

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](#).

Guadalupe Canyon fault (Class A) No. 926

Last Review Date: 2015-12-15

Compiled in cooperation with the New Mexico Bureau of Geology & Mineral Resources and the Arizona Geological Survey

citation for this record: Pearthree, P.A., and Jochems, A.P., compilers, 2015, Fault number 926, Guadalupe Canyon 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 03:08 PM.

Synopsis	The Guadalupe Canyon fault is a short, east-west-trending fault in the southeastern part of the Guadalupe Mountains, just north of the U.S.-Mexico border and just west of the Arizona-New Mexico border. The fault mainly cuts bedrock, but along about 3 km of its length, the fault forms 10- to 20-m-high scarps on Pliocene to lower Quaternary alluvium. There are no meaningful constraints on the age of youngest movement on this fault.
Name comments	Initially mapped by Hayes (1982 #2115) but not interpreted as cutting Quaternary alluvium. Menges and Pearthree (1983 #2073)

	and Machette and others (1986 #1033) recognized it as a possible Quaternary fault based on a fault scarp formed on a thin veneer of Pliocene to lower Quaternary alluvium.
County(s) and State(s)	COCHISE COUNTY, ARIZONA HIDALGO COUNTY, NEW MEXICO
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:24,000 scale. <i>Comments:</i> Mapped by Hayes (1982 #2115) at 1:62,500 scale and field-checked on a reconnaissance basis and compiled at 1:250,000 scale by Machette and others (1986 #1033). Compiled fault trace from 1:24,000-scale mapping of Skotnicki (2002 #7361), though he did not show it as cutting Quaternary alluvium.
Geologic setting	For most of its length, this is an intra-bedrock fault within the Guadalupe Mountains, displacing mainly Cretaceous and Oligocene rocks. An upper Pliocene to lower Quaternary basalt is in contact with the fault and may be faulted. The east-west orientation of the fault is unusual among Quaternary faults of this region.
Length (km)	5 km.
Average strike	N85°E
Sense of movement	Normal <i>Comments:</i> Normal fault as mapped in bedrock by Hayes (1982 #2115).
Dip Direction	S
Paleoseismology studies	
Geomorphic expression	The fault forms 10- to 20-m-high scarps on the remnants of Pliocene to lower Quaternary alluvial fans.
Age of faulted surficial deposits	Early Pleistocene to Pliocene. The estimated age of faulted alluvium is based on geomorphic surface characteristics and topographic position in the landscape.

Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) <i>Comments:</i> Age of youngest faulted deposits is Pliocene to early Pleistocene. There is no meaningful minimum constraint on the age of youngest faulting event. Given the uncertainty in the age estimate of the faulted alluvial deposits, there may have been no Quaternary movement on this fault.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr <i>Comments:</i> A low slip rate is inferred based on less than 20 m of displacement during the past 1 m.y.
Date and Compiler(s)	2015 Philip A. Pearthree, Arizona Geological Survey Andrew P. Jochems, New Mexico Bureau of Geology & Mineral Resources
References	#2115 Hayes, P.T., 1982, Geologic map of the Bunk Robinson Peak and Whitmire Canyon Roadless Areas, Coronado National Forest, New Mexico and Arizona: U.S. Geological Survey Miscellaneous Field Studies Map MF-1425-A, 1 sheet, scale 1:62,500. #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. #7361 Skotnicki, S.J., 2002, Geologic map of the southern Peloncillo Mountains; Skeleton Canyon, Guadalupe Spring, and Guadalupe Canyon 7.5-minute quadrangles, Cochise County, Arizona, and Hidalgo County, New Mexico: Arizona Geological

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