

Science - Geoscience; University of Texas Austin Researchers Detail Research in Geoscience (Poststack Seismic Geomechanical Property Evaluation of the Pennsylvanian Strawn-Canyon Group in Salt Creek Field, Midland Basin, Kent County, West Texas)

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2026 SEP 11 (NewsRx) -- By a News Reporter-Staff News Editor at Science Letter -- A new study on geoscience is now available. According to news reporting originating from Austin, Texas, by NewsRx correspondents, research stated, "Geomechanical properties of rock are essential components in designing hydraulic fracturing procedures."

Financial supporters for this research include State of Texas Advanced Oil And Gas Resource Recovery (Starr) Program At The **Bureau of Economic Geology**.

The news journalists obtained a quote from the research from University of Texas Austin: "Although ultrasonic measurement methods are usually utilized to obtain static geomechanical properties of rocks in the laboratory, they are limited to borehole locations. To obtain spatial distribution of these properties, a 3D prestack seismic inversion process is employed to derive them dynamically. However, 3D prestack seismic datasets are less readily available compared to 3D poststack seismic. We present a methodology that integrates 3D poststack seismic and wireline log data using a machine learning workflow to compute the dynamic geomechanical properties, namely Young's modulus (E), Mu-Rho (MR), and brittleness (BRI) volumes, and generate crossplots to characterize the Salt Creek carbonate reservoir in the Midland Basin, Kent County, Texas. Our results show that: (1) Based on the comparison of seismically (dynamically) derived E and BRI maps with litho-facies maps, the zones with the highest porosity (oolites) are characterized by low E and low BRI. (2) Each of these properties is linearly related to the photoelectric factor (PEF) log, which can indicate porosity and calcite richness within a mixed carbonate-siliciclastic system."

According to the news reporters, the research concluded: "(3) In a mixed carbonate and siliciclastic system, geomechanical properties, especially E, can be used to identify rigid rock layers within the reservoir and deduce possible lithologies. Finally, when prestack seismic data are unavailable, our workflow offers a quick and inexpensive method to generate dynamic geomechanical property maps to characterize hydrocarbon reservoirs using poststack seismic data and well logs."

For more information on this research see: Poststack Seismic Geomechanical Property Evaluation of the Pennsylvanian Strawn-Canyon Group in Salt Creek Field, Midland Basin, Kent County, West Texas. Geosciences, 2026,16(8):324. (Geosciences - <http://www.mdpi.com/journal/geosciences>). The publisher for Geosciences is MDPI AG.

A free version of this journal article is available at <https://doi.org/10.3390/geosciences16080324>.

Our news editors report that additional information may be obtained by contacting Osareni C. Ogiesoba, **Bureau of Economic Geology**, University of Texas Austin, Austin, TX 78713-8924, United States. Additional authors for this research include Fritz C. Palacios.

Keywords for this news article include: University of Texas Austin, Austin, Texas, United States, North and Central America, Geoscience.

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