STELLAR OCCULTATIONS FROM GOMOS ON ENVISAT: OVERVIEW AND FIRST RESULTS

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GOMOS is the first space instrument dedicated to the study of the atmosphere of the Earth by the technique of stellar occultations (Global Ozone Monitoring by Occultation of Stars). From a polar orbit, it allows to have a good latitude coverage. Because it is self-calibrated, it is particularly well adapted to the long time trend monitoring of stratospheric species. With 4 spectrometers the wavelength coverage of 245 nm to 942 nm allows to monitor ozone, H2O, NO2, NO3, air, aerosols, O2, and the temperature profiles. Two additional fast photometers (1 kHz sampling rate) allow for the correction of scintillations, as well as a study of the turbulence regime. A high vertical resolution profile of the temperature may also be obtained from the time shift between the red and the blue photometer. ENVISAT was launched on March 1st, 2002, the first occultation occurred on March 20,and by June 21, 11,539 stellar occultations had been recorded.
The instrument concept and basic algorithm (spectral inversion, vertical inversion) will be presented, as well as operational constraints (selection of stars). Ozone is retrieved from 100 km down to the upper troposphere. Results on ozone, NO2, NO3, and H2O will be presented and discussed.