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.

Eastern Little Smoky Valley fault (Class A) No. 1213

Last Review Date: 2000-10-23

citation for this record: **Redsteer, M.H., compiler, 2000, Fault number 1213, Eastern Little Smoky Valley 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 02:17 PM.**

Synopsis	The Eastern Little Smoky Valley fault, which lies on the eastern side of the Little Smoky Valley, extends approximately 30 km from the eastern side of Black Point southward along the northwest flank of the Pancake Range to north of the Moody Mountains and Moody Peak. Subparallel curvilinear scarps that trend north and northeast in a zone 1-4 km wide characterize it. Reconnaissance photogeologic mapping and limited analysis of scarp morphology are the sources of data. Trench investigations and detailed studies of scarp morphology have not been completed.
Name comments	Named the Eastern Little Smoky Valley fault by dePolo (1998 #2845), but includes fault scarps mapped as the Little Smoky Valley fault and the Silverado Ridge fault by McDonald (1989

	#4339). Also referred to as the Black Point and Moody Peak faults by Schell (1981 #2844). **Fault ID:** Refers to fault EY3 of dePolo (1998 #2845) and the faults 64 (Black Point fault) and 66 (Moody Peak fault) of Schell (1981 #2844).
County(s) and State(s)	EUREKA COUNTY, NEVADA NYE COUNTY, NEVADA WHITE PINE COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Location based on 1:250,000-scale map of Dohrenwend and others (1992 #2480). Mapping based on photogeologic analysis of primarily 1:24,000-scale color aerial photography supplemented with 1:60,000-scale black-and-white aerial photography, transferred by inspection to 1:62,500-scale topographic maps and photographically reduced and directly transferred to 1:250,000-scale topographic maps. Subsequent mapping by photogeologic analysis of 1:58,000-nominal-scale color-infrared photography transferred directly to 1:100,000-scale topographic quadrangle maps enlarged to scale of the photographs.
Geologic setting	The Eastern Little Smoky Valley fault is typical of Basin and Range extensional faulting. It is a major down-to-the-west range front fault on the western margin of the Pancake Range and it defines the eastern margin of the Little Smoky Valley. Dissection of range-front alluvial fans suggests that recent uplift has occurred. North-south-trending fault scarps coincide with earlier Mesozoic thrust faults in Paleozoic carbonate strata that comprise the core of the range (McDonald, 1989 #4339).
Length (km)	31 km.
Average strike	N21°E
Sense of movement	Normal
Dip Direction	W

Paleoseismology studies	
Geomorphic expression	The fault displaces late Pleistocene sedimentary deposits and is not associated with high local relief. Fault location coincides with saddles and ridges along the western edge of the mountain front, such as the narrow but 8-km-long Silverado Ridge. dePolo (1998 #2845) indicates that there are scarps on alluvium but no basal fault facets.
Age of faulted surficial deposits	Locally, scarps are late Pleistocene (10-130 ka) (Dohrenwend and others, 1992 #2480).
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* The Eastern Little Smoky Valley fault displaces alluvial fan sediment estimated to be late Pleistocene (10-130 ka) by Dohrenwend and others (1992 #2480) and Schell (1981 #2844).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* No detailed data exists to determine slip rates for this fault. dePolo (1998 #2845) assigned a reconnaissance vertical slip rate of 0.01 mm/yr for the Little Smokey Valley fault based on the presence of scarps on alluvium and the absence of basal facets. The late Quaternary characteristics of this fault (overall geomorphic expression, continuity of scarps, age of faulted deposits, etc.) support a low slip rate. Accordingly, the less than 0.2 mm/yr slip-rate category has been assigned to this fault.
Date and Compiler(s)	2000 Margaret Hisa Redsteer, U.S. Geological Survey
References	#2845 dePolo, C.M., 1998, A reconnaissance technique for estimating the slip rate of normal-slip faults in the Great Basin, and application to faults in Nevada, U.S.A.: Reno, University of Nevada, unpublished Ph.D. dissertation, 199 p. #2480 Dohrenwend, J.C., Schell, B.A., and Moring, B.C., 1992,

	Reconnaissance photogeologic map of young faults in the Ely 1° by 2° quadrangle, Nevada and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-2181, 1 sheet, scale 1:250,000. #4339 McDonald, S.F., 1989, Geology, Pogues Station quadrangle, White Pine and Nye Counties, Nevada: San Diego, California, San Diego State University, unpublished M.S. thesis, 107 p. #2844 Schell, B.A., 1981, Faults and lineaments in the MX Siting Region, Nevada and Utah, Volume II: Technical report to U.S. Department of [Defense] the Air Force, Norton Air Force Base, California, under Contract FO4704-80-C-0006, November 6, 1981, 29 p., 11 pls., scale 1:250,000.