

***Interactive comment on “Comparisons between  
SCIAMACHY atmospheric CO<sub>2</sub> retrieved using  
(FSI) WFM-DOAS to ground based FTIR data and  
the TM3 chemistry transport model” by  
M. P. Barkley et al.***

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The authors would like to thank Christian for his useful comments.

Specific Comments:

We have changed ‘excellent’ agreement to ‘reasonable’ throughout the manuscript.

Page 5399: The polynomial has been added to Fig. 2. In addition we have only plotted the daily averaged FTIR data for clarity. The authors agree that a more comprehensive set of ground based observations is needed for SCIAMACHY validation.

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Page 5401, line 13: The origin of the CO<sub>2</sub> enhancement in April, over Ellesmere Island, has not been identified. Whether this is due to aerosols, is unclear. Plots of SCIAMACHY CO<sub>2</sub> for April 2004, however, also show this enhancement. This could possibly be due to the build-up of CO<sub>2</sub> at high latitudes during the winter months.

General Comment: Seasonally varying biases and their origin are a cause of concern and are likely to be linked to changes in the surface albedo (e.g. snow/ice cover, changes in vegetation etc.). Further work (and SCIAMACHY processing) is necessary to determine their true cause (e.g. the seasonal bias may only be evident at mid-high northern latitudes).

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Interactive comment on Atmos. Chem. Phys. Discuss., 6, 5387, 2006.

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