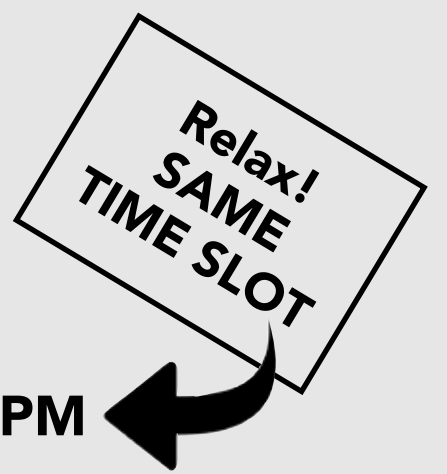


UC SANTA BARBARA
Department of Earth Science



Speakers Club

BROIDA 1640 • THURSDAY NOV 8th • 2:00 PM

Broad spectrum of fault slip: fast, slow and everything in between

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Earthquake faults show wide spectrum of slip behavior. Typical garden-variety earthquakes last for a few seconds to minutes and are characterized by fast fault ruptures (order of km/s). On the other hand, slow earthquakes last from a few seconds to year with slow fault rupture (order of mm/day). Such slow earthquakes can be as large as moment magnitude 7.5, significantly altering state of stress worldwide along the major plate boundary faults that are capable of producing large damaging earthquakes. In addition, there is growing evidence that slow earthquakes influence fast earthquakes in many ways possibly including nucleation and seismicity rate. Mechanisms of slow earthquakes, physical processes controlling them and their relationship with fast regular earthquakes, however, remain enigmatic. Here, I present new observations of slow and fast earthquakes from different plate boundaries around the world. They represent a diverse mode of fault slip affecting dynamics of fault in different frictional regimes. Imaging and analyzing this wide spectrum of fault behavior are critical to better understand physics of fault slip in a holistic way.