

Interactive comment on “Simulations of column-average CO₂ and CH₄ using the NIES TM with a hybrid sigma-isentropic (sigma;–theta;) vertical coordinate” by D. A. Belikov et al.

Anonymous Referee #1

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This paper describes improvements made to the NIES TM model and provides a thorough analysis of the new model outputs against balloon-borne, ground-based in-situ and TCCON FTS observations.

The initial sections introduce the problem being addressed and provide the reader with substantial background into the issues faced. The latter sections then discuss how well these issues have been overcome, with comparisons to various observations used to determine the skill of the model. Where differences/deficiencies do exist, the author is able to provide an explanation as to the reasons (e.g. significant local urban sources

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close to the Wollongong TCCON site).

The paper in general is very well written and proceeds in a logical order. I recommend that this paper is published subject to (very) minor revisions.

The only minor comment I have is that it may be useful to contrast some of the results to the previous version of NIES TM. I don't believe this is necessary for publication and will leave it at the author's discretion on whether to include such a comparison.

Technical corrections/typos:

P8056 L9: I believe the author means "rectifier" not "rectifer"

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 8053, 2012.

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