

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](#).

North Swisshelm fault (Class A) No. 931

Last Review Date: 1996-01-02

Compiled in cooperation with the Arizona Geological Survey

citation for this record: Pearthree, P.A., compiler, 1996, Fault number 931, North Swisshelm 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	The North Swisshelm fault is marked by a fairly short, but high and prominent, northwest-trending scarp formed on late Cenozoic alluvium; the fault parallels the northeast side of the Swisshelm Mountains. The northwestern part of the scarp is steep (as much as 30?) suggesting recent activity, but it has almost certainly been trimmed and steepened by lateral stream erosion in Whitewater Draw. Away from the stream, the scarp is similarly high, but with a maximum slope of only 14?. It probably is a Quaternary fault, but likely has not been active since the early Pleistocene (Druke, 1979 #2116).
Name	Studied and named the Swisshelm fault by Druke (1979 #2116);

comments	renamed the North Swisshelm fault by Machette and others (1986 #1033) in order to distinguish it from other faults farther south along the Swisshelm Mountains.
County(s) and State(s)	COCHISE COUNTY, ARIZONA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:250,000 scale. <i>Comments:</i> Mapped at 1:250,000 scale by Machette and others (1986 #1033), based on large-scale mapping by Druke (1979 #2116).
Geologic setting	This fault parallels the northeast side of the Swisshelm Mountains, near the southwestern margin of a narrow sedimentary basin between the Swisshelm and Chiricahua mountains. The fault displaces bedrock and upper Cenozoic basin-fill deposits.
Length (km)	18 km.
Average strike	N41°W
Sense of movement	Normal <i>Comments:</i> Inferred from topography and regional geologic relationships.
Dip Direction	NE <i>Comments:</i> High-angle; the fault is naturally exposed at northwest end of scarp.
Paleoseismology studies	
Geomorphic expression	This fault is marked by a high, linear scarp formed on late Cenozoic alluvium. The scarp is much more impressive and steep to the northwest, where Whitewater Draw is not very far from the base of the scarp, implying that lateral stream erosion has steepened the scarp. Locally, late to middle Pleistocene terraces cross the fault and are not displaced.

Age of faulted surficial deposits	Late Miocene to possibly early Pleistocene
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) <i>Comments:</i> Early Quaternary faulting is likely, but there has been no late Quaternary activity and possibly no middle Quaternary activity 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 the lack of evidence no late Quaternary (<130 ka) activity on the fault.
Date and Compiler(s)	1996 Philip A. Pearthree, Arizona Geological Survey
References	#2116 Druke, P.A., 1979, Geomorphology of the Swisshelm scarp, Cochise County, Arizona: Tucson, University of Arizona, unpublished M.S. thesis, 86 p. #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.

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