Validation of the ERS-2 GOME ozone products with the NDSC/Alpine stations

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Abstract

The Global Ozone Monitoring Experiment (GOME), launched by ESA on 21 April 1995 on-board the ERS-2 environmental satellite, is a nadir-viewing UV-visible grating spectrometer aiming at the measurement of total ozone, NO_2, OClO and BrO, by application of the differential optical absorption spectroscopy (DOAS). As part of the GOME Geophysical Validation Campaign started on 20 July 1995, correlative ground-based observations of total ozone have been collected from two Brewer, four Dobson and two SAOZ instruments operated at the Alpine sites of the Network for the Detection of Stratospheric Changes (NDSC/Alps) and complementary stations.

GOME version 2.0 total ozone since July 1996 is compared to NDSC/Alpine ground-based observations. The comparison takes into account the accuracy of the various ground-based measurements and emphasises the optimisation of the co-location of the air masses probed by the satellite and the ground-based sensors. The relative differences between the GOME and the correlative ground-based total ozone are analysed with respect to parameters such as the solar zenith angle and the ozone vertical column.

On average, the GOME version 2.0 total ozone and the NDSC/Alpine ground-based observations are in close agreement, with mean relative difference and scatter of a few per cent.

Keywords: GOME, ozone, NDSC, stratosphere, validation, DOAS