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.**

Double Top fault zone (Class A) No. 965

Last Review Date: 1997-01-07

Compiled in cooperation with the Arizona Geological Survey

citation for this record: Pearthree, P.A., compiler, 1997, Fault number 965, Double Top 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 03:13 PM.

Synopsis	Two short, northwest-trending normal faults form a shallow, narrow graben on upper Pliocene to lower Pleistocene volcanic rocks near the northwestern margin of the Pliocene-Quaternary San Francisco volcanic field. The graben floor and small tributary valleys are covered by late Quaternary alluvium, which is not faulted. No evidence of middle or late Quaternary fault activity has been documented.
Name comments	Mapped by Menges and Pearthree (1983 #2073), who grouped this fault zone with others in the area as the Double Top fault set. This particular fault zone was named by Pearthree and others (1996 #2153) and differentiated from other faults in the region,

	which were given other names. The geology of the area was mapped by Wolfe and others (1987 #2160).
County(s) and State(s)	COCONINO COUNTY, ARIZONA
Physiographic province(s)	COLORADO PLATEAUS
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Trace mapped at 1:50,000 scale, transferred to 1:250,000-scale topographic base map.
Geologic setting	This is one of several fault zones located near the northwestern margin of the Plio-Quaternary San Francisco volcanic field, on the erosion surface cut onto Paleozoic rocks between the Mogollon Rim and the Grand Canyon. The Double Top faults displace upper Pliocene to lower Pleistocene volcanic rocks by about 20 m.
Length (km)	6 km.
Average strike	N34°W
Sense of movement	Normal *Comments:* Predominantly normal movement is inferred from topographic relations.
Dip Direction	NE; SW
Paleoseismology studies	
Geomorphic expression	Northwest-trending scarps formed on Pliocene-Quaternary volcanic rock define a gentle, fairly narrow physiographic trough. The trough bottom and several tributary valleys that enter the trough perpendicular to the graben trend are covered by late Quaternary alluvium, which is not faulted. Both scarps are quite gentle (<10? slopes), but the southwestern scarp is much higher (as much as 20 m) and more continuous.
Age of faulted surficial deposits	Late Pliocene to early Pleistocene

Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Displacement of upper Pliocene to lower Pleistocene basalt flow indicates Quaternary activity, but no evidence of middle to late Quaternary activity has been documented.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* A low slip rate is inferred based on about 20 m of displacement of upper Pliocene to lower Pleistocene volcanic rocks.
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. #2160 Wolfe, E.W., Ulrich, G.E., Holm, R.F., Moore, R.B., and Newhall, C.G., 1987, Geologic map of the central part of the San Francisco volcanic field, north-central Arizona: U.S. Geological Survey Miscellaneous Field Studies Map MF-1959, 86 p. pamphlet, 2 sheets, scale 1:50,000.

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