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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.

Pavant faults (Class A) No. 2438

Last Review Date: 1999-10-01

Compiled in cooperation with the Utah Geological Survey

citation for this record: **Black, B.D., Hylland, M.D., and Hecker, S., compilers, 1999, Fault number 2438, Pavant 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 middle and late Quaternary faults east of Pavant Butte.
Name comments	Refers to Condie and Barsky's (1972 #4543) Devils Kitchen fault. **Fault ID:** Refers to fault number 8-6 of Hecker (1993 #642).
County(s) and State(s)	MILLARD COUNTY, UTAH
Physiographic province(s)	BASIN AND RANGE

Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Hoover (1974 #4555) mapped faults north of Pavant Butte, but Oviatt (1989 #381) suggests these faults may be related to aligned eolian dunes instead. The faults are also mapped or discussed by Allmendinger and others (1983 #405), Anderson and others (1983 #2852), Picha (1986 #4556), Smithson and Johnson (1989 #4557), and Hintze and Davis (in preparation #4539). Fault traces from mapping of Morris (1987 #4534) and Oviatt (1989 #381; Oviatt, 1991 #4552).
Geologic setting	Northeast- to northwest-trending normal faults south and east of Pavant Butte in the Sevier Basin. One short normal fault is also on the western side of Pavant Butte. The faults are east of the Clear Lake fault zone [2436]. Faults in the basin intersect the Sevier Desert detachment at depths of 2-4 km and may cut the detachment surface (Picha, 1986 #4556); (Smithson and Johnson, 1989 #4557) or may terminate against it (Allmendinger and others, 1983 #405; Anderson and others, 1983 #2852).
Length (km)	30 km.
Average strike	N2°E
Sense of movement	Normal
Dip Direction	SW; NW
Paleoseismology studies	
Geomorphic expression	A wide zone of down-to-the-west faulting south and east of Pavant Butte. Scarps are locally covered by Bonneville deposits.
Age of faulted surficial deposits	Middle to late Pleistocene alluvial and lacustrine deposits.
Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) *Comments:* Faulting generally predates the highstand of Lake Bonneville (ca. 15 ka) and the late Holocene basalt of Ice Springs.

	However, it is uncertain whether faults extending beyond the margins of the Pavant lavas offset deposits of Lake Bonneville . For example, the fault west of Pavant Butte cuts the 15.5 ka basaltic ash of Pavant Butte (Oviatt, 1989 #381).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr
Date and Compiler(s)	1999 Bill D. Black, Utah Geological Survey Michael D. Hylland, Utah Geological Survey Suzanne Hecker, U.S. Geological Survey
References	#405 Allmendinger, R.W., Sharp, J.W., Von Tish, D., Serpa, L., Brown, L., Kaufman, S., and Oliver, J., 1983, Cenozoic and Mesozoic structure of the eastern Basin and Range province, Utah, from COCORP seismic-reflection data: Geology, v. 11, p. 532-536. #2852 Anderson, R.E., Zoback, M.L., and Thompson, G.A., 1983, Implications of selected subsurface data on the structural form and evolution of some basins in the northern Basin and Range province, Nevada and Utah: Geological Society of America Bulletin, v. 94, p. 1055-1072. #4543 Condie, K.C., and Barsky, C.K., 1972, Origin of Quaternary basalt from the Black Rock Desert region, Utah: Geological Society of America Bulletin, v. 83, no. 2, p. 333-352. #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. #4555 Hoover, J.D., 1974, Periodic Quaternary volcanism in the Black Rock Desert, Utah: Brigham Young University Geology Studies, v. 21, pt. 1, p. 3-72. #4534 Morris, H.T., 1987, Preliminary geologic map of the Delta 2° quadrangle, Tooele, Juab, Millard, and Utah Counties, Utah: U.S. Geological Survey Open-File Report, 87-185 p., 18 p., scale 1:250,000.

	#381 Oviatt, C.G., 1989, Quaternary geology of part of the Sevier Desert, Millard County, Utah: Utah Geological and Mineral Survey Special Studies 70, 41 p., 1 pl., scale 1:100,000. #4552 Oviatt, C.G., 1991, Quaternary geology of the Black Rock Desert, Millard County, Utah: Utah Geological and Mineral Survey Special Studies 73, 23 p., scale 1:100,000. #4556 Picha, F., 1986, The influence of pre-existing tectonic trends on geometries of the Sevier orogenic belt and its foreland in Utah: American Association of Petroleum Geologists Memoir 41, 309-320 p. #4557 Smithson, S.B., and Johnson, R.A., 1989, Crustal structure of the western U.S. based on reflection seismology, *in* Pakiser, L.C., and Mooney, W.D., eds., Geophysical framework of the continental United States: Geological Society of America Memoir 172, p. 577-612.