

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](#).

Emigrant Valley North faults (Class A) No. 1045

Last Review Date: 1998-01-22

citation for this record: Anderson, R.E., compiler, 1998, Fault number 1045, Emigrant Valley North faults, 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 02:20 PM.

Synopsis	Widely distributed intrabasin faults forming a zone about 20 km long and as much as 12 km wide in Emigrant Valley between Groom Lake on the east and the Belted Range on the west. Tectonic significance of these faults is not known. Some faults in group mapped by Carr (1974 #1470) based on inspection of 1:60,000 aerial photos and minimal field checking. Many fault traces added by Reheis (1992 #1604) on basis of photogeologic mapping from 1:60,000 and 1:80,000 photos. No detailed study or report of scarp characteristics available, so reliable estimates of earthquake recurrence and slip rate can not be made.
Name comments	Name given by Piety (1995 #915) to a broad group of short north-northeast-striking faults in the part of Emigrant Valley east of the Belted Range. Divided into North Emigrant Valley fault swarm

	(C4A) and South Emigrant Valley fault swarm (C4B) by dePolo (1998, #2845). Fault ID: Referred to as EVN by Piety (1995 #915) and faults C4A and C4B by dePolo (1998, #2845).
County(s) and State(s)	LINCOLN COUNTY, NEVADA NYE COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. <i>Comments:</i> Location based on Reheis (1992 #1604) who compiled the faults at 1:100,000 mostly from previous mapping by Carr (1974 #1470) with many additions on the basis of photogeologic mapping of scarps and lineaments on the surficial deposits of Emigrant Valley from 1:60,000 and 1:80,000 photos. Of those identified by her, less than 15% are moderately well expressed as scarps or lineaments, the rest are weakly expressed.
Geologic setting	Widely distributed intrabasin faults forming a zone about 20 km long and as much as 12 km wide in Emigrant Valley between Groom Lake on the east and the Belted Range on the west. They strike more easterly than most nearby range-bounding faults as well as the nearby mid-valley Yucca fault [1042], and they are not parallel to nor aligned with any obvious local topographic features. Also, there is no obvious pattern to their facing direction. Their tectonic significance is not known.
Length (km)	21 km.
Average strike	N24°E
Sense of movement	Normal <i>Comments:</i> Shown by Reheis (1992 #1604) as down to the west and down to the east.
Dip Direction	E; W
Paleoseismology studies	
Geomorphic	Portrayed (at 1:100,000 scale) by Reheis (1992 #1604) as weakly

expression	expressed to prominent lineaments and scarps on surfaces of Quaternary deposits, included many scarps formed on late Quaternary fan deposits. Most of the traces shown by Reheis (1992 #1604) are taken from previous mapping; but of those identified by her, less than 15% are moderately well expressed as scarps or lineaments, the rest are weakly expressed. No specific scarp characteristics are reported.
Age of faulted surficial deposits	Estimated to be, in part, late Quaternary by Reheis (1992 #1604). In an unpublished map of Quaternary faults in the Caliente 1? x 2? sheet by J. C. Dohrenwend (compiled at 1:250,000 scale as part of Dohrenwend and others, 1996 #2846), some faults in the south part of the swarm are mapped as formed on deposits or surfaces of late Pleistocene (10-130 ka) age and most others as either questionable late Pleistocene or early to middle and (or) late Pleistocene (0.01-1.5 Ma).
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) <i>Comments:</i> Although timing of most recent event is not well constrained, Reheis (1992 #1604) suggests a Quaternary time based on reconnaissance photogeologic mapping.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr <i>Comments:</i> No detailed data exists to determine slip rates for this fault. dePolo (1998 #2845) assigned a reconnaissance vertical slip rate of 0.01 mm/yr based on the presence of scarps on alluvium and the absence of basal facets. The late Quaternary characteristics of this fault (overall geomorphic expression, continuity of scarps, age of faulted deposits, etc.) support a low slip rate. Accordingly, the less than 0.2 mm/yr slip-rate category has been assigned to this fault.
Date and Compiler(s)	1998 R. Ernest Anderson, U.S. Geological Survey, Emeritus
References	#1470 Carr, W.J., 1974, Summary of tectonic and structural evidence for stress orientation at the Nevada Test Site: U.S. Geological Survey Open-File Report 74-176, 53 p.

#2845 dePolo, C.M., 1998, A reconnaissance technique for estimating the slip rate of normal-slip faults in the Great Basin, and application to faults in Nevada, U.S.A.: Reno, University of Nevada, unpublished Ph.D. dissertation, 199 p.

#2846 Dohrenwend, J.C., Schell, B.A., Menges, C.M., Moring, B.C., and McKittrick, M.A., 1996, Reconnaissance photogeologic map of young (Quaternary and late Tertiary) faults in Nevada, *in* Singer, D.A., ed., Analysis of Nevada's metal-bearing mineral resources: Nevada Bureau of Mines and Geology Open-File Report 96-2, 1 pl., scale 1:1,000,000.

#915 Piety, L.A., 1995, Compilation of known and suspected Quaternary faults within 100 km of Yucca Mountain, Nevada and California: U.S. Geological Survey Open-File Report 94-112, 404 p., 2 pls., scale 1:250,000.

#1604 Reheis, M.C., 1992, Aerial photographic interpretation of lineaments and faults in late Cenozoic deposits in the Cactus Flat and Pahute Mesa 1:100,000 quadrangles and the western parts of the Timpahute Range, Pahrnagat Range, Indian Springs, and Las Vegas 1:100,000 quadrangles, Nevada: U.S. Geological Survey Open-File Report 92-193, 14 p., 3 pls., scale 1:100,000.

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