

Commission on Earth Science and Geodynamics

Commission report for 2010-2011: IUGG/IASPEI General Assembly Meeting in Melbourne, Australia 27 June – 8 July 2011.

The Commission on Earth Structure and Geodynamics (CESG) organized two joint symposia with the Commission on Tectonophysics and Crustal Structure (CTCS) along with sponsoring a Symposium on Anisotropy and Attenuation.

Symposium S13: Seismic Imaging of the Lithosphere and Mantle

Lead Convenors: G A Houseman (United Kingdom), Kevin Furlong (United States of America)

Recent years have seen a great increase in the capability of temporary seismic arrays used to collect continuous broadband seismic data, both on land, and more recently using ocean bottom seismographs. In addition the national networks of permanent stations have increased in size and quality, as have the methods for distributing and archiving data. We invite contributions that describe innovations in processing, imaging and interpretation methods applicable to studies of the lithosphere and mantle. We also invite contributions that describe lithospheric and mantle structure using imaging techniques such as tomography and receiver functions. Regional studies, which illustrate the application of these imaging methods to the solution of specific geodynamical problems are particularly encouraged.

Section S14: Plate Boundary Processes

Lead Convenors: Kevin Furlong (United States of America), G A Houseman (United Kingdom)

Scope: The more we learn about plate boundaries the more interesting they become. The simple plate tectonic classification into convergent, divergent and transform boundaries still broadly works, but in each case a rich catalogue of structures and processes is revealed on closer inspection. Transform boundaries more often than not involve significant convergent or divergent elements, and a transform element is typically present in convergent and divergent boundaries. We invite contributions which illuminate the processes that govern the evolution of plate boundaries, including geodynamical modeling studies, and including regional studies which incorporate seismological, geodetic, geochronological or other data to reveal the seismic, structural and magmatic processes acting on specific plate boundary segments. This session will have a lithospheric-scale focus, but contributions are also invited relating to the role of the crust or upper mantle at plate boundaries.

Section S14: Plate Boundary Processes

Lead Convenors: M.K. Savage (New Zealand), J. Plomerova (Czech Republic), J-M. Kendall (United Kingdom), Ian Jackson (Australia)

Scope: Analyses of seismic anisotropy and attenuation provide insights into crustal and mantle processes not possible with conventional analysis based on isotropic elasticity. Anisotropy can be used to map both past and present deformation and stress, whilst attenuation offers great potential to illuminate thermal variations. Both can be very sensitive to the presence of melt. Mechanisms that control these seismic attributes must be considered on a range of length scales. Here we invite contributions that present seismic observations and methodologies, geodynamical modeling of such effects, and constraints from mineral/rock physics. We particularly encourage multi-disciplinary approaches to interpreting observations of anisotropy and attenuation. *Invited Speakers: Yasuko Takei (ERI Univ. of Tokyo), Sara (Pozgay) Rawlinson (The Australian National University)*