

# 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](#).

## Double Knobs fault (Class A) No. 966

Last Review Date: 1997-02-04

### Compiled in cooperation with the Arizona Geological Survey

*citation for this record:* Pearthree, P.A., compiler, 1997, Fault number 966, Double Knobs 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 03:13 PM.

<b>Synopsis</b>	Northwest-trending normal faults form two shallow, narrow, fairly symmetric grabens and another low, southwest-facing scarp on upper Pliocene to lower Pleistocene volcanic rocks at the northwestern margin of the Pliocene-Quaternary San Francisco volcanic field. Total displacement of these basalts is about 5 m. No definitive evidence of middle or late Quaternary fault activity has been documented.
<b>Name comments</b>	Mapped by Menges and Pearthree (1983 #2073), who grouped this fault zone with others in the area as the Double Top fault set; differentiated and named by Pearthree and others (1996 #2153). The geology of the area was mapped by Wolfe and others (1987

	#2160).
<b>County(s) and State(s)</b>	COCONINO COUNTY, ARIZONA
<b>Physiographic province(s)</b>	COLORADO PLATEAUS
<b>Reliability of location</b>	Good Compiled at 1:250,000 scale.  <i>Comments:</i> Trace mapped at 1:50,000 scale, transferred to 1:250,000-scale topographic base map.
<b>Geologic setting</b>	This is one of several fault zones located near the northwestern margin of the Pliocene-Quaternary surface cut onto Paleozoic rocks between the Mogollon Rim and the Grand Canyon. Vertical displacement of upper Pliocene to lower Pleistocene volcanic rocks is as much as 5 m.
<b>Length (km)</b>	6 km.
<b>Average strike</b>	N38°W
<b>Sense of movement</b>	Normal  <i>Comments:</i> Predominantly normal movement is inferred from topographic relations.
<b>Dip Direction</b>	NE; SW
<b>Paleoseismology studies</b>	
<b>Geomorphic expression</b>	Northwest-trending scarps formed on Pliocene-Quaternary volcanic rock define two gentle, fairly narrow physiographic troughs and another low, southwest-facing scarp. The bottoms of the troughs are partially covered by late Quaternary alluvium, which is not faulted. Scarps are low (<5 m) and quite gentle.
<b>Age of faulted surficial deposits</b>	Early Pleistocene to late Pliocene
<b>Historic earthquake</b>	
<b>Most recent</b>	undifferentiated Quaternary (<1.6 Ma)

<b>prehistoric deformation</b>	<i>Comments:</i> Displacement of upper Pliocene to lower Pleistocene basalt flow indicates Quaternary fault activity, but there no evidence of middle to late Quaternary activity has been documented.
<b>Recurrence interval</b>	
<b>Slip-rate category</b>	Less than 0.2 mm/yr  <i>Comments:</i> A low slip rate is inferred based on about 5 m of displacement of upper Pliocene to lower Pleistocene volcanic rocks.
<b>Date and Compiler(s)</b>	1997 Philip A. Pearthree, Arizona Geological Survey
<b>References</b>	#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.  #2153 Pearthree, P.A., Vincent, K.R., Brazier, R., and Hendricks, D.M., 1996, Plio-Quaternary faulting and seismic hazard in the Flagstaff area, northern Arizona: Arizona Geological Survey Bulletin 200, 40 p., 2 pls.  #2160 Wolfe, E.W., Ulrich, G.E., Holm, R.F., Moore, R.B., and Newhall, C.G., 1987, Geologic map of the central part of the San Francisco volcanic field, north-central Arizona: U.S. Geological Survey Miscellaneous Field Studies Map MF-1959, 86 p. pamphlet, 2 sheets, scale 1:50,000.

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