

SEMINAR NOTICE

*Department of Physics and Engineering Physics
University of Saskatchewan*

SPEAKER: Lindsay Goodwin, PhD Candidate
Physics & Engineering Physics

TOPIC: *High-Latitude Convection Electric Fields in the Earth's Ionosphere*

DATE: October 24th, 2017

TIME: 3:30-4:30 p.m.

PLACE: Physics 103

ABSTRACT:

High-latitude convection electric fields play a key role in global high-latitude plasma redistribution, as well as in changing local ionospheric parameters. It is relatively simple to determine the electric field strength in a region using in situ instruments (such as rockets and satellites), but inferring the electric field strength through local ionospheric parameters recovered from ground-based instruments requires: 1) characterizing the ion temperature anisotropy, and 2) modelling distortions to high-latitude ion velocity distributions. In order to characterize the temperature anisotropy within a given local region, and infer effective electric field strengths through ground instruments, special Incoherent Scatter Radar (ISR) experiments were carried out on the Resolute Bay ISR-North (RISR-N). In parallel, distorted high-latitude ion velocity distributions were explored using a state-of-the-art Monte-Carlo (MC) simulation capable of retrieving high-accuracy ion velocity distributions for any electric field, ion-neutral particle interaction, and direction relative to the magnetic field. Using these findings, and a catalog of distorted ion velocity distributions and spectra developed in this work, ISR researchers are being provided with a useful and proper tool to study ISR spectra, and ion-neutral coupling, under disturbed conditions at high latitudes.

Coffee and Cookies will be served in Physics lounge at 3:00 p.m. for those attending the seminar.