

Interactive comment on “Data assimilation of stratospheric constituents: a review” by W. A. Lahoz et al.

W. A. Lahoz et al.

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We thank Steve Eckermann for his constructive comments. This is our response:

Preamble:

We will take on board Steve’s personal comments, for which we are very grateful.

General comments:

P9563: We will mention in the introduction the use of ozone assimilation to improve NWP skill in the stratosphere.

P9582: We will expand the discussion about the Cariolle scheme to include the very interesting and useful comments made by Steve Eckermann. We will also update the McCormack et al. reference.

P9594 L6-10: We will expand the discussion of the OmF diagnostic, and incorporate the points made by Steve Eckermann.

P9626: We will keep the GOATS model in table 3 (CTM approach), but make a comment in section 7 (were we already comment on the BIRA-IASB/MSC Canada collaboration) that it has an affinity with the coupled approach.

Minor typos/suggestions:

P9573 L26: We will spell out the acronym "NMC" in the text. Note that the Appendix does define the NMC acronym.

P9574 L24: We will incorporate the change indicated.

P9576 L19: We will incorporate the changes suggested.

P9577 L12: We understand that CMAM may be more accurately described as a coupled system in which the GCM incorporates full chemistry. We will keep the mention of CMAM in section 3.1, but add a sentence or two about its coupled nature.

P9584 L28: We will also refer to the AIRS instrument on board Aqua.

P9586 L4: We will resolve the apparent contradiction in statements mentioned by Steve Eckermann.

P9587 L23 et seq: To aid the reader, we will refer back to the discussion in section 2.2.

P9594 L9, P9595 L7, L27: We will make the changes indicated.

P9599 L3, L12: We will make the changes indicated.

P9600 L2: We are not sure the statements are contradictory. P9583 L13-15 states that: "Finally, provided that there are no observational gaps, the complexity of the chemical scheme tends to have little effect on the quality of the ozone analyses." What we refer to is the complexity of the chemistry scheme (when chemistry is used). This does not mean that chemistry is not beneficial. However, an incorrect chemistry scheme could

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be worse than using no chemistry (P9583 L16-18). We will look again at the text in these pages and revise to avoid misunderstanding.

P9602 L15: Yes, it is the meteorological analyses. We will make this clear.

P9602-03: This is an oversight on our part, and we will mention NCEP efforts to monitor and forecast ozone. We thank Steve Eckermann for bringing this to our attention.

P9603 L10: We will include a reference to ozone mini-holes.

References: We will add the references identified by Steve Eckermann.

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 9561, 2007.

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