

Geodynamics of core-mantle interactions

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(REMOTE)

The present day structure of the core-mantle boundary (CMB) region reflects the cumulative effects of 4.5 billion years of dynamical evolution, shaped by processes in both the core and mantle, which are likely to have experienced major transitions through Earth's history. Seismologically detected features such as a buoyant alloy-enriched layer floating atop the core, thin (~10 km) ultralow-velocity zones (ULVZ) scattered around the CMB, the two large (~1,000 km) low shear velocity provinces (LLSVP) beneath Africa and the Pacific, seismic discontinuities and scatterers in the lowermost mantle, need to be understood along with mineral physics constraints on the behavior of materials at CMB conditions, geodetic data, geomagnetic secular variations reflecting flows in the shallow core, geochemical analyses of lavas possibly derived from rocks that once circulated at the CMB, cosmochemical and astrophysical constraints on the assembly of planets/moons in the early solar system, tectonic, chemical, isotopic, and magnetic history preserved in the Earth's lithosphere and crust, and now promising new constraints provided by geoneutrino detectors. In this talk I will focus on integrated models and the ways in which they may influence the concentration and distribution of geoneutrino producing regions in the deep mantle, as well as the over all thermal evolution and energy budget of the Earth.

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Classification de Session: Open questions in the study of Earth's mantle and core