
Physics - Tectonophysics; Studies in the Area of Tectonophysics Reported from University of Texas Austin (Seismic Features of the Permian Basin Region From Receiver Function Analysis)

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2021 AUG 24 (VerticalNews) -- By a News Reporter-Staff News Editor at Physics Week -- Investigators discuss new findings in Physics - Tectonophysics. According to news reporting originating in Austin, Texas, by VerticalNews journalists, research stated, "We used receiver function (RF) analysis to derive new seismic models of Moho depth, crustal Vp/Vs ratio, depth of sedimentary velocity discontinuity, and corresponding sedimentary Vp/Vs ratio in the Permian Basin region from the seismic waveform data of 260 moment magnitude (Mw) ≥ 6 teleseismic events. We obtained the optimal models by searching one- and two-layer models and comparing similarity between the synthetic and observed RFs."

Funders for this research include TexNet, Texas Seismological Network Research, Center for Integrated Seismicity Research of the **Bureau of Economic Geology**, Jackson School of Geosciences, The University of Texas at Austin.

The news reporters obtained a quote from the research from the University of Texas Austin, "We find the first-order velocity discontinuity in sedimentary basins is shallower than the basin basement. The Delaware Basin (DB) exhibits a bowl-shaped sedimentary velocity discontinuity, with depths ranging from 1.7 km to 5.8 km, whereas the Central Basin Platform (CBP) has a shallow sedimentary velocity discontinuity, with 0.2 km to 2.7 km depths. Moho depth ranges from 36 km to 46 km in the Permian Basin region. The median Vp/Vs ratios of the crust are 1.75, 1.79, and 1.78 in the DB, CBP, and the Diablo Platform (DP), respectively."

According to the news reporters, the research concluded: "Our interpretation of the different Vp/Vs ratio in the three subregions is that the crust in the DB includes more low-Vp/Vs-ratio felsic rocks, and the crust in the CBP and DP contains more high-Vp/Vs-ratio gabbroic and basaltic rocks from the Proterozoic and Phanerozoic mafic intrusion."

This research has been peer-reviewed.

For more information on this research see: Seismic Features of the Permian Basin Region From Receiver Function Analysis. Tectonophysics, 2021;801. Tectonophysics can be contacted at: Elsevier, Radarweg 29, 1043 Nx Amsterdam, Netherlands. (Elsevier - www.elsevier.com; Tectonophysics - www.journals.elsevier.com/tectonophysics/)

Our news correspondents report that additional information may be obtained by contacting Peng Li, University of Texas Austin, Jackson School of Geosciences, Bur Econ Geol, Austin, TX 78713, United States. Additional authors for this research include Guo-Chin Dino Huang and Alexandros Savvaidis.

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

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