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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.

Dayton fault (Class B) No. 2370

Last Review Date: 1999-10-01

Compiled in cooperation with the Idaho Geological Survey and the Utah Geological Survey

citation for this record: **Black, B.D., Hecker, S., and Christenson, G.E., compilers, 1999, Fault number 2370, Dayton fault, 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 02:57 PM.**

Synopsis	Poorly understood Quaternary(?) fault in central Cache Valley, northeastern Utah. The subsurface location of the Dayton fault is ambiguous and the fault has little surficial evidence. Its Quaternary age is based soley on association with the West Cache fault zone [2521], which has evidence for Holocene activity. Thus, we consider the Dayton fault to be a Class B structure.
Name comments	**Fault ID:** Refers to fault number 11-9 of Hecker (1993 #642).
County(s) and	

County(s) and State(s)	CACHE COUNTY, UTAH
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Poor Compiled at 1:50,000 scale. *Comments:* Mapped or discussed by Dames and Moore (1985 #4505), Evans (1991 #4425), and Solomon (1999 #4395). The subsurface location of the Dayton fault is ambiguous and the fault has little surficial evidence. Fault traces from 1:50,000-scale mapping of Solomon (1999 #4395).
Geologic setting	North-trending east-dipping normal fault along the linear, eastern edge of a north-trending row of hills in central Cache Valley. Evans (1991 #4425) indicates seismic reflection profiles show 400 m of net slip on the Dayton fault at the base of the Tertiary section. Where exposed, the fault is in Tertiary bedrock and is buried by Pleistocene deposits, particularly those of Lake Bonneville. The fault includes several branches in Idaho, and may be associated with the West Cache fault zone [2521].
Length (km)	16 km.
Average strike	N1°W
Sense of movement	Normal
Dip Direction	E
Paleoseismology studies	
Geomorphic expression	Concealed normal fault in bedrock. Dames and Moore (1985 #4505) and Solomon (1999 #4395) indicate observing no evidence of displaced Quaternary deposits, and a shallow trench across the Dayton fault also exposed an unbroken sequence of Lake Bonneville beds (Solomon, 1999 #4395). Although several warm springs and associated spring deposits are aligned along the fault north of Little Mountain, Solomon (1999 #4395) believes the spring alignment is not related to faulting.
Age of faulted surficial	Tertiary. Evans (1991 #4425) indicates seismic-reflection profiles show 400 m of net slip on the Dayton fault at the base of the

deposits	Tertiary section.
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Based soley on association with the West Cache fault zone [2521], which has evidence for Holocene activity. Thus, we consider the Dayton fault to be a Class B structure.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Poor geomorphic expression and lack of post-Bonneville displacements indicate a low slip rate.
Date and Compiler(s)	1999 Bill D. Black, Utah Geological Survey Suzanne Hecker, U.S. Geological Survey Gary E. Christenson, Utah Geological Survey
References	#4505 Dames and Moore, 1985, Preliminary investigations and engineering evaluation—Cutler Dam and Reservoir enlargement project, Box Elder and Cache Counties, Utah: Technical report to Utah Division of Water Resources, Salt Lake City, under Contract 13423-005-06, 61 p. #4425 Evans, J.P., 1991, Structural setting of seismicity in northern Utah: Utah Geological Survey Contract Report 91-15, 37 p. #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. #4395 Solomon, B.J., 1999, Surficial geologic map of the West Cache fault zone and nearby faults, Box Elder and Cache Counties, Utah: Utah Geological Survey Map 172, 20 p. pamphlet, 2 sheets, scale 1:50,000.