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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.

Hueco fault zone (Class A) No. 901

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

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Synopsis	This group of faults forms a broad, long anastomosing fault zone within the northwestern part of the Hueco basin. Most of the faults are characterized by eolian sand-covered scarps. Reconnaissance mapping and studies of scarp morphology are the only published sources of data about Quaternary fault movement. Detailed studies have not been conducted; most of these faults have a thick cover of eolian sand, generally lack of natural exposure, and most parts of the area have restricted access (various military uses).

Name comments	Named by Seager (1980 #843). Refers to numerous Quaternary intrabasin faults in the northwestern part of the Hueco bolson (basin) of west Texas and southern New Mexico (Machette, 1987 #847). These faults extend from the southern part of the Tularosa basin (about 15 km northeast of White Sands, New Mexico) south-southeastward through the Hueco basin to east of Tornillo, Texas, north of the floodplain of the Rio Grande.
County(s) and State(s)	EL PASO COUNTY, TEXAS OTERO COUNTY, NEW MEXICO DOÑA ANA COUNTY, NEW MEXICO
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 and 1:24,000 scale. *Comments:* Location in Texas based on 1:100,000-scale map compiled from 1:24,000- to 1:48,000-scale mapping of Seager (1980 #843), Henry and Gluck (1981 #845), and Collins and Raney (1991 #846). Locations in New Mexico based on 1:125,000-scale map of Seager and others (1980 #843). Most fault traces refined to 1:24,000-scale through air photo mapping by Jochems (compiler).
Geologic setting	These down-to-west and down-to-east faults form a broad north-trending elongate zone within the northwestern part of the Hueco basin (Seager, 1980 #843; 1983 #844; 1987 #627) that has (where undeformed) a rather flat, planar surface.
Length (km)	116 km.
Average strike	N7°W
Sense of movement	Normal *Comments:* Not studied in detail; sense of movement inferred from disruption of the basin's generally flat topography.
Dip Direction	E; W
Paleoseismology studies	
Geomorphic expression	The Hueco basin (Seager, 1980 #843, 1983 #844) generally has a rather flat, planar surface, but is deformed by a wide zone of

	north-trending faults that form generally east- and west-facing but subtle scarps. These scarps are commonly 2–7 m in height and are covered by thick deposits of eolian sand (Collins and Raney, 1991 #846, 1993 #852). Maximum scarp-slope angles are usually less than 3° owing to the sand cover. Gentle low-relief alluvial drainageways commonly are present on downthrown fault block and trend subparallel to the fault scarps (Collins and Raney, 1997 #7419). In places, the faults are shown as dashed lines on the map (rather than concealed faults) owing to the presence of faulted calcic soils, which are occasionally seen beneath the cover of eolian sand. Burrell and Tilford (1995 #908) suggested that some of the scarp-like features within the Hueco and Tularosa basins may be the result of other processes, such as fluvial erosion, piping, or fissuring.
Age of faulted surficial deposits	Middle Pleistocene alluvium and soils (Collins and Raney, 1991 #846); no detailed studies have been conducted to determine if younger (upper Quaternary) deposits are faulted. Collins and Raney (1997 #7419) suggest that stage III-IV calcic horizons capping the early to middle Pleistocene upper Camp Rice Formation could be offset.
Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) *Comments:* Timing of movement is not well constrained, but scarps are present on early to middle Pleistocene deposits (Collins and Raney, 1991 #846). Cross-cutting relationships with younger deposits are unknown.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* A very low slip rate is inferred from 2–7 m of displacement of early to middle Pleistocene deposits (130–800 ka).
Date and Compiler(s)	2016 E.W. Collins, Bureau of Economic Geology, The University of Texas at Austin Andrew P. Jochems, New Mexico Bureau of Geology & Mineral Resources

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