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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.

Metz Tank fault zone (Class A) No. 977

Last Review Date: 1997-01-31

Compiled in cooperation with the Arizona Geological Survey

citation for this record: **Pearthree, P.A., compiler, 1997, Fault number 977, Metz Tank 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	A northeast-trending, down-to-the-west normal fault displaces upper Miocene to lowermost Pleistocene volcanic rocks in the southwestern part of the San Francisco volcanic field. Upper Miocene rocks are displaced 10 m or less, and lowermost Pleistocene volcanic rocks are displaced 3 m or less. No definitive evidence of middle or late Quaternary displacement has been discovered, but moderately steep scarp slopes and the sharp expression of the scarps on aerial photos suggests that the fault ruptured during this period.
Name comments	Parts of the fault zone and the geology of the area were mapped by Wolfe and others (1987 #2160); the fault zone was remapped,

	investigated, and named by Pearthree and others (1996 #2153).
County(s) and State(s)	COCONINO COUNTY, ARIZONA
Physiographic province(s)	COLORADO PLATEAUS
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Most of the trace was mapped at 1:50,000 scale; transferred to 1:250,000-scale topographic base map.
Geologic setting	The Metz Tank fault zone is in the southwestern part of the Pliocene-Quaternary San Francisco volcanic field. The fault cuts upper Miocene and uppermost Pliocene to lowermost Pleistocene volcanic rocks. The fault displaces Miocene volcanic rocks about 10 m, and Pliocene-Pleistocene volcanic rocks 2-3 m.
Length (km)	7 km.
Average strike	N48°E
Sense of movement	Normal *Comments:* Predominantly normal movement is inferred from topographic relations.
Dip Direction	NW
Paleoseismology studies	
Geomorphic expression	Fault displacement has generated a low, northeast-facing scarp on Miocene to lowermost Quaternary volcanic rocks. Fault scarp slopes range from gentle to moderately steep. However, the strong expression of fault scarps on aerial photos and their moderately steep scarp slopes suggest possible middle to late Quaternary fault activity.
Age of faulted surficial deposits	Late Miocene, latest Pliocene to early Pleistocene
Historic earthquake	

Most recent prehistoric deformation	middle and late Quaternary (<750 ka) *Comments:* Uppermost Pliocene to lowermost Pleistocene rocks are displaced. The moderately sharp geomorphic expression of the scarp is consistent with middle to late Quaternary fault activity.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* A low slip rate is inferred based on about 3 m of displacement of 1.5-2 Ma basalt.
Date and Compiler(s)	1997 Philip A. Pearthree, Arizona Geological Survey
References	#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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