

Seminar Information

Date: January 17, 2017

Time: 11:00~12:15

Venue: Room C200, Research Center for Earthquake Prediction
Uji Campus Kyoto University

Speaker: James D P Moore

Nanyang Technological University, Singapore

Title: Lithospheric flexure, cycles of deposition in a sedimentary basin,
the Earth's gravity field and mantle dynamics

Abstract:

An understanding of the finite strength of the lithosphere and how it develops over time is key to understanding many geological and geodetic observations. For example, when consideration is given to the fact that the long-term strength of the lithosphere depends on both thermal and load age we are able to model stratal geometries in sedimentary basins that not only closely resemble stratigraphic observations, but do not require either long-term sea-level or sediment flux changes in order to explain them. Furthermore, power spectral studies of the Earth's gravity field show that it is dominated at short wavelengths by the gravity effect of topography and its isostatic compensation and at long wavelengths by mantle dynamics where the switch-over between these mechanisms is governed by the strength of the lithosphere. Using flexural transfer functions and admittance equations we can move beyond Airy isostasy and remove the isostatic contribution of regional compensation to independently examine the global gravity field for flexural effects and the signature of mantle dynamics.