



# Seminar: Energy-Water-Environment Sustainability (EWES)

Emily E. Brodsky, Ph.D.

Professor  
Department of Earth & Planetary Sciences  
University of California, Santa Cruz



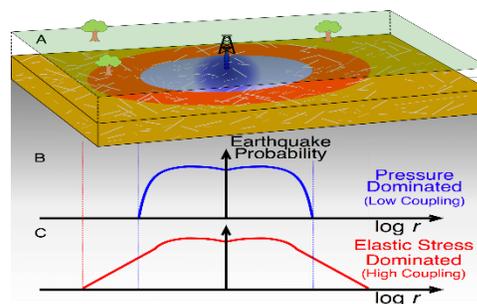
## *How Far Away Can People Make Earthquakes?*

Monday, March 25, 2019, 12:00 – 1:00 p.m.  
2311 Newmark

**Abstract:** The recent spurt of earthquakes in the central US has brought human-induced seismicity into the national consciousness. Earthquakes as an unintended byproduct of energy extraction have significant societal and geopolitical consequences. The induced seismicity problem threatens specific strategic reserves and, more generally, our energy independence.

I will review the 40-year-old understanding of how humans generate earthquakes. I will then proceed to highlight how current observations are challenging this understanding by occurring at much greater distances than anticipated based on classical models. In addition, the effect of different rock types on the resulting earthquakes is not well-explained by classical models. A new suite of processes have been invoked that recognize the elastic nature of the Earth.

Incorporating poroelasticity into our understanding of induced seismicity will change predictions and mitigation efforts.



**Bio:** Emily Brodsky is a professor and earthquake physicist at the University of California, Santa Cruz. Her research focuses on connecting empirical observations of earthquakes with fundamental physical processes. Prof. Brodsky earned her A.B. from Harvard in 1995 and Ph.D. from Caltech in 2001. She is the recipient of the inaugural 2005 Charles Richter Early Career award from the Seismological Society of America, and the 2008 James Macelwane Medal from the American Geophysical Union (AGU) and she is an AGU Fellow. She has served on the Board of Directors of the Southern California Earthquake Center (SCEC) and Incorporated Research Institutes for Seismology (IRIS). She has published over 100 peer-reviewed articles and presented over 150 invited lectures talks in 30 states and 13 countries. Her work was featured in major press outlets such as the BBC, NPR, Time Magazine, NY Times, Nature, Reuters, LA Times and The Wall Street Journal.