

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](#).

Sevier Valley-Marysvale-Circleville area faults (Class A) No. 2500

Last Review Date: 2004-03-01

Compiled in cooperation with the Utah Geological Survey

citation for this record: Black, B.D., Hylland, M.D., and Hecker, S., compilers, 2004, Fault number 2500, Sevier Valley-Marysvale-Circleville area 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 02:55 PM.

Synopsis	Poorly understood middle and late Quaternary faults around the Tushar Mountains [2501] and Sevier Valley [2502] faults.
Name comments	Fault ID: Refers to fault number 9-6 in Hecker (1993 #642).
County(s) and State(s)	PIUTE COUNTY, UTAH
Physiographic	

Physiographic province(s)	COLORADO PLATEAUS
Reliability of location	<p>Good Compiled at 1:50,000 scale.</p> <p><i>Comments:</i> Mapped or discussed by Anderson and others (1978 #4548), Anderson and Bucknam (1979 #518), Anderson (1986 #4569), Anderson and others (1986 #4569), Rowley and others (1988 #4572), and Anderson and others (1990 #4570). Fault traces from mapping of Rowley (1979 #4571), Rowley and others (1979 #457; 1988 #4573), Cunningham and others (1983 #4495), Anderson and others (1986 #4569), unpublished 1987 UGS mapping by Hecker (scale 1:24,000), and Simon-Bymaster, Inc. (2001 #6760).</p>
Geologic setting	Wide zone of diffuse normal faulting incorporating several different fault zones of different ages around the Tushar Mountains [2501] and Sevier Valley [2502] faults (two main valley-margin faults). The area is in the Southern High Plateaus, a physiographic area defined by external bounding cliffs and internal alluvium-filled valleys following fault lines or narrow grabens.
Length (km)	35 km.
Average strike	N6°W
Sense of movement	<p>Normal</p> <p><i>Comments:</i> The Piute Dam Access Road fault has dominant dip-slip motion with a component of right-lateral strike-slip motion based on fault-plane slickensides (Simon-Bymaster, Inc., 2001 #6760).</p>
Dip	<p>70–85° NE. and 78–85° W.</p> <p><i>Comments:</i> 70–73°-NE. dip from Piute Dam Access Road fault exposures in volcanic mudflow and welded ash-flow tuff deposits of the Langdon Mountain volcanic rocks. 85-E. dip and 78–85°-W. dip from Piute Dam Access Road fault trenches in channel, overbank and flood-plain alluvium (Simon-Bymaster, Inc., 2001 #6760).</p>
Paleoseismology	

studies	
Geomorphic expression	<p>Alluvial fault scarps associated with individual structures are poorly preserved. Faults classified as Quaternary either cut Tertiary to Quaternary deposits or form sharp boundaries between bedrock and alluvium. Faults classified as middle to late Quaternary cut alluvial piedmont slope deposits of likely middle to late Pleistocene age. Faults of questionable Quaternary age either cut Tertiary to Quaternary deposits or form sharp boundaries between bedrock and alluvium. Scarps west of Circleville are formed on pre-Holocene deposits, although a lineament on Holocene deposits may represent a fault with more recent movement (Anderson, 1986 #4569). Scarp heights in the Marysvale-Circleville area range from 1 to 15 m, and include low scarps northeast of Piute Reservoir, scarps 3–5 m high near Circleville, a scarp 3.5 m high northwest of Junction, and a 12-m-high scarp southwest of Marysvale. Included in this area are four additional structural features: (1) several small intermontane valleys west and south of Circleville bounded by faults concealed beneath Quaternary alluvium (Anderson and others, 1990 #4570), (2) a pair of structural lineaments in Quaternary deposits southwest of Circleville Mountain that may express underlying bedrock faults or joints (Anderson, 1986 #4569), and (3) small scarps that cut Quaternary landslide deposits northwest of the mountain that may be related to mass movements (Anderson, 1986 #4569), and (4) eight topographic, tonal, and/or vegetation lineaments north and east of Piute Reservoir (Simon-Bymaster, Inc., 2001 #6760).</p>
Age of faulted surficial deposits	Middle to late Quaternary piedmont-slope deposits.
Historic earthquake	
Most recent prehistoric deformation	<p>middle and late Quaternary (<750 ka)</p> <p><i>Comments:</i></p>
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr

<p>Date and Compiler(s)</p>	<p>2004 Bill D. Black, Utah Geological Survey Michael D. Hylland, Utah Geological Survey Suzanne Hecker, U.S. Geological Survey</p>
<p>References</p>	<p>#4569 Anderson, J.J., 1986, Geologic map of the Circleville Mountain quadrangle, Beaver, Piute, Iron, and Garfield Counties, Utah: Utah Geological and Mineral Survey Map 80, 6 p. pamphlet, scale 1:24,000.</p> <p>#4570 Anderson, J.J., Rowley, P.D., Blackman, J.T., Mehnert, H.H., and Grant, T.C., 1990, Geologic map of the Circleville Canyon area, southern Tushar Mountains and northern Markagunt Plateau, Beaver, Garfield, Iron, and Piute Counties, Utah: U.S. Geological Survey Miscellaneous Investigations Map I-1430-A, scale 1:50,000.</p> <p>#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.</p> <p>#4548 Anderson, R.E., Bucknam, R.C., and Hamblin, W.K., 1978, Road log to the Quaternary tectonics of the Intermountain seismic belt between Provo and Cedar City, Utah: Geological Society of America, Rocky Mountain Section Annual Meeting, Provo, Utah, Field Trip no. 8, 50 p.</p> <p>#4495 Cunningham, C.G., Steven, T.A., Rowley, P.D., Glassgold, L.B., and Anderson, J.J., 1983, Geologic map of the Tushar Mountains and adjoining areas, Marysvale volcanic field, Utah: U.S. Geological Survey Miscellaneous Investigations Map I-1430, scale 1:50,000.</p> <p>#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.</p> <p>#4571 Rowley, P.D., 1981, Geologic map of the Marysvale SE quadrangle, Piute Counties, Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1115, 1 sheet, scale 1:24,000.</p> <p>#4572 Rowley, P.D., Cunningham, C.G., Anderson, J.J., and Steven, T.A., 1988, Geologic map of the Marysvale SE</p>

quadrangle, Piute County, Utah: U.S. Geological Survey
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#4573 Rowley, P.D., Cunningham, C.G., Anderson, J.J., and
Steven, T.A., 1988, Geologic map of the Marysvale SW
quadrangle, Piute County, Utah: U.S. Geological Survey
Miscellaneous Field Studies Map MF-1116, scale 1:24,000.

#6760 Simon-Bymaster Inc., 2001, Engineering geologic study,
Piute Dam and proposed relocation site, Piute County, Utah:
Bountiful, Utah, consultant's report, 33 p., 3 pls.

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