Atmos. Chem. Phys. Discuss., 7, S8800–S8802, 2008
www.atmos-chem-phys-discuss.net/7/S8800/2008/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "A model intercomparison analysing the link between ozone and geopotential height anomalies in January" *by* P. Braesicke et al.

P. Braesicke et al.

Received and published: 25 January 2008

We would like to thank reviewer 2 for his supportive and constructive criticism.

It is true that some aspects of the models show large differences. In the revised paper we provide more details on the manifestation of the PNA pattern in the various models as an important example for model capabilities and deficiencies. This paper serves as a reminder that different models, all of which can be useful tools for the right application, can also be different in some aspects. We have highlighted the differences which allow the reader to make their own choices!

1. Degrees of similarity are to some extent relative. For a modeller, figure 4 actually displays good agreement for ERA-40, E39C, ME4C and UMUCAM despite the discrepancies mentioned in the review. It is certainly true that the ULAQ model

is quite different; it illustrates the point that the dynamical capability of a model is resolution depend (not new, but a useful reminder). To implicitly distinguish the ULAQ model (using simplified dynamics) the figure layout shows it in the lower left corner.

2. We are happy to discuss this additional process, which is not highlighted in the current manuscript, in conjunction with the other processes (amending p15412, second paragraph). This process ties in with the fact that the high latitude anti-correlations are over large areas of smaller magnitude than the mid-latitude correlations (figure 2).

3. As mentioned in the reply to reviewer 1, we are happy to include a more explicit statement about the low statistical significance and a comment about the fortunate circumstance that the EOFs separate for January. Looking in the same way at December, February or March would not have worked as well, because the EOFs separate less well in the data sets used!

4. As mentioned in the reply to reviewer 1, we are happy to drop figure 3 and the accompanying discussion in favour of a tighter manuscript.

5. (Seems to be missing.)

6. We are happy to extend our discussion here.

7. The figure serves as a reminder how different the stability of the free stratosphere can be in the different models discussed (depending on the model top). We are happy to highlight this link stronger in the final discussion.

Reply to minor comments:

- Sentence will be dropped.

ACPD
7, S8800–S8802, 2008

- We will add the suggested literature to the discussion (Honda and Nakamura, 2001 and Orsolini, 2004).
- We will re-evaluate the usage and check for consistency.
- We will shorten some of the discussion relating to the partial ozone column for the revised manuscript.

ACPD

7, S8800–S8802, 2008