

# 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](#).

## East Muddy Mountains fault (Class B) No. 1732

Last Review Date: 1999-05-11

*citation for this record:* Anderson, R.E., compiler, 1999, Fault number 1732, East Muddy Mountains 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.

### Synopsis

The East Muddy Mountains fault bounds East Longwell Ridge, an uplifted block of Paleozoic rock of on the east, against Tertiary sedimentary rock on the west. Part of this fault has been mapped photogeologically as juxtaposing Quaternary alluvium against bedrock, which is in contradiction with early mapping that showed only Tertiary sedimentary rock faulted against bedrock. Other parts of the fault are mapped as having scarps on Quaternary surficial deposits or erosional surfaces, but those traces were mapped earlier as depositional contacts between Tertiary sedimentary rock and Paleozoic bedrock, and characterized in yet another study as possibly non tectonic. Because of the uncertainties and contradictions as to the age of displaced deposits, the east Muddy Mountains fault is considered to be Class B structure (suspected Quaternary fault), pending further study. Quaternary displacement, if present, must be small. Neither recurrence intervals nor slip rates can be estimated.

<b>Name comments</b>	Name given here to a 10-km-long northeast-striking fault at the eastern base of East Longwell Ridge on the southeast margin of the Muddy Mountains as shown by Dohrenwend and others (1991 #288). Anderson and O'Connell (1993 #1440), in their seismotectonic study for Hoover Dam, referred to faults along East Longwell Ridge as the Echo Bay fault.
<b>County(s) and State(s)</b>	CLARK COUNTY, NEVADA
<b>Physiographic province(s)</b>	BASIN AND RANGE
<b>Reliability of location</b>	Good Compiled at 1:250,000 scale.  <i>Comments:</i> Mapped at scale of 1:250,000 on the basis of photogeology by Dohrenwend and others (1991 #288).
<b>Geologic setting</b>	Along most of its trace, the East Muddy Mountains fault bounds an uplifted block of Paleozoic rock that comprises East Longwell Ridge on the east against Tertiary sedimentary rock on the west (Bohannon, 1983 #4698). Most of the trace mapped by Dohrenwend and others (1991 #288) as juxtaposing Quaternary alluvium against bedrock or as having scarps on Quaternary surficial deposits or erosional surfaces. The fault was mapped by Bohannon (1983 #4698) as a depositional contact between Tertiary sedimentary rock and Paleozoic bedrock. Quaternary displacement, if present, must be small.
<b>Length (km)</b>	4 km.
<b>Average strike</b>	N3°E
<b>Sense of movement</b>	Normal
<b>Dip Direction</b>	E
<b>Paleoseismology studies</b>	
<b>Geomorphic expression</b>	Dohrenwend and others (1991 #288) show a short (<3 km) part of the fault as marked by an east-facing scarp.
<b>Age of faulted</b>	Quaternary. The main 10-km-long trace is shown as a fault

<b>surficial deposits</b>	juxtaposing Quaternary alluvium against bedrock with a short east trace shown as having a scarp on Quaternary alluvium or on a Quaternary surface (Dohrenwend and others, 1991 #288). Anderson and O'Connell (1993 #1440), in their consideration of the Echo Bay fault, suspected that the single scarp on alluvium shown by Dohrenwend and others (1991 #288) may be of non-tectonic origin. On this basis, and on the basis of Bohannon's (1983 #4698) map which shows all Quaternary units in depositional contact with bedrock, the East Muddy Mountains fault is considered to be a Class B feature (suspected, but unproven Quaternary fault).
<b>Historic earthquake</b>	
<b>Most recent prehistoric deformation</b>	undifferentiated Quaternary (<1.6 Ma) <i>Comments:</i> The possibility exists that this fault has not been active during the Quaternary.
<b>Recurrence interval</b>	
<b>Slip-rate category</b>	Less than 0.2 mm/yr <i>Comments:</i> There are no data from which to estimate of slip rate. 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.
<b>Date and Compiler(s)</b>	1999 R. Ernest Anderson, U.S. Geological Survey, Emeritus
<b>References</b>	#1440 Anderson, L.W., and O'Connell, D.R., 1993, Seismotectonic study of the northern portion of the lower Colorado River, Arizona, California, and Nevada: U.S. Bureau of Reclamation Seismotectonic Report 93-4, 122 p., 3 sheets.  #4698 Bohannon, R.G., 1983, Geologic map, tectonic map and structure sections of the Muddy and Northern Black Mountains, Clark County, Nevada: U.S. Geological Survey Miscellaneous Investigations Map I-1406, scale 1:62,500.  #288 Dohrenwend, J.C., Menges, C.M., Schell, B.A., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the Las Vegas 1° by 2° quadrangle, Nevada, California, and

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