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.**

## Tabernacle faults (Class A) No. 2465

**Last Review Date: 2004-07-01**

## Compiled in cooperation with the Utah Geological Survey

***citation for this record:*** **Black, B.D., Hylland, M.D., and Hecker, S., compilers, 2004, Fault number 2465, Tabernacle faults, 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 02:54 PM.**

| | |
|---|---|
| **Synopsis** | Moderately to poorly understood late Pleistocene faults near Tabernacle Hill at the north end of the Black Rock Desert. The faults are part of an extensive zone of late Quaternary deformation and faulting in basalt flows and Lake Bonneville deposits that includes the Beaver Ridge [2464] and Pavant [2438] faults, and Cove Creek dome [2462]. |
| **Name comments** | **Fault ID:** Refers to fault number 9-20 of Hecker (1993 #642). |
| **County(s) and State(s)** | MILLARD COUNTY, UTAH |

| | |
|---|---|
| **Physiographic province(s)** | BASIN AND RANGE |
| **Reliability of location** | Good<br>Compiled at 1:100,000 scale.<br><br>*Comments:* Mapped or discussed by Hoover (1974 #4555), Allmendinger and others (1983 #405), Anderson and others (1983 #2852), Picha (1986 #4556), Smithson and Johnson (1989 #4557), Oviatt (1991 #4552), Hintze and Davis (2003 #6741), and Hintze and others (2003 #6756). Fault traces from 1:100,000-scale mapping of Oviatt (1991 #4552). |
| **Geologic setting** | Generally north-trending normal faults (of varying displacement and dip) near Tabernacle Hill in the Black Rock Desert. The faults are part of an extensive zone of late Quaternary deformation and faulting in basalt flows and Lake Bonneville deposits that includes the Beaver Ridge [2464] and Pavant [2438] faults, and Cove Creek dome [2462]. Faults in the Black Rock-Sevier Desert basin intersect the Sevier Desert detachment at depths of 2-4 km and may cut the detachment surface (Picha, 1986 #4556; Smithson and Johnson, 1989 #4557) or may terminate against it (Allmendinger and others, 1983 #405; Anderson and others, 1983 #2852). |
| **Length (km)** | 8 km. |
| **Average strike** | N9°E |
| **Sense of movement** | Normal |
| **Dip Direction** | W |
| **Paleoseismology studies** | |
| **Geomorphic expression** | Faults and fractures show minor displacement in the basalt of Tabernacle Hill, which was extruded into Lake Bonneville at or near the level of the Provo shoreline. Although Hoover (1974 #4555) measured 15.2 m of vertical displacement (surface relief) of the flow surface, the flow appears to drape over pre-existing scarps (C.G. Oviatt, oral commun. to Suzanne Hecker, 1988) and may be undeformed. |
| **Age of faulted** | |

| | |
|---|---|
| **surficial deposits** | Late Pleistocene. |
| **Historic earthquake** | |
| **Most recent prehistoric deformation** | latest Quaternary (<15 ka)<br><br>*Comments:* |
| **Recurrence interval** | |
| **Slip-rate category** | Less than 0.2 mm/yr<br><br>*Comments:* Minor displacement of late Pleistocene basalt. |
| **Date and Compiler(s)** | 2004<br>Bill D. Black, Utah Geological Survey<br>Michael D. Hylland, Utah Geological Survey<br>Suzanne Hecker, U.S. Geological Survey |
| **References** | #405 Allmendinger, R.W., Sharp, J.W., Von Tish, D., Serpa, L., Brown, L., Kaufman, S., and Oliver, J., 1983, Cenozoic and Mesozoic structure of the eastern Basin and Range province, Utah, from COCORP seismic-reflection data: Geology, v. 11, p. 532-536.<br><br>#2852 Anderson, R.E., Zoback, M.L., and Thompson, G.A., 1983, Implications of selected subsurface data on the structural form and evolution of some basins in the northern Basin and Range province, Nevada and Utah: Geological Society of America Bulletin, v. 94, p. 1055-1072.<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>#6741 Hintze, L.F., and Davis, F.D., 2003, Geology of Millard County, Utah: Utah Geological Survey Bulletin 133, 305 p.<br><br>#6756 Hintze, L.F., Davis, F.D., Rowley, P.D., Cunningham, C.G., Steven, T.A., and Willis, G.C., 2003, Geologic map of the Richfield 30' x 60' quadrangle, southeast Millard County and parts of Beaver, Piute, and Sevier Counties, Utah: Utah Geological Survey Map 195, scale 1:100,000. |

| | |
|---|---|
| | #4555 Hoover, J.D., 1974, Periodic Quaternary volcanism in the Black Rock Desert, Utah: Brigham Young University Geology Studies, v. 21, pt. 1, p. 3-72.<br><br>#4552 Oviatt, C.G., 1991, Quaternary geology of the Black Rock Desert, Millard County, Utah: Utah Geological and Mineral Survey Special Studies 73, 23 p., scale 1:100,000.<br><br>#4556 Picha, F., 1986, The influence of pre-existing tectonic trends on geometries of the Sevier orogenic belt and its foreland in Utah: American Association of Petroleum Geologists Memoir 41, 309-320 p.<br><br>#4557 Smithson, S.B., and Johnson, R.A., 1989, Crustal structure of the western U.S. based on reflection seismology, *in* Pakiser, L.C., and Mooney, W.D., eds., Geophysical framework of the continental United States: Geological Society of America Memoir 172, p. 577-612. |