

# 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](#).

## Rinconada fault zone, San Marcos section (Class A) No. 63b

Last Review Date: 2003-07-17

*citation for this record:* Rosenberg, L.I., and Bryant, W.A., compilers, 2003, Fault number 63b, Rinconada fault zone, San Marcos section, 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 03:03 PM.

### Synopsis

**General:** Late Quaternary active, predominantly dextral strike-slip fault zone. The Rinconada fault zone is mapped at regional scales of mainly 1:62,500 and 1:24,000. In this compilation the fault zone is divided into 3 sections, from north to south the Espinoza [63a], San Marcos [63b], and Rinconada [63c] sections. No paleoseismic data is available for this fault. Wesnousky (1986 #5305) reported a preferred late Cenozoic dextral slip rate of 2.4 mm/yr, based on data from Durham (1965 #6189) and Hart (1976 #6197). Bird and Rosenstock (1984 #6183) reported a late Cenozoic slip rate between 2.4 mm/yr and 12 mm/yr, based on 53 km dextral offset of Oligocene (?) to early Miocene boulder conglomerate. Three sites have been investigated by trenching. At the Chicago Grade site [63c-2] two splays of the Rinconada fault zone offset Plio-Pleistocene Paso Robles Formation (GeoSyntec Consultants, 2002 #6195). Relative age estimates of carbonate

	<p>horizon and fault relationships allowed GeoSyntec Consultants to estimate "seismic horizons" for the most recent paleoevents of 100-500 ka and 50-100 ka for faults F1 and F2, respectively.</p> <p><b>Sections:</b> This fault has 3 sections.</p>
<p><b>Name comments</b></p>	<p><b>General:</b></p> <p><b>Section:</b> The San Marcos fault was named by Taliaferro (1943 #5356, p. 153) to describe the fault extending northwestward from Paso Robles to the San Antonio Valley. Dibblee (1976 #6170) regarded this fault as part of the Rinconada fault zone and referred to it as the San Marcos segment of the Rinconada fault. The San Marcos segment as delineated by Dibblee (1976 #6170) extends from the southern end of the Espinosa section [63a] near the San Antonio Reservoir southeast to Paso Robles where it complexly joins the Rinconada section [63c].</p> <p><b>Fault ID:</b> Refers to number 239 (Rinconada fault) of Jennings (1994 #2878) and L01 (Rinconada fault) of Working Group on Northern California Earthquake Potential (1996 #1216).</p>
<p><b>County(s) and State(s)</b></p>	<p>MONTEREY COUNTY, CALIFORNIA SAN LUIS OBISPO COUNTY, CALIFORNIA</p>
<p><b>Physiographic province(s)</b></p>	<p>PACIFIC BORDER</p>
<p><b>Reliability of location</b></p>	<p>Good Compiled at 1:24,000 scale.</p> <p><i>Comments:</i> Location of fault digitized from Hart (1985 #6198) at 1:24,000 scale.</p>
<p><b>Geologic setting</b></p>	<p>The Rinconada fault zone is a major, high-angle dextral strike-slip fault that is part of the San Andreas fault system. The fault zone extends from the hills west of King City southeast for approximately 120 km to the vicinity of Santa Margarita. Dibblee (1976 #6170) suggests that south of the Santa Margarita area, the boundary between Salinian block crystalline basement rocks to the east and Franciscan rocks to the west, delineated by a fault considered by many workers to be the southern part of the Sur/Nacimiento fault zone, is actually part of his Rinconada fault zone. The Rinconada fault zone marks the western margin of the La Panza Range and locally defines the western margin of the Salinian block. The Rinconada fault zone is thought to have</p>

	accommodated as much as 60 km of Neogene dextral strike-slip displacement and 38 km of post- late Miocene dextral offset (Dibblee, 1976 #6170).
<b>Length (km)</b>	This section is 25 km of a total fault length of 122 km.
<b>Average strike</b>	N41°W (for section) versus N35°W (for whole fault)
<b>Sense of movement</b>	Right lateral  <i>Comments:</i> Dibblee (1976 #6170) and Hart (1985 #6198) reported that the San Marcos section is delineated by geomorphic evidence of dextral strike-slip offset. Durham (1965 #6189) reported as much as 17.5 km of dextral offset of the Pliocene Santa Margarita Formation and the Pliocene Pancho Rico Formation.
<b>Dip Direction</b>	SW  <i>Comments:</i> Dip information from Dibblee (1976 #6170).
<b>Paleoseismology studies</b>	
<b>Geomorphic expression</b>	Hart (1985 #6198) noted geomorphic evidence of dextral late Quaternary movement such as linear and right-deflected drainages, saddles, benches, and weak tonal features on aerial photographs. However, Hart (1985 #6198) observed no geomorphic features such as scarps that would indicate Holocene activity. The San Marcos segment south of the Nacimiento River splays into a broad zone and Hart (1985 #6198) reported that the fault south of San Marcos Creek could not be mapped with confidence.
<b>Age of faulted surficial deposits</b>	The San Marcos section offsets Pliocene-Pleistocene Paso Robles Formation. Late Pleistocene and Holocene deposits are not offset (Durham, 1968 #6190; Durham, 1968 #6191; Dibblee, 1971 #6185; Durham, 1974 #6171; Hart, 1985 #6198).
<b>Historic earthquake</b>	
<b>Most recent prehistoric deformation</b>	late Quaternary (<130 ka)  <i>Comments:</i> Pliocene-Pleistocene Paso Robles Formation is offset, but late Pleistocene and Holocene alluvium is not offset (Durham,

	<p>1968 #6190; Durham, 1968 #6191; Dibblee, 1971 #6185; Durham, 1974 #6171; Hart, 1985 #6198). Hart (1985 #6198) reported that San Marcos section lacks ephemeral fault-produced geomorphic features indicative of late Pleistocene to Holocene offset.</p>
<b>Recurrence interval</b>	
<b>Slip-rate category</b>	<p>Between 0.2 and 1.0 mm/yr</p> <p><i>Comments:</i> Durham (1965 #6189) reported that the Pliocene Pancho Rico Formation is dextrally displaced about 18 km. Bird and Rosenstock (1984 #6183) used this displacement value and assumed that age of offset was less than 5 Ma, yielding a late Cenozoic slip rate of greater than 3.5 mm/yr. Age of displacement is unconstrained and late Quaternary slip rates are unknown. However, geomorphic evidence suggests a low late Quaternary slip rate.</p>
<b>Date and Compiler(s)</b>	<p>2003</p> <p>Lewis I. Rosenberg, San Luis Obispo County Planning Department</p> <p>William A. Bryant, California Geological Survey</p>
<b>References</b>	<p>#6183 Bird, P., and Rosenstock, R.W., 1984, Kinematics of present crust and mantle flow in southern California: Geological Society of America Bulletin, v. 95, p. 946-957.</p> <p>#6185 Dibblee, T.W., Jr., 1971, Geologic maps of seventeen 15-minute quadrangles along the San Andreas fault in the vicinity of King City, Coalinga, Panoche Valley, and Paso Robles, California with index map (Adelaida, Bradley, Bryson, Coalinga, Greenfield, Hernandez Valley, Joaquin Rocks, King City, New Idria, Panoche Valley, Parkfield, Paso Robles, Polvadero Gap, Priest Valley, "Reef Ridge," San Ardo, and San Miguel quadrangles): U.S. Geological Survey Open-File Map 74-1021, scale 1:62,500.</p> <p>#6186 Dibblee, T.W., Jr., 1972, The Rinconada fault in the southern Coast Ranges, California and its significance, <i>in</i> Morrison, R.R., ed., Technical Program Reprints, Pacific Geology Basis for New Exploration: American Association of Petroleum Geologists and Society of Economic Paleontologists and Mineralogists Annual Meeting.</p>

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