Geophysical Research Abstracts,
Vol. 10, EGU2008-A-02082, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-02082
EGU General Assembly 2008

Stratospheric OClO Profiles measured by SCIAMACHY

S. Kühl (1), J. Pukite (1), T. Deutschmann (2), U. Platt (2), T. Wagner (1)

(1) MPI für Chemie, Mainz, Germany, (2) Institut für Umweltphysik, University of Heidelberg, Germany

The Scanning Imaging Absorption Spectrometer for Atmospheric Chartography (SCIAMACHY) onboard ENVISAT-1 measures scattered sun radiances also in limb viewing mode, which allows determining vertical profiles of several atmospheric species. We developed a fast and coherent two step approach (DOAS combined with RTM) to derive vertical profiles of ozone, NO2, BrO and OClO (chlorine dioxide) from SCIAMACHY limb spectra in the UV/VIS region. While OClO itself is not depleting ozone, it is an important indicator for stratospheric chlorine activation, the prerequisite for massive ozone destruction in Antarctic and, to a lesser extent, also Arctic winters. We present vertical OClO profiles in the range from 15-35 km for the years 2002 to 2007, with particular emphasis on the Polar Region, and investigate inter-annual and inter-hemispheric differences in the magnitude and shape of the profiles and their dependence on meteorological parameters, like e.g. PSC formation. The significance of the obtained dataset of concentration profiles of OClO for studies on stratospheric chemistry is discussed. Also, the agreement with model simulations and space borne measurements of ClO profiles (SMR on ODIN, MLS on AURA) is investigated in case studies.