

SEMINAR NOTICE

*Department of Physics and Engineering Physics
University of Saskatchewan*

SPEAKER: Dr. Debora Griffin

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TOPIC: *Emissions detected from Space*

DATE: Tuesday November 20th, 2018

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

PLACE: Physics 103

ABSTRACT: The atmospheric composition near the surface (air quality) can only be measured from space using nadir, or down-looking, instruments. Nadir-viewing satellite observations merged with meteorological reanalysis can be used to estimate emissions from various sources, such as from industry, wildfires, and cities. One estimation method, the Exponentially Modified Gaussian function, is based on fitting satellite retrieved column densities to a three-dimensional parameterization as a function of the coordinates and wind speed. To enable the utilization of observations from many overpasses, a wind rotation procedure is applied which conserves the plume shape information.

The focus of this presentation will be on emission estimates utilizing measurements from the Ozone Monitoring Instrument (OMI), as well as the recently launched TROPOspheric Monitoring Instrument (TROPOMI). Examples from industrial emissions, primarily from coal fired power plants, and wildfire emissions will be presented.

With the new TROPOMI instrument, it is possible to map individual plumes and therefore constrain emissions from single overpasses. As such estimate emissions on a daily basis. These emission estimates from satellite observations can provide greater insight into emissions from industry, cities and forest fires, and can further help monitoring emissions as well as improving air quality forecasts.

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