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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.

Citadel Ruins fault zone (Class A) No. 963

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 963, Citadel Ruins 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	Normal faulting has generated a fairly shallow and narrow, northeast-trending graben and a subsidiary, northwest-trending graben on Paleozoic and Mesozoic bedrock and an upper Pliocene basalt flow. Vertical displacement of the upper Pliocene basalt flow surface is less than 20 m. There is no documented evidence that this fault zone has ruptured during the middle or late Quaternary.
Name comments	Mapped and named by Menges and Pearthree (1983 #2073). The geology of the area was mapped by Moore and Wolfe (1987 #2152).
County(s) and	

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 northeastern margin of the Pliocene-Quaternary San Francisco volcanic field on the erosion surface cut on bedrock that slopes from the Mogollon Rim northeast to the Little Colorado River. The Citadel Ruins fault zone displaces Paleozoic rocks by less than 20 m vertically and an upper Pliocene (2.4 Ma) basalt flow is displaced by about 7 m (Holm and Ulrich, 1988 #2159).
Length (km)	4 km.
Average strike	N10°E
Sense of movement	Normal *Comments:* Predominantly normal movement is inferred from topographic and regional relations.
Dip Direction	NW; SE; NE *Comments:* The main fault zone forms a northeast-trending graben that has inferred dips to the northwest and southeast. Also, several northwest-trending fault splays probably dip to the northeast and southwest.
Paleoseismology studies	
Geomorphic expression	Faulting has generated a fairly sharply defined, shallow (<20-m-deep), narrow (700-m-wide), NE-trending physiographic trough and NW-trending subsidiary trough. The floor of the trough is covered by late Quaternary deposits that apparently are not faulted; scarps on he trough margin are moderately steep on bedrock and upper Pliocene basalt.

Age of faulted surficial deposits	Paleozoic, Mesozoic, late Pliocene
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Displacement of an upper Pliocene basalt flow implies that Quaternary activity is likely, although there is no documented evidence of middle or late Quaternary surface ruptures.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Based on a 7-m displacement of an upper Pliocene basalt flow (2.4 Ma) , the net long-term slip rate is low. However, slip in the middle to late Quaternary may be even slower.
Date and Compiler(s)	1997 Philip A. Pearthree, Arizona Geological Survey
References	#2159 Holm, R.F., and Ulrich, G.E., 1988, Late Cenozoic volcanism of the San Francisco and Mormon volcanic fields, southern Colorado Plateau, Arizona, *in* Davis, G.H., and VandenDolder, E.M., eds., Geologic diversity of Arizona and its margins—Excursions to choice areas: Arizona Bureau of Geology and Mineral Technology Special Paper 5, Geological Society of America, 100th Annual Meeting, October 26-29, 1987, Guidebook, p. 85-94. #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.

Questions or comments?