YORK UNIVERSITY
DEPARTMENT OF EARTH AND SPACE SCIENCE AND ENGINEERING
and
CENTRE FOR RESEARCH IN EARTH AND SPACE SCIENCE

S E M I N A R

Dr. Julian Lowman

University of Toronto

Investigating the requirements for mobile surface and stagnant-lid mantle convection

ABSTRACT

The Earth is the only example in our solar system of a rocky planet with a mobile surface. Moreover, plate tectonics, as exhibited on the Earth, appears to be a vitally important aspect with regard to our planet's suitability for supporting a technologically advanced civilization, if not for the rudiments of habitability. Consequently, the requirements for planetary surface mobility have received wide attention in the scientific literature as an ever increasing number of extra-solar planets is discovered, including super-Earth's (or super-Venus's). Here, I shall present an overview of the influences on a mobile terrestrial planet surface, presenting results from recent studies that have considered the role of mantle internal heating rate, mantle viscosity struture, mantle chemical heterogeneity and the size of the planetary core on surface motion and participation of the lithosphere in mantle convection.

BIOGRAPHY

Currently, Dr. Lowman is an Associate Professor and is the Associate Chair of Physical and Environmental Sciences at the University of Toronto, Scarborough. He was previously a Lecturer in Earth Sciences at the University of Leeds from 2000-2005 and an NSERC post-doctoral fellow at the Institute for Geophysics and Planetary Physics, Los Alamos National Laboratory, from 1998-2000. He holds an MSc and PhD from York University, supervised by Prof. Gary Jarvis.

Refreshments will be served at 3:15 p.m. in PSE 422.

DATE: **Wednesday, April 07, 2015**
TIME: **3:30 p.m.**
LOCATION: **422 Petrie Science and Engineering Building**