

## **Synthesis, Compilation, and Publication of Paleoseismic Data**

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### **Geologic and Paleoseismic studies of the Sierra Madre fault**

The Sierra Madre fault, along the southern flank of the San Gabriel Mountains in the Los Angeles region, has failed in magnitude 7.2 to 7.6 events at least twice in the past 15,000 years. Restoration of slip on the fault indicates a minimum of ~4.0 m of slip from the most recent earthquake and suggests a total cumulative slip of ~10.5 m for the past two prehistoric earthquakes. Large surface displacements and strong ground-motions resulting from  $M > 7$  earthquakes within the Los Angeles region are not yet considered in most seismic hazard and risk assessments. Results from this study was highlighted in the national and international news media.

Rubin, C. M., Lindvall, S., and Rockwell, T., Paleoseismic evidence for large slip earthquakes along the Sierra Madre fault in the greater Los Angeles region, *Science*, v. **281**, p. 398-402, 1998.

### **Paleoseismic Studies on the Emerson fault**

Detailed slip measurements along the northern portion of the Emerson fault constitute the most thoroughly documented example of slip distribution along an active strike slip fault. Right-lateral displacement varies from 1.5 to 6.7 m and the maximum vertical displacement is 1.75 m. Significant variations of displacements occur over short distances along strike, suggesting strains on the order of  $10^{-1}$ . The variability of slip along ruptures associated with the Landers earthquake calls for caution in interpreting geomorphic offsets along prehistoric ruptures.

McGill, S. F., and C. M. Rubin, in press, Surficial slip distribution on the central Emerson Fault during the 28 June 1992 Landers earthquake, *J. Geophys. Res.*

## **Hydraulic Trench Shoring for Paleoseismic Studies in Southern California**

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Twenty four hydraulic shores were purchased from Trench Shoring Corporation in Los Angeles, California. The company has given SCEC a substantial price discount. The shores are currently stored at Kresge Laboratory, a few miles from the Seismological Laboratory, Caltech and at San Diego State University. Kresge has proved to be an ideal storage facility; it is a secure location and is easily accessible and located close to freeways. The shores have been used in numerous SCEC supported research projects (e.g., Burro Flats and Frazier Park sites along the San Andreas fault).

***Papers published or in press from the last year of SCEC support:***

McGill, S. F., and C. M. Rubin, in press, Surficial slip distribution on the central Emerson Fault during the 28 June 1992 Landers earthquake, *J. Geophys. Res.*

Rubin, C. M., Lindvall, S., and Rockwell, T., Paleoseismic evidence for large slip earthquakes along the Sierra Madre fault in the greater Los Angeles region, *Science*, v. **281**, p. 398-402, 1998.