

Solar Modeling and Forecasting Presentations

10:00-12:00 Friday 13 October 2006
Gamble Hall, 615 Booth Street, Ottawa
Natural Resources Canada

10:00-11:00 Physical origin of fluctuations in the amplitude of the solar activity cycle

Paul Charbonneau, Canada Research Chair in Solar Physics, Université de Montréal

<http://www.astro.umontreal.ca/~paulchar/grps/grps.html>

The 11-year solar activity cycle strongly modulates the occurrence frequency of all geoeffective solar eruptive phenomena, such as flares and coronal mass ejections. In this talk Dr. Charbonneau will describe recent advances in our understanding of the physical origin of these fluctuations. He will also briefly describe ongoing research efforts in the Solar Group at the Université de Montréal, aiming at furthering our understanding of the basic dynamo mechanisms at play in the solar context. If time allows, he will also present very recent and exciting results in their ongoing efforts to use data assimilation techniques to carry out flare forecasting in the context of avalanche models of solar flares.

11:00-11:10 Geomagnetism and Space Weather – a quick introduction

David Boteler, Research Scientist, Geomagnetic Laboratory, Natural Resources Canada

Geomagnetic Field Monitoring: www.geolab.nrcan.gc.ca ; Space Weather Forecasting: www.spaceweather.gc.ca

The geomagnetic field, along with its associated phenomena, can both assist and degrade navigation and surveying techniques; it can impede geophysical exploration; it can disrupt electric power utilities, and pipeline operations; and it can influence modern communications systems, spacecraft, and more. This talk will provide a brief overview of the space weather phenomena that cause geomagnetic disturbances and how different technological systems are affected. The presentation will also describe research that is being done at NRCan, in close collaboration with industry, to reduce the risk to critical infrastructure from space weather hazards.

11:10-11:25 Astronomical drivers of terrestrial phenomena

David Thomson, Canada Research Chair in Statistics and Signal Processing, Queen's University

<http://appsci.queensu.ca/research/profiles/thomson/>

For several hundred years scientists have observed sometimes tenuous or short-lived correlations between astronomical processes and terrestrial phenomena such as agricultural cycles, tree ring indications of forest growth, disease, and climate change. However, models are improving, far better data is available, and advanced mathematical and statistical tools are evolving. These hold promise for a much better understanding of the influence of Astronomical drivers of Earth processes. In turn, this may lead to much improved understanding, forecasting, and planning and preparations for changes in the Earth processes that have a major impact on the environment and humanity.

11:25-12:00 Question and discussion period Open format

- *To ensure yourself of a seat in Gamble Hall (capacity limit of 60 people), and to assist with the new security procedures, please confirm your attendance by email to: bhowell@nrcan.gc.ca*
- *Please also note that the Third Annual Canadian Solar Workshop will be held in Montreal, 30Nov-01Dec06. <http://www.astro.umontreal.ca/~paulchar/grps/CSW06.html>*