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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.

Bright Angel fault system (Class B) No. 2514

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 2514, Bright Angel fault system, 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 02:55 PM.**

Synopsis	Expansive area of poorly understood suspected Quaternary faults in the Colorado Plateau near the junction between the Colorado and San Juan Rivers. Owing to uncertainties in the timing of fault movement, we consider these faults to be Class B structures.
Name comments	**Fault ID:** Refers to fault number 15-1 in Hecker (1993 #642).
County(s) and State(s)	COCONINO COUNTY, ARIZONA GARFIELD COUNTY, UTAH KANE COUNTY, UTAH SAN JUAN COUNTY, UTAH

Physiographic province(s)	COLORADO PLATEAUS
Reliability of location	Good Compiled at 1:500,000 scale. *Comments:* Mapped or discussed by Hintze (1963 #4991), Shoemaker and others (1978 #2155), and Woodward-Clyde Consultants (1982 #5025). Fault traces from 1:250,000-scale geologic mapping of Hintze (1963 #4991).
Geologic setting	Diffuse area of bedrock faults of varying orientation in the Monument upwarp/Glen Canyon area of the Colorado Plateaus in southeastern Utah.
Length (km)	109 km.
Average strike	N6°W
Sense of movement	Normal
Dip Direction	Unknown *Comments:* Varies.
Paleoseismology studies	
Geomorphic expression	Faults are entirely within bedrock, thus Quaternary deformation can not be proven. The geometry and orientation of the faults are similar to known or questionable Quaternary structures in the San Francisco volcanic field in Arizona (Menges and Pearthree, 1983 #2073). A drainage system in the Cataract Creek basin in Arizona(?) appears to be older than movement on the fault system. Fold activity in the region is possible, although uncertain. Owing to uncertainties in the timing of fault movement, we consider these faults to be Class B structures.
Age of faulted surficial deposits	Jurassic, Quaternary(?)
Historic earthquake	
Most recent	undifferentiated Quaternary (<1.6 Ma)

prehistoric deformation	*Comments:* Based on geometry and orientation, and antecedent drainage.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr
Date and Compiler(s)	1999 Bill D. Black, Utah Geological Survey Suzanne Hecker, U.S. Geological Survey
References	#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. #4991 Hintze, L.H., compiler, 1963, Geologic map of southwestern Utah: Utah State Land Board, 1 sheet, scale 1:250,000. #2073 Menges, C.M., and Pearthree, P.A., 1983, Map of neotectonic (latest Pliocene-Quaternary) deformation in Arizona: Arizona Geological Survey Open-File Report 83-22, 48 p., scale 1:500,000. #2155 Shoemaker, E.M., Squires, R.L., and Abrams, M.J., 1978, Bright Angel and Mesa Butte fault systems in northern Arizona, *in* Smith, R.B., and Eaton, G.P., eds., Cenozoic tectonics and regional geophysics of the Western Cordillera: Geological Society of America Memoir 152, p. 341-367. #5025 Woodward-Clyde Consultants, 1982, Geologic characterization report for the Paradox Basin study region, Utah study areas, volume II, Gibson Dome: Technical report to Battelle Memorial Institute, Office of Nuclear Waste Isolation, under Contract ONWI-290, variously paginated, scale 1:340,000.

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