UC **SANTA BARBARA**

Department of Earth Science

Earth Science Colloquium

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Human-Induced Earthquakes in the Age of Unconventional Oil & Gas Development

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U.S. oil fields have been producing much more water than oil for decades. However, injection-induced seismicity, or human-induced earthquakes, have markedly increased in recent years coincident with the unconventional oil and gas revolution. A key feature of this boom in production is that much of recent injection has occurred into non-producing horizons. In response, the seismically quiet states of Oklahoma and Kansas went from having one or two M3+ earthquakes per year to having two or three M3+ events per day in 2015 and 2016. Here, I'll discuss a few recent projects in which we built physical models of Oklahoma & Kansas injection-induced seismicity in order to better understand the phenomenon and quantify the hazard posed by these injection activities.