

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](#).

Mount Irish Range fault (Class A) No. 1738

Last Review Date: 2001-11-29

citation for this record: Anderson, R.E., compiler, 2001, Fault number 1738, Mount Irish Range 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.

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| Synopsis | The Mount Irish Range fault extends from west of Logan Pass southward along the west base of the Mount Irish Range to within 2 km of State Highway 375. It is probably a normal-sense block-bounding or possibly range-bounding structure characterized by a major right step near its center. Short scarps are formed in the piedmont slope at the step, and they reflect Quaternary displacement. There are no detailed studies, the last displacement is known no closer than middle and late Quaternary, and recurrence times and slip rates can not be estimated. The slip rate is probably less than 0.2 mm/yr. |
| Name comments | Fault referred to as North Pahrangat Range fault by dePolo (1998 #2845); however, that name is abandoned because the physiographic feature shown on the 1:250,000-scale Caliente sheet is shown on the more modern (1996) 1/2° x 1° Timpahute Range quadrangle as the Mount Irish Range. Fault extends from |

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| | <p>west of Logan Pass southward along the west base of the Mount Irish Range to within 2 km of State Highway 375.</p> <p>Fault ID: Referred to as fault C7 by dePolo (1998 #2845).</p> |
| County(s) and State(s) | LINCOLN COUNTY, NEVADA |
| Physiographic province(s) | BASIN AND RANGE |
| Reliability of location | <p>Good Compiled at 1:100,000 scale.</p> <p><i>Comments:</i> Location based on an unpublished 1:250,000-scale map by J. C. Dohrenwend of Quaternary faults in the 1:250,000-scale Caliente sheet (published at 1:1,000,000 by Dohrenwend and others, 1996 #2846). The unpublished map was produced by photogeologic analysis of 1:58,000 nominal-scale, color infrared photography. The photogeologic mapping was transferred directly to 1/2° x 1° topographic quadrangle maps enlarged to the scale of the photographs and then reduced to and compiled on the 1:250,000 Caliente sheet.</p> |
| Geologic setting | <p>This north-striking fault bounds the Mount Irish Range on the west against a possible north-projecting arm of the basin beneath Tikaboo Valley. The fault is separated into north and south parts by a major right step in its trace 3–4 km southwest of Reed Spring. At the step, the south part apparently extends north into the piedmont and slightly overlaps the north part as indicated by three traces mapped by Dohrenwend and others (1996 #2846). Relatively small total displacement on the north part is indicated by correlative volcanic rocks on both sides (Ekren and others, 1977 #1036). Total displacement is probably greatest on the south part.</p> |
| Length (km) | 11 km. |
| Average strike | N9°E |
| Sense of movement | <p>Normal</p> <p><i>Comments:</i> Inferred from location and orientation in an extensional tectonic setting.</p> |
| Dip Direction | W |

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| Paleoseismology studies | |
| Geomorphic expression | There is no published description of the geomorphic expression of the Mount Irish Range fault. Schell (1981 #2844), who mapped Quaternary faults in the region using 1:25,000-scale aerial photos, did not map a fault along the west base of the Mount Irish Range, possibly suggesting subdued geomorphic expression. The south part of the west bedrock escarpment of the range is more precipitous and less irregular than the north part, possibly indicating a contrasting displacement history. |
| Age of faulted surficial deposits | In the unpublished 1:250,000-scale map by J. C. Dohrenwend of Quaternary faults in the 1:250,000-scale Caliente sheet (published at 1:1,000,000 by Dohrenwend and others, 1996 #2846), the scarps extending north into the piedmont from the south part of the fault at the right step are estimated, on the basis of photogeologic study, to be formed on surfaces or deposits of Pleistocene (0.01–1.5 Ma) age. |
| Historic earthquake | |
| Most recent prehistoric deformation | undifferentiated Quaternary (<1.6 Ma) <i>Comments:</i> Although timing of the most recent event is not well constrained, reconnaissance studies by Dohrenwend and others (1996 #2846) suggest a Quaternary time based on photogeologic interpretation. |
| Recurrence interval | |
| Slip-rate category | Less than 0.2 mm/yr <i>Comments:</i> 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 geomorphic expression, continuity of scarps, age of faulted deposits, etc.) suggest the slip rate during this period is of a lesser magnitude. Accordingly, the less than 0.2 mm/yr slip-rate category has been assigned to this fault. |
| Date and Compiler(s) | 2001 R. Ernest Anderson, U.S. Geological Survey, Emeritus |

References

#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.

#1036 Ekren, E.B., Orkild, P.P., Sargent, K.A., and Dixon, G.L., 1977, Geologic map of Tertiary rocks, Lincoln County, Nevada: U.S. Geological Survey Miscellaneous Investigations Map I-1041, 1 sheet, scale 1:250,000.

#2844 Schell, B.A., 1981, Faults and lineaments in the MX Siting Region, Nevada and Utah, Volume II: Technical report to U.S. Department of [Defense] the Air Force, Norton Air Force Base, California, under Contract FO4704-80-C-0006, November 6, 1981, 29 p., 11 pls., scale 1:250,000.

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