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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.

Chiricahua fault zone (Class A) No. 929

Last Review Date: 2016-01-26

Compiled in cooperation with the Arizona Geological Survey

citation for this record: **Pearthree, P.A., and Jochems, A.P., compilers, 2016, Fault number 929, Chiricahua 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 fault zone with probable Quaternary activity that extends for about 30 km along the east side of the Chiricahua Mountains in southeasternmost Arizona. The mountain front is steep and fairly linear, suggesting that this fault zone may have been fairly active in the Quaternary. However, fault scarps are poorly preserved, are not very high, and are formed only on lower to middle Pleistocene alluvial fans. These relations suggest that this fault has a fairly low middle and late Quaternary slip rate and has not ruptured in the latest Quaternary, contrary to previously published conclusions.
Name	Fault zone discussed by Lynch (1972 #2113). Mapped and named

comments	by Menges and Pearthree (1983 #2073); mapped and analyzed by Machette and others (1986 #1033).
County(s) and State(s)	COCHISE COUNTY, ARIZONA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Mapped at 1:250,000 scale by Machette and others (1986 #1033), based on interpretation of 1:130,000-scale aerial photographs. In places, fault trace is mapped at 1:24,000 scale based on photogrammetric mapping of aerial photographs of this scale.
Geologic setting	The fault zone parallels the northerly trend of the east side of the Chiricahua Mountains, near the southern end of the San Simon Valley in southeastern Arizona. Scarps are close to the rugged, fairly linear mountain front that may reflect fault activity. The sharpness of the mountain front, however, is probably due at least in part to the resistant volcanic rocks of the mountains. The Cenozoic sedimentary basin in the San Simon Valley is up to 600 m deep, but the basin thickness decreases to the south (Lynch, 1978 #2114).
Length (km)	28 km.
Average strike	N1°E
Sense of movement	Normal *Comments:* Movement inferred from regional geologic and structural relationships.
Dip Direction	E
Paleoseismology studies	
Geomorphic expression	Possible faulting is expressed as poorly preserved, discontinuous scarps formed on early to middle Pleistocene relict alluvial-fan surfaces. Late Pleistocene fans are probably not faulted, and Holocene fans clearly are not faulted. The steep, fairly linear mountain front on the east side of the Chiricahua Mountains

	suggests a moderately active fault zone (Lynch, 1972 #2113).
Age of faulted surficial deposits	Early to middle Pleistocene. Deposit ages are estimated using geomorphic surface characteristics and the topographic position of these deposits in the landscape.
Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) *Comments:* Previous studies (Menges and Pearthree, 1983 #2073; Pearthree and others, 1983 #2083; Machette and others, 1986 #1033) concluded that this fault zone ruptured during the latest Pleistocene or Holocene on the basis of morphologic scarp analysis. More recent field investigations by Pearthree (1988, unpublished data) indicate that scarps are very poorly preserved along this fault zone, and the scarps analyzed previously for morphometric analysis are likely fluvial terrace risers that trend parallel with the fault zone. The age of youngest rupture on this fault is probably middle to late Pleistocene.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* A low slip rate is inferred based on less than 5 m of vertical displacement in the past 500 k.y.
Date and Compiler(s)	2016 Philip A. Pearthree, Arizona Geological Survey Andrew P. Jochems, New Mexico Bureau of Geology & Mineral Resources
References	#2113 Lynch, D.J., 1972, Reconnaissance geology of the Bernardino volcanic field, Cochise County, Arizona: Tucson, University of Arizona, unpublished M.S. thesis, 78 p., 4 sheets. #2114 Lynch, D.J., 1978, The San Bernardino volcanic field of southeastern Arizona, *in* Callender, J.F., Wilt, J.C., Clemons, R.E., and James, H.L., eds., Land of Cochise—southeastern Arizona: New Mexico Geological Society, 29th Field Conference, November 9-11, 1978, Guidebook, p. 261-268. #1033 Machette, M.N., Personius, S.F., Menges, C.M., and

	Pearthree, P.A., 1986, Map showing Quaternary and Pliocene faults in the Silver City 1° x 2° quadrangle and the Douglas 1° x 2° quadrangle, southeastern Arizona and southwestern New Mexico: U.S. Geological Survey Miscellaneous Field Studies Map MF-1465-C, 12 p. pamphlet, 1 sheet, scale 1:250,000. #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. #2083 Pearthree, P.A., Menges, C.M., and Mayer, L., 1983, Distribution, recurrence, and possible tectonic implications of late Quaternary faulting in Arizona: Arizona Geological Survey Open-File Report 83-20, 51 p.