

Interactive comment on “Three years of greenhouse gas column-averaged dry air mole fractions retrieved from satellite – Part 2: Methane” by O. Schneising et al.

O. Schneising et al.

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Authors answers to interactive comments of anonymous referee number 1 on paper Schneising et al., Atmos. Chem. Phys. Discuss., 8, 8273–8326, 2008

First of all we would like to thank the referee for the comments. Below we give answers to all these comments which will all be considered for the revised version of the manuscript.

For the revised version of the paper we will add a section to discuss the impact of updated spectroscopy on the WFM-DOAS retrievals based on a reprocessed

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SCIAMACHY data set.

Acronyms will be defined the first time they are introduced.

Small constant bias to FTS: As the ground-based FTS use different spectral fitting windows as used in the SCIAMACHY retrievals and the accurate knowledge of spectroscopic parameters is important (see, e.g., Sect. 6), differences in the accuracy of the spectral line parameters between the different fitting regimes could actually account for some of the bias.

P8279, L6: Will be corrected.

P8279, L13-19: Will be considered.

P8282, L21: Will be replaced.

Section 3.3, cloud identification: For the standard methane product only the a priori O_2 column is used. The more strict PMD filter is solely used when normalizing with O_2 because in this case cancellation of (path length related) errors is worse (compared to a normalization with CO_2) because of spectral distant fitting windows.

P8287, L10: Will be done.

P8288, L11-16: The introduction will be shortened accordingly.

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P8289: Will be added.

P8289, L5-15: Descriptions will be listed as bullet points. This is a list of comparisons with the TM5 model. The figure ordering is due to the logic (regardless of whether TM5 is involved or not) of first showing results when assuming a constant CO₂ mole fraction (Figures 2-3) and afterwards demonstrating the effect of the CarbonTracker correction (Figures 4-11).

P8293, L9 and L26: Will be corrected.

Conclusions: "For the first time" refers to the time period 2003-2005. This will be clarified in the revised version.

Conclusions: The two main conclusions of the TM5-4DVAR analysis will be listed as bullet points.

Figures 3, 6, 7, 8, 9, 16: Comments will be considered. The additional top row plots of Figures 6, 7, and 8 showing the retrieved methane column VMRs are plotted on the same scale for all three figures. The original x-axes of the bottom plots of Figure 9 were chosen to span the same ppb-range as the top plots (300 ppb).

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 8273, 2008.

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