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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.

Rock House fault (Class A) No. 985

Last Review Date: 1997-01-08

Compiled in cooperation with the Arizona Geological Survey

citation for this record: **Pearthree, P.A., compiler, 1997, Fault number 985, Rock House 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 03:11 PM.**

Synopsis	This is a northwest-trending normal fault with down-to-the-northeast displacement in the easternmost part of the Pliocene-Quaternary San Francisco volcanic field. The fault cuts Paleozoic bedrock, middle Pleistocene volcanic rocks and middle to late Pleistocene alluvium. The fault zone has probably been active in the late Quaternary, but alluvial fault scarps are very subtle and Holocene alluvium is not faulted.
Name comments	Mapped by Menges and Pearthree (1983 #2073) who grouped this fault zone in the Walnut Canyon fault set; this fault set was named and differentiated from other Walnut Canyon faults by Pearthree and others (1996 #2153) because the clear evidence of Quaternary

	activity on the Rock House fault. The geology of the area was mapped by Moore and Wolfe (1987 #2152).
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	The Rock House fault is the easternmost documented Quaternary fault within the Pliocene-Quaternary San Francisco volcanic field, on the erosion surface cut on Paleozoic rocks that slope northeast from the Colorado Plateau margin to the Little Colorado River. This fault cuts Paleozoic bedrock, middle Pleistocene basalt, and middle to late Pleistocene alluvium.
Length (km)	7 km.
Average strike	N53°W
Sense of movement	Normal *Comments:* Predominantly normal movement is inferred from topographic and regional relations.
Dip Direction	NE
Paleoseismology studies	
Geomorphic expression	Faulting is expressed as low (<5 -m-high) scarps formed on Paleozoic rocks and middle Pleistocene basalt flows. Alluvial fault scarps, which are low and very subdued, are more evident on aerial photographs than on the ground.
Age of faulted surficial deposits	Paleozoic, middle Pleistocene, middle to late(?) Pleistocene
Historic earthquake	

Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* Middle Pleistocene volcanic rocks and middle to upper(?) Pleistocene alluvium are faulted, suggesting late Quaternary fault activity. The resultant alluvial scarps are very subtle, and Holocene alluvium is not faulted, implying a late Pleistocene age of youngest movement.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* No data exist to determine a slip rate, but a low rate is inferred on the basis of slip rates on other Quaternary faults in the region.
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. #2152 Moore, R.B., and Wolfe, E.W., 1987, Geologic map of the east part of the San Francisco Volcanic Field, north-central Arizona: U.S. Geological Survey Miscellaneous Field Studies Map MF-1960, 2 sheets, scale 1:50,000. #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.