



Odin/SMR Limb Observations of O₃, N₂O, ClO, and HNO₃ in the Polar Winter Stratosphere during 2001-2005: an Overview.

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Profile measurements of key constituents relevant to polar stratospheric chemistry and dynamics such as ozone (O₃), nitrous oxide (N₂O), chlorine monoxide (ClO), and nitric acid (HNO₃), taken at high latitudes of the winter hemispheres by the Odin *Sub-Millimetre Radiometer* (SMR), are presented.

The Odin/SMR instrument, launched in February 2001, employs 4 tunable single-sideband Schottky-diode heterodyne receivers in the 485-580 GHz spectral range and a 1 m telescope for passive observations of thermal emissions originating from the Earth's limb. Spectra are recorded using two high resolution auto-correlator spectrometers. Atmospheric measurements are performed in a time sharing mode with astronomical observations. Profile information is retrieved from the spectral measurements of a limb scan by inverting the radiative transfer equation for a non-scattering atmosphere.

We focus on stratospheric mode measurements taken in the northern hemisphere during the winters 2001-02, 2002-03, 2003-04, and 2004-05. The Odin/SMR measurements of nitrous oxide, chlorine monoxide, nitric acid, and ozone allow to study the chemical and dynamical evolution of the Arctic vortex during the four "Odin" winters by providing information on chlorine activation, denitrification, subsidence of vortex air, and on ozone loss. Results for the southern hemisphere are also presented.

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