

Interactive comment on “Validation of ACE-FTS v2.2 methane profiles from the upper troposphere to lower mesosphere” by M. De Mazière et al.

M. De Mazière et al.

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Dear Manuel and Bernd,

Thank you very much for your useful comments on possible explanations about the large bias between ACE and MIPAS CH₄ at high altitude. We have examined each of them, and we can give the following answers:

As to your first question regarding the possible impact of NLTE processes above 50 km: As you suggested we have taken a separate look at the day-time only and the night-time only comparisons and we have not observed a clear difference between these two comparison sets (figures can be provided if desired). So this suggests that the NLTE effect is not responsible for the ACE-MIPAS bias at high altitudes. We will include this result in the paper.

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As to your second question regarding the truncation of negative values: There is indeed a large number of unrealistically small positive values (set to $1.0e-10$) at 60 km and above. 107 profiles out of 134 have a value set to $1.0e-10$ at one altitude at least. These values have been removed from the profiles in the comparisons and therefore this truncation problem may be a possible reason for a larger positive bias. We will mention this effect in the paper as a possible reason for the high positive bias at high altitudes.

We hope that these answers satisfy your questions. Thanks again for helping us to improve the paper.

Martine De Mazière On behalf of all authors

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 17975, 2007.

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