The 8th Annual Harold I. Schiff Lecture
Faculty of Pure and Applied Science

Presented by:
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Forschungszentrum Jülich, Germany
The Institute of Stratospheric Chemistry &
The University of Bonn

Arctic Stratospheric Ozone Loss: Diagnosis and Simulation

Please note change in date/time/place.

Friday, December 11, 1998
2:00 p.m.

Senate Chamber, North 940 Ross Bldg.
York University

Abstract: Ever since the discovery of the ozone layer there has been interest in the processes that regulate and influence the ozone abundance in the atmosphere. This lead to the hypothesis of gas phase catalytic cycles that continues as one of the unifying principles of atmospheric chemistry. Although the most significant ozone depletion occurs in the Antarctic the chemistry in the Arctic polar stratosphere is know to be similar although because of warmer temperatures the processes are less extreme. This reduced O3 loss coupled with much greater intrinsic variability makes the diagnoses and attribution of Arctic O3 loss much harder and therefore a more critical test of theory. Results from several studies will be presented that show that in the last few years significant O3 loss has occurred inside the Arctic stratospheric polar vortex. Finally these empirical diagnoses of O3 loss will be compared with simulations of the ozone loss by the known O3 destruction cycles. It will be shown that even when the photolytic precursors of O3 destruction are well simulated the cumulated ozone loss is significantly underpredicted. Possible source of these discrepancies will be discussed although the resolution of this problem remains open.

Organized by the York Centre for Atmospheric Chemistry
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