

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](#).

Harney fault (Class A) No. 1802

Last Review Date: 2016-05-02

citation for this record: Personius, S.F., and Haller, K.M., compilers, 2002, Fault number 1802, Harney 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 02:24 PM.

Synopsis	This north-trending high-angle fault forms 150-m-high escarpments on Miocene volcanic rocks along the eastern margin of the Harney basin and the western margin of the Crane Creek Mountains in central Oregon. No detailed information on Quaternary offset is available, but regional geologic mapping and limited airphoto and field reconnaissance suggests possible middle or late Quaternary displacement.
Name comments	The Harney fault forms the eastern margin of the Harney basin in central Oregon (Greene and others, 1972 #3560; Walker, 1977 #3749; Hawkins and others, 1989 #3551; Walker and MacLeod, 1991 #3646).
County(s) and State(s)	HARNEY COUNTY, OREGON
Physiographic province(s)	COLUMBIA PLATEAU
Reliability of location	Good Compiled at 1:62,500 scale.

	<p><i>Comments:</i> Location of fault from ORActiveFaults (http://www.oregongeology.org/arcgis/rest/services/Public/ORActiveFaults/MapServer downloaded 06/02/2016) attributed to 1:62,500-scale mapping of Brown and others (1980 #3727).</p>
Geologic setting	<p>This north-trending high-angle fault forms the eastern margin of the Harney basin and the western margin of the Crane Creek Mountains. The area is underlain by Miocene basalt and andesite in the Crane Creek Mountains and Quaternary alluvial and lacustrine deposits in the Harney basin (Greene and others, 1972 #3560; Walker, 1977 #3749; Walker and MacLeod, 1991 #3646).</p>
Length (km)	30 km.
Average strike	N2°W
Sense of movement	<p>Normal</p> <p><i>Comments:</i> These structures as depicted as high-angle, presumably normal faults on maps of Greene and others (1972 #3560), Hawkins and others (1989 #3551), Walker (1977 #3749), and Walker and MacLeod (1991 #3646).</p>
Dip Direction	W
Paleoseismology studies	
Geomorphic expression	<p>The fault forms 150-m-high escarpments on Miocene volcanic rocks along the eastern margin of the Harney basin. Hawkins and others (1989 #3551) report the geomorphic expression as very subdued on aerial photographs. Weldon and others (2002 #5648) observed lineaments across Quaternary units on 1:100,000-scale DEMs of the area.</p>
Age of faulted surficial deposits	<p>Greene and others (1972 #3560) show the fault offsetting Quaternary (Pleistocene and Holocene) alluvium and alluvial-fan deposits; Walker (1977 #3749) and Walker and MacLeod (1991 #3646) map Pleistocene and Holocene (?) alluvium faulted against Miocene bedrock.</p>
Historic earthquake	
Most recent prehistoric deformation	<p>middle and late Quaternary (<750 ka)</p> <p><i>Comments:</i> Hawkins and others (1989 #3551) conducted air photo and field reconnaissance and found no evidence of late Quaternary displacement. Weldon and others (2002 #5648) used airphotos and 1:100,000 scale DEMs to infer fault activity from the middle to late Quaternary (<780 ka).</p>

Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr <i>Comments:</i> No published slip data are available, but the subtle geomorphic expression of the Harney fault suggests low rates of slip.
Date and Compiler(s)	2002 Stephen F. Personius, U.S. Geological Survey Kathleen M. Haller, U.S. Geological Survey
References	#3727 Brown, D.E., McLean, G.D., and Black, G.L., 1980, Preliminary geology and geothermal resource potential of the southern Harney Basin, Oregon: State of Oregon Department of Geology and Mineral Industries Open-File Report O-80-7, 90 p., 8 pls. #3560 Greene, R.C., Walker, G.W., and Corcoran, R.E., 1972, Geologic map of the Burns quadrangle, Oregon: U.S. Geological Survey Miscellaneous Geologic Investigations I-680, 2 sheet, scale 1:250,000. #3551 Hawkins, F.F., Gilbert, J.D., and LaForge, R.C., 1989, Seismotectonic studies of the Warm Springs Dam-Vale Project and Owyhee Dam-Owyhee Project, Oregon: U.S. Bureau of Reclamation Seismotectonic Report 89-6, 35 p., 2 pls. #3749 Walker, G.W., 1977, Geologic map of Oregon east of the 121st meridian: U.S. Geological Survey Miscellaneous Investigations Map I-902, 2 sheets, scale 1:500,000. #3646 Walker, G.W., and MacLeod, N.S., 1991, Geologic map of Oregon: U.S. Geological Survey, Special Geologic Map, 2 sheets, scale 1:500,000. #5648 Weldon, R.J., Fletcher, D.K., Weldon, E.M., Scharer, K.M., and McCrory, 2002, An update of Quaternary faults of central and eastern Oregon: U.S. Geological Survey Open-File Report 02-301 (CD-ROM), 26 sheets, scale 1:100,000.

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