Jump to Navigation

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.

Mineral Mountains (west side) faults (Class A) No. 2489

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 2489, Mineral Mountains (west side) 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 02:54 PM.**

Synopsis	Poorly understood zone of middle to latest Quaternary faults on the western side of the Mineral Mountains.
Name comments	Mapped by Anderson and Bucknam (1979) as the Minersville fault zone. **Fault ID:** Refers to fault number 9-14 of Hecker (1993 #642).
County(s) and State(s)	BEAVER COUNTY, UTAH
Physiographic	

Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Mapped or discussed by Petersen (1973 #4564), Rowley (Rowley, 1978 #4563), Anderson and Bucknam (1979 #518), Ertec Western, Inc. (Schell, 1981 #4598), and Smith and Bruhn (Smith and Bruhn, 1984 #4561). Fault traces from mapping of Rowley (1978 #4563), Anderson and Bucknam (1979 #518), and Ertec Western, Inc. (Schell, 1981 #4598).
Geologic setting	Zone of northeast-trending normal faults along the western base of the Mineral Mountains. The Mineral Mountains lie between the Tushar Range and San Francisco Mountains in southwestern Utah, northeast of the Escalante Desert, and mainly expose igneous intrusive rocks in Paleozoic sedimentary rocks. Surficial geology of the area is dominated by lake deposits and alluvium.
Length (km)	38 km.
Average strike	N10°E
Sense of movement	Normal
Dip	15-29°W *Comments:* The range-bounding fault is inferred from seismic reflection data to have variable dip (~15? to 29?W) and to intersect a subhorizontal detachment at a depth of 10 km (Smith and Bruhn, 1984 #4561).
Paleoseismology studies	
Geomorphic expression	Highly dissected and discontinuous fault scarps. Limited profile data for scarps on variable lithologies suggest an age greater than the scarps on Last Chance Bench [2492b] in the Beaver Basin. Surface offset at one location is 5.5 m. The westernmost fault of the zone cuts deposits associated with post-Bonneville drainage development on the valley floor (Rowley, 1978 #4563).
Age of faulted surficial	Quaternary.

deposits	
Historic earthquake	
Most recent prehistoric deformation	latest Quaternary (<15 ka) *Comments:* Ertec Western, Inc. (Schell, 1981 #4598) mapped all the faults west of Minersville as post-Bonneville in age (<15 ka), but referred to them in their fault-data table as late Pleistocene in age.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr
Date and Compiler(s)	1999 Bill D. Black, Utah Geological Survey Suzanne Hecker, U.S. Geological Survey
References	#518 Anderson, R.E., and Bucknam, R.C., 1979, Map of fault scarps in unconsolidated sediments, Richfield 1° x 2° quadrangle, Utah: U.S. Geological Survey Open-File Report 79-1236, 15 p. pamphlet, 1 sheet, scale 1:250,000. #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. #4564 Petersen, C.A., 1973, Geology of the Roosevelt Hot Springs area, Beaver County, Utah: Utah Geology, v. 2, no. 2, p. 109-116. #4563 Rowley, P.D., 1978, Geologic map of the Thermo 15-minute quadrangle, Beaver and Iron Counties, Utah: U.S. Geological Survey Geologic quadrangle Map GQ-1493, scale 1:62,000. #4598 Schell, B.A., 1981, MX siting investigation, faults and lineaments in the MX siting region, Nevada and Utah: Long Beach, California, report no. E-TR-54 for U.S. Air Force, volume I, 77p.; volume II, variously paginated, scale 1:250,000. #4561 Smith, R.B., and Bruhn, R.L., 1984, Intraplate extensional tectonics of the western U.S. Cordillera-Inferences on structural

	style from seismic-reflection data, regional tectonics and thermal-mechanical models of brittle-ductile deformation: Journal of Geophysical Research, v. 89, no. B7, p. 5733-5762.