



Western University
Department of Physics and Astronomy

PHYSICS & ASTRONOMY COLLOQUIUM

Date: **WEDNESDAY, 17th January 2018**
Time: **1:30 p.m.**
Location: **Physics & Astronomy Seminar Room 100**

Dr. Debra Wunch

Department of Physics
University of Toronto

“Remote Sensing for Carbon Cycle Science”

ABSTRACT

The carbon cycle describes the flow of carbon, typically in the form of carbon dioxide, between the atmosphere, oceans and land. It is influenced by changes in the sources and sinks of carbon, including anthropogenic releases (fossil fuel burning), changes in land use, the respiration and photosynthesis of plants, and the uptake and release by oceans. Atmospheric measurements of carbon dioxide and other greenhouse gases are valuable for quantifying their sources and sinks and monitoring their long-term trends. NASA’s Orbiting Carbon Observatory–2 (OCO–2) satellite was launched in July 2014, and has been providing high quality measurements of carbon dioxide for over three years. Its measurements represent a significant improvement over previous generations of carbon dioxide monitoring satellites. I will present the OCO–2 mission and describe its essential ground-based validation network, the Total Carbon Column Observing Network (TCCON). I will then describe several scientific results from the TCCON and OCO–2 data including quantification of urban-scale methane emissions, and the impact of the 2015–2016 El Niño on atmospheric carbon dioxide.

COFFEE + light snacks will be available in the Atrium, 2nd floor, at 1:15 p.m.