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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.

Newberry volcano ring faults (Class B) No. 1806

Last Review Date: 2002-12-10

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Synopsis	These ring faults form the caldera rims of the Newberry volcano, a large shieldlike Quaternary volcano that lies near the boundary between the Cascade Range and Basin and Range physiographic provinces in central Oregon. Mapped rock units comprising the volcano are mostly rhyolitic in composition and range in age from about 600 ka to the late Holocene. Individual sections of the ring faults form escarpments more than 100 m high on late Quaternary volcanic rocks of the Newberry volcano. However, these faults are everywhere concealed, and have been mapped on the basis of the topographic expression of these escarpments. The faults form several nested caldera rims, each of which probably collapsed during individual pumicious eruptions. We classify these features as Class B because they are volcanic features associated with caldera collapse, rather than tectonic faulting, and thus do not constitute a significant seismic hazard.

Name comments	This group of faults form the caldera rims of the Newberry volcano in central Oregon (MacLeod and Sherrod, 1992 #3566; MacLeod and others, 1995 #3557).
County(s) and State(s)	DESCHUTES COUNTY, OREGON
Physiographic province(s)	COLUMBIA PLATEAU
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Fault traces are from 1:24,000-scale mapping of MacLeod and others (1995 #3557), summarized at 1:100,000-scale by Weldon and others (2002 #5648).
Geologic setting	These faults form the caldera rims of the Newberry volcano, a large shieldlike Quaternary volcano that lies near the boundary between the Cascade Range and Basin and Range physiographic provinces in central Oregon. Mapped rock units comprising the volcano are mostly rhyolitic in composition and range in age from about 600 ka to the late Holocene (MacLeod and others, 1995 #3557).
Length (km)	8 km.
Average strike	N15°W
Sense of movement	Normal *Comments:* These faults are mapped as a normal (ring) faults by MacLeod and Sherrod (1992 #3566) and MacLeod and others (1995 #3557).
Dip Direction	S; E; W; NW; N *Comments:* These faults rim the caldera walls in a circular pattern, and thus dip in all directions.
Paleoseismology studies	
Geomorphic expression	Individual sections of the ring faults form escarpments more than 100 m high on late Quaternary volcanic rocks of the Newberry

	volcano. However, these faults are everywhere concealed, and have been mapped on the basis of the topographic expression of these escarpments (MacLeod and others, 1995 #3557). The faults form several nested caldera rims, each of which probably collapsed during individual pumicious eruptions (MacLeod and others, 1995 #3557).
Age of faulted surficial deposits	The rim faults are formed in late Holocene to middle Pleistocene volcanic rocks of Newberry volcano (MacLeod and others, 1995 #3557).
Historic earthquake	
Most recent prehistoric deformation	latest Quaternary (<15 ka) *Comments:* The rim faults are formed in late Holocene to middle Pleistocene volcanic rocks of Newberry volcano; the youngest extensive eruption occurred about 1300 yr BP (MacLeod and others, 1995 #3557). Weldon and others (2002 #5648) mapped these faults as active in the late (<120 ka) or latest (<20 ka) Quaternary.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Escarpments more than 100 m high on Quaternary volcanic rocks could imply high rates of slip, but these features are associated with caldera collapse, rather than tectonic faulting. Their mode of formation is poorly known: they could have formed as single events as block collapse or slumping, and likely are associated with collapse following individual voluminous pumicious eruptions (MacLeod and others, 1995 #3557).
Date and Compiler(s)	2002 Stephen F. Personius, U.S. Geological Survey
References	#3566 MacLeod, N.S., and Sherrod, D.R., 1992, Reconnaissance geologic map of the west half of the Crescent 1° by 2° quadrangle, central Oregon: U.S. Geological Survey Miscellaneous Investigations Map I-2215, 1 sheet, scale 1:250,000. #3557 MacLeod, N.S., Sherrod, D.R., Chitwood, L.A., and

	Jensen, R.A., 1995, Geologic map of Newberry Volcano, Deschutes, Klamath, and Lake Counties, Oregon: U.S. Geological Survey Miscellaneous Investigations Map I-2455, 2 sheets, scale 1:24,000 and 1:62,500. #5648 Weldon, R.J., Fletcher, D.K., Weldon, E.M., Scharer, K.M., and McCrory, P.A., 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.