Geophysical Research Abstracts
Vol. 12, EGU2010-12156, 2010
EGU General Assembly 2010

Operational GOME and GOME-2 products for GMES Monitoring atmospheric composition & climate (MACC)

Diego Loyola (1), N. Hao (1), P. Valks (1), I.De Smedt (2), S. Emmadi (1), M. Koukoulil (3), D. Balis (3), M. Rix (1), M. Van Roozendael (2), and N. Theys (2)

(1) German Aerospace Centre, Remote Sensing Technology Institute (DLR-IMF), (2) Belgian Institute for Space Aeronomy (BIRA-IASB), (3) Laboratory of Atmospheric Physics, Aristotle University of Thessaloniki, Greece

This contribution focuses on the operational GOME and GOME-2 trace gas column products provided by the German Aerospace Centre (DLR). We present an overview of the retrieval algorithms and exemplary results for ozone, NO2, SO2, BrO and CH2O. These trace gas column products are retrieved from GOME and GOME-2 solar backscattered measurements in the UV and VIS wavelength regions, and are generated operationally using the GDP 4.x algorithm and the UPAS system.

Total ozone and NO2 are retrieved with the Differential Optical Absorption Spectroscopy (DOAS) method using the UV wavelength region around 330 nm and 435 nm respectively. An additional algorithm is applied to retrieve the tropospheric NO2 column for polluted conditions. The operational ozone and NO2 products are available for the users in near real time, i.e. within two hours after sensing for GOME-2 and three hours for GOME. SO2 emissions from volcanic and anthropogenic sources can be measured by GOME and GOME-2 around 320 nm. For BrO and CH2O, optimal DOAS fitting windows have been determined for GOME-2 in the UV wavelength region.

The GOME-2 ozone, total and tropospheric NO2, SO2, BrO and cloud products from DLR have reached the operational EUMETSAT O3M-SAF status while CH2O is currently pre-operational. All these products are routinely available to the users via EUMETCast, WMO/GTS and FTP in HDF5 and BUFR format. In the same way, the GOME ozone and NO2 products from DLR are the official operational ESA products and are routinely distributed via FTP.

We present long-term ozone trend estimates obtained from GOME, SCIAMACHY and GOME-2. Furthermore, we will show initial validation results for GOME-2 products using ground-based measurements, as well as comparisons with other satellite products, such as those from SCIAMACHY and OMI. Finally, the use of tropospheric NO2, SO2 and CH2O columns for air quality applications will be presented.