

Borrero, Jose C. (Dept. of Civil Engineering, University of Southern California, Los Angeles, CA), Mark R. Legg (Legg Geophysical, Huntington Beach, CA), Costas E. Synolakis (Dept. of Civil Engineering, University of Southern California, Los Angeles, CA)

TSUNAMI HAZARDS OFFSHORE OF SOUTHERN CALIFORNIA

The densely populated coast of Southern California has been affected by tsunamis several times in the historical past. The hazard associated with nearshore tsunamis has received much less attention than that associated with trans-oceanic events. A review of the offshore geology as well as Southern California's tsunami history shows that the conditions exist for tsunami generation in the Southern California Borderlands. Modeling results suggest that damaging tsunamis can be generated by thrust and reverse faults in the Santa Barbara Channel and Santa Monica Bay. Similar results are computed for waves generated by earthquakes near restraining bends on strike slip faults that parallel the extreme southern California coast. In contrast, the waves generated by underwater landslides, such as the event that caused the devastating tsunami in Papua New Guinea, are modeled to be capable of producing narrowly focused regions of extreme runup ranging from 2 to 20 m depending on the characteristics of the landslide. Waves generated from earthquakes or landslides in the Borderlands region would impact the California coast within minutes, leaving essentially no time for warning or evacuation. Several scenarios highlighting the differences in tsunami sources and the potential impacts will be presented.