Atmos. Chem. Phys. Discuss., 8, S326–S327, 2008
www.atmos-chem-phys-discuss.net/8/S326/2008/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Technical Note: Validation of Odin/SMR limb observations of ozone, comparisons with OSIRIS, POAM III, ground-based and balloon-borne instruments" *by* F. Jégou et al.

Anonymous Referee #4

Received and published: 22 February 2008

This paper brings together a substantial number of diverse data resources in the validation of the ODIN measurements. It will be a useful addition to the literature. However, it is unfortunate that there are no comparisons to major satellite data sets that have wider latitude coverage than POAM. An example would be SAGE-II, which has provided well-regarded measurements that have been used in numerous ozone trends analyses.

I have a number of minor comments:

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Figure 9 has a curious feature that looks like the thumb on a mitten. That is, there is a concentration of OSIRIS values at about 4 ppmv while the corresponding microwave values vary up to 7 ppmv. A similar feature is seen in the OSIRIS/ozonesonde scatterplot. If the reason for this feature is known, it would be useful to include it in the discussion of the feature.

Some experimenters include in their data products altitudes at which their instruments do not provide easily interpreted data, i.e. altitudes outside the range where the averaging kernels peak at or close to their nominal altitudes. If such data are included in the figures, the plots should be cut off at the altitudes at which the averaging kernels "pile up" to avoid confusion.

It would be easier to follow the discussion if altitudes were given in consistent units throughout the paper. The figures all show geometric altitude, but the text sometimes gives altitudes as pressure levels. If pressures are the preferred units, perhaps the approximate geometric altitudes could be shown after the pressure levels in parentheses, or typical pressures shown on the right hand ordinates of the profile plots.

The phrase "below 10 hPa" in the conclusions can be misinterpreted - it could mean "at pressures below 10 hPA" or "at altitudes below that at which the pressure is 10 hPa".

Because the mixing ratios in an ozone profile vary by more than an order of magnitude, I think it is preferable to quote profile differences in relative rather than absolute terms. An absolute difference of less than, e.g. 0.5 hPa, might be considered good agreement near the ozone peak but poor agreement in the mesosphere or lower stratosphere.

In the conclusions, around line 14, page 752, the statements "SMR V222 profiles are found to be lower..." and "This positive bias..." appear to be conflicting.

The discussion in the first few lines of page 753 should be clarified, particularly in terms of which comparisons it refers to.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 727, 2008.

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