



Observations of thermospheric NO and kinetic temperatures from 5.3 μm emission measured by MIPAS on Envisat

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The Michelson Interferometer for Passive Atmospheric Sounding (MIPAS) observes atmospheric emissions in the mid-infrared (14.6 to 4.15 μm) with high spectral resolution (0.025 to 0.0625 cm^{-1}). It was launched into a polar sun-synchronous orbit on 1 March 2002 and has been measuring, since then, 1000 to 1500 vertical scans through the atmosphere every day, from pole to pole during day and night. The measurements cover the altitude range from about 6 to 70 km in nominal observation mode, and up to 170 km in special observation modes. In this talk we will focus on the measurements taken by MIPAS in its upper atmospheric mode (40-170 km).

As the NO emission lines are affected not only by vibrational non local thermodynamic equilibrium (non-LTE), but also by rotational and spin non-LTE processes, a non-LTE scheme including the three non-LTE populations has been developed. This has been coupled with an inversion scheme that allows to retrieve jointly the NO density and the kinetic temperature from the rotationally resolved NO MIPAS spectra at 5.3 μm .

In this talk, the methodology used and first results of retrieved kinetic temperatures and nitric oxide densities in the thermosphere (110-160 km) will be shown.