

Quaternary Fault and Fold Database of the United States

As of January 12, 2017, the USGS maintains a limited number of metadata fields that characterize the Quaternary faults and folds of the United States. For the most up-to-date information, please refer to the [interactive fault map](#).

Rexburg fault (Class A) No. 620

Last Review Date: 2010-11-09

Compiled in cooperation with the Idaho Geological Survey

citation for this record: Haller, K.M., and Lewis, R.S., compilers, 2010, Fault number 620, Rexburg fault, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, <https://earthquakes.usgs.gov/hazards/qfaults>, accessed 12/14/2020 03:03 PM.

Synopsis	Arcuate normal fault south of Rexburg, Idaho. The topographic relief across the fault does not suggest a long-term history of Quaternary deformation. Mapping of the fault suggests there is probably a scarp present; however, the origin of the scarp is equivocal and could be due to incision by the Snake River, Henrys Fork, and associated tributaries or its origins may be related to the Rexburg caldera.
Name comments	The origin of the name for this fault is probably Williams and Embree (1980 #4386; 1980 #4387). The fault as mapped by Prostka and Embree (1978 #3945) extends around the perimeter of the "Rexburg bench" from about 5 km northeast of the center

	<p>of Rexburg, Idaho, through the southeast part of the town following the Rexburg and the Sunnydell Canals to its southernmost point about 4 km north of Sunnydell, Idaho.</p> <p>Fault ID: This fault is not shown on any previous compilation.</p>
County(s) and State(s)	MADISON COUNTY, IDAHO
Physiographic province(s)	COLUMBIA PLATEAU
Reliability of location	<p>Good Compiled at 1:24,000 scale.</p> <p><i>Comments:</i> Source of trace is Prostka and Embree (1978 #3945) 1:48,000-scale geologic map further constrained by satellite imagery and topography at scale of 1:24,000. Reference satellite imagery is ESRI_Imagery_World_2D with a minimum viewing distance of 1 km (1000 m). Prostka and Embree (1978 #3945) show the northern third of the fault as concealed (dotted) but location is at prominent break in slope.</p>
Geologic setting	The arcuate Rexburg fault truncates the "Rexburg bench" and the fault scarp is formed on welded tuff and basalt. Huckleberry Ridge Tuff is reported to be offset at least 100 m (Williams and Embree, 1980 #4387).
Length (km)	10 km.
Average strike	N31°E
Sense of movement	<p>Normal</p> <p><i>Comments:</i> Sense of movement is from Prostka and Embree (1978 #3945).</p>
Dip Direction	NW
Paleoseismology studies	Williams and Embree (1980 #4387) indicate that a trench was excavated 2.8 km south of Rexburg. They provide no further detail regarding the location of the trench site.
Geomorphic expression	Not reported. Prostka and Embree (1978 #3945) show the trace of the fault at the break in slope that defines the "Rexburg bench".

Age of faulted surficial deposits	late Quaternary alluvium (Williams and Embree, 1980 #4387)
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) <i>Comments:</i> Timing of most recent faulting event is based on the conclusions presented in an abstract by Williams and Embree (1980 #4386). Data from trench is not known to be presented in any other publication. Fault shown on map of Breckenridge and others (2003 #5878) as late Quaternary.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr <i>Comments:</i> Low slip rate is indicated. Late Quaternary deposits are offset only 1.6 m (Williams and Embree, 1980 #4387). Additionally, a low long-term slip rate is indicated based on 100 m of offset of 2 Ma Huckleberry Ridge Tuff (Williams and Embree, 1980 #4387).
Date and Compiler(s)	2010 Kathleen M. Haller, U.S. Geological Survey Reed S. Lewis, Idaho Geological Survey
References	#5878 Breckenridge, R.M., Lewis, R.S., Adema, G.W., and Weisz, D.W., 2003, Miocene and younger faults in Idaho: Idaho Geological Survey Map 8, 1 sheet, scale 1:1,000,000. #3945 Prostka, H.J., and Embree, G.F., 1978, Geology and geothermal resources of the Rexburg area, eastern Idaho: U.S. Geological Survey Open-File Report 78-1009, 14 p., 2 pls. #4386 Williams, E.J., and Embree, G.F., 1980, Pleistocene movement on Rexburg fault, eastern Idaho: Geological Society of America Abstracts with Programs, v. 12, no. 6, p. 308. #4387 Williams, E.J., and Embree, G.F., 1980, Seismic risk on the Rexburg fault, Idaho, <i>in</i> Geological Survey research 1980: U.S. Geological Survey Professional Paper 1175, p. 76.

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