Atmos. Chem. Phys. Discuss., 9, C804–C805, 2009
www.atmos-chem-phys-discuss.net/9/C804/2009/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "An assessment of the accuracy of the RTTOV fast radiative transfer model using IASI data" *by* M. Matricardi

Anonymous Referee #1

Received and published: 13 May 2009

General:

The manuscript describes an evaluation of differences between different setups for the same radiative transfer model. This evaluation is then applied to recent IASI data. The manuscript all in all is fairly well written, although at first I had serious problems in understanding what the main idea is.

There is a conceptual weakness in this manuscript (although I really treasure the work that has been invested): the application to the newly available data actually is the only obvious innovation in this manuscript because the presented method only uses already published material. Unfortunately this is not highlighted. What I completely miss in this manuscript is the link to the products, i.e. profiles, and what impact on them is to be expected from the different setups for the radiative transfer model.

Specific comments:

Section 1 and 2

At some points the authors assume to much specialized knowledge, i.e. âĂć For me it was not instantly clear what the difference between a LBL model and a radiative transfer model is. âĂć What is a predictor in this context? âĂć How is the the observation geometry of IASI taken into account? âĂć Error covanriance matrices are not explained in formulas and I am not sure if erorr propagation happens by just adding covariance matrices.

Section 3

I have the feeling that the text could be shortened when it comes to the description of the the different LBL codes, but I am not familiar enough with the details of these algorithms to judge. After section 3.3. the text should be structured by introducing additional sections i.e. p9500 beginning from l12, p9501 beginning from l5 and p9501 beginning from l17.

Section 4

I found it difficult to follow the discussion while the authors jump between microns and wavenumbers, e.g. I didn't know where the ozone band is located on the scale given in the figures. I am not a spectroscopist therefore I am not sure if the lenght of the discussion is really necessary to work out all important features. I miss an assessment how the differences in the spectra translate to differences in actual atmospheric constituents' profiles.

Table 1

I think the caption is misleading, because this table does actually not contain coefficients.

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 9491, 2009.