

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 Mile Creek (Class A) No. 660

Last Review Date: 1994-04-11

Compiled in cooperation with the Montana Bureau of Mines and Geology

citation for this record: Haller, K.M., compiler, 1994, Fault number 660, unnamed fault near Mile Creek, 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 02:04 PM.

Synopsis	Fault is expressed as a short (4-km-long) scarp on Quaternary alluvium in the Madison Valley. Recent studies conclude that the origin of this feature is faulting; earlier studies indicate that this feature is fluvial.
Name comments	Section extends southwestward about 4 km from about 1 km southwest of Mile Creek. Fault ID: Fault not shown on any previous compilation.
Country(s) and	

County(s) and State(s)	MADISON COUNTY, MONTANA
Physiographic province(s)	NORTHERN ROCKY MOUNTAINS
Reliability of location	Good Compiled at 1:250,000 scale. <i>Comments:</i> Location of scarp based on 1:24,000-scale map of Lundstrom (1986 #457).
Geologic setting	Short, low, northwest-facing scarp in Madison Valley. Along trend to the southwest is a mapped fault that offsets Huckleberry Ridge Tuff (2 Ma) about 40 m (Gary, 1980 #695).
Length (km)	2 km.
Average strike	N28°E
Sense of movement	Normal <i>Comments:</i> (Lundstrom, 1986 #457)
Dip Direction	NW
Paleoseismology studies	
Geomorphic expression	Scarps are 2-3 m high with low to moderate (10-15?) maximum slope angles on undifferentiated Quaternary fan gravels, probably 15-30 k.y. old. Inferred offset of older gravels is 25 m (Lundstrom, 1986 #457). In contrast, Myers and Hamilton (1964 #250) regarded this as a fluvial scarp in their reconnaissance of Madison Valley.
Age of faulted surficial deposits	Upper Quaternary alluvium, undifferentiated Quaternary fan gravels, Pliocene Huckleberry Ridge Tuff (Lundstrom, 1986 #457).
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) <i>Comments:</i> Lundstrom (1986 #457) indicates the most recent event occurred between 15-30 ka based on differential faulting of Pinedale channels and suggestion that a silt cap and fan gravels

	locally drape over scarp.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr <i>Comments:</i> Inferred low slip rate based on small scarps on upper Quaternary deposits.
Date and Compiler(s)	1994 Kathleen M. Haller, U.S. Geological Survey
References	#695 Gary, S.D., 1980, Quaternary geology and geophysics of the upper Madison Valley, Madison County, Montana: Missoula, University of Montana, unpublished M.S. thesis, 76 p., 2 pls. #457 Lundstrom, S.C., 1986, Soil stratigraphy and scarp morphology studies applied to the Quaternary geology of the southern Madison Valley, Montana: Arcata, California, Humboldt State University, unpublished M.S. thesis, 53 p., 1 pl., scale 1:24,000. #250 Myers, W.B., and Hamilton, W., 1964, Deformation accompanying the Hebgen Lake earthquake of August 17, 1959, <i>in</i> The Hebgen Lake, Montana, earthquake of August 17, 1959: U.S. Geological Survey Professional Paper 435-I, p. 55-98.

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