

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](#).

Gooseberry graben faults (Class A) No. 2424

Last Review Date: 1999-10-01

Compiled in cooperation with the Utah Geological Survey

citation for this record: Black, B.D., and Hecker, S., compilers, 1999, Fault number 2424, Gooseberry graben 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 02:55 PM.

Synopsis	Poorly understood middle to late Pleistocene normal faults that transect the northwestern Wasatch Plateau and form the prominent Gooseberry graben. Glacial moraines and alluvial fans are geomorphically similar to latest Pleistocene features in northern Joes Valley, but are unfaulted across the graben bounding faults. However, late Quaternary faulting is suggested by beheaded, incised drainages and by the prominence of the eastern escarpment of the graben.
Name comments	Fault ID: Refers to fault number 13-12 of Hecker (1993 #642).

County(s) and State(s)	UTAH COUNTY, UTAH SANPETE COUNTY, UTAH
Physiographic province(s)	COLORADO PLATEAUS
Reliability of location	Good Compiled at 1:250,000 scale. <i>Comments:</i> Fault traces from mapping of Foley and others (1986 #1165).
Geologic setting	Generally north-trending faults near the margin of the Wasatch monocline, where nearly flat-lying sedimentary rocks of the plateau begin to dip west toward Sanpete Valley. The faults displace Cretaceous and Tertiary bedrock and parallel the Pleasant Valley [2426, 2427] and Joes Valley [2453-2456] fault zones to the east.
Length (km)	23 km.
Average strike	N4°E
Sense of movement	Normal
Dip Direction	E; W
Paleoseismology studies	
Geomorphic expression	Glacial moraines and alluvial fans are geomorphically similar to latest Pleistocene features in northern Joes Valley, but are unfaulted. Late Quaternary faulting is suggested by beheaded, incised drainages and by the prominence of the eastern escarpment. The more subdued topography of the western escarpment is attributed to less displacement and less-resistant bedrock. The Gooseberry graben is similar structurally and geomorphically to the Pleasant Valley fault zone [2426, 2427]. Fault lengths (20 km for the eastern fault of Gooseberry graben) and bedrock displacements are less than those of the Joes Valley fault zone [2453-2456], suggesting a smaller maximum credible earthquake value.
Age of faulted surficial deposits	Tertiary

Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) <i>Comments:</i>
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr
Date and Compiler(s)	1999 Bill D. Black, Utah Geological Survey Suzanne Hecker, U.S. Geological Survey
References	#1165 Foley, L.L., Martin, R.A., Jr., and Sullivan, J.T., 1986, Seismotectonic study for Joes Valley, Scofield and Huntington North Dams, Emery County and Scofield Projects, Utah: U.S. Bureau of Reclamation Seismotectonic Report 86-7, 132 p., 3 pls. #642 Hecker, S., 1993, Quaternary tectonics of Utah with emphasis on earthquake-hazard characterization: Utah Geological Survey Bulletin 127, 157 p., 6 pls., scale 1:500,000.

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