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.

unnamed faults near Star Heights (Class A) No. 2048

Last Review Date: 2016-06-26

Compiled in cooperation with the New Mexico Bureau of Geology & Mineral Resources

citation for this record: **Personius, S.F., and Jochems, A.P., compilers, 2016, Fault number 2048, unnamed faults near Star Heights, 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 02:22 PM.**

Synopsis	This group of north-trending, mostly down-to-the-east normal faults offsets upper Santa Fe Group sediments, the Llano de Albuquerque, and younger piedmont deposits near the neighborhood of Star Heights. Individual faults have displaced upper Santa Fe Group sediments of a few tens of meters, 15–20 m of the Llano de Albuquerque, and 5–10 m in probable middle Pleistocene piedmont deposits.
Name comments	These north-trending normal faults include parts of the Star Heights fault of Kelley (1977 #1106) and Hawley and Whitworth

	(1996 #1303). Detailed mapping by Cather and others (1997 #1763), Personius and others (2000 #1413), and Thompson and others (2009 #7460) indicate that the Star Heights fault mapped by Kelley (1977 #1106) and Hawley and Whitworth (1996 #1303) includes parts of at least two separate faults, so this name has been abandoned.
County(s) and State(s)	BERNALILLO COUNTY, NEW MEXICO SANDOVAL COUNTY, NEW MEXICO
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:24,000 scale. *Comments:* Fault traces from 1:24,000-scale mapping of Cather and others (1997 #1763), Personius and others (2000 #1413), and Thompson and others (2009 #7460) supplemented with additional photogrammetric analysis by Jochems. The locations of some fault traces are based on high-resolution aeromagnetic data (U.S. Geological Survey and SIAL Geosciences Inc., 1997 #1722; Grauch and Millegan, 1998 #1721).
Geologic setting	These structures are intrabasin faults in the northern part of the Albuquerque-Belen basin of the Rio Grande rift.
Length (km)	18 km.
Average strike	N5°E
Sense of movement	Normal
Dip	70° E. *Comments:* Dip data are from Personius and others (2000 #1413).
Paleoseismology studies	
Geomorphic expression	These faults offset upper Santa Fe Group sediment, form broad scarps on the Llano de Albuquerque, and form steeper, smaller scarps on younger piedmont deposits.
Age of faulted surficial	These faults offset early Plio-Pleistocene upper Santa Fe Group sediment, the early Pleistocene Llano de Albuquerque, and

deposits	younger piedmont deposits (Personius and others, 2000 #1413). The faulted piedmont deposits are characterized by well-developed (stage III) calcic soils, so they probably are middle Pleistocene in age.
Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) *Comments:* Some of these structures offset the early Pleistocene Llano de Albuquerque 15–20 m and middle Pleistocene piedmont deposits 5–10 m; these data indicate a history of recurrent movement that, in some cases, possibly extend into the late Pleistocene.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Inferred low slip rate is based on presence of broad scarps on the Llano de Albuquerque that offset the surface 15–20 m.
Date and Compiler(s)	2016 Stephen F. Personius, U.S. Geological Survey Andrew P. Jochems, New Mexico Bureau of Geology & Mineral Resources
References	#1763 Cather, S.M., Connell, S.D., Heynekamp, M.R., and Goodwin, L.B., 1997, Geology of the Arroyo de las Calabacillas [Sky Village SE] 7.5-minute quadrangle, Sandoval County, New Mexico: New Mexico Bureau of Mines and Mineral Resources Open-File Geologic Map 9, 8 p. pamphlet, 1 sheet, scale 1:24,000. #1721 Grauch, V.J.S., and Millegan, P.S., 1998, Mapping intrabasinal faults from high-resolution aeromagnetic data: The Leading Edge, v. 17, p. 53-55. #1303 Hawley, J.W., and Whitworth, T.M., compilers, 1996, Hydrogeology of potential recharge areas for the basin- and valley-fill aquifer systems, and hydrogeochemical modeling of proposed artificial recharge of the upper Santa Fe aquifer, northern Albuquerque basin, New Mexico: New Mexico Bureau of Mines and Mineral Resources Open-File Report 402-D, 575 p.

#1106 Kelley, V.C., 1977, Geology of Albuquerque basin, New Mexico: New Mexico Bureau of Mines and Mineral Resources Memoir 33, 60 p., 2 pls.

#1413 Personius, S.F., Machette, M.N., and Stone, B.D., 2000, Preliminary geologic map of the Loma Machete quadrangle, Sandoval County, New Mexico: U.S. Geological Survey Miscellaneous Field Studies Map MF-2334, scale 1:24,000.

#7460 Thompson, R.A., Shroba, R.R., Menges, C., Schmidt, D.L., Personius, S.F., and Brandt, T.R., 2009, Geologic map of the Volcanoes quadrangle, Bernalillo and Sandoval Counties, New Mexico: U.S. Geological Survey Scientific Investigations Map SIM-3083, scale 1:24,000.

#1722 U.S. Geological Survey, and SIAL Geosciences, Inc., 1997, Description of digital aeromagnetic data collected north and west of Albuquerque, New Mexico: U.S. Geological Survey Open-File Report 97-286, 40 p.