InformationWeek

Information Technology; Findings from University of Texas Austin Provides New Data about Information Technology (Multiscale, Radially Anisotropic Shear Wave Imaging of the Mantle Underneath the Contiguous United States Through Joint Inversion of Usarray and Global ...)

546 words
14 September 2021
Information Technology Newsweekly
INTEWK
219
English

2021 SEP 14 (VerticalNews) -- By a News Reporter-Staff News Editor at Information Technology Newsweekly -- A new study on Information Technology is now available. According to news originating from Austin, Texas, by VerticalNews correspondents, research stated, "EarthScope's USArray seismic component provided unprecedented coverage of the contiguous United States and has therefore spurred significant advances in tomographic imaging and geodynamic modelling. Here, we present a new global, radially anisotropic shear wave velocity tomography model to investigate upper mantle structure and North American Plate dynamics, with a focus on the contiguous United States."

Financial supporters for this research include **Bureau of Economic Geology** at UT Austin, National Science Foundation (NSF), National Aeronautics & Space Administration (NASA).

Our news journalists obtained a quote from the research from the University of Texas Austin, "The model uses a data-adaptive mesh and traveltimes of both surface waves and body waves to constrain structure in the crust and mantle in order to arrive at a more consistent representation of the subsurface compared to what is provided by existing models. The resulting model is broadly consistent with previous global models at the largest scales, but there are substantial differences under the contiguous United States where we can achieve higher resolution. On these regional scales, the new model contains short wavelength anomalies consistent with regional models derived from USArray data alone. We use the model to explore the geometry of the subducting Farallon Slab, the presence of upper mantle high velocity anomalies, low velocity zones in the central and eastern United States and evaluate models of dynamic topography in the Cordillera. Our models indicate a single, shallowly dipping, discontinuous slab associated with the Farallon Plate, but there are remaining imaging challenges. Inferring dynamic topography from the new model captures both the long-wavelength anomalies common in global models and the short-wavelength anomalies apparent in regional models."

According to the news editors, the research concluded: "Our model thus bridges the gap between high-resolution regional models within the proper uppermost mantle context provided by global models, which is crucial for understanding many of the fundamental questions in continental dynamics."

This research has been peer-reviewed.

For more information on this research see: Multiscale, Radially Anisotropic Shear Wave Imaging of the Mantle Underneath the Contiguous United States Through Joint Inversion of Usarray and Global Data Sets. Geophysical Journal International, 2021;226(3):1730-1746. Geophysical Journal International can be contacted at: Oxford Univ Press, Great Clarendon St, Oxford OX2 6DP, England. (Wiley-Blackwell - www.wiley.com/; Geophysical Journal International - onlinelibrary.wiley.com/journal/10.1111/(ISSN)1365-246X)

The news correspondents report that additional information may be obtained from Robert W. Porritt, University of Texas Austin, Jackson School of Geosciences, Institute of Geophysics, 2305 Speedway Stop, C1160, Austin, TX 78712, United States. Additional authors for this research include Thorsten W. Becker, Lapo Boschi and Ludwig Auer.

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

Document INTEWK0020210914eh9e00085