

# 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](#).

## Eastern East Humboldt Range fault zone (Class A) No. 1722

Last Review Date: 2001-01-08

*citation for this record:* Anderson, R.E., compiler, 2001, Fault number 1722, Eastern East Humboldt Range fault zone, 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 02:26 PM.

### Synopsis

The eastern East Humboldt Range fault is apparently not a major range-bounding fault, but rather is a series of aligned lesser block-bounding faults that are highly discontinuous. Most are down to the east and appear to form the structural western margin of the basins beneath Clover Valley and the northern part of Butte Valley. Whether these scattered faults are connected as a major structure at depth is not known. Its structural relationship to an along-strike fault [1574] to the north is also not known. There is an apparent gap of >10 km between these two faults. The faults apparently have weak geomorphic expression, with scarps identified on surficial deposits or erosion surfaces on the individual traces. No scarp morphology data are reported and no detailed studies have been made. Recurrence times and slip rates are unknown.

<p><b>Name comments</b></p>	<p>Name from dePolo (1998 #2845) who applied it to a north-elongate group of highly discontinuous faults along the eastern base of the East Humboldt Range as mapped by Dohrenwend and others (1991 #286). As compiled here, it includes faults south of the range at the eastern base of Valley Mountain and West Buttes and, for convenience, a single short (6 km) trace at the western base of the East Humboldt Range.</p> <p><b>Fault ID:</b> Referred to as fault EK8 by dePolo (1998 #2845).</p>
<p><b>County(s) and State(s)</b></p>	<p>ELKO COUNTY, NEVADA</p>
<p><b>Physiographic province(s)</b></p>	<p>BASIN AND RANGE</p>
<p><b>Reliability of location</b></p>	<p>Good Compiled at 1:100,000 scale.</p> <p><i>Comments:</i> Locations based on reconnaissance photogeologic mapping at 1:250,000 by Dohrenwend and others (1991 #286). Their map was produced by direct transfer from the photos to 1/2?x1? (100,000 scale) topographic maps enlarged to the scale of the photos. Those maps were, in turn, reduced and recompiled at 1:2100,000 scale.</p>
<p><b>Geologic setting</b></p>	<p>Although it is not a major range-bounding fault (Dohrenwend and others, 1991 #286), the northern part of this fault zone forms the structural boundary between the southern part of the East Humboldt Range on the west and the basin beneath Clover Valley on the east. Its structural relationship to an along-strike fault [1574] to the north is not known. There is apparently a greater than 10-km-long gap between these two faults (Dohrenwend and others, 1991 #286; Dohrenwend and others, 1991 #290). Its southern part is characterized by highly discontinuous traces with average lengths of about 5 km, separated by gaps of 4, 6, and 14 km. Whether these traces are individual block-bounding faults or parts of a more through-going fault zone is not known. The southernmost part of the fault apparently forms the western structural margin of the basin beneath northernmost Butte Valley. The fault at the western base of the East Humboldt Range is clearly a separate fault, but is included in this compilation for convenience.</p>
<p><b>Length (km)</b></p>	<p>41 km.</p>

<b>Average strike</b>	N14°W
<b>Sense of movement</b>	Normal
<b>Dip Direction</b>	E; W  <i>Comments:</i> Dip is east, except for one short (6-km-long) fault at the west margin of the East Humboldt Range which probably dips to the west.
<b>Paleoseismology studies</b>	
<b>Geomorphic expression</b>	Little is known about the geomorphic expression of faults of this zone. Barnhard (1985 #428) did not recognize scarps on alluvium, possibly suggesting the fault's weak geomorphic expression. Only the northern two traces define a sharp topographic break at the base of a high precipitous range block. The others are located at weakly defined margins of hills and ridges.
<b>Age of faulted surficial deposits</b>	The faults of this zone cut deposits or erosion surfaces as young as late Pleistocene age. According to Dohrenwend and others (1991 #286) parts of five of the discontinuous faults are expressed as scarps on surficial deposits or erosion surfaces. The age of two of these is estimated to be late Pleistocene (10-130 ka), whereas the other three are designated early to middle and (or) late Pleistocene (0.01-1.6 Ma).
<b>Historic earthquake</b>	
<b>Most recent prehistoric deformation</b>	late Quaternary (<130 ka)  <i>Comments:</i> The timing of two of the many several scattered traces is considered to be late Pleistocene (Dohrenwend and others, 1991 #286)
<b>Recurrence interval</b>	
<b>Slip-rate category</b>	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 for the fault based on the presence of scarps on alluvium and the absence of basal facets. The late Quaternary

	characteristics of this fault (overall weak geomorphic expression, discontinuity 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.
<b>Date and Compiler(s)</b>	2001 R. Ernest Anderson, U.S. Geological Survey, Emeritus
<b>References</b>	<p>#428 Barnhard, T.P., 1985, Map of fault scarps formed in unconsolidated sediments, Elko 1° x 2° quadrangle, Nevada and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1791, 1 sheet, scale 1:250,000.</p> <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.</p> <p>#290 Dohrenwend, J.C., McKittrick, M.A., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the Wells 1° by 2° quadrangle, Nevada, Utah, and Idaho: U.S. Geological Survey Miscellaneous Field Studies Map MF-2184, 1 sheet, scale 1:250,000.</p> <p>#286 Dohrenwend, J.C., Schell, B.A., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the Elko 1° by 2° quadrangle, Nevada and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-2179, 1 sheet, scale 1:250,000.</p>

[Questions or comments?](#)

[Facebook](#) [Twitter](#) [Google](#) [Email](#)

[Hazards](#)

[Design](#) [Ground Motions](#) [Seismic Hazard Maps & Site-Specific Data](#) [Faults](#) [Scenarios](#)

[Earthquakes](#) [Hazards](#) [Data](#) [Education](#) [Monitoring](#) [Research](#)



[Home](#) [About Us](#) [Contacts](#) [Legal](#)