-3 60-minute (1100 ppm) threshold for about nine minutes and drops below the AEGL-2 threshold (160 ppm) within 25 minutes.

For the chlorine scenario, a 150 lbs cylinder is assumed to release its entire contents in one minute at the closest highway approach. The control room concentration exceeds the AEGL-2 60-minute threshold (2 ppm) for five minutes.

For the propylene oxide scenario, a truck carrying 50,000 lbs released its entire contents at the closest highway approach. The AEGL-1 (73 ppm) threshold is exceeded for approximately 22 minutes.

For the sulfur dioxide scenario, a truck carrying 50,000 lbs released its entire contents at the closest highway approach. The outdoor concentration begins to rise several minutes after the accident occurs. The AEGL-3 60-minute (30 ppm) threshold is exceeded for approximately 20 minutes.

There are no toxic chemicals of significant quantity stored onsite; therefore, no additional analysis has been conducted. Furthermore, if any of these accidents occurred and led to the control room being uninhabitable, plant workers would be directed to shelter in place in a safe location onsite per AAI's emergency procedures. If such an event warrants a shutdown, one would be implemented.



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2.2.3.4 Fires

Fires that impact INL facilities and activities are range fires and fires in co-located facilities. Ignition of such a fire could come from people, vehicles, lightning, spontaneous combustion, sunlight effects, failed electrical transmission lines or transformers, or other causes. The INL Fire Department has responded to 113 range fires between 1994 and 2011, of which 26 were caused by lightning and 87 were caused by humans. The INL Site is monitored for range fires by both the INL Fire Department and the Bureau of Land Management. External fires are mitigated by clearing brush to create a firebreak. INL facilities have successfully employed this for many decades, and AAI will clear a firebreak of approximately 30 feet, commensurate with the firebreak width of INL's facilities.

2.2.3.5 Missiles and Projectiles from External Events

Due to the proposed NPUF location, there are no credible scenarios involving external missiles and projectiles which would penetrate the non-safety-related facility structure and subsequently cause damage to safety-related SSCs. Additionally, the site is not in a tornado zone or hurricane-prone region as defined in American Society of Civil Engineers (ASCE) 7-16.

2.3 METEOROLOGY

This section describes the meteorology of the site and its surrounding areas. This data includes average and extreme conditions recorded by onsite National Oceanic and Atmospheric Administration (NOAA) weather stations. There are 13 NOAA stations on the INL Site and 21 nearby, offsite stations which have been collecting meteorological data for decades, shown in **Table 2-1**. As detailed in this section, INL contains three distinct local-climatic zones, and the AAI facility will be located in the Southeast zone as shown previously in **Figure 2-3**.

AAI adopts this data as its site-specific data which will be used to inform the design and analyses in other chapters of the SAR. The use of the local-climatic zone information as the site-specific information, in lieu of the taking onsite measurements, is acceptable for the PSAR due to the lack of local topography which would cause the site-specific information to appreciably deviate from the general local-climatic zone. Additionally, one of the weather stations listed in **Table 2-1** is only several kilometers away from the proposed site near MFC. The measurements taken at that facility will not be appreciably different than what would plausibly be measured at a weather station on the proposed site. With over a dozen stations covering the general climatic area, the effective combined record of data can be hundreds of years of data.

Furthermore, due to the small size, inherent safety, low source term, and simplicity of the facility, coupled with the lack of population in the region of interest (see **Figure 2-3**), small variations in site-specific values from the local-climatic zone will not have a meaningful effect on the consequences of potential accidents discussed in Chapter 13.



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**Table 2-1: NOAA/INL Mesonet stations located inside the INL as of December 2015
(Clawson et al. 2018)**

Station Name	Station ID	Latitude (deg N)	Longitude (deg W)	Elevation MSL (ft)	Instrument Levels							
					6 (ft)	20 (ft)	30 (ft)	33 (ft)	50 (ft)	150 (ft)	200 (ft)	250 (ft)
Advanced Test Reactor Complex	ATR	43.584633	112.968667	4,937	t,r,p,s,b				w,T			
Base of Howe Peak	BAS	43.677533	113.006033	4,900	t,r,s,b				w,T			
Central Facilities Area Building 690	CFA	43.532617	112.947733	4,950	t,r,p,s,b,d				w,T			
Critical Infrastructure Test Range Complex	CIT	43.547483	112.869683	4,910	t,r,p,s,b				w,T			
Dead Man Canyon	DEA	43.625067	113.059783	5,108	t,r,s,b				w,T			
Grid 3/INTEC	GRI	43.589700	112.939933	4,897	w,t,r,p,s,b,l			w,T	w,T	w,T	w,T	
Lost River Rest Area	LOS	43.548683	113.009900	4,983	t,r,p,s,b				w,T			
Materials and Fuels Complex	MFC	43.594133	112.651733	5,143	w,t,r,p,s,b,l,d			w,T	w,T	w,T		w,T
Naval Reactor Facility	NRF	43.647867	112.911233	4,847	t,r,p,s,b				w,T			
Radioactive Waste Management Complex	RWM	43.503433	113.046033	5,025	t,r,p,s,b				w,T			
Rover	ROV	43.720600	112.529567	5,008	t,r,s,b				w,T			
Sand Dunes	SAN	43.779667	112.758183	4,820	t,r,p,s,b,d				w,T			
Specific Manufacturing Capability	SMC	43.859767	112.730267	4,790	w,t,r,p,s,b,l			w,T	w,T	w,T		

w: Wind (mean speed, peak 3-second wind gust, mean direction, direction standard deviation)

t: Air temperature (mean, maximum, and minimum)

T: Air temperature (mean)

r: Relative humidity (mean)

p: Precipitation (total)

s: Solar radiation (mean)

b: Barometric pressure (mean)

l: Soil temperature and moisture (mean)

d: Snow depth

2.3.1 General and Local Climate

The physiographic features of INL result in three distinct local-climatic zones shown in **Figure 2-7**. Northwest INL is influenced by down-canyon winds and up valley flows that originate in the southeast-to-northwest trending valleys that dominate the terrain northwest of INL. Northwest INL is also influenced by the rain-shadow effects of these mountains. Southwest INL is commonly influenced by shallow down-valley winds that are associated with the Big Lost River channel and by strong pre-frontal southwesterly winds and frequent afternoon winds, also from the southwest, that result from the diurnal heating cycle.

Southeast INL is isolated from the channeling flows that commonly affect the western portions of the site. In that area, temperatures, cloud cover, and surface winds are influenced by the subtle features of topography and higher elevation along the southern perimeter of INL (Clawson et al. 2018). The proposed site for the AAI NPUF is located within the Southeast INL Climate Zone.



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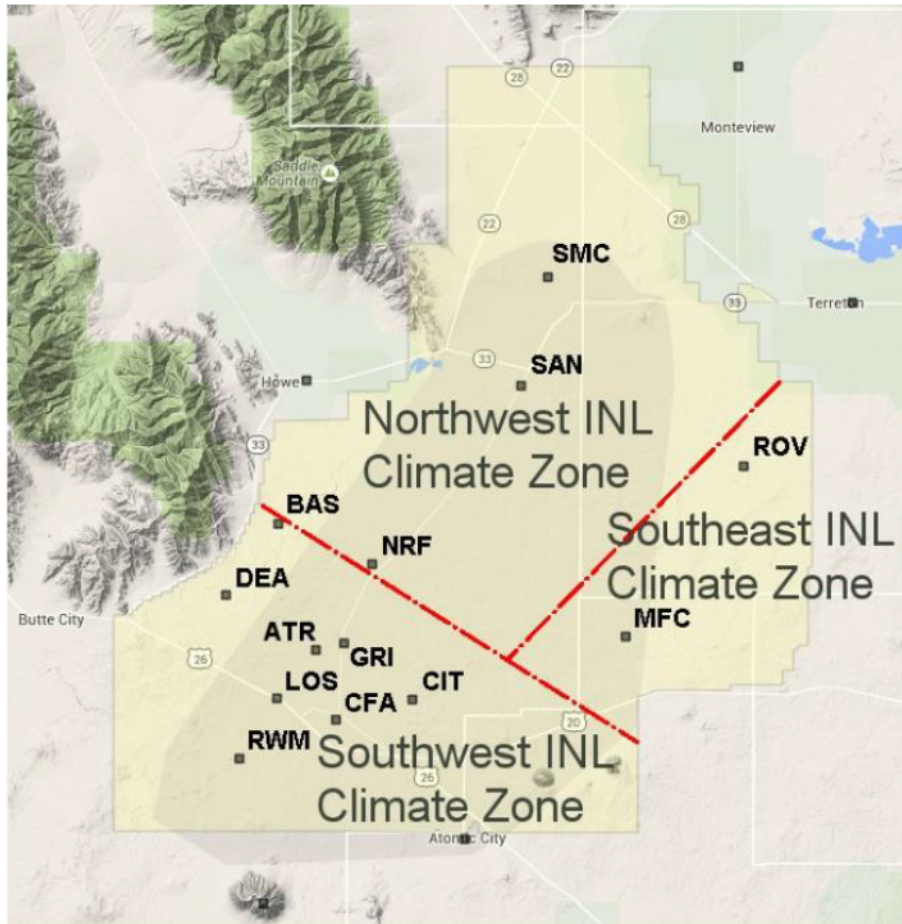


Figure 2-7: INL Climatic Zones (Clawson et al. 2018)

2.3.1.1 Wind

Wind speed and direction have been continuously monitored at stations on and surrounding the INL Site since 1950. Winds at INL typically blow from the southwest, moving up the Eastern Snake River Plane (ESRP). Winds from the northeast also are common, especially at night when movement of cool air back down the ESRP reverses the daytime flows.

A comprehensive treatment of wind conditions on the INL Site, including wind roses for the Southwest Region of the INL Site can be found on pages 31 through 86 of NOAA Technical Memorandum OAR ARL-278, "Climatology of the Idaho National Laboratory 4th edition" (Clawson et al. 2018) which is publicly available.

For ease of reference, wind rose data and tabulated mean/extreme wind data is presented in the figures and tables below.



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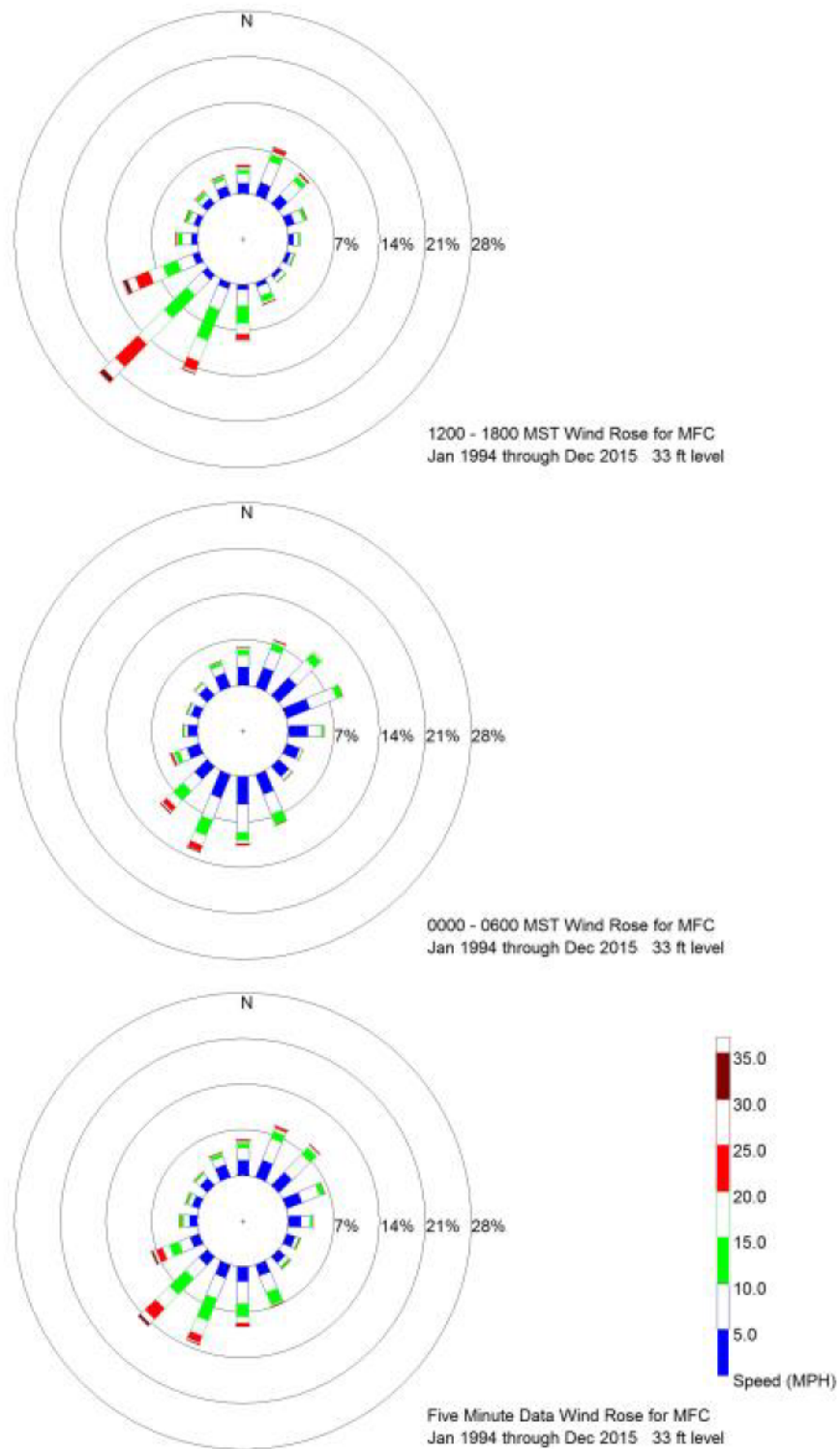


Figure 2-8: Day (top), night (middle), and all hours (bottom) wind roses for the 33 ft. level at MFC, which represents the Southeast INL microclimate zone



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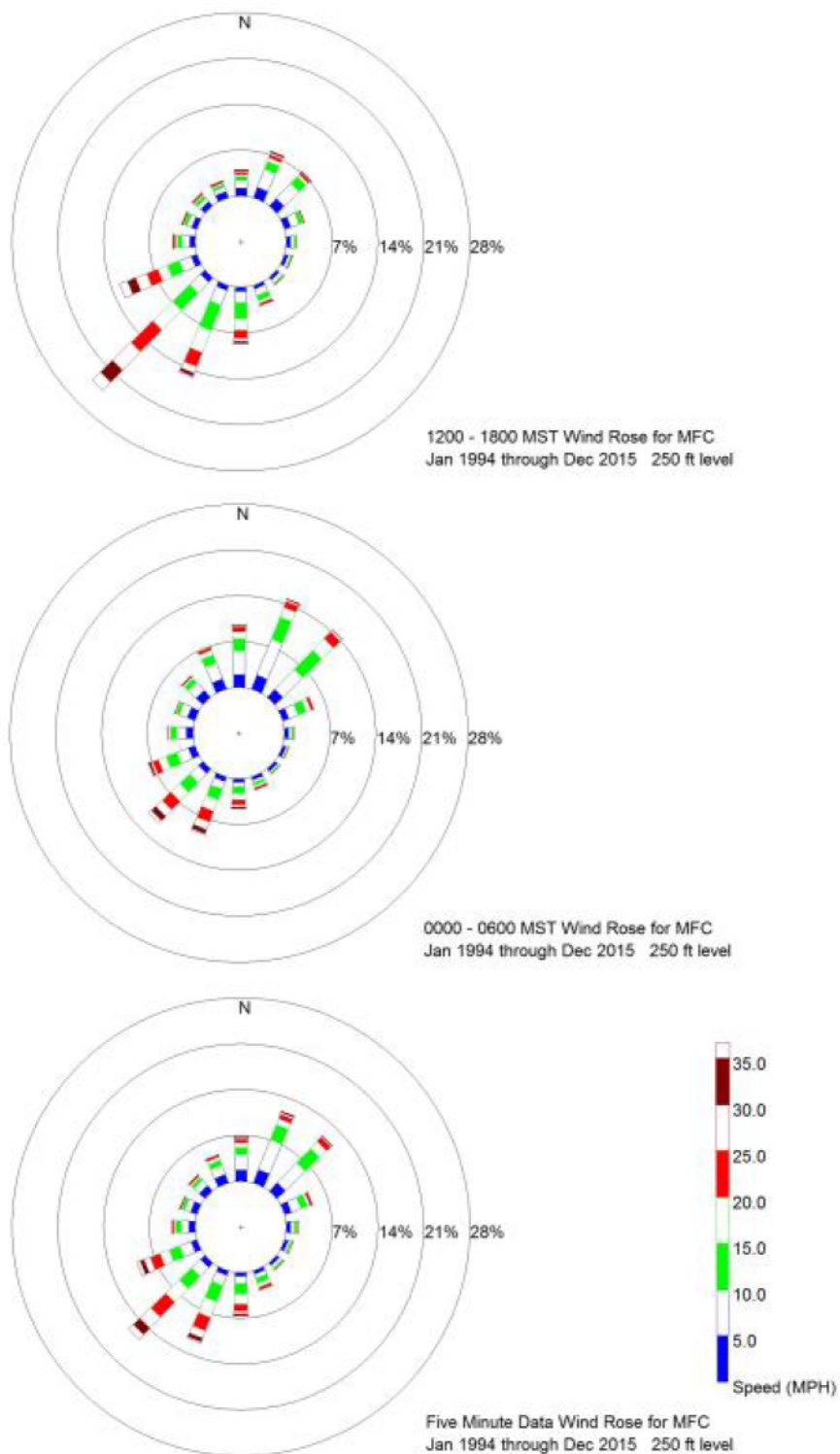


Figure 2-9: Day (top), night (middle), and all hours (bottom) wind roses for the 250 ft. level at MFC, which represents the Southeast INL microclimate zone



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Table 2-2: Monthly mean wind speed (mph) values from MFC representing the Southeast INL climatic zone (Clawson et al. 2018)

Month	Southeast INL (MFC)	
	33 ft. (mph)	250 ft. (mph)
January	7.2	10.9
February	8.2	12.1
March	10.3	14.7
April	11.0	15.4
May	11.0	15.3
June	10.9	15.2
July	10.1	14.2
August	9.6	13.7
September	9.0	13.2
October	9.1	13.4
November	8.6	12.8
December	8.0	12.1
ANNUAL	9.4	13.6

Note: Data period of records span January 1994 through December 2015.

Table 2-3: Monthly peak wind speed (mph) values from MFC representing the Southeast INL climatic zone (Clawson et al. 2018)

Month	Southeast INL (MFC)	
	33 ft. (mph)	250 ft. (mph)
January	65.3	77.8
February	73.5	75.3
March	62.0	69.2
April	71.3	84.7
May	73.8	75.2
June	67.4	82.5
July	65.5	74.4
August	70.4	75.7
September	61.1	68.6
October	62.4	69.4
November	62.4	73.1
December	63.5	72.5
ANNUAL	73.8	84.7

- Mesonet peak winds were defined by a 1-second gust duration through May 2006, and by a 3-second gust from June 2006.
- Data period of record spans January 1994 through December 2015



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NUREG-1537 states that the wind load should be based on the 100-year return period wind speed. Based on the coordinates provided in Section 2.1.1, the ASCE 7 Hazard Tool (utilizing ASCE 7-16 data) provides a 100-year mean return interval value of 90 Vmph for the 3-second gust for a Risk Category II facility. Per ASCE 7, this value is encompassing of hurricane windspeeds where applicable; accordingly, it is used to also envelope wind events categorized as dust and sandstorms for Idaho.

2.3.1.2 Temperature

During the summer, days are warm, and nights are cool; in winter, days and nights are cold. The limited rainfall, relatively dry air, and infrequent low clouds permit intense solar heating of the surface during the day and rapid radiative cooling at night. These factors combine to produce a large daily temperature range near the ground. The Centennial and Bitterroot Mountain ranges to the north keep most of the intensely cold, Canadian winter air masses from intruding into the ESRP. Occasionally, cold air spills over the mountains, producing low temperatures at INL for periods lasting a week or longer.

Temperature averages were calculated using data collected between 1950 through 2015 at the Central Facilities Area (CFA) and are summarized in Table 10 of OAR ARL-278, with recorded extremes of -43.8°C (-47°F) and 40.5°C (105°F). Average daily temperatures range from a low of -14°C (7°F) in January to a high of 23°C (73°F) in late July.

The average and extreme temperatures applicable to the facility site are presented below in Table 2-4 for convenience.

Table 2-4: Monthly and annual air temperature averages, extreme averages, and normal for CFA (Clawson et al. 2018)

Month	Average			Maximum			Minimum			Normal		
	Average ($^{\circ}\text{F}$)	High ($^{\circ}\text{F}$)	Low ($^{\circ}\text{F}$)	Average ($^{\circ}\text{F}$)	High ($^{\circ}\text{F}$)	Low ($^{\circ}\text{F}$)	Average ($^{\circ}\text{F}$)	High ($^{\circ}\text{F}$)	Low ($^{\circ}\text{F}$)	Average ($^{\circ}\text{F}$)	High ($^{\circ}\text{F}$)	Low ($^{\circ}\text{F}$)
January	16.4	30.0	7.0	27.9	37.9	19.5	5.0	22.4	-8.8	16.8	28.2	5.3
February	21.7	34.1	7.1	33.7	46.0	21.2	9.7	22.3	-7.1	21.2	32.9	9.5
March	31.9	41.5	18.4	44.2	57.2	31.4	19.6	26.6	4.5	33.3	45.6	21.0
April	42.1	49.3	35.4	56.5	68.6	46.1	27.7	33.1	20.8	42.9	57.3	28.4
May	51.5	58.5	44.9	66.8	77.7	57.8	36.3	40.8	30.2	51.8	67.1	36.5
June	60.1	67.5	54.9	76.7	86.5	69.1	43.5	49.7	39.5	60.4	77.0	43.7
July	68.6	75.7	59.1	87.7	95.5	76.1	49.5	55.9	42.0	68.8	87.9	49.6
August	66.4	70.9	60.3	85.5	90.5	75.4	47.4	53.4	43.0	67.0	86.4	47.6
September	56.2	62.3	48.6	74.7	82.3	64.1	37.8	45.2	31.9	56.5	75.1	37.9
October	43.9	51.0	38.2	60.7	71.7	52.3	27.2	35.2	20.8	43.7	60.1	27.3
November	29.6	36.3	20.3	42.2	51.5	30.8	17.0	24.3	6.4	29.3	41.7	16.9
December	18.4	26.9	7.0	29.9	37.0	20.8	7.0	17.6	-7.3	17.4	28.8	6.0
ANNUAL	42.4	45.5	37.7	57.3	61.3	52.4	27.4	30.2	22.9	42.4	57.3	27.5

Note: Data period of record spans January 1950 through December 2015. Normal period of record spans January 1981 through December 2010.

A comprehensive treatment of air temperatures at the INL Site, including tabulated data, can be found in OAR ARL-278 (Clawson et. al, 2018 Pg 86-114).

A comprehensive treatment of dewpoint temperatures at the INL Site, including tabulated data, can be found in OAR ARL-278 (Clawson et. al, 2018 Pg 143-147).



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2.3.1.3 Atmospheric Water Vapor

Atmospheric moisture has been continuously monitored at INL since 1950. A comprehensive treatment of atmospheric moisture at the INL Site, including tabulated data, can be found in OAR ARL-278 (Clawson et. al, 2018 Pg 139-147). The data is presented below in **Table 2-5** for convenience.

Table 2-5: Monthly and annual air temperature averages, extreme averages, and normal for CFA (Clawson et al. 2018)

	Monthly Values			Five-Minute Average Extreme Values	
	Average	Highest	Lowest	Maximum	Minimum
	(%)	(%)	(%)	(%)	(%)
January	86	94	70	100	19
February	81	93	62	100	9
March	69	91	43	100	9
April	56	86	29	100	8
May	51	82	26	100	7
June	45	76	21	100	5
July	35	66	14	100	4
August	35	65	14	100	5
September	42	72	20	100	5
October	57	83	30	100	8
November	75	92	48	100	10
December	84	94	67	100	14
ANNUAL	60	83	37	100	4

Note: Data period of record spans January 1994 through December 2015.

2.3.1.4 Monthly and Annual Summaries of Precipitation

Per Clawson et al:

Daily precipitation has been recorded at the CFA Thermoscreen site since 1950. It has also been recorded at various other locations for various periods of time.

The type of precipitation that occurs at INL is dependent on the season of the year. In the summer, precipitation most often falls as rain showers or thunderstorms. In the spring and autumn, rain showers or periods of rain and snow may occur. Most precipitation in the winter comes as snow. Precipitation can occur in any month, but the heaviest accumulations are generally in the spring or early summer. The most intense precipitation periods are associated with thundershowers. Total annual average precipitation is 8.38 in., which gives the INL Site the designation of an arid climate.

A comprehensive treatment of precipitation on the INL Site, including tabulated data, can be found in OAR ARL-278 (Clawson et. al, 2018 Pg 114-139). The pertinent tabulated data is found below in **Table 2-6** and **Table 2-7** for convenience.



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Table 2-6: Average total monthly and annual precipitation (water equivalent) for CFA^a (Clawson et al. 2018)

	Average (in.)	Highest (in.)	Lowest (in.)	Normal ^b (in.)
January	0.66	2.56	0.00 ^c	0.72
February	0.57	2.40	0.00	0.55
March	0.60	2.03	0.00	0.65
April	0.77	2.50	0.00	0.93
May	1.19	4.42	0.02	1.23
June	1.11	4.64	0.00	1.07
July	0.47	2.29	0.00	0.59
August	0.54	4.05	0.00	0.35
September	0.61	3.52	0.00	0.63
October	0.57	1.88	0.00	0.62
November	0.60	1.74	0.00	0.61
December	0.73	3.43	0.00	0.71
ANNUAL	8.38	14.40	3.04	8.66

a. Data period of record spans March 1950 through December 2015.

b. Data period of record spans January 1981 through December 2010.

Table 2-7: Monthly and annual average, maximum and normal snowfall totals, and daily extreme totals for CFA (Clawson et al. 2018)

	Average (in.)	Maximum (in.)	Minimum (in.)	<u>Largest Daily</u> Maximum (in.)	Normal (in.)
January	6.1	18.1	0.0	9.0	6.1
February	4.6	16.1	0.0	7.5	4.4
March	2.8	10.2	0.0	8.6	2.2
April	1.8	16.5	0.0	6.7	1.2
May	0.4	8.3	0.0	4.4	0.0
June	0.0	0.0	0.0	0.0	0.0
July	0.0	0.0	0.0	0.0	0.0
August	0.0	0.0	0.0	0.0	0.0
September	0.0	1.0	0.0	1.0	0.0
October	0.5	7.2	0.0	4.5	0.4
November	3.0	12.3	0.0	6.5	3.6
December	6.5	22.3	0.0	8.0	7.1
ANNUAL	25.5	59.7	6.8	9.0	25.0

Note: Data period of record spans March 1950 through December 2015. Normal period spans 1981 through 2010.



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Small hail has been occasionally observed in conjunction with thunderstorms at the site. Hail size is usually smaller than 1/4-inch in diameter but could range up to 3/4-inch diameter on rare occasions. No safety-significant hail damage has ever been reported at INL per the Idaho Department of Water Resources, "IDWR modeling and monitoring of the Eastern Snake Plain Aquifer," (2024).

Rime ice occurs when fog droplets impinge on objects at temperatures below freezing. The accumulation of rime ice on power lines and air intakes has not been a constraint to operations at INL. Severe glaze icing, which accompanies freezing rain, rarely occurs at INL. Glaze ice results in slippery sidewalks and roads and slows transportation. Glaze ice accumulation has been insufficient to damage power lines or communication cables at INL per the DOE, "Final Versatile Test Reactor Environmental Impact Statement Volume 1. Chapters 1-10. DOE/EIS-0542," (2022).

2.3.1.5 Seasonal and Annual Summaries of Atmospheric Stability

A comprehensive treatment of atmospheric stability on the INL Site, including tabulated data, can be found in OAR ARL-278 (Clawson et. al, 2018 Pg 105-114).

2.3.1.6 Monthly Mixing Height Data

A comprehensive treatment of atmospheric inversion conditions on the INL Site, including tabulated data, can be found in OAR ARL-278 (Clawson et. al, 2018 Pg 106-114).

2.3.2 Site Meteorology

Meteorological measurements would be available for use in responding to accidental radiological releases, other emergencies, and any other routine purposes that require access to meteorological information during the licensing period. That meteorological information would be obtained from local government weather monitoring stations that observe wind and other surface meteorological parameters on an hourly basis.

During an emergency, AAI will access real-time, hourly surface meteorological measurements (wind direction, wind speed, air temperature, and weather type) from government data sources. These sources will be consulted in sequence until reliable data is obtained:

- Internet access to hourly surface weather observations recorded at the various INL facilities: <https://niwc.noaa.inl.gov/>
- Telephone access to the NOAA INL Weather Center
- If weather observations are not available from the INL NOAA desert site stations, weather information from another station with hourly meteorological data in the site climate region would be used. The following Idaho stations would be used as listed in order of increasing distance from Meitner-1:
 - Idaho Falls Regional Airport: <https://forecast.weather.gov/data/obhistory/KIDA.html>
 - Pocatello Regional Airport: <https://forecast.weather.gov/data/obhistory/KPIH.html>

During normal operations, data would be obtained by internet to access hourly surface weather observations recorded at the INL NOAA Weather Center.



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Meteorological conditions used to evaluate operational releases and accident analyses are supported with hourly data taken by the National Oceanic and Atmospheric Administration's Idaho National Laboratory (NOAA INL) Mesonet at the Materials and Fuels Complex (MFC) sampling station. Over 4 years of hourly data were retrieved for use in plume calculations. This data covers the period from 2020-01-01 00:00:00 to 2024-12-31 23:59:59. Data from the NOAA INL Mesonet satisfies the guidance given in RG 1.23, "Meteorological Monitoring Programs for Nuclear Power Plants," Revision 1, issued March 2007, and is suitable for use in these accident analyses.

Table 2-8: Percent of time CHI/Q is equaled or exceeded: 0.50% at 150 m

Sector	Distance (m)	0-2 hours	0-8 hours	8-24 hours	1-4 days	4-30 days	Annual Average
N	150	1.48E-03	5.83E-04	5.80E-04	6.22E-04	4.18E-04	6.34E-05
NNE	150	1.45E-03	4.55E-04	4.94E-04	3.56E-04	2.17E-04	6.73E-05
NE	150	1.18E-03	4.18E-04	4.73E-04	4.18E-04	2.32E-04	6.03E-05
ENE	150	1.20E-03	3.96E-04	4.75E-04	3.66E-04	2.74E-04	4.36E-05
E	150	1.12E-03	3.51E-04	4.04E-04	2.65E-04	1.79E-04	3.15E-05
ESE	150	1.22E-03	3.87E-04	4.99E-04	5.40E-04	3.05E-04	3.10E-05
SE	150	1.21E-03	4.09E-04	4.98E-04	5.84E-04	4.52E-04	3.25E-05
SSE	150	1.30E-03	4.60E-04	4.79E-04	3.41E-04	2.46E-04	4.26E-05
S	150	1.50E-03	4.76E-04	4.91E-04	3.82E-04	2.34E-04	5.75E-05
SSW	150	1.31E-03	5.54E-04	6.55E-04	5.57E-04	4.31E-04	6.77E-05
SW	150	1.55E-03	5.60E-04	6.40E-04	6.60E-04	4.14E-04	7.42E-05
WSW	150	1.51E-03	5.37E-04	5.19E-04	3.66E-04	1.95E-04	5.66E-05
W	150	1.57E-03	5.48E-04	5.22E-04	4.05E-04	2.32E-04	4.22E-05
WNW	150	1.27E-03	4.08E-04	4.46E-04	3.85E-04	2.18E-04	2.79E-05
NW	150	1.28E-03	3.62E-04	4.13E-04	2.72E-04	1.88E-04	3.26E-05
NNW	150	1.53E-03	5.10E-04	5.22E-04	5.51E-04	2.75E-04	5.36E-05

Atmospheric dispersion factors (χ/Q) were calculated for short-term durations (0-2, 0-8, and 8-24 hours) and long-term durations (1-4 and 4-30 days and annual averages) using the methodologies of Regulatory Guide 1.145 and NOAA TM ERL-ARL-42. χ/Q values were generated across 16 wind sectors in accordance with RG 1.145 guidance. These values support routine release evaluations in Chapter 11 and postulated accident analyses, including unfiltered confinement leakage scenarios, in Chapter 13.



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The χ/Q_s used in dose assessments represent conservative values and bounding meteorological conditions.

2.4 HYDROLOGY

2.4.1 Surface Water

Surface water of the general region where the proposed site is located is detailed in the publicly available hydrologic study, "Idaho National Laboratory Materials and Fuels Complex Natural Phenomena Hazards Flood Assessment, INL/EXT-10-20572," (Sehlke and Wichlacz 2010). The relevant section on surface water is as follows:

Three streams, the Big Lost River, Little Lost River, and Birch Creek drain the mountain region to the north and west of the INL Site and currently do or historically have flowed onto INL. However, irrigation and hydropower diversions, and infiltration losses along the channel bed often deplete these streams before they reach INL. These are the only perennial natural water bodies associated with the INL Site; no perennial water bodies exist near MFC. In the northern portion of the Medicine Lodge cataloging unit, streams flow from the Bitterroot Mountains southward into Mud Lake, a 4.3 mi² reservoir located north of INL, approximately 22 miles north of MFC. The topography in the southern portion of the cataloging unit, where MFC and TREAT are located, slopes from the MFC/TREAT area towards Mud Lake; however, there are no perennial surface water bodies in this portion of the cataloging unit. The primary surface-water features in the MFC/TREAT area are the anthropogenic features (e.g., drainage canals, ditches, and discharge ponds) constructed for MFC operations and for the collection of intermittent surface runoff.

In essence, there are no surface water features within 8 km of the facility and no surface water features which will influence the design of the Meitner-1 facility.

2.4.2 Groundwater

SAR-400 describes the groundwater generally at the INL desert site as follows:

The Snake River Plain Aquifer (SRPA) is a continuous body of groundwater underlying nearly all of the ESRP. Depths to the water table from the INL land surface range from approximately 61 m (200 ft) in the northern part of the Site to more than 274 m (900 ft) in the south (Pittmann, Jensen, and Fischer 1988). Aquifer boundaries are formed by contact of the aquifer with less permeable rocks at the margins of the plain (Mundorf, Grosthwaite, and Kilburn 1964). These boundaries correspond to the mountains on the west and north and to the Snake River on the east. The aquifer is approximately 325 km (200 mi) long, 65 to 95 km (40 to 60 mi) wide and covers an area of approximately 25,000 km² (9,600 mi²). It extends from Hagerman, Idaho, on the southwest to near Ashton, Idaho, northeast of INL.

The aquifer is composed of numerous, relatively thin basaltic flows extending to depths in excess of 1,067 m (3,500 ft) below land surface. Over time, some of these flows have been exposed at the surface long enough to collect sediment. These sedimentary interbeds are sandwiched between basaltic flows at various depths. Estimates of the active thickness of the



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SRPA in the vicinity of INL are based on direct and indirect information obtained from wells and surface geophysical surveys (Smith 2002). Direct evidence of the active aquifer thickness includes temperature gradients, lithologic variations in drill cores, and aquifer pumping tests. The active thickness of the aquifer in eight wells that penetrate the full thickness of the aquifer, as determined by temperature logs, ranges from 102 m (334 ft) to 368 m (1,207 ft) (Smith, Blackwell, McLing 2001).

An estimate of the amount of water stored in the SRPA is $2.5 \times 10^{12} \text{ m}^3$ (2×10^9 acre-ft), approximately $6.2 \times 10^{11} \text{ m}^3$ (5×10^8 acre-ft) recoverable. (Kaminsky 1994; Mundorf et al. 1964; Robertson, Schoen and Barraclough 1974). Another estimate of the aquifer capacity is approximately $4.9 \times 10^{11} \text{ m}^3$ (4×10^8 acre-ft).

Regionally, most water moves horizontally through basaltic interflow zones, which are the broken and rubble zones between lava flows. Aquifer groundwater flow is primarily in a southwest direction; however, locally, the flow direction can be affected by recharge from rivers, surface water spreading areas, and heterogeneities in the aquifer. Figure 1-9 in [SAR-400] is a map of Idaho showing the location of INL, the Snake River Plain, and generalized flow lines of the SRPA (Mundorf et al. 1964). Transmissivity in the aquifer ranges from 100 to 10,000 m^2/day (1,000 to 100,000 ft^2/day) and, in places, exceeds 100,000 m^2/day ($1 \times 10^6 \text{ ft}^2/\text{day}$) (Kaminsky 1994; Mundorf et al. 1964). Yields of wells drilled in the Snake River basalts are among the largest in the nation. Irrigation wells open to less than 30.5 m (100 ft) of the aquifer yield as much as 26,500 L/min (7,000 gal/min) with slight drawdown; yields of 7,500 to 11,400 L/min (2,000 to 3,000 gal/min) are common (Kaminsky 1994; Mundorf et al. 1964).

The Big Lost River, Little Lost River, and Birch Creek terminate at sinks on or near INL and recharge the aquifer.

Recharge of the aquifer near INL originates from precipitation in the mountains to the north, northwest, and northeast of the Snake River Plain. Most of the inflow occurs from seepage of irrigation water, stream flow and canal leakage, tributary valley underflow, and direct precipitation.

Aquifer discharge is large spring flows into the Snake River and water pumped for irrigation. The aquifer discharges approximately $8.8 \times 10^9 \text{ m}^3$ (7.1 million acre-ft) of water annually to springs and rivers. Pumped water for irrigation totals approximately $2.0 \times 10^9 \text{ m}^3$ (1.6 million acre-ft) annually (Kaminsky 1994; Mundorf et al. 1964). Water levels in wells have decreased since the 1950s because of annual increases in groundwater use. Based on a modeled aquifer, if 1980 conditions of recharge and discharge are extended to the year 2010, aquifer declines of 0.6 to 2.4 m (2 to 8 ft) could be expected. However, if withdrawals were increased by 68 m^3 (2,400 ft^3) per second to irrigate another 4,000 km^2 (1 million acres), wellhead water levels might expect a decline of 3 to 15 m (10 to 50 ft) over 30 years (Garabedian 1986).

Most groundwater pumped from the aquifer is used to irrigate crops. However, because groundwater supplies the drinking water consumed within the ESRP and an alternative drinking water source or combination of sources is not available in some areas, the U.S. Environmental Protection Agency (EPA) designated the Snake River Plain Aquifer as a sole-source aquifer in



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1991, (EPA 1991) pursuant to the Safe Drinking Water Act (42 USC 300f, et seq., 40 CFR 141–149).

Perched water bodies have been detected at the INTEC, ATR Complex, TAN, MFC, and RWMC facilities. They generally relate to the presence of disposal ponds or other surface water sources.

The natural groundwater chemistry of the Snake River Plain Aquifer beneath INL is influenced by the chemical composition of groundwater originating outside of INL; precipitation, streams, rivers, and run-off; and the weathering reactions that occur as water interacts with the minerals composing the aquifer (Wood and Low 1986; Wood and Low 1988). These processes result in water containing relatively high concentrations of calcium, bicarbonate, and other components.

In addition to the above excerpt stating that the aquifer could be up to as much as 900 ft below ground level, wells near the proposed site indicate that groundwater is around 650 feet deep (SAR-420). During the geotechnical investigations performed for the site, borings and test pits were advanced using techniques that allow groundwater observation, but groundwater seepage was not encountered within the maximum drilling and excavation depth of 55 ft.

There are no impacts to groundwater from any of the accidents analyzed (see Chapter 13). Although improbable, in the case that liquid effluent was unintentionally released from the AAI facility and was able to permeate the vast distance of basalt subsurface material and was able to make its way down to the aquifer, the effect on the general public would be non-existent to negligible. This is due to:

- Any unintentional liquid effluent release would be small.
- The confinement structure in which the reactors are located prevent the unmitigated release of effluent in the event of a postulated accident and the potential consequences of such accidents are bounded by the accident analyses in Chapter 13 and would not exceed the 1 rem (0.01 Sv) TEDE accident dose criterion outlined in 10 CFR 50.34(a)(1).
- There is no neutron activation of groundwater from operating the AAI facility.
- Starting in 1952 and occurring for several decades, the Federal government used injection wells to place industrial and low-level radioactive liquid waste into the aquifer as a means of disposal. Over the decades of disposal, it's been determined that key isotopes of interest such as tritium have migrated less than five miles from discharge points, and others such as Sr-90 have shown no detectable migration through the aquifer (USGS 1974). The impact of this historical activity bounds any unintentional effluent release from Meitner-1.

Due to historical waste disposal practices within the aquifer, INL has created an extensive wellhead protection program and groundwater monitoring program (Davis 2008). Any unintentional release would be discovered and tracked.

2.4.3 Floods

NUREG-1537 does not specifically define flooding. Though strictly not applicable guidance, within Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants, LWR Edition," Revision 3, issued May 2001, the NRC defines a flood as the following:



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A "flood" is defined as any abnormally high-water stage or overflow from a stream, floodway, lake, or coastal area that results in *significantly detrimental effects* (emphasis added).

MFC's historical records were reviewed and (while not strictly meeting this definition of flooding) it was determined that the largest known historical flood to occur during MFC operations was approximately a 1-in. precipitation event that occurred in 1963. This flood was caused by precipitation runoff over frozen ground. The primary impact was to site access roads.

Following a "flood" event on the site as described above, it is unlikely that water could enter the building and reach the reactor or any SSCs which prevent accidents. The facility will have appropriate grading and drainage to account for a 100-year precipitation event. Utilizing Equation 2 of Clawson, et al., which draws from a combined record of 765 years of data, the 100-year precipitation event is 2.65 inches in a 24-hour period for summertime convective storms. NOAA ATLAS 14 Point Precipitation Frequency Estimates from the Hydrometeorological Design Studies Center, which uses more recent data, provides a value of 2.08 in, and 2.31 in, for a 24-hour, and 48-hour period, respectively, for the 100-year precipitation event. Additional discussions pertaining to flood impacts being mitigated for critical areas of the facility is addressed in Chapter 3.

2.5 GEOLOGY, SEISMOLOGY, AND GEOTECHNICAL ENGINEERING

Per NUREG-1537, this section details the seismic and geologic characteristics of the AAI facility site and the region surrounding the site. It is noted that the guidance states, "The detail and extent of the considerations should be commensurate with the potential consequences of seismological disturbance, both to the reactor facility and to the public from radioactive releases." Using this graded approach, AAI provides the requested information with the appropriate level of detail in the sections below.

2.5.1 Regional Geology

SAR-400 describes the regional geology at the INL desert site as follows:

INL is located on the Eastern Snake River Plain. The ESRP is the eastern part of the Snake River Plain physiographic province (see Figures 1-10 and Figures 1-11 [in SAR-400]), a broad low-relief basin floored with basaltic lava flows and terrigenous sediments (Kirkham 1931; Morgan 1972; Armstrong, Leeman, and Malde 1975; Leeman 1982; Pierce and Morgan 1992; Hackett and Smith 1992). It is approximately 80 to 100 km (50 to 62 mi) wide and over 560 km (348 mi) long. The ESRP extends in a broad arc from the Idaho-Oregon border on the west to the Yellowstone Plateau on the east. It transects and sharply contrasts with the mountainous country of the Northern Basin and Range province and the Idaho batholith (see Figure 1-10 [in SAR-400]). Surface elevations on the Snake River Plain decrease continually and gradually from approximately 2,000 m (6,562 ft) near Yellowstone, to approximately 650 m (2,132 ft) near the Idaho-Oregon border (Malde 1991). Summits of mountains surrounding the plain range up to 3,660 m (12,000 ft) in elevation, producing a maximum elevation contrast of about 2,150 m (7,050 ft).

The Northern Basin and Range Province, which bounds the ESRP on the north, is composed of north to northwest trending mountain ranges (with peaks up to 3,660 m [12,000 ft] high)



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separated by intervening basins (1,400 to 1,600 m [4,593 to 5,741 ft] in elevation) filled with terrestrial sediments and volcanic rocks. Individual mountain ranges in the vicinity of the Snake River Plain are up to 200 km (124 mi) long and 30 km (19 mi) wide. They are sharply separated from the intervening basins by late Tertiary to Quaternary normal faults (Pierce, and Morgan, 1992) The basins are 5 to 20 km (3 to 12 mi) wide and grade onto the ESRP.

The Yellowstone Plateau, which occurs at the northeastern end of the ESRP, is a high volcanic plateau underlain by Pleistocene rhyolitic volcanic rocks (see Figure 1-10 and Figure 1-11[in SAR-400]). Its elevation of approximately 2,100 to 2,600 m (6,891 to 8,529 ft) is significantly higher than that of the ESRP, but not as high as the mountain summits of the Northern Basin and Range Province. The plateau is characterized by extremely high heat flow (Morgan et al. 1977); very high temperatures at shallow depths (Smith, and Christiansen 1980); abundant hot spring, fumarolic, and geyser activity; and landforms controlled by thick rhyolitic lava flows (Christiansen 1984). These characteristics reflect the recency of volcanic activity in the area, 2 million years ago to several tens of thousands of years ago (Christiansen 1984).

The Idaho Batholith, which adjoins the northern margin of the Central Snake River Plain, is characterized by a large area of irregular mountainous terrain (Thelin and Pike 1991) with peaks ranging in elevation from 2,400 to 3,700 m (7,874 to 12,139 ft). The batholith is composed of large volumes of granitic rock emplaced by igneous intrusion into the upper crust of Central Idaho during Mesozoic and early Cenozoic time (60 to 160 million years ago). Streams dissecting the area usually have dendritic drainage patterns reflecting the homogeneous nature of the underlying granitic rocks that constitute the batholith (see Figures 1-10 and Figures 1-11 [in SAR-400]).

The mountains northwest of the ESRP and near INL are composed of thick sequences of late Precambrian through Pennsylvanian sedimentary strata, mostly limestones. They occur within westward-dipping thrust sheets that formed during east-directed Mesozoic compressional tectonism (Skipp, and Hait 1977; Link et al. 1988).

The ESRP formed as a result of interaction of the North American tectonic plate with a rising plume of anomalously hot mantle rocks, the so-called Yellowstone Hotspot. As the North American plate moved southwestward, its interaction with the hotspot produced the low-elevation, low-relief volcanic province that is the ESRP. The crust of the INL area was located directly above the hotspot approximately 4.3 to 6.5 million years ago. Since that time, as the area moved off the hotspot at approximately 4 million years ago, the crust has subsided to form an elongated northeast-trending basin in which two types of materials have accumulated to a total thickness of 1 to 2 km (0.6 to 1.2 mi). These two types of materials are (1) basaltic lava flows that were generated by residual heat in the upper mantle beneath the ESRP and that rose to the surface to erupt into the subsiding basin, and (2) deposits of sedimentary material that have formed interbeds between lava flows.

The sediments are composed of fine-grained silts that were deposited by wind action; silt, sand, and gravel deposited by streams such as the Big Lost River; and clay, silt, and sand deposited in lakes such as Mud Lake and its much larger Ice Age predecessor, Lake Terretion. The accumulation of these two types of rocks in the ESRP has resulted in the observed sequence of



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interlayered basaltic lava flows and sedimentary interbeds. Basaltic volcanism on the ESRP is a sporadic process. During the long periods of quiescence between volcanic periods, sediments accumulated to thicknesses of <1 to >60 m (<3.3 to >197 ft). During short periods of volcanic activity, several lava flows commonly accumulated to thicknesses reaching several tens of meters (Kuntz 1992; Hackett, and Smith 1992). Basaltic lava flows were erupted from vents concentrated in volcanic rift zones and along the central axis of the ESRP (the Axial Volcanic Zone) (see Figure 1-12 [of SAR-400]). The basalts, along with intercalated sediments, are underlain by a great thickness of rhyolitic volcanic rocks that were erupted when the area was over the Yellowstone Hotspot, before 4 million years ago. Surface rocks on and near INL today are mostly lava flows in the upper (youngest) part of the basaltic sequence, ranging in age from <15,000 to approximately 1.4 million years [see Figure 2-10 herein] (Kuntz et al. 1994).

Several Quaternary rhyolite domes occur along the Axial Volcanic Zone near the south and southeast borders of INL (Hackett and Smith 1992). Their names and ages are Big Southern Butte (300,000 years), a rhyolite dome near Cedar Butte (400,000 years), East Butte (600,000 years), Middle Butte (age unknown), and an unnamed butte near East Butte (1.2 million years) (see Figure 1-12 [in SAR-400]). Paleozoic carbonate rocks (limestones), Late-Tertiary rhyolitic volcanic rocks, and large alluvial fans occur in limited areas along the northwest margin of INL [see Figure 2-10 herein] (Kuntz et al. 1994)

A wide band of Quaternary mainstream alluvium (unconsolidated gravels and sands) extends along the course of the Big Lost River from the southwestern corner of INL to the Big Lost River sinks area in north-central INL. Lacustrine (lake) deposits of clays and sands deposited in Ice Age Lake Terreton occur in the northern part of INL. Recent analysis of several soil/stratigraphic sites near the Birch Creek Playa and TAN indicate that the crescent-shaped ridges (lunettes) that nearly encircle the Birch Creek Playa are not depositional features of Lake Terreton, as previously described, but are features formed by fine-grained eolian deposition around the playa. These lunettes are composed of sand-sized aggregates of clay particles and mark the extent of the Birch Creek playa during the Holocene. The unique nature of these eolian features indicates a long Holocene history of alternating wetting and drying, suggests that the Lake Terreton high stand was lower (up to 20 ft) and older (2,000 years rather than 400 years) than previously thought (Ostenn et al. 1999). Elsewhere on INL, the basaltic lava flows are variably covered with a thin veneer of eolian silt (loess), which can be up to several meters thick, but mostly range from 0 to 1 or 2 m thick (Kuntz et al. 1994)

TAN is located on Late-Quaternary to Holocene lake deposits (silts and clays) of Lake Terreton. ATR Complex is located on alluvial gravels and sands deposited by the Big Lost River. The soils at MFC are composed of eolian silt and sandy gravel. The gravel is composed of weathered basalt cinders and scoria fragments similar to the debris at the top of basalt flows.



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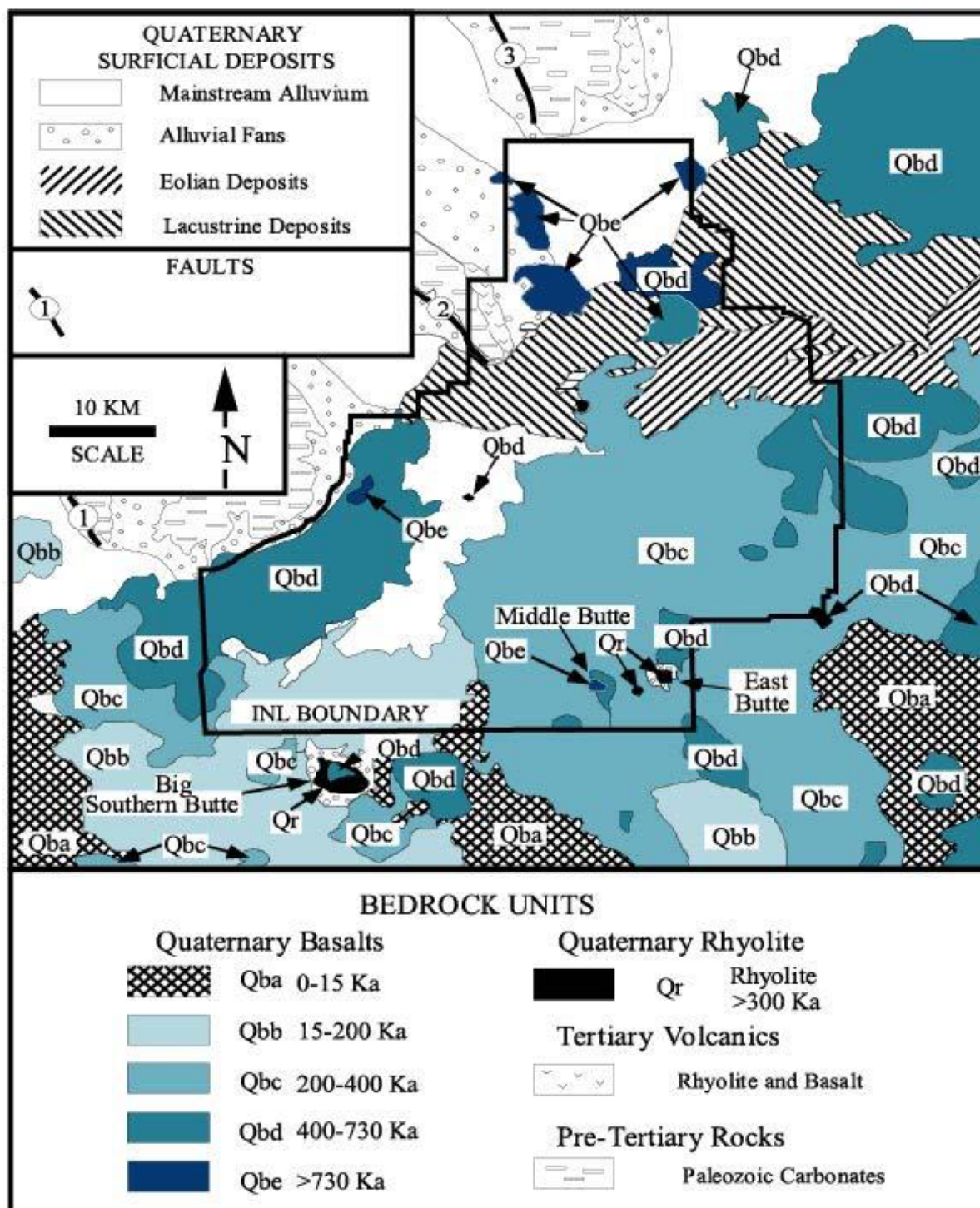


Figure 2-10: Geologic map of INL and adjacent areas (SAR-400 Chapter 1)



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2.5.2 Site Geology

The local geology of the AAI facility site is similar to the regional geology of the ESRP, with elevations ranging from 5,100 to 5,200 ft (1,555 to 1,585 m). The soils at MFC are composed of eolian silt and sandy gravel. At the AAI Site, basaltic lava outcrops irregularly, with some shallow surface deposits of fine-grained soils. A test pit (14 in total) and core bore (51 in total) campaign were carried out with borings reaching down to 55 ft. The campaign allowed a detailed rock classification considering weathering, compressive strength, discontinuation, and rock quality designation (RQD). It is worth noting that the recorded compressive strength was found to be suitable, between 3,500 psi (medium strong) and 15,400 psi (very strong). Similarly, the RQD was found to be in average of 71%, denoting an adequate rock quality despite volcanic rocks' tendency to fracture. The results of the campaign are used to inform the foundation design.

2.5.3 Seismicity

SAR-400 describes the local seismicity that is applicable to the proposed site:

Earthquakes having magnitudes (M) greater than 2.5 for the time period 1872-2004 are located around, but generally do not occur within, the ESRP (WCFS 1996). The historical earthquake record for the Snake River Plain and adjacent Basin and Range Province extends back to November 10, 1884, the date of the first documented earthquake, an event with an estimated magnitude of 6.3 that occurred near Paris, Idaho. By 2004, more than 7,800 earthquakes of magnitude 2.5 and greater had been documented within the region. Thirty-seven earthquakes with magnitudes of at least 5.5 have occurred in the Intermountain Seismic Belt since 1990. Nineteen of these were at least 6.0; two were stronger than 7.0.

In addition to historic earthquakes, small magnitude earthquakes of magnitudes less than 1.5 have been detected within the ESRP by INL seismic stations. The INL Seismic Monitoring Program began in December 1971 when one seismic station was installed at INL. Since that time, additional seismic stations have been added to the network to cover potential earthquake sources significant to INL. The INL seismic network currently operates 27 seismic stations. (Payne et al. 2005) The INL Seismic Monitoring Program has detected 30 small magnitude earthquakes from 1972 to 2004 within or near the boundary of the ESRP. This low-level seismicity is consistent with infrequent, small magnitude earthquakes ($M \leq 1.5$) that may be characteristic of ESRP seismicity.



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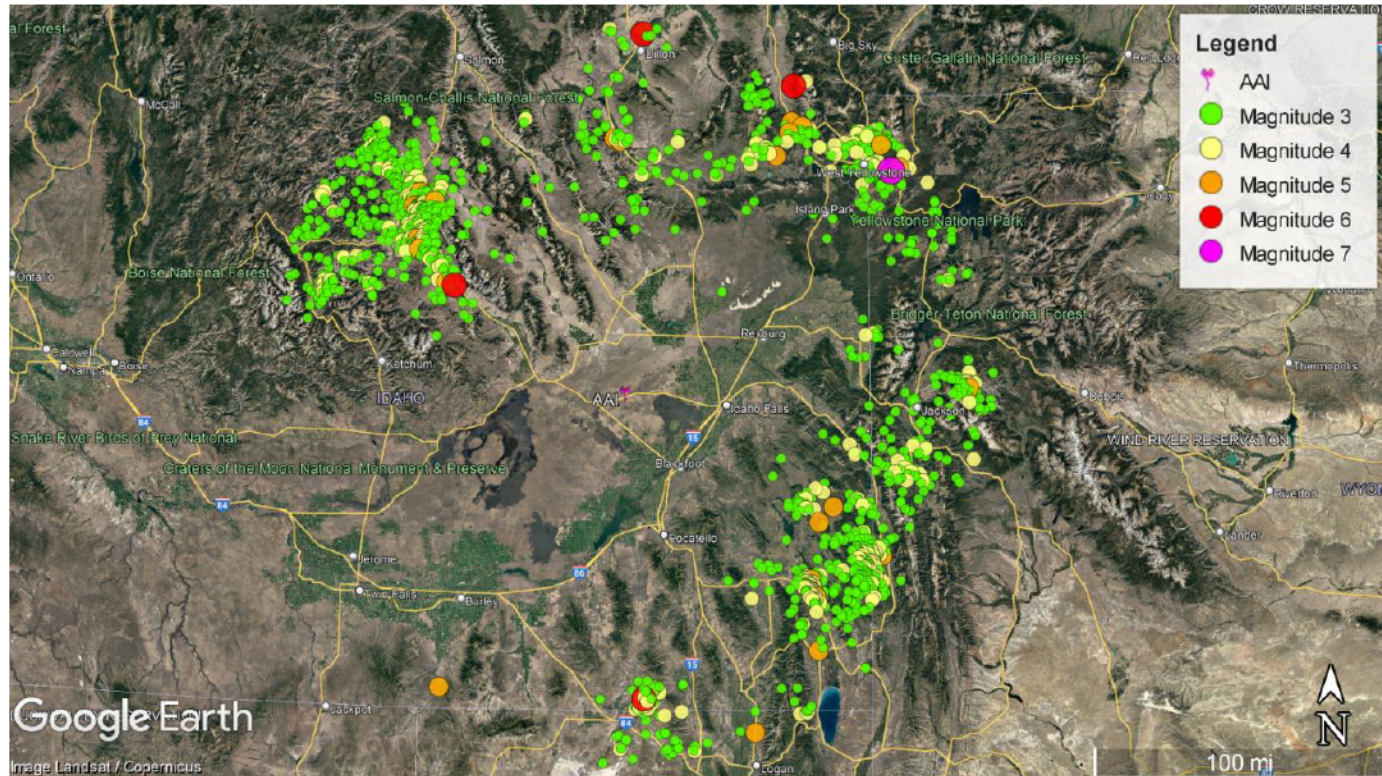


Figure 2-11: Locations of earthquakes of magnitudes 3.0 and greater occurring from 1872-2023 within 200 km of the proposed Meitner-1 facility (USGS)

Table 2-10 in Appendix A contains a list of all earthquakes in Figure 2-11 which have an intensity greater than magnitude 3.0 (Richter) and which have been recorded within 200 kilometers of the proposed facility site.

2.5.4 Maximum Earthquake Potential

A Senior Seismic Hazard Analysis Committee (SSHAC) Level 3 Probabilistic Seismic Hazard Analysis (PSHA) was performed for several Idaho National Laboratory (INL) sites and documented in Idaho National Laboratory Statewide SSHAC Level 3 Probabilistic Seismic Hazard Analysis (INL/RPT-22-70233), published in November 2022 (INL 2022). The study, conducted between January 2019 and November 2022, provides site-specific ground motion assessments for five INL facilities: the Advanced Test Reactor, Carbon Free Power Project, Idaho Nuclear Technology and Engineering Center, Materials and Fuels Complex, and Naval Reactors Facility. Seismic hazard results include the following:

- Geometric mean horizontal spectral accelerations with 5 percent critical damping for 20 spectral frequencies between 100 and 0.10 Hz (oscillator periods between 0.01 to 10.0 seconds)
- Mean hazard curves and fractiles for each oscillator frequency at annual frequencies of exceedance (AFE) of 10⁻² to 10⁻⁸ per year (return periods of 100 to 100,000,000 years)
- Deaggregations to segregate and identify relative contributions from magnitude, distance, and epsilon (number of standard deviations) for spectral response frequencies and peak
- Ground accelerations at mean annual frequencies of exceedance



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- Hazard calculations for generation of vertical response spectra
- Mean uniform response spectra (UHRS) for 5 percent damping for different AFEs and ground-motion response spectra (GMRS) in the form of a design response spectra (DRS)
- Sensitivity analysis for seismic source characterization and ground motion characterization models at different structural periods

As MFC is near the Meitner-1 site, its data is relevant to the site, so ground motion assessment results are presented below from its probabilistic seismic hazard data.

In summary, a generic rock profile for the host-region is used in the ground motion model and site-specific adjustment factors are applied to these values to generate hazard results for each individual INL site. Based on deaggregation histograms, the largest contribution to the total hazard at MFC for AFE 10-4 (return period of 10,000 years) is from 6.8 to 7.2 magnitude events within 31 miles of the site, which is likely an earthquake located along the Lost River or Lemhi fault. For very long spectral periods (over 7.5 seconds), the largest hazard contribution at the MFC for AFE 10-4, AFE 10-5 and AFE 10-6 are regional and Cascade interface earthquakes. MFC's DRS was calculated for seismic design categories 3, 4, and 5 (SDC-3, SDC-4 and SDC-5) using the UHRS and a design factor, which are based on the SDCs.

Given Meitner-1 is to be evaluated at return period between 4×10^{-4} and 2×10^{-4} per the ASCE 7 risk-targeted maximum considered earthquake (MCEr), the closest seismic acceleration from the INL SSHAC Level 3 is that of an SDC-3, however this level of SDC assumes a higher risk between 4×10^{-4} and 1×10^{-4} . The maximum acceleration for an SDC-3 at MFC (ground surface, 5% damped) is 0.15g horizontally at a period of 0.2s. The corresponding peak ground acceleration is 0.06 g horizontally. Computing a DRS for a return period between 4×10^{-4} and 2×10^{-4} would yield lower accelerations given the lower risk. Despite this, the seismic parameters obtained from ASCE 7 and discussed in Section 2.5.5 are comparable to the SDC-3 values from the INL SSHAC Level 3, which underlines the high level of conservatism in the ASCE 7 standard.

2.5.5 Vibratory Ground Motion

The ESRP has been characterized as a seismically quiet (aseismic) region in contrast to the surrounding seismically active region of the northern Intermountain Seismic Belt. **Figure 2-11** shows the locations of earthquakes within the northern Intermountain Seismic Belt that surround the ESRP and extend westward into central Idaho just north of the ESRP. The region that extends into central Idaho has been characterized as the Centennial Tectonic Belt (Smith, and Arabasz 1991). The Intermountain Seismic Belt is a seismically active region extending from Northern Arizona through Utah, along the Idaho-Wyoming border, terminating in Northwestern Montana (Stickney, and Bartholomew 1987).

The AAI facility's ground considered to be Soil Class C, or very dense soil and soft rock, however given the soil layer is shallow, the foundation will reside on the basalt bedrock found at the site. A shear wave velocity survey was conducted on the site and yielded an average velocity of 2,216 feet per second. Based on the results of the geophysical survey and using the ASCE 7-16 standard, the following seismic parameters were obtained in **Table 2-9**.



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Table 2-9: ASCE 7 Seismic parameters for the proposed AAI NPUF site

Parameter	Value	Parameter	Value
Site Soil Class C			
S_S	0.239	S_{D1}	0.109
S_1	0.109	T_L	6
F_A	1.3	PGA_M	0.132
F_V	1.5	PGA	0.102
S_{MS}	0.31	F_{PGA}	1.298
S_{M1}	0.163	I_e	1
S_{DS}	0.207	C_v	0.739

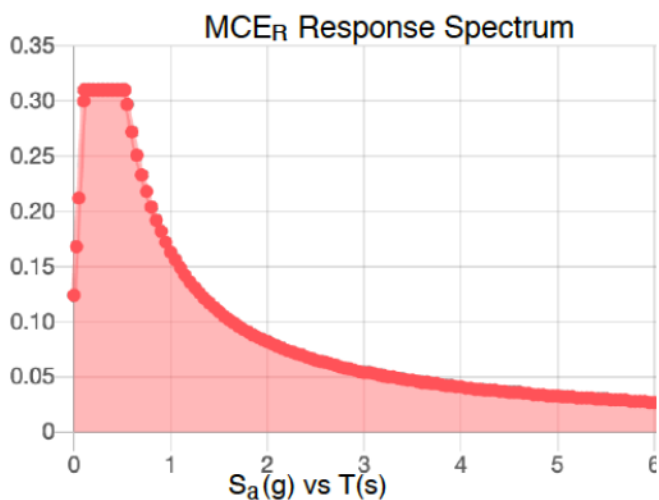


Figure 2-12: ASCE 7-16 MCE_R Response Spectrum for Meitner-1

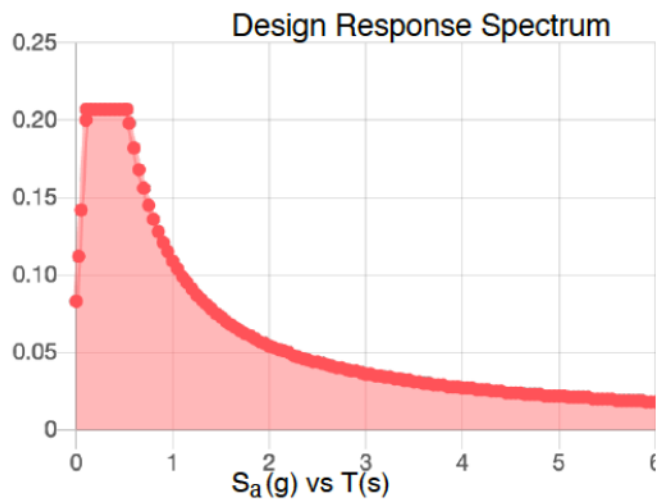


Figure 2-13: ASCE 7-16 Design Response Spectrum (Seismic Design Category B Facility) for the Meitner-1



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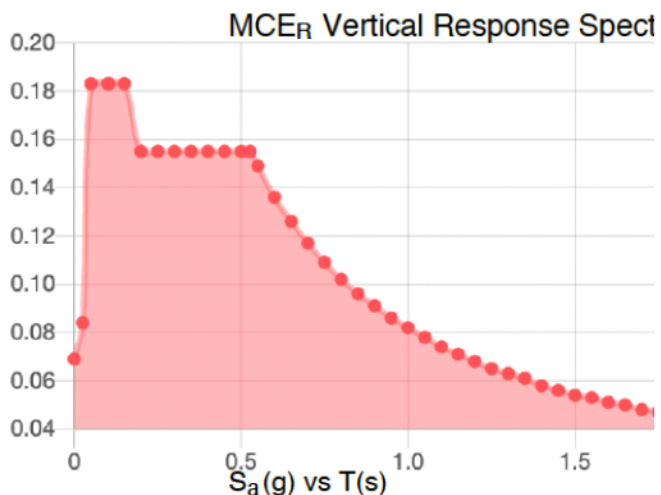


Figure 2-14: ASCE 7-16 MCE_R Vertical Response Spectrum for Meitner-1

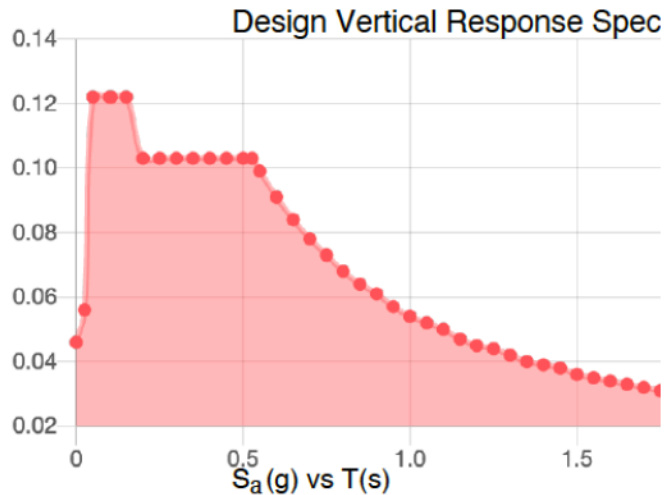


Figure 2-15: ASCE 7-16 Design Vertical Response Spectrum (Seismic Design Category B Facility) for Meitner-1

2.5.6 Surface Faulting

There is no evidence of faults at or near the site, and no known earthquakes have occurred within 5 miles (8 km) of the site. Therefore, it is unnecessary to accommodate surface faulting in the Atomic Alchemy NPUF design.

2.5.7 Liquefaction Potential

Liquefaction is a process by which water-saturated sediment temporarily loses strength and acts as a fluid when exposed to strong seismic shaking. The shaking causes the grains to lose grain-to-grain contact, so the sediment tends to flow. Liquefaction most likely occurs in loose sandy soil with a shallow water table (which is common for areas around floodplains or bays). Liquefaction often leads to overpressured fluids that can erupt to the surface, forming features known as sand blows.

The site has soils that are classified by the ASCE as “Class C” or “soft rock” per the online ASCE hazards tool. Groundwater is greater than 600 feet deep (SAR-420), precluding any interaction of the water table with the dry, arid soil.

Site-specific geotechnical assessment (boreholes, etc.) was carried out to support construction confirmed the suitability of the subsurface characteristics where the facility will reside. Additionally, the borings and test pits were advanced using techniques that allow groundwater observation, but groundwater seepage was not encountered within the maximum drilling and excavation depth of 55 ft. This coupled with Meitner-1’s foundation being established on bedrock and the extensive and publicly available data for the INL desert site indicates that liquefaction is unlikely to occur.



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2.5.8 Volcanic Hazards

The potential for future volcanism and associated volcanic hazards at the INL Site are a consequence of the volcanic history of the ESRP. Eruptions of silica- and iron-rich (mafic) magmas have occurred in the ESRP as a result of the Yellowstone hotspot in conjunction with crustal thinning associated with Basin and Range Province extension of the crust. Explosive silica-rich, caldera-forming eruptions began about 16 million years ago, in association with the hotspot's initial position centered on the common borders of Idaho, Oregon, and Nevada. The hotspot is now located beneath the Yellowstone Plateau, which has had three major caldera eruptions over the last 2 million years. Following cessation of hotspot-related caldera-forming eruptions, mild effusive eruptions of predominantly iron-rich magmas from relatively recent basaltic volcanoes have covered the ESRP. Basaltic volcanic activity on the ESRP dates from 4 million years ago to as recently as 2,100 years ago. Recent eruptions produced basalt lava flows from 2,100 to 15,000 years ago at Craters of the Moon National Monument and Preserve and at other locations south of the INL Site (SAR-400, 43).

Volcanic hazards at the INL Site have been evaluated for possible hazard phenomena associated with the different types of silica- and iron-rich eruptions. Hazards associated with explosive, silica-rich caldera-forming eruptions, similar to those that have occurred at the Yellowstone Plateau, are considered to be negligible for the INL Site since the locus of this activity is now in the Yellowstone Plateau. Volcanic ashfalls could occur at the INL Site from eruptions as far away as the Cascade Mountains. A 0.001 annual probability was calculated for a 0.4-inch-thick ash deposit forming at the INL Site from a Cascade volcano eruption (NRC 2004). Rhyolite dome volcanoes, such as Big Southern Butte or East Butte, also have the potential to produce ash-fall deposits. The estimated recurrence of silicic volcanism within the volcanic axial zone is 4.5×10^{-6} per year (AREVA 2010). In addition, eruptions from the Yellowstone Volcanic Zone could produce appreciable ash-fall deposits at the INL Site, in the unlikely event that regional winds were directed to the southwest during a potential small-volume eruption or the size of the eruption overwhelmed prevailing winds (Mastin et al. 2014). Because prevailing winds historically do not blow ash towards INL, less than 5 cm of Yellowstone ash have been found on the ESRP as far as INL (SAR-400, 42).

Basaltic volcanism has occurred as recently as 2,100 years ago in the Great Rift, approximately 30 km southwest of the INL Site (Hackett and Smith 1994, 1). Other basaltic lava flows near the southern INL Site boundary erupted about 5,000 and 13,000 years ago (SAR-400, 43). Based on the probability analysis of the volcanic history in the Axial Volcanic Zone and volcanic rift zones, the conditional probabilities that MFC and the south-eastern INL Site would be affected by basaltic volcanism would be once in 16,000 and 40,000 years or longer, respectively (Hackett et al 2002). The estimated probability of volcanic impact is less than once every million years or longer for the northern INL Site because past volcanism was older and less frequent (DOE 1995).

A study performed in 2018 shows a 30 percent probability of partial inundation of the INL Site given an eruption on ESRP, with an annual inundation probability of 8.4×10^{-5} to 1.8×10^{-4} . An annual probability of 6.2×10^{-5} to 1.2×10^{-4} is estimated for the opening of a new eruptive center within the INL Site boundaries (Gallant et al. 2018). The INL SSHAC Level 3 Probabilistic Volcanic Hazard Assessment (PVHA) found the mean annual frequency of volcanic hazards originating from lava flow inundation at INL is 1.2×10^{-6} (INL 2024).



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Review of the report also indicates that hazards are grouped into proximal hazards, which are within the ESRP, and distal hazards, which are over 62 miles away from the INL Site and outside of the ESRP. The proximal location of the south MFC, one of the nine locations evaluated by the PVHA is of interest due to being in the vicinity of Meitner-1. The recent performance of this work also makes the PVHA a particularly relevant resource to understand the proximal volcanic hazard risks for Meitner-1.

The PVHA indicates that tephra fallout is a concern that ranges from $1.30 \times 10^{-4} \text{ kg/m}^2$ to 9.89 kg/m^2 . This translates to $2.6 \times 10^{-5} \text{ lb/ft}^2$ to approximately 2.0 lb/ft^2 , well within the initial snow loading considered in Chapter 3 for the facility. Furthermore, degradation of equipment due to tephra fallout can be mitigated through maintenance plans and protective coatings for structures, systems, and components. Dike emplacement is another concern as it relates to magma traveling through a fracture in the Earth's crust through a high-aspect-ratio vertical or near-vertical conduit, from a magma source. The emplacement of dikes is a stochastic process, influenced by factors such as preexisting fault structures, magma overpressure, rock composition, and the timing of eruptions. However, the likelihood of dike emplacement on the site is low, given Meitner-1's small size and its distance from areas of concentrated basaltic events. Based on the thorough analyses documented in the PVHA and the small footprint of Meitner-1, significant proximal volcanic hazards are not considered credible for the site.

2.6 REFERENCES

- American National Standards Institute (ANSI). 1986. ANSI/ANS-15.7-1977 (R1986), "Research Reactor Site Evaluation." Withdrawn. American Nuclear Society (ANS).
- American National Standards Institute (ANSI). 2015. ANSI/ANS-15.16-2015, "Emergency Planning for Research Reactors." Approved 2/11/15. American Nuclear Society ANS.
- AREVA Enrichment Services, LLC. (2010). "Eagle Rock Enrichment Facility—Environmental Report (Rev. 2), Appendix D: Volcano Hazard Analysis." U.S. Nuclear Regulatory Commission. Agencywide Documents Access and Management System Accession No. ML101320533.
- Armstrong, R.L., W. P. Leeman, and H. E. Malde, 1975 "Quaternary and Neogene Volcanic Rocks of the Snake River Plain." *American Journal of Science*, Vol. 275: 225–251.
- Christiansen, R.L. 1984. "Yellowstone Magmatic Evolution: Its Bearing on Understanding Large-Volume Explosive Volcanism." *Explosive Volcanism: Inception, Evolution, and Hazards*. National Academy Press: 84–95.
- Clawson, K.L. et al. 2018. OAR ARL-278 "Climatography of the Idaho National Laboratory 4th edition." NOAA Technical Memorandum.
- Davis, Linda C. 2008. "An Update of Hydrologic Conditions and Distribution of Selected Constituents in Water, Snake River Plain Aquifer and Perched-Water Zones, Idaho National Laboratory, Idaho, Emphasis 2002–05." U.S. Geological Survey Scientific Investigations Report 2008-5089.
- Environmental Protection Agency (EPA). 1991. 56 FR 194, "Sole Source Designation of the Eastern Snake River Plain Aquifer, Southern Idaho; Final Determination," *Federal Register*. (October 7).



CHAPTER 2 SITE CHARACTERISTICS

AAI-PSAR-02 (NP)

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Page 2-39

- Gallant, Elisabeth, J. Richardson, C. Connor, P. Wetmore, and L. Connor. 2018. "A New Approach to Probabilistic Lava Flow Hazard Assessments, Applied to the Idaho National Laboratory, Eastern Snake River Plain, Idaho, USA." *Geology*. 46 (10): 895–898.
- Garabedian, S.P. 1986. "Application of a Parameter Estimation Technique to Modeling the Regional Aquifer Underlying the Eastern Snake River Plain, Idaho." U.S. Geological Survey. Water Supply Paper 2278: 60.
- Hackett, W.R., and R.B. Smith. 1992. "Quaternary Volcanism, Tectonics, and Sedimentation in the Idaho National Engineering Laboratory Area." J. R. Wilson, ed., *Field Guide to Geologic Excursions in Utah and Adjacent Areas of Nevada, Idaho, and Wyoming*. Geological Society of America, Rocky Mountain Section. Utah Geological Survey Miscellaneous Publication MP-92-3: 1–18.
- Hackett, W.R., and R.B. Smith. 1994. "Volcanic hazards of the Idaho National Engineering Laboratory and adjacent areas." Idaho National Engineering Laboratory.
- Hackett, W. R., R.B. Smith, and S. Khericha. 2002. "Volcanic hazards of the Idaho National Engineering and Environmental Laboratory, southeast Idaho." In *Tectonic and Magmatic Evolution of the Snake River Plain Volcanic Province*. Idaho Geological Survey Bulletin 30: 461–482.
- Idaho National Laboratory (INL). 2010. TEV-905, Rev. 0, "Technical Evaluation of INL Climatology Data for SAR-400 Chapter 1 2010 Annual Update." (September).
- 2017. SAR-420, Rev. 1, "Chapter 2—Site Characteristics—TREAT Facility."
- 2021. SAR-400, Rev. 14, "Chapter 1—Site Characteristics—INL Standardized Safety Analysis Report."
- 2022. INL/RPT-22-70233, "Idaho National Laboratory Sitewide SSHAC Level 3 Probabilistic Seismic Hazard Analysis." (November).
- 2024. INL/RPT-24-78997, "Idaho National Laboratory Integrated Multisite SSHAC Level 3 Probabilistic Volcanic Hazards Assessment." (August).
- Kaminsky, J.F., et al. 1994. EGG-ER-10643, Rev. 0, "Remedial Investigation Final Report with Addenda for the Test Area North (TAN) Groundwater (GW) Operable Unit (OU) 1-07B at the INEL." Volume I.
- Kirkham, V.R.D. 1931. "Snake River Downwarp." *Journal of Geology* 39: 456–487.
- Kuntz, M.A. 1992. "A Model-Based Perspective of Basaltic Volcanism, Eastern Snake River Plain, Idaho." In *Regional Geology of Eastern Idaho and Western Wyoming*, Geological Society of America *Memoir*. 179: 289–304.
- Kuntz, M.A. et al. 1994. "Geologic Map of the Idaho National Engineering Laboratory and Adjoining Areas, Eastern Idaho." U.S. Geological Survey Miscellaneous Investigation Map I-2330.
- Leeman, W.P. 1982. "Development of the Snake River Plain-Yellowstone Plateau Province, Idaho and Wyoming: An Overview and Petrologic Model." In *Cenozoic Geology of Idaho*. Idaho Geological Survey Bulletin 26: 155–178.



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- Link, P.K. et al. 1988. "Structural and Stratigraphic Transect of South-central Idaho: A Field Guide to the Lost River, White Knob, Pioneer, Boulder, and Smoky Mountains," *Idaho Geological Survey Bulletin* 27: 5–42.
- Malde, H.E. 1991. "Quaternary Geology and Structural History of the Snake River Plain, Idaho and Oregon." In *The Geology of North America: Quaternary Non-Glacial Geology, Conterminous United States*, Boulder: Geological Society of America, Vol. K-2: 251–281.
- Mastin, Larry G., Alexa R. Van Eaton, Jacob B. Lowenstern. 2014. "Modeling ash fall distribution from a Yellowstone supereruption," *Advancing Earth and Space Sciences*, Vol. 15, (8): 3459–3475.
- Morgan, P. et al. 1977. "Heat Flow Measurements in Yellowstone Lake and the Thermal Structure of the Yellowstone Caldera," *Journal of Geophysical Research*, Vol. 82: 3719–3732.
- Morgan, W.J. 1972. "Convection Plumes and Plate Motions," *American Association of Petroleum Geologists Bulletin*, Vol. 56: 203–213.
- Mundorf, M.J., E. G. Grothwaite, and C. Kilburn. 1964. "Ground Water for Irrigation in the Snake River Basin in Idaho," Geological Survey Water Supply Paper 1654, U.S. Geological Survey.
- Nuclear Regulatory Commission. 1996. NUREG-1537, Part 1, "Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors, Format and Content."
- Nuclear Regulatory Commission. 2004. NUREG-1773, "Environmental impact statement for the proposed Idaho spent fuel facility at the Idaho National Engineering and Environmental Laboratory in Butte County, Idaho."
- Oklo, Inc. 2020. OkloPower-2020-PartII-NP Rev. 0, "Part II: Final Safety Analysis Report."
- Payne, S.J., A. A. Holland, J. M. Hodges, and R. G. Berg. 2005. INL/EXT-05-00672, "INL Seismic Monitoring Program Annual Report: January 1, 2004 – December 31, 2004." Battelle Energy Alliance External Technical Report. (September)
- Pierce, K.L., and L.A. Morgan. 1992. "The Track of the Yellowstone Hotspot: Volcanism, Faulting, and Uplift," P. K., Kuntz, M. A. Kuntz, and L. B. Platt, eds., *Regional Geology of Eastern Idaho and Western Wyoming*, Geological Society of America Memoir 179: 1–53.
- Pittmann, J. R., R. G. Jensen, and P. R. Fischer. 1988. DOE/ID-22078, "Hydrologic Conditions at the Idaho National Engineering Laboratory, 1982–1985." U.S. Geological Survey, Water Resources Investigations Report 89-4008.
- Robertson, J. B., R. Schoen, and J. T. Barraclough. 1974. IDO-22053, "The Influence of Liquid Waste Disposal on the Geochemistry of Water at the National Reactor Testing Station, Idaho: 1952–1970." U.S. Geological Survey, Water Resources Division, Open-File Report. (February).
- Sehlke, Gerald and Wichlacz, Paul. 2010. INL/EXT-10-20572, "Idaho National Laboratory Materials and Fuels Complex Natural Phenomena Hazards Flood Assessment."
- Skip, B., and M.H. Hait. 1977. "Allochthons Along the Northeast Margin of the Snake River Plain, Idaho." In *Wyoming Geological Association 29th Annual Field Conference Guidebook*: 499–515.



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- Smith, R.B. 2002. INEEL/EXT-02-01022 Rev 0, "Variability of the Aquifer Thickness Beneath the Idaho National Engineering and Environmental Laboratory." Idaho National Laboratory. (August)
- Smith, R.B., D.D. Blackwell, and T.L. McLing. 2001. "Temperature Distribution in the Snake River Plain Aquifer Beneath the Idaho National Engineering and Environmental Laboratory (INEEL) – Implications for Aquifer Flow and Geothermal Input," *Geological Society of America Abstracts with Programs*, Vol. 33, No. 6: A-107, 2001.
- Smith, R.B., and R.L. Christiansen. 1980. "Yellowstone Park as a Window on the Earth's Interior." *Scientific American*, Vol. 242, No. 2: 104–117.
- Smith, R. B., and W. J. Arabasz. 1991. "Seismicity of the Intermountain Seismic Belt." In *Neotectonics of North America*, edited by D. B. Slemmons, E. R. Engdahl, M. D. Zoback, and D. D. Blackwell. Geological Society of America, Boulder, CO.
- Stickney, M. C., and M. J. Bartholomew. 1987. "Seismicity and Late Quaternary Faulting of the Northern Basin and Range Province, Montana and Idaho." *Bulletin of the Seismological Society of America* Vol. 77 (October).
- Thelin, G.P., and R.J. Pike. 1991. "Landforms of the Conterminous United States – A Digital Shaded Relief Portrayal." U.S. Geological Survey Miscellaneous Investigations Map 2206, Scale 1:3,500,000.
- U.S. Department of Energy. 2000. DOE G 420.1-2, "Guide for the Mitigation of Natural Phenomena Hazards for DOE Nuclear Facilities and NonNuclear Facilities." (March)
- 2002. DOE-STD-1020-2002. "Natural Phenomena Hazards Design and Evaluation Criteria for Department of Energy Facilities."
- 2011. DOE/EIS-0373, "Idaho National Laboratory Site Environmental Impact Statement."
- U.S. Department of Energy (DOE-ID). 1995. DOE/ID-22127, "Radiological and Environmental Sciences Laboratory Annual Report." U.S. Department of Energy, Idaho Operations Office.
- U.S. Department of Energy-Idaho (DOE-ID). 2006. DOE/ID-11042, Rev 3, "INL Site-wide Institutional Controls and Operations and Maintenance Plan for CERCLA Response Actions." (July)
- Woodward-Clyde Consultants (WCC). 1979. "A Seismic Hazard Study for the TREAT Reactor Facility at the INEL, Idaho." Woodward-Clyde Consultants, San Francisco, CA.
- 1980. Investigation and Treatment of Rock Voids under the Proposed South High Bay Extension at TREAT, Woodward-Clyde Consultants, San Francisco, California.
- 1990. EGG-BG-9350, "Earthquake Strong Ground Motion Estimates for the Idaho National Engineering Laboratory: Final Report – Summary, 3 Volumes." Woodward-Clyde Consultants; EG&G Idaho, Inc., Idaho Falls, ID.
- WCFS, et al. 1996. *Site-Specific Seismic Hazard Analyses for the Idaho National Engineering Laboratory*, INEL-95/0536, Volume I and Volume 2. Woodward-Clyde Federal Services: Geomatrix Consultants, and Pacific Engineering and Analysis. (May)



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Wood, W.W., and W. H. Low. 1986. "Aqueous Geochemistry and Diagenesis in the Eastern Snake River Plain Aquifer System, Idaho," *Geological Society of America Bulletin*, Vol. 97, (12): 456–1466.

Wood, W.W., and W. H. Low. 1988. "Solute Geochemistry of the Snake River Plain Regional Aquifer System, Idaho and Eastern Oregon." U.S. Geological Survey, Professional Paper 1408-D.

2.7 APPENDICES

Appendix A: Reportable Seismic Activity Occurring from 1872-2022



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Table 2-10: Location, depth, magnitude, and timestamp of earthquakes above Richter magnitude 3.0 and greater occurring 1880-2023 (USGS).

Time	Latitude	Longitude	Depth	Mag	Place
2023-07-14 T22:26:08.750Z	44.6097	-112.5975	11.621	4.2 mwr	3 km S of Lima, Montana
2023-07-11 T21:44:27.102Z	44.6088	-112.5676	9.064	3.3 mwr	3 km SSE of Lima, Montana
2023-06-12 T12:38:26.098Z	44.6192	-114.257	6.091	3.7 mwr	12 km N of Challis, Idaho
2023-04-26 T20:03:12.701Z	44.6943	-114.3893	16.382	3.4 mwr	24 km NNW of Challis, Idaho
2023-04-26 T20:02:30.676Z	44.6587	-114.3799	15.346	3.2 ml	24 km NNW of Challis, Idaho
2023-03-30 T17:18:55.815Z	43.2697	-110.9076	5	3.3 ml	10 km W of Hoback, Wyoming
2023-02-27 T11:34:09.162Z	44.6298	-113.6854	13.213	3 ml	26 km WSW of Leadore, Idaho
2023-02-24 T00:17:53.840Z	42.9951	-111.204	5	3.3 ml	13 km W of Freedom, Idaho
2023-02-12 T01:22:17.947Z	43.5345	-110.3989	7.821	3.7 mwr	20 km ESE of Kelly, Wyoming
2023-02-02 T18:44:11.951Z	44.2812	-114.8652	14.168	3 ml	9 km NE of Stanley, Idaho
2022-12-24 T21:12:49.201Z	44.6528	-114.398	10	3.4 ml	21 km NW of Challis, Idaho
2022-11-16 T10:29:50.960Z	42.214	-111.091	7.6	3.04 ml	18 km NNW of Taylor, Wyoming
2022-11-16 T09:58:54.140Z	42.212667	-111.091	9.49	3.57 ml	17 km NNW of Taylor, Wyoming
2022-11-07 T10:43:04.378Z	43.0176	-111.6004	10	3.1 ml	40 km N of Soda Springs, Idaho
2022-09-22 T04:31:43.043Z	44.5303	-114.701	10	3 ml	37 km W of Challis, Idaho
2022-09-01 T01:33:06.480Z	44.2595	-110.606167	9.58	3.33 ml	59 km ENE of Warm River, Idaho
2022-06-21 T16:22:36.752Z	42.601	-111.4274	6.91	3 ml	13 km NNW of Georgetown, Idaho
2022-03-17 T14:27:06.212Z	44.3019	-114.9398	10	3.1 ml	9 km N of Stanley, Idaho
2021-12-05 T01:35:06.097Z	44.3442	-112.6355	10	3.1 ml	32 km S of Lima, Montana
2021-11-30 T19:37:34.804Z	44.9879	-113.0683	11.72	3.3 ml	41 km NE of Leadore, Idaho
2021-10-21 T02:38:50.192Z	42.5358	-111.1792	5	3.4 ml	16 km ENE of Georgetown, Idaho
2021-09-20 T04:41:47.813Z	44.3531	-114.7974	14.84	3.8 mwr	18 km NE of Stanley, Idaho
2021-09-08 T18:00:11.290Z	44.234	-110.784333	10.61	3.03 ml	44 km ENE of Warm River, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
2021-09-08 T17:01:31.900Z	44.236667	-110.785	4.66	3.22 ml	44 km ENE of Warm River, Idaho
2021-08-20 T17:00:28.400Z	44.7905	-110.932333	9.42	3.05 ml	19 km NE of West Yellowstone, Montana
2021-06-30 T00:27:15.960Z	44.3059	-114.7912	10	3.3 ml	15 km NE of Stanley, Idaho
2021-06-28 T14:02:29.540Z	44.751833	-110.916833	10.94	3.14 ml	17 km NE of West Yellowstone, Montana
2021-06-22 T04:03:09.145Z	44.1622	-114.5563	10	3 ml	16 km SW of Clayton, Idaho
2021-06-01 T20:15:12.471Z	44.3013	-114.792	10	3 ml	14 km NE of Stanley, Idaho
2021-04-25 T10:23:21.599Z	44.2107	-114.9526	3.25	3.5 ml	1 km WSW of Stanley, Idaho
2021-03-25 T13:15:19.053Z	42.702	-111.7749	10.31	3.2 ml	9 km ESE of Bancroft, Idaho
2021-03-16 T14:34:39.098Z	44.5512	-114.6529	14	3.6 mwr	33 km W of Challis, Idaho
2021-02-27 T11:13:02.375Z	44.3933	-114.7036	10	3.7 ml	27 km NE of Stanley, Idaho
2021-02-24 T10:43:46.519Z	43.5846	-110.4123	8.07	3.6 ml	17 km ESE of Kelly, Wyoming
2021-01-03 T05:35:27.899Z	42.5663	-111.4286	5.33	4.2 mwr	10 km NNW of Georgetown, Idaho
2021-01-01 T05:26:06.861Z	44.0808	-114.9812	3	3.9 mwr	15 km SSW of Stanley, Idaho
2020-12-31 T16:22:47.005Z	43.962	-114.9971	16.66	3.4 ml	28 km S of Stanley, Idaho
2020-12-31 T16:22:41.462Z	44.0895	-114.946	13.83	3.2 ml	14 km S of Stanley, Idaho
2020-12-14 T20:00:03.289Z	44.6178	-112.4934	8.95	3.3 ml	8 km ESE of Lima, Montana
2020-11-25 T12:58:21.820Z	44.785	-111.068333	7.54	3.11 ml	9 km E of Hebgen Lake Estates, Montana
2020-11-22 T11:04:15.210Z	42.5808	-111.4587	7.05	3.5 ml	13 km NNW of Georgetown, Idaho
2020-06-23 T14:02:38.966Z	43.5952	-110.4074	5	3.7 mwr	17 km E of Kelly, Wyoming
2020-06-09 T01:53:17.631Z	44.2889	-114.9503	10	3.2 ml	7 km N of Stanley, Idaho
2020-06-02 T21:46:41.173Z	42.8433	-111.2613	5	3.1 ml	21 km WNW of Auburn, Wyoming
2020-05-13 T09:04:20.694Z	44.3567	-114.8646	10	3.3 ml	16 km NNE of Stanley, Idaho
2020-05-09 T07:41:54.051Z	44.282	-114.8183	10	3.1 ml	11 km NE of Stanley, Idaho
2020-05-03 T13:43:52.490Z	41.979833	-112.446333	6.62	3.08 ml	17 km W of Portage, Utah
2020-03-31 T15:36:45.240Z	44.744667	-111.136	9.33	3.06 ml	5 km ESE of Hebgen Lake Estates, Montana



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Time	Latitude	Longitude	Depth	Mag	Place
2020-02-29 T13:06:32.269Z	44.8003	-111.5449	11.89	3.9 mwr	28 km W of Hebgen Lake Estates, Montana
2020-01-24 T14:41:28.810Z	41.7945	-112.360667	7.15	3.07 ml	7 km E of Howell, UT
2020-01-20 T21:12:56.483Z	42.7241	-111.7983	5	3.7 mwr	7 km E of Bancroft, Idaho
2019-12-30 T22:00:10.704Z	43.9087	-111.0947	7.51	3.1 ml	11 km NNE of Tetonia, Idaho
2019-12-15 T12:32:52.150Z	44.3985	-111.140167	16.98	3.46 ml	18 km E of Island Park, Idaho
2019-12-14 T02:34:48.312Z	44.7543	-114.4762	10	3.2 ml	33 km NW of Challis, Idaho
2019-11-10 T01:28:33.193Z	44.8104	-111.4088	10	3 ml	17 km WNW of Hebgen Lake Estates, Montana
2019-09-24 T16:15:41.910Z	41.815667	-112.389667	6.62	3.89 ml	5 km ENE of Howell, Utah
2019-09-14 T12:13:49.012Z	42.584	-111.4333	5	3.1 ml	12 km NNW of Georgetown, Idaho
2019-09-13 T17:34:55.658Z	42.5174	-111.1548	4.05	3.3 ml	18 km ENE of Georgetown, Idaho
2019-08-15 T19:46:39.640Z	44.127667	-110.378833	7.39	3.51 ml	59 km NNE of Kelly, Wyoming
2019-08-09 T16:02:27.551Z	44.6713	-114.1482	10	3.2 ml	19 km NNE of Challis, Idaho
2019-08-01 T04:11:03.294Z	42.5518	-111.5534	10	3 ml	12 km SSE of Soda Springs, Idaho
2019-07-06 T01:17:54.273Z	42.6622	-111.4643	1.93	3.3 ml	11 km E of Soda Springs, Idaho
2019-06-14 T12:14:45.002Z	42.6979	-111.3173	5	3.2 ml	24 km ENE of Soda Springs, Idaho
2019-06-03 T16:19:09.119Z	42.6316	-111.4174	5	3 ml	15 km E of Soda Springs, Idaho
2019-05-16 T15:53:12.403Z	44.5896	-114.3114	5	3 ml	11 km NW of Challis, Idaho
2019-04-12 T11:40:54.690Z	44.7192	-112.513	11.59	3 ml	11 km NE of Lima, Montana
2019-04-12 T10:43:33.911Z	44.5771	-114.2882	5	3.4 ml	9 km NNW of Challis, Idaho
2019-04-10 T06:22:53.006Z	44.7065	-112.4959	10	3 ml	10 km NE of Lima, Montana
2019-04-09 T18:11:13.882Z	44.6939	-112.5231	10	3.3 ml	8 km NE of Lima, Montana
2019-04-09 T18:08:46.055Z	44.6972	-112.5078	14.45	4.6 mww	9 km NE of Lima, Montana
2019-04-04 T10:34:20.829Z	42.6815	-111.5016	5	3.3 ml	8 km ENE of Soda Springs, Idaho
2019-04-04 T09:45:53.805Z	42.6743	-111.4839	5	3.2 ml	10 km ENE of Soda Springs, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
2019-02-16 T21:22:50.830Z	44.465	-111.007167	8.19	3.09 ml	23 km SSE of West Yellowstone, Montana
2018-12-26 T21:30:08.380Z	42.577	-111.4649	9.12	3.2 ml	13 km NW of Georgetown, Idaho
2018-12-20 T16:36:04.840Z	44.7625	-111.4646	15.68	3.1 ml	21 km W of Hebgen Lake Estates, Montana
2018-11-30 T16:34:36.880Z	42.6811	-111.0437	5	3.1 ml	5 km W of Fairview, Wyoming
2018-11-15 T09:33:12.630Z	42.6699	-111.4571	9.83	3.8 mwr	12 km E of Soda Springs, Idaho
2018-11-14 T21:51:23.060Z	42.6567	-111.4654	7.62	3.1 ml	11 km E of Soda Springs, Idaho
2018-11-13 T17:17:23.740Z	42.6636	-111.4842	5	3 ml	9 km E of Soda Springs, Idaho
2018-11-12 T23:52:23.250Z	42.653	-111.4862	5	3.2 ml	9 km E of Soda Springs, Idaho
2018-09-21 T13:34:51.160Z	42.430833	-111.507667	11.02	3.21 ml	12 km WSW of Georgetown, Idaho
2018-09-18 T09:22:31.190Z	42.5869	-111.1523	6.23	3.3 ml	17 km SW of Fairview, Wyoming
2018-09-08 T21:22:23.560Z	42.6355	-111.4818	10.21	3 ml	10 km ESE of Soda Springs, Idaho
2018-08-22 T12:17:42.800Z	43.3309	-110.9146	1.08	3.1 ml	11 km WNW of Hoback, Wyoming
2018-05-30 T03:28:11.220Z	42.6666	-111.4583	5	3.3 ml	12 km E of Soda Springs, Idaho
2018-05-06 T14:54:02.890Z	44.751667	-110.964167	10.75	3.05 ml	14 km NE of West Yellowstone, Montana
2018-04-13 T00:11:07.400Z	44.8089	-112.35	10	3.5 ml	27 km NE of Lima, Montana
2018-04-07 T07:22:58.620Z	42.5828	-111.4384	8.23	3.4 ml	12 km NNW of Georgetown, Idaho
2018-02-25 T15:10:21.400Z	44.7535	-110.995333	6.3	3.04 ml	13 km NE of West Yellowstone, Montana
2018-02-18 T15:29:16.260Z	44.744667	-110.997333	9.83	3.12 ml	12 km NE of West Yellowstone, Montana
2018-02-18 T05:37:46.530Z	44.746	-110.990333	9.89	3.11 md	12 km NE of West Yellowstone, Montana
2018-02-01 T13:31:44.420Z	43.1373	-110.8479	5	3.5 ml	14 km ESE of Alpine, Wyoming
2018-01-26 T05:40:25.640Z	42.5405	-111.3951	10	3.3 ml	6 km NNW of Georgetown, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
2018-01-26 T03:35:53.700Z	42.5618	-111.4591	10	3.1 ml	11 km NW of Georgetown, Idaho
2018-01-26 T03:32:08.570Z	42.5327	-111.3893	10	4.4 mwr	5 km NNW of Georgetown, Idaho
2017-11-30 T20:53:51.730Z	42.5934	-111.4042	5.7	3.2 ml	12 km NNW of Georgetown, Idaho
2017-11-05 T19:58:11.200Z	42.5891	-111.4262	9.35	3.4 ml	12 km NNW of Georgetown, Idaho
2017-11-03 T10:43:15.270Z	42.6111	-111.4293	8.56	4 mwr	15 km NNW of Georgetown, Idaho
2017-11-01 T21:19:44.730Z	42.61	-111.4657	9.16	3 ml	12 km ESE of Soda Springs, Idaho
2017-11-01 T17:24:26.150Z	42.5952	-111.4315	6.98	3 ml	13 km NNW of Georgetown, Idaho
2017-10-19 T20:39:10.690Z	42.5879	-111.4836	12.91	3 ml	12 km SE of Soda Springs, Idaho
2017-10-19 T20:30:10.440Z	42.5714	-111.4328	6.99	3.7 mwr	11 km NNW of Georgetown, Idaho
2017-10-16 T01:35:34.300Z	42.5533	-111.4166	9.08	3.6 mwr	8 km NNW of Georgetown, Idaho
2017-10-15 T11:33:56.030Z	42.613	-111.4679	6.52	3.2 ml	12 km ESE of Soda Springs, Idaho
2017-10-12 T05:32:07.660Z	42.5596	-111.4227	8.22	3.1 ml	9 km NNW of Georgetown, Idaho
2017-10-11 T01:24:25.590Z	42.5462	-111.4181	10	4.1 mwr	8 km NNW of Georgetown, Idaho
2017-10-08 T15:09:19.380Z	42.5911	-111.4469	5.91	3 ml	13 km NNW of Georgetown, Idaho
2017-10-08 T15:06:07.770Z	42.5958	-111.4474	5.75	3.2 ml	14 km NNW of Georgetown, Idaho
2017-09-30 T23:39:36.640Z	42.6553	-111.4596	5.89	3.2 ml	11 km E of Soda Springs, Idaho
2017-09-24 T05:28:35.390Z	42.6022	-111.4488	4.91	3.2 ml	14 km ESE of Soda Springs, Idaho
2017-09-23 T15:20:00.780Z	42.5571	-111.44	7.43	3.8 mwr	10 km NW of Georgetown, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
2017-09-21 T14:29:20.250Z	42.525	-111.426	8.76	3.1 ml	6 km NW of Georgetown, Idaho
2017-09-21 T09:46:28.850Z	42.5829	-111.4286	8.3	3.3 ml	12 km NNW of Georgetown, Idaho
2017-09-19 T23:26:52.870Z	42.5909	-111.4223	9.63	3 ml	12 km NNW of Georgetown, Idaho
2017-09-19 T16:05:40.170Z	42.6154	-111.4706	8.81	3.1 ml	11 km ESE of Soda Springs, Idaho
2017-09-19 T15:35:09.120Z	42.6064	-111.4508	4.14	3 ml	13 km ESE of Soda Springs, Idaho
2017-09-19 T15:27:13.730Z	42.6056	-111.4487	5.79	3.7 mwr	13 km ESE of Soda Springs, Idaho
2017-09-18 T04:49:09.350Z	42.6072	-111.457	5.27	3.6 mwr	13 km ESE of Soda Springs, Idaho
2017-09-17 T05:38:44.050Z	44.302333	-110.841667	7.53	3.15 ml	43 km ENE of Warm River, Idaho
2017-09-16 T17:14:37.640Z	42.5836	-111.4269	6.94	3 ml	12 km NNW of Georgetown, Idaho
2017-09-16 T05:20:56.520Z	42.5756	-111.4133	8.73	3.9 mwr	10 km NNW of Georgetown, Idaho
2017-09-15 T21:21:57.890Z	42.6117	-111.4429	6.07	3.1 ml	14 km ESE of Soda Springs, Idaho
2017-09-15 T10:39:20.990Z	42.5921	-111.4466	5.25	3 ml	13 km NNW of Georgetown, Idaho
2017-09-15 T08:22:41.220Z	42.5805	-111.4475	4.04	3.6 mwr	12 km NNW of Georgetown, Idaho
2017-09-14 T17:26:39.130Z	42.5873	-111.4355	7.52	3.2 ml	12 km NNW of Georgetown, Idaho
2017-09-14 T02:58:20.890Z	42.5325	-111.4265	10	3.2 ml	7 km NW of Georgetown, Idaho
2017-09-14 T02:57:53.360Z	42.5205	-111.4151	8.1	3.1 ml	5 km NW of Georgetown, Idaho
2017-09-14 T02:54:11.390Z	42.5405	-111.4172	8.91	3.2 ml	7 km NNW of Georgetown, Idaho
2017-09-14 T02:53:09.150Z	42.4888	-111.4132	10	4 mwr	3 km WNW of Georgetown, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
2017-09-14 T02:53:01.020Z	42.5292	-111.4086	8.82	3.7 ml	6 km NNW of Georgetown, Idaho
2017-09-12 T00:00:26.060Z	42.5922	-111.4619	9.11	3.1 ml	13 km ESE of Soda Springs, Idaho
2017-09-11 T19:20:04.550Z	42.609	-111.471	7.61	3 ml	12 km ESE of Soda Springs, Idaho
2017-09-11 T16:16:31.940Z	42.5774	-111.4221	8.61	3.2 ml	11 km NNW of Georgetown, Idaho
2017-09-11 T15:33:53.150Z	42.6086	-111.4647	4.31	3.1 ml	southern Idaho
2017-09-11 T15:11:32.750Z	42.5413	-111.4148	9.05	3 ml	7 km NNW of Georgetown, Idaho
2017-09-11 T14:05:30.330Z	42.5438	-111.4143	7.19	3.5 mwr	7 km NNW of Georgetown, Idaho
2017-09-11 T13:36:25.250Z	42.5476	-111.4366	10.03	3 ml	9 km NW of Georgetown, Idaho
2017-09-11 T13:31:26.150Z	42.5632	-111.4277	6.15	3.2 ml	10 km NNW of Georgetown, Idaho
2017-09-11 T13:27:25.110Z	42.5687	-111.4392	7.21	3.2 ml	11 km NNW of Georgetown, Idaho
2017-09-11 T13:26:35.640Z	42.547	-111.4397	8.42	4.7 mww	9 km NW of Georgetown, Idaho
2017-09-11 T12:35:47.450Z	42.5562	-111.4052	5.83	3 ml	8 km NNW of Georgetown, Idaho
2017-09-11 T12:35:03.690Z	42.5548	-111.404	6.55	3.2 ml	8 km NNW of Georgetown, Idaho
2017-09-11 T12:34:30.220Z	42.5481	-111.4421	9.98	4.1 mwr	9 km NW of Georgetown, Idaho
2017-09-11 T11:46:30.690Z	42.5733	-111.4229	8.61	3 ml	10 km NNW of Georgetown, Idaho
2017-09-11 T09:41:31.840Z	42.5469	-111.4061	8.41	3 ml	7 km NNW of Georgetown, Idaho
2017-09-11 T09:39:43.140Z	42.5486	-111.4333	9.47	3.2 ml	8 km NW of Georgetown, Idaho
2017-09-11 T09:38:45.520Z	42.5552	-111.4471	5.28	4.1 ml	10 km NW of Georgetown, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
2017-09-11 T09:38:39.240Z	42.5592	-111.4576	4.83	4.1 ml	11 km NW of Georgetown, Idaho
2017-09-11 T09:36:31.560Z	42.5544	-111.4287	2.24	4.3 mwr	9 km NNW of Georgetown, Idaho
2017-09-11 T02:34:53.870Z	42.6746	-111.5232	9.6	3 ml	7 km ENE of Soda Springs, Idaho
2017-09-11 T00:12:32.660Z	42.5646	-111.4147	8.76	3.2 ml	9 km NNW of Georgetown, Idaho
2017-09-10 T22:56:26.070Z	42.5956	-111.4481	10	3 ml	14 km NNW of Georgetown, Idaho
2017-09-10 T22:17:01.470Z	42.578	-111.4302	10	3.3 ml	11 km NNW of Georgetown, Idaho
2017-09-10 T20:32:15.660Z	42.5578	-111.4159	10	3.4 ml	9 km NNW of Georgetown, Idaho
2017-09-10 T20:07:14.070Z	42.5515	-111.4176	8.7	3.2 ml	8 km NNW of Georgetown, Idaho
2017-09-10 T19:06:22.590Z	42.5679	-111.4432	8.33	3.4 ml	11 km NNW of Georgetown, Idaho
2017-09-10 T19:05:36.840Z	42.5954	-111.3738	10	3.7 ml	12 km N of Georgetown, Idaho
2017-09-10 T19:05:13.280Z	42.5664	-111.4024	13	4.1 mwr	9 km NNW of Georgetown, Idaho
2017-09-10 T18:39:29.580Z	42.5593	-111.4162	7.45	3 ml	9 km NNW of Georgetown, Idaho
2017-09-10 T14:47:42.910Z	42.5624	-111.4162	9.55	3.4 mwr	9 km NNW of Georgetown, Idaho
2017-09-10 T14:38:18.430Z	42.5549	-111.4106	7.47	3.1 ml	8 km NNW of Georgetown, Idaho
2017-09-10 T13:09:51.060Z	42.5522	-111.4073	8.48	3 ml	8 km NNW of Georgetown, Idaho
2017-09-10 T12:45:19.240Z	42.5607	-111.4354	6.12	3.5 mwr	10 km NNW of Georgetown, Idaho
2017-09-10 T12:27:44.210Z	42.6144	-111.4523	3.71	3 ml	13 km ESE of Soda Springs, Idaho
2017-09-10 T12:19:11.980Z	42.5866	-111.4279	8.86	3.9 mwr	12 km NNW of Georgetown, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
2017-09-10 T12:17:37.200Z	42.6267	-111.4566	4.94	3.3 mwr	12 km ESE of Soda Springs, Idaho
2017-09-10 T11:22:16.820Z	42.5572	-111.4506	7.23	3.1 ml	10 km NW of Georgetown, Idaho
2017-09-10 T11:14:31.150Z	42.614	-111.4915	19.7	3.2 ml	10 km ESE of Soda Springs, Idaho
2017-09-10 T11:12:39.050Z	42.6074	-111.4701	4.56	4.7 mww	12 km ESE of Soda Springs, Idaho
2017-09-10 T11:10:20.100Z	42.5571	-111.4195	6.39	3.4 ml	9 km NNW of Georgetown, Idaho
2017-09-10 T10:53:09.380Z	42.6134	-111.4758	4.92	3.1 ml	11 km ESE of Soda Springs, Idaho
2017-09-10 T09:54:50.450Z	42.6136	-111.4454	7.55	3.1 ml	13 km ESE of Soda Springs, Idaho
2017-09-10 T09:52:14.480Z	42.6308	-111.4462	4.01	3.4 ml	13 km ESE of Soda Springs, Idaho
2017-09-10 T09:51:12.530Z	42.5946	-111.4303	7.55	3 ml	13 km NNW of Georgetown, Idaho
2017-09-10 T09:50:49.520Z	42.5611	-111.4255	11.63	3 ml	9 km NNW of Georgetown, Idaho
2017-09-10 T09:48:27.810Z	42.6147	-111.4216	2.61	3.5 ml	15 km NNW of Georgetown, Idaho
2017-09-10 T09:47:10.570Z	42.5629	-111.4155	9.83	5 mww	9 km NNW of Georgetown, Idaho
2017-09-10 T07:09:04.610Z	42.5693	-111.4221	7	3 ml	10 km NNW of Georgetown, Idaho
2017-09-10 T02:00:32.850Z	42.6737	-111.4779	2.46	3.2 ml	10 km ENE of Soda Springs, Idaho
2017-09-09 T12:18:15.350Z	42.578	-111.3958	4.68	3.5 mwr	10 km N of Georgetown, Idaho
2017-09-09 T11:52:48.430Z	42.5698	-111.4426	6.62	3.9 mwr	11 km NNW of Georgetown, Idaho
2017-09-09 T11:48:35.440Z	42.5734	-111.4347	6.25	3.1 ml	11 km NNW of Georgetown, Idaho
2017-09-09 T08:30:22.720Z	42.6108	-111.4585	6.88	3.3 ml	12 km ESE of Soda Springs, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
2017-09-09 T08:28:08.370Z	42.588	-111.4259	7.02	3.5 ml	12 km NNW of Georgetown, Idaho
2017-09-09 T08:27:21.030Z	42.5785	-111.4302	9.03	4 mwr	11 km NNW of Georgetown, Idaho
2017-09-09 T08:23:50.400Z	42.5799	-111.4221	5.91	3.3 ml	11 km NNW of Georgetown, Idaho
2017-09-09 T08:23:04.770Z	42.5619	-111.4167	7.19	4.1 mwr	9 km NNW of Georgetown, Idaho
2017-09-09 T08:04:58.530Z	42.5836	-111.4264	7.05	3.2 mwr	12 km NNW of Georgetown, Idaho
2017-09-08 T16:42:22.550Z	42.6169	-111.4779	9.02	3.1 ml	11 km ESE of Soda Springs, Idaho
2017-09-08 T07:51:09.370Z	42.5653	-111.4101	6.35	3.2 ml	9 km NNW of Georgetown, Idaho
2017-09-08 T07:31:18.650Z	42.6598	-111.446	6.58	3.2 ml	13 km E of Soda Springs, Idaho
2017-09-08 T02:07:14.220Z	42.6128	-111.4571	10.73	3.7 mwr	12 km ESE of Soda Springs, Idaho
2017-09-07 T12:13:38.110Z	42.5849	-111.4169	5.81	4.1 mwr	12 km NNW of Georgetown, Idaho
2017-09-06 T16:35:14.790Z	42.5609	-111.4313	10.51	3.4 mwr	10 km NNW of Georgetown, Idaho
2017-09-06 T16:26:53.610Z	42.6122	-111.4602	5.98	3.1 ml	12 km ESE of Soda Springs, Idaho
2017-09-06 T15:04:47.040Z	42.561	-111.4011	9.2	3.5 mwr	9 km NNW of Georgetown, Idaho
2017-09-06 T11:41:46.750Z	42.6014	-111.4379	6.03	3.2 ml	14 km NNW of Georgetown, Idaho
2017-09-06 T11:18:46.850Z	42.5529	-111.3998	10	3 ml	8 km NNW of Georgetown, Idaho
2017-09-06 T09:54:34.920Z	42.6734	-111.453	10.29	3 ml	12 km E of Soda Springs, Idaho
2017-09-06 T09:52:54.090Z	42.6004	-111.4534	2.67	3.1 ml	13 km ESE of Soda Springs, Idaho
2017-09-06 T09:10:53.080Z	42.6047	-111.4492	10	3.7 mwr	13 km ESE of Soda Springs, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
2017-09-06 T08:26:55.310Z	42.5819	-111.4285	5.44	3.9 ml	12 km NNW of Georgetown, Idaho
2017-09-06 T08:26:30.610Z	42.6084	-111.494	10	4.1 mwr	10 km ESE of Soda Springs, Idaho
2017-09-06 T07:55:09.740Z	42.5968	-111.4665	1.3	4.2 mwr	13 km ESE of Soda Springs, Idaho
2017-09-06 T07:54:26.910Z	42.587	-111.4108	10	3.8 ml	12 km NNW of Georgetown, Idaho
2017-09-06 T07:51:07.750Z	42.6055	-111.4666	2.35	3.7 mwr	12 km ESE of Soda Springs, Idaho
2017-09-06 T07:35:30.390Z	42.5885	-111.4411	7.18	4.2 mwr	13 km NNW of Georgetown, Idaho
2017-09-06 T07:32:21.740Z	42.5942	-111.4559	6.19	3.8 mwr	13 km ESE of Soda Springs, Idaho
2017-09-06 T04:46:56.740Z	42.5959	-111.4563	10	3 ml	13 km ESE of Soda Springs, Idaho
2017-09-06 T04:37:44.500Z	42.572	-111.4444	10	4.6 mww	11 km NNW of Georgetown, Idaho
2017-09-06 T04:36:28.470Z	42.5925	-111.4674	10	3.4 mwr	13 km ESE of Soda Springs, Idaho
2017-09-06 T04:31:22.730Z	42.6161	-111.4561	6.68	3 ml	12 km ESE of Soda Springs, Idaho
2017-09-06 T04:27:42.630Z	42.6129	-111.4481	10	3 ml	13 km ESE of Soda Springs, Idaho
2017-09-06 T03:55:40.720Z	42.5875	-111.4333	10	3.2 ml	12 km NNW of Georgetown, Idaho
2017-09-06 T03:48:09.570Z	42.5897	-111.4305	10	3.1 ml	12 km NNW of Georgetown, Idaho
2017-09-06 T02:26:41.550Z	42.6041	-111.4448	7.18	3 ml	14 km ESE of Soda Springs, Idaho
2017-09-06 T02:22:10.440Z	42.5868	-111.4189	6.7	3.2 ml	12 km NNW of Georgetown, Idaho
2017-09-05 T23:00:16.470Z	42.5602	-111.4162	5.72	3.8 mwr	9 km NNW of Georgetown, Idaho
2017-09-05 T22:46:59.300Z	42.5576	-111.411	11.56	3 ml	9 km NNW of Georgetown, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
2017-09-05 T22:32:47.700Z	42.582	-111.4313	5.17	3.8 mwr	12 km NNW of Georgetown, Idaho
2017-09-05 T21:43:18.990Z	42.5906	-111.4393	11.57	3 ml	13 km NNW of Georgetown, Idaho
2017-09-05 T21:23:53.400Z	42.573	-111.407	9.86	3.4 ml	10 km NNW of Georgetown, Idaho
2017-09-05 T21:23:18.360Z	42.5959	-111.4373	6.3	4.3 mwr	13 km NNW of Georgetown, Idaho
2017-09-05 T20:55:46.630Z	42.6113	-111.443	9.31	3.2 ml	14 km ESE of Soda Springs, Idaho
2017-09-05 T20:55:03.610Z	42.5764	-111.4065	10	3.4 ml	10 km NNW of Georgetown, Idaho
2017-09-05 T20:54:15.420Z	42.5855	-111.4174	10	4.3 mwr	12 km NNW of Georgetown, Idaho
2017-09-05 T10:02:01.740Z	42.5817	-111.4332	2.1	3.2 ml	12 km NNW of Georgetown, Idaho
2017-09-05 T09:47:10.120Z	42.6444	-111.4727	5.97	3.5 mwr	10 km E of Soda Springs, Idaho
2017-09-05 T08:13:14.830Z	42.5806	-111.4515	2.9	4.3 mwr	12 km NNW of Georgetown, Idaho
2017-09-05 T04:34:33.650Z	42.5879	-111.4512	10	3.1 ml	13 km NNW of Georgetown, Idaho
2017-09-05 T03:38:50.930Z	42.6006	-111.443	10	3 ml	14 km NNW of Georgetown, Idaho
2017-09-05 T03:21:09.190Z	42.62	-111.5566	10	3.9 mwr	5 km SE of Soda Springs, Idaho
2017-09-05 T03:12:37.940Z	42.5951	-111.4809	10	3.9 mwr	12 km ESE of Soda Springs, Idaho
2017-09-05 T03:12:09.410Z	42.5912	-111.398	10	3.9 mwr	12 km N of Georgetown, Idaho
2017-09-05 T02:28:32.410Z	42.5922	-111.4388	10	3.6 mwr	13 km NNW of Georgetown, Idaho
2017-09-05 T02:05:38.480Z	42.5805	-111.4311	10	3.1 ml	11 km NNW of Georgetown, Idaho
2017-09-05 T01:32:39.450Z	42.5974	-111.445	10	4.2 mwr	14 km NNW of Georgetown, Idaho
2017-09-05 T00:35:33.400Z	42.591	-111.3712	8.88	3.1 ml	12 km N of Georgetown, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
2017-09-05 T00:34:40.790Z	42.603	-111.472	5.2	4.1 mwr	12 km ESE of Soda Springs, Idaho
2017-09-04 T23:14:45.420Z	42.5711	-111.4244	13.19	3.8 mwr	10 km NNW of Georgetown, Idaho
2017-09-04 T23:13:33.840Z	42.6109	-111.4375	10.42	3 ml	southern Idaho
2017-09-04 T22:55:49.220Z	42.6292	-111.4361	6.96	3.3 ml	14 km ESE of Soda Springs, Idaho
2017-09-04 T22:51:27.010Z	42.5885	-111.4254	10	3.2 ml	12 km NNW of Georgetown, Idaho
2017-09-04 T22:47:42.620Z	42.5939	-111.4379	10	3.5 mwr	13 km NNW of Georgetown, Idaho
2017-09-04 T22:47:11.640Z	42.5914	-111.4218	14.25	3.1 ml	12 km NNW of Georgetown, Idaho
2017-09-04 T22:15:45.910Z	42.5864	-111.4135	5.2	3.8 mwr	12 km NNW of Georgetown, Idaho
2017-09-04 T22:10:48.190Z	42.672	-111.489	6	3.1 ml	9 km ENE of Soda Springs, Idaho
2017-09-04 T20:51:38.640Z	42.5867	-111.4308	10	3.6 mwr	12 km NNW of Georgetown, Idaho
2017-09-04 T20:17:29.090Z	42.6396	-111.4488	10	3 ml	12 km E of Soda Springs, Idaho
2017-09-04 T20:12:23.740Z	42.6089	-111.4543	5.68	3.8 mwr	13 km ESE of Soda Springs, Idaho
2017-09-04 T19:04:58.290Z	42.629167	-111.4675	2.63	3.68 ml	11 km ESE of Soda Springs, Idaho
2017-09-04 T19:04:57.670Z	42.6407	-111.4411	5.68	3.7 mwr	13 km E of Soda Springs, Idaho
2017-09-04 T10:52:27.980Z	42.6072	-111.4852	1.76	3.1 ml	11 km ESE of Soda Springs, Idaho
2017-09-04 T09:27:17.730Z	42.6127	-111.4624	10	3 ml	12 km ESE of Soda Springs, Idaho
2017-09-04 T07:55:05.920Z	42.6562	-111.4858	4.53	3.9 mwr	9 km E of Soda Springs, Idaho
2017-09-04 T07:34:49.780Z	42.654	-111.5055	10	3.4 mwr	8 km E of Soda Springs, Idaho
2017-09-04 T06:55:27.370Z	42.623	-111.4951	1.89	3.7 mwr	9 km ESE of Soda Springs, Idaho
2017-09-04 T06:52:33.100Z	42.6168	-111.4694	5.45	3.4 mwr	11 km ESE of Soda Springs, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
2017-09-04 T06:20:36.470Z	42.6218	-111.4615	9.94	3.2 ml	12 km ESE of Soda Springs, Idaho
2017-09-04 T06:17:09.000Z	42.6213	-111.4516	5.71	4.5 mwr	13 km ESE of Soda Springs, Idaho
2017-09-04 T00:36:33.800Z	42.5863	-111.4493	5.09	3.4 mwr	13 km NNW of Georgetown, Idaho
2017-09-04 T00:05:24.580Z	42.6665	-111.5118	10	3.6 mwr	7 km E of Soda Springs, Idaho
2017-09-03 T21:10:15.760Z	42.6433	-111.5416	10	3.4 mwr	5 km ESE of Soda Springs, Idaho
2017-09-03 T18:36:46.750Z	42.6153	-111.4633	3	3.6 mwr	12 km ESE of Soda Springs, Idaho
2017-09-03 T17:41:39.590Z	42.6381	-111.474	7.69	4.7 mww	10 km E of Soda Springs, Idaho
2017-09-03 T17:07:32.920Z	42.5884	-111.4793	10	3 ml	12 km SE of Soda Springs, Idaho
2017-09-03 T16:49:17.380Z	42.6137	-111.4287	10	4.7 mww	15 km ESE of Soda Springs, Idaho
2017-09-03 T16:09:56.400Z	42.6631	-111.428	8.13	3.6 mwr	14 km E of Soda Springs, Idaho
2017-09-03 T15:47:52.410Z	42.5895	-111.4839	9.46	3.3 mwr	12 km SE of Soda Springs, Idaho
2017-09-03 T14:54:33.290Z	42.597	-111.4394	12.14	3 ml	13 km NNW of Georgetown, Idaho
2017-09-03 T14:42:17.590Z	42.6144	-111.446	10	3.7 mwr	13 km ESE of Soda Springs, Idaho
2017-09-03 T14:12:52.960Z	42.6073	-111.413	3.1	3.6 mwr	14 km NNW of Georgetown, Idaho
2017-09-03 T13:56:29.970Z	42.6142	-111.4264	10	3.7 ml	15 km ESE of Soda Springs, Idaho
2017-09-03 T11:23:21.930Z	42.6701	-111.4828	4.4	3.7 mwr	10 km E of Soda Springs, Idaho
2017-09-03 T08:24:18.160Z	42.6729	-111.5011	5.65	3.2 ml	8 km ENE of Soda Springs, Idaho
2017-09-03 T07:00:07.440Z	42.6652	-111.4623	10	3 ml	11 km E of Soda Springs, Idaho
2017-09-03 T06:44:52.390Z	42.6631	-111.4805	2.5	4 mwr	10 km E of Soda Springs, Idaho
2017-09-03 T06:06:10.840Z	42.4984	-111.2832	10	3.6 ml	7 km ENE of Georgetown, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
2017-09-03 T06:05:43.070Z	42.651	-111.4884	10	4.1 mwr	9 km E of Soda Springs, Idaho
2017-09-03 T06:04:36.820Z	42.6484	-111.4513	10	3.7 mwr	12 km E of Soda Springs, Idaho
2017-09-03 T04:22:00.940Z	42.6546	-111.4898	10	3.3 ml	9 km E of Soda Springs, Idaho
2017-09-03 T04:17:20.320Z	42.6186	-111.4769	10	3.3 ml	11 km ESE of Soda Springs, Idaho
2017-09-03 T04:14:36.100Z	42.6301	-111.4797	10	3.3 ml	10 km ESE of Soda Springs, Idaho
2017-09-03 T04:13:59.220Z	42.6698	-111.4892	10	3 ml	9 km E of Soda Springs, Idaho
2017-09-03 T02:29:23.290Z	42.636	-111.4812	10	4.1 mb	10 km ESE of Soda Springs, Idaho
2017-09-03 T02:16:04.100Z	42.6685	-111.4991	10	3.2 ml	8 km E of Soda Springs, Idaho
2017-09-03 T02:14:13.150Z	42.6564	-111.4099	10	3.3 ml	15 km E of Soda Springs, Idaho
2017-09-03 T02:13:15.750Z	42.6688	-111.4785	10	3 ml	10 km E of Soda Springs, Idaho
2017-09-03 T01:16:45.960Z	42.6358	-111.4258	10	3.1 ml	14 km E of Soda Springs, Idaho
2017-09-03 T01:13:36.590Z	42.9634	-111.0462	10	3.3 ml	2 km S of Freedom, Idaho
2017-09-03 T01:02:49.510Z	42.7005	-111.502667	11.44	3.7 ml	9 km ENE of Soda Springs, Idaho
2017-09-03 T01:02:37.310Z	42.6006	-111.4695	10	3.5 ml	12 km ESE of Soda Springs, Idaho
2017-09-03 T01:01:58.920Z	42.6005	-111.4327	10	3.5 ml	14 km NNW of Georgetown, Idaho
2017-09-03 T00:56:26.690Z	42.6556	-111.49	16.84	3.1 ml	9 km E of Soda Springs, Idaho
2017-09-03 T00:55:18.180Z	42.6314	-111.4816	10	3 ml	10 km ESE of Soda Springs, Idaho
2017-09-03 T00:54:06.150Z	42.6292	-111.4734	8.94	3 ml	11 km ESE of Soda Springs, Idaho
2017-09-03 T00:52:14.150Z	42.6101	-111.4472	15.16	3 ml	13 km ESE of Soda Springs, Idaho
2017-09-03 T00:50:56.440Z	42.6454	-111.4598	10	3.4 ml	11 km E of Soda Springs, Idaho
2017-09-03 T00:45:55.050Z	42.6656	-111.4477	9.43	3 ml	12 km E of Soda Springs, Idaho
2017-09-03 T00:44:38.490Z	42.6282	-111.4938	6.21	3.1 ml	9 km ESE of Soda Springs, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
2017-09-03 T00:41:24.300Z	42.6272	-111.4629	9.95	3.4 ml	12 km ESE of Soda Springs, Idaho
2017-09-03 T00:39:48.290Z	42.6286	-111.4666	10	4.2 mwr	11 km ESE of Soda Springs, Idaho
2017-09-03 T00:32:12.020Z	42.5522	-111.4486	15.63	3.2 ml	10 km NW of Georgetown, Idaho
2017-09-03 T00:31:53.560Z	42.6181	-111.4512	10.96	3 ml	13 km ESE of Soda Springs, Idaho
2017-09-03 T00:25:00.640Z	42.6314	-111.4672	13.4	3.4 ml	11 km ESE of Soda Springs, Idaho
2017-09-03 T00:24:29.310Z	42.6092	-111.4175	10	3.1 ml	14 km NNW of Georgetown, Idaho
2017-09-03 T00:21:49.560Z	42.6336	-111.4664	2.45	3.1 ml	11 km ESE of Soda Springs, Idaho
2017-09-03 T00:19:45.290Z	42.6159	-111.4517	3.65	3.5 ml	13 km ESE of Soda Springs, Idaho
2017-09-03 T00:19:28.390Z	42.6281	-111.4633	7.38	3 ml	11 km ESE of Soda Springs, Idaho
2017-09-03 T00:17:13.610Z	42.6432	-111.4718	10	3.9 mwr	10 km E of Soda Springs, Idaho
2017-09-03 T00:16:38.040Z	42.6054	-111.4591	11.25	3.4 ml	13 km ESE of Soda Springs, Idaho
2017-09-03 T00:11:49.890Z	42.6343	-111.4649	6.76	3 ml	11 km E of Soda Springs, Idaho
2017-09-03 T00:07:14.730Z	42.686833	-111.410167	0.95	3.4 ml	16 km ENE of Soda Springs, Idaho
2017-09-03 T00:07:14.510Z	42.6635	-111.3986	10.59	3.2 ml	16 km E of Soda Springs, Idaho
2017-09-02 T23:59:50.850Z	42.622	-111.457333	6	4.07 ml	12 km ESE of Soda Springs, Idaho
2017-09-02 T23:59:15.960Z	42.666	-111.081833	11.73	3.36 md	8 km WSW of Fairview, Wyoming
2017-09-02 T23:56:52.630Z	42.6474	-111.4492	9.52	5.3 mww	12 km E of Soda Springs, Idaho
2017-09-02 T23:55:28.270Z	42.635	-111.4386	6.04	4 mwr	13 km E of Soda Springs, Idaho
2017-08-21 T03:00:48.960Z	44.810333	-111.088333	9.42	3.27 ml	9 km ENE of Hebgen Lake Estates, Montana
2017-08-15 T02:03:00.360Z	44.788	-111.048	8.63	3.02 ml	11 km E of Hebgen Lake Estates, Montana



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Time	Latitude	Longitude	Depth	Mag	Place
2017-08-10 T22:57:04.570Z	44.7013	-111.7701	6.27	3.1 ml	44 km NW of Island Park, Idaho
2017-08-05 T11:17:11.840Z	44.797333	-111.070667	8.48	3.26 ml	9 km ENE of Hebgen Lake Estates, Montana
2017-08-01 T13:16:12.730Z	44.802167	-111.077833	7.35	3.12 ml	9 km ENE of Hebgen Lake Estates, Montana
2017-07-18 T20:31:10.470Z	44.7875	-111.037833	10.51	3.61 ml	12 km E of Hebgen Lake Estates, Montana
2017-07-16 T17:21:06.600Z	44.762833	-111.010333	7.85	3.35 ml	13 km NNE of West Yellowstone, Montana
2017-06-16 T22:48:07.280Z	44.785333	-111.037333	8.94	3.01 ml	12 km E of Hebgen Lake Estates, Montana
2017-06-16 T01:03:15.140Z	44.775833	-111.038667	9.46	3.09 ml	12 km E of Hebgen Lake Estates, Montana
2017-06-16 T00:48:46.940Z	44.781333	-111.033167	9.3	4.36 ml	12 km E of Hebgen Lake Estates, Montana
2017-06-12 T22:54:55.650Z	44.7825	-111.038667	10.56	3.22 ml	12 km E of Hebgen Lake Estates, Montana
2017-06-12 T16:46:47.050Z	44.784833	-111.024	11.09	3.13 ml	13 km E of Hebgen Lake Estates, Montana
2017-02-06 T00:30:28.970Z	42.6909	-111.7102	2.95	3.4 ml	9 km WNW of Soda Springs, Idaho
2017-02-05 T21:25:47.390Z	44.797333	-113.023	3.49	3.13 ml	29 km ENE of Leadore, Idaho
2017-02-03 T13:35:40.260Z	44.752167	-111.7275	11.61	3.37 ml	42 km W of Hebgen Lake Estates, Montana
2017-01-22 T20:15:30.300Z	44.976833	-113.039333	1.1	3.31 ml	41 km SW of Dillon, Montana
2017-01-20 T16:37:32.000Z	44.801167	-110.993333	7.94	3.32 ml	15 km ENE of Hebgen Lake Estates, Montana
2017-01-07 T09:57:20.520Z	44.233167	-110.769667	4.14	3.35 ml	45 km ENE of Warm River, Idaho
2016-10-16 T19:55:17.630Z	42.7127	-111.7254	5.91	3.1 ml	11 km WNW of Soda Springs, Idaho
2016-08-27 T20:47:47.240Z	43.2226	-110.3593	12.3	4.8 mwr	4 km ENE of Bondurant, Wyoming
2016-06-20 T04:35:23.850Z	44.742333	-111.7535	10.08	3.4 ml	44 km W of Hebgen Lake Estates, Montana



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2016-06-14 T14:35:28.670Z	44.7325	-111.765167	9.72	3.98 ml	45 km W of Hebgen Lake Estates, Montana
2016-06-13 T12:14:39.050Z	44.730167	-111.763667	9.95	4.34 ml	45 km W of Hebgen Lake Estates, Montana
2016-06-09 T03:31:06.330Z	44.732833	-111.763167	9.81	3.66 ml	45 km W of Hebgen Lake Estates, Montana
2016-05-17 T09:38:47.860Z	45.232	-112.432	9.77	3.21 ml	16 km E of Dillon, Montana
2016-05-12 T17:40:22.480Z	44.785667	-112.7585	8.49	3.21 ml	21 km NW of Lima, Montana
2016-04-18 T01:58:39.210Z	45.038167	-111.864667	1.98	3.16 ml	29 km SSE of Virginia City, Montana
2016-02-28 T01:29:38.870Z	44.6168	-114.1212	7.35	3.6 ml	15 km NE of Challis, Idaho
2016-02-26 T23:00:39.490Z	43.5001	-110.3839	5.49	4 mwr	23 km SE of Kelly, Wyoming
2016-02-26 T07:39:37.800Z	44.6202	-114.136	6.33	3.3 ml	14 km NNE of Challis, Idaho
2016-02-26 T07:15:30.650Z	44.5548	-114.514	6.87	3.2 ml	23 km WNW of Challis, Idaho
2016-01-31 T20:00:36.830Z	44.4004	-112.9167	4.7	3.1 ml	36 km SW of Lima, Montana
2016-01-19 T06:29:09.950Z	44.4513	-114.1265	7.84	3.8 ml	10 km SE of Challis, Idaho
2015-12-22 T01:07:29.970Z	45.038	-111.862833	4.93	3.26 ml	29 km SSE of Virginia City, Montana
2015-12-18 T13:37:09.850Z	45.036333	-111.8545	4.51	3.47 ml	29 km SSE of Virginia City, Montana
2015-12-11 T01:51:26.540Z	44.544	-114.2752	6.76	3.5 ml	5 km NW of Challis, Idaho
2015-12-10 T21:54:33.430Z	44.563	-114.2753	6.33	3.3 ml	7 km NNW of Challis, Idaho
2015-10-22 T21:52:22.750Z	44.4703	-114.1393	6.57	3 ml	8 km ESE of Challis, Idaho
2015-09-18 T02:02:00.720Z	44.4515	-114.123	10.26	3.3 ml	10 km SE of Challis, Idaho
2015-08-29 T04:18:12.570Z	42.7866	-111.1429	8.48	3.3 ml	11 km W of Auburn, Wyoming
2015-08-25 T07:43:55.900Z	44.812	-111.5956	10.5	3.4 mc	32 km W of Hebgen Lake Estates, Montana
2015-06-07 T13:29:53.380Z	44.4271	-114.0792	5	3.2 ml	14 km SE of Challis, Idaho
2015-05-20 T02:53:09.400Z	44.3151	-114.8871	12.7	3 ml	11 km NNE of Stanley, Idaho
2015-05-18 T15:22:57.180Z	44.4344	-114.1085	5.66	3.3 ml	12 km SE of Challis, Idaho
2015-05-09 T06:33:41.400Z	44.3193	-114.8871	12.2	3 ml	12 km NNE of Stanley, Idaho
2015-03-13 T16:55:27.100Z	42.412	-111.354	-2.73	3.38 ml	3 km NW of Bennington, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
2015-03-06 T23:03:51.300Z	44.4346	-114.1186	10.6	3.1 ml	11 km SE of Challis, Idaho
2015-03-04 T10:23:49.400Z	44.4555	-114.1393	14.3	3 ml	9 km SE of Challis, Idaho
2015-02-13 T13:37:19.600Z	44.3496	-114.0528	13.2	3 md	22 km SE of Challis, Idaho
2015-02-11 T01:52:09.200Z	44.853	-111.459	6.1	3 ml	23 km WNW of Hebgen Lake Estates, Montana
2015-02-08 T19:00:46.000Z	44.3521	-114.0543	13.6	3.7 md	22 km SE of Challis, Idaho
2015-01-26 T04:50:56.500Z	44.3486	-114.0488	12.8	3.6 md	22 km SE of Challis, Idaho
2015-01-15 T20:51:02.400Z	44.4435	-114.146	12	3.2 md	9 km SE of Challis, Idaho
2015-01-15 T20:11:31.300Z	44.4375	-114.118	12.6	3.5 md	11 km SE of Challis, Idaho
2015-01-10 T22:28:35.600Z	44.4513	-114.1256	13	3.6 ml	southern Idaho
2015-01-10 T01:36:50.000Z	44.4526	-114.1101	9.7	3 ml	11 km ESE of Challis, Idaho
2015-01-10 T01:30:43.100Z	44.4551	-114.1098	10.2	3.8 ml	11 km ESE of Challis, Idaho
2015-01-04 T13:21:55.250Z	44.4777	-114.1742	6.12	3.7 mwr	5 km ESE of Challis, Idaho
2015-01-04 T10:47:54.900Z	44.464	-114.1671	11.5	3.8 ml	6 km SE of Challis, Idaho
2015-01-04 T07:34:12.300Z	44.4793	-114.1761	10.5	3.8 mwr	5 km ESE of Challis, Idaho
2015-01-04 T06:35:23.600Z	44.445	-114.1493	10.9	3.6 mwr	9 km SE of Challis, Idaho
2015-01-04 T02:23:03.100Z	44.4566	-114.1648	12.4	3 ml	7 km SE of Challis, Idaho
2015-01-04 T01:25:13.700Z	44.4483	-114.1421	11.7	3.5 ml	9 km SE of Challis, Idaho
2015-01-03 T22:58:25.500Z	44.4448	-114.137	12.6	3.3 ml	10 km SE of Challis, Idaho
2015-01-03 T20:38:09.600Z	44.4441	-114.1375	12.3	3 ml	10 km SE of Challis, Idaho
2015-01-03 T20:34:20.500Z	44.4576	-114.15	11.7	3 ml	8 km SE of Challis, Idaho
2015-01-03 T19:29:41.200Z	44.4435	-114.1451	12.8	3.1 ml	9 km SE of Challis, Idaho
2015-01-03 T19:19:26.900Z	44.4465	-114.1431	13.5	3.3 ml	9 km SE of Challis, Idaho
2015-01-03 T18:06:00.000Z	44.4455	-114.144	13.8	3.1 md	9 km SE of Challis, Idaho
2015-01-03 T17:44:03.530Z	44.5074	-114.112	8.5	5 mww	9 km E of Challis, Idaho
2014-12-30 T02:09:45.100Z	44.457	-114.1503	11.1	3.3 ml	8 km SE of Challis, Idaho
2014-12-24 T04:10:37.400Z	44.4556	-114.1515	9.7	3.7 ml	8 km SE of Challis, Idaho
2014-12-23 T13:52:34.700Z	44.4606	-114.1566	10.7	3.8 ml	7 km SE of Challis, Idaho
2014-12-23 T11:56:26.200Z	44.42	-114.159	6.5	3.9 ml	11 km SSE of Challis, Idaho
2014-12-23 T11:55:54.000Z	44.4535	-114.152	10.4	3.7 ml	8 km SE of Challis, Idaho



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2014-12-23 T11:53:33.700Z	44.4553	-114.1576	10	3.4 ml	8 km SE of Challis, Idaho
2014-12-23 T01:31:21.500Z	44.4466	-114.1375	11.8	3.3 ml	9 km SE of Challis, Idaho
2014-12-22 T17:20:36.800Z	44.473	-114.1635	9.1	3.7 ml	6 km ESE of Challis, Idaho
2014-11-30 T22:59:56.100Z	44.9888	-111.8663	8.8	3.3 mc	34 km S of Virginia City, Montana
2014-11-11 T15:16:30.590Z	42.5041	-111.5625	3.31	3.3 ml	15 km ESE of Grace, Idaho
2014-10-27 T10:35:21.300Z	44.819	-111.5033	9.8	3.1 mc	25 km WNW of Hebgen Lake Estates, Montana
2014-10-01 T02:34:57.760Z	43.1121	-110.7163	1.85	3.5 ml	19 km SSE of Hoback, Wyoming
2014-08-30 T20:09:14.480Z	43.7604	-110.8592	4.81	3.7 mwr	14 km E of Alta, Wyoming
2014-07-17 T23:31:51.000Z	43.76	-111.18	8.2	3.3 md	6 km SSW of Tetonia, Idaho
2014-06-26 T09:09:15.500Z	44.0981	-114.5711	8.9	3 md	22 km SW of Clayton, Idaho
2014-05-05 T09:27:45.000Z	44.58	-114.32	5.8	3.7 ml	10 km NW of Challis, Idaho
2014-05-03 T08:34:07.000Z	44.59	-114.33	8.2	3.7 mwr	12 km NW of Challis, Idaho
2014-04-30 T16:59:54.000Z	44.58	-114.32	7.3	3 ml	10 km NW of Challis, Idaho
2014-04-22 T13:42:07.000Z	44.59	-114.33	6.6	3.2 ml	12 km NW of Challis, Idaho
2014-04-14 T22:43:39.000Z	44.61	-114.33	9.8	3.3 ml	14 km NNW of Challis, Idaho
2014-04-14 T22:35:01.000Z	44.59	-114.32	11.2	3.2 ml	11 km NW of Challis, Idaho
2014-04-14 T20:24:03.310Z	44.6767	-114.3476	5	3.2 ml	21 km NNW of Challis, Idaho
2014-04-14 T20:16:45.000Z	44.6	-114.33	7.4	4.4 mwr	13 km NW of Challis, Idaho
2014-04-14 T18:58:37.000Z	44.57	-114.3	8.9	3.3 ml	9 km NW of Challis, Idaho
2014-04-13 T00:23:49.000Z	44.58	-114.31	7.7	3.1 ml	10 km NW of Challis, Idaho
2014-04-13 T00:04:39.000Z	44.62	-114.33	3.5	4.8 mwr	15 km NNW of Challis, Idaho
2014-04-12 T13:06:20.470Z	44.6475	-114.3214	5	3.5 ml	17 km NNW of Challis, Idaho
2014-04-10 T12:21:33.500Z	44.591	-114.321	7.2	4 mwr	11 km NW of Challis, Idaho
2014-04-09 T05:54:55.510Z	43.255	-110.7257	5	3.3 ml	5 km ESE of Hoback, Wyoming
2014-03-30 T11:27:36.210Z	44.6298	-114.2857	5	3.1 ml	14 km NNW of Challis, Idaho
2014-03-25 T17:24:27.960Z	44.694	-114.3064	5	3.2 ml	21 km NNW of Challis, Idaho
2014-03-25 T16:55:35.770Z	44.6532	-114.3092	5	3.7 mwr	17 km NNW of Challis, Idaho
2014-03-24 T19:18:26.320Z	44.6513	-114.3138	5	3.3 ml	17 km NNW of Challis, Idaho



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2014-03-24 T18:57:58.350Z	44.6995	-114.3053	2.16	3.1 ml	22 km NNW of Challis, Idaho
2014-03-24 T18:43:33.340Z	44.6637	-114.3237	5	3.3 ml	19 km NNW of Challis, Idaho
2014-02-15 T10:23:53.340Z	44.774167	-111.0835	8.15	3 ml	8 km E of Hebgen Lake Estates, Montana
2013-12-30 T00:04:03.940Z	43.7225	-111.1332	4.05	3.1 ml	1 km W of Driggs, Idaho
2013-12-23 T01:39:35.900Z	44.823	-111.445	10.1	3.1 md	21 km WNW of Hebgen Lake Estates, Montana
2013-12-08 T18:08:08.570Z	43.2228	-110.5414	5	3.6 mwr	10 km WNW of Bondurant, Wyoming
2013-12-08 T17:40:54.500Z	43.2419	-110.597	5	3.6 ml	15 km ESE of Hoback, Wyoming
2013-11-29 T13:45:04.750Z	42.6727	-111.1116	5	3.3 ml	10 km W of Fairview, Wyoming
2013-11-24 T07:18:36.150Z	44.813	-111.016833	9.75	3.13 ml	14 km ENE of Hebgen Lake Estates, Montana
2013-11-23 T20:47:35.930Z	44.814333	-111.020167	10.6	3.36 ml	14 km ENE of Hebgen Lake Estates, Montana
2013-11-20 T02:32:33.900Z	44.843	-111.485	7.6	3.1 Md	24 km WNW of Hebgen Lake Estates, Montana
2013-11-17 T13:57:26.600Z	42.9343	-111.1223	0.9	3.3 ml	8 km SW of Freedom, Idaho
2013-10-19 T08:11:29.290Z	42.9573	-111.0194	5	3.2 mwr	3 km SE of Freedom, Idaho
2013-10-19 T00:05:52.420Z	43.4893	-111.0585	6.99	3.8 mwr	13 km SSE of Victor, Idaho
2013-09-15 T15:53:02.760Z	44.561167	-110.824667	10.12	3.58 ml	24 km ESE of West Yellowstone, Montana
2013-09-15 T11:11:00.860Z	44.585667	-110.830167	7.4	3.24 ml	23 km ESE of West Yellowstone, Montana
2013-09-15 T11:10:19.350Z	44.562	-110.819833	8.37	3.43 ml	25 km ESE of West Yellowstone, Montana
2013-09-10 T12:57:51.150Z	44.323333	-110.619333	7.09	3.09 ml	Wyoming
2013-09-10 T12:46:12.060Z	44.322833	-110.619833	6.95	3.31 ml	53 km SE of West Yellowstone, Montana
2013-08-28 T17:53:54.100Z	44.7773	-111.8256	7.2	3 Md	50 km W of Hebgen Lake Estates, Montana
2013-08-21 T19:06:43.800Z	45.2645	-112.7451	9.6	3.2 Md	10 km WNW of Dillon, Montana



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Time	Latitude	Longitude	Depth	Mag	Place
2013-07-18 T06:20:09.290Z	44.18	-114.53	12	3.3 ml	13 km SW of Clayton, Idaho
2013-07-01 T10:49:07.980Z	44.760667	-110.916833	13.97	3.08 ml	18 km NE of West Yellowstone, Montana
2013-06-20 T21:01:19.750Z	43.023	-110.85	5	3.1 ml	10 km ENE of Star Valley Ranch, Wyoming
2013-06-06 T02:09:21.400Z	44.8196	-111.45	10.1	3.3 Md	21 km WNW of Hebgen Lake Estates, Montana
2013-05-29 T13:32:41.220Z	41.8465	-112.3225	0.89	3.12 ml	11 km ENE of Howell, Utah
2013-05-23 T17:31:21.100Z	44.5783	-112.7233	10.8	3.2 Md	12 km WSW of Lima, Montana
2013-05-22 T08:37:29.700Z	44.5668	-112.7213	11.3	3 Md	Idaho-Montana border region
2013-05-21 T11:20:36.800Z	44.57	-112.7223	11.1	3.2 Md	12 km SW of Lima, Montana
2013-05-21 T08:34:18.100Z	44.5675	-112.726	9.7	3.3 Md	13 km SW of Lima, Montana
2013-05-16 T05:23:52.700Z	42.753	-111.103	4.6	3.6 mwr	9 km WSW of Auburn, Wyoming
2013-05-06 T03:20:57.990Z	42.642	-111.998	5	3.5 mwr	2 km NNE of Lava Hot Springs, Idaho
2013-05-06 T03:13:44.140Z	42.628	-111.826	5	3.9 mwr	9 km NW of Grace, Idaho
2013-03-31 T17:41:08.670Z	44.805667	-110.9995	11.26	3.27 ml	15 km ENE of Hebgen Lake Estates, Montana
2013-03-01 T07:50:23.260Z	42.565	-110.973	5	3.9 mwr	7 km SW of Smoot, Wyoming
2012-10-15 T04:02:15.470Z	44.391833	-111.047833	8.91	3.1 ml	25 km E of Island Park, Idaho
2012-10-15 T03:20:45.080Z	44.3905	-111.039333	11.7	3.12 ml	26 km E of Island Park, Idaho
2012-10-15 T02:54:52.400Z	44.393833	-111.0435	12.42	3.16 ml	26 km E of Island Park, Idaho
2012-09-05 T22:52:50.710Z	44.776667	-110.932333	8.67	3.51 ml	18 km NE of West Yellowstone, Montana
2012-08-26 T08:22:07.000Z	44.46	-114.51	13.1	3 md	22 km WSW of Challis, Idaho
2012-08-15 T22:27:27.720Z	44.175	-114.787	5	3 ml	13 km ESE of Stanley, Idaho
2012-08-07 T05:07:13.790Z	44.753	-111.094833	10.18	3.19 ml	7 km ESE of Hebgen Lake Estates, Montana
2012-07-13 T19:53:16.840Z	41.903333	-111.913	5.69	3.53 ml	2 km ESE of Trenton, Utah
2012-05-10 T01:18:30.560Z	43.112	-110.457	5	3.6 mwr	10 km SSW of Bondurant, Wyoming



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Time	Latitude	Longitude	Depth	Mag	Place
2012-01-08 T12:39:36.930Z	42.898	-110.793	5	3 ml	9 km ENE of Turnerville, Wyoming
2012-01-05 T07:20:10.160Z	42.548	-111.213	5	3.4 ml	14 km ENE of Georgetown, Idaho
2011-12-01 T08:00:05.410Z	42.482667	-111.1555	1.31	3.05 ml	17 km NE of Bennington, Idaho
2011-11-23 T06:26:29.090Z	44.925	-112.73	0.5	3.1 md	33 km SSW of Dillon, Montana
2011-11-22 T18:09:40.270Z	44.4575	-110.972333	5.39	3.06 ml	25 km SSE of West Yellowstone, Montana
2011-07-26 T03:38:26.800Z	42.053	-111.559	0.07	3.65 ml	15 km WSW of Saint Charles, Idaho
2011-07-19 T06:42:31.250Z	43.136	-110.857	5	3.5 mwr	13 km ESE of Alpine, Wyoming
2011-07-18 T23:28:29.050Z	43.55	-110.431	5	3.3 mwr	17 km ESE of Kelly, Wyoming
2011-07-12 T16:42:47.000Z	45.33	-112.56	11	3.2 ml	14 km NNE of Dillon, Montana
2011-05-08 T04:32:19.340Z	44.7985	-110.982167	10.68	3.13 ml	16 km E of Hebgen Lake Estates, Montana
2011-04-05 T07:05:26.000Z	44.611	-112.087	12.1	4.4 mwr	28 km NNE of Spencer, Idaho
2011-03-16 T19:09:36.000Z	44.61	-112.08	10.9	3 ml	29 km NNE of Spencer, Idaho
2011-01-26 T05:10:10.810Z	42.437	-111.507	0.44	3.73 ml	12 km WSW of Georgetown, Idaho
2011-01-12 T22:04:53.570Z	42.118167	-111.5415	5.48	3.1 md	12 km W of Saint Charles, Idaho
2010-12-26 T15:53:54.000Z	44.72	-111.74	10.8	3.2 ml	43 km W of Hebgen Lake Estates, Montana
2010-12-22 T00:53:57.520Z	43.134	-110.701	5	3.6 mwr	17 km SSE of Hoback, Wyoming
2010-10-26 T04:12:47.930Z	43.631	-110.505	5	3.3 ml	9 km E of Kelly, Wyoming
2010-10-26 T01:24:17.040Z	43.627	-110.458	5	3.8 mwr	13 km E of Kelly, Wyoming
2010-10-24 T17:43:59.540Z	43.626	-110.374	5	4.4 mwc	20 km E of Kelly, Wyoming
2010-10-18 T08:52:45.310Z	44.487	-114.44	5	3.3 ml	16 km W of Challis, Idaho
2010-10-13 T19:18:15.000Z	43.07	-110.84	11.9	3.3 ml	14 km NE of Star Valley Ranch, Wyoming
2010-09-20 T00:47:22.190Z	43.597	-110.427	5	3.4 mwr	16 km E of Kelly, Wyoming



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Time	Latitude	Longitude	Depth	Mag	Place
2010-09-13 T02:43:53.890Z	43.121	-110.678	5	3.8 mwr	19 km SSE of Hoback, Wyoming
2010-09-12 T22:20:31.050Z	43.099	-110.654	5	3.9 mwr	22 km SSE of Hoback, Wyoming
2010-09-12 T20:20:03.270Z	43.134	-110.479	5	3.2 ml	9 km SW of Bondurant, Wyoming
2010-09-12 T20:09:45.300Z	43.123	-110.704	5	4 mwr	18 km SSE of Hoback, Wyoming
2010-09-07 T10:08:26.000Z	44.95	-111.75	12.1	3.6 ml	41 km SSE of Virginia City, Montana
2010-08-17 T09:22:20.420Z	43.611	-110.477	5	3.3 mwr	11 km E of Kelly, Wyoming
2010-08-17 T02:49:55.800Z	43.593	-110.344	5	4.1 mwr	22 km E of Kelly, Wyoming
2010-08-14 T14:39:12.780Z	43.626	-110.544	5	3 mwr	6 km E of Kelly, Wyoming
2010-08-09 T06:12:20.540Z	43.614	-110.503	5	3 ml	9 km E of Kelly, Wyoming
2010-08-07 T11:19:05.330Z	43.61	-110.457	5	3.7 mwr	13 km E of Kelly, Wyoming
2010-08-06 T15:34:17.990Z	43.626	-110.496	5	3.4 mwr	10 km E of Kelly, Wyoming
2010-08-05 T17:45:21.410Z	43.637	-110.576	5	3.3 mwr	4 km ENE of Kelly, Wyoming
2010-08-05 T14:59:29.000Z	43.645	-110.383	5	4.2 mwr	19 km E of Kelly, Wyoming
2010-08-05 T00:04:17.860Z	43.596	-110.391	5	4.8 mwr	19 km E of Kelly, Wyoming
2010-08-05 T00:04:03.340Z	43.593	-110.434	5	3 ml	15 km ESE of Kelly, Wyoming
2010-06-28 T05:31:29.590Z	42.577	-111.427	5	3 ml	11 km NNW of Georgetown, Idaho
2010-06-20 T23:59:15.330Z	42.787	-111.131	5	3.3 ml	10 km W of Auburn, Wyoming
2010-06-18 T09:25:57.270Z	42.784	-111.09	5	3.3 ml	7 km W of Auburn, Wyoming
2010-04-30 T18:34:57.000Z	44.79	-111.54	11.4	3.3 ml	27 km W of Hebgen Lake Estates, Montana
2010-04-30 T18:34:21.000Z	44.79	-111.54	12.6	3.3 ml	27 km W of Hebgen Lake Estates, Montana
2010-04-14 T17:16:14.000Z	45.33	-112.6	10.5	3.3 ml	12 km NNE of Dillon, Montana
2010-04-05 T14:48:00.210Z	44.598333	-110.978667	8.36	3.01 ml	12 km SE of West Yellowstone, Montana
2010-04-04 T03:15:50.920Z	44.598167	-110.990333	7.76	3.29 ml	11 km SE of West Yellowstone, Montana



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Time	Latitude	Longitude	Depth	Mag	Place
2010-02-03 T02:31:45.650Z	44.5555	-110.938	8.37	3.12 ml	17 km SE of West Yellowstone, Montana
2010-01-28 T08:46:14.450Z	44.571333	-110.9645	10.4	3.22 ml	14 km SE of West Yellowstone, Montana
2010-01-27 T19:52:15.630Z	44.571333	-110.9595	11.7	3.03 ml	15 km SE of West Yellowstone, Montana
2010-01-27 T01:28:41.120Z	44.564833	-110.961	11.59	3.11 ml	15 km SE of West Yellowstone, Montana
2010-01-25 T10:27:35.560Z	44.564833	-110.956167	11.85	3.04 ml	15 km SE of West Yellowstone, Montana
2010-01-25 T06:21:32.900Z	44.562667	-110.957833	12.01	3.04 ml	16 km SE of West Yellowstone, Montana
2010-01-25 T06:09:45.130Z	44.566	-110.958667	11.75	3.19 ml	15 km SE of West Yellowstone, Montana
2010-01-23 T22:01:28.140Z	43.511	-110.241	8	3.5 mwr	33 km ESE of Kelly, Wyoming
2010-01-22 T05:38:39.220Z	44.548333	-110.969167	11.11	3.3 ml	16 km SE of West Yellowstone, Montana
2010-01-21 T13:23:30.400Z	44.576833	-110.968167	9.49	3 md	14 km SE of West Yellowstone, Montana
2010-01-21 T06:16:18.350Z	44.565667	-110.965333	11.3	3.87 ml	15 km SE of West Yellowstone, Montana
2010-01-21 T06:01:49.590Z	44.563167	-110.973333	10.74	3.74 ml	15 km SE of West Yellowstone, Montana
2010-01-20 T04:41:02.270Z	44.567667	-110.960333	10.77	3.42 ml	15 km SE of West Yellowstone, Montana
2010-01-20 T01:35:35.920Z	44.559333	-110.965	11.25	3.22 ml	15 km SE of West Yellowstone, Montana
2010-01-19 T21:32:30.490Z	44.561167	-110.9695	10.29	3.63 ml	15 km SE of West Yellowstone, Montana
2010-01-19 T16:48:30.760Z	44.566833	-110.961333	10.37	3.27 ml	15 km SE of West Yellowstone, Montana
2010-01-19 T04:42:13.340Z	44.566833	-110.961833	10.79	3.07 ml	15 km SE of West Yellowstone, Montana
2010-01-19 T03:39:38.460Z	44.563333	-110.966833	11.16	3.38 ml	15 km SE of West Yellowstone, Montana



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Time	Latitude	Longitude	Depth	Mag	Place
2010-01-18 T18:03:13.480Z	44.558333	-110.966667	11.46	3.09 ml	15 km SE of West Yellowstone, Montana
2010-01-01 T04:13:44.710Z	42.616	-111.058	5	3 ml	10 km SW of Fairview, Wyoming
2009-12-04 T03:54:43.000Z	44.78	-112.34	14.3	3.6 ml	25 km NE of Lima, Montana
2009-08-08 T02:14:18.000Z	44.87	-111.74	11.2	3.7 ml	44 km WNW of Hebgen Lake Estates, Montana
2009-06-03 T21:47:01.690Z	41.805667	-112.213833	9.47	4 ml	5 km WNW of Riverside, Utah
2009-05-07 T09:16:09.000Z	44.83	-111.51	12.9	3.1 ml	Idaho-Montana border region
2009-04-18 T19:59:48.000Z	45.33	-112.59	10.7	3.3 ml	13 km NNE of Dillon, Montana
2009-03-21 T08:47:50.710Z	43.322	-110.718	5	3.4 mwr	6 km NE of Hoback, Wyoming
2009-01-31 T13:43:37.730Z	42.338833	-111.181333	6.73	3.11 ml	9 km E of Montpelier, Idaho
2009-01-16 T04:15:35.650Z	43.222	-110.87	5	4 mwr	9 km SW of Hoback, Wyoming
2008-11-27 T03:14:16.000Z	44.06	-114.68	10.9	3.6 ml	27 km SE of Stanley, Idaho
2008-11-26 T17:33:58.000Z	44.06	-114.68	10.5	3.7 ml	27 km SE of Stanley, Idaho
2008-08-16 T02:24:22.950Z	42.484167	-111.588167	6.84	3.26 ml	15 km SE of Grace, Idaho
2008-07-22 T09:32:52.520Z	42.897	-111.213	5	3.3 mwr	16 km SW of Freedom, Idaho
2008-04-16 T18:03:33.000Z	44.62	-112.1	10.9	3.2 ml	29 km NNE of Spencer, Idaho
2008-03-25 T09:22:04.000Z	45.29	-112.57	11.9	3.1 ml	9 km NNE of Dillon, Montana
2008-02-23 T05:13:51.000Z	44.61	-112.09	9.8	3 ml	28 km NNE of Spencer, Idaho
2008-02-22 T21:57:26.000Z	44.61	-112.09	9.8	3.1 ml	28 km NNE of Spencer, Idaho
2008-02-01 T21:36:54.080Z	41.810667	-112.2175	8.59	3.54 ml	6 km WNW of Riverside, Utah
2008-01-09 T21:37:36.300Z	44.7845	-110.939333	10.12	3.73 ml	18 km NE of West Yellowstone, Montana
2007-12-31 T03:29:20.120Z	44.787833	-110.943	10.08	3.6 ml	18 km NE of West Yellowstone, Montana
2007-10-28 T13:35:27.680Z	43.441	-110.509	5	3.1 ml	20 km ESE of Jackson, Wyoming
2007-09-04 T11:17:19.000Z	44.38	-114.58	13.7	3.1 ml	19 km NW of Clayton, Idaho
2007-02-23 T14:39:04.000Z	44.48	-114.14	7.8	3.1 ml	7 km ESE of Challis, Idaho
2007-02-15 T03:44:22.000Z	44.62	-112.09	11.8	3.1 ml	29 km NNE of Spencer, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
2006-09-29 T10:40:32.000Z	45.01	-111.75	6.6	3.1 ml	35 km SSE of Virginia City, Montana
2006-09-02 T19:54:59.720Z	42.430833	-111.515333	2.35	3.57 ml	13 km WSW of Georgetown, Idaho
2006-08-02 T15:54:45.000Z	44.56	-114.23	12.6	3.5 ml	southern Idaho
2006-07-25 T16:12:54.320Z	42.414	-111.502833	4.51	3.09 ml	13 km SW of Georgetown, Idaho
2006-07-14 T17:06:01.140Z	42.4235	-111.5245	6.42	3.97 ml	14 km WSW of Georgetown, Idaho
2006-06-30 T16:55:01.240Z	42.429833	-111.502833	10.07	4.27 ml	12 km WSW of Georgetown, Idaho
2006-06-14 T17:27:34.000Z	44.77	-112.99	9.4	3 ml	30 km ENE of Leadore, Idaho
2006-06-07 T04:04:03.600Z	43.354	-111.367	5	3.3 mwr	8 km SW of Irwin, Idaho
2006-06-06 T16:14:45.000Z	44.99	-111.83	12.6	3 ml	34 km SSE of Virginia City, Montana
2006-04-04 T15:31:49.640Z	43.505	-110.353	5	3.2 ml	25 km ESE of Kelly, Wyoming
2006-03-02 T17:02:17.000Z	45.32	-112.63	11.2	3.2 ml	11 km N of Dillon, Montana
2006-02-10 T01:36:26.000Z	45.32	-112.62	10.8	3.4 ml	11 km N of Dillon, Montana
2006-02-05 T03:25:52.000Z	44.69	-111.87	14	4.4 mwr	44 km NE of Spencer, Idaho
2006-01-09 T07:45:42.000Z	44.62	-112.36	10.5	3.1 ml	18 km E of Lima, Montana
2005-11-25 T16:29:08.920Z	44.943	-114.238	5	3.5 ml	37 km SW of Salmon, Idaho
2005-11-21 T17:52:32.260Z	44.835	-111.509	5	3.5 mwr	26 km WNW of Hebgen Lake Estates, Montana
2005-11-21 T17:50:41.500Z	44.826	-111.513	5	3.1 ml	26 km WNW of Hebgen Lake Estates, Montana
2005-10-31 T00:23:30.930Z	44.874	-113.399	5	4.5 mwc	21 km N of Leadore, Idaho
2005-09-03 T05:24:41.000Z	44.9	-114.21	12.6	3 ml	39 km SW of Salmon, Idaho
2005-06-29 T18:47:54.000Z	44.63	-112.5	9.1	3.2 ml	7 km E of Lima, Montana
2005-03-31 T10:35:37.490Z	44.284	-114.129	5	3.1 ml	21 km E of Clayton, Idaho
2005-03-18 T23:31:18.000Z	45	-111.89	10.5	3.6 ml	32 km S of Virginia City, Montana
2005-02-04 T20:48:38.370Z	44.431	-114.08	5	3 ml	14 km SE of Challis, Idaho
2005-02-03 T16:55:07.760Z	43.57	-110.414	5	3 ml	17 km ESE of Kelly, Wyoming



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Time	Latitude	Longitude	Depth	Mag	Place
2005-01-29 T08:28:34.030Z	44.432	-114.09	5	3 ml	13 km SE of Challis, Idaho
2004-11-21 T15:50:31.450Z	44.412	-114.08	5	3.9 mwr	15 km SE of Challis, Idaho
2004-10-17 T20:31:57.120Z	42.582	-111.153	5	3.2 ml	18 km SW of Fairview, Wyoming
2004-08-14 T20:14:43.210Z	43.173	-111.018	2.3	3.6 mwr	1 km N of Alpine, Wyoming
2004-07-28 T18:27:03.500Z	43.602	-110.397	5	3.1 ml	18 km E of Kelly, Wyoming
2004-06-18 T06:44:13.810Z	43.976	-113.797	3.5	3.3 ml	16 km WNW of Mackay, Idaho
2004-04-07 T15:54:12.700Z	43.603	-110.397	5	4 ml	18 km E of Kelly, Wyoming
2004-03-15 T22:00:12.810Z	44.176	-114.866	10	3 ml	7 km SE of Stanley, Idaho
2004-03-02 T03:54:32.000Z	44.75	-111.23	10.6	3.2 ml	3 km SW of Hebgen Lake Estates, Montana
2004-02-25 T00:41:03.510Z	42.002167	-111.8165	4.64	3.38 ml	1 km SSW of Franklin, Idaho
2004-02-21 T06:31:32.920Z	43.577	-110.37	1.8	3.6 ml	21 km ESE of Kelly, Wyoming
2004-01-22 T03:17:39.360Z	43.623	-110.616	5	3.1 ml	0 km E of Kelly, Wyoming
2004-01-07 T09:34:03.500Z	43.581	-110.382	5	3.2 ml	20 km ESE of Kelly, Wyoming
2004-01-07 T09:23:46.690Z	43.586	-110.404	5	4 ml	18 km ESE of Kelly, Wyoming
2004-01-07 T08:44:21.500Z	43.597	-110.405	5	4 mb	17 km E of Kelly, Wyoming
2004-01-07 T08:36:48.150Z	43.56	-110.422	5	3.4 ml	17 km ESE of Kelly, Wyoming
2004-01-07 T08:27:01.910Z	43.56	-110.387	5	3.7 ml	20 km ESE of Kelly, Wyoming
2004-01-07 T08:13:20.230Z	43.585	-110.419	5	3 ml	17 km ESE of Kelly, Wyoming
2004-01-07 T07:51:37.320Z	43.571	-110.383	3.1	5 mwc	20 km ESE of Kelly, Wyoming
2003-12-31 T06:16:51.580Z	43.578	-110.388	5	3.8 ml	19 km ESE of Kelly, Wyoming
2003-09-20 T18:39:22.000Z	45.1	-111.82	1	3.1 ml	23 km SSE of Virginia City, Montana
2003-09-10 T10:20:39.260Z	44.097833	-110.565667	5.46	3.32 ml	52 km N of Kelly, Wyoming
2003-08-21 T07:46:52.590Z	44.094667	-110.514833	5.82	4.31 ml	53 km N of Kelly, Wyoming
2003-05-17 T17:01:50.380Z	43.463	-110.282	5	3.5 ml	30 km NNE of Bondurant, Wyoming
2003-05-01 T00:54:44.800Z	43.463	-110.313	5	3.3 ml	29 km NNE of Bondurant, Wyoming
2003-04-30 T08:38:43.570Z	43.463	-110.759	5	3.5 ml	1 km S of Jackson, Wyoming
2003-03-06 T11:38:55.880Z	43.287	-110.667	5	3 ml	9 km E of Hoback, Wyoming



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Time	Latitude	Longitude	Depth	Mag	Place
2003-02-05 T22:25:02.990Z	44.326	-113.264	5	3.5 ml	40 km S of Leadore, Idaho
2003-02-01 T20:37:31.470Z	41.832333	-112.2105	3.95	3.15 ml	7 km NW of Riverside, Utah
2003-01-16 T10:07:31.700Z	42.658	-111.024	5	3.4 ml	4 km SW of Fairview, Wyoming
2003-01-05 T20:36:57.000Z	44.81	-111.46	11.7	3 ml	Idaho-Montana border region
2002-12-19 T07:25:39.150Z	42.958	-111.545	5	3.1 ml	34 km N of Soda Springs, Idaho
2002-11-20 T02:14:12.820Z	44.096833	-110.5055	6.82	3.16 ml	53 km N of Kelly, Wyoming
2002-11-10 T04:36:35.530Z	43.552	-110.335	5	3 ml	24 km ESE of Kelly, Wyoming
2002-10-23 T09:50:32.480Z	43.206	-110.983	5	3.4 ml	2 km ENE of Alpine Northeast, Wyoming
2002-10-22 T04:11:15.890Z	43.189	-110.822	5	4.2 mb	10 km SSW of Hoback, Wyoming
2002-10-22 T04:08:10.240Z	43.197	-110.947	5	3.2 ml	4 km E of Alpine Northeast, Wyoming
2002-10-06 T08:32:22.000Z	44.87	-112.71	8.9	3.1 ml	Idaho-Montana border region
2002-09-21 T14:27:47.510Z	44.545	-114.445	5	3 ml	17 km WNW of Challis, Idaho
2002-07-23 T08:17:16.310Z	42.656	-111.223	5	3 ml	20 km W of Fairview, Wyoming
2002-05-08 T15:51:30.000Z	43.17	-110.78	7	3.2 md	12 km S of Hoback, Wyoming
2002-05-08 T15:19:59.000Z	43.17	-110.77	7	3.3 md	12 km S of Hoback, Wyoming
2002-03-31 T18:35:01.740Z	43.159	-110.718	5	3.5 ml	14 km SSE of Hoback, Wyoming
2002-03-25 T10:09:05.000Z	43.19	-110.79	0	3.1 md	10 km S of Hoback, Wyoming
2002-03-24 T22:00:31.000Z	43.18	-110.79	0	3.4 md	11 km S of Hoback, Wyoming
2002-01-31 T06:29:00.000Z	45	-111.83	6.4	3.4 ml	33 km SSE of Virginia City, Montana
2002-01-29 T04:36:58.540Z	43.586	-110.607	5	3.7 ml	4 km SSE of Kelly, Wyoming
2002-01-22 T08:31:07.810Z	44.439	-114.155	5	3.9 ml	9 km SE of Challis, Idaho
2002-01-04 T13:11:40.860Z	43.007	-111.48	5	3.2 ml	35 km W of Freedom, Idaho
2002-01-02 T08:30:57.550Z	43.477	-110.236	5	3.1 ml	33 km NNE of Bondurant, Wyoming
2001-12-12 T11:17:21.000Z	45.07	-111.8	5.6	3 ml	27 km SSE of Virginia City, Montana
2001-12-08 T19:08:02.190Z	44.806667	-111.045833	7.77	3.1 ml	12 km ENE of Hebgen Lake Estates, Montana



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Time	Latitude	Longitude	Depth	Mag	Place
2001-11-04 T20:33:39.000Z	44.91	-111.44	5.5	3 ml	25 km NW of Hebgen Lake Estates, Montana
2001-10-11 T05:47:28.800Z	42.983	-111.479	5	3.1 ml	35 km W of Freedom, ID
2001-10-08 T13:47:15.000Z	44.85	-112.85	0.1	3.6 ml	31 km NW of Lima, Montana
2001-10-04 T18:45:11.000Z	44.84	-112.85	0.1	3.1 ml	30 km NW of Lima, Montana
2001-10-02 T16:42:53.590Z	42.987	-111.463	5	3.3 ml	34 km W of Freedom, Idaho
2001-08-31 T12:14:52.710Z	42.4645	-111.186667	7.11	3.13 ml	13 km NE of Bennington, Idaho
2001-05-08 T10:20:11.140Z	44.795	-112.775	10.2	3.8 ml	22 km NW of Lima, Montana
2001-04-21 T17:18:56.950Z	42.925	-111.395	0.8	5.3 mwc	29 km WSW of Freedom, Idaho
2001-04-21 T17:13:48.730Z	42.909	-111.367	5	3.5 ml	27 km WSW of Freedom, Idaho
2001-04-01 T23:58:08.080Z	43.222	-111.003	5	3.1 ml	3 km N of Alpine Northeast, Wyoming
2001-01-28 T20:30:19.200Z	44.68	-111.865	6.1	3.8 ml	43 km NE of Spencer, Idaho
2001-01-05 T13:56:24.980Z	42.684	-111.087	5	3 ml	8 km W of Fairview, Wyoming
2000-12-08 T15:33:06.500Z	44.85	-113.005	4.4	3.3 ml	33 km NE of Leadore, Idaho
2000-12-05 T22:48:49.160Z	44.896	-113.397	5	3.5 ml	24 km N of Leadore, Idaho
2000-12-01 T12:16:02.720Z	43.174	-110.745	5	3.2 ml	12 km SSE of Hoback, Wyoming
2000-11-15 T10:11:56.710Z	44.452	-114.111	5	3.6 ml	11 km ESE of Challis, Idaho
2000-10-27 T13:17:56.020Z	42.353833	-111.386	5.56	3.62 ml	6 km SW of Bennington, Idaho
2000-10-15 T13:36:41.000Z	44.43	-114.85	12.9	3.4 ml	24 km NNE of Stanley, Idaho
2000-10-03 T08:49:07.000Z	43.61	-110.34	6.5	3.9 ml	22 km E of Kelly, Wyoming
2000-08-30 T08:21:57.670Z	42.003	-112.604833	6.61	3.63 ml	9 km ENE of Snowville, Utah
2000-08-26 T10:21:39.300Z	44.483	-112.637	8.4	3.4 ml	17 km SSW of Lima, Montana
2000-08-17 T14:00:41.000Z	44.26	-114.05	10	3.3 ml	27 km E of Clayton, Idaho
2000-08-15 T18:03:23.000Z	44.49	-112.625	9.6	3.5 ml	16 km S of Lima, Montana
2000-08-15 T15:31:05.800Z	44.492	-112.625	9.4	3.6 ml	16 km S of Lima, Montana
2000-08-15 T14:17:25.800Z	44.49	-112.637	9.3	3.8 ml	16 km SSW of Lima, Montana
2000-07-04 T08:49:25.000Z	44.7	-111.89	5.9	3 ml	44 km NNE of Spencer, Idaho
2000-06-12 T04:19:10.950Z	42.647	-111.066	5	3 ml	8 km SW of Fairview, Wyoming
2000-04-09 T07:39:10.000Z	43.46	-110.88	5.6	3 md	4 km S of Wilson, Wyoming



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Time	Latitude	Longitude	Depth	Mag	Place
2000-04-06 T03:09:33.520Z	42.701	-111.066	5	3.1 ml	6 km WNW of Fairview, Wyoming
2000-04-03 T17:03:11.000Z	44.16	-114.61	10	3.3 ml	20 km WSW of Clayton, Idaho
1999-12-10 T16:44:32.110Z	42.608	-111.283	5	3.2 ml	15 km NNE of Georgetown, Idaho
1999-12-01 T20:46:55.800Z	44.477	-112.638	8.1	3.3 ml	Idaho-Montana border region
1999-11-30 T01:48:41.700Z	44.78	-112.773	12.2	3.3 ml	21 km NW of Lima, Montana
1999-11-26 T08:18:34.700Z	44.625	-112.092	6.5	3 ml	30 km NNE of Spencer, Idaho
1999-11-16 T21:37:43.260Z	43.339	-110.347	5	3.1 ml	15 km NNE of Bondurant, Wyoming
1999-11-16 T18:14:25.500Z	44.488	-112.643	6.4	3.7 ml	17 km SSW of Lima, Montana
1999-11-14 T02:24:44.000Z	44.48	-112.63	9	3 ml	17 km S of Lima, Montana
1999-11-13 T21:58:01.900Z	44.487	-112.663	4.3	3.6 ml	17 km SSW of Lima, Montana
1999-11-01 T17:48:40.000Z	44.635	-112.09	3.7	3.2 ml	31 km NNE of Spencer, Idaho
1999-10-13 T09:58:44.450Z	44.754167	-110.9425	10.4	3.23 ml	16 km NE of West Yellowstone, Montana
1999-09-13 T20:53:03.170Z	44.748167	-111.094333	12.1	3.11 ml	7 km ESE of Hebgen Lake Estates, Montana
1999-09-12 T22:17:24.700Z	44.793	-112.77	10.9	3 ml	22 km NW of Lima, Montana
1999-09-12 T09:32:53.800Z	45.01	-112.83	1.5	3.1 ml	27 km SSW of Dillon, Montana
1999-09-04 T13:21:08.500Z	44.81	-112.765	10.3	3.3 ml	23 km NW of Lima, Montana
1999-09-03 T17:46:56.900Z	44.802	-112.747	10.6	3.5 ml	22 km NW of Lima, Montana
1999-08-27 T09:35:30.170Z	44.481833	-110.596667	7.22	3.12 md	45 km ESE of West Yellowstone, Montana
1999-08-27 T09:32:59.720Z	44.474	-110.596667	9.77	3.06 ml	45 km ESE of West Yellowstone, Montana
1999-08-26 T02:34:36.200Z	44.782	-112.775	11.7	4 md	21 km NW of Lima, Montana
1999-08-24 T22:26:53.100Z	44.798	-112.743	10.4	3.3 ml	21 km NW of Lima, Montana
1999-08-23 T00:28:50.860Z	42.379333	-111.507	11.08	3.15 ml	15 km W of Bennington, Idaho
1999-08-21 T18:44:16.800Z	44.81	-112.752	9	3.2 ml	23 km NNW of Lima, Montana
1999-08-21 T02:04:51.900Z	44.787	-112.753	11.8	3.3 ml	21 km NW of Lima, Montana
1999-08-20 T18:00:26.800Z	44.802	-112.758	10.1	3.2 ml	22 km NW of Lima, Montana



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Time	Latitude	Longitude	Depth	Mag	Place
1999-08-20 T13:50:25.600Z	44.785	-112.788	16	5.1 mb	22 km NW of Lima, Montana
1999-08-08 T05:10:14.860Z	44.749333	-110.984667	10.47	3.14 ml	13 km NE of West Yellowstone, Montana
1999-07-25 T14:38:40.230Z	43.037	-111.144	5	3.6 ml	10 km NW of Freedom, Idaho
1999-07-22 T16:56:12.610Z	43.055	-111.144	5	3.6 ml	11 km WNW of Etna, Wyoming
1999-07-22 T15:23:14.580Z	43.037	-111.138	5	4.1 ml	9 km NW of Freedom, Idaho
1999-06-29 T12:50:41.000Z	43.82	-110.99	0	3.6 ml	8 km NNE of Alta, Wyoming
1999-06-19 T09:17:08.110Z	44.21	-114.014	5	3.3 ml	31 km E of Clayton, Idaho
1999-06-18 T01:27:33.000Z	43.18	-110.75	7	3.5 ml	11 km SSE of Hoback, Wyoming
1999-06-16 T16:39:47.970Z	44.756667	-111.001833	7.24	3.19 ml	13 km NE of West Yellowstone, Montana
1999-06-16 T16:38:27.410Z	44.754	-111.009833	4.38	3.26 ml	12 km NE of West Yellowstone, Montana
1999-06-02 T16:48:15.540Z	44.424833	-110.580833	1.98	3.48 md	49 km ESE of West Yellowstone, Montana
1999-05-30 T20:31:57.000Z	44.85	-114.15	10	3.1 ml	38 km N of Challis, Idaho
1999-05-06 T12:07:41.880Z	44.492	-114.814	5	3.8 ml	32 km NNE of Stanley, Idaho
1999-04-10 T14:02:32.030Z	43.851	-111.025	5	3.8 ml	10 km N of Alta, Wyoming
1999-03-21 T16:04:09.000Z	44.41	-114.88	15	3.2 ml	21 km NNE of Stanley, Idaho
1999-03-01 T15:48:15.200Z	42.687	-111.171	5	3.5 ml	15 km W of Fairview, Wyoming
1999-02-15 T21:40:18.630Z	42.645	-111.113	5	3.7 ml	11 km WSW of Fairview, Wyoming
1999-01-30 T20:44:52.220Z	43.172	-110.771	5	3.6 ml	12 km S of Hoback, Wyoming
1999-01-30 T20:29:15.990Z	43.143	-110.752	5	3.9 ml	15 km S of Hoback, Wyoming
1999-01-30 T05:01:33.030Z	43.149	-110.753	5	3.2 ml	14 km S of Hoback, Wyoming
1999-01-20 T13:04:36.430Z	43.824	-110.987	5	3.2 ml	8 km NNE of Alta, Wyoming
1999-01-15 T08:58:35.810Z	43.821	-111.008	5	3.4 ml	7 km NNE of Alta, Wyoming
1999-01-02 T05:28:29.200Z	45.308	-112.815	5.1	3.1 ml	17 km NW of Dillon, Montana
1999-01-01 T19:13:02.700Z	45.312	-112.832	6.5	3 ml	18 km NW of Dillon, Montana
1998-11-26 T08:56:01.330Z	44.2895	-110.485833	7.5	3.01 ml	64 km SE of West Yellowstone, Montana



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Time	Latitude	Longitude	Depth	Mag	Place
1998-11-26 T08:37:48.300Z	44.3065	-110.486333	6.31	3.79 ml	63 km SE of West Yellowstone, Montana
1998-11-14 T21:16:19.700Z	44.617	-112.218	7	3.4 ml	28 km N of Spencer, Idaho
1998-11-01 T13:58:25.000Z	43.85	-111.02	5.2	3.2 ml	10 km N of Alta, Wyoming
1998-10-31 T14:25:14.030Z	42.976	-111.11	5	3.2 ml	5 km W of Freedom, Idaho
1998-10-20 T17:21:17.000Z	44.35	-114.51	11	3.2 ml	13 km NW of Clayton, Idaho
1998-10-18 T19:28:19.000Z	43.84	-111.01	2	3.2 ml	9 km NNE of Alta, Wyoming
1998-09-26 T23:27:04.630Z	43.84	-111.003	10	3.3 ml	9 km NNE of Alta, Wyoming
1998-09-17 T02:58:56.000Z	43.84	-111.01	0	3.8 ml	9 km NNE of Alta, Wyoming
1998-08-26 T21:50:04.370Z	43.859	-110.996	5	3.8 ml	12 km NNE of Alta, Wyoming
1998-08-23 T18:16:16.340Z	43.842	-111.025	5	4.2 mb	9 km N of Alta, Wyoming
1998-08-23 T18:13:12.530Z	43.854	-111.013	5	3.2 ml	11 km N of Alta, Wyoming
1998-08-13 T18:51:19.750Z	44.493	-114.19	5	4.2 ml	3 km ESE of Challis, Idaho
1998-08-03 T12:40:27.940Z	42.849	-111.353	5	3.3 ml	29 km WNW of Auburn, Wyoming
1998-08-03 T09:07:50.400Z	42.817	-111.365	5	3.6 ml	26 km NE of Soda Springs, Idaho
1998-07-24 T09:14:42.240Z	42.056333	-112.835333	7.69	3.05 ml	14 km NW of Snowville, Utah
1998-07-11 T16:10:21.000Z	43.79	-110.59	5	3 ml	18 km N of Kelly, Wyoming
1998-06-20 T21:16:21.000Z	43.28	-110.68	0	4.4 mb	8 km E of Hoback, Wyoming
1998-06-19 T12:34:02.840Z	42.569	-111.137	10	3.8 mb	18 km SW of Fairview, Wyoming
1998-06-17 T22:04:18.000Z	43.29	-110.68	1.8	3.3 ml	8 km E of Hoback, Wyoming
1998-06-17 T20:10:19.000Z	43.29	-110.68	1.2	3.3 ml	8 km E of Hoback, Wyoming
1998-06-16 T18:57:46.000Z	43.29	-110.68	1	3.1 ml	8 km E of Hoback, Wyoming
1998-05-28 T14:02:24.700Z	44.577	-112.405	13.1	3.7 ml	16 km ESE of Lima, Montana
1998-05-14 T01:56:05.390Z	44.768333	-110.879667	7.31	3.1 ml	21 km ENE of West Yellowstone, Montana
1998-05-11 T16:55:46.340Z	42.687	-111.131	5	3.1 ml	12 km W of Fairview, Wyoming
1998-05-04 T00:24:51.590Z	44.393	-114.505	5	3.3 ml	17 km NNW of Clayton, Idaho
1998-05-02 T09:26:48.430Z	44.495	-114.795	5	3.5 ml	32 km NNE of Stanley, Idaho
1998-04-24 T05:05:49.240Z	41.8595	-112.343667	11.08	3.51 ml	10 km NE of Howell, Utah



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1998-04-15 T10:19:46.180Z	44.521	-114.103	5	3.8 ml	10 km E of Challis, Idaho
1998-03-21 T02:36:36.690Z	44.54	-114.012	5	3.2 ml	17 km ENE of Challis, Idaho
1998-03-01 T08:02:10.230Z	44.659	-114.005	5	3.1 ml	24 km NE of Challis, Idaho
1998-01-13 T06:35:32.250Z	44.761	-113.671	5	3.6 ml	26 km WNW of Leadore, Idaho
1998-01-04 T17:27:54.690Z	42.787	-111.133	5	3.4 ml	10 km W of Auburn, Wyoming
1997-10-22 T14:08:21.920Z	44.088	-114.74	10	3 ml	21 km SE of Stanley, Idaho
1997-10-14 T19:08:46.700Z	45.015	-112.85	9	3.7 ml	27 km SW of Dillon, Montana
1997-10-11 T15:35:58.300Z	45.017	-112.837	9.7	3 ml	27 km SW of Dillon, Montana
1997-09-28 T05:40:56.530Z	44.516	-110.9395	14.56	3.11 md	20 km SE of West Yellowstone, Montana
1997-09-01 T04:08:21.830Z	44.791167	-111.007667	11.97	3.12 ml	14 km E of Hebgen Lake Estates, Montana
1997-08-30 T11:41:27.900Z	44.84	-111.498	3.8	4.1 ml	25 km WNW of Hebgen Lake Estates, Montana
1997-08-29 T09:10:15.100Z	44.542	-113.223	9.9	3.7 ml	18 km SE of Leadore, Idaho
1997-08-07 T21:59:24.000Z	44.993	-111.812	14.4	3.3 ml	35 km SSE of Virginia City, Montana
1997-07-24 T13:47:27.230Z	44.159	-114.729	5	3.1 ml	17 km ESE of Stanley, Idaho
1997-07-17 T12:02:51.850Z	42.4075	-111.2085	3.64	3.76 ml	9 km E of Bennington, Idaho
1997-06-28 T20:36:04.530Z	44.228333	-110.731667	3.04	3.25 ml	48 km ENE of Warm River, Idaho
1997-06-18 T08:05:55.700Z	44.461	-114.132	5	3.9 ml	9 km ESE of Challis, Idaho
1997-04-06 T12:48:52.440Z	44.42	-113.732	5	3.1 ml	40 km ESE of Challis, Idaho
1997-03-20 T06:17:27.420Z	44.267	-114.113	5	3 ml	22 km E of Clayton, Idaho
1997-02-13 T19:12:08.600Z	44.84	-111.547	5.2	3 ml	29 km WNW of Hebgen Lake Estates, Montana
1997-01-26 T09:59:33.200Z	45.293	-112.543	7.4	3.6 ml	11 km NE of Dillon, Montana
1997-01-17 T14:59:31.130Z	44.528	-113.886	5	3.4 md	Idaho-Montana border region
1997-01-11 T05:12:44.560Z	44.499	-114.555	5	3.3 ml	25 km W of Challis, Idaho
1997-01-05 T01:11:05.300Z	44.84	-111.545	5.9	3.7 ml	29 km WNW of Hebgen Lake Estates, Montana
1996-11-30 T17:18:46.350Z	44.464	-114.066	5	3.3 ml	13 km ESE of Challis, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
1996-11-12 T04:01:15.870Z	44.446	-114.758	5	3 ml	29 km NNE of Stanley, Idaho
1996-11-07 T08:50:03.760Z	43.728	-111.079	5	3.8 ml	2 km ENE of Driggs, Idaho
1996-09-14 T14:45:30.230Z	44.454667	-111.0815	9.86	3.35 md	23 km S of West Yellowstone, Montana
1996-08-03 T06:15:16.470Z	44.517	-114.144	5	4 mb	7 km E of Challis, Idaho
1996-07-16 T04:10:49.790Z	44.563833	-110.947833	6.71	3.25 ml	16 km SE of West Yellowstone, Montana
1996-07-06 T02:22:15.780Z	43.476	-110.523	5	3.2 ml	18 km SSE of Kelly, Wyoming
1996-07-05 T23:30:05.260Z	43.517	-110.312	5	3.1 ml	27 km ESE of Kelly, Wyoming
1996-05-16 T15:41:01.910Z	42.587	-111.202	5	3.9 mb	18 km NE of Georgetown, Idaho
1996-05-08 T10:43:49.200Z	44.768	-112.7	9.9	3.1 ml	16 km NNW of Lima, Montana
1996-05-02 T20:49:17.660Z	44.604	-114.276	5	3.7 ml	11 km NNW of Challis, Idaho
1996-04-24 T00:37:45.960Z	44.744	-114.157	5	3.6 ml	27 km NNE of Challis, Idaho
1996-04-02 T15:17:45.660Z	44.427667	-110.6085	2.77	3.34 md	47 km ESE of West Yellowstone, Montana
1996-03-10 T12:16:24.000Z	44.773	-112.712	8.4	4 ml	17 km NNW of Lima, Montana
1996-03-01 T03:30:42.200Z	44.77	-112.703	8.3	3.1 ml	17 km NNW of Lima, Montana
1996-02-26 T03:27:10.500Z	44.785	-112.685	7.5	3.6 ml	18 km NNW of Lima, Montana
1996-02-17 T18:29:36.770Z	44.77	-112.705	8.6	3.8 ml	17 km NNW of Lima, Montana
1996-01-29 T15:56:08.630Z	43.564	-110.464	5	3.7 ml	14 km ESE of Kelly, Wyoming
1996-01-27 T03:16:28.850Z	44.43	-113.999	5	3.2 ml	20 km ESE of Challis, Idaho
1996-01-17 T17:31:00.900Z	44.782	-112.711	8.2	3.7 ml	18 km NNW of Lima, Montana
1996-01-10 T17:22:56.700Z	44.772	-112.697	6.7	3.1 ml	17 km NNW of Lima, Montana
1996-01-10 T17:03:00.710Z	44.168	-114.383	5	3.5 ml	10 km S of Clayton, Idaho
1996-01-01 T21:20:25.600Z	42.617	-111.42	5	3.2 ml	15 km NNW of Georgetown, Idaho
1995-12-29 T23:15:27.110Z	44.771	-112.706	7.1	3.1 ml	17 km NNW of Lima, Montana
1995-12-28 T03:17:10.640Z	44.776	-112.708	6.6	3.2 mb	17 km NNW of Lima, Montana
1995-12-27 T20:18:53.410Z	44.7	-111.815	6.3	3.4 ml	46 km NW of Island Park, Idaho
1995-12-25 T13:34:10.180Z	42.695	-111.549	5	3 ml	6 km NE of Soda Springs, Idaho



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1995-12-17 T04:06:36.050Z	42.847	-110.898	5	3.3 ml	1 km SSE of Turnerville, Wyoming
1995-11-27 T12:13:24.430Z	44.753667	-110.914833	10.82	3.05 md	18 km NE of West Yellowstone, Montana
1995-10-07 T10:46:03.360Z	44.336333	-110.480833	4.91	3.3 md	61 km SE of West Yellowstone, Montana
1995-09-09 T16:23:00.390Z	44.961	-111.719	5	3.4 ml	41 km SSE of Virginia City, Montana
1995-08-28 T05:01:55.660Z	44.1225	-110.389667	3.84	3.18 ml	58 km NNE of Kelly, Wyoming
1995-08-13 T19:32:13.120Z	43.023	-111.181	5	3.4 ml	12 km WNW of Freedom, Idaho
1995-08-05 T04:29:27.170Z	43.06	-111.192	5	3 ml	14 km NW of Freedom, Idaho
1995-07-25 T19:34:10.100Z	43.007	-111.106	5	4.1 ml	5 km WNW of Freedom, Idaho
1995-07-25 T16:45:52.340Z	43.034	-111.134	5	3 ml	9 km NW of Freedom, Idaho
1995-04-02 T18:47:02.470Z	44.387	-113.98	5	3.3 ml	23 km ESE of Challis, Idaho
1995-04-01 T15:59:34.750Z	44.768	-114.422	5	3.5 ml	32 km NNW of Challis, Idaho
1995-03-03 T01:07:50.440Z	42.494333	-111.100333	-3.29	3.02 ml	20 km SW of Smoot, Wyoming
1995-03-01 T06:20:21.990Z	42.495	-111.1	3.74	3.87 ml	20 km SW of Smoot, Wyoming
1995-02-10 T00:14:59.100Z	42.832	-111.295	5	3.5 ml	24 km W of Auburn, Wyoming
1995-01-28 T06:26:21.740Z	44.499	-114.783	5	4.3 mb	33 km NNE of Stanley, Idaho
1995-01-28 T00:38:38.940Z	43.501	-110.37	5	3 mb	24 km ESE of Kelly, Wyoming
1995-01-21 T22:01:05.950Z	44.825	-111.452	5	3 ml	21 km WNW of Hebgen Lake Estates, Montana
1995-01-14 T13:11:43.080Z	44.219	-114.004	5	3.2 ml	31 km E of Clayton, Idaho
1995-01-11 T05:17:48.250Z	42.624	-111.464	5	3.7 md	12 km ESE of Soda Springs, Idaho
1994-12-16 T01:02:47.450Z	42.64	-111.079	5	3.2 ml	9 km SW of Fairview, Wyoming
1994-11-30 T19:22:27.830Z	44.446	-114.033	5	3.8 ml	17 km ESE of Challis, Idaho
1994-11-29 T01:43:25.190Z	43.323	-111.287	5	3.7 ml	9 km S of Irwin, Idaho
1994-11-05 T09:28:20.100Z	44.732	-112.413	4	3.4 ml	17 km NE of Lima, Montana
1994-10-17 T01:46:12.290Z	42.675	-111.079	5	3.5 ml	8 km W of Fairview, Wyoming
1994-09-08 T04:46:30.850Z	43.642	-110.22	5	3 ml	32 km E of Kelly, Wyoming



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Time	Latitude	Longitude	Depth	Mag	Place
1994-08-22 T23:43:43.240Z	42.624	-111.021	5	3.4 ml	7 km SSW of Fairview, Wyoming
1994-08-20 T13:46:37.040Z	42.661	-111.024	5	3.2 ml	4 km SW of Fairview, Wyoming
1994-08-19 T04:04:40.490Z	44.434	-111.027667	4.44	3.32 md	26 km SSE of West Yellowstone, Montana
1994-08-16 T17:59:16.250Z	44.465	-114.101	5	3.8 ml	11 km ESE of Challis, Idaho
1994-08-01 T12:43:35.060Z	44.167	-113.987	5	3.2 ml	34 km ESE of Clayton, Idaho
1994-07-27 T08:20:11.760Z	42.587	-111.363	5	3 ml	11 km N of Georgetown, Idaho
1994-07-17 T08:56:45.250Z	42.697	-111.161	5	3.8 ml	14 km W of Fairview, Wyoming
1994-07-12 T20:26:05.570Z	44.468	-114.306	5	3.7 ml	7 km SW of Challis, Idaho
1994-07-11 T23:25:47.040Z	44.754167	-111.003167	11.52	3.23 md	12 km NE of West Yellowstone, Montana
1994-07-09 T09:11:29.120Z	44.299	-114.097	10	3.2 ml	24 km E of Clayton, Idaho
1994-06-19 T17:17:07.440Z	42.736	-111.126	5	3.6 ml	11 km WSW of Auburn, Wyoming
1994-06-19 T17:16:24.640Z	42.694	-111.095	5	3.2 ml	9 km W of Fairview, Wyoming
1994-06-16 T17:35:42.940Z	42.659	-111.241	10	3.8 ml	21 km W of Fairview, Wyoming
1994-06-15 T03:08:45.610Z	42.721	-111.058	5	4.1 ml	7 km WNW of Fairview, Wyoming
1994-06-07 T18:36:06.680Z	44.537	-113.967	5	4.1 mb	21 km E of Challis, Idaho
1994-06-07 T14:26:14.140Z	44.496	-113.965	5	3.8 mb	21 km E of Challis, Idaho
1994-06-07 T13:30:03.470Z	44.493	-114.003	5	4.8 mb	18 km E of Challis, Idaho
1994-06-07 T09:01:15.340Z	42.841	-110.923	5	3.2 ml	2 km SW of Turnerville, Wyoming
1994-06-07 T08:49:36.560Z	42.815	-110.964	5	3.2 ml	3 km NW of Grover, Wyoming
1994-06-06 T12:38:56.170Z	43.023	-111.057	5	3 ml	3 km WSW of Etna, Wyoming
1994-06-06 T09:37:30.940Z	42.719	-111.063	5	3.7 ml	7 km WNW of Fairview, Wyoming
1994-06-04 T13:39:44.390Z	42.823	-110.966	5	3.1 ml	4 km NW of Grover, Wyoming
1994-06-04 T13:17:21.050Z	42.78	-111.007	5	3.9 ml	1 km SSW of Auburn, Wyoming
1994-06-04 T12:41:19.900Z	42.74	-111.036	5	3.2 ml	6 km SSW of Auburn, Wyoming
1994-05-19 T14:15:19.050Z	42.707	-111.021	5	3.6 ml	3 km WNW of Fairview, Wyoming



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Time	Latitude	Longitude	Depth	Mag	Place
1994-05-18 T09:58:53.480Z	42.639	-110.856	5	3.4 ml	5 km ENE of Smoot, Wyoming
1994-05-07 T23:23:54.180Z	42.878	-111.156	5	3 ml	13 km WSW of Thayne, Wyoming
1994-05-06 T01:37:54.500Z	41.786667	-112.376833	2.39	3.07 ml	5 km E of Howell, Utah
1994-04-29 T17:50:48.140Z	42.758	-111.066	5	3.4 ml	6 km SW of Auburn, Wyoming
1994-04-17 T20:20:37.780Z	42.597	-111.039	5	3.6 ml	10 km WSW of Smoot, Wyoming
1994-04-16 T00:17:33.330Z	42.79	-111.12	5	3.8 ml	9 km W of Auburn, Wyoming
1994-04-10 T20:04:09.830Z	42.649	-111.137	5	3.9 mb	13 km WSW of Fairview, Wyoming
1994-04-09 T16:16:41.550Z	42.582	-110.956	5	3.8 ml	5 km SW of Smoot, Wyoming
1994-04-08 T21:44:20.790Z	42.746	-111.092	5	3 ml	8 km SW of Auburn, Wyoming
1994-04-08 T15:56:30.210Z	42.545	-111.046	5	4.3 ml	13 km SW of Smoot, Wyoming
1994-04-08 T10:37:49.020Z	42.638	-111.024	5	3.1 ml	6 km SSW of Fairview, Wyoming
1994-04-08 T07:26:21.630Z	42.629	-111.068	5	3.7 mb	9 km SW of Fairview, Wyoming
1994-04-08 T03:28:26.350Z	42.704	-111.063	5	3.2 ml	6 km WNW of Fairview, Wyoming
1994-04-07 T19:47:10.810Z	42.629	-111.047	5	4 ml	8 km SW of Fairview, Wyoming
1994-04-07 T18:03:44.080Z	42.509	-111.064	5	3.2 ml	17 km SW of Smoot, Wyoming
1994-04-07 T17:39:20.900Z	42.626	-110.99	5	3 ml	6 km W of Smoot, Wyoming
1994-04-07 T16:49:02.920Z	42.645	-111.046	5	3.5 ml	7 km SW of Fairview, Wyoming
1994-04-07 T16:16:44.680Z	42.561	-111.032	5	4.3 mb	11 km SW of Smoot, Wyoming
1994-04-07 T13:58:46.570Z	42.685	-111.047	5	3.2 ml	5 km W of Fairview, Wyoming
1994-04-07 T11:18:37.310Z	42.69	-110.996	5	3.4 ml	1 km W of Fairview, Wyoming
1994-04-05 T05:17:51.660Z	42.749	-111.119	5	3 ml	10 km WSW of Auburn, Wyoming
1994-04-02 T18:36:54.710Z	42.702	-111.161	5	3.1 ml	14 km W of Fairview, Wyoming
1994-04-02 T12:18:42.460Z	42.639	-111.153	5	3.5 ml	15 km WSW of Fairview, Wyoming
1994-04-02 T11:58:37.850Z	42.653	-111.137	5	3.8 ml	13 km WSW of Fairview, Wyoming
1994-03-28 T19:04:04.830Z	42.81	-110.969	5	3.2 ml	Wyoming



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1994-03-26 T20:41:01.630Z	44.783	-110.924333	8.71	3.94 md	19 km NE of West Yellowstone, Montana
1994-03-25 T19:16:03.880Z	42.805	-111.112	5	3.1 ml	9 km W of Auburn, Wyoming
1994-03-19 T16:07:42.510Z	42.82	-110.975	5	3.5 ml	3 km NE of Auburn, Wyoming
1994-03-13 T06:39:40.530Z	44.905	-112.907	10	3.6 ml	38 km NW of Lima, Montana
1994-03-10 T01:45:25.020Z	42.758	-111.098	5	3.4 ml	8 km WSW of Auburn, Wyoming
1994-03-10 T01:32:30.440Z	42.771	-111.074	5	4.1 ml	6 km WSW of Auburn, Wyoming
1994-03-06 T17:24:35.840Z	42.795	-111.116	5	3.4 ml	9 km W of Auburn, Wyoming
1994-03-03 T10:07:48.550Z	42.787	-111.075	5	3.8 ml	5 km W of Auburn, Wyoming
1994-03-03 T08:47:40.080Z	42.791	-111.128	5	3.3 ml	10 km W of Auburn, Wyoming
1994-03-03 T07:13:17.790Z	42.796	-111.066	5	3.4 mb	5 km W of Auburn, Wyoming
1994-03-03 T00:33:28.950Z	42.774	-111.054	5	3.9 ml	4 km WSW of Auburn, Wyoming
1994-03-02 T04:12:29.940Z	42.721	-111.097	5	3.4 ml	10 km WNW of Fairview, Wyoming
1994-02-25 T13:53:34.310Z	44.489	-114.799	5	3.8 ml	32 km NNE of Stanley, Idaho
1994-02-20 T10:29:46.240Z	42.725	-111.132	5	3.1 ml	southern Idaho
1994-02-19 T04:53:24.540Z	42.73	-111.053	5	4 ml	7 km NW of Fairview, Wyoming
1994-02-18 T09:41:13.260Z	42.818	-111.049	5	3.1 ml	4 km NW of Auburn, Wyoming
1994-02-16 T17:23:42.380Z	42.71	-111.078	5	3.5 ml	8 km WNW of Fairview, Wyoming
1994-02-15 T22:56:55.370Z	42.843	-111.098	5	3 ml	9 km NW of Auburn, Wyoming
1994-02-15 T03:59:05.260Z	42.687	-111.053	5	3.3 ml	5 km W of Fairview, Wyoming
1994-02-14 T16:55:35.170Z	42.73	-111.039	5	4.1 ml	6 km NW of Fairview, Wyoming
1994-02-14 T00:06:16.480Z	42.755	-111.102	5	3.8 ml	9 km WSW of Auburn, Wyoming
1994-02-13 T19:18:16.180Z	42.689	-111.084	5	3.5 ml	8 km W of Fairview, Wyoming
1994-02-11 T16:10:33.590Z	42.836	-111.067	5	3.3 ml	7 km NW of Auburn, Wyoming
1994-02-11 T14:59:50.550Z	42.764	-110.995	5	4.8 mb	3 km SSE of Auburn, Wyoming



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1994-02-11 T12:34:31.240Z	42.745	-111.052	5	3 ml	6 km SW of Auburn, Wyoming
1994-02-11 T04:24:30.490Z	42.761	-111.102	5	3.6 mb	8 km WSW of Auburn, Wyoming
1994-02-11 T02:20:03.800Z	42.711	-111.083	5	3.6 ml	8 km WNW of Fairview, Wyoming
1994-02-10 T15:56:03.500Z	42.598	-111.071	5	3 ml	12 km SW of Fairview, Wyoming
1994-02-10 T14:49:24.990Z	42.749	-111.1	5	3.7 ml	9 km WSW of Auburn, Wyoming
1994-02-10 T05:36:24.610Z	42.586	-111.089	5	3 ml	14 km SW of Fairview, Wyoming
1994-02-10 T03:35:48.050Z	42.738	-111.128	5	3 ml	11 km WSW of Auburn, Wyoming
1994-02-10 T03:04:36.040Z	42.843	-111.124	5	3.2 ml	11 km WNW of Auburn, Wyoming
1994-02-10 T00:56:12.310Z	42.784	-111.05	5	4.4 ml	3 km WSW of Auburn, Wyoming
1994-02-08 T10:11:52.610Z	42.68	-111.03	5	3.9 ml	4 km WSW of Fairview, Wyoming
1994-02-08 T06:25:17.840Z	42.672	-111.141	5	3.2 ml	13 km W of Fairview, Wyoming
1994-02-08 T02:03:58.330Z	42.721	-111.06	5	3.6 ml	7 km WNW of Fairview, Wyoming
1994-02-07 T22:47:08.340Z	42.713	-111.1	5	3 ml	10 km WNW of Fairview, Wyoming
1994-02-07 T22:18:36.890Z	42.614	-111.1	5	3.1 ml	12 km SW of Fairview, Wyoming
1994-02-07 T16:43:15.670Z	42.667	-111.138	5	3.5 ml	12 km W of Fairview, Wyoming
1994-02-07 T12:15:45.820Z	42.669	-111.033	5	3.9 mb	4 km WSW of Fairview, Wyoming
1994-02-07 T10:37:12.460Z	42.711	-111.004	5	3.5 ml	3 km NW of Fairview, Wyoming
1994-02-07 T08:39:16.630Z	42.669	-111.112	5	3.3 ml	10 km WSW of Fairview, Wyoming
1994-02-07 T06:35:47.270Z	42.658	-111.018	5	4.5 mb	4 km SW of Fairview, Wyoming
1994-02-06 T21:43:12.280Z	42.668	-111.023	5	3.3 ml	4 km SW of Fairview, Wyoming



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1994-02-06 T19:33:15.680Z	42.807	-111.088	5	3.4 ml	7 km WNW of Auburn, Wyoming
1994-02-06 T16:46:51.190Z	42.743	-111.069	5	3.6 ml	7 km SW of Auburn, Wyoming
1994-02-06 T16:12:03.370Z	42.846	-111.076	5	3.1 ml	8 km NW of Auburn, Wyoming
1994-02-06 T15:04:40.160Z	42.811	-111.061	5	3 ml	5 km WNW of Auburn, Wyoming
1994-02-06 T13:30:00.790Z	42.774	-111.068	5	3.1 ml	5 km WSW of Auburn, Wyoming
1994-02-05 T22:28:57.670Z	42.713	-111.085	5	3.6 ml	8 km WNW of Fairview, Wyoming
1994-02-05 T20:15:20.780Z	42.8	-111	5	3 ml	0 km NNE of Auburn, Wyoming
1994-02-05 T16:22:15.790Z	42.806	-111.146	5	3.3 ml	11 km W of Auburn, Wyoming
1994-02-05 T16:21:25.250Z	42.74	-111.017	5	3.3 ml	5 km S of Auburn, Wyoming
1994-02-05 T10:38:48.400Z	42.687	-111.058	5	4.1 ml	6 km W of Fairview, Wyoming
1994-02-05 T09:09:43.200Z	42.763	-111.049	5	3.7 mb	4 km SW of Auburn, Wyoming
1994-02-05 T09:04:07.610Z	42.767	-111.117	5	3.9 ml	9 km WSW of Auburn, Wyoming
1994-02-05 T07:06:02.230Z	42.604	-110.971	5	3.7 mb	4 km WSW of Smoot, Wyoming
1994-02-05 T00:40:17.010Z	42.617	-111.07	5	3.3 ml	10 km SW of Fairview, Wyoming
1994-02-04 T23:52:48.310Z	42.79	-111.143	5	3.3 ml	11 km W of Auburn, Wyoming
1994-02-04 T21:49:10.120Z	42.704	-111.096	5	4 ml	9 km W of Fairview, Wyoming
1994-02-04 T21:35:25.040Z	42.827	-111.088	5	3.6 ml	southern Idaho
1994-02-04 T19:33:54.970Z	42.713	-111.064	5	3.5 ml	7 km WNW of Fairview, Wyoming
1994-02-04 T18:57:39.440Z	42.677	-111.022	5	3.2 ml	3 km WSW of Fairview, Wyoming
1994-02-04 T16:50:33.850Z	42.792	-111.062	5	3.9 ml	4 km W of Auburn, Wyoming
1994-02-04 T15:03:32.960Z	42.813	-111.123	5	3.5 ml	10 km WNW of Auburn, Wyoming
1994-02-04 T13:24:10.820Z	42.71	-111.11	5	3 ml	10 km WNW of Fairview, Wyoming



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1994-02-04 T08:30:18.700Z	42.728	-111.028	5	3.4 ml	5 km NW of Fairview, Wyoming
1994-02-04 T07:05:59.000Z	42.665	-111.047	5	3.6 ml	5 km WSW of Fairview, Wyoming
1994-02-04 T06:12:10.690Z	42.679	-111.102	5	3.4 ml	9 km W of Fairview, Wyoming
1994-02-04 T06:05:00.880Z	42.609	-111.092	5	3.2 ml	12 km SW of Fairview, Wyoming
1994-02-04 T05:32:43.750Z	42.743	-111.18	5	3.6 ml	15 km WSW of Auburn, Wyoming
1994-02-04 T03:27:25.770Z	42.789	-111.125	5	3.1 ml	9 km W of Auburn, Wyoming
1994-02-04 T03:10:08.000Z	42.876	-111.1	5	4 ml	9 km WSW of Thayne, Wyoming
1994-02-04 T02:53:24.410Z	42.667	-111.122	5	3.1 ml	11 km WSW of Fairview, Wyoming
1994-02-04 T02:42:12.070Z	42.709	-111.026	5	4.7 mb	4 km WNW of Fairview, Wyoming
1994-02-03 T23:55:26.710Z	42.713	-111.138	5	3 ml	13 km WNW of Fairview, Wyoming
1994-02-03 T22:57:37.980Z	42.723	-111.044	5	3.5 ml	6 km NW of Fairview, Wyoming
1994-02-03 T22:17:25.350Z	42.734	-111.087	5	3.3 ml	9 km SW of Auburn, Wyoming
1994-02-03 T19:15:51.350Z	42.797	-111.063	5	3.4 ml	4 km W of Auburn, Wyoming
1994-02-03 T19:13:40.720Z	42.807	-111.143	5	3.9 ml	11 km W of Auburn, Wyoming
1994-02-03 T18:09:10.870Z	42.688	-111.098	5	3.4 ml	9 km W of Fairview, Wyoming
1994-02-03 T17:33:05.430Z	42.818	-111.009	5	3.2 ml	2 km N of Auburn, Wyoming
1994-02-03 T17:19:50.920Z	42.784	-110.972	5	3.5 ml	2 km ESE of Auburn, Wyoming
1994-02-03 T16:45:23.060Z	42.842	-111.054	5	3.2 ml	6 km NW of Auburn, Wyoming
1994-02-03 T16:30:28.220Z	42.894	-110.97	5	3.2 ml	3 km WSW of Bedford, Wyoming
1994-02-03 T15:34:37.850Z	42.89	-111.087	5	3.5 ml	7 km WSW of Thayne, Wyoming
1994-02-03 T15:16:56.130Z	42.877	-111.101	5	3.2 ml	9 km WSW of Thayne, Wyoming



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1994-02-03 T14:07:27.110Z	42.836	-111.149	5	3.3 ml	12 km WNW of Auburn, Wyoming
1994-02-03 T13:48:16.630Z	42.852	-111.192	5	3 ml	16 km WNW of Auburn, Wyoming
1994-02-03 T13:13:36.870Z	42.766	-111.02	5	3.7 ml	3 km SSW of Auburn, Wyoming
1994-02-03 T12:40:51.060Z	42.776	-111.123	5	3.3 ml	9 km W of Auburn, Wyoming
1994-02-03 T12:04:57.290Z	42.729	-111.14	5	4.4 ml	13 km WSW of Auburn, Wyoming
1994-02-03 T11:49:21.800Z	42.775	-111.031	5	3.9 ml	2 km SW of Auburn, Wyoming
1994-02-03 T11:46:51.410Z	42.752	-111.134	5	4 ml	11 km WSW of Auburn, Wyoming
1994-02-03 T11:19:07.540Z	42.776	-111.021	5	4.4 mb	2 km SW of Auburn, Wyoming
1994-02-03 T11:15:25.220Z	42.859	-111.152	5	3.4 ml	southern Idaho
1994-02-03 T10:40:15.680Z	42.766	-111.002	5	3.9 ml	2 km S of Auburn, Wyoming
1994-02-03 T10:31:28.700Z	42.789	-111.178	5	3.6 ml	14 km W of Auburn, Wyoming
1994-02-03 T10:28:30.240Z	42.475667	-111.2465	-3.09	3.06 md	10 km E of Georgetown, Idaho
1994-02-03 T10:25:52.070Z	42.781	-111.116	5	4 ml	9 km W of Auburn, Wyoming
1994-02-03 T10:13:03.970Z	42.783	-110.956	5	3.7 ml	1 km WSW of Grover, Wyoming
1994-02-03 T10:09:28.050Z	42.490667	-111.210833	7.33	3.24 ml	13 km E of Georgetown, Idaho
1994-02-03 T09:58:40.560Z	42.786	-111.052	5	4.2 ml	4 km W of Auburn, Wyoming
1994-02-03 T09:55:27.070Z	42.8	-111	5	3.5 ml	0 km NNE of Auburn, Wyoming
1994-02-03 T09:47:36.890Z	42.735	-111.038	5	4 ml	6 km NW of Fairview, Wyoming
1994-02-03 T09:46:53.420Z	42.8	-111	5	3.2 ml	0 km NNE of Auburn, Wyoming
1994-02-03 T09:45:32.910Z	42.721	-111.074	5	3.5 ml	8 km WNW of Fairview, Wyoming
1994-02-03 T09:43:35.020Z	42.8	-111	5	3.2 ml	0 km NNE of Auburn, Wyoming
1994-02-03 T09:35:11.730Z	42.8	-111	5	3.2 ml	0 km NNE of Auburn, Wyoming
1994-02-03 T09:32:45.800Z	42.8	-111	5	3.7 ml	0 km NNE of Auburn, Wyoming
1994-02-03 T09:12:28.260Z	42.8	-111	5	4.4 ml	0 km NNE of Auburn, Wyoming
1994-02-03 T09:05:04.200Z	42.762	-110.976	7.9	5.8 mw	4 km SSE of Auburn, Wyoming



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1994-02-03 T07:14:51.300Z	42.764	-111.04	5	4.2 mb	4 km SW of Auburn, Wyoming
1994-02-02 T11:04:25.210Z	42.763	-111.11	5	4 ml	9 km WSW of Auburn, Wyoming
1994-02-01 T09:58:14.010Z	42.765	-111.103	5	3.5 ml	8 km WSW of Auburn, Wyoming
1994-01-30 T19:06:07.200Z	42.752	-111.124	5	3.2 ml	10 km WSW of Auburn, Wyoming
1993-11-28 T16:40:44.980Z	44.46	-114.763	10	3.4 ml	30 km NNE of Stanley, Idaho
1993-11-20 T17:22:18.100Z	44.605	-112.308	1.2	3.2 ml	22 km E of Lima, Montana
1993-11-10 T14:54:24.930Z	44.43	-114.845	10	3.6 mb	24 km NNE of Stanley, Idaho
1993-10-10 T10:21:35.960Z	43.289	-110.973	5	3.1 ml	10 km NNE of Alpine Northeast, Wyoming
1993-09-23 T22:04:10.010Z	42.129333	-112.294833	6.33	3.19 md	7 km SSW of Malad City, Idaho
1993-08-19 T19:43:12.210Z	44.776667	-110.908833	10.63	3.44 md	20 km NE of West Yellowstone, Montana
1993-08-13 T22:56:26.760Z	43.729	-111.168	5	3.1 ml	4 km W of Driggs, Idaho
1993-07-11 T10:39:06.700Z	44.433	-112.575	3.6	3 md	22 km S of Lima, Montana
1993-07-03 T00:16:33.260Z	42.133833	-112.291833	8.92	3.62 ml	7 km SSW of Malad City, Idaho
1993-04-23 T12:14:45.250Z	44.485	-114.791	5	4 ml	31 km NNE of Stanley, Idaho
1993-03-29 T01:38:44.240Z	44.322	-114.755	5	3.2 ml	18 km NE of Stanley, Idaho
1993-03-27 T12:21:17.130Z	42.599	-111.587	5	3.2 ml	6 km SSE of Soda Springs, Idaho
1993-03-27 T06:48:52.360Z	44.621	-114.415	5	3.6 ml	19 km NW of Challis, Idaho
1993-03-26 T04:35:15.060Z	44.528	-114.236	5	3.7 ml	2 km N of Challis, Idaho
1993-03-12 T00:40:31.880Z	44.537	-114.769	5	3.5 ml	37 km NNE of Stanley, Idaho
1993-03-09 T12:20:15.290Z	42.677	-111.422	5	3 ml	15 km E of Soda Springs, Idaho
1993-03-07 T14:12:09.960Z	44.545	-110.904	5	3.1 ml	20 km SE of West Yellowstone, Montana
1993-02-22 T02:10:09.560Z	44.541	-113.995	5	3.4 ml	19 km ENE of Challis, Idaho
1993-02-18 T14:28:50.810Z	44.401	-114.654	5	3.1 ml	25 km NW of Clayton, Idaho
1993-02-18 T13:28:18.930Z	44.477	-114.785	5	4 ml	31 km NNE of Stanley, Idaho
1993-02-14 T16:58:35.270Z	42.746	-111.405	5	3 ml	19 km ENE of Soda Springs, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
1993-02-13 T14:28:27.050Z	44.829	-111.584	10	3.4 ml	31 km WNW of Hebgen Lake Estates, Montana
1993-01-13 T03:50:21.310Z	44.748	-111.744	9.8	3.2 ml	43 km W of Hebgen Lake Estates, Montana
1992-12-28 T08:16:02.870Z	44.650167	-111.011667	7.83	3.2 md	7 km E of West Yellowstone, Montana
1992-12-17 T00:38:15.080Z	43.811	-113.967	5	3.1 ml	30 km WSW of Mackay, Idaho
1992-12-03 T00:59:48.730Z	42.468333	-111.247833	6.03	3.27 md	10 km E of Georgetown, Idaho
1992-11-16 T02:32:14.380Z	43.017	-111.533	5	3.4 ml	40 km W of Freedom, Idaho
1992-11-13 T02:01:49.090Z	43.032	-111.54	5	3.6 ml	40 km W of Freedom, Idaho
1992-11-12 T21:31:04.020Z	43.039	-111.447	5	3.4 ml	33 km W of Freedom, Idaho
1992-11-12 T18:53:56.070Z	42.996	-111.562	5	3.4 ml	38 km N of Soda Springs, Idaho
1992-11-12 T07:15:32.990Z	43.051	-111.522	5	3.4 ml	39 km W of Freedom, Idaho
1992-11-12 T06:32:57.650Z	43.015	-111.514	5	3.5 ml	38 km W of Freedom, Idaho
1992-11-12 T00:02:44.230Z	43.026	-111.525	5	3.4 ml	39 km W of Freedom, Idaho
1992-11-11 T23:15:32.240Z	43.024	-111.528	5	3.3 ml	39 km W of Freedom, Idaho
1992-11-11 T18:16:06.070Z	42.982	-111.525	5	3.2 ml	36 km N of Soda Springs, Idaho
1992-11-11 T18:00:21.650Z	42.995	-111.483	5	4.2 mb	35 km W of Freedom, Idaho
1992-11-11 T17:36:55.600Z	43.016	-111.485	5	3.6 mb	36 km W of Freedom, Idaho
1992-11-11 T12:08:06.580Z	43.041	-111.486	5	4.1 mb	36 km W of Freedom, Idaho
1992-11-10 T10:54:50.820Z	43.09	-111.419	10	4.4 mb	32 km WNW of Freedom, Idaho
1992-11-10 T10:46:18.180Z	43.07	-111.368	10	4.2 mb	28 km WNW of Freedom, Idaho
1992-11-10 T10:45:16.240Z	43.15	-111.702	10	3.6 ml	41 km SSE of Ammon, Idaho
1992-10-07 T08:35:09.880Z	44.386	-114.128	5	3.5 ml	15 km SSE of Challis, Idaho
1992-09-30 T18:48:35.620Z	44.391	-113.943	5	3.2 ml	26 km ESE of Challis, Idaho
1992-09-24 T14:17:48.860Z	43.706	-110.387	5	3.7 ml	21 km ENE of Kelly, Wyoming
1992-09-04 T04:54:15.000Z	42.668	-111.387	5	4 ml	17 km E of Soda Springs, Idaho
1992-08-28 T15:26:16.240Z	44.583	-113.323	5	3.4 mb	11 km SSE of Leadore, Idaho
1992-08-20 T05:49:44.760Z	44.739	-114.415	5	3.4 ml	29 km NNW of Challis, Idaho
1992-07-04 T16:53:04.020Z	44.604	-113.835	10	3.8 ml	33 km ENE of Challis, Idaho



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1992-06-23 T09:02:15.580Z	44.331	-114.315	10	4 ml	10 km NE of Clayton, Idaho
1992-05-19 T08:17:22.300Z	44.575	-113.983	5	3.8 ml	21 km ENE of Challis, Idaho
1992-05-18 T23:14:48.530Z	44.575	-113.947	5	3 ml	Idaho-Montana border region
1992-05-18 T14:35:40.360Z	44.455	-113.894	5	3.5 ml	27 km ESE of Challis, Idaho
1992-05-07 T04:03:52.120Z	44.398	-114.107	5	3.1 ml	15 km SE of Challis, Idaho
1992-05-06 T10:22:12.610Z	44.48	-114.009	5	4.4 ml	17 km E of Challis, Idaho
1992-05-05 T08:33:05.560Z	44.409	-113.926	5	3.2 ml	26 km ESE of Challis, Idaho
1992-05-05 T08:31:12.350Z	44.414	-113.993	5	3 ml	21 km ESE of Challis, Idaho
1992-05-05 T06:10:32.160Z	44.429	-113.99	5	3.2 ml	20 km ESE of Challis, Idaho
1992-05-05 T01:12:36.660Z	44.417	-113.895	5	3.5 ml	28 km ESE of Challis, Idaho
1992-05-04 T17:14:48.560Z	44.396	-113.952	5	3 ml	25 km ESE of Challis, Idaho
1992-05-04 T15:22:53.360Z	44.402	-113.921	5	3.4 ml	27 km ESE of Challis, Idaho
1992-05-04 T15:15:21.100Z	44.419	-113.924	5	3.5 ml	26 km ESE of Challis, Idaho
1992-05-04 T15:09:36.700Z	44.411	-113.931	5	3.4 ml	26 km ESE of Challis, Idaho
1992-05-04 T11:02:31.280Z	44.416	-114.061	5	3.4 ml	16 km SE of Challis, Idaho
1992-05-04 T10:54:27.980Z	44.425	-113.647	5	3.3 ml	36 km SW of Leadore, Idaho
1992-05-04 T09:14:23.290Z	44.51	-113.978	10	4.6 mb	20 km E of Challis, Idaho
1992-05-03 T01:09:32.210Z	44.511	-114.062	5	3.4 ml	13 km E of Challis, Idaho
1992-04-30 T08:51:53.330Z	44.395	-113.935	5	3.7 ml	26 km ESE of Challis, Idaho
1992-04-25 T17:47:06.220Z	44.441	-113.953	5	3.3 ml	23 km ESE of Challis, Idaho
1992-04-04 T01:30:09.640Z	43.832	-111.078	5	4 ml	6 km ENE of Tetonia, Idaho
1992-03-23 T20:22:30.340Z	44.506	-114.096	5	3.3 ml	10 km E of Challis, Idaho
1992-03-22 T13:31:39.740Z	44.587	-114.14	5	4.3 ml	11 km NE of Challis, Idaho
1992-03-21 T12:34:06.780Z	44.563	-114.138	5	3.5 ml	9 km NE of Challis, Idaho
1992-03-16 T05:26:20.280Z	44.855	-111.617	5	3.3 ml	35 km WNW of Hebgen Lake Estates, Montana
1992-03-07 T18:20:02.720Z	44.53	-114.125	5	3.8 ml	8 km ENE of Challis, Idaho
1992-02-19 T07:40:47.940Z	44.522	-114.001	5	3.1 ml	18 km E of Challis, Idaho
1992-02-19 T07:07:57.530Z	44.513	-114.197	5	3.2 ml	2 km ENE of Challis, Idaho
1992-02-19 T06:02:53.170Z	44.539	-114.18	5	3.6 ml	5 km NE of Challis, Idaho



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1992-02-17 T18:00:26.480Z	44.17	-113.926	5	3.2 ml	37 km NW of Mackay, Idaho
1992-02-17 T16:52:40.830Z	44.497	-114.768	5	4.3 ml	33 km NNE of Stanley, Idaho
1992-02-17 T01:32:30.500Z	44.77	-112.353	10.1	4 ml	24 km NE of Lima, Montana
1992-02-16 T20:23:50.000Z	44.783	-112.343	5.1	3.2 ml	25 km NE of Lima, Montana
1992-02-15 T03:33:52.850Z	44.532	-114.006	5	3.1 ml	18 km E of Challis, Idaho
1992-02-14 T05:34:50.270Z	44.513	-114.061	5	3 ml	13 km E of Challis, Idaho
1992-02-11 T15:13:09.950Z	42.636	-111.828	5	3.2 ml	10 km NW of Grace, Idaho
1992-02-06 T03:28:02.440Z	44.514	-114.094	5	3.3 ml	11 km E of Challis, Idaho
1992-01-29 T20:53:55.010Z	44.248	-114.233	5	3 ml	13 km E of Clayton, Idaho
1992-01-18 T14:02:08.960Z	44.535	-114.1	5	3.4 ml	11 km ENE of Challis, Idaho
1992-01-18 T02:54:51.940Z	44.524	-114.098	5	3.5 ml	10 km ENE of Challis, Idaho
1992-01-17 T12:28:04.270Z	44.537	-114.16	5	3.4 ml	6 km ENE of Challis, Idaho
1992-01-10 T16:11:08.480Z	44.556	-114.14	5	3.4 ml	9 km NE of Challis, Idaho
1992-01-08 T10:34:20.070Z	44.518	-114.111	5	3.7 ml	9 km E of Challis, Idaho
1992-01-08 T07:25:15.390Z	44.548	-114.168	5	3.5 ml	6 km NE of Challis, Idaho
1991-12-30 T18:25:42.770Z	44.499	-113.998	5	3 ml	18 km E of Challis, Idaho
1991-12-28 T14:01:49.320Z	44.499	-113.967	5	3.1 ml	21 km E of Challis, Idaho
1991-12-28 T09:14:07.660Z	44.534	-114.131	5	3.8 ml	8 km ENE of Challis, Idaho
1991-12-28 T09:12:33.940Z	44.53	-114.205	5	3.5 ml	southern Idaho
1991-12-28 T07:09:25.990Z	44.531	-114.134	5	3.8 ml	8 km ENE of Challis, Idaho
1991-12-28 T07:00:21.100Z	44.56	-114.114	5	4.4 mb	southern Idaho
1991-11-18 T09:01:24.400Z	42.741	-111.123	5	3 ml	11 km WSW of Auburn, Wyoming
1991-10-27 T16:18:22.380Z	44.643	-114.135	5	3.6 ml	17 km NNE of Challis, Idaho
1991-09-30 T05:34:20.280Z	43.478	-110.235	5	3.2 ml	33 km NNE of Bondurant, Wyoming
1991-08-19 T16:53:52.600Z	43.915	-113.787	5	3 ml	13 km W of Mackay, Idaho
1991-08-14 T07:40:14.470Z	43.368	-110.669	5	3 ml	11 km ESE of South Park, Wyoming
1991-08-13 T06:56:31.640Z	42.855	-111.27	5	3 ml	22 km WNW of Auburn, Wyoming



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1991-06-25 T23:01:03.350Z	42.838	-111.232	5	3.2 ml	19 km WNW of Auburn, WY
1991-05-26 T19:37:26.560Z	44.806	-111.818	5	3.7 ml	49 km W of Hebgen Lake Estates, Montana
1991-05-20 T21:29:06.890Z	44.81	-114.026	5	3.3 ml	37 km NNE of Challis, Idaho
1991-04-22 T06:40:01.200Z	44.663	-112.587	6.1	3.4 ml	2 km N of Lima, Montana
1991-04-17 T00:54:12.670Z	44.28	-114.241	5	3.2 ml	12 km E of Clayton, Idaho
1991-02-15 T07:09:22.200Z	42.817	-111.294	2.6	3.5 ml	southern Idaho
1991-01-23 T17:17:05.110Z	44.788	-112.709	5	3 ml	19 km NNW of Lima, Montana
1991-01-21 T11:55:38.040Z	42.379667	-111.510333	2.89	3.01 md	15 km W of Bennington, Idaho
1991-01-16 T18:03:13.410Z	44.851	-111.484	5	3.5 ml	24 km WNW of Hebgen Lake Estates, Montana
1990-11-17 T17:40:00.500Z	43.071	-110.699	5	3.1 ml	23 km ENE of Star Valley Ranch, Wyoming
1990-11-07 T12:25:50.460Z	44.376	-114.117	5	3.8 ml	16 km SSE of Challis, Idaho
1990-10-26 T03:22:47.920Z	44.34	-114.168	5	3.4 ml	18 km SSE of Challis, Idaho
1990-10-17 T11:25:03.500Z	43.236	-111.647	5	3.2 ml	34 km SW of Irwin, Idaho
1990-10-12 T05:02:18.100Z	45.238	-112.723	7.1	3.2 ml	7 km WNW of Dillon, Montana
1990-10-08 T10:04:39.710Z	44.344	-114.371	5	3.5 ml	9 km NNE of Clayton, Idaho
1990-10-07 T02:22:09.240Z	44.565	-113.825	10	3.4 ml	33 km ENE of Challis, Idaho
1990-10-05 T09:46:45.650Z	44.502	-114.148	5	3.1 ml	6 km E of Challis, Idaho
1990-10-02 T15:15:24.890Z	43.531	-110.463	5	3.6 ml	16 km SE of Kelly, Wyoming
1990-09-30 T01:08:12.600Z	44.388	-114.25	5	3.7 mb	13 km S of Challis, Idaho
1990-09-07 T13:14:46.740Z	44.834	-111.781	5	3 ml	47 km W of Hebgen Lake Estates, Montana
1990-08-29 T19:21:23.540Z	44.45	-114.21	5	3.7 ml	6 km SSE of Challis, Idaho
1990-08-17 T12:03:52.030Z	44.658	-114.239	5	3.4 ml	17 km N of Challis, Idaho
1990-07-02 T11:37:45.850Z	41.893667	-112.4015	5.07	3.06 md	11 km NNE of Howell, Utah
1990-06-28 T00:05:13.450Z	41.891833	-112.404	5.79	3.8 ml	11 km NNE of Howell, Utah
1990-06-25 T22:06:59.510Z	41.8945	-112.4085	5.41	3.04 md	11 km NNE of Howell, Utah
1990-06-05 T12:19:28.460Z	42.642	-111.37	5	3.3 ml	17 km N of Georgetown, Idaho
1990-06-05 T09:03:27.510Z	42.571	-111.381	5	3.7 ml	9 km N of Georgetown, Idaho



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1990-04-19 T08:37:34.840Z	43.266	-111.163	5	3.3 ml	14 km NW of Alpine Northwest, Wyoming
1990-04-09 T16:56:53.330Z	43.145	-110.628	5	3.4 mb	18 km WSW of Bondurant, Wyoming
1990-03-06 T00:23:50.260Z	44.287	-112.836	5	3.1 ml	43 km SSW of Lima, Montana
1990-03-05 T06:50:56.220Z	43.401	-110.717	5	3.5 mb	6 km ESE of South Park, Wyoming
1990-02-23 T21:35:24.710Z	44.417	-114.039	5	3.4 ml	18 km ESE of Challis, Idaho
1990-02-16 T09:37:56.570Z	45.007	-111.774	5	3.3 ml	34 km SSE of Virginia City, Montana
1990-02-15 T00:13:38.120Z	44.325	-112.78	5	3.6 ml	37 km SSW of Lima, Montana
1990-02-05 T16:13:19.760Z	44.215	-113.591	5	3.3 ml	33 km N of Mackay, Idaho
1990-02-02 T07:49:08.600Z	44.39	-112.737	0.2	3.9 ml	29 km SSW of Lima, Montana
1990-01-24 T09:03:31.070Z	41.765333	-112.6175	6.47	3.5 ml	14 km WSW of Howell, Utah
1990-01-18 T14:01:51.480Z	44.743	-114.187	5	3.2 ml	26 km N of Challis, Idaho
1990-01-15 T16:00:10.660Z	44.854	-114.047	5	3 ml	37 km SSW of Salmon, Idaho
1990-01-10 T21:14:46.580Z	44.489	-114.159	5	3.7 ml	6 km ESE of Challis, Idaho
1989-12-27 T06:12:53.490Z	44.623	-114.358	10	3.7 ml	16 km NW of Challis, Idaho
1989-10-16 T10:14:01.120Z	42.719	-111.334	5	3.4 ml	23 km ENE of Soda Springs, Idaho
1989-10-01 T22:35:13.600Z	42.684	-111.272	0.2	3.7 ml	23 km W of Fairview, Wyoming
1989-09-30 T07:13:07.160Z	44.786	-111.106	5	3.4 ml	6 km ENE of Hebgen Lake Estates, Montana
1989-09-30 T06:51:59.980Z	44.787	-111.114	5	3.1 ml	6 km ENE of Hebgen Lake Estates, Montana
1989-09-30 T01:46:36.710Z	44.78	-111.127	5	3.4 ml	5 km ENE of Hebgen Lake Estates, Montana
1989-09-30 T01:30:30.380Z	44.778	-111.105	5	3 ml	6 km E of Hebgen Lake Estates, Montana
1989-09-27 T02:48:12.860Z	42.314833	-111.371167	6.5	3.12 md	6 km W of Montpelier, Idaho
1989-09-10 T18:50:55.870Z	44.185	-114.492	5	3.2 ml	11 km SW of Clayton, Idaho
1989-08-17 T22:15:39.780Z	44.271	-114.894	5	3 ml	6 km NNE of Stanley, Idaho



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1989-07-26 T22:38:07.420Z	44.7425	-111.073	9.17	3.33 md	9 km NNE of West Yellowstone, Montana
1989-06-28 T03:16:33.690Z	44.345	-112.365	5	3.1 ml	14 km W of Spencer, Idaho
1989-06-24 T20:32:51.790Z	43.515	-110.753	5	3 ml	3 km N of Jackson, Wyoming
1989-06-24 T17:53:08.370Z	43.522	-110.752	5	3 ml	4 km N of Jackson, Wyoming
1989-06-24 T10:25:06.050Z	43.515	-110.772	5	3.7 ml	3 km N of Jackson, Wyoming
1989-06-24 T09:24:49.800Z	43.504	-110.758	5	3.8 ml	2 km N of Jackson, Wyoming
1989-05-23 T13:33:36.290Z	44.481	-112.187	5	3.2 ml	13 km N of Spencer, Idaho
1989-05-12 T15:05:01.390Z	43.415	-110.707	5	3.1 ml	7 km E of South Park, Wyoming
1989-05-08 T09:21:11.370Z	44.496	-114.307	5	3.2 ml	6 km W of Challis, Idaho
1989-05-03 T05:04:26.160Z	42.84	-111.611	5	3.4 ml	20 km N of Soda Springs, Idaho
1989-04-04 T06:39:58.260Z	44.044	-112.045	5	3 ml	18 km NE of Hamer, Idaho
1989-01-24 T16:16:33.280Z	44.775	-114.018	5	3.5 ml	34 km NNE of Challis, Idaho
1988-12-07 T08:52:52.430Z	42.006167	-111.47	9.09	3.07 md	9 km NW of Garden City, Utah
1988-12-04 T06:02:21.950Z	43.473	-110.317	5	3.6 ml	29 km SE of Kelly, Wyoming
1988-12-04 T02:23:58.230Z	44.291	-114.305	5	3.8 ml	8 km ENE of Clayton, Idaho
1988-11-28 T10:46:46.620Z	42.008	-111.475667	3.13	3.36 md	9 km NW of Garden City, Utah
1988-11-19 T20:33:24.560Z	42.0055	-111.482167	-3.01	3.39 md	9 km NW of Garden City, Utah
1988-11-19 T20:00:53.660Z	41.993	-111.523	4.99	4.23 ml	11 km WNW of Garden City, Utah
1988-11-19 T19:46:16.350Z	42.013833	-111.464	0.13	3.75 md	9 km NW of Garden City, Utah
1988-11-19 T19:42:37.360Z	41.997833	-111.474333	3.1	4.33 md	8 km NW of Garden City, Utah
1988-11-15 T15:16:00.900Z	44.648	-110.985	5	3 ml	9 km E of West Yellowstone, Montana
1988-11-13 T11:53:25.030Z	42.636	-110.974	5	4 ml	5 km WNW of Smoot, Wyoming
1988-10-23 T03:44:48.390Z	44.224	-114.241	5	3.2 ml	13 km ESE of Clayton, Idaho
1988-10-22 T04:05:35.780Z	43.359	-110.358	5	3.5 ml	17 km NNE of Bondurant, Wyoming
1988-10-22 T03:49:04.520Z	43.291	-110.397	5	3.6 ml	9 km N of Bondurant, Wyoming
1988-09-29 T16:37:42.600Z	44.586	-114.18	5	3.3 ml	9 km NNE of Challis, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
1988-09-26 T01:45:33.200Z	44.441	-114.266	5	3.3 ml	7 km SSW of Challis, Idaho
1988-07-30 T08:55:22.270Z	44.018	-114.634	5	3.3 ml	32 km SW of Clayton, Idaho
1988-07-27 T02:10:31.150Z	44.646	-114.279	5	3.1 ml	16 km NNW of Challis, Idaho
1988-07-19 T16:11:42.040Z	45.127	-112.974	5	3.5 ml	28 km WSW of Dillon, Montana
1988-07-14 T18:43:52.130Z	44.435	-114.087	5	3.9 ml	13 km SE of Challis, Idaho
1988-07-14 T17:39:14.470Z	44.443	-113.997	5	3.5 ml	19 km ESE of Challis, Idaho
1988-07-14 T17:31:33.070Z	44.456	-114.083	5	4.9 mb	13 km ESE of Challis, Idaho
1988-06-15 T06:19:37.040Z	44.671	-112.047	5	3 ml	36 km NNE of Spencer, Idaho
1988-06-10 T04:04:27.260Z	44.546	-114.462	5	3.1 ml	18 km WNW of Challis, Idaho
1988-05-11 T21:10:16.310Z	44.109	-114.285	5	3.1 ml	19 km SSE of Clayton, Idaho
1988-05-11 T02:23:05.530Z	44.475	-114.083	5	3.5 ml	12 km ESE of Challis, Idaho
1988-02-24 T10:58:21.810Z	45.083	-112.763	5	3.2 ml	17 km SSW of Dillon, Montana
1988-02-19 T08:16:41.880Z	44.47	-114.155	5	3.2 ml	7 km ESE of Challis, Idaho
1988-02-01 T22:01:44.350Z	44.785	-114.388	5	3 ml	33 km NNW of Challis, Idaho
1988-01-31 T15:37:31.700Z	45.092	-112.779	5	3.2 ml	17 km SW of Dillon, Montana
1988-01-31 T15:34:56.560Z	45.086	-112.793	5	3.1 ml	18 km SW of Dillon, Montana
1988-01-22 T21:43:45.400Z	44.827	-114.421	5	3.3 ml	38 km NNW of Challis, Idaho
1988-01-16 T20:29:34.870Z	44.796	-114.472	5	3.5 ml	37 km NNW of Challis, Idaho
1988-01-10 T23:48:38.130Z	44.797	-114.359	5	3.4 ml	34 km NNW of Challis, Idaho
1988-01-10 T23:22:19.510Z	44.84	-114.377	5	4.8 mb	39 km NNW of Challis, Idaho
1988-01-10 T18:43:59.250Z	44.771	-114.386	5	3.2 ml	32 km NNW of Challis, Idaho
1988-01-10 T03:22:43.620Z	44.829	-114.401	5	3.3 ml	38 km NNW of Challis, Idaho
1988-01-09 T05:25:19.260Z	44.478	-114.181	5	4.1 ml	5 km SE of Challis, Idaho
1987-11-29 T21:58:26.620Z	44.366333	-110.579333	1.78	3.4 md	53 km SE of West Yellowstone, Montana
1987-10-18 T06:36:07.650Z	44.622	-114.401	5	3.7 ml	18 km NW of Challis, Idaho
1987-10-12 T22:46:14.290Z	44.311	-114.015	5	3.7 ml	27 km SE of Challis, Idaho
1987-09-10 T04:45:56.840Z	44.686	-114.195	5	3.4 ml	20 km N of Challis, Idaho
1987-08-17 T16:40:18.130Z	44.094	-114.543	5	3.3 ml	21 km SSW of Clayton, Idaho
1987-08-17 T03:44:19.980Z	44.046	-114.747	5	4 mb	24 km SE of Stanley, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
1987-08-04 T06:37:48.910Z	44.264	-114.315	5	3.6 ml	southern Idaho
1987-07-30 T17:53:11.550Z	44.638	-111.058	5	3.4 ml	4 km SE of West Yellowstone, Montana
1987-07-25 T16:54:39.950Z	42.130333	-112.479167	5.97	3 md	20 km WSW of Malad City, Idaho
1987-07-24 T23:54:05.930Z	44.172	-114.631	5	3.2 ml	20 km WSW of Clayton, Idaho
1987-07-24 T10:33:38.710Z	44.678	-111.008	5	3.2 ml	7 km ENE of West Yellowstone, Montana
1987-06-06 T00:13:06.350Z	44.707	-111.303	5	3.4 ml	11 km SW of Hebgen Lake Estates, Montana
1987-04-26 T14:41:42.250Z	44.107	-114.612	5	3.5 ml	23 km SW of Clayton, Idaho
1987-04-24 T19:32:28.650Z	41.859	-112.66	4.91	3.1 md	12 km SSE of Snowville, Utah
1987-04-24 T03:55:00.480Z	41.860333	-112.669	5.32	3.22 md	12 km SSE of Snowville, Utah
1987-04-01 T21:44:45.870Z	41.827333	-112.329667	5.33	3.09 md	10 km ENE of Howell, Utah
1987-04-01 T16:40:41.100Z	41.823	-112.326833	4.8	3.51 ml	10 km ENE of Howell, Utah
1987-03-23 T14:04:35.810Z	44.439	-114.088	5	3.3 ml	13 km ESE of Challis, Idaho
1987-03-22 T02:41:54.940Z	41.879667	-112.709667	4.02	3.1 md	9 km S of Snowville, Utah
1987-03-18 T00:00:42.970Z	42.581	-111.299	5	3.9 mb	12 km NNE of Georgetown, Idaho
1987-03-10 T07:28:12.320Z	41.874333	-112.7255	3.83	3.06 md	Utah
1987-02-25 T12:30:33.370Z	41.825333	-112.3275	4.63	3.87 md	10 km ENE of Howell, Utah
1987-02-06 T09:29:50.090Z	44.729	-111.032167	9.96	3.01 md	9 km NE of West Yellowstone, Montana
1987-02-05 T13:56:36.590Z	44.727833	-111.037	9.65	3.16 md	9 km NE of West Yellowstone, Montana
1987-01-20 T08:34:04.690Z	44.316	-114.29	5	3 ml	10 km NE of Clayton, Idaho
1987-01-19 T13:24:19.970Z	44.027	-114.86	5	3 ml	22 km SSE of Stanley, Idaho
1987-01-12 T03:05:12.940Z	42.706	-111.072	5	3.7 ml	7 km WNW of Fairview, Wyoming
1986-12-31 T11:21:56.360Z	41.825	-112.319167	3.67	3.45 md	10 km ENE of Howell, Utah
1986-12-30 T09:51:28.320Z	42.72	-111.275	5	3.2 ml	23 km WSW of Auburn, Wyoming
1986-12-24 T07:28:58.490Z	43.878	-114.848	5	3 ml	38 km S of Stanley, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
1986-12-20 T07:18:47.560Z	44.335	-114.454	5	3 ml	9 km NNW of Clayton, Idaho
1986-12-13 T18:12:06.360Z	44.213	-114.01	5	3.2 ml	31 km E of Clayton, Idaho
1986-11-17 T09:06:27.380Z	43.157	-110.798	5	3.7 ml	13 km S of Hoback, Wyoming
1986-11-17 T08:34:13.310Z	43.156	-110.812	5	3.9 ml	14 km S of Hoback, Wyoming
1986-11-15 T09:00:13.210Z	42.706	-111.667	5	3.3 ml	7 km NW of Soda Springs, Idaho
1986-11-12 T07:12:47.580Z	44.004	-114.715	5	3 ml	29 km SE of Stanley, Idaho
1986-11-09 T14:15:37.820Z	44.024	-114.723	5	3.3 ml	27 km SE of Stanley, Idaho
1986-11-09 T14:02:26.470Z	43.979	-114.74	5	3.8 ml	30 km SSE of Stanley, Idaho
1986-11-07 T12:44:14.220Z	44.073	-114.482	5	3 ml	21 km SSW of Clayton, Idaho
1986-11-04 T08:46:01.700Z	44.187	-114.065	5	3.5 ml	27 km ESE of Clayton, Idaho
1986-10-31 T11:58:28.140Z	41.8215	-112.320833	1.63	3.45 ml	10 km ENE of Howell, Utah
1986-10-29 T22:13:14.460Z	41.820333	-112.319333	3.32	3.57 ml	10 km ENE of Howell, Utah
1986-10-26 T14:31:56.510Z	41.829167	-112.324833	2.19	3.28 md	10 km ENE of Howell, Utah
1986-10-18 T21:21:28.490Z	42.028833	-111.449833	-1.58	3.49 md	10 km NNW of Garden City, Utah
1986-10-14 T13:43:47.580Z	44.066	-114.684	5	3.6 ml	26 km SE of Stanley, Idaho
1986-10-14 T13:10:09.850Z	44.058	-114.712	5	3.9 ml	25 km SE of Stanley, Idaho
1986-10-14 T12:17:53.300Z	44.023	-114.674	5	3.9 ml	30 km SE of Stanley, Idaho
1986-10-09 T09:42:41.540Z	43.961	-114.756	5	3.1 ml	32 km SSE of Stanley, Idaho
1986-10-01 T07:20:29.640Z	43.978	-114.78	5	3 ml	29 km SSE of Stanley, Idaho
1986-09-30 T16:11:53.510Z	43.996	-113.942	5	3.6 ml	27 km WNW of Mackay, Idaho
1986-09-27 T18:59:09.160Z	43.948	-114.77	5	3.8 ml	32 km SSE of Stanley, Idaho
1986-09-27 T18:56:17.780Z	44.055	-114.781	5	3.3 ml	22 km SE of Stanley, Idaho
1986-09-27 T13:02:01.790Z	44.017	-114.78	5	3.3 ml	25 km SSE of Stanley, Idaho
1986-09-26 T22:48:57.940Z	44.043	-114.756	5	4.6 mb	24 km SE of Stanley, Idaho
1986-09-26 T21:28:08.520Z	44.016	-114.75	5	4.3 ml	26 km SE of Stanley, Idaho
1986-09-24 T15:32:26.790Z	44.003	-114.755	5	3.7 ml	27 km SSE of Stanley, Idaho
1986-09-22 T05:38:51.930Z	44.04	-114.756	5	3.4 ml	24 km SE of Stanley, Idaho
1986-09-16 T21:00:18.890Z	44.065	-114.726	5	3.5 ml	24 km SE of Stanley, Idaho
1986-09-14 T16:01:49.490Z	43.968	-114.751	5	3.1 ml	31 km SSE of Stanley, Idaho



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1986-09-11 T03:55:12.710Z	44.067	-114.701	5	4 ml	25 km SE of Stanley, Idaho
1986-09-11 T03:49:08.150Z	43.94	-114.837	5	3.4 ml	31 km SSE of Stanley, Idaho
1986-09-11 T02:07:28.420Z	44.053	-114.705	5	3.5 ml	26 km SE of Stanley, Idaho
1986-09-06 T17:55:20.030Z	44.02	-114.788	5	3.5 ml	25 km SSE of Stanley, Idaho
1986-09-05 T19:23:48.600Z	43.979	-114.744	5	3.4 ml	30 km SSE of Stanley, Idaho
1986-09-05 T19:20:51.010Z	44.008	-114.752	5	4 ml	27 km SSE of Stanley, Idaho
1986-09-04 T12:43:47.630Z	44.036	-114.719	5	3.3 ml	26 km SE of Stanley, Idaho
1986-09-04 T04:38:20.040Z	44.066	-114.745	5	4 ml	22 km SE of Stanley, Idaho
1986-09-04 T04:15:55.840Z	43.993	-114.803	5	3.4 ml	27 km SSE of Stanley, Idaho
1986-09-03 T18:53:49.150Z	44.039	-114.764	5	3.9 ml	24 km SE of Stanley, Idaho
1986-09-03 T06:11:11.380Z	44.01	-114.792	5	3.2 ml	25 km SSE of Stanley, Idaho
1986-08-29 T08:26:23.530Z	42.117333	-111.6445	-2.03	3.24 md	17 km NE of Franklin, Idaho
1986-07-30 T08:19:07.150Z	42.457	-111.217667	6.19	3.39 md	11 km NE of Bennington, Idaho
1986-07-29 T19:04:18.910Z	44.247	-114.136	5	3.5 ml	21 km E of Clayton, Idaho
1986-07-07 T11:53:17.270Z	43.248	-111.09	5	3.3 ml	8 km NNW of Alpine Northwest, Wyoming
1986-06-21 T20:30:53.540Z	42.793	-111.153	5	3.5 ml	12 km W of Auburn, Wyoming
1986-06-13 T20:16:26.840Z	44.837	-111.527	5	3.1 ml	27 km WNW of Hebgen Lake Estates, Montana
1986-05-12 T09:58:27.060Z	45.325	-112.503	5	3.2 ml	16 km NE of Dillon, Montana
1986-05-11 T10:04:56.470Z	44.648	-111.994	5	3.1 ml	35 km NNE of Spencer, Idaho
1986-04-17 T03:10:38.910Z	44.323	-114.119	5	3 ml	22 km SSE of Challis, Idaho
1986-04-16 T06:25:27.660Z	44.271	-114.099	5	3.5 ml	24 km E of Clayton, Idaho
1986-04-13 T05:02:50.180Z	44.283	-114.153	5	3 ml	19 km E of Clayton, Idaho
1986-04-07 T14:07:25.860Z	44.337	-114.177	5	4.1 ml	19 km SSE of Challis, Idaho
1986-03-23 T14:26:11.840Z	44.407	-114.213	5	3.1 ml	10 km S of Challis, Idaho
1986-02-26 T15:05:49.360Z	44.627	-114.192	5	3.7 ml	13 km NNE of Challis, Idaho
1986-02-21 T23:20:12.470Z	41.743	-112.813833	6.93	3.56 ml	26 km SSW of Snowville, Utah
1986-02-17 T08:53:38.650Z	42.596	-111.301	5	3 ml	13 km NNE of Georgetown, Idaho



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1986-02-11 T22:27:55.180Z	44.6185	-111.0105	11.52	3 md	8 km ESE of West Yellowstone, Montana
1986-01-28 T07:26:53.420Z	44.145	-114.211	5	3.3 ml	19 km SE of Clayton, Idaho
1986-01-28 T07:15:32.870Z	44.184	-113.955	5	3.7 ml	36 km ESE of Clayton, Idaho
1986-01-28 T05:45:01.580Z	44.153	-113.946	5	4 ml	37 km NW of Mackay, Idaho
1986-01-16 T02:01:58.420Z	44.447	-114.232	5	3.1 ml	6 km S of Challis, Idaho
1985-12-12 T10:26:40.530Z	44.546	-113.053	5	3 ml	28 km ESE of Leadore, Idaho
1985-12-04 T06:43:01.250Z	44.642	-111.078	5	3.1 ml	3 km SE of West Yellowstone, Montana
1985-12-04 T06:37:51.190Z	44.644	-111.019667	10.67	3.08 md	6 km ESE of West Yellowstone, Montana
1985-12-01 T20:28:04.730Z	44.074	-114.051	5	3.4 ml	34 km SE of Clayton, Idaho
1985-11-21 T15:34:04.280Z	44.687	-111.979	5	3.8 ml	39 km NNE of Spencer, Idaho
1985-11-19 T12:22:04.660Z	44.633	-110.991	5	3 ml	9 km ESE of West Yellowstone, Montana
1985-11-16 T01:50:10.080Z	44.644	-111.079	5	3.5 ml	2 km SE of West Yellowstone, Montana
1985-11-10 T15:46:22.930Z	44.696	-111.075	5	3.1 ml	4 km NNE of West Yellowstone, Montana
1985-11-10 T05:52:16.460Z	44.614	-111.071	5	3.2 ml	5 km SSE of West Yellowstone, Montana
1985-11-09 T17:16:16.790Z	44.652	-111.042	5	3.3 ml	5 km ESE of West Yellowstone, Montana
1985-11-09 T15:19:58.300Z	44.619	-111.065	5	3.3 ml	5 km SSE of West Yellowstone, Montana
1985-11-09 T13:09:15.280Z	44.688	-111.051	5	4.2 ml	5 km NE of West Yellowstone, Montana
1985-11-09 T11:58:48.210Z	44.647167	-111.0305	10.54	3.02 md	6 km ESE of West Yellowstone, Montana
1985-11-09 T11:48:46.130Z	44.662	-111.104	5	3.1 ml	0 km SSE of West Yellowstone, Montana
1985-11-09 T11:46:25.750Z	44.663	-111.118	5	3.2 ml	1 km W of West Yellowstone, Montana



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1985-11-09 T11:40:22.590Z	44.766	-111.145	5	4.1 ml	3 km E of Hebgen Lake Estates, Montana
1985-11-09 T11:38:17.330Z	44.664333	-111.035333	10.88	4.26 md	5 km E of West Yellowstone, Montana
1985-10-29 T23:57:38.450Z	44.378	-114.155	5	3.2 ml	15 km SSE of Challis, Idaho
1985-10-29 T21:30:34.670Z	44.392	-114.075	5	4.1 ml	17 km SE of Challis, Idaho
1985-10-29 T00:10:39.320Z	44.628	-111.082	5	3 ml	4 km SSE of West Yellowstone, Montana
1985-10-20 T03:15:56.230Z	44.548	-114.283	5	3 ml	6 km NW of Challis, Idaho
1985-10-19 T16:32:35.660Z	44.679	-110.983	5	4 ml	9 km E of West Yellowstone, Montana
1985-10-19 T15:34:59.510Z	44.655	-111.006	5	4.1 ml	7 km E of West Yellowstone, Montana
1985-10-19 T15:33:47.470Z	44.624	-111.028	5	3 ml	7 km SE of West Yellowstone, Montana
1985-10-19 T12:47:49.780Z	44.641	-111.08	5	3.6 ml	3 km SE of West Yellowstone, Montana
1985-10-19 T11:47:02.230Z	44.645	-111.062	5	3 ml	3 km ESE of West Yellowstone, Montana
1985-10-19 T11:31:10.900Z	44.612	-111.053	5	3 ml	6 km SE of West Yellowstone, Montana
1985-10-19 T09:45:16.360Z	44.656	-111.078	5	3.4 ml	2 km ESE of West Yellowstone, Montana
1985-10-19 T09:28:43.680Z	44.631	-111.078	5	3.2 ml	4 km SSE of West Yellowstone, Montana
1985-10-19 T09:18:03.480Z	44.644	-111.109	5	3 ml	2 km S of West Yellowstone, Montana
1985-10-19 T06:33:02.820Z	44.658	-111.063	5	3.1 ml	3 km E of West Yellowstone, Montana
1985-10-17 T08:01:46.730Z	44.635	-111.056	5	3.3 ml	4 km SE of West Yellowstone, Montana
1985-10-09 T09:10:03.080Z	44.455	-114.154	5	3.1 ml	8 km SE of Challis, Idaho
1985-10-09 T07:18:00.690Z	44.448	-114.173	5	3.3 ml	7 km SE of Challis, Idaho
1985-10-02 T12:15:33.710Z	44.664	-112.08	5	3.3 ml	34 km NNE of Spencer, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
1985-09-19 T23:26:54.970Z	43.118	-110.926	7.8	3.5 ml	9 km SE of Alpine, Wyoming
1985-09-07 T03:47:29.200Z	43.156	-110.724	5	4.6 mb	14 km SSE of Hoback, Wyoming
1985-09-06 T17:18:57.590Z	43.151	-110.935	5	3.6 ml	6 km ESE of Alpine, Wyoming
1985-09-04 T04:07:18.790Z	44.209	-114.14	5	3 ml	21 km ESE of Clayton, Idaho
1985-08-31 T00:28:49.240Z	44.427	-114.229	5	3.3 ml	8 km S of Challis, Idaho
1985-08-30 T21:08:06.950Z	43.166	-110.89	5	4.2 mb	10 km ESE of Alpine Northeast, Wyoming
1985-08-28 T20:20:37.800Z	44.425	-114.351	5	3.1 ml	12 km SW of Challis, Idaho
1985-08-28 T19:10:11.390Z	44.483	-114.215	5	3.6 ml	2 km SSE of Challis, Idaho
1985-08-28 T15:08:24.630Z	44.412	-114.413	5	3.1 ml	17 km N of Clayton, Idaho
1985-08-22 T22:49:18.950Z	43.179	-110.855	5	3.2 ml	12 km E of Alpine Northeast, Wyoming
1985-08-22 T20:44:12.870Z	43.129	-110.868	5	3.4 ml	12 km ESE of Alpine, Wyoming
1985-08-22 T06:17:39.670Z	43.125	-110.814	5	4.3 mb	17 km ESE of Alpine, Wyoming
1985-08-21 T18:05:38.310Z	43.168	-110.781	5	4.8 mb	12 km S of Hoback, Wyoming
1985-08-15 T07:41:44.560Z	44.265	-114.112	5	3.1 ml	23 km E of Clayton, Idaho
1985-08-14 T06:58:42.630Z	44.423	-114.288	5	3 ml	10 km SSW of Challis, Idaho
1985-07-28 T06:13:47.810Z	44.305	-114.147	5	3.1 ml	20 km ENE of Clayton, Idaho
1985-07-20 T17:33:22.470Z	44.482	-114.097	5	3.5 ml	11 km ESE of Challis, Idaho
1985-07-19 T12:52:38.820Z	44.011	-114.833	5	3.6 ml	24 km SSE of Stanley, Idaho
1985-07-16 T18:43:07.360Z	44.034	-114.723	5	3 ml	26 km SE of Stanley, Idaho
1985-07-08 T14:30:43.460Z	44.437	-113.992	5	3.3 ml	20 km ESE of Challis, Idaho
1985-07-02 T03:03:56.080Z	43.255	-111.154	5	4 ml	12 km NW of Alpine Northwest, Wyoming
1985-06-27 T11:11:07.830Z	44.117	-114.382	5	3 ml	15 km S of Clayton, Idaho
1985-06-11 T23:09:37.160Z	44.499	-114.216	5	3 ml	1 km ESE of Challis, Idaho
1985-06-09 T05:53:01.460Z	44.881	-112.694	5	3 ml	28 km NNW of Lima, Montana
1985-06-08 T13:08:23.290Z	44.255	-114.199	10	3.4 ml	16 km E of Clayton, Idaho
1985-05-31 T04:13:22.850Z	44.698	-112.906	5	3.1 ml	25 km WNW of Lima, Montana
1985-05-13 T09:36:36.260Z	44.361	-114.476	5	3 ml	12 km NNW of Clayton, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
1985-05-13 T08:23:35.240Z	44.045	-113.874	5	3.2 ml	25 km NW of Mackay, Idaho
1985-05-10 T22:00:58.480Z	44.599	-114.116	5	3.1 ml	13 km NE of Challis, Idaho
1985-05-09 T15:29:37.670Z	44.047	-114.377	5	3 ml	23 km S of Clayton, Idaho
1985-05-06 T23:34:19.650Z	44.467	-114.275	5	3.1 ml	5 km SW of Challis, Idaho
1985-04-23 T10:47:25.210Z	44.706	-112.143	5	3.5 ml	36 km ENE of Lima, Montana
1985-04-20 T06:20:34.390Z	44.474	-114.273	10	3.3 ml	4 km SW of Challis, Idaho
1985-04-17 T10:29:51.490Z	44.192	-113.488	10	3.3 ml	Idaho-Montana border region
1985-04-14 T21:39:06.470Z	43.983	-113.977	5	3 ml	30 km WNW of Mackay, Idaho
1985-04-10 T06:10:18.510Z	44.776	-112.933	5	3 ml	31 km WNW of Lima, Montana
1985-04-10 T03:02:02.950Z	44.304	-114.228	10	3.2 ml	14 km ENE of Clayton, Idaho
1985-03-31 T16:05:34.190Z	44.125	-113.851	5	3.1 ml	30 km NW of Mackay, Idaho
1985-03-25 T07:55:08.080Z	44.444	-114.62	10	3.1 ml	26 km NW of Clayton, Idaho
1985-03-23 T18:10:19.480Z	44.304	-113.796	5	3.4 ml	41 km ESE of Challis, Idaho
1985-03-23 T18:03:53.910Z	44.358	-113.777	5	3.5 ml	39 km ESE of Challis, Idaho
1985-03-22 T18:07:51.290Z	44.187	-114.368	10	3.1 ml	8 km SSE of Clayton, Idaho
1985-03-20 T03:18:42.230Z	44.822	-111.559	5	3.5 ml	29 km W of Hebgen Lake Estates, Montana
1985-03-17 T06:56:17.150Z	44.553	-114.182	10	4.5 mb	6 km NE of Challis, Idaho
1985-03-11 T06:42:31.960Z	43.019	-110.852	6.3	3.6 ml	9 km ENE of Star Valley Ranch, Wyoming
1985-03-08 T22:17:08.250Z	43.033	-110.734	5	3.4 ml	19 km ENE of Star Valley Ranch, Wyoming
1985-02-28 T12:37:44.870Z	42.977	-110.788	0.1	3.1 ml	13 km E of Star Valley Ranch, Wyoming
1985-02-28 T11:09:01.400Z	42.985	-110.82	0.7	3.5 ml	11 km E of Star Valley Ranch, Wyoming
1985-02-27 T07:29:07.820Z	44.48	-114.187	10	3.1 ml	4 km SE of Challis, Idaho
1985-02-25 T11:46:06.530Z	44.501	-114.19	10	3.3 ml	3 km E of Challis, Idaho
1985-02-19 T19:25:49.230Z	44.469	-113.378	5	3 ml	23 km S of Leadore, Idaho
1985-02-12 T04:14:47.770Z	44.856	-113.41	5	3.2 ml	19 km NNW of Leadore, Idaho
1985-02-11 T16:07:03.890Z	44.457	-114.233	10	3.8 ml	5 km S of Challis, Idaho
1985-02-11 T13:31:50.010Z	44.369	-114.493	5	3 ml	14 km NNW of Clayton, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
1985-02-07 T02:14:04.420Z	44.421	-114.185	10	3.7 ml	10 km SSE of Challis, Idaho
1985-02-06 T19:34:19.490Z	44.551	-114.176	10	4.7 mb	6 km NE of Challis, Idaho
1985-02-06 T18:13:54.210Z	44.355	-114.418	10	3.4 ml	10 km N of Clayton, Idaho
1985-02-06 T16:08:56.000Z	44.489	-114.336	10	3.8 ml	8 km WSW of Challis, Idaho
1985-01-27 T21:05:58.080Z	44.836	-111.484	5	3.1 ml	24 km WNW of Hebgen Lake Estates, Montana
1985-01-27 T10:46:49.580Z	41.8875	-112.534167	4.16	3.05 md	12 km NW of Howell, Utah
1985-01-26 T07:09:53.240Z	43.333	-111.078	1	3.2 ml	16 km NNW of Alpine Northeast, Wyoming
1985-01-18 T03:38:07.960Z	44.703	-114.151	10	3.7 ml	22 km NNE of Challis, Idaho
1985-01-13 T17:49:07.600Z	44.641	-114.194	10	3.4 ml	15 km N of Challis, Idaho
1985-01-07 T07:47:02.630Z	44.554	-114.526	10	3.2 ml	24 km WNW of Challis, Idaho
1985-01-06 T14:39:59.930Z	44.624	-114.138	5	3.2 ml	15 km NNE of Challis, Idaho
1985-01-03 T02:29:50.050Z	44.729	-111.869	5	3.8 ml	48 km NNE of Spencer, Idaho
1984-12-22 T13:20:27.900Z	44.241	-114.059	10	3.2 ml	27 km E of Clayton, Idaho
1984-12-20 T00:43:44.470Z	45	-111.796	5	3.5 ml	34 km SSE of Virginia City, Montana
1984-11-13 T03:11:14.510Z	44.346	-114.21	10	3.6 ml	17 km S of Challis, Idaho
1984-11-03 T04:23:06.010Z	43.551	-110.813	5	3.1 ml	3 km NE of Moose Wilson Road, Wyoming
1984-10-30 T23:05:30.670Z	44.43	-114.112	10	3.9 ml	12 km SE of Challis, Idaho
1984-10-25 T12:10:36.510Z	44.34	-114.157	10	3.6 ml	19 km SSE of Challis, Idaho
1984-10-19 T07:35:09.170Z	44.424	-114.021	10	3.7 ml	19 km ESE of Challis, Idaho
1984-10-15 T23:23:56.390Z	41.806667	-112.405833	6.25	3.42 ml	3 km ENE of Howell, Utah
1984-10-12 T04:49:24.370Z	44.315	-114.083	10	3.5 ml	24 km SSE of Challis, Idaho
1984-10-04 T17:02:45.200Z	44.282	-114.09	10	3.8 ml	24 km E of Clayton, Idaho
1984-10-03 T05:32:01.290Z	44.333	-114.033	10	3.2 ml	24 km SE of Challis, Idaho
1984-10-02 T09:51:31.860Z	44.392	-114.184	10	3.6 ml	13 km SSE of Challis, Idaho
1984-09-26 T10:19:20.680Z	44.514	-114.228	10	3 ml	1 km NNE of Challis, Idaho
1984-09-23 T08:19:44.160Z	44.42	-114.15	10	3.4 ml	11 km SE of Challis, Idaho
1984-09-21 T18:21:55.520Z	44.428	-114.242	10	3.4 ml	8 km S of Challis, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
1984-09-21 T08:40:40.240Z	44.817	-112.899	10	3.6 ml	31 km NW of Lima, Montana
1984-09-19 T15:33:22.610Z	44.334	-114.205	10	3.5 ml	17 km ENE of Clayton, Idaho
1984-09-18 T16:27:30.640Z	44.42	-114.107	10	3.2 ml	13 km SE of Challis, Idaho
1984-09-18 T15:09:58.020Z	44.408	-114.124	10	4 ml	13 km SE of Challis, Idaho
1984-09-13 T11:12:48.940Z	44.434	-114.15	10	3.9 ml	10 km SE of Challis, Idaho
1984-09-08 T13:56:37.780Z	44.416	-114.147	10	4.4 mb	11 km SE of Challis, Idaho
1984-09-08 T11:36:13.780Z	44.42	-114.15	10	4 ml	11 km SE of Challis, Idaho
1984-09-08 T09:27:28.310Z	44.438	-114.091	10	3 ml	13 km ESE of Challis, Idaho
1984-09-08 T09:22:26.480Z	44.441	-114.115	10	3 ml	11 km SE of Challis, Idaho
1984-09-08 T08:55:50.090Z	44.444	-114.152	10	3.9 ml	9 km SE of Challis, Idaho
1984-09-08 T08:35:02.980Z	44.441	-114.141	10	3.1 ml	10 km SE of Challis, Idaho
1984-09-08 T08:16:28.190Z	44.441	-114.081	10	3.3 ml	13 km ESE of Challis, Idaho
1984-09-08 T08:08:32.950Z	44.409	-114.149	10	3.3 ml	12 km SSE of Challis, Idaho
1984-09-08 T08:03:16.800Z	44.415	-114.062	10	3.5 ml	16 km SE of Challis, Idaho
1984-09-08 T08:01:02.360Z	44.284	-114.256	10	3 ml	11 km ENE of Clayton, Idaho
1984-09-08 T06:26:46.010Z	44.418	-114.136	10	3.5 ml	12 km SE of Challis, Idaho
1984-09-08 T06:16:40.180Z	44.439	-114.154	10	5.1 mw	9 km SE of Challis, Idaho
1984-09-06 T19:50:22.350Z	44.45	-114.077	10	3 ml	13 km ESE of Challis, Idaho
1984-09-05 T20:28:01.210Z	44.218	-114.134	10	3.1 ml	21 km ESE of Clayton, Idaho
1984-09-05 T17:38:58.480Z	44.421	-114.183	10	3.7 ml	10 km SSE of Challis, Idaho
1984-09-05 T09:39:54.820Z	44.432	-114.154	10	3.4 ml	10 km SE of Challis, Idaho
1984-09-04 T05:57:21.810Z	44.466	-114.115	10	3.1 ml	10 km ESE of Challis, Idaho
1984-09-04 T05:50:41.360Z	44.449	-114.107	10	3.7 ml	11 km ESE of Challis, Idaho
1984-09-03 T20:28:00.130Z	44.359	-114.126	10	3.2 ml	18 km SSE of Challis, Idaho
1984-09-03 T12:28:50.870Z	45.019	-112.963	5	3.2 ml	33 km SW of Dillon, Montana
1984-09-01 T14:11:18.350Z	44.439	-114.117	10	3.1 ml	11 km SE of Challis, Idaho
1984-08-30 T21:06:20.760Z	44.455	-114.154	10	3.9 ml	8 km SE of Challis, Idaho
1984-08-30 T18:42:27.600Z	44.452	-114.126	10	3.5 ml	10 km SE of Challis, Idaho
1984-08-29 T09:47:51.530Z	44.386	-114.06	10	3.3 ml	18 km SE of Challis, Idaho
1984-08-28 T20:40:30.090Z	44.444	-114.172	10	3.4 ml	8 km SE of Challis, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
1984-08-28 T11:19:44.240Z	44.456	-114.138	10	3.1 ml	9 km SE of Challis, Idaho
1984-08-27 T02:12:08.850Z	44.42	-114.174	10	3.1 ml	10 km SSE of Challis, Idaho
1984-08-25 T17:43:53.070Z	44.416	-114.1	10	3 ml	14 km SE of Challis, Idaho
1984-08-25 T07:43:34.040Z	44.459	-114.141	10	3.1 ml	8 km SE of Challis, Idaho
1984-08-24 T13:53:48.270Z	44.437	-114.063	10	3.4 ml	15 km ESE of Challis, Idaho
1984-08-23 T13:21:53.020Z	44.462	-114.137	10	3.8 ml	8 km ESE of Challis, Idaho
1984-08-23 T06:13:33.220Z	44.445	-114.089	10	3.4 ml	13 km ESE of Challis, Idaho
1984-08-23 T00:01:58.160Z	44.369	-114.203	10	3.2 ml	15 km S of Challis, Idaho
1984-08-22 T15:35:41.500Z	44.419	-114.094	10	3.2 ml	14 km SE of Challis, Idaho
1984-08-22 T13:34:21.630Z	44.471	-114.152	10	4.1 ml	7 km ESE of Challis, Idaho
1984-08-22 T12:06:31.630Z	44.377	-114.181	10	3.1 ml	14 km SSE of Challis, Idaho
1984-08-22 T11:52:30.840Z	44.186	-114.658	10	3.2 ml	22 km WSW of Clayton, Idaho
1984-08-22 T11:44:24.980Z	44.419	-114.118	10	3.2 ml	13 km SE of Challis, Idaho
1984-08-22 T11:09:19.750Z	44.468	-114.084	10	3.3 ml	12 km ESE of Challis, Idaho
1984-08-22 T10:52:01.120Z	44.481	-114.204	10	4 ml	3 km SE of Challis, Idaho
1984-08-22 T10:50:25.020Z	44.452	-114.113	10	3.3 ml	11 km ESE of Challis, Idaho
1984-08-22 T10:48:24.210Z	44.454	-114.153	10	3.3 ml	8 km SE of Challis, Idaho
1984-08-22 T10:10:05.770Z	44.082	-114.687	10	3 ml	25 km SE of Stanley, Idaho
1984-08-22 T09:46:30.250Z	44.467	-114.008	10	5.6 mw	18 km ESE of Challis, Idaho
1984-08-21 T23:42:13.700Z	44.087	-114.759	10	3.2 ml	20 km SE of Stanley, Idaho
1984-08-15 T22:07:52.450Z	44.126	-114.717	10	3.4 ml	20 km ESE of Stanley, Idaho
1984-07-29 T11:54:14.310Z	44.62	-114.49	10	3.4 ml	24 km WNW of Challis, Idaho
1984-07-16 T01:34:52.810Z	44.302	-114.333	10	3.3 ml	7 km NE of Clayton, Idaho
1984-07-14 T17:46:02.110Z	44.628	-114.293	10	3.6 ml	14 km NNW of Challis, Idaho
1984-07-05 T19:32:59.070Z	44.574	-114.286	10	3.4 ml	8 km NNW of Challis, Idaho
1984-06-30 T23:39:07.590Z	44.651	-114.396	10	3.8 ml	20 km NW of Challis, Idaho
1984-06-26 T19:15:35.960Z	44.221	-114.046	10	3.5 ml	28 km E of Clayton, Idaho
1984-06-05 T11:39:37.560Z	44.786	-111.503	5	3.1 ml	24 km W of Hebgen Lake Estates, Montana
1984-05-30 T04:11:01.730Z	44.264	-114.136	10	3.5 ml	21 km E of Clayton, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
1984-05-16 T18:02:20.090Z	44.302	-114.126	10	3.2 ml	22 km ENE of Clayton, Idaho
1984-05-07 T20:57:16.930Z	44.662	-111.851	5	4.1 ml	42 km NE of Spencer, Idaho
1984-04-29 T04:42:55.870Z	44.244	-114.135	10	3.4 ml	21 km E of Clayton, Idaho
1984-04-23 T05:54:14.640Z	44.133	-113.867	10	3.3 ml	31 km NW of Mackay, Idaho
1984-04-20 T17:25:31.280Z	44.608	-114.408	10	3 ml	18 km NW of Challis, Idaho
1984-04-19 T01:58:49.510Z	44.363	-114.137	10	3.3 ml	17 km SSE of Challis, Idaho
1984-04-18 T01:15:09.430Z	44.342	-114.099	10	4 ml	20 km SSE of Challis, Idaho
1984-04-13 T12:16:05.460Z	44.742	-114.424	10	3.1 ml	30 km NNW of Challis, Idaho
1984-04-13 T07:16:39.590Z	44.727	-114.433	10	3 ml	29 km NNW of Challis, Idaho
1984-04-13 T01:14:13.540Z	44.281	-114.193	10	3.3 ml	16 km E of Clayton, Idaho
1984-04-12 T09:08:02.000Z	44.297	-114.28	10	3 ml	10 km ENE of Clayton, Idaho
1984-04-11 T15:51:55.990Z	44.774	-114.469	10	3.7 mb	35 km NNW of Challis, Idaho
1984-04-11 T08:23:20.930Z	44.297	-114.295	10	3.4 ml	9 km ENE of Clayton, Idaho
1984-04-10 T14:30:54.920Z	44.27	-114.365	10	3.2 ml	3 km ENE of Clayton, Idaho
1984-04-10 T02:10:18.860Z	44.654	-114.31	10	3.1 ml	17 km NNW of Challis, Idaho
1984-04-03 T06:58:08.150Z	44.2	-114.161	10	3 ml	20 km ESE of Clayton, Idaho
1984-04-03 T00:07:26.740Z	44.297	-114.507	10	3.1 ml	9 km WNW of Clayton, Idaho
1984-04-01 T09:13:38.400Z	44.739	-114.376	10	3.4 ml	28 km NNW of Challis, Idaho
1984-04-01 T05:39:27.820Z	44.726	-114.375	10	3.9 ml	27 km NNW of Challis, Idaho
1984-04-01 T05:15:18.820Z	44.707	-114.41	10	3.2 ml	26 km NNW of Challis, Idaho
1984-03-31 T23:07:10.110Z	44.728	-114.356	10	3.3 ml	26 km NNW of Challis, Idaho
1984-03-31 T01:12:56.460Z	44.326	-114.144	10	3.3 ml	21 km SSE of Challis, Idaho
1984-03-30 T16:23:59.280Z	44.43	-114.173	10	3.3 ml	9 km SSE of Challis, Idaho
1984-03-29 T11:43:55.050Z	44.708	-114.505	10	3.2 ml	31 km NW of Challis, Idaho
1984-03-26 T07:08:32.030Z	44.963	-111.808	5	3.5 ml	38 km SSE of Virginia City, Montana
1984-03-25 T11:24:53.700Z	44.722	-114.422	10	3.6 ml	28 km NNW of Challis, Idaho
1984-03-25 T00:21:14.530Z	44.713	-114.507	10	3.2 ml	31 km NW of Challis, Idaho
1984-03-24 T21:03:16.340Z	44.728	-114.441	10	3.8 ml	southern Idaho
1984-03-24 T21:01:12.390Z	44.374	-114.086	10	3.5 ml	18 km SE of Challis, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
1984-03-24 T20:02:06.040Z	44.709	-114.452	10	3.5 ml	28 km NW of Challis, Idaho
1984-03-24 T19:20:13.840Z	44.721	-114.443	10	3.4 ml	29 km NW of Challis, Idaho
1984-03-24 T16:01:32.660Z	44.641	-114.67	10	3.1 ml	37 km WNW of Challis, Idaho
1984-03-24 T09:53:42.630Z	44.693	-114.534	10	3.6 ml	31 km NW of Challis, Idaho
1984-03-24 T08:55:14.520Z	44.715	-114.423	10	3.3 ml	27 km NNW of Challis, Idaho
1984-03-24 T03:03:15.520Z	44.722	-114.461	10	4 ml	30 km NW of Challis, Idaho
1984-03-24 T02:31:33.300Z	44.669	-114.471	10	3.2 ml	26 km NW of Challis, Idaho
1984-03-24 T02:16:52.810Z	44.743	-114.373	10	3 ml	28 km NNW of Challis, Idaho
1984-03-24 T00:07:47.740Z	44.74	-114.43	10	4.2 mb	30 km NNW of Challis, Idaho
1984-03-23 T01:39:37.360Z	44.696	-114.531	10	3.2 ml	31 km NW of Challis, Idaho
1984-03-21 T21:43:36.510Z	44.73	-114.438	10	3.8 ml	29 km NNW of Challis, Idaho
1984-03-17 T04:56:20.270Z	44.778	-111.666	5	3.3 ml	37 km W of Hebgen Lake Estates, Montana
1984-03-17 T02:10:20.410Z	44.266	-114.147	10	3.2 ml	20 km E of Clayton, Idaho
1984-03-16 T14:35:38.950Z	44.309	-114.544	10	3.2 ml	12 km WNW of Clayton, Idaho
1984-03-12 T03:21:56.740Z	44.347	-114.317	10	3.2 ml	11 km NE of Clayton, Idaho
1984-03-10 T04:53:46.920Z	44.437	-112.638	5	3.3 ml	22 km S of Lima, Montana
1984-03-09 T23:49:12.420Z	44.151	-113.977	10	3.4 ml	35 km ESE of Clayton, Idaho
1984-03-09 T10:49:37.210Z	43.971	-113.73	10	3.3 ml	11 km WNW of Mackay, Idaho
1984-03-09 T01:55:34.020Z	44.302	-114.102	10	3.3 ml	24 km E of Clayton, Idaho
1984-03-09 T01:16:14.230Z	44.33	-114.009	5	3.3 ml	26 km SE of Challis, Idaho
1984-03-08 T11:19:43.600Z	44.467	-112.643	5	3 ml	19 km SSW of Lima, Montana
1984-03-07 T18:32:02.900Z	44.335	-114.387	10	3 ml	8 km N of Clayton, Idaho
1984-03-06 T19:51:35.320Z	44.349	-114.586	10	3 ml	17 km NW of Clayton, Idaho
1984-03-06 T15:22:30.560Z	44.197	-114.457	10	3.3 ml	8 km SSW of Clayton, Idaho
1984-03-02 T00:52:25.330Z	44.32	-114.173	10	3 ml	19 km ENE of Clayton, Idaho
1984-03-02 T00:29:45.180Z	44.35	-114.186	10	4.5 mb	17 km SSE of Challis, Idaho
1984-02-27 T11:52:11.260Z	44.222	-114.003	10	3 ml	32 km E of Clayton, Idaho
1984-02-25 T11:11:21.010Z	44.197	-114.093	10	3.4 ml	25 km ESE of Clayton, Idaho
1984-02-20 T16:17:25.520Z	44.432	-114.194	10	3.6 ml	8 km SSE of Challis, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
1984-02-20 T02:58:32.990Z	44.437	-114.089	10	3.7 ml	13 km ESE of Challis, Idaho
1984-02-19 T21:48:50.570Z	44.333	-114.105	10	3 ml	21 km SSE of Challis, Idaho
1984-02-15 T18:34:36.610Z	44.294	-114	10	3.2 ml	29 km SE of Challis, Idaho
1984-02-14 T11:31:34.940Z	44.722	-111.753	5	3.5 ml	44 km W of Hebgen Lake Estates, Montana
1984-02-10 T16:06:15.770Z	44.333	-114.107	10	3.1 ml	21 km SSE of Challis, Idaho
1984-02-08 T18:17:43.960Z	44.431	-114.168	10	3.4 ml	9 km SSE of Challis, Idaho
1984-02-08 T15:02:32.480Z	44.702	-114.437	10	3 ml	27 km NW of Challis, Idaho
1984-02-07 T19:00:40.180Z	44.438	-114.137	10	3.2 ml	10 km SE of Challis, Idaho
1984-02-06 T23:04:32.170Z	44.54	-114.266	10	3.1 ml	4 km NW of Challis, Idaho
1984-02-05 T14:02:54.780Z	44.093	-114.196	10	3.2 ml	24 km SE of Clayton, Idaho
1984-02-05 T03:44:15.880Z	44.275	-114.127	10	3.9 ml	21 km E of Clayton, Idaho
1984-02-05 T03:42:29.630Z	44.276	-114.124	10	3.1 ml	22 km E of Clayton, Idaho
1984-02-03 T05:05:25.120Z	44.726	-114.432	10	3.2 ml	29 km NNW of Challis, Idaho
1984-02-02 T16:36:33.270Z	44.672	-114.506	10	3.4 ml	28 km NW of Challis, Idaho
1984-02-01 T22:49:16.670Z	44.548	-114.214	10	3.2 ml	5 km NNE of Challis, Idaho
1984-02-01 T16:12:35.470Z	44.746	-114.37	10	3.1 ml	28 km NNW of Challis, Idaho
1984-02-01 T13:18:08.990Z	44.703	-114.472	10	3.4 ml	29 km NW of Challis, Idaho
1984-01-31 T16:50:07.560Z	44.735	-114.47	10	3 ml	31 km NW of Challis, Idaho
1984-01-31 T11:45:25.630Z	44.775	-114.46	10	3.7 mb	35 km NNW of Challis, Idaho
1984-01-31 T08:25:35.770Z	44.205	-114.032	10	3.2 ml	30 km ESE of Clayton, Idaho
1984-01-31 T03:24:46.570Z	44.768	-114.488	10	3.2 ml	35 km NW of Challis, Idaho
1984-01-29 T12:05:06.990Z	44.098	-113.905	10	3.4 ml	31 km NW of Mackay, Idaho
1984-01-29 T07:03:46.160Z	44.573	-114.264	10	3.1 ml	8 km NNW of Challis, Idaho
1984-01-29 T03:22:25.430Z	44.721	-114.442	10	3 ml	29 km NW of Challis, Idaho
1984-01-24 T21:07:57.550Z	44.047	-114.442	10	4.5 mb	23 km S of Clayton, Idaho
1984-01-15 T00:05:34.150Z	44.264	-114.157	10	3.2 ml	19 km E of Clayton, Idaho
1984-01-14 T22:24:00.840Z	44.779	-111.0045	10.25	3.9 md	14 km E of Hebgen Lake Estates, Montana
1984-01-14 T21:38:09.240Z	44.996	-111.816	5	3.8 ml	34 km SSE of Virginia City, Montana



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Time	Latitude	Longitude	Depth	Mag	Place
1984-01-11 T07:35:44.150Z	44.287	-114.093	10	4 ml	24 km E of Clayton, Idaho
1984-01-05 T20:10:24.340Z	43.316	-110.757	5	3 ml	4 km NNE of Hoback, Wyoming
1984-01-05 T02:02:51.380Z	44.395	-114.16	10	3.2 ml	13 km SSE of Challis, Idaho
1984-01-03 T09:40:32.920Z	44.281	-114.107	10	3.3 ml	23 km E of Clayton, Idaho
1984-01-03 T09:30:08.460Z	44.305	-114.113	10	3 ml	southern Idaho
1984-01-01 T12:27:14.420Z	44.261	-113.985	10	3.4 ml	33 km E of Clayton, Idaho
1983-12-31 T12:10:13.220Z	44.264	-114.113	10	3.6 ml	22 km E of Clayton, Idaho
1983-12-29 T16:05:24.470Z	44.419	-114.059	10	3.8 ml	16 km SE of Challis, Idaho
1983-12-29 T03:44:39.830Z	44.289	-114.047	10	3.3 ml	28 km SSE of Challis, Idaho
1983-12-28 T08:16:53.610Z	44.281	-114.089	11.2	4 ml	24 km E of Clayton, Idaho
1983-12-27 T20:19:17.710Z	44.223	-114.081	10	3.6 ml	25 km E of Clayton, Idaho
1983-12-27 T12:21:29.230Z	44.297	-114.079	10	4.4 mb	25 km E of Clayton, Idaho
1983-12-25 T12:23:56.360Z	44.342	-114.093	10	3.4 ml	21 km SSE of Challis, Idaho
1983-12-25 T09:49:01.500Z	44.143	-113.924	10	3.6 ml	35 km NW of Mackay, Idaho
1983-12-22 T18:56:03.970Z	43.224	-110.802	5	3.4 ml	6 km SSW of Hoback, Wyoming
1983-12-21 T06:33:54.960Z	44.365	-113.984	10	3.3 ml	25 km SE of Challis, Idaho
1983-12-21 T02:54:17.070Z	44.125	-114.033	10	3.8 ml	32 km ESE of Clayton, Idaho
1983-12-21 T00:25:20.740Z	43.231	-110.818	5	3 ml	6 km SSW of Hoback, Wyoming
1983-12-20 T23:21:52.310Z	43.268	-110.826	5	3.5 ml	3 km WSW of Hoback, Wyoming
1983-12-20 T22:52:23.770Z	43.294	-110.767	5	4.5 mb	1 km NE of Hoback, Wyoming
1983-12-20 T03:40:42.480Z	44.215	-114.059	10	3.1 ml	27 km E of Clayton, Idaho
1983-12-19 T17:27:55.940Z	44.397	-114.179	10	3.6 ml	12 km SSE of Challis, Idaho
1983-12-19 T11:31:34.410Z	44.305	-114.008	10	3.5 ml	28 km SE of Challis, Idaho
1983-12-17 T18:37:20.750Z	44.237	-114.085	10	3.7 ml	25 km E of Clayton, Idaho
1983-12-15 T06:13:34.830Z	44.365	-114.138	10	4.1 ml	17 km SSE of Challis, Idaho
1983-12-13 T17:13:38.670Z	44.244	-114.074	10	3.6 ml	26 km E of Clayton, Idaho
1983-12-13 T14:55:26.900Z	44.226	-114.177	10	3.2 ml	18 km ESE of Clayton, Idaho
1983-12-12 T05:11:27.820Z	44.423	-114.114	10	3.2 ml	13 km SE of Challis, Idaho
1983-12-12 T04:55:36.480Z	44.428	-114.102	10	4.5 mb	13 km SE of Challis, Idaho



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1983-12-11 T19:58:18.210Z	44.286	-114.16	10	4 ml	19 km E of Clayton, Idaho
1983-12-11 T07:40:45.390Z	42.361167	-111.563667	4.61	3.5 md	20 km NW of Paris, Idaho
1983-12-10 T01:35:01.020Z	44.256	-114.156	10	3.8 ml	19 km E of Clayton, Idaho
1983-12-08 T04:24:50.080Z	44.179	-113.907	10	3.4 ml	37 km NW of Mackay, Idaho
1983-12-05 T11:51:02.480Z	44.362	-114.12	10	3.2 ml	18 km SSE of Challis, Idaho
1983-12-05 T02:13:27.100Z	44.302	-113.816	10	3.5 ml	40 km SE of Challis, Idaho
1983-12-03 T03:10:16.080Z	44.48	-114.103	10	3.3 ml	10 km ESE of Challis, Idaho
1983-12-01 T07:52:58.530Z	44.285	-114.133	10	3.5 ml	21 km E of Clayton, Idaho
1983-11-21 T19:11:35.700Z	44.027	-113.952	10	3.6 ml	29 km WNW of Mackay, Idaho
1983-11-09 T23:00:43.370Z	43.897	-113.755	11	3.4 ml	11 km W of Mackay, Idaho
1983-11-09 T09:25:04.350Z	44.48	-114.14	10	3.4 ml	7 km ESE of Challis, Idaho
1983-11-08 T23:32:43.010Z	44.236	-114.06	7.3	3.5 ml	27 km E of Clayton, Idaho
1983-11-06 T21:11:55.000Z	44.146	-113.949	10	3.8 ml	37 km NW of Mackay, Idaho
1983-11-06 T21:04:48.820Z	44.145	-113.966	12	4.3 mb	36 km ESE of Clayton, Idaho
1983-11-05 T17:36:25.420Z	44.179	-114.021	11	3.5 ml	31 km ESE of Clayton, Idaho
1983-11-05 T05:37:39.830Z	44.227	-114.069	8.7	3.6 ml	26 km E of Clayton, Idaho
1983-11-04 T07:08:19.290Z	44.207	-114.027	7.7	3.5 ml	30 km E of Clayton, Idaho
1983-11-04 T05:00:14.980Z	44.135	-113.936	7	3.5 ml	35 km NW of Mackay, Idaho
1983-11-03 T15:47:30.100Z	44.303	-114.052	10	3.6 ml	26 km SSE of Challis, Idaho
1983-11-03 T14:14:17.830Z	44.308	-114.142	10	3.6 ml	21 km ENE of Clayton, Idaho
1983-11-03 T04:47:35.660Z	44.394	-114.074	10	3.5 ml	17 km SE of Challis, Idaho
1983-11-03 T04:15:16.340Z	44.271	-114.165	10	3.6 ml	18 km E of Clayton, Idaho
1983-11-03 T02:59:18.980Z	44.272	-114.126	10	3.9 ml	21 km E of Clayton, Idaho
1983-11-03 T02:24:13.620Z	44.377	-114.165	10	3.4 ml	15 km SSE of Challis, Idaho
1983-11-03 T01:50:20.260Z	44.294	-114.135	10	4.3 mb	21 km E of Clayton, Idaho
1983-11-02 T23:43:55.210Z	44.27	-114.083	4.9	4.2 mb	25 km E of Clayton, Idaho
1983-11-02 T20:03:58.860Z	43.418	-110.921	5	3.5 ml	9 km W of Rafter J Ranch, Wyoming
1983-11-02 T12:41:12.990Z	44.246	-114.158	10	3.7 ml	19 km E of Clayton, Idaho
1983-11-01 T13:50:25.140Z	44.152	-113.987	11	3.7 ml	35 km ESE of Clayton, Idaho



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1983-10-31 T16:08:33.360Z	44.258	-113.99	10	3.6 ml	32 km E of Clayton, Idaho
1983-10-30 T23:56:26.950Z	44.33	-114.049	10	3.5 ml	24 km SE of Challis, Idaho
1983-10-30 T19:23:42.470Z	44.377	-113.994	10	3.6 ml	23 km SE of Challis, Idaho
1983-10-30 T17:49:20.310Z	44.162	-113.95	10	3.8 ml	37 km ESE of Clayton, Idaho
1983-10-30 T12:54:00.080Z	44.307	-114.084	10	3.6 ml	24 km SSE of Challis, Idaho
1983-10-30 T09:41:33.170Z	44.297	-114.112	10	3.7 ml	23 km E of Clayton, Idaho
1983-10-30 T07:14:00.710Z	44.304	-114.12	10	3.9 ml	22 km ENE of Clayton, Idaho
1983-10-30 T03:45:16.170Z	44.09	-114.201	10	3.9 ml	24 km SE of Clayton, Idaho
1983-10-30 T02:54:39.630Z	44.269	-114.224	10	4 ml	14 km E of Clayton, Idaho
1983-10-30 T01:59:01.530Z	44.218	-114.197	10	4.2 mb	16 km ESE of Clayton, Idaho
1983-10-30 T01:24:51.260Z	44.083	-113.97	12.7	4.3 mb	34 km WNW of Mackay, Idaho
1983-10-30 T01:07:41.380Z	44.312	-114.068	10	3.7 ml	25 km SSE of Challis, Idaho
1983-10-29 T23:49:43.600Z	44.173	-114.186	10	3.8 ml	19 km ESE of Clayton, Idaho
1983-10-29 T23:39:05.530Z	44.281	-114.115	10	5.5 mb	22 km E of Clayton, Idaho
1983-10-29 T23:29:11.520Z	44.231	-114.105	9.3	5.4 mb	23 km E of Clayton, Idaho
1983-10-29 T19:48:12.820Z	43.985	-113.937	10	3.6 ml	27 km WNW of Mackay, Idaho
1983-10-29 T11:47:03.210Z	44.231	-113.883	10	3.6 ml	41 km SE of Challis, Idaho
1983-10-29 T08:15:17.900Z	44.253	-114.027	10	3.9 ml	29 km E of Clayton, Idaho
1983-10-29 T04:02:58.900Z	44.28	-114.061	10	3.5 ml	27 km E of Clayton, Idaho
1983-10-29 T03:11:46.770Z	44.339	-114.001	10	3.6 ml	26 km SE of Challis, Idaho
1983-10-29 T02:37:04.080Z	44.314	-114.076	10	4 ml	24 km SSE of Challis, Idaho
1983-10-28 T20:19:03.220Z	44.175	-114.001	10	3.7 ml	33 km ESE of Clayton, Idaho
1983-10-28 T19:51:24.430Z	44.073	-113.911	7.4	5.4 mb	29 km NW of Mackay, Idaho
1983-10-28 T19:30:45.000Z	44.313	-114.121	10	3.6 ml	23 km SSE of Challis, Idaho
1983-10-28 T18:42:56.020Z	44.004	-114.004	10	3.9 ml	32 km WNW of Mackay, Idaho
1983-10-28 T18:31:52.250Z	44.242	-114.112	10	4.1 ml	23 km E of Clayton, Idaho
1983-10-28 T17:20:24.340Z	44.236	-114.122	10	4 ml	22 km E of Clayton, Idaho
1983-10-28 T15:54:32.110Z	44.325	-114.071	10	4 ml	23 km SSE of Challis, Idaho
1983-10-28 T15:27:04.960Z	44.272	-114.125	10	3.7 ml	22 km E of Clayton, Idaho
1983-10-28 T15:14:07.970Z	44.181	-114.027	10	4.3 mb	31 km ESE of Clayton, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
1983-10-28 T14:06:06.610Z	44.058	-113.857	10	6.9 mw	The 1983 Borah Peak Earthquake, Idaho
1983-10-13 T09:45:26.560Z	44.708	-111.073	5	3.5 ml	5 km NNE of West Yellowstone, Montana
1983-10-12 T07:37:11.960Z	44.643	-114.397	5	3.6 ml	20 km NW of Challis, Idaho
1983-08-14 T00:53:12.720Z	44.715	-111.845	5	4.1 ml	47 km NE of Spencer, Idaho
1983-08-13 T04:41:05.150Z	44.704	-111.817	5	3.9 ml	Idaho-Montana border region
1983-02-25 T05:28:05.560Z	43.001	-111.601	5	3.2 ml	38 km N of Soda Springs, Idaho
1983-02-08 T10:54:54.970Z	43.304	-111.19	7	4.4 mb	14 km SE of Irwin, Idaho
1983-02-06 T20:25:16.590Z	44.571	-110.643	5	4.7 mb	37 km ESE of West Yellowstone, Montana
1982-12-24 T15:11:20.210Z	42.149833	-112.5265	-2.05	3.22 md	23 km WSW of Malad City, Idaho
1982-12-23 T09:23:49.430Z	42.609	-111.401	5	3.1 ml	14 km N of Georgetown, Idaho
1982-11-08 T01:18:29.340Z	44.784	-110.921	5	3.6 ml	19 km NE of West Yellowstone, Montana
1982-11-04 T09:58:29.910Z	44.716	-111.722	5	4.2 ml	42 km W of Hebgen Lake Estates, Montana
1982-10-26 T08:26:29.910Z	44.747	-111.749	5	4.6 ml	44 km W of Hebgen Lake Estates, Montana
1982-10-21 T06:05:28.200Z	44.719	-111.828	5	4.4 ml	48 km NW of Island Park, Idaho
1982-10-14 T23:44:54.400Z	42.596	-111.433	7	3.5 ml	13 km NNW of Georgetown, Idaho
1982-10-14 T12:21:42.970Z	42.585	-111.426	7	3.4 ml	12 km NNW of Georgetown, Idaho
1982-10-14 T11:09:29.510Z	42.6	-111.44	7	4.1 ml	14 km NNW of Georgetown, Idaho
1982-10-14 T11:03:55.060Z	42.584	-111.43	7	3.6 ml	12 km NNW of Georgetown, Idaho
1982-10-14 T10:56:30.840Z	42.568	-111.422	7	3.6 ml	10 km NNW of Georgetown, Idaho
1982-10-14 T10:40:15.420Z	42.581	-111.398	7	3.6 ml	11 km NNW of Georgetown, Idaho



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1982-10-14 T07:33:01.010Z	42.614	-111.442	7	3.3 ml	14 km ESE of Soda Springs, Idaho
1982-10-14 T06:28:46.770Z	42.582	-111.426	7	3.9 ml	11 km NNW of Georgetown, Idaho
1982-10-14 T04:10:24.380Z	42.59	-111.431	7	4.6 mb	12 km NNW of Georgetown, Idaho
1982-10-08 T16:04:09.060Z	42.625	-111.485	7	3.2 ml	10 km ESE of Soda Springs, Idaho
1982-10-08 T10:06:59.050Z	42.623	-111.473	7	3.8 ml	11 km ESE of Soda Springs, Idaho
1982-10-08 T09:53:32.160Z	42.62	-111.469	7	3.5 ml	11 km ESE of Soda Springs, Idaho
1982-10-07 T09:26:02.660Z	42.997	-111.068	5	3.5 ml	2 km NW of Freedom, Idaho
1982-09-30 T02:27:19.810Z	42.643	-111.465	5	3.5 ml	southern Idaho
1982-08-10 T19:35:46.290Z	44.616	-114.398	5	4.1 ml	18 km NW of Challis, Idaho
1982-07-10 T01:19:54.870Z	44.19	-110.901	5	3 ml	34 km ENE of Warm River, Idaho
1982-07-06 T09:32:49.090Z	44.749	-111.702	5	3.3 ml	40 km W of Hebgen Lake Estates, Montana
1982-05-30 T11:55:32.360Z	42.652	-111.226	7	3.6 ml	20 km WSW of Fairview, Wyoming
1982-05-30 T11:06:43.490Z	42.692	-111.243	7	4 ml	21 km W of Fairview, Wyoming
1982-03-01 T10:43:06.160Z	42.991	-111.041	5	3.6 ml	0 km NNE of Freedom, Idaho
1981-12-09 T08:43:32.960Z	42.637	-111.462	7	3.2 ml	11 km E of Soda Springs, Idaho
1981-12-09 T08:15:05.240Z	42.628	-111.434	7	4.3 mb	14 km ESE of Soda Springs, Idaho
1981-10-08 T16:49:32.200Z	44.233	-110.795	1	3 ml	44 km ENE of Warm River, Idaho
1981-09-30 T04:17:31.330Z	42.532	-111.152	5	3.7 mb	18 km ENE of Georgetown, Idaho
1981-05-27 T05:46:15.910Z	42.593	-111.726	5	3.1 ml	1 km N of Grace, Idaho
1981-05-22 T07:56:41.000Z	44.83	-110.997	7	4.2 ml	16 km ENE of Hebgen Lake Estates, Montana
1981-05-12 T10:18:14.010Z	43.544	-110.494	5	3 ml	13 km SE of Kelly, Wyoming



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1981-05-06 T19:26:01.970Z	43.407	-110.651	5	3.7 ml	11 km E of South Park, Wyoming
1981-04-15 T18:46:37.800Z	44.398	-111.293	5	3.8 ml	6 km ESE of Island Park, Idaho
1981-03-26 T00:21:28.200Z	43.364	-111.114	5	3 ml	15 km ESE of Irwin, Idaho
1981-03-12 T17:09:09.030Z	44.292	-110.746	0.8	3.1 ml	49 km ENE of Warm River, Idaho
1981-03-12 T15:55:41.920Z	44.28	-110.759	0.8	3.4 ml	48 km ENE of Warm River, Idaho
1981-03-12 T14:48:13.770Z	44.276	-110.76	2.3	3 ml	48 km ENE of Warm River, Idaho
1981-03-12 T14:19:38.220Z	44.288	-110.759	2.3	3.1 ml	48 km ENE of Warm River, Idaho
1981-03-12 T14:12:02.250Z	44.273	-110.762	0.6	3.8 ml	48 km ENE of Warm River, Idaho
1981-02-09 T22:53:36.760Z	43.115	-111.358	5	3 ml	27 km WSW of Alpine Northwest, Wyoming
1980-11-14 T21:08:10.400Z	44.592	-111.04	11	3.2 ml	9 km SSE of West Yellowstone, Montana
1980-11-07 T09:20:07.400Z	44.053	-114.456	5	3.4 ml	23 km S of Clayton, Idaho
1980-11-07 T09:19:26.500Z	44.067	-114.408	5	3.1 ml	21 km S of Clayton, Idaho
1980-05-10 T23:41:47.500Z	44.757	-111.278	5	4.2 ml	7 km W of Hebgen Lake Estates, Montana
1980-03-10 T20:28:41.000Z	42.44	-111.283	1	3.3 ml	6 km NNE of Bennington, Idaho
1980-02-29 T19:33:38.500Z	42.718	-111.733	7	3.3 ml	12 km E of Bancroft, Idaho
1980-02-27 T06:05:49.500Z	44.764	-111.042	5	3.4 ml	11 km E of Hebgen Lake Estates, Montana
1980-02-21 T06:39:40.000Z	44.397	-112.981	5	3 ml	40 km SW of Lima, Montana
1980-02-20 T12:07:52.800Z	44.805	-110.917	1	3.3 ml	21 km NE of West Yellowstone, Montana
1979-07-03 T09:57:23.900Z	43.411	-110.707	5	3.2 ml	7 km E of South Park, Wyoming
1979-06-22 T12:02:26.800Z	45.322	-112.829	5	4.4 ml	19 km NW of Dillon, Montana
1979-06-03 T04:58:25.400Z	42.514	-111.357	5	3.7 ml	3 km NNE of Georgetown, Idaho



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1979-05-30 T15:19:25.700Z	44.947	-111.869	5	3.6 ml	39 km S of Virginia City, Montana
1979-05-08 T01:23:18.300Z	44.785	-111.083	5	3.4 ml	8 km ENE of Hebgen Lake Estates, Montana
1979-05-08 T00:58:44.800Z	44.747	-111.382	5	4.6 ml	15 km W of Hebgen Lake Estates, Montana
1979-05-08 T00:57:42.900Z	44.742	-111.2	5	3.9 ml	3 km SSW of Hebgen Lake Estates, Montana
1979-05-08 T00:56:34.100Z	44.766	-111.121	5	3.3 ml	5 km E of Hebgen Lake Estates, Montana
1979-05-07 T17:15:43.400Z	44.759	-111.143	5	3.2 ml	3 km ESE of Hebgen Lake Estates, Montana
1979-01-06 T01:25:48.700Z	44.837	-111.449	5	4.1 ml	21 km WNW of Hebgen Lake Estates, Montana
1978-12-20 T13:46:22.600Z	42.118	-112.493	6	3.9 ml	21 km WSW of Malad City, Idaho
1978-12-12 T08:24:58.200Z	43.992	-114.41	5	3.5 ml	29 km S of Clayton, Idaho
1978-12-05 T11:56:27.600Z	42.099	-112.536	3	3 ml	20 km NE of Snowville, Utah
1978-12-05 T11:24:57.800Z	42.099	-112.478	4	3.7 ml	21 km WSW of Malad City, Idaho
1978-11-30 T11:55:09.300Z	42.112	-112.548	4	3.5 ml	21 km NE of Snowville, Utah
1978-11-30 T06:53:40.100Z	42.11	-112.494	4	4.6 mb	22 km WSW of Malad City, Idaho
1978-11-20 T14:25:51.800Z	44.001	-114.414	5	3.2 ml	28 km S of Clayton, Idaho
1978-11-04 T15:49:43.800Z	44.75	-111.23	5	3.5 ml	3 km SW of Hebgen Lake Estates, Montana
1978-10-24 T20:30:59.300Z	42.554	-111.841	7	4.2 mb	9 km WSW of Grace, Idaho
1978-10-02 T23:55:42.600Z	44.71	-110.799	5	3.6 ml	24 km ENE of West Yellowstone, Montana
1978-07-29 T14:04:03.200Z	41.847	-112.127	7	3.1 ml	3 km SSE of Plymouth, Utah
1978-04-26 T07:16:45.300Z	43.915	-114.115	5	3.1 ml	30 km NE of Sun Valley, Idaho
1978-03-19 T02:33:47.800Z	44.496	-114.418	5	3.2 ml	14 km W of Challis, Idaho
1978-03-07 T07:39:33.100Z	44.304	-110.918	5	3.1 ml	38 km ENE of Warm River, Idaho



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Time	Latitude	Longitude	Depth	Mag	Place
1978-03-07 T01:10:47.600Z	44.433	-110.843	5	3.5 ml	Wyoming
1978-02-25 T21:22:19.900Z	44.657	-113.884	5	3 ml	32 km ENE of Challis, Idaho
1978-02-02 T12:35:56.200Z	44.384	-110.83	4	3.3 mb	37 km SE of West Yellowstone, Montana
1978-02-02 T00:36:25.600Z	44.391	-110.815	5	3.7 mb	37 km SE of West Yellowstone, Montana
1978-01-14 T16:53:49.700Z	44.744	-111.819	5	3.6 ml	49 km W of Hebgen Lake Estates, Montana
1977-10-19 T16:50:50.900Z	44.766	-111.813	10	4.7 ml	49 km W of Hebgen Lake Estates, Montana
1977-09-06 T11:32:14.300Z	44.44	-111.882	5	3 ml	25 km ENE of Spencer, Idaho
1977-08-29 T12:56:23.400Z	44.658	-114.522	5	3.2 mb	28 km NW of Challis, Idaho
1977-08-25 T12:07:11.500Z	44.642	-114.597	5	3.1 ml	southern Idaho
1977-08-13 T10:13:07.600Z	44.654	-114.614	5	3.3 ml	34 km WNW of Challis, Idaho
1977-06-30 T05:28:37.800Z	43.071	-111.479	7	3 ml	36 km WNW of Freedom, Idaho
1977-05-28 T13:36:35.600Z	44.421	-111.427	5	3.2 ml	4 km W of Island Park, Idaho
1977-05-27 T10:52:31.800Z	44.476	-111.111	5	3 ml	20 km S of West Yellowstone, Montana
1977-05-16 T06:34:54.600Z	44.416	-114.42	5	3.1 ml	17 km N of Clayton, Idaho
1977-03-11 T22:22:15.100Z	44.302	-111.333	12	3.2 ml	13 km SSE of Island Park, Idaho
1977-03-11 T12:17:51.900Z	44.848	-111.5	5	5.2 mb	26 km WNW of Hebgen Lake Estates, Montana
1977-03-06 T06:10:12.700Z	44.709	-111.213	5	3 ml	6 km SSW of Hebgen Lake Estates, Montana
1977-03-04 T17:10:40.600Z	44.763	-111.005	5	4 mb	Idaho-Montana border region
1977-03-04 T16:51:48.300Z	44.767	-111.212	5	4 ml	1 km W of Hebgen Lake Estates, Montana
1977-03-04 T16:47:43.500Z	44.772	-111.124	5	3.7 ml	5 km E of Hebgen Lake Estates, Montana
1977-03-04 T16:12:28.200Z	44.789	-111.054	5	3.4 ml	11 km ENE of Hebgen Lake Estates, Montana
1977-03-04 T15:00:20.100Z	44.824	-111.051	5	3.8 ml	12 km ENE of Hebgen Lake Estates, Montana



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1977-03-04 T14:58:05.500Z	44.749	-111.354	5	3.7 ml	13 km W of Hebgen Lake Estates, Montana
1977-03-04 T14:19:48.800Z	44.779	-111.051	5	4 mb	11 km E of Hebgen Lake Estates, Montana
1977-03-04 T13:04:21.400Z	44.822	-111.102	5	4 mb	9 km NE of Hebgen Lake Estates, Montana
1977-03-04 T13:00:58.900Z	44.804	-111.078	5	4.1 mb	9 km ENE of Hebgen Lake Estates, Montana
1977-03-04 T11:33:06.900Z	44.835	-111.129	5	3.7 mb	8 km NNE of Hebgen Lake Estates, Montana
1977-03-04 T11:01:50.200Z	44.799	-111.076	5	3.9 mb	9 km ENE of Hebgen Lake Estates, Montana
1977-03-04 T10:05:59.600Z	44.829	-111.038	5	3.9 mb	13 km ENE of Hebgen Lake Estates, Montana
1977-02-13 T21:27:57.700Z	44.685	-111.456	5	3.2 ml	23 km WSW of Hebgen Lake Estates, Montana
1977-01-12 T14:12:22.200Z	44.63	-112.595	5	3.5 ml	0 km SSW of Lima, Montana
1976-12-20 T17:07:10.500Z	44.5	-111.068	9	3.3 ml	18 km S of West Yellowstone, Montana
1976-12-16 T00:28:21.400Z	44.641	-111.05	5	3 ml	4 km ESE of West Yellowstone, Montana
1976-12-11 T21:57:12.400Z	44.68	-111.041	5	3.1 ml	5 km ENE of West Yellowstone, Montana
1976-12-08 T22:10:42.300Z	44.746	-111.054	5	3.5 ml	10 km NNE of West Yellowstone, Montana
1976-12-02 T00:42:30.700Z	44.483	-111.828	5	3.4 ml	31 km ENE of Spencer, Idaho
1976-11-27 T19:18:57.900Z	44.846	-110.967	5	3.6 ml	19 km ENE of Hebgen Lake Estates, Montana
1976-11-27 T01:09:35.200Z	44.656	-110.825	5	3.5 ml	22 km E of West Yellowstone, Montana
1976-11-27 T00:24:46.100Z	44.639	-111.142	9	3.3 ml	3 km SW of West Yellowstone, Montana
1976-11-17 T14:57:38.600Z	44.74	-110.829	5	3 ml	23 km ENE of West Yellowstone, Montana



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1976-11-17 T14:34:33.400Z	44.752	-110.857	5	3 ml	21 km ENE of West Yellowstone, Montana
1976-11-05 T10:58:03.500Z	41.818	-112.694	7	3.2 ml	16 km S of Snowville, Utah
1976-11-05 T02:48:55.400Z	41.813	-112.701	7	4.1 ml	16 km S of Snowville, Utah
1976-11-05 T01:15:06.900Z	41.818	-112.694	7	3.4 ml	16 km S of Snowville, Utah
1976-11-01 T22:22:51.100Z	44.263	-114.973	5	3.7 ml	5 km NNW of Stanley, Idaho
1976-10-26 T10:08:50.300Z	44.618	-111.043	5	3 ml	6 km SE of West Yellowstone, Montana
1976-10-20 T04:55:59.400Z	44.608	-111.061	5	3.2 ml	6 km SSE of West Yellowstone, Montana
1976-10-11 T21:46:58.700Z	44.632	-111.166	5	3.2 ml	5 km SW of West Yellowstone, Montana
1976-10-11 T21:44:12.800Z	44.64	-111.204	5	3 ml	8 km WSW of West Yellowstone, Montana
1976-09-04 T09:24:30.800Z	44.732	-112.977	5	3.1 ml	30 km E of Leadore, Idaho
1976-07-12 T20:32:43.500Z	42.103	-112.625	5	3 ml	16 km NNE of Snowville, Utah
1976-07-11 T16:22:27.400Z	44.53	-111.086	5	3.2 ml	14 km S of West Yellowstone, Montana
1976-06-15 T14:57:31.800Z	44.638	-114.574	5	3.7 ml	30 km WNW of Challis, Idaho
1976-06-15 T02:08:10.400Z	41.886	-112.442	1	3.1 ml	9 km N of Howell, Utah
1976-06-14 T09:37:57.800Z	42.118	-112.48	7	3.6 ml	20 km WSW of Malad City, Idaho
1976-04-19 T22:05:52.000Z	44.755	-111.172	5	3.3 ml	2 km SE of Hebgen Lake Estates, Montana
1976-04-18 T23:05:55.500Z	44.722	-111.765	11	3.2 ml	45 km NW of Island Park, Idaho
1976-03-17 T08:02:46.300Z	43.243	-110.684	5	3.9 mb	9 km ESE of Hoback, Wyoming
1976-03-15 T02:28:34.500Z	43.253	-110.732	5	3.7 mb	5 km SE of Hoback, Wyoming
1976-02-21 T14:12:47.000Z	41.989	-112.553	5	3.3 ml	13 km ENE of Snowville, Utah
1976-02-14 T13:11:11.000Z	42.719	-111.272	5	3.4 ml	23 km WSW of Auburn, Wyoming
1976-01-24 T23:53:02.300Z	45.058	-112.592	5	3 ml	17 km SSE of Dillon, Montana
1975-12-27 T21:53:09.800Z	43.154	-110.752	5	3.1 ml	14 km S of Hoback, Wyoming
1975-11-17 T08:21:11.100Z	41.955	-112.533	7	3 ml	14 km E of Snowville, Utah



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1975-09-22 T10:42:36.200Z	42.075	-112.453	3	3.6 ml	20 km WNW of Portage, Utah
1975-09-12 T18:26:06.400Z	42.072	-112.571	5	4 ml	16 km NE of Snowville, Utah
1975-08-16 T21:20:53.600Z	42.124	-112.448	10	3.6 ml	17 km WSW of Malad City, Idaho
1975-07-17 T19:04:54.300Z	43.507	-110.591	5	3.3 mb	13 km SSE of Kelly, Wyoming
1975-06-30 T03:26:47.200Z	42.112	-112.466	5	3 ml	19 km WSW of Malad City, Idaho
1975-06-18 T05:42:28.200Z	43.367	-110.959	5	3.3 mb	14 km WSW of Rafter J Ranch, Wyoming
1975-04-10 T10:21:00.500Z	42.012	-112.554	5	3.2 ml	13 km ENE of Snowville, Utah
1975-04-07 T14:43:54.300Z	42.039	-112.498	3	3 ml	19 km ENE of Snowville, Utah
1975-04-07 T14:01:42.200Z	42.147	-112.585	2	3.1 ml	22 km NNE of Snowville, Utah
1975-04-07 T13:42:34.500Z	42.041	-112.492	4	4.6 mb	19 km ENE of Snowville, Utah
1975-04-06 T21:05:34.000Z	42.022	-112.493	4	3.2 ml	19 km ENE of Snowville, Utah
1975-04-04 T04:50:46.300Z	44.805	-112.99	5	3.8 mb	32 km ENE of Leadore, Idaho
1975-04-02 T21:06:45.900Z	42.094	-112.444	7	4.7 mb	19 km SW of Malad City, Idaho
1975-03-31 T13:45:51.500Z	41.981	-112.411	7	4.5 mb	14 km W of Portage, Utah
1975-03-31 T13:23:58.300Z	42.008	-112.497	7	3 ml	18 km ENE of Snowville, Utah
1975-03-31 T10:30:56.200Z	42.063	-112.5	6	3.5 ml	20 km ENE of Snowville, Utah
1975-03-30 T14:02:26.300Z	42.011	-112.605	3	4 mb	10 km ENE of Snowville, Utah
1975-03-30 T12:56:33.400Z	42.014	-112.594	6	3.23 ml	10 km ENE of Snowville, Utah
1975-03-30 T07:32:12.700Z	42.023	-112.605	1	3.4 ml	10 km NE of Snowville, Utah
1975-03-30 T06:56:28.600Z	42.02	-112.578	5	4.3 mb	12 km ENE of Snowville, Utah
1975-03-29 T13:01:19.800Z	42.016	-112.521	4	4.7 mb	southern Idaho
1975-03-29 T05:44:32.600Z	42.08	-112.453	3	3.2 ml	20 km SW of Malad City, Idaho
1975-03-28 T16:15:06.900Z	42.03	-112.534	7	4.1 mb	16 km ENE of Snowville, Utah
1975-03-28 T13:11:16.600Z	42.051	-112.481	2	3 ml	21 km ENE of Snowville, Utah
1975-03-28 T02:31:05.700Z	42.061	-112.548	5	6.1 mb	17 km NE of Snowville, Utah
1975-03-27 T04:48:51.600Z	42.07	-112.545	6	4.4 mb	southern Idaho
1975-01-29 T20:08:23.900Z	45.068	-111.471	5	4.2 mb	25 km SSW of Big Sky, Montana



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1974-10-29 T01:48:31.700Z	44.629	-111.307	5	4 mb	16 km WSW of West Yellowstone, Montana
1974-08-30 T19:46:54.000Z	44.64	-110.765	2	4.5 mb	27 km E of West Yellowstone, Montana
1974-08-30 T16:41:59.100Z	44.702	-110.803	1	4.5 mb	24 km E of West Yellowstone, Montana
1974-07-01 T18:23:07.300Z	44.564	-111.089	5	4.8 mb	10 km S of West Yellowstone, Montana
1974-06-09 T00:50:42.000Z	44.799	-111.054	5	4.9 ml	11 km ENE of Hebgen Lake Estates, Montana
1974-03-24 T15:04:45.600Z	44.63	-110.792	33	3.8 mb	25 km E of West Yellowstone, Montana
1973-04-14 T06:45:49.200Z	42.051	-112.525	24	4.4 mb	18 km ENE of Snowville, Utah
1973-04-09 T10:30:58.700Z	44.14	-110.485	5	3.6 mb	58 km N of Kelly, Wyoming
1973-03-01 T06:00:19.200Z	44.812	-111.122	5	4.3 mb	7 km NE of Hebgen Lake Estates, Montana
1969-09-19 T13:33:15.000Z	42.99	-111.43	5	4.5 mb	31 km W of Freedom, Idaho
1969-04-26 T10:41:53.100Z	44.058	-114.444	18	4.9 mb	22 km S of Clayton, Idaho
1965-10-08 T19:34:59.800Z	44.713	-111.272	5	4.9 mb	8 km SW of Hebgen Lake Estates, Montana
1965-01-06 T02:01:20.700Z	44.772	-112.746	5	5.1 mb	19 km NW of Lima, Montana
1964-10-21 T07:38:30.490Z	44.871	-111.572	10	5.2 mw	32 km WNW of Hebgen Lake Estates, Montana
1964-10-18 T18:33:21.240Z	41.898	-111.816	10	5.02 mw	2 km S of Richmond, Utah
1963-10-17 T01:22:07.700Z	44.4	-114.7	30	4.7 mb	27 km NE of Stanley, Idaho
1963-09-12 T06:23:48.900Z	44.181	-114.621	9	4.4 mb	southern Idaho
1963-09-11 T02:08:43.700Z	44.177	-114.615	8	4.9 mb	19 km WSW of Clayton, Idaho
1963-01-27 T15:24:43.800Z	44.19	-114.528	11	4.8 lg	12 km SW of Clayton, Idaho
1959-09-13 T19:49:34.800Z	44.722	-111.127	5	4.4 ml	6 km NNW of West Yellowstone, Montana
1959-08-20 T19:11:26.800Z	44.704	-111.678	5	5 uk	39 km W of Hebgen Lake Estates, Montana
1959-08-19 T21:45:57.400Z	44.773	-111.606	5	4.7 uk	32 km W of Hebgen Lake Estates, Montana



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Time	Latitude	Longitude	Depth	Mag	Place
1959-08-19 T19:43:47.200Z	44.756	-110.96	5	5 uk	15 km NE of West Yellowstone, Montana
1959-08-19 T19:06:27.000Z	44.818	-111.588	5	5 uk	31 km W of Hebgen Lake Estates, Montana
1959-08-19 T04:04:01.700Z	44.648	-110.84	5	5.99 mw	21 km E of West Yellowstone, Montana
1959-08-18 T06:37:20.430Z	44.63	-110.891	10	7.2 mw	17 km ESE of West Yellowstone, Montana
1947-11-23 T09:46:08.530Z	45.046	-111.556	15	6.1 mw	30 km SSW of Big Sky, Montana
1937-11-19 T00:50:20.000Z	42.1	-113.9		5.4 ml	15 km S of Oakley, Idaho
1917-12-12 T10:50:00.000Z	43	-111.3		5.3 uk	20 km W of Freedom, Idaho
1897-11-04 T09:29:00.000Z	45.3	-112.6		6.4 mfa	Near Dillon, Montana
1884-11-10 T08:50:00.000Z	42.3	-111.4	5	5.6 mw	Bear Lake Valley, Idaho
1880-07-12 T05:00:00.000Z	42	-112.3		4.05 mint	Near Portage, Utah