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

SPEAKER

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Whole Atmosphere-Ionosphere Modelling: Recent Results and Future Steps

In this talk I will highlight several results of our collaborative studies related to the development of the Whole Atmosphere (WA) prediction systems based on the NCAR climate and NOAA weather global atmosphere models. Recent expectations and understanding why WA models can perform more skilful forecasts than the models with the low-level top lids lead us towards development of the multi-component Earth System Models, such as CESM (NCAR) and NEMS (NOAA), that include the atmosphere-ionosphere coupled simulations. I will overview the ionosphere-thermosphere modelling studies performed in Canada, Germany, Japan, and US that were capable to demonstrate the striking wave-driven control of the ionosphere state from below during equinoxes and mid-winter sudden stratospheric warming events. The recent lessons for WA modelling that can be taken from the data-model and model-model comparisons will be discussed. In particular, they will emphasize the timeliness and needs to perform the upper atmosphere reanalysis using the temperature, wind and composition data collected during UARS, TIMED and EOS-Aura satellite missions. I will conclude with current WAM and WACCM-X studies, including plans to use these models in the assimilation of the thermospheric data (neutral temperature and composition) from the forthcoming Global-scale Observations of the Limb and Disk (GOLD) mission, scheduled for launch in 2017.

DATE: **Thursday, November 5, 2015**
TIME: **2:00 p.m.**
LOCATION: **Room 317, Petrie Building**