
Solid Earth Research; Studies from University of Texas at Austin Update Current Data on Solid Earth Research (Mapping the 3-d Lithospheric Structure of the Greater Permian Basin In West Texas and Southeast New Mexico for Earthquake Monitoring)

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2019 DEC 6 (NewsRx) -- By a News Reporter-Staff News Editor at Science Letter -- Fresh data on Solid Earth Research are presented in a new report. According to news reporting out of Austin, Texas, by NewsRx editors, research stated, "The Greater Permian Basin is not only a complex tectonic regime, but it has also been and continues to be a productive oilfield where the seismicity rate in the basin has significantly increased since 2008. Since 2015, our understanding of the seismogenesis in the basin has increased owing to the establishment of a statewide seismic network known as TexNet for monitoring earthquake activities."

Funders for this research include Center for Integrated Seismicity Research (CISR), State of Texas through the University of Texas Bureau of Economic Geology TexNet Seismic Monitoring and Research Project.

Our news journalists obtained a quote from the research from the University of Texas at Austin, "A crucial component of improving the accuracy of the hypocentral location is an accurate velocity model that can better confirm the existing regional tectonic regime. We collected data from current TexNet operations and previously deployed seismic arrays and performed a joint local and teleseismic earthquake tomographic inversion, resulting in a three-dimensional tomography model for earthquake monitoring. The preferred three-dimensional tomography model includes a prominent feature at a depth range of 0-20 km, where distinct lower wave speed anomalies overlap with the surface trace of the Delaware Basin. These anomalies suggest a basin-scale lithological difference from surrounding regions and corroborate basin characteristics. Findings also suggest that the Midland Basin may be more lithologically uniform than the Delaware Basin. A strong correlation exists between dense seismicity clusters and the obtained lower V-p/V-s ratios. Four significant clusters having V-p/V-s ratios ranging from 1.689 to 1.720 were identified."

According to the news editors, the research concluded: "Using the V-p/V-s ratio as a proxy to evaluate the state of the pore-fluid pressure, we think this spatial correlation suggests that the Greater Permian Basin currently comprises overpressurized fluid-filled host rocks."

For more information on this research see: Mapping the 3-d Lithospheric Structure of the Greater Permian Basin In West Texas and Southeast New Mexico for Earthquake Monitoring. Journal of Geophysical Research Solid Earth, 2019;():. Journal of Geophysical Research Solid Earth can be contacted at: Amer Geophysical Union, 2000 Florida Ave NW, Washington, DC 20009, USA.

Our news journalists report that additional information may be obtained by contacting G.C.D. Huang, University of Texas - Austin, Bur Econ Geol, Austin, TX 78712, United States. Additional authors for this research include A. Savvaidis and J.I. Walter.

Keywords for this news article include: Austin, Texas, United States, North and Central America, Solid Earth Research, University of Texas at Austin.

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