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Total ozone loss during the 2015/16 Arctic winter and comparison to previous years

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The amplitude of column 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 simulations in which ozone is considered as a passive tracer.

The method allows determining the evolution of the daily rate of ozone destruction and the amplitude of the cumulative loss at the end of the winter. The amplitude of the destruction varies between 0-10% in relatively warm and short vortex duration years to 25-39% in colder and longer ones.

However, as shown by the unprecedented column depletion of 39% in 2010/11, the loss is not only dependent on the 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 SAOZ instruments.

Shown in this presentation will be the evolution of ozone loss and re-noxification in the Arctic during the winter 2015/16 compared to that of previous winters. The ability of REPROBUS and SLIMCAT 3D CTMs to reproduce adequately the observed loss each winter will be further discussed.