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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.

Large Whiskers fault zone (Class A) No. 972

Last Review Date: 1997-01-09

Compiled in cooperation with the Arizona Geological Survey

citation for this record: **Pearthree, P.A., compiler, 1997, Fault number 972, Large Whiskers fault zone, 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 03:11 PM.**

Synopsis	This is a series of faults with displacement down to the east and west that displace Paleozoic bedrock and lower Pleistocene basalt flows. There is as much as 10 m of vertical displacement of lower Pleistocene basalt flows, but evidently no displacement of middle Pleistocene basalt flows.
Name comments	Mapped and included with the Campbell Francis faults by Menges and Pearthree (1983 #2073); separated from other Campbell Francis faults by Pearthree and others (1996 #2153). The geology of the area was mapped by Ulrich and Bailey (1987 #2156).
County(s) and	

County(s) and State(s)	COCONINO COUNTY, ARIZONA
Physiographic province(s)	COLORADO PLATEAUS
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Traces mapped at 1:50,000 scale; transferred to 1:250,000-scale topographic base map.
Geologic setting	These faults are located near the northern margin of the Pliocene-Quaternary San Francisco volcanic field, on the erosion surface cut on Paleozoic and Mesozoic rocks that slopes from the Mogollon Rim northeast to the Little Colorado River. Faults cut Paleozoic rocks and lower middle Pleistocene (1.1 Ma) basalt flows, whereas middle Pleistocene basalt flows (dated at 460 ka and 530 ka) are mapped as unfaulted.
Length (km)	12 km.
Average strike	N7°W
Sense of movement	Normal *Comments:* Predominantly normal movement is inferred from topographic relations.
Dip Direction	W; E
Paleoseismology studies	
Geomorphic expression	Several 10-m-high fault scarps are formed on lower Pleistocene basalt flows; scarps bound several weakly defined, shallow grabens.
Age of faulted surficial deposits	Paleozoic, early Pleistocene
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Lower Pleistocene basalt flows (about 1 Ma) are

	faulted as much as 10 m. Middle Pleistocene (about 500 ka) basalt flows are not faulted.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Low slip rate inferred from 10 of displacement post 1.1 Ma and the lack of post-530 ka displacement.
Date and Compiler(s)	1997 Philip A. Pearthree, Arizona Geological Survey
References	#2073 Menges, C.M., and Pearthree, P.A., 1983, Map of neotectonic (latest Pliocene-Quaternary) deformation in Arizona: Arizona Geological Survey Open-File Report 83-22, 48 p., scale 1:500,000. #2153 Pearthree, P.A., Vincent, K.R., Brazier, R., and Hendricks, D.M., 1996, Plio-Quaternary faulting and seismic hazard in the Flagstaff area, northern Arizona: Arizona Geological Survey Bulletin 200, 40 p., 2 pls. #2156 Ulrich, G.E., and Bailey, N.G., 1987, Geologic map of the SP Mountain part of the San Francisco volcanic field, north-central Arizona: U.S. Geological Survey Miscellaneous Field Studies Map MF-1956, 2 sheets, scale 1:50,000.