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Total ozone loss during the 2014/15 Arctic winter and comparison to previous years

Florence Goutail (1), Franck Lefèvre (1), Jean-Pierre Pommereau (1), Andrea Pazmino (1), Martyn Chipperfield (2), Wuhu Feng (2), Michel Van Roozendael (3), Paul Eriksen (4), Kerstin Stebel (5), Rigel Kivi (6), Xiaoyi Zhao (7), and Kimberly Strong (7)

(1) LATMOS/CNRS, Guyancourt, France (florence.goutail@latmos.ipsl.fr, +33 1 30 57 09 42), (2) Institute of Atmospheric Science, School of Earth and Environment, University of Leeds, Leeds, UK, (3) Belgian Institute for Space Aeronomy (BIRA), Brussels, Belgium, (4) Danish Meteorological Institute, Copenhagen, Denmark, (5) Norwegian Institute for Air Research, Kjeller, Norway, (6) Finnish Meteorological Institute, Sodankylä, Finland, (7) Department of Physics, University of Toronto, Toronto, Canada

The amplitude of ozone depletion in the Arctic is monitored every year since 1994 by comparison between total ozone measurements of eight SAOZ / NDACC UV-Vis spectrometers deployed in the Arctic and 3-D Chemical Transport Model (CTM) simulations in which ozone is considered as a passive tracer. The method allows determining the evolution of the daily rate ozone destruction and the amplitude of the cumulative loss at the end of the winter.

The amplitude of the destruction varies between 0-10 percent in relatively warm and short vortex duration years to 25-39 percent in colder and longer ones. However, as shown by the unprecedented depletion of 39 percent in 2010/11, the loss is not only dependent on the duration extension of the vortex in spring, but also on its strength limiting its re-noxification by import of nitrogen oxide species from the outside, as reported by the total NO_2 columns measured by the eight SAOZ instruments.

Shown in this presentation will be the evolution of ozone loss and re-noxification in the Arctic during the winter 2014/15 compared to that of previous winters. The ability of the two REPROBUS and SLIMCAT 3D Chemical Transport Model to reproduce adequately the observed loss will be further discussed.