

# SEMINAR NOTICE

*Department of Physics and Engineering Physics  
University of Saskatchewan*

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**SPEAKER:** Dr. Matthew Toohey, Candidate for Faculty Position

**TOPIC:** *Stratosphere aerosol, volcanic eruptions and climate*

**DATE:** January 24th, 2019

**TIME:** 1:30-2:30 p.m.

**PLACE:** Physics 165

## **ABSTRACT:**

Stratospheric aerosol plays an important role in the atmosphere and climate system. Stratospheric aerosol scatters incoming solar radiation, impacting the global albedo and the Earth's surface temperature. Stratospheric aerosol also absorbs infrared radiation, affecting the thermodynamic structure of the atmosphere and its circulation. The stratospheric aerosol layer is maintained primarily from the direct stratospheric injection of sulfur from volcanic eruptions. The strong but transient radiative forcing resulting from large volcanic eruptions is the most important natural agent of pre-industrial climate variability. Climate anomalies resulting from volcanic eruptions in the Earth's past provide important insights for understanding the global and regional climate responses to external forcing agents, and in turn, inform predictions of future climate change and variability.

In this presentation I will present an overview of my work focused on improving understanding of both volcanic radiative forcing and the impacts of volcanic forcing on the climate system. I will describe the reconstruction of volcanic aerosol optical properties and radiative forcing over the past 2500 years, and how this data set is shining new light on the importance of volcanic eruptions in climate variability. I will finally give an outlook on future research directions and opportunities in this emerging interdisciplinary field.