

# SEMINAR SERIES 2018 - 2019

SOUTHERN ONTARIO CENTRE FOR ATMOSPHERIC AEROSOL RESEARCH  
UNIVERSITY OF TORONTO

## DEVELOPMENT OF ANALYTICAL TECHNIQUES FOR TRACE QUANTITATION OF ATMOSPHERIC ANALYTES IN REMOTE AND INDOOR ATMOSPHERES

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Reactive nitrogen plays key roles in atmospheric chemistry, catalyzing the production of ozone and formation of new particles from volatile precursors. Emissions of reactive nitrogen from the combustion of fossil fuels and inefficient use of agricultural fertilizers has resulted in a modern world with reactive nitrogen levels never seen before. Its transport to sensitive and remote ecosystems can result in increased primary productivity or deleterious effects where nitrogen saturation occurs. Quantitative collection and speciation of reactive nitrogen in remote locations poses analytical challenges from sampling through quantitative and speciated detection. The development of custom off-grid sampling equipment and extensive quality control practices allowed us to capture reactive nitrogen biogeochemical inputs from wet and dry deposition processes at the atmosphere-biosphere interface across four field sites in the Newfoundland and Labrador Boreal Ecosystem Latitudinal Transect from 2013-2017. The indoor atmosphere poses different yet similar analytical challenges with needs to measure many of the same reactive nitrogen species in order to characterize relevant chemical processes. Recent developments in reactive-nitrogen instrumentation and measurement techniques by our research group will be presented.




Dr. Trevor VandenBoer is investigating reactive nitrogen atmospheric chemistry and developing new analytical techniques for measuring reactive nitrogen as part of the Chemistry of the Indoor Environment program. Trevor's ongoing research examines the biogeochemical interactions of nitrogen between the biosphere and the atmosphere. He completed a combined Honours Bachelor of Science degree in Analytical Chemistry and Forensic Science from Laurentian University in 2007; MSc (2008) and PhD (2012) in Environmental and Atmospheric Chemistry from the University of Toronto.

**Wednesday, April 17, 2019 3:00 - 4:00 PM**

**Wallberg Building, 200 College Street, Room 407**



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