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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Validation of MIPAS HNO_3 operational data" *by* D. Y. Wang et al.

Anonymous Referee #4

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Validation of MIPAS HNO3 operational data by Wang et al.

This paper compares the operational retrieval of HNO3 performed by ESA from the MIPAS/ENVISAT dataset to a variety of other profiles retrieved from ground-based, airborne, balloon-borne and satellite measurements. The paper is clear and focused. It presents the right amount of materials (tables, figures) and about the right amount of details on the different datasets and different retrieval procedures. I recommend its publication, after some minor corrections.

1. The MIPAS and other data sets are searched for coincident measurements. Criteria on horizontal separation, time difference, and PV difference are used. a. The 300 km and 3h criterion is never justified. Is it imposed by the physics or by the statistics b. The different subsection (hence different authors?) do not have the same idea of statistical significance: 12 coincident profiles is enough for statistical consistency with FTIR

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(Jungfraujoch), but 23 coincidences are not considered enough for ASUR comparisons, for example. Most of the balloon measurements have even far less coincidence than 12 or 23. A more consistent approach should be used, or a better explanation when the criteria need to be relaxed. 2. The MIPAS and other data sets do not have the same altitude range and vertical resolution. a. The vertical range and vertical resolution is not always clearly stated for each other experiment than MIPAS, especially for the balloon-borne experiments. Please try to add this information. b. This is all the most valuable that the difference between the MIPAS and the others assume that there is not a priori information in the others. This will be of course only true where the information content dominates. So we need this information.

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 5173, 2007.