

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](#).

Bear River Range faults (Class A) No. 2410

Last Review Date: 1999-10-01

Compiled in cooperation with the Utah Geological Survey

citation for this record: Black, B.D., and Hecker, S., compilers, 1999, Fault number 2410, Bear River Range faults, 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 02:56 PM.

Synopsis	Poorly understood Quaternary(?) faults in the Bear River Range. There was reportedly a small component of right-lateral coseismic slip as a result of the 1962 Ms 5.7 Cache Valley earthquake.
Name comments	Fault ID: Refers to fault number 11-7 of Hecker (1993 #642).
County(s) and State(s)	WEBER COUNTY, UTAH CACHE COUNTY, UTAH
Physiographic province(s)	MIDDLE ROCKY MOUNTAINS

Reliability of location	<p>Good Compiled at 1:250,000 scale.</p> <p><i>Comments:</i> Mapped or discussed by Sullivan and others (1988 #4508) and Westaway and Smith (1989 #4530). Fault traces from mapping of Sullivan and others (1988 #4508).</p>
Geologic setting	<p>Generally north-trending normal faults (with a minor strike-slip component) in the Bear River Range. The Temple Ridge fault, the northernmost of the Bear River Range faults, has about 500 m of Miocene to Pliocene throw and is a likely source for the 1962 Ms 5.7 Cache Valley (Logan) earthquake which occurred at a depth of 10 km.</p>
Length (km)	63 km.
Average strike	N8°E
Sense of movement	<p>Normal</p> <p><i>Comments:</i> Coseismic slip in the 1962 Ms 5.7 Cache Valley earthquake (Westaway and Smith, 1989 #4530) involved a small component of right-lateral displacement, which may typify the sense of slip on other normal faults in the region. A left-stepping pattern in the trace of the East Cache fault zone [2352] is consistent with right-lateral slip.</p>
Dip Direction	W
Paleoseismology studies	
Geomorphic expression	<p>Prominent escarpments are associated with several faults. However, triangular facets are poorly preserved.</p>
Age of faulted surficial deposits	Tertiary
Historic earthquake	
Most recent prehistoric deformation	<p>undifferentiated Quaternary (<1.6 Ma)</p> <p><i>Comments:</i> Based on range-front morphology. The physiography suggests possible late Quaternary displacements on the faults.</p>

Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr <i>Comments:</i> Poor geomorphic expression and relatively small net displacements (500 m) of Miocene-Pliocene beds indicate a low long-term slip rate.
Date and Compiler(s)	1999 Bill D. Black, Utah Geological Survey Suzanne Hecker, U.S. Geological Survey
References	#642 Hecker, S., 1993, Quaternary tectonics of Utah with emphasis on earthquake-hazard characterization: Utah Geological Survey Bulletin 127, 157 p., 6 pls., scale 1:500,000. #4508 Sullivan, J.T., Nelson, A.R., LaForge, R.C., Wood, C.K., and Hansen, R.A., 1988, Central Utah regional seismotectonic study for USBR dams in the Wasatch Mountains: Bureau of Reclamation Seismotectonic Report 88-5, 269 p. #4530 Westaway, R., and Smith, R.B., 1989, Source parameters of the Cache Valley (Logan), Utah, earthquake of 30 August 1962: Bulletin of the Seismological Society of America, v. 79, no. 5, p. 1410-1425.

[Questions or comments?](#)

[Facebook](#) [Twitter](#) [Google](#) [Email](#)

[Hazards](#)

[Design](#) [Ground Motions](#) [Seismic Hazard Maps & Site-Specific Data](#) [Faults](#) [Scenarios](#)

[Earthquakes](#) [Hazards](#) [Data](#) [Education](#) [Monitoring](#) [Research](#)

[Home](#) [About Us](#) [Contacts](#) [Legal](#)