

**Harvard University Solid Earth Physics Seminar
and SEAS Applied Mechanics Colloquium**

4:00 p.m. Wednesday 5 March 2014
209 Pierce Hall, 29 Oxford Street

***Mixing water and faults: the changing
patterns of seismicity in stable North America***

William L. Ellsworth
Earthquake Hazards
US Geological Survey, Menlo Park, CA

Abstract: The dramatic increase in earthquake activity in the central and eastern U.S. since 2009 is an unintended consequence of changing practices for the production of oil and gas from low permeability formations. Although hydraulic fracturing (“fracking”) has been widely discussed in the media as a cause, it does not appear to be a significant contributor to the increased seismic activity. Rather, the anomalous earthquakes can be linked to disposal of wastewater by injection into deep, undepleted formations in many cases. In this talk, I will discuss several field investigations of induced or potentially induced earthquakes and challenges these earthquakes pose for the development of predictive models of seismic hazard.