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Quaternary Fault and Fold Database of the United States

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Hollywood fault (Class A) No. 102

Last Review Date: 2000-05-01

citation for this record: **Treiman, J.A., compiler, 2000, Fault number 102, Hollywood fault, 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 02:20 PM.**

Synopsis	Holocene active sinistral-reverse oblique fault located along the southern side of the eastern Santa Monica Mountains. Fault location is moderately well defined geomorphically (Dolan and others, 1997 #5918); several successive studies have clarified age and history of faulting in the central portion of the zone (Dolan and others, 1997 #5918; Dolan and others, 2000 #5919). Dolan and others (2000 #5919) reported that the most recent paleoevent probably occurred 7–9.5 ka. The penultimate event probably occurred between 11–22 ka. These observations support a latest Quaternary recurrence interval estimate of 6–11 k.y. Dolan and others (1997 #5918) reported a minimum oblique slip rate of 0.35±0.2 mm/yr, based on the assumption that H:V slip components are equal. Dolan and others (1997 #5918) acknowledged that sinistral strike-slip component could be considerably greater than vertical component.
Name	Recognition of a fault zone in this vicinity was first published by

comments	Lawson and others (1908 #5925); part of "Santa Monica fault" of Wood (1916 #5929); part of "Santa Monica segment" of the "Anacapa Lineament" (Hill, 1928 #4959); Hollywood fault first mapped as a distinct trace and named by Hoots (1931 #5921); Yerkes and others (1965 #5930) and Dibblee (1991 #6511) use "Santa Monica" for all or part (respectively) of the fault. Fault extends eastward from West Beverly Hills lineament (Dolan and Sieh, 1992 #6462) to Los Angeles River, and may continue eastward as the Raymond fault [103] (Lamar, 1961 #5924; Weaver and Dolan, 2000 #5928). Dibblee (1991 #5916) extends fault west to Sepulveda Canyon this extension discussed as possible, but older, by Dolan and others (1997 #5918). **Fault ID:** Refers to number 392 (Hollywood fault) of Jennings (1994 #2878) and number 81 (Hollywood fault) of Ziony and Yerkes (1985 #5931).
County(s) and State(s)	LOS ANGELES COUNTY, CALIFORNIA
Physiographic province(s)	PACIFIC BORDER
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Location of fault transferred by inspection from 1:100,000 map of Dolan and others (1997 #5918) and 1:24,000-scale mapping by Dibblee (1989 #7950).
Geologic setting	North-dipping, generally high-angle surface fault is part of east-west frontal fault system (also including Anacapa-Dume [100], Malibu Coast [99], Santa Monica [101], and Raymond [103] faults) that has accommodated 80° of clockwise rotation of the western Transverse Ranges and perhaps as much as 60 km of sinistral slip since early Miocene (Hornafius and others, 1986 #5922); fault includes several parallel traces in subsurface and intermittently at surface; Holocene movement is combination of continued strike-slip and compression (Dolan and others, 1997 #5918; Walls and others, 1998 #5927; Dolan and others, 2000 #5919); left-step at western end to the Santa Monica fault (Dolan and others, 1997 #5918; 2000 #5919); may continue eastward as Raymond fault.
Length (km)	14 km.

Average strike	N76°E
Sense of movement	Left lateral, Reverse *Comments:* Sense of movement from Dolan and others (1997 #5918).
Dip	25–90° N. *Comments:* Dip of the fault reported to be 50° at Beverly Hills (Yerkes and others, 1965 #5930); 60–95° (at <60 m depth) and including some shallower dips in the upper 10 m (Dolan and others, 1997 #5918).
Paleoseismology studies	Site 102-1, Camino Palmero: study utilized a series of adjacent large-diameter borings, in lieu of trenching, to document Holocene fault history; 14C dating provides control for most recent event and possibly penultimate event (Dolan and others, 1997 #5918; 2000 #5919).
Geomorphic expression	Scarps and faceted ridges, active fan deposition along relatively abrupt mountain front (Dolan and Sieh, 1992 #6462; Dolan and others, 1997 #5918).
Age of faulted surficial deposits	Holocene alluvial fans/paleosols and late-Quaternary alluvial fans (Dolan and others, 1997 #5918; 2000 #5919); Miocene marine and Cretaceous granitic rock (Dibblee, 1991 #6511).
Historic earthquake	
Most recent prehistoric deformation	latest Quaternary (<15 ka) *Comments:* Most recent event occurred 6–11 k.y. ago but most probably between 7–9.5 ka (Dolan and others, 2000 #5919).
Recurrence interval	*Comments:* Long recurrence intervals are suggested by the data presented by Dolan and others (2000 #5919). They interpret most recent event between 6 to 11 ka and penultimate event between 11 to 22 ka.
Slip-rate category	Between 1.0 and 5.0 mm/yr

	Comments: Dolan and others (1997 #5918) reported a minimum oblique slip rate of 0.35(0.2 mm/yr minimum oblique slip rate assumes 1:1 H/V ratio with acknowledgement that strike-slip component could be considerably greater). Clark and others (1984 #2876) suggest a slip rate of 0.33–0.75 mm/yr based on vertical separation only; value does not take into account sinistral component. Slip rate assigned by Petersen and others (1996 #4860) for probabilistic seismic hazard assessment for the State of California was 1.0 mm/yr (with minimum and maximum assigned slip rates of 0.5 mm/yr and 1.5 mm/yr, respectively).
Date and Compiler(s)	2000 Jerome A. Treiman, California Geological Survey
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