Geophysical Research Abstracts
Vol. 15, EGU2013-4828, 2013
EGU General Assembly 2013

Investigating links between tropospheric BrO plumes and low pressure systems in the Arctic

Anne-Marlene Blechschmidt, Andreas Richter, Mathias Begoin, and John Phillip Burrows
Institute of Environmental Physics, University of Bremen, Germany

Intense plumes of tropospheric bromine oxide (BrO) regularly occur over sea ice during polar spring. Several studies have shown that these BrO plumes can be associated with wide spread ozone depletion caused by an autocatalytic chemical cycle known as the "bromine explosion". However, the substrate from which bromine is initially released to the gas phase is uncertain, with blowing snow, frost flowers and young sea-ice being among possible bromine sources. Satellite images show that some of the BrO plumes are spiral shaped and linked to high latitude cyclones. However, not much is known on the role these weather systems play for the formation, duration and transport of BrO explosion events.

This study aims to improve knowledge on the role of high latitude cyclones for BrO explosion events. First insights from combined use of GOME-2 satellite observations, regional models and trajectory models are presented.