

# 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](#).

## Rimrock fault (Class A) No. 2090

Last Review Date: 2016-02-09

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

*citation for this record:* Machette, M.N., and Jochems, A.P., compilers, 2016, Fault number 2090, Rimrock 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 02:21 PM.

<b>Synopsis</b>	Little is known about this northwest-southeast-trending basin-margin fault other than that it offsets Pleistocene surficial deposits. Its scarps are as large as 13 m high, which indicates multiple (recurrent) faulting events, the youngest of which may have occurred in the late Pleistocene.
<b>Name comments</b>	Fault extends southeast across the Arizona-New Mexico state line and is located about 8 km northeast of Duncan, Arizona. The fault is not the same as the Rim Rock fault of Hedlund (1990 #7350) that displaces Oligocene volcanic rocks.

	<b>Fault ID:</b> Fault number 7 of Machette and others (1986 #1033).
<b>County(s) and State(s)</b>	HIDALGO COUNTY, NEW MEXICO GRANT COUNTY, NEW MEXICO GREENLEE COUNTY, ARIZONA
<b>Physiographic province(s)</b>	BASIN AND RANGE
<b>Reliability of location</b>	Good Compiled at 1:24,000 scale.  <i>Comments:</i> Original trace from 1:250,000-scale map of Machette and others (1986 #1033). The northern end of the fault reflects original digitization, but remainder has been updated to 1:24,000 scale by accurate placement using photogrammetric methods.
<b>Geologic setting</b>	This fault is one of several Quaternary faults that mark the northeastern margin of the Duncan basin. All of the faults trend northwest and dip southwest; nearby Tertiary rocks are uplifted to the northwest. Regional geologic mapping by Drewes and others (1985 #1034) showed several short faults in this area, whereas Machette and others (1986 #1033) showed a longer trace for the fault.
<b>Length (km)</b>	10 km.
<b>Average strike</b>	N25°W
<b>Sense of movement</b>	Normal
<b>Dip Direction</b>	SW
<b>Paleoseismology studies</b>	
<b>Geomorphic expression</b>	Machette and others (1986 #1033) reported that scarps along the fault are on topographically high, early to middle Pleistocene alluvial surfaces that form a broad dissected piedmont. The largest scarps are about 13 m high. A small asymmetric graben (too detailed to show on map) is present on terrace alluvium inset into the higher surfaces. The antithetic (southwest) scarps that bound the graben are largely buried by Holocene alluvium. The scarps have not been studied carefully, but their overall morphology suggests a late Pleistocene age.

<b>Age of faulted surficial deposits</b>	The faulted high-level piedmont surface is underlain by early to middle Pleistocene alluvium, whereas the graben is formed on inset middle to late Pleistocene terrace deposits. The graben is buried in part by early to middle (?) Holocene alluvium.
<b>Historic earthquake</b>	
<b>Most recent prehistoric deformation</b>	late Quaternary (<130 ka) <i>Comments:</i> Timing based on offset of middle to late Pleistocene deposits and morphology of scarps, which is suggestive of late Pleistocene offset.
<b>Recurrence interval</b>	
<b>Slip-rate category</b>	Less than 0.2 mm/yr <i>Comments:</i> Machette and others (1986 #1033) reported scarps as high as 13 m on early to middle Pleistocene piedmont surfaces. These scarps may relate to about 10–12 m of vertical offset in deposits that are probably on the order of 0.5–1.0 Ma. These data suggest a low long-term slip rate.
<b>Date and Compiler(s)</b>	2016 Michael N. Machette, U.S. Geological Survey, Retired Andrew P. Jochems, New Mexico Bureau of Geology & Mineral Resources
<b>References</b>	#1034 Drewes, H., Houser, B.B., Hedlund, D.C., Richter, D.H., Thorman, C.H., and Finnell, T.L., 1985, Geologic map of the Silver City 1° x 2° quadrangle New Mexico and Arizona: U.S. Geological Survey Miscellaneous Investigations Map I-1310-C, 1 sheet, scale 1:250,000.  #7350 Hedlund, D.C., 1990, Preliminary geologic map of the Goat Camp Spring quadrangle, Grant and Hidalgo Counties, New Mexico and Greenlee County Arizona: U.S. Geological Survey Open-File Report 90-0490, scale 1:24,000.  #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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