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.

Jakes Creek fault (Class A) No. 630

Last Review Date: 2003-06-12

Compiled in cooperation with the Idaho Geological Survey

citation for this record: **Personius, S.F., and Lewis, R.S., compilers, 2003, Fault number 630, Jakes Creek 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 03:03 PM.**

Synopsis	The Jakes Creek fault is a north-striking, west-dipping normal fault that forms the eastern margins of Indian Jakes Valley and Coonrod Basin, and the western margin of Squaw Butte. The fault is part of the western Idaho fault belt. The Jakes Creek fault displaces Miocene Columbia River Basalts along most of its length, and is marked by a conspicuous zone of vegetation lineaments and low, en echelon west-facing scarps on Columbia River Basalts and Quaternary fan and colluvial deposits. The small amount of displacement (10 m) in Miocene bedrock implies that the Jakes Creek fault is subsidiary to and lies in the hanging wall of the nearby (and much larger displacement) Big Flat fault [631]. One trench investigation revealed evidence for one

	Quaternary faulting event; similarity between soils developed in the Jakes Creek and Squaw Creek fault trenches suggest the event occurred in the latest Pleistocene or early Holocene.
Name comments	The Jakes Creek fault was originally mapped and informally named after nearby Jakes Creek by Gilbert and others (1983 #5887).
County(s) and State(s)	GEM COUNTY, IDAHO WASHINGTON COUNTY, IDAHO
Physiographic province(s)	COLUMBIA PLATEAU
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Fault locations are from 1:250,000-scale mapping of Gilbert and others (1983 #5887) and Knudsen and others (1996 #5889).
Geologic setting	The Jakes Creek fault is a north-striking, west-dipping normal fault that forms the eastern margins of Indian Jakes Valley and Coonrod basin, and the western margin of Squaw Butte. The fault is part of the western Idaho fault belt of Hamilton (1963 #6040), a system of north-striking normal faults formed along the western margin of the Idaho batholith. The Jakes Creek fault displaces Miocene Columbia River basalts along most of its length (Gilbert and others, 1983 #5887). The small amount of displacement (10 m) in Miocene bedrock led Gilbert and others (1983 #5887) and Knudsen and others (1996 #5889) to infer that the Jakes Creek fault is subsidiary to and lies in the hanging wall of the nearby east-dipping Big Flat fault [631].
Length (km)	16 km.
Average strike	N1°W
Sense of movement	Normal *Comments:* The Jakes Creek fault is mapped as a normal fault by Gilbert and others (1983 #5887) and Knudsen and others (1996 #5889).
Dip Direction	W

	Comments: No actual dip measurements have been published, but Knudsen and others (1996 #5889) modeled the Jakes Creek fault as a 60? dipping normal fault in their analysis of paleo-earthquake magnitudes.
Paleoseismology studies	A trench investigation was conducted along the central part of the Jakes Creek fault near the north end of Indian Jakes Valley (Gilbert and others, 1983 #5887). Site 630-1. The south wall of a 30-m-long trench across a 3.6-m-high fault scarp on Pleistocene fan deposits was excavated and logged by Gilbert and others (1983 #5887). The trench exposed a near-vertical reverse fault zone in Miocene basalt bedrock and fan alluvium/colluvium. Evidence for one faulting event is present in the trench, but the timing of this event is unclear. The log of the south wall shows hanging wall bedrock (units 1, 2, and 3) overlain by fan alluvial/colluvial unit 5, which is in fault contact with bedrock deposits (units 2 and 3) in the footwall. These deposits are overlain by additional fan alluvial/colluvial deposits (units 6 and 7), which lie unfaulted across the fault zone. No scarp-colluvial deposits were recognized in the trench, but the upper part of the trench exposed a thick sequence of "surface colluvium" (unit 8) overlying units 6 and 7. No datable materials were found in the trench, but Gilbert and others (1983 #5887) interpreted soil development in the post-faulting deposits to be very similar to the soils developed on post-Mazama-ash (6.7 ka) deposits in their nearby Squaw Creek fault trench (site 632-1). Gilbert and others (1983 #5887) interpret the lack of scarp-derived colluvium in the trench to post-faulting erosion of unit 5. They interpret the stratigraphic relations and soil profiles as evidence of a single event in the latest Pleistocene or early Holocene that had a minimum displacement of 0.3-0.4 m. Their scarp profile of the site documented a vertical surface displacement of 1.2 m, which may be a better estimate of the size of the event.
Geomorphic expression	The Jakes Creek fault is marked by a conspicuous zone of vegetation lineaments and low, en echelon west-facing scarps on Columbia River basalts and Quaternary fan and colluvial deposits along the east side of Indian Jakes Valley and Coonrod Basin. Scarp heights are about 10 m on Miocene basalt and 5 m in fan alluvium.
Age of faulted	

Age of faulted surficial deposits	The Jakes Creek fault offsets Miocene Columbia River basalts and Pleistocene fan deposits (Gilbert and others, 1983 #5887).
Historic earthquake	
Most recent prehistoric deformation	latest Quaternary (<15 ka) *Comments:* Gilbert and others (1983 #5887) use the similarity of soils exposed in the Jakes Creek and Squaw Creek fault trenches (site 632-1) to interpret one faulting event in the latest Pleistocene or early Holocene on the Jakes Creek fault. The fault is mapped as a lesser Holocene (<10 ka) structure by Breckenridge and others (2003 #5878).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Gilbert and others (1983 #5887) measured total vertical offsets of about 10 m in Miocene Columbia River Basalt rocks along the Jakes Creek fault. This small displacement yields very low long-term slip rates. No estimates of Quaternary slip rates have been described.
Date and Compiler(s)	2003 Stephen F. Personius, U.S. Geological Survey Reed S. Lewis, Idaho Geological Survey
References	#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. #5887 Gilbert, J.D., Piety, L., and LaForge, R., 1983, Seismotectonic study for Black Canyon Dam, Boise project, Idaho: U.S. Bureau of Reclamation Seismotectonic Report 83-7, 73 p., 8 pl. #6040 Hamilton, W., 1963, Metamorphism in the Riggins region, western Idaho: U.S. Geological Survey Professional Paper 436, 95 p. #5889 Knudsen, K.L., Wong, I., Sawyer, T.L., Bott, J., Silva, W., and Lettis, W.R., 1996, Seismotectonic evaluation, Cascade Dam, Boise project, west-central Idaho: Final Report prepared for U.S.

	Department of the Interior, Bureau of Reclamation, 198 p., 3 pls.