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.

East Sierra Diablo fault (Class A) No. 910

Last Review Date: 1994-08-30

Compiled in cooperation with the Texas Bureau of Economic Geology

citation for this record: **Collins, E., compiler, 1994, Fault number 910, East Sierra Diablo 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 03:14 PM.**

Synopsis	This fault is characterized by a series of range-front en echelon scarps at the eastern base of the Sierra Diablo. Reconnaissance studies of scarp morphology and mapping of faulted Quaternary deposits are the sources of data. Trench investigations have not been conducted.
Name comments	Named by King (1965 #860), but also used by Collins and Raney (1993 #852). Goetz (1977 #863) referred to northern part of the fault as Kings fault. The fault extends from northeast edge of alluvial fan of Apache Canyon, southward to area several kilometers west of the ranch houses at Nutt Ranch.
County(s) and	

County(s) and State(s)	CULBERSON COUNTY, TEXAS
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Location based on 1:250,000-scale map compiled from 1:24,000- to 1:65,000-scale photos and maps of Collins and Raney (1993 #852). Other maps of fault include those of King (1965 #860), Belcher and others (1977 #875), and Goetz (1977 #863; 1980 #859).
Geologic setting	Down-to-the-east fault bounding east margin of Sierra Diablo and western side of Salt basin (Collins and Raney, 1993 #852; 1994 #853).
Length (km)	32 km.
Average strike	N1°W
Sense of movement	Normal *Comments:* Not studied in detail; sense of movement inferred form topography.
Dip Direction	E
Paleoseismology studies	
Geomorphic expression	Local distinct scarps; much of fault's surface expression is covered or eroded. Scarp along northern part of fault is about 1.8 m high (Collins and Raney, 1993 #852).
Age of faulted surficial deposits	Upper and middle Quaternary alluvium. No age determinations have been made to document if Holocene deposits are faulted (Collins and Raney, 1993 #852).
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* Faulted surficial sediment includes a young, 2-m-thick alluvial fan of probable Holocene-upper Pleistocene age

	which is underlain by sand and gravel having a calcic soil with stage I to II morphology (Collins and Raney, 1993 #852).
Recurrence interval	80-160 k.y. (<500 ka) *Comments:* Not studied in detail, but Collins and Raney (1993 #852) estimated that the average recurrence interval for large surface ruptures along the north part of fault may be as great as 80-160 k.y. since middle Pleistocene time. These values are based on (a) their estimate of the number of large-displacement (1- to 2-m) surface ruptures since middle Pleistocene time, (b) the assumption that faulted middle Pleistocene deposits are approximately 250-500 ka, and (c) a measured 4 m of throw on middle Pleistocene deposits.
Slip-rate category	Less than 0.2 mm/yr *Comments:* Low average slip rate since middle Pleistocene is based on 4 m of throw on middle Pleistocene (130-500 ka) deposits (Collins and Raney, 1993 #852).
Date and Compiler(s)	1994 E.W. Collins, Bureau of Economic Geology, The University of Texas at Austin
References	#875 Belcher, R.C., Goetz, L.K., and Muehlberger, W.R., 1977, Map B—Fault scarps within Quaternary units in West Texas, *in* Goetz, L.K., ed., Quaternary faulting in Salt Basin graben, West Texas: The University of Texas at Austin, unpublished M.S. thesis, 1 pl., scale 1:500,000. #852 Collins, E.W., and Raney, J.A., 1993, Late Cenozoic faults of the region surrounding the Eagle Flat study area, northwestern trans-Pecos Texas: Technical report to Texas Low-Level Radioactive Waste Disposal Authority, under Contract IAC(92-93)-0910, 74 p. #853 Collins, E.W., and Raney, J.A., 1994, Impact of late Cenozoic extension on Laramide overthrust belt and Diablo Platform margins, northwestern trans-Pecos Texas, *in* Ahlen, J., Peterson, J., and Bowsher, A.L., eds., Geologic activities in the 90s: New Mexico Bureau of Mines and Mineral Resources Bulletin 150, p. 71-81. #863 Goetz, L.K., 1977, Quaternary faulting in Salt Basin graben, West Texas: The University of Texas at Austin, unpublished M.S.

	thesis, 136 p. #859 Goetz, L.K., 1980, Quaternary faulting in Salt Basin graben, West Texas, *in* Dickerson, P.W., and Hoffer, J.M., eds., Trans-Pecos region southeastern New Mexico and West Texas: New Mexico Geological Society, 31st Field Conference, November 6-8, 1980, Guidebook, p. 83-92. #860 King, P.B., 1965, Geology of the Sierra Diablo region Texas: U.S. Geological Survey Professional Paper 480, 185 p., 1 pl., scale 1:62,500.