



Comparisons between ground-based FTIR and MIPAS N₂O and HNO₃ profiles before and after assimilation in BASCOE.

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In the framework of the Network for Detection of Stratospheric Change (NDSC), regular ground-based Fourier Transform Infrared (g-b FTIR) measurements of many species are performed at several locations. Inversion schemes provide vertical profile information and characterization of the retrieved products. These ground-based products are therefore relevant for contributing to the validation of MIPAS profiles in the stratosphere and upper troposphere.

We have focused on the species HNO₃ and N₂O. Their vertical profiles have been retrieved from FTIR observations performed at 5 NDSC-sites distributed in both hemispheres, i.e. at the Jungfrauoch (46.5°N) and Kiruna (68°N), and at Wollongong (34°S), Lauder (45°S) and Arrival Heights (78°S).

These g-b data have been compared with MIPAS off-line profiles (v4.61) for the year 2003, under the best possible conditions for temporal and spatial collocation. The collocation conditions are a limiting factor in the comparison statistics. To go round this problem, we also made comparisons between the g-b FTIR data and the MIPAS profiles assimilated in BASCOE, which is a 4D-var operational assimilation system using a 3D-CTM of the stratosphere. Therefore, BASCOE analysis can be considered to provide proxies for the MIPAS data at any time and location.

The presentation discusses the results of both comparison approaches and addresses their potential contributions to the validation of MIPAS.