

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](#).

Detrital Valley faults (Class A) No. 1010

Last Review Date: 1997-05-10

Compiled in cooperation with the Arizona Geological Survey

citation for this record: Pearthree, P.A., compiler, 1997, Fault number 1010, Detrital Valley 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 02:19 PM.

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| Synopsis | The Detrital Valley faults likely displace lower to middle Pleistocene alluvium along the west side of Detrital Valley, 1 to 2 km downslope from the topographic front of the Black Mountains. The east-facing fault scarps are discontinuous, mature, and poorly preserved; field measurements indicate they are several meters high or less and have maximum slopes of 5° or less. Middle to upper Pleistocene deposits are not faulted, implying no late Quaternary faulting. |
| Name comments | Mapped and named by Menges and Pearthree (1983 #2073); additional information from reconnaissance investigation by Anderson and O'Connell (1993 #1440) and unpublished field |

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| | studies of Pearthree (unpublished field data, 1997). |
| County(s) and State(s) | MOHAVE COUNTY, ARIZONA |
| Physiographic province(s) | BASIN AND RANGE |
| Reliability of location | Good Compiled at 1:250,000 scale. <i>Comments:</i> Trace mapped on 1:60,000-scale aerial photographs; transferred to 1:250,000-scale topographic map. |
| Geologic setting | The Detrital Valley faults are along the northwest side of Detrital Valley, east of the Black Mountains. Northern Detrital Valley is a relatively shallow structural basin, with several hundred meters of late Cenozoic basin fill. |
| Length (km) | 10 km. |
| Average strike | N4°E |
| Sense of movement | Normal <i>Comments:</i> Sense inferred from topographic expression and regional relationships |
| Dip Direction | E |
| Paleoseismology studies | |
| Geomorphic expression | Fault forms low, gentle (mature), east-facing scarps on lower to middle Pleistocene alluvial fan deposits. These scarps are sinuous, discontinuous, and poorly preserved. They are several meters high or less, and have maximum slopes of 5° or less. The piedmont fault scarps are about 1 to 2 km downslope from the topographic front of the Black Mountains. No profiles of alluvial fault scarps have been surveyed. Quaternary deposits that are probably faulted have strong petrocalcic horizons developed in them; the oldest unfaulted deposits have strong, darkly varnished desert pavements suggestive of middle to upper Pleistocene age. |
| Age of faulted surficial deposits | Early to middle Pleistocene. |

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| Historic earthquake | |
| Most recent prehistoric deformation | middle and late Quaternary (<750 ka) <i>Comments:</i> Quaternary deposits estimated to be early to middle Pleistocene in age are faulted, whereas probable middle to late Pleistocene deposits are not faulted. Anderson and O'Connell (1993 #1440) concluded that there was no evidence for late Quaternary faulting. |
| Recurrence interval | |
| Slip-rate category | Less than 0.2 mm/yr <i>Comments:</i> A low slip rate is inferred based on about 2 m of vertical displacement in the past 750 k.y. |
| Date and Compiler(s) | 1997 Philip A. Pearthree, Arizona Geological Survey |
| References | #1440 Anderson, L.W., and O'Connell, D.R., 1993, Seismotectonic study of the northern portion of the lower Colorado River, Arizona, California, and Nevada: U.S. Bureau of Reclamation Seismotectonic Report 93-4, 122 p., 3 sheets. #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. |

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