

Interactive comment on “Retrieval of temperature and water vapor profiles from radio occultation refractivity and bending angle measurements using an optimal estimation approach: a simulation study” by A. von Engel and G. Nedoluha

Anonymous Referee #2

Received and published: 13 April 2005

GENERAL COMMENTS

1) Does the paper address relevant scientific questions within the scope of ACP?

The authors discuss retrieval capabilities of radio occultation data using the Optimal Estimation Method based on simulations and show advantages and disadvantages of assimilating bending angles and refractivity in NWP models. Because this is a topic

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of importance and current research the paper should be published in ACP after minor revision.

2) Does the paper present novel concepts, ideas, tools, or data?

Yes.

3) Are substantial conclusions reached?

Yes, but see also the specific comments.

4) Are the scientific methods and assumptions valid and clearly outlined?

Yes, but see also the specific comments.

5) Are the results sufficient to support the interpretations and conclusions?

Yes, but see also the specific comments.

6) Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)?

Yes.

7) Do the authors give proper credit to related work and clearly indicate their own new/original contribution?

Yes.

8) Does the title clearly reflect the contents of the paper?

Yes.

9) Does the abstract provide a concise and complete summary?

Yes.

10) Is the overall presentation well structured and clear?

Yes.

11) Is the language fluent and precise?

Yes.

12) Are mathematical formulae, symbols, abbreviations, and units correctly defined and used?

Yes.

13) Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated?

No.

14) Are the number and quality of references appropriate?

Yes, but see also the specific comments.

15) Is the amount and quality of supplementary material appropriate?

Yes.

SPECIFIC COMMENTS

p. 1586, lines 2-5:

I assume that the authors mean assimilation impacts for NWP models. It is not very clear how simulated RO data alone can be used for assessing assimilation impacts.

p. 1591, lines 14-17:

Not only the CT method can improve the vertical resolution, but also the FSI (Jensen et al., 2003: Full spectrum inversion of radio occultation signals, Radio Sci., 38(3): 10.1029/2002RS002763).

Table 1:

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Please, specify the unit of refractivity errors.

Interactive comment on Atmos. Chem. Phys. Discuss., 5, 1585, 2005.

ACPD

5, S442–S445, 2005

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