SEMINAR NOTICE

Department of Physics and Engineering Physics
University of Saskatchewan

SPEAKER: Dr. Adam Bourassa, Institute of Space & Atmospheric Studies
Physics and Engineering Physics

TOPIC*:* *The HAWC (High-altitude Aerosols, Water vapour, and Clouds) satellite mission*

DATE: Tuesday October 31st, 2023

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

PLACE: ***Physics 103***

Abstract:

The United Nations has declared climate change the defining issue of our time. Earth system models are the most advanced tools we have for predicting the impacts of the changing atmosphere and for planning future action. Currently the largest source of uncertainty in Earth system models is our limited understanding of the interactions of aerosols, clouds, and precipitation, and how they impact climate and extreme weather. Satellite measurements are the benchmarks against which Earth system models are tested, and new insight gained through satellite measurements leads to critical improvements in the ability of the models to gain accuracy in their predictive power.

For exactly this reason, aerosol and the linked topics of cloud-convection-precipitation were identified as the focus of a new NASA flagship multi-satellite mission, named the Atmosphere Observing System (AOS). This $1.6B mission, planned for launch between 2028 and 2030, will host multiple instruments, including lidars and radars, dedicated to measure aerosol, cloud, convection, and precipitation in ways unlike ever before. As part of AOS, Canada will contribute the HAWC (High-altitude Aerosols, Water vapour and Clouds) suite of three Canadian passive imaging instruments, two of which were designed and developed by our lab at the University of Saskatchewan. The HAWC instruments will work together to obtain vertically resolved measurements of aerosol and water vapour together with nadir measurements of radiation, thin ice cloud content, and cloud microphysical properties. These coordinated measurements will help build a more comprehensive understanding of climate-critical interactions in the atmosphere.