Jump to Navigation

# 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.**

## Sagouse fault zone (Class A) No. 1677

**Last Review Date: 1999-04-07**

***citation for this record:*** **Adams, K., and Sawyer, T.L., compilers, 1999, Fault number 1677, Sagouse 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.**

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| **Synopsis** | This distributed group of intrabasin faults in the Carson Sink north of Fallon extends from near Little Soda Lake northward to Upsal Hogback; several short northeast-striking faults at Soda Lake are also included in this group because they appear to be spatially related to young volcanic features, as are some faults at Upsal Hogback. The Soda lakes represent a young volcanic complex that erupted tephra repeatedly in the late Quaternary, both subaerially and subaqueously; Upsal Hogback represents a series of overlapping cones of basaltic tuff erupted in the late Quaternary. Two parallel faults, each several kilometers long, on south side of Hogback define a narrow north-south trending horst. Detailed surficial geologic mapping, reconnaissance photogeologic mapping, and regional geologic mapping are the sources of data. Trench investigations and detailed studies of scarp morphology have not been conducted. |

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| **Name comments** | Refers to faults mapped by Morrison (1964 #3486), Slemmons (1968, unpublished Reno 1? X 2? sheet), Bell (1984 #105), and Greene and others (1991 #3487) in the Carson Sink north of Fallon that extend from near Little Soda Lake northward to Upsal Hogback. Morrison (1964 #3486) referred to only the north-northeast-striking faults northeast of Fallon as the Sagouse fault zone, but faults near Upsal Hogback and Soda lakes are herein included because of relative proximity.<br><br>**Fault ID:** Refers in part to fault R27 (Fallon fault zone) of dePolo (1998 #2845). |
| **County(s) and State(s)** | CHURCHILL COUNTY, NEVADA |
| **Physiographic province(s)** | BASIN AND RANGE |
| **Reliability of location** | Good<br>Compiled at 1:100,000 scale.<br><br>*Comments:* Fault locations are primarily based on 1:250,000-scale map of Bell (1984 #105). Mapping is from photogeologic analysis of 1:40,000-scale low sun-angle aerial photography, supplemented with 1:12,000-scale aerial photography of selected areas, several low-altitude aerial reconnaissance flights, and field reconnaissance of major structural and stratigraphic relationships. Additional fault traces are located from 1:250,000-scale reconnaissance photogeologic map of Slemmons (1968, unpublished Reno 1? X 2? sheet). |
| **Geologic setting** | This distributed group of intrabasin faults in the Carson Sink north of Fallon extends from near Little Soda Lake northward to Upsal Hogback; several short northeast-striking faults at Soda Lake are also included in this group because they appear to be spatially related to young volcanic features, as are some faults at Upsal Hogback. The Soda lakes represent a young volcanic complex that erupted tephra repeatedly in the late Quaternary, both subaerially and subaqueously; Upsal Hogback represents a series of overlapping cones of basaltic tuff erupted in the late Quaternary. Two parallel faults, each several kilometers long, on south side of Hogback define a narrow horst. Northeast-striking faults at Soda Lake define a small graben on southwest side of the lake and may have contributed to downdropping this part of the crater rim (Morrison, 1964 #3486, Slemmons 1968, unpublished |

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| | Reno 1? X 2? sheet; Bell, 1984 #105; Greene and others, 1991 #3487). |
| **Length (km)** | 25 km. |
| **Average strike** | N7°W |
| **Sense of movement** | Normal<br><br>*Comments:* Sense of slip from Morrison (1964 #3486). However, dePolo (1998 #2845) suggests that the principle sense of slip is lateral, but he does not indicate whether it is left- or right-lateral. |
| **Dip Direction** | E; W |
| **Paleoseismology studies** | |
| **Geomorphic expression** | Faults in Sagouse fault zone proper (as defined by Morrison) are expressed as northeast and southwest facing scarps on latest Quaternary lacustrine deposits; northeast facing scarps range in height from 3 to 9 m (Morrison, 1964 #3486). Faults on northern part of Upsal Hogback are expressed as short scarps of varying trends. Two parallel faults, each several kilometers long, on south side of Hogback define a narrow north-south trending horst. Several intrabasin faults on east and northwest sides of Upsal Hogback are expressed as east-facing scarps on Quaternary dune deposits (Morrison, 1964 #3486; Slemmons, 1968, unpublished Reno 1? X 2? sheet). |
| **Age of faulted surficial deposits** | latest Pleistocene; Quaternary. Morrison (1964 #3486) mapped faults displacing latest Pleistocene lacustrine deposits and Quaternary basaltic tuff. |
| **Historic earthquake** | |
| **Most recent prehistoric deformation** | latest Quaternary (<15 ka)<br><br>*Comments:* Although timing of most recent event is not well constrained, a latest Quaternary time is suggested based on mapping of Morrison (1964 #3486), which is confirmed by mapping by Bell (1984 #105) and Dohrenwend and others (1996 #2846). |
| **Recurrence** | |

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| **interval** | |
| **Slip-rate category** | Less than 0.2 mm/yr<br><br>*Comments:* A low slip rate is inferred from general knowledge of slip rates estimated for other faults in the region. |
| **Date and Compiler(s)** | 1999<br>Kenneth Adams, Piedmont Geosciences, Inc.<br>Thomas L. Sawyer, Piedmont Geosciences, Inc. |
| **References** | #105 Bell, J.W., 1984, Quaternary fault map of Nevada—Reno sheet: Nevada Bureau of Mines and Geology Map 79, 1 sheet, scale 1:250,000.<br><br>#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.<br><br>#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.<br><br>#3487 Greene, R.C., Stewart, J.H., John, D.A., Hardyman, R.F., Silberling, N.J., and Sorensen, M.L., 1991, Geologic map of the Reno 1° by 2° quadrangle, Nevada and California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2154-A, scale 1:250,000.<br><br>#3486 Morrison, R.B., 1964, Lake Lahontan—Geology of the southern Carson Desert, Nevada: U.S. Geological Survey Professional Paper 401, 156 p. |