

# 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](#).

## Los Cordovas faults (Class A) No. 2022

Last Review Date: 2015-12-11

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

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<b>Synopsis</b>	The Los Cordovas faults form an 8-km-wide zone of north-trending, west-dipping normal faults in the southern part of the San Luis basin. This group of faults offset Pliocene Servilleta Basalt and early to middle Quaternary (about 0.7–1.2 Ma) gravel. Latest movements predate the incision of the Rio Grande into the Taos Plateau volcanic field about 0.69 Ma.
<b>Name comments</b>	The Los Cordovas faults were originally shown on a figure by Lambert (1966 #1112), and later mapped and named by Machette and Personius (1984 #1113) and Personius and Machette (1984 #1124). The Los Cordovas faults consist of parallel, north-trending faults in the southeastern San Luis Basin near Los

	Cordovas. The faults occur in an 8-km-wide zone that extends from the Rio Pueblo de Taos on the south to Highway 64 on the north (Machette and Personius, 1984 #1113).
<b>County(s) and State(s)</b>	TAOS COUNTY, NEW MEXICO
<b>Physiographic province(s)</b>	SOUTHERN ROCKY MOUNTAINS
<b>Reliability of location</b>	<p>Good Compiled at 1:24,000 scale.</p> <p><i>Comments:</i> The Los Cordovas faults were sketched by Lambert (1966 #1112) and mapped by Machette and Personius (1984 #1113) at a scale of 1:250,000 based on field reconnaissance and analysis of aerial photography. The faults were later mapped by Kelson (1986 #1109) at a scale of 1:15,840 based on analysis of aerial photography and detailed field mapping. More recently, Bauer and Kelson (1997 #7304) and Kelson and Bauer (2003 #7307, 2006 #7308) mapped the faults at 1:24,000. The location of the fault is updated at 1:24,000 scale using photogrammetry to accurately map its trace from these maps.</p>
<b>Geologic setting</b>	The Los Cordovas faults are intrabasin normal faults in the southeastern San Luis basin, and are subparallel to the rift-margin Southern Sangre de Cristo fault [2017]. The total vertical separation of Pliocene Servilleta Basalt across the fault zone is about 15 m (Kelson, 1986 #1109; Kelson and Wells, 1987 #1110). The faults lie along the northward projection of the Picuris-Pecos fault [2023] (Miller and others, 1963 #1121; Lambert, 1966 #1112).
<b>Length (km)</b>	13 km.
<b>Average strike</b>	N4°W
<b>Sense of movement</b>	Normal
<b>Dip Direction</b>	<p>W</p> <p><i>Comments:</i> Aeromagnetic data and field relations demonstrate that at least two Los Cordovas faults exhibit east-down displacement of Servilleta Basalt (Grauch and others, 2004 #7306).</p>

<b>Paleoseismology studies</b>	
<b>Geomorphic expression</b>	The faults have prominent geomorphic expression on the southern Taos Plateau, where resistant Pliocene basalt is exposed in west-facing scarps on the northern margin of Rio Pueblo de Taos. Geomorphic expression diminishes to the north and south, though high alluvial fans derived from the Picuris Mountains may be deformed south of the Rio Pueblo de Taos (Bauer and Kelson, 2004 #7305). The north-flowing Rio Grande del Rancho drainage is very linear and lies along the projections of the Picuris-Pecos [2023] and Los Cordovas faults
<b>Age of faulted surficial deposits</b>	The Los Cordovas faults offset Pliocene Servilleta Basalt (4.5–2.3 Ma, Lipman and Mehnert, 1979 #1169) and early to middle Quaternary (about 0.7–1.2 Ma) gravel; the oldest unfaulted terraces are younger than 0.69 Ma, because they post-date the initiation of incision of the Rio Grande into the Taos Plateau volcanic field (Kelson, 1986 #1109; Kelson and Wells, 1987 #1110; Wells and others, 1987 #1129). The age of incision is based on estimated ages of pre-incision fluviolacustrine deposits near Alamosa, Colorado (Rogers and others, 1985 #1184).
<b>Historic earthquake</b>	
<b>Most recent prehistoric deformation</b>	undifferentiated Quaternary (<1.6 Ma) <i>Comments:</i> The most recent movements on the Los Cordovas faults are clearly early Quaternary but may be younger than the 0.69 Ma incision of the Rio Grande into the Taos Plateau volcanic field (Kelson, 1986 #1109; Kelson and Wells, 1987 #1110; Wells and others, 1987 #1129).
<b>Recurrence interval</b>	
<b>Slip-rate category</b>	Less than 0.2 mm/yr <i>Comments:</i> This range is based on the amount of vertical displacement (15 m) of the high geomorphic surface mapped by Kelson (1986 #1109), and a conservative age estimate of 0.6 to 1.2 Ma. Kelson and Olig (1995 #1147) used a preferred value of 0.02 mm/yr for seismic-hazard source characterization for the Los Cordovas fault.

<p><b>Date and Compiler(s)</b></p>	<p>2015 Keith I. Kelson, William Lettis &amp; Associates, Inc. Andrew P. Jochems, New Mexico Bureau of Geology &amp; Mineral Resources</p>
<p><b>References</b></p>	<p>#7304 Bauer, P., and Kelson, K., 1997, Geologic map of the Taos SW quadrangle, Taos County, New Mexico: New Mexico Bureau of Mines and Mineral Resources Open-File Geologic Map 12, scale 1:24,000.</p> <p>#7305 Bauer, P.W., and Kelson, K.I., 2004, Cenozoic structural development of the Taos area, <i>in</i> Brister, B.S., Bauer, P.W., Read, A.S., and Lueth, V.W., eds., Geology of the Taos Region: New Mexico Geological Society, 55th Field Conference, September 22–25, 2004, Guidebook, p. 129–146.</p> <p>#7306 Grauch, V.J.S., Bauer, P.W., and Kelson, K.I., 2004, Preliminary interpretation of high-resolution aeromagnetic data collected near Taos, New Mexico, <i>in</i> Brister, B.S., Bauer, P.W., Read, A.S., and Lueth, V.W., eds., Geology of the Taos Region: New Mexico Geological Society, 55th Field Conference, September 22–25, 2004, Guidebook, p. 244–256.</p> <p>#7307 Kelson, K., and Bauer, P., 2003, Geologic map of the Los Cordovas quadrangle, Taos County, New Mexico: New Mexico Bureau of Geology and Mineral Resources Open-File Geologic Map 63, scale 1:24,000.</p> <p>#7308 Kelson, K., and Bauer, P., 2006, Geologic map of the Arroyo Hondo quadrangle, Taos County, New Mexico: New Mexico Bureau of Geology and Mineral Resources Open-File Geologic Map 116, scale 1:24,000.</p> <p>#1109 Kelson, K.I., 1986, Long-term tributary adjustments to base-level lowering in northern Rio Grande rift, New Mexico: Albuquerque, University of New Mexico, unpublished M.S. thesis, 210 p.</p> <p>#1147 Kelson, K.I., and Olig, S.S., 1995, Estimated rates of Quaternary crustal extension in the Rio Grande rift, northern new Mexico, <i>in</i> Bauer, P.W., Kues, B.S., Dunbar, N.W., Karlstrom, K.E., and Harrison, B., eds., Geology of the Santa Fe region, New Mexico: New Mexico Geological Society, 46th Field Conference, September 27–30, 1995, Guidebook, p. 9–12.</p>

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