Commission on Earth Science and Geodynamics

Commission report for 2004-2005: IUGG/IASPEI General Assembly Meeting in Santiago, Chile 2 October – 8 October 2005.

The Commission on Earth Structure and Geodynamics (CESG) organized a 1.5 day Symposium, SS04, co-sponsored with SEDI.

Symposium SS04:

Earth Structure and Geodynamics

Co-sponsored by SEDI

Large-scale structures within the Earth's crust and mantle may be understood in the context of geodynamical models. These models are informed by seismological, electromagnetic, geodetic, thermal, and other physical measurements. Central to our understanding of geodynamics is the large-scale movement of mass and heat within the Earth caused by thermal convection in the mantle and the core. Much progress in recent years has followed on the development of detailed tomographic images of the mantle and structures within it, including subducted slabs and thermal plumes. Understanding of these structures depends however on the development of self-consistent thermal and dynamical models which explain the observations. The interaction of mantle convection with the lithosphere ultimately drives plate tectonics and continental tectonics. Much progress has also been made in recent years in understanding of the modes of deformation of continental lithosphere. The other major thermal boundary layer of the mantle convection system at the base of the mantle (the D" layer), clearly also plays an important role in global geodynamics, though the details may yet be unclear. Contributions are invited on any aspect of the above topics, in relation to the Earth or other terrestrial planets, and in particular:

(1) Measurement and interpretation of lithospheric and mantle properties using seismic or electromagnetic methods.
(2) Theoretical, laboratory, and numerical models of thermal convection in the mantle.
(3) Models and measurements of lithospheric deformation and thermal evolution
(4) The subduction process and subducted slabs
(5) Mantle plumes and the mantle transition zone
(6) Core dynamics and interaction with the mantle

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The morning session on October 6 was chaired by Thorne Lay and Barbara Romanowicz, and featured 11 presentations, on core structure, D" properties, whole mantle structure and upper mantle surface waves. The morning session on October 7, was chaired by Gary Jarvis and Barbara Romanowiz, with 11 presentations, and the afternoon session on October 7 was chaired by Peter Bird and Sergei Lebedev, with 11 presentations. A poster session was held all day of October 7 with 21 posters. The sessions were well-attended and there was ample time during the day to view the posters.