

UV/Visible Aerosol Extinction Measurements performed by GOMOS onboard ENVISAT: results for the period August 2002 to March 2005.

F. Vanhellemont, D. Fussen, J. Dodion, C. Bingen, N. Mateshvili and/or the GOMOS Team

Belgian Institute for Space Aeronomy, Brussels, Belgium (Filip.Vanhellemont@aeronomie.be / Phone: +32-2-3730380)

Launched in March 2002, the GOMOS (Global Ozone Monitoring by Occultation of Stars) instrument onboard the European Envisat satellite has already provided a wealth of information on the geographical and temporal distribution of several atmospheric species. Vertical profiles for these species are numerically retrieved from measurements of starlight that is transmitted through the atmosphere, at different tangent altitudes. The actual spectrum at each tangent altitude is measured within the UV/Visible wavelength range. Typically, within the useful range from 248 nm to 690 nm, gas concentration profiles for O₃, NO₂, H₂O, neutral air, and aerosol extinction profiles can be retrieved. Although stars are relatively weak light sources, the advantage of the star occultation lies in the fact that useful stars are available at all times during orbit. As a consequence, GOMOS has measured more than 300,000 occultations in the considered period from August 2002 to March 2005.

In this work we present results for the aerosol extinction retrievals. Using selection criteria for different occultation properties such as the star magnitude and the illumination conditions, a subset of reliable occultations were picked. Subsequently, a spatial and temporal binning was performed, and data were averaged. The resulting climatology provides a good view on the spatial distribution and temporal evolution of aerosols in the stratosphere. Special attention is given to the presence of PSCs in the Antarctic polar vortex and equatorial cirrus clouds. First results on particle sizes are also presented.