Current SCITS Projects
May 2016

Prof. Jack Baker

- Development of a PSHA framework for induced and triggered seismicity (w/ PhD student Abhineet Gupta)
- Evaluation of ground motion prediction models for shallow triggered seismicity (w/PhD student Abhineet Gupta)
- Use of "Did You Feel It?" data to evaluate near-source ground motion intensity from potentially triggered earthquakes (w/ MS student Gemma Cremen)

Prof. Greg Beroza

- Ground motion prediction using dense array data (w/ postdocs Nori Nakata and Zach Spica)
- Optimization of seismic network design for earthquake detection (w/former BS student Brandon Schow)

Prof. Greg Beroza / Prof. William Ellsworth

- Stress drops of potentially induced and tectonic earthquakes (w/ postdocs Yihe Huang and Nana Yoshimitsu, and Professor Greg Beroza).
- Evolution of seismicity in souther Kansas (w/ graduate student Fatimah Al-Ismail and Professor Greg Beroza).
- Evolution of the initiating seismicity in the Guy-Greenbrier sequence (w/ graduate student Clara Yoon and Professor Greg Beroza).

Prof. Eric Dunham

- Ground motion simulation of shallow earthquakes (w/ PhD student Sam Bydlon)
- Modeling of earthquake sequences in poroelastic media on faults with rate-and-state friction (with visiting MS students Vidar Stiernström and Kim Torberntsson).
- Stress drops of potentially induced and tectonic earthquakes (w/ postdocs Yihe Huang and Nana Yoshimitsu, and Professor Bill Ellsworth).
- Evolution of seismicity in souther Kansas (w/ graduate student Fatimah Al-Ismail and Professor Bill Ellsworth).
- Evolution of the initiating seismicity in the Guy-Greenbrier sequence (w/ graduate student Clara Yoon and Professor Bill Ellsworth).
Prof. Wiliam L. Ellsworth

- Near-source ground motions for earthquakes in Oklahoma, Kansas, Texas, Arkansas.
- Surface deformation and pore pressure diffusion related to wastewater injection in east Texas (with Assistant Professor Manoo Shirzaei at Arizona State University).
- Short-term seismic hazard in the central and eastern U.S. (w/USGS scientists Mark Petersen, Andrea Llenos, Andy Michael, Justin Rubinstein and others).
- Source process of earthquakes in the deep South African gold mines (co-supported by the Southern California Earthquake Center in collaboration with Associate Professor Margaret Boettcher at the University of New Hampshire).

Prof. Steve Gorelick

- Utilization of InSAR to constrain hydrologic models at injection sites
- Environmental consequences of triggered seismicity

Prof. Roland Horne

- Thermal cooling stresses and induced seismicity (w/PhD students Jack Norbeck and Ayaka Abe)

Prof. Paul Segall

- Poroelastic coupling and rate dependent earthquake nucleation due to fluid injection (w/ PhD student Jeremy Maurer)
- Response of Basement Faults of basement faults to fluid injection in overlying strata (w/ former postdoc Kyung Won Chang)
- Size distribution of induced earthquakes (w/ Jeremy Maurer)

Prof. Jenny Suckale

- The Goliath ice storm in Oklahoma: A natural experiment in short-term well shut-in. The goal for this study is to investigate changes in seismicity patterns during and after the ice storm Goliath that led to power outages, and hence well outages, across Oklahoma in December 2016.
- Under the Macroscope: Constraining the spatiotemporal characteristics of injection-triggered seismicity at the reservoir scale with data-driven models. (w/Postdoc Davis Dempsey)
- Simulations of multiphase flow interactions in the subsurface.
Prof. Howard Zebker

• Utilization of InSAR to constrain hydrologic models at injection sites (w/ PhD students Clara Yoon and Roger Michaelides)

Prof. Mark Zoback

• Oklahoma Fault Mapping with Stress and Earthquake Focal Mechanisms with Stress and Earthquake Focal Mechanisms (w/ PhD student Richard Alt)
• Identification of Potentially Active Faults in Oklahoma (w/ PhD student Rall Walsh)
• Application of Seismicity Index to Oklahoma Seismicity (w/ Postdoc Cornelius Langenbruch)
• Texas Stress Map Project (w/ PhD student Jens Erik Lund-Snee)
• Hydrologic Modeling in the Cherokee/Fairview Area (w/ post Doc Matt Weingarten)

All

• Development of a site characterization protocol for waste water injection wells in areas of potentially induced seismicity