FORCE SEMINAR

Elastic wave velocity measurements at high pressure and high temperature and its applications to the study of Earth's interior

FRIDAY NOV 8
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12 PM MST/AZ
11 am Pacific, 2 pm Eastern

Laboratory studies of the elastic wave velocities of minerals under high pressure plays a major role in enabling scientists to interpret seismic observations in terms of composition and structure of the Earth's deep mantle. While such studies show that the origin of positive seismic discontinuities are mostly attributed to phase transitions, temperature variations, and mineral composition of mantle rocks, the origin of anomalous zones with low seismic velocities remain much less understood.

Here I will review technical advances in laboratory measurements of P- and S-wave velocities of mantle minerals and rock aggregates under simultaneous high-pressure and high-temperature using ultrasonic interferometry and the multianvil apparatus. Then, I will present new developments for these techniques that allow for investigating the effect of partial melting on the seismic velocities of mantle rocks, and discuss how those data can be used to investigate anomalous seismic zones in the Earth's mantle transition zone.

STEEVE GRÉAUX

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Steeve Gréaux is a mineral physicist working at the Geodynamics Research Center of Ehime University, in Japan. He received his PhD in material sciences at the University Paris-East in 2006 and joined Ehime University in the same year. He is a specialist in high-pressure experimental mineralogy, and is particularly interested in the elastic properties, phase relations, and melting properties of minerals under high-pressure and high-temperature conditions. He is currently appointed as a lecturer at Ehime University.

SEMINAR SCHEDULE — *Fridays at 12 pm MST/AZ*

December 6
Felix Marxer Institute of Earth System Sciences, Leibniz University Hannover

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