Atmos. Chem. Phys. Discuss., 7, S2667–S2668, 2007
www.atmos-chem-phys-discuss.net/7/S2667/2007/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Bias determination and precision validation of ozone profiles from MIPAS-Envisat retrieved with the IMK-IAA processor" *by* T. Steck et al.

T. Steck et al.

Received and published: 26 June 2007

We thank referee 3 for his/her helpful and comprehensive comments. With respect to his/her suggestions we will perform the following changes:

Reply to the specific comments:

1) Comparison to ESA official MIPAS product:
We agree that a comparison between IMK-IAA and ESA ozone products could be interesting for users. However, we think that this aspect should not be part of this paper, because a comparison of results between two different data processors gives no

validation of any of the two products. A validation can only be performed by comparisons to independent measurements. While certainly interesting in itself, a comparison between data processors is beyond the scope of a validation paper. Furthermore, a validation paper of the ESA official MIPAS product is published in ACPD (the reference in our manuscript will be updated). Every user can now draw his own conclusions concerning the ozone data quality of the official ESA and the IMK-IAA processors."

2) Application of MIPAS averaging kernel to HALOE results:
We agree that the asumption of 'similar' averaging kernels (AK) for MIPAS and HALOE at higher altitudes is questionable. MIPAS AKs will therefore be also applied to HALOE results. An example of MIPAS AKs together with a short discussion of these will be given. Tests in the past have shown that MIPAS AKs may have a visible influence on single profiles but the effect on the mean of a large ensemble of profiles is rather small.

3) Mesospheric comparisons with HALOE:
We are aware that mesospheric comparisons of ozone between an emission instrument like MIPAS and an occultation instrument like HALOE is affected by diurnal variations above 50 km altitude. The restriction to MIPAS twilight measurements above 50 km does not provide enough coincidences for a significant comparison. Therefore we will restrict the comparison to HALOE to 50 km altitude.

4) Coincident criteria in the vicinity of polar vortex edges:
We agree with the referee that comparisons close to the polar vortex edge are demanding. The inclusion of potential vorticity as an additional coincidence criterion has already been tested both in the context of comparison between HALOE and MIPAS (mentioned in Section 5.3.1 for HALOE precision validation) and comparison between ground-based remote measurements and MIPAS (not yet mentioned). In both cases it was found that the effect on bias determination and precision validation is marginal.

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 4427, 2007.

ACPD
7, S2667–S2668, 2007

EGU