SAFIRE-A MEASUREMENTS OF O3, HNO3 AND N2O VERTICAL DISTRIBUTION FOR MIPAS-ENVISAT VALIDATION

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The SAFIRE-A (Spectroscopy of the Atmosphere by using Far-Infrared Emission - Airborne) Fourier transform spectrometer has been part of the core remote-sensing chemistry payload that was flown onboard the M-55 Geophysica high altitude aircraft during two mid-latitude campaigns carried out in July and October 2002 with the aim of validating the level-2 products of the ENVISAT chemistry instruments. Specific tasks of the SAFIRE-A limb sounding observations have been the validation of MIPAS O3, HNO3, N2O and H2O vertical distribution in the altitude range between the aircraft altitude (approx. 20 km) and the tropopause level. Results of measurements of Ozone, HNO3 and N2O, performed during the 24th of October flight are presented here. Vertical VMR (Volume Mixing Ratio) profiles acquired by SAFIRE-A are compared with those obtained by different in-situ sensors during the ascent and descent phases of the flight for an internal consistency check. Comparisons with the MIPAS-ENVISAT data for these target species are discussed and all the relevant information useful for their validation is highlighted.