

O3-08 THE RETRIEVAL OF OXYGENATED VOLATILE ORGANIC COMPOUNDS BY REMOTE SENSING TECHNIQUES

Folkard Wittrock, Andreas Heckel, Hilke Oetjen, Andreas Richter, and John P. Burrows
University of Bremen, P. O. Box 33 04 40, 28334 Bremen
folkard@iup.physik.uni-bremen.de

This work describes global measurements of the trace gases formaldehyde and glyoxal derived from stray light spectra in the ultraviolet and visible wavelength region measured by the satellite instrument SCIAMACHY along with ground-based MAX-DOAS instruments. The analysis was carried out using the method of the Differential Optical Absorption Spectroscopy (DOAS). New algorithms to derive vertical columns of the satellite instruments are developed and described. For the ground-based geometry a way was found to derive profile information for the tropospheric absorbers.

A number of case studies illustrates the significance of biogenic emissions and of biomass burning for the global distribution of the oxygenated volatile organic compounds. A comparison with results from a global atmosphere model shows only a moderate agreement in many regions of the Earth. This reflects the limited state of knowledge at present about the very complex physical and chemical processes in the troposphere.