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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.

Faults of the northern Basaltic Hills (Class A) No. 2322

Last Review Date: 1998-05-04

Compiled in cooperation with the Colorado Geological Survey

citation for this record: **Kirkham, R.M., compiler, 1998, Fault number 2322, Faults of the northern Basaltic Hills, 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 03:00 PM.**

Synopsis	The faults of the northern Basaltic Hills include several generally northwest-trending faults, only nine of which are shown on the map that accompanies this compilation due to the close spatial proximity of the faults (Colton, 1976 #1136). This group of faults is in the northern Basaltic Hills, about 6-16 km south and southeast of the town of Blanca. The faults offset basalt flows of the Pliocene Servilleta Formation that cap the Basaltic Hills. Kirkham and Rogers (1981 #792) indicated the faults have displaced deposits of Wisconsinan (late Pleistocene) age, whereas Colman (1985 #1953) suggested the most recent movement is

	middle to early Pleistocene. Colman and others (1985 #1954) reported a Quaternary age for these faults. Although not studied in detail, the faults along the northeast margin of the Basaltic Hills may be related to slope-failure processes, and thus may be non-tectonic.
Name comments	The name of this group of faults was assigned by Widmann and others (1998 #3441) for this compilation. **Fault ID:** Fault 112 in Kirkham and Rogers (1981 #792) and fault number Q70 of Widman and others (1998 #3441).
County(s) and State(s)	COSTILLA COUNTY, COLORADO
Physiographic province(s)	SOUTHERN ROCKY MOUNTAINS
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* The faults have in part been mapped by Colton (1976 #1136; scale 1:250,000), Kirkham and Rogers (1981 #792; scale 1:500,000), Colman (1985 #1953; scale 1:1,000,000) and Colman and others (1985 #1953; scale 1:125,000). The traces used for this compilation were simplified from the above sources, recompiled at 1:250,000 scale.
Geologic setting	The faults of the northern Basaltic Hills are along the eastern margin of San Luis Basin between Blanca and San Luis. Most of the faults trend northwest and are downthrown to the northeast. The faults displace the Pliocene Servilleta Formation but are reported by Kirkham and Rogers (1981 #792) and Colman (1985 #1953) to have moved during the Quaternary. The faults along the northeast margin of the Basaltic Hills may be related to slope-failure processes, and thus may be non-tectonic.
Length (km)	13 km.
Average strike	N31°W
Sense of movement	Normal
Dip Direction	NE

	Comments: Most of the faults in this group dip to the northeast at unknown angles.
Paleoseismology studies	
Geomorphic expression	Several faults within this group are associated with linear or arcuate topographic escarpments as much as 35 m high.
Age of faulted surficial deposits	The Pliocene Servilleta Formation is displaced by these faults (Kirkham, unpubl. mapping, 1977; Colman and others, 1985 #1954). Kirkham and Rogers (1981 #792) reported that Quaternary Wisconsin-age (late Pleistocene) deposits are offset by the faults, and Colman and others (1985 #1954) indicated pre-Bull Lake deposits are cut by some of these faults.
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* The timing of the most recent paleoevent is unknown and somewhat contradictory. The Pliocene Servilleta Formation is offset by these faults. Kirkham and Rogers (1981 #792) reported that Wisconsinan deposits are offset by the faults, and Colman and others (1985 #1954) suggested some of the faults cut pre-Bull Lake deposits. Colman (1985 #1953) indicated the latest documented movement was during the middle or early Pleistocene. Because of these discrepancies, the most recent paleoevent on this fault series is herein classified as Quaternary.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Widmann and others (1998 #3441) placed this section of the fault within the <0.2 mm/yr slip-rate category .
Date and Compiler(s)	1998 Robert M. Kirkham, Colorado Geological Survey
References	#1953 Colman, S.M., 1985, Map showing tectonic features of late Cenozoic origin in Colorado: U.S. Geological Survey Miscellaneous Geologic Investigations I-1566, 1 sheet, scale 1:1,000,000.

	#1954 Colman, S.M., McCalpin, J.P., Ostenaa, D.A., and Kirkham, R.M., 1985, Map showing upper Cenozoic rocks and deposits and Quaternary faults, Rio Grande Rift, south-central Colorado: U.S. Geological Survey Miscellaneous Geologic Investigations I-1594, 2 sheets. #1136 Colton, R.B., 1976, Map showing landslide deposits and late Tertiary and Quaternary faulting in the Fort Garland-San Luis area, Colorado-New Mexico: U.S. Geological Survey Open-File Report 76-185, 1 sheet, scale 1:250,000. #792 Kirkham, R.M., and Rogers, W.P., 1981, Earthquake potential in Colorado: Colorado Geological Survey Bulletin 43, 171 p., 3 pls. #3441 Widmann, B.L., Kirkham, R.M., and Rogers, W.P., 1998, Preliminary Quaternary fault and fold map and database of Colorado: Colorado Geological Survey Open-File Report 98-8, 331 p., 1 pl., scale 1:500,000.