



Vertical distribution of ozone from GOMOS

E. Kyrölä (1), J. Tamminen (1), V. Sofieva (1), J. L. Bertaux (2), A. Hauchecorne (2), F. Dalaudier (2), D. Fussen (3), O. Fanton d'Andon (4), G. Barrot (4), M. Guirlet (4)

(1) Finnish Meteorological Institute, Helsinki, Finland, (2) Service d'Aéronomie du CNRS, Verrieres le Buisson Cedex, France, (3) Institut d'Aéronomie Spatiale de Belgique, Brussels, Belgium, (4) ACRI-ST, Sophia Antipolis, France

(erkki.kyrola@fmi.fi)

GOMOS (Global Ozone Monitoring by Occultation of Stars) on ESA's Envisat-satellite measures transmission of light through the Earth limb using the stellar occultation method. From transmissions it is possible to retrieve ozone, NO₂, NO₃, H₂O, O₂, aerosols, neutral air density, and temperature profiles in the stratosphere and mesosphere. GOMOS has an UVIS spectrometer at 248-690 nm and two IR spectrometers at 750-776 nm and 916-956 nm. The spectrometers use 0.5 sec integration time, which provides 1.6 km or better vertical sampling frequency. Two fast photometers (1 KHz) record fast fluctuations (scintillations) in the stellar light. GOMOS measures during night and day but the quality of occultation measurements during day suffers from limb scattered solar light. On the other hand, limb scattered light recorded during occultation can be used for the retrieval of constituent profiles. During one day GOMOS measures 300-500 occultations leading to a good global coverage. During the first three years of operation GOMOS has measured about 300 000 occultations. An extensive validation program has shown that ozone profiles agree well with various validating data.

Using available GOMOS data it is now possible to build nighttime trace gas profile distributions. We will present here results for the vertical distribution of ozone and show how it correlates with the other distributions.