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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.

Red House faults (Class A) No. 983

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 983, Red House faults, 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 northwest-trending system of faults form a series of small horsts and narrow grabens in the northeastern part of the Pliocene-Quaternary San Francisco volcanic field. Faults cut Paleozoic bedrock and lower and middle Pleistocene volcanic rocks. Holocene alluvium is not faulted, but fault scarps are linear and fairly steep, suggesting that the fault zone has been active in the late Quaternary.
Name comments	Mapped by Menges and Pearthree (1983 #2073), who grouped this fault zone and the Deadman Wash faults in the Wupatki fault set. This fault set was named and differentiated from the Deadman Wash faults by Pearthree and others (1996 #2153)

	because it appears to have ruptured more recently. The geology of the area was mapped by Ulrich and Bailey (1987 #2156) and 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	This is one of several fault zones in the northeastern part of the Pliocene-Quaternary San Francisco volcanic field, on the erosion surface cut on Paleozoic rocks that slopes northeast from the Mogollon Rim to the Little Colorado River. The Red House faults cut Paleozoic bedrock and lower and middle Pleistocene basalt flows. A middle Pleistocene basalt flow is displaced about 12 m.
Length (km)	4 km.
Average strike	N43°W
Sense of movement	Normal *Comments:* Predominantly normal movement is inferred from topographic and regional relations.
Dip Direction	NE; SW
Paleoseismology studies	
Geomorphic expression	Faulting is expressed as fairly low (<15 m), moderately steep scarps (15?-20?) formed on Paleozoic rocks and lower and middle Pleistocene basalt flows. Scarps bound narrow troughs that are partially filled with late Quaternary deposits; displacement of these deposits has not been documented.
Age of faulted surficial deposits	Paleozoic, early Pleistocene, middle Pleistocene

Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) *Comments:* Lower and middle Pleistocene volcanic rocks are faulted; scarps and grabens are quite linear and well-defined, suggesting possible late Quaternary activity.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* A low slip rate is inferred based on as much as 12 m displacement of a middle Pleistocene (about 500 ka) basalt flow.
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. #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.

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