

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](#).

unnamed fault east of the Dust Bowl (Class A) No. 1804

Last Review Date: 2002-12-10

citation for this record: Personius, S.F., compiler, 2002, Fault number 1804, unnamed fault east of the Dust Bowl, 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 fault apparently forms the eastern margin of the Dust Bowl and Street Flat, which comprise a small structural basin in central Oregon. The area lies just north of the northwest-trending Brothers fault zone [819], and is underlain by Miocene and Pliocene welded tuffs and tuffaceous sedimentary rocks. The fault traces do not precisely coincide with any mapped faults on existing geologic maps, although in some places the fault traces are nearly coincident with linear mapped contacts between geologic units. This fault is not included in some compilations of active faults in the region, and no offsets of Quaternary deposits have been described. Analyses of airphotos and 1:100,000-scale DEMs were used to infer middle or late Quaternary displacement.
Name	This unnamed fault is located east of the Dust Bowl in central

comments	Oregon (Pezzopane, 1993 #3544).
County(s) and State(s)	CROOK COUNTY, OREGON DESCHUTES COUNTY, OREGON
Physiographic province(s)	COLUMBIA PLATEAU
Reliability of location	Good Compiled at 1:100,000 scale. <i>Comments:</i> Fault traces are from 1:100,000-scale mapping of Weldon and others (2002 #5648) based on 1:500,000-scale mapping of Pezzopane (1993 #3544).
Geologic setting	This north-trending fault apparently forms the eastern margin of the Dust Bowl and Street Flat, which comprise a small structural basin in central Oregon. The area lies just north of the northwest-trending Brothers fault zone [819] (Lawrence, 1976 #3506), and is underlain by Miocene and Pliocene welded tuffs and tuffaceous sedimentary rocks (Greene and others, 1972 #3560; Walker and MacLeod, 1991 #3646). The fault traces mapped by Pezzopane (1993 #3544) and Weldon and others (2002 #5648) do not precisely coincide with any mapped faults on existing geologic maps (Greene and others, 1972 #3560; Walker and MacLeod, 1991 #3646), although in some places the fault traces are nearly coincident with linear mapped contacts between geologic units. This fault is not included in other compilations of active faults in the region (Hawkins and others, 1988 #2946; Geomatrix Consultants Inc., 1995 #3593; Madin and Mabey, 1996 #3575; Ake and others, 2001 #5035).
Length (km)	14 km.
Average strike	N14°W
Sense of movement	Normal <i>Comments:</i> These structures as depicted as high-angle, presumably normal faults by Pezzopane (1993 #3544).
Dip Direction	W
Paleoseismology studies	
Geomorphic	

expression	
Age of faulted surficial deposits	The fault is not shown on existing geologic maps, but the area is underlain by Miocene and Pliocene welded tuffs and tuffaceous sedimentary rocks (Greene and others, 1972 #3560; Walker and MacLeod, 1991 #3646). No offsets in Quaternary deposits have been described.
Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) <i>Comments:</i> Pezzopane (1993 #3544) used airphoto analysis to infer middle or late Quaternary (<700 ka) displacement on the faults east of the Dust Bowl. Weldon and others (2002 #5648) used analysis of airphotos and 1:100,000-scale DEMs to infer middle or late Quaternary (<780 ka) displacement on these faults.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr <i>Comments:</i> No published slip data are available for the unnamed fault east of the Dust Bowl.
Date and Compiler(s)	2002 Stephen F. Personius, U.S. Geological Survey
References	#5035 Ake, J., LaForge, R., and Hawkins, F., 2001, Probabilistic seismic hazard analysis for Wickiup Dam—Deschutes project, central Oregon: U.S. Bureau of Reclamation Seismotectonic Report 2000-04, 71 p. #3593 Geomatrix Consultants, Inc., 1995, Seismic design mapping, State of Oregon: Technical report to Oregon Department of Transportation, Salem, Oregon, under Contract 11688, January 1995, unpaginated, 5 pls., scale 1:1,250,000. #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. #2946 Hawkins, F.F., LaForge, R.C., Templeton, M., and Gilbert, J.D., 1988, Seismotectonic study for Arthur R. Bowman and

Ochoco Dams, Crooked River Project, Oregon: U.S. Bureau of Reclamation Seismotectonic Report 88-10, 57 p., 2 pls.

#3506 Lawrence, R.D., 1976, Strike-slip faulting terminates the Basin and Range province in Oregon: Geological Society of America Bulletin, v. 87, p. 846-850.

#3575 Madin, I.P., and Mabey, M.A., 1996, Earthquake hazard maps for Oregon: State of Oregon, Department of Geology and Mineral Industries Geological Map Series GMS-100, 1 sheet.

#3544 Pezzopane, S.K., 1993, Active faults and earthquake ground motions in Oregon: Eugene, Oregon, University of Oregon, unpublished Ph.D. dissertation, 208 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.

#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.

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