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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Comparison of CMAM simulations of carbon monoxide (CO), nitrous oxide (N_2O), and methane (CH_4) with observations from Odin/SMR, ACE-FTS, and Aura/MLS" *by* J. J. Jin et al.

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Some omissions that come to mind:

Why no correlation plots of different molecules? A scatter plot of CH4 v N2O or CH4 v CO would be a good way to reduce dynamical and sampling effects from the comparisons and highlight any particular instrumental discrepancies. Eg if CH4 is the major source of CO in the stratosphere I would expect [CH4]+[CO] to be conserved. Difficult to tell from the plots whether this is actually the case.

Why no comparison of H2O? It is generally well-measured by satellite instruments and, since most stratospheric H2O also originates from CH4, the approximately relation 2[CH4] + [H2O] = constant is another useful constraint on what is plausible.

Why no MIPAS data? N2O and CH4 products (and H2O) from 2002-2004 are public and considered validated, and the CH4 would provide the missing global measurements for comparison with CMAM.

Other minor comments:

p13071 last paragraph: since both SMR and MLS are limited to latitudes lower than 82.5 whereas CMAM presumably extends to the poles, for comparison purposes it would be better to limit the CMAM measurements averaged for the "60-90" degree bins to just the range "60-82.5". Not clear if this was done or not. (If not, might this explain features such as the larger CO maximum at the S Pole - p13074,lines 5-10?)

p13071 last paragraph - you mention the use of quality flags for the SMR data but no mention of those assoiciated with MLS - presumably you also used those?

Table 1: entry for Nov 2003 shows "30-" ? is the dash superfluous?

Figure 1 seems to have come out smaller than the others - too small to see anything much.

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Interactive comment on Atmos. Chem. Phys. Discuss., 8, 13063, 2008.