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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.

Gunlock fault (Class A) No. 2515

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 2515, Gunlock 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 02:54 PM.**

Synopsis	Poorly understood Quaternary fault along the eastern boundary of the Basin and Range province in southwestern Utah.
Name comments	**Fault ID:** Refers to fault number 10-6 in Hecker (1993 #642).
County(s) and State(s)	WASHINGTON COUNTY, UTAH
Physiographic province(s)	BASIN AND RANGE
Reliability of	Good

location	Compiled at 1:250,000 scale. *Comments:* Fault traces from 1:250,000-scale mapping of Anderson and Christenson (1989 #828).
Geologic setting	North-trending down-to-the-west normal fault along the western side of the Red Mountains. The fault separates terrains at the boundary between the Basin and Range and Colorado Plateau provinces that have sharply contrasting styles and amounts of internal extensional deformation.
Length (km)	8 km.
Average strike	N10°E
Sense of movement	Normal *Comments:* The amount and sense of dip separation along the fault varies, suggesting either a scissors motion or a juxtapositioning of pre-deformed strata by a strike-slip component of motion. A splay and several faults parallel to the Gunlock fault show evidence for predominantly left-lateral slip, although it is not known whether strike-slip displacement occurred during the Quaternary.
Dip Direction	W
Paleoseismology studies	
Geomorphic expression	Bedrock escarpment. Total stratigraphic throw on the fault is less than on the Hurricane fault [998] and probably does not exceed 300 m. The fault is considered by Anderson and Christenson (1989 #828) to be the north part of a long north-trending fault system that straddles Arizona and Utah and includes the Grand Wash [1005] and Reef Reservoir faults. The Reef Reservoir fault lacks evidence for Quaternary movement and is not shown on Hecker (1993 #642), Pearthree (1998 #2945) or this database, though the Gunlock and Grand Wash [1005] faults have been active since 1.6 Ma.
Age of faulted surficial deposits	Quaternary.
Historic	

earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Based on displacement of a basalt K-Ar age-dated at 1.6 Ma. Cumulative displacement (8 m) in the basalt argues against substantial late Pleistocene displacement or slip rate.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Anderson and Christenson (1989 #828) indicate that the long-term geologic slip rate of the fault is very low (0.005 mm/yr). Cumulative displacement (8 m) in the basalt argues against substantial late Pleistocene displacement or slip rate. Slip rate calculated for the Grand Wash fault [1005] in Arizona is also low (0.01-0.1 mm/yr; Pearthree, 1998 #2945).
Date and Compiler(s)	1999 Bill D. Black, Utah Geological Survey Suzanne Hecker, U.S. Geological Survey
References	#828 Anderson, R.E., and Christenson, G.E., 1989, Quaternary faults, folds, and selected volcanic features in the Cedar City 1° x 2° quadrangle, Utah: Utah Geological and Mineral Survey Miscellaneous Publication 89-6, 29 p., 1 pl., 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. #2945 Pearthree, P.A., 1998, Quaternary fault data and map for Arizona: Arizona Geological Survey Open-File Report 98-24, 122 p., 1 sheet, scale 1:750,000.

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