Atmos. Chem. Phys. Discuss., 10, C6773–C6774, 2010
www.atmos-chem-phys-discuss.net/10/C6773/2010/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "GOMOS ozone profile validation using ground-based and balloon sonde measurements" *by* J. A. E. van Gijsel et al.

Anonymous Referee #2

Received and published: 24 August 2010

1. Numerous minor corrections to the English are needed. I strongly suggest that the paper be edited by a native English speaker, for example by one of the co-authors.

2. Pg. 8523, lines 13-15. The comment about the ozone cross sections is misleading and should be deleted. Nadir sounders are different from limb sounders and the comment seems to imply (incorrectly) that a relatively small change in the cross sections could have a big impact on GOMOS retrievals.

3. Pg. 8525, l. 10. Delete the irrelevant comment about hydrostatic equilibrium.

4. Pg. 8527, l. 4, 'linear spline' is misleading as splines are generally piecewise cubic polynomials. Perhaps 'linear interpolation' is meant.

5. Pg. 8527, l. 10. I disagree about the statement about using averaging kernels. The

resolution of a microwave radiometer is considerably less than that of GOMOS and needs to be taken into account. If the authors do not like averaging kernels then simply smoothing the GOMOS data to roughly match the vertical resolution of the radiometer is adequate. Contrary to the statement at the end of the paragraph, biases resulting from different vertical resolutions do not average to zero.

6. Pg. 8527, l. 17. Again I disagree strongly: measurements without some sort of error estimates are meaningless. Some sort of error estimates must be provided even if they are just 'typical values'. Lines 24-26 are misleading in this respect because using large numbers of profiles does not eliminate systematic errors.

7. Pg. 8528. I do not think it is valid to lump all of the validation data together because they come from such different sources. Clearly ozonesonde, lidar and microwave radiometer data have different statistical and systematic errors. The validation data sources need to be compared separately first. In particular, typical altitudes, vertical resolutions, precision of measurements and systematic errors for each of the three validation sources needs to be given in section 2. After individual comparisons, some sort of overall comparison is then fine.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 8515, 2010.