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.

unnamed fault near Ovando (Class A) No. 706

Last Review Date: 1996-03-12

Compiled in cooperation with the Montana Bureau of Mines and Geology

citation for this record: **Haller, K.M., compiler, 1996, Fault number 706, unnamed fault near Ovando, 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 02:02 PM.**

Synopsis	Virtually nothing is known about the Quaternary history of this fault. Although there is no definitive evidence of Quaternary movement, this fault is included here because it is associated with a pronounced range front.
Name comments	This fault may be a reactivated part of the Cenozoic St. Marys fault zone, north of Ovando, Montana. Fault, as shown here, extends from Cottonwood Creek southeastward to the North Fork Blackfoot River. **Fault ID:** Refers to fault number 94 (unnamed fault at northeast edge Blackfoot Valley) of Witkind (1975 #317).

County(s) and State(s)	MISSOULA COUNTY, MONTANA POWELL COUNTY, MONTANA
Physiographic province(s)	NORTHERN ROCKY MOUNTAINS
Reliability of location	Poor Compiled at 1:250,000 scale. *Comments:* Location is based on mostly concealed trace on 1:250,000-scale map of Mudge and others (1982 #964), which closely follows mapping of Witkind (1977 #1048; 1977 #1049; 1977 #1053), and extent of the fault is based on 1:500,000-scale map of Witkind (1975 #317). Fault, as depicted by Witkind (1975 #317) after Pardee (1950 #46), extends southeastward along the hill between Ovando and Lincoln, Montana. This southern extension is not shown in later mapping by Witkind (1977 #1047) or Mudge and others (1982 #964), and is not included here.
Geologic setting	High-angle, down-to-the-south, normal fault bounding the Blackfoot Mountains. According to Mudge and others (1982 #964), vertical displacement may be a few meters to more than 1.8 km. Pardee (1950 #46) suggested that the vertical offset is about 0.9 km assuming that correlation of a Tertiary peneplain across the fault is correct. Harrison and others (1974 #1050) suggest that horizontal displacement is 13 km on the St. Marys fault zone.
Length (km)	29 km.
Average strike	N72°W
Sense of movement	Normal *Comments:* From (Witkind, 1975 #317). However, St. Marys fault zone is described as having dextral and apparent vertical movement (Mudge and others, 1982 #964).
Dip Direction	S
Paleoseismology studies	
Geomorphic expression	Prominent, bold, steep range front, which Pardee (1950 #46) characterized as an eroded fault scarp. No scarps on alluvium are reported.

Age of faulted surficial deposits	Most of the trace of the fault is buried; by Quaternary alluvium fault is mapped as continuous feature through Proterozoic bedrock (Mudge and others, 1982 #964).
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* The timing of the most recent movement on this fault is not known. We infer this feature to have Quaternary movement based on the prominent range front. Most Quaternary deposits near the fault are post-glacial in age and are younger than the most recent movement. Pardee (1950 #46) first recognized this fault as a late Cenozoic structure but made no statement about the age of most recent movement. Witkind (1975 #317) subsequently included this fault in his compilation. Mudge and others (1982 #964) suggest movement on this and related faults of the St. Marys fault zone to be younger than that on the nearby range-front faults.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Inferred low slip rate based on absence of data that indicate late Quaternary slip.
Date and Compiler(s)	1996 Kathleen M. Haller, U.S. Geological Survey
References	#1050 Harrison, J.E., Griggs, A.B., and Wells, J.D., 1974, Tectonic features of the Precambrian Belt basin and their influence on post-Belt structures: U.S. Geological Survey Professional Paper 866, 15 p. #964 Mudge, M.R., Earhart, R.L., Whipple, J.W., and Harrison, J.E., 1982, Geologic and structure map of the Choteau 1° x 2° quadrangle, western Montana: U.S. Geological Survey Miscellaneous Investigations Map I-1300, 2 sheets, scale 1:250,000. #46 Pardee, J.T., 1950, Late Cenozoic block faulting in western Montana: Geological Society of America Bulletin, v. 61, p. 359-406.

#317 Witkind, I.J., 1975, Preliminary map showing known and suspected active faults in western Montana: U.S. Geological Survey Open-File Report 75-285, 36 p. pamphlet, 1 sheet, scale 1:500,000.

#1047 Witkind, I.J., 1977, Preliminary map showing surficial deposits in the south half of the Coopers Lake quadrangle, Powell County, Montana: U.S. Geological Survey Open-File Report 77-466, 1 sheet, scale 1:24,000.

#1048 Witkind, I.J., 1977, Preliminary map showing surficial deposits in the south half of the Ovando Mountain quadrangle, Powell County, Montana: U.S. Geological Survey Open-File Report 77-465, 1 sheet, scale 1:24,000.

#1049 Witkind, I.J., 1977, Preliminary map showing surficial deposits in the south half of the Ovando quadrangle, Powell County, Montana: U.S. Geological Survey Open-File Report 77-196, 1 sheet, scale 1:24,000.

#1053 Witkind, I.J., 1977, Preliminary map showing surficial deposits in the Woodworth quadrangle, Powell County, Montana: U.S. Geological Survey Open-File Report 77-203, 1 sheet, scale 1:24,000.

Questions or comments?

Facebook Twitter Google Email
Hazards
Design Ground MotionsSeismic Hazard Maps & Site-Specific DataFaultsScenarios
EarthquakesHazardsDataEducationMonitoringResearch
Search... Search
HomeAbout UsContactsLegal