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Atmospheric Measurement Techniques Discussions

Interactive comment on "SCIAMACHY WFM-DOAS XCO_2: comparison with CarbonTracker XCO_2 focusing on aerosols and thin clouds" *by* J. Heymann et al.

Anonymous Referee #2

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In this work the authors present an investigation into the effect of clouds and aerosols on their SCIAMACHY XCO2 WFM-DOAS retrievals. A detailed explanation of the two cloud detection methods is provided along with simulation results. The manuscript goes on to discuss in detail a scan-angle correction and then performs comparisons to the CarbonTracker model data with an assessment of the effect of clouds/cirrus.

I recommend for this manuscript to be published although further discussion in a few areas would potentially improve the manuscript.

A large part of the manuscript discusses the viewing geometry correction necessary

to account for errors related to the necessary simplifications of the radiative transfer. Whilst important, this does lead to the main analysis section being somewhat short and the information largely confined to several tables, with only 2 regions being discussed and neither in great detail. A more detailed discussion of the results (e.g. in Table 5) would likely prove interesting.

As already mentioned by my fellow reviewer, there does appear to be a strong seasonality in the correction and some discussion of this should be provided. I agree that it would also prove interesting to compare against TCCON but that this may be beyond the scope of this manuscript.

Interactive comment on Atmos. Meas. Tech. Discuss., 5, 2887, 2012.