

2462, FAULTS OF COVE CREEK DOME

Structure number: 2462.

Comments: Hecker's (1993) fault number 9-1.

Structure name: Faults of Cove Creek dome.

Comments:

Synopsis: Poorly understood zone of Quaternary(?) faulting near Cove Creek dome in southwestern Utah.

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State: Utah.

County: Millard.

1° x 2° sheet: Richfield.

Province: Basin and Range.

Reliability of location: Good.

Comments: Mapped or discussed by Clark (1977), Anderson and Bucknam (1979), Oviatt (1991), and Hintze and Davis (in preparation). Mapping from Steven and Morris (1983) and Oviatt (1991).

Geologic setting: Complex zone of normal faulting (of varying dip and displacement) near Cove Creek dome in the Black Rock Desert. The Cove Creek dome area lies between the Pavant Range and Cricket Mountains in southwestern Utah, and is dominated by Quaternary basalt flows and deposits of Pleistocene Lake Bonneville. The faults surround Cove Creek dome, a doubly plunging anticline associated with roughly 300 to 400 meters of uplift in Pliocene basalts and lake sediments. The Bonneville shoreline is deflected 6-9 meters along an east-west profile on the east side of the dome, attributed to post-Bonneville uplift of unknown causes.

Sense of movement: N.

Comments:

Dip: No data.

Comments:

Dip direction: Varies.

Geomorphic expression: The faults displace Tertiary (2.5-2.6 Ma) volcanic flows by greater amounts (some by an order of magnitude more; Clark, 1977) than the faults to the southeast that cut the 500 ka Cove Fort volcanic flows.

Age of faulted deposits: Tertiary.

Paleoseismology studies: None.

Timing of most recent paleoevent: (5) Quaternary (<1.6 Ma).

Comments: Although Quaternary movement has not been demonstrated for the faults of Cove Creek dome, the dome itself and nearby faults show evidence for late Quaternary deformation.

Recurrence interval: No data.

Comments:

Slip rate: Unknown, probably <0.2 mm/yr.

Comments:

Length: End to end (km): 19
Cumulative trace (km): 74
Average strike (azimuth): N5°E

REFERENCES

- Anderson, R.E., and Bucknam, R.C., 1979, Map of fault scarps in unconsolidated sediments, Richfield 1° x 2° quadrangle, Utah: U.S. Geological Survey Open-File Report 79-1236, 15 p., scale 1:250,000.
- Clark, E.E., 1977, Late Cenozoic volcanic and tectonic activity along the eastern margin of the Great Basin, in the proximity of Cove Fort, Utah: Brigham Young University Geology Studies, v. 24, pt. 1, p. 87-114.
- Hecker, Suzanne, 1993, Quaternary tectonics of Utah with emphasis on earthquake-hazard characterization: Utah Geological Survey Bulletin 127, 2 plates, scale 1:500,000, 257 p.
- Hintze, L.F., and Davis, F.D., in preparation, Geology of Millard County, Utah: Utah Geological Survey Bulletin, scale 1:100,000.
- 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.
- Steven, T.A., and Morris, H.T., 1983, Geologic map of the Cove Fort quadrangle, west-central Utah: U.S. Geological Survey Miscellaneous Investigations Series Map I-1481, scale 1:50,000.