Jump to Navigation

# 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.**

## Leupp faults (Class A) No. 1017

**Last Review Date: 1998-02-12**

## Compiled in cooperation with the Arizona Geological Survey

***citation for this record:*** **Pearthree, P.A., compiler, 1998, Fault number 1017, Leupp faults, 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 02:20 PM.**

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| **Synopsis** | These predominantly northwest-trending normal faults are at the easternmost edge of and beyond the Pliocene-Quaternary San Francisco volcanic field in north-central Arizona. They are on the erosion surface cut on Paleozoic rocks that slopes north from the Colorado Plateau margin to the Little Colorado River. The faults cut Paleozoic and Mesozoic bedrock, locally middle Pleistocene basalt, and Quaternary alluvium. Displacement is primarily down-to-the-northeast or east. The faults have been active in the middle or late Quaternary, but the age of youngest movement is not well constrained. |
| **Name comments** | These faults are part of a group that were named by Menges and Pearthree (1983 #2073); faults included in this data base are |

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| | mapped as cutting Quaternary deposits or volcanic rocks, whereas other faults in the Leupp set of Menges and Pearthree (1983 #2073) are not included. The geology of the area was mapped by Ulrich and others (1984 #2157). |
| **County(s) and State(s)** | COCONINO COUNTY, ARIZONA |
| **Physiographic province(s)** | COLORADO PLATEAUS |
| **Reliability of location** | Good<br>Compiled at 1:250,000 scale.<br><br>*Comments:* Trace mapped at 1:250,000 scale; transferred to 1:250,000-scale topographic base map. |
| **Geologic setting** | The Leupp faults are at the easternmost edge of and beyond the Pliocene-Quaternary San Francisco volcanic field in north-central Arizona. The faults deform the erosion surface cut on Paleozoic rocks that slopes north from the Colorado Plateau margin to the Little Colorado River. These faults cut Paleozoic and Mesozoic bedrock, locally middle Pleistocene basalt, and Quaternary alluvium. |
| **Length (km)** | 32 km. |
| **Average strike** | N35°W |
| **Sense of movement** | Normal<br><br>*Comments:* Predominantly normal movement is inferred from topographic relations. |
| **Dip Direction** | E; NE; SW |
| **Paleoseismology studies** | |
| **Geomorphic expression** | Faulting is expressed as low, fairly subdued scarps formed on Paleozoic and Mesozoic rocks and middle Pleistocene basalt flows. No alluvial fault scarps have been documented. |
| **Age of faulted surficial deposits** | Paleozoic, middle Pleistocene |

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| **Historic earthquake** | |
| **Most recent prehistoric deformation** | middle and late Quaternary (<750 ka)<br><br>*Comments:* Middle Pleistocene volcanic rocks are displaced by several of the faults of this set. Quaternary alluvium of unspecified age is also mapped as being faulted in several locations. |
| **Recurrence interval** | |
| **Slip-rate category** | Less than 0.2 mm/yr<br><br>*Comments:* No data exist to determine a slip rate, but the <0.2 mm/yr category is inferred on the basis of slip rates on other Quaternary faults in the region. |
| **Date and Compiler(s)** | 1998<br>Philip A. Pearthree, Arizona Geological Survey |
| **References** | #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.<br><br>#2157 Ulrich, G.E., Billingsley, G.H., Hereford, R., Wolfe, E.W., Nealey, L.D., and Sutton, R.L., 1984, Maps showing geology, structure, and uranium deposits of the Flagstaff 1° by 2° quadrangle, Arizona: U.S. Geological Survey Miscellaneous Investigations Map I-1446, 2 sheets, scale 1:250,000. |