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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.

Woodruff fault (Class A) No. 3508

Last Review Date: 2003-05-01

Compiled in cooperation with the Idaho Geological Survey

citation for this record: **Machette, M.N., and Neier, R.S., compilers, 2003, Fault number 3508, Woodruff fault, 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 02:51 PM.**

Synopsis	The Woodruff is an east-west trending, high-angle, down-to-the-north, normal(?) fault that bounds the northern part of Samaria Mountain, which has about 400 m of topographic relief. Although no Quatenary fault scarps have been reported, the fault is believed to have Quaternary movment on the basis of offset of Pleistocene alluvial-fan deposits. This timing is poorly constrained and offset is not well documented.
Name comments	Fault named by Beus (1968 #6547) who mapped the bedrock structure along the northern edge of Samaria Mountain from Eastern Pocatello Valley towards Malad River, about 5 km west of Cherry Creek, Idaho (on the east). Woodruff is a small town in

	the Malad River valley on the east side of Samaria Mountain. **Fault ID:** Fault 60 of Witkind (1975 #320).
County(s) and State(s)	ONEIDA COUNTY, IDAHO
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Beus (1968 #6547) mapped the fault, but did not discuss it. Witkind (1975 #320) compiled data from discussions with Oriel, Platt. and Trimble and showed the fault at 1:750,000 scale. Platt (1977 #5158) mapped fault at 1:48,000 scale, but did not show it offsetting Quaternary deposits. McCalpin and others (1992 #613) show the fault in a small-scale figure, but do not discuss it. For this compilation, the fault trace was taken from mapping by Platt (1977 #5158) and recompiled at 1:100,000 scale for digitization.
Geologic setting	East-west-trending, high-angle, down-to-the-north, normal(?) fault (Platt, 1977 #5158) that bounds the northern margin of Samaria Mountain. The fault juxtaposes Paleozoic rocks on the south against Miocene to Pliocene sedimentary rocks of the Salt Lake Group on the north.
Length (km)	13 km.
Average strike	N88°W
Sense of movement	Normal *Comments:* Oriel, Platt, and Witkind considered the fault to have normal-dip slip (Witkind, 1975 #320). Beus (personal commun. to Witkind, 1975) believed fault is strike slip, perhaps owing to its anomalous east-west trend. The east-west trend also led Don Trimble to suspect strike-slip movement (Witkind, 1975 #320). Platt (1977 #5158) showed it as normal fault, as did McCalpin and others (1992 #613).
Dip Direction	N *Comments:* Reported as normal, down-to-the-north by Witkind

	(1975 #320) and Platt (1977 #5158).
Paleoseismology studies	
Geomorphic expression	Bounds northern part of Samaria Mountain, which has about 400 m of topographic relief. No Quaternary fault scarps have been reported.
Age of faulted surficial deposits	Pleistocene alluvial deposits(?), Permian/Pennsylvanian Oquirrh formation, Mississippian Great Blue Limestone Platt (1977 #5158). Witkind (1975 #320) cited Steve Oriel, who thought that Platt believed that the fault displaces Pleistocene alluvial-fan deposits.
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Quaternary according to Witkind (1975 #320) and Platt (1977 #5158) on the basis of offset of Pleistocene alluvial-fan deposits. This timing is poorly constrained and not well documented.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Slip rate unknown, but probably low based on rates for other similar structures in the area. Shown as major late Pleistocene fault by Pierce and Morgan (1992 #539) and classified as a lesser Quaternary fault by Breckenridge and others (2003 #5878).
Date and Compiler(s)	2003 Michael N. Machette, U.S. Geological Survey, Retired Ricky S. Neier, University of Idaho
References	#6547 Beus, S.S., 1968, Paleozoic stratigraphy of Samaria Mountain, Idaho-Utah: Bulletin of the American Association of Petroleum Geologists, v. 5, no. 11, p. 782-808. #5878 Breckenridge, R.M., Lewis, R.S., Adema, G.W., and Weisz, D.W., 2003, Miocene and younger faults in Idaho: Idaho Geological Survey Map 8, 1 sheet, scale 1:1,000,000.

#613 McCalpin, J., Robison, R.M., and Garr, J.D., 1992, Neotectonics of the Hansel Valley-Pocatello Valley corridor, northern Utah and southern Idaho, *in* Gori, P.L., and Hays, W.W., eds., Assessment of regional earthquake hazards and risk along the Wasatch front, Utah: U.S. Geological Survey Professional Paper 1500, p. G1-G18.

#539 Pierce, K.L., and Morgan, L.A., 1992, The track of the Yellowstone hot spot—Volcanism, faulting, and uplift, *in* Link, P.K., Kuntz, M.A., and Platt, L.B., eds., Regional geology of eastern Idaho and western Wyoming: Geological Society of America Memoir 179, p. 1-53, 1 pl.

#5158 Platt, L.B., 1977, Geologic map of the Ireland Springs-Samaria area, southeastern Idaho and northern Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-890, 1 sheet, scale 1:48,000.

#320 Witkind, I.J., 1975, Preliminary map showing known and suspected active faults in Idaho: U.S. Geological Survey Open-File Report 75-278, 71 p. pamphlet, 1 sheet, scale 1:500,000.