

# 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](#).

## Warm Springs fault (Class A) No. 1801

Last Review Date: 2016-05-02

*citation for this record:* Personius, S.F., compiler, 2002, Fault number 1801, Warm Springs 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.

<b>Synopsis</b>	These north-trending high-angle faults offset Miocene basalt, andesite, and tuffaceous sedimentary rocks in east-central Oregon. No detailed information on Quaternary offset is available, but regional geologic mapping and limited airphoto and field reconnaissance suggests possible Quaternary displacement.
<b>Name comments</b>	The Warm Springs fault was informally named by Hawkins and others (1989 #35 presumably after nearby Warm Springs Creek.
<b>County(s) and State(s)</b>	HARNEY COUNTY, OREGON
<b>Physiographic province(s)</b>	COLUMBIA PLATEAU
<b>Reliability of location</b>	Good Compiled at 1:100,000 scale.  <i>Comments:</i> Location of fault from ORActiveFaults

	( <a href="http://www.oregongeology.org/arcgis/rest/services/Public/ORActiveFaults/Map8">http://www.oregongeology.org/arcgis/rest/services/Public/ORActiveFaults/Map8</a> downloaded 06/02/2016) attributed to 1:250,000-scale mapping of Greene and others (1972 #3560).
<b>Geologic setting</b>	These north-trending high-angle faults offset Miocene basalt, andesite, and tuffaceous sedimentary rocks (Greene and others, 1972 #3560; Walker, 1977 #3749; Walker and MacLeod, 1991 #3646).
<b>Length (km)</b>	9 km.
<b>Average strike</b>	N16°W
<b>Sense of movement</b>	Normal  <i>Comments:</i> These structures are depicted as high-angle, presumably normal faults on maps of Greene and others (1972 #3560), Hawkins and others (1989 #3551), Walker and others (1977 #3749), and Walker and MacLeod (1991 #3646).
<b>Dip Direction</b>	E
<b>Paleoseismology studies</b>	
<b>Geomorphic expression</b>	Hawkins and others (1989 #3551) describe the geomorphic expression of these faults as a subdued series of small escarpments and lineaments, marked in places by springs and mass movements related to spring sapping. They also describe an undated but probable late Quaternary terrace that extends unfaulted across the fault trace. Walker and others (2002 #5648) observed lineaments across Quaternary units on 1:100,000 scale DEMs of the area.
<b>Age of faulted surficial deposits</b>	Existing geologic maps show the fault offsetting Miocene volcanic and sedimentary rocks (Greene and others, 1972 #3560; Walker, 1977 #3749; Walker and MacLeod, 1991 #3646).
<b>Historic earthquake</b>	
<b>Most recent prehistoric deformation</b>	undifferentiated Quaternary (<1.6 Ma)  <i>Comments:</i> Hawkins and others (1989 #3551) conducted air photo and field reconnaissance and found no evidence of late Quaternary displacement. Walker and others (2002 #5648) used airphotos and 1:100,000 scale DEMs to infer fault activity in the Quaternary (<1.6 Ma).
<b>Recurrence interval</b>	

<b>Slip-rate category</b>	Less than 0.2 mm/yr  <i>Comments:</i> No published slip data are available for the Warm Springs fault, but the poor geomorphic expression of these faults suggest low rates of slip.
<b>Date and Compiler(s)</b>	2002 Stephen F. Personius, U.S. Geological Survey
<b>References</b>	<p>#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.</p> <p>#3551 Hawkins, F.F., Gilbert, J.D., and LaForge, R.C., 1989, Seismotectonic study 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.</p> <p>#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.</p> <p>#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.</p> <p>#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.</p>

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