



Transport processes of polar BrO events

M. Begoin, A. Richter, H. Kirk, J. Burrows

Institute of Environmental Physics, University of Bremen, Bremen, Germany
(begoin@iup.physik.uni-bremen.de)

Every year in polar springtime periods, in which ozone is nearly completely removed from the polar boundary layer, can be observed in widespread parts of Arctic and Antarctic.

These so called Ozone Depletion Events (ODEs) can be explained with catalytic ozone destruction by halogens. Bromine here has been identified as the key halogen in this destruction cycle. Its source is sea salt, whereas the bromine is released to the gas phase by heterogeneous reactions on aerosols, ice or snow surfaces.

One key molecule in the reactions is BrO, which can be measured from the ground and from satellite via remote sensing by absorption spectroscopy. Furthermore BrO has a large impact on the deposition of gaseous mercury in the sensitive polar ecosystem. The exact mechanism, which leads to an initial BrO release and the influence of transport processes on the spread of BrO is still not clearly understood.

In this study BrO measurements from two satellite instruments, SCIAMACHY and GOME-2 are compared with trajectory calculations, to get more information about source regions of BrO, transport processes and the life time of individual BrO events. The main focus lies on single, well observable BrO events in Polar Regions.