

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](#).

Pearl Harbor fault zone (Class A) No. 981

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 981, Pearl Harbor 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 northwest-trending normal fault zone at the northwestern margin of the Pliocene-Quaternary San Francisco volcanic field. Faulting is expressed as a fairly low, southwest-facing fault scarp along the northern half of the fault; the southern half of the fault is expressed as a narrow, shallow, symmetric graben formed on Paleozoic bedrock and lower Pleistocene volcanic rock. This fault may not have been active during the late Quaternary, because fault scarps are quite gentle and late Quaternary alluvium that occupies graben floors and stream valleys that intersect the fault zone is not displaced.
Name	Mapped by Menges and Pearthree (1983 #2073), who grouped

comments	this fault zone with others in the area as the Double Top fault set. This particular fault zone was differentiated from other faults in the area and named after the Pearl Harbor Tank by Pearthree and others (1996 #2153). 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. <i>Comments:</i> 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 Pliocene-Quaternary San Francisco volcanic field, on the erosion surface cut on Paleozoic rocks between the Mogollon Rim and the Grand Canyon. The Pearl Harbor faults cut Paleozoic bedrock and lower Pleistocene volcanic rocks.
Length (km)	15 km.
Average strike	N47°W
Sense of movement	Normal <i>Comments:</i> Predominantly normal movement is inferred from topographic and regional relations.
Dip Direction	SW; NE
Paleoseismology studies	
Geomorphic expression	The principal fault scarp formed on Paleozoic bedrock along much of the fault zone is moderately high (about 10-m-high), fairly gentle, and southwest-facing. Lower Pleistocene basalt on the downthrown side of the scarp is faulted. Along the southern half of the fault zone, a scarp of similar size and shape is formed on Paleozoic rock on the southwestern margin of a 500-m-wide graben. Bedrock scarps have quite gentle slopes, implying that the most recent fault rupture is not very recent.

Age of faulted surficial deposits	Paleozoic, early Pleistocene
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) <i>Comments: A lower Pleistocene basalt flow is displaced, but there is no definitive evidence of middle or late Quaternary activity.</i>
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr <i>Comments: No data exist to determine a slip rate, but the <0.2 mm/yr category is inferred on the basis of slip rates on other Quaternary faults in the region.</i>
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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