

Progress Reports for 2000

Publication Costs for Paper on the Elysian Park Fault

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We published our SCEC-funded work on the surficial expression of the blind thrust beneath downtown and east Los Angeles in the GSA Bulletin. The abstract of Oskin et al., (2000) follows.

We characterize the seismic hazard of the Elysian Park fault, a blind reverse fault beneath central Los Angeles, by analysis of the Elysian Park anticline, which overlies it. New shallow-subsurface geotechnical data, combined with other surficial stratigraphy and geomorphology, reveal that the Elysian Park anticline is an active 20-km-long structure. From the style and rates of deformation of parasitic folds on the southern limb of the anticline, we estimate a contraction rate of 0.6-1.1 mm/yr. This rate provides a basis for estimating a rate of contraction of the entire Elysian Park anticline, which in turn allows us to estimate a 0.8-2.2 mm/yr time-averaged rate of slip on the underlying fault. At this rate of slip, rupture of the Elysian Park fault could produce a nominal M_w 6.2 to 6.7 earthquake every 500 to 1300 yr, on average. Although this Elysian Park earthquake would recur infrequently, its size and recurrence interval may be similar to those estimated for the sources of the destructive 1971 San Fernando and 1994 Northridge earthquakes.

Reference:

Oskin, M., Sieh, K., Rockwell, T., and others., 2000, Active parasitic folds on the Elysian Park anticline, Los Angeles, California: Implications for seismic hazard in central Los Angeles: Geological Society of America Bulletin, v. 112, p. 693-707.