

# 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](#).

## Saint John Station fault zone (Class A) No. 2397

Last Review Date: 1999-10-01

### Compiled in cooperation with the Utah Geological Survey

*citation for this record:* Black, B.D., and Hecker, S., compilers, 1999, Fault number 2397, Saint John Station 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 02:58 PM.

|                                  |   |
|----------------------------------|---|
| <b>Synopsis</b>                  | Poorly understood zone of late Quaternary faults near Saint John Station in southern Rush Valley. |
| <b>Name comments</b>             | <b>Fault ID:</b> Refers to fault number 7-13 of Hecker (1993 #642).                               |
| <b>County(s) and State(s)</b>    | TOOELE COUNTY, UTAH   |
| <b>Physiographic province(s)</b> | BASIN AND RANGE   |
| <b>Reliability of</b>            | Good  |

|  |   |
|--|---|
| <b>location</b>                            | Compiled at 1:250,000 scale.<br><br><i>Comments:</i> Mapped or discussed by Everitt and Kaliser (1980 #4524), Barnhard and Dodge (1988 #429), and Krinitsky (1989 #4525). Fault traces from 1:250,000-scale mapping of Barnhard and Dodge (1988 #429).  |
| <b>Geologic setting</b>                    | Several short northwest-trending normal faults in southern Rush Valley. Surficial geology of the valley is dominated by lake deposits and alluvium.   |
| <b>Length (km)</b>                         | 5 km.   |
| <b>Average strike</b>                      | N19°W   |
| <b>Sense of movement</b>                   | Normal  |
| <b>Dip Direction</b>                       | SW; NE  |
| <b>Paleoseismology studies</b>             |   |
| <b>Geomorphic expression</b>               | Wide zone of discontinuous en-echelon scarps in Quaternary alluvium and pre-Bonneville gravel-capped pediments. The scarps are topographically below the Bonneville highstand, and do not deform Lake Bonneville spit deposits crossing the fault scarps (Everitt and B.N., 1980 #4524). Unmapped, small displacement faults in alluvium are also several kilometers to the southeast, within a portion of the Tooele Army Depot, and are buried beneath an unfaulted soil estimated to be older than 125 ka (Krinitsky, 1989 #4525). |
| <b>Age of faulted surficial deposits</b>   | Late Pleistocene  |
| <b>Historic earthquake</b>                 |   |
| <b>Most recent prehistoric deformation</b> | late Quaternary (<130 ka)<br><br><i>Comments:</i>   |
| <b>Recurrence interval</b>                 |   |

|                             |  |
|-----------------------------|--|
| <b>Slip-rate category</b>   | Less than 0.2 mm/yr<br><br><i>Comments:</i> Lack of post-Bonneville displacement indicates a low slip rate.  |
| <b>Date and Compiler(s)</b> | 1999<br>Bill D. Black, Utah Geological Survey<br>Suzanne Hecker, U.S. Geological Survey  |
| <b>References</b>           | #429 Barnhard, T.P., and Dodge, R.L., 1988, Map of fault scarps formed on unconsolidated sediments, Tooele 1° x 2° quadrangle, northwestern Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1990, 1 sheet, scale 1:250,000.<br><br>#4524 Everitt, B.L., and B.N., K., 1980, Geology for assessment of seismic risk in the Tooele and Rush Valleys, Tooele County, Utah: Utah Geological and Mineral Survey Special Studies 51, 33 p.<br><br>#642 Hecker, S., 1993, Quaternary tectonics of Utah with emphasis on earthquake-hazard characterization: Utah Geological Survey Bulletin 127, 157 p., 6 pls., scale 1:500,000.<br><br>#4525 Krinitzsky, E.L., 1989, Empirical earthquake ground motions for an engineering site with fault sources—Tooele Army Depot, Utah: Bulletin of the Association of Engineering Geologists, v. 26, no. 3, p. 283-308. |

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