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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 faults near Sweet Grass Hills (Class A) No. 693

Last Review Date: 1996-04-01

Compiled in cooperation with the Montana Bureau of Mines and Geology

citation for this record: **Haller, K.M., compiler, 1996, Fault number 693, unnamed faults near Sweet Grass Hills, 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	Little is known about the Quaternary history of these short faults. Sole source of data is Lopez (1995 #1062).
Name comments	Lopez (1995 #1062) first documented these faults, but did not name them. The two short, subparallel faults are north and northwest of Gold Butte, part of Middle Butte in the Sweet Grass Hills about 50 km northeast of Shelby, Montana. **Fault ID:** Not shown on any previous compilation.
County(s) and	

County(s) and State(s)	TOOLE COUNTY, MONTANA
Physiographic province(s)	GREAT PLAINS
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Location from 1:100,000-scale geologic map of Lopez (1995 #1062).
Geologic setting	Two short, subparallel, down-to-northwest, normal (?) faults along northwestern flank of Middle Butte. Amount of total offset not known.
Length (km)	6 km.
Average strike	N58°E
Sense of movement	Normal *Comments:* Lopez (1995 #1062) indicates down-to-northwest displacement, from which we infer normal movement. The southern fault may have had a history of left-lateral movement.
Dip Direction	NW
Paleoseismology studies	
Geomorphic expression	The northern fault is expressed by a nearly continuous "fresh" scarp, and the southern by a "prominent" scarp (Lopez, 1995 #1062).
Age of faulted surficial deposits	Upper Cretaceous bedrock, and forms contact between Quaternary pediment gravel and Quaternary glacial till (Lopez, 1995 #1062).
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Lopez (1995 #1062) suggests Quaternary movement on both of these faults.
Recurrence	

interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Low slip rate inferred; no substantiating data are available.
Date and Compiler(s)	1996 Kathleen M. Haller, U.S. Geological Survey
References	#1062 Lopez, D.A., 1995, Geology of the Sweet Grass Hills, north-central Montana: Montana Bureau of Mines and Geology Memoir 68, 35 p., 1 pl., scale 1:100,000.