



Energy - Oil and Gas Research; New Oil and Gas Research Findings from University of Texas Austin Described (Variations In Vertical Stress In the Permian Basin Region)

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2021 NOV 5 (VerticalNews) -- By a News Reporter-Staff News Editor at Energy Weekly News -- Investigators publish new report on Energy - Oil and Gas Research. According to news reporting from Austin, Texas, by VerticalNews journalists, research stated, "Constraining the magnitude of vertical stress (Sv), or overburden pressure, is key in determining a region's stress state and has implications for reservoir geomechanics and the potential for induced seismicity. Of the principal stress orientations (S-v, minimum horizontal stress [S-hmin], and maximum horizontal stress [S-Hmax]), Sv is the most straightforward to constrain using wire-line log data."

Financial supporters for this research include state of Texas through The University of Texas **Bureau of Economic Geology's** TexNet Earthquake Monitoring and Research Program, CISR.

The news correspondents obtained a quote from the research from the University of Texas Austin, "The magnitude of Sv varies because of lithology and burial history, potentially causing local perturbations in the in situ stress field. Previous studies on the state of stress in the Permian Basin use a constant S-v, relying on determination of S-Hmax and S-hmin, and yield an interpretation that the faulting regime transitions from normal faulting in the west to normal to strike-slip faulting in the east. Here, we present an interpretation of the spatial and depth variability in S-v trends in the Permian Basin based on density log integration. Where density measurements are absent, values are calculated from compressional velocity logs using a transform that is fit to local data. Notable variations include higher Sv gradient on carbonate platforms and shelves, where high-density carbonates are thicker and are found at shallower depths than in the basins. Within the basins, the magnitude of S-v gradient is as low as 1.06 psi/ft at depth."

According to the news reporters, the research concluded: "This work shows the potential for regional interpretations of Sv to gain insight into the effect of variations in Sv on state of stress."

This research has been peer-reviewed.

For more information on this research see: Variations In Vertical Stress In the Permian Basin Region. AAPG Bulletin, 2021;105(10):1893-1907. AAPG Bulletin can be contacted at: Amer Assoc Petroleum Geologist, 1444 S Boulder Ave, PO Box 979, Tulsa, OK 74119-3604, USA.

Our news journalists report that additional information may be obtained by contacting Katie M. Smye, University of Texas Austin, Jackson School of Geosciences, Bur Econ Geol, Austin, TX 78712, United States. Additional authors for this research include Peter H. Hennings and Elizabeth A. Horne.

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