

PROJECT UPDATES — December 2016

Summary — Project personnel at the Bureau, along with our University of Texas at Austin (UT), SMU, and Texas A&M University (TAMU) research partners, continue to make progress on this successful program. Our focus thus far has been on network installation and operation, seismicity in Texas, recruitment, partnerships, research and outreach.

Network Installation and Operations

- The Azle SMU seismic network and all USGS NetQuakes stations in the Fort Worth Basin were demobilized.
- Five TexNet permanent stations and 10 portable stations are now installed and operating. Ten additional permanent stations are permitted and will be installed in early 2017. Agreements for the final seven permanent stations are being finalized.

Synopsis of Recent Seismicity in Texas:

- Oct-Dec 2016 SMU and TexNet temporary stations in the DFW area recorded 19 earthquakes ($M < 2.5$) along known active faults: Irving-Dallas (2), near Venus in Johnson Co. (13), and near Haslet (1). Additionally, 1 earthquake was recorded in Palo Pinto Co. and 2 earthquakes in Johnson Co.

Recruitment:

- Bureau is recruiting for a Research Associate in Seismology to assist with earthquake analysis and research.

Partnerships:

- The first TexNet-CISR Program Review with CISR industry partners was held on December 8, 2016 at ConocoPhillips in Houston with 75 attendees. Each research group presented progress and future plans. The CISR website has the agenda and presentations available for download. There are now 12 partner companies.
- The SMU North Texas seismic network was maintained and real-time archiving of continuous waveform data sent to IRIS. Updated SMU earthquake catalogs available upon request.

Research:

- SMU completed analysis of stress inversions, stress drops, and moment calculations for the 2013-2016 SMU North Texas catalog.
- UT Institute for Geophysics has completed characterization of earthquakes in the Texas Panhandle and West Texas using historical data.
- BEG geological characterization and modeling has identified appropriate logs in the Ft. Worth Basin for acquisition and study, petrophysical analyses of injection interval properties has begun, and Ellenburger Gp. structure and stratigraphy are being incorporated into the Ft. Worth Basin 3D geomodel.
- UT Civil Engineering conducted active- and passive-source surface-wave testing at 11 TexNet stations in the DFW area. Measurements at other TexNet station locations are planned for 2017.
- UT Social Science team finalized data collection on the state-wide survey of Texan's perceptions related to earthquakes risks, O&G extraction risks and benefits, and intentions to seek more information about induced earthquakes. Data analysis is underway.

Outreach:

- The Report on House Bill 2 (2016-2017) Seismic Monitoring and Research in Texas, submitted to Texas Legislature, is available for public download from the TexNet and CISR Bureau webpages.
- Numerous presentations on TexNet and seismology analyses of the FWB were made at the 2016 AGU meeting.
- Peter Hennings moderated the Induced Seismicity Panel Discussion at the National Academy of Sciences' Roundtable on Unconventional Hydrocarbon Development and Scott Tinker is a Roundtable member.