

in particular in Africa. To extend our current understanding of bromine chemistry first systematic ground based measurements of stratospheric BrO at low latitudes over a period of several years are presented. The measurements are compared with calculations of BrO slant column densities from a 1D chemical transport model (CTM) which is coupled with a radiative transfer model to allow direct comparisons between the observed and modelled data.

UP 6.12 Di 10:15 Poster TU HTF

SOURCES OF FORMALDEHYDE: TRACE GAS EMISSIONS FROM AGRICULTURAL FIRES IN NORTHERN ITALY — ●CLAUDIA HAK, KAI-UWE METTENDORF, ACHIM BÄUERLE, CHRISTIAN KUNZ, ULRICH PLATT, and IRENE PUNDT — Institut für Umweltphysik, Universität Heidelberg

Simultaneous measurements of CH₂O, NO₂, SO₂, O₃, and HONO were performed with the Multibeam-Longpath-DOAS (Differential Optical Absorption Spectroscopy) method during a field campaign in Lombardina (Italy). The measurements shown focus on the investigation of formaldehyde, an important source of odd hydrogen radicals and hence a precursor of tropospheric ozone. The campaign was part of the European project FORMAT (FORMaldehyde As a Tracer of photooxidation in the troposphere) and took place at three sites in the greater Milano area. Here, we concentrate on one site located at the river Po 40 km south of Milano.

The Po Basin is an area of intensive agricultural and industrial activity. In autumn after harvesting the stubble fields are burnt down forming a considerable local source for hydrocarbons and other gases of interest. The emissions of formaldehyde and sulphur dioxide (SO₂) by several fire events are examined in this study.

UP 6.13 Di 10:15 Poster TU HTF

Measurements of tropospheric NO₂ with SCIAMACHY — ●ANDREAS RICHTER¹, ANDREAS HECKEL¹, HENDRIK NÜSS¹, FOLKARD WITTROCK¹, BERND SIERK², and JOHN P. BURROWS¹ — ¹Institut für Umweltphysik, Universität Bremen, Otto-Hahn-Allee, D-28359 Bremen — ²Bundesamt fuer Kartographie und Geodaesie (BKG), Observatorio TIGO, Universidad de Concepcion, Concepcion, Chile

The SCIAMACHY instrument on ENVISAT provides amongst other quantities accurate nadir measurements of the UV/visible radiances scattered back from the atmosphere. From these measurements, tropospheric columns of NO₂ can be retrieved using the well known DOAS method and some assumptions on the stratospheric NO₂ fields.

The two main advantages of SCIAMACHY over GOME are the much better spatial resolution (up to 30 × 30 km² compared to 320 × 40 km²) and the limb measurements that provide stratospheric profile information over each nadir pixel. Better spatial resolution improves the detection capabilities of tropospheric pollution while the stratospheric limb profiles improve the accuracy of the stratospheric NO₂ fields needed in the data analysis.

In this presentation, results from 30 months of SCIAMACHY tropospheric NO₂ measurements are presented. The focus is on discussion of the effects of improved spatial resolution (in particular with respect to the existing GOME data set) and the impact of the use of limb profiles for the stratospheric correction.

UP 6.14 Di 10:15 Poster TU HTF

Validation of ENVISAT/SCIAMACHY scientific retrievals of CO by solar FTIR at the Ground Truthing Station Zugspitze — ●RALF SUSSMANN¹, WOLFGANG STREMME¹, ALEXANDER ROCKMANN¹, MARKUS RETTINGER¹, MICHAEL BUCHWITZ², and RÜDIGER DE BEEK² — ¹Forschungszentrum Karlsruhe, IMK-IFU, Garmisch-Partenkirchen — ²Universität Bremen, Institut für Umweltphysik

CO profile retrievals from ground-based FTIR measurements at the Ground Truthing Station Zugspitze (47° N, 11° E, 2964 m asl.), Germany are used to validate columnar CO retrieved from SCIAMACHY spectra (WFM-DOAS v0.4). The WFM-DOAS retrievals of CO include an empirical column scaling factor of 0.5. Therefore, not absolute column levels are validated, but the response of the SCIAMACHY retrievals to the atmospheric inter-annual variability is quantitatively assessed in comparison to the Zugspitze FTIR results. Although CO WFM-DOAS data show a significant scatter, it is possible to retrieve information on the CO annual cycle (≈ 10% amplitude) in a statistically significant fit. This can be achieved by averaging all SCIAMACHY pixels within a certain minimum radius around the Zugspitze for each day.

UP 6.15 Di 10:15 Poster TU HTF

Validation of ENVISAT/SCIAMACHY operational versus scientific retrievals of NO₂ by solar FTIR at the Ground Truthing Station Zugspitze — ●RALF SUSSMANN¹, WOLFGANG STREMME¹, ALEXANDER ROCKMANN¹, MARKUS RETTINGER¹, and ANDREAS RICHTER² — ¹Forschungszentrum Karlsruhe, IMK-IFU, Garmisch-Partenkirchen — ²Universität Bremen, Institut für Umweltphysik

NO₂ retrievals from solar FTIR measurements at the Permanent Ground Truthing Station Zugspitze (47° N, 11° E, 2964 m asl.), Germany are used to validate columnar NO₂ retrieved from ENVISAT/SCIAMACHY. Validating scientific (UB1.0) NO₂ total column data (Jul - Jun 2003), a perfect agreement of the annual cycle to the ground FTIR data is found, after removing obvious enhancements due to pollution episodes not captured by the high altitude Zugspitze FTIR. The absolute SCIAMACHY UB1.0 columns are 16% below the Zugspitze FTIR columns. The operational SCIAMACHY NO₂ retrievals (DOAS.1, ESA master set), however, are not able to reflect the NO₂ decrease in the second half of the annual cycle. Possible reasons for this difference between the scientific versus operational NO₂ retrievals will be discussed in the poster.

UP 6.16 Di 10:15 Poster TU HTF

A silencer for exhaust fumes of combustion engines — ●MATHIAS SCHMITZ — Sitzbuchweg 30, 69118 Heidelberg

The presentation relates to a silencer for exhaust fumes of combustion engines and the procedure of cleaning exhaust fumes produced by combustion engines, which belongs to a patent application and the German technical design NR. 20 2004 002 397.0.

Observations have showed that the increasing combustion of fossil fuels (e.g. Benzene, Petrol, Gasoline, Diesel and Natural Gas) has lead to an increased global warming effect. Furthermore, the European mountains have showed a decline in nascent distance in height and of the zero degree border. These mountains and low mountain region of millennia old glaciers, ice and snow are thawing out. This invention proposes that a connection consists between the combustion of fossil fuels and global warming.

Accordingly, there is a need for cleaning exhaust fumes from combustion heat power machines. The claim is; that a silencer appliance for exhaust fumes of combustion engines with a heat swapper in the exhaust appliance with a liquid conductor of heat bearer cools exhaust fumes. The liquid conductor of heat transports the heat into a cooler and that an opening is arranged for the water from the condensed vapour. The exhaust fumes caused by combustion contain water, which needs to be condensed.