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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.

unnamed fault southeast of Strauss (Class B) No. 2068

Last Review Date: 2016-01-04

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

citation for this record: **Machette, M.N., and Jochems, A.P., compilers, 2016, Fault number 2068, unnamed fault southeast of Strauss, 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	No studies have addressed this down-to-the-northeast intrabasin fault that may offset La Mesa surface by several meters. The east- to north-facing scarp that is buried by a thick cover of eolian sand in many places. The escarpment is quite irregular on topographic maps and aerial photographs, with a pronounced scalloped trace; these features suggest that the scarp may be the result of landsliding rather than faulting. However, no specific studies have been made of this feature.
Name	As mapped by Seager and others (1987 #627), the fault extends

comments	south and southeast from near Strauss, New Mexico, to a point about 2 km north of the international boundary between the United States and Mexico.
County(s) and State(s)	DOÑA ANA COUNTY, NEW MEXICO
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:24,000 scale. *Comments:* The location of the fault is mapped using trace of fault from 1:125,000-scale map of Seager and others (1987 #627) combined with accurate placement using photogrammetric methods.
Geologic setting	This possible down-to-the-east intrabasin fault offsets the La Mesa surface and sediment of the underlying Camp Rice Formation. The fault (slip plane) trends parallel to the southwestern edge of the Rio Grande valley and forms a scarp that is obscured in many places by a thick cover of eolian sand.
Length (km)	9 km.
Average strike	N43°W
Sense of movement	Normal *Comments:* Inferred from cross sections of Seager and others (1987 #627) and regional geology (Cenozoic extension).
Dip Direction	NE
Paleoseismology studies	
Geomorphic expression	This fault forms an east- to north-facing scarp that is largely obscured by a thick cover of eolian sand. The relatively flat La Mesa surface appears to be offset several meters as determined from generalized surface elevations on either side of the fault. The trace of the escarpment is quite irregular on topographic maps and aerial photographs, with a pronounced scalloped shape and possible back-tilted (?) topography, suggesting that it may be the result of landsliding rather than faulting.

Age of faulted surficial deposits	The La Mesa surface and underlying Camp Rice Formation are offset by the fault. Elsewhere in the Mesilla basin, the lower La Mesa surface (which is recognized to the north, west of Las Cruces) is considered to have been established between 700–900 ka (Mack and others, 1993 #1020).
Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) *Comments:* Timing based on offset of La Mesa surface. However, younger movement may have occurred much more recently, especially if the escarpment is the result of landsliding.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Low slip-rate category assigned based on only several meters of offset having occurred in the past half million years or more.
Date and Compiler(s)	2016 Michael N. Machette, U.S. Geological Survey, Retired Andrew P. Jochems, New Mexico Bureau of Geology & Mineral Resources
References	#1020 Mack, G.H., Salyards, S.L., and James, W.C., 1993, Magnetostratigraphy of the Plio-Pleistocene Camp Rice and Palomas formations in the Rio Grande rift of southern New Mexico: American Journal of Science, v. 293, p. 49–77. #627 Seager, W.R., Hawley, J.W., Kottlowski, F.E., and Kelley, S.A., 1987, Geology of east half of Las Cruces and northeast El Paso 1° x 2° sheets, New Mexico: New Mexico Bureau of Mines and Mineral Resources Geologic Map 57, 3 sheets, scale 1:125,000.

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