SEMINAR NOTICE

Department of Physics and Engineering Physics
University of Saskatchewan

SPEAKER: Dr. Susann Tegtmeier
Dept of Physics and Engineering Physics

TOPIC*:* *Ozone-depleting substances, stratospheric circulation and the Recovery of the ozone layer.*

DATE: Tuesday January13th, 2026

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

The stratospheric circulation, also known as the Brewer-Dobson circulation, is fundamental to our understanding of the distribution of ozone and other trace gases in the middle atmosphere. Recent changes in many stratospheric trace gases show a hemispheric asymmetry, with trends over the last decades having opposing signs in the Northern Hemisphere (NH) and Southern Hemisphere (SH). Some of these differences are due to hemispherically asymmetric changes in the rate of transport by the Brewer–Dobson circulation. These changes also impact stratospheric ozone, which has recovered more in the SH compared to the NH. Long term changes in transport further complicate the analysis of trends in stratospheric chlorine when compared to changes in surface emissions of ozone depleting substances regulated by the Montreal Protocol. Here I will discuss changes in stratospheric circulation as derived from trace gas measurements. These results will be used to understand how much of the decrease in stratospheric chlorine is related to transport variations and how much is driven by the reduction in long-lived ozone depleting substances. The story will be completed by analyzing the role of short-lived ozone depleting substances, which are not regulated under the Montreal Protocol. Finally, the effects of circulation trends on ozone are examined revealing that negative ozone trends in the NH at lower levels cannot be explained by trends in ozone transport. Instead, the recent dynamically induced variations in halogen loading have, through chemical feedback, accentuated the ozone recovery signal in the SH and delayed it in the NH.