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Atmospheric Chemistry and Physics Discussions

Interactive comment on "PM measurement campaign HOVERT in the Greater Berlin area: model evaluation with chemically specified particulate matter observations for a one year period" *by* M. Beekmann et al.

Anonymous Referee #3

Received and published: 27 September 2006

This manuscript evaluates a chemical transport model of medium complexity designed for the regional and urban scale that has been constructed by combined an urban scale photochemical model and a regional scale model.

The large applicability of this regional/urban scale model for air quality studies justifies the interest of the study. In addition the model evaluation is quite systematic since it is performed by comparison with one-year observations of chemically speciated particulate matter in Germany. For these reasons the paper is acceptable for publication in ACP after a number of revisions that will improve the quality of presentation of the

results.

In this perspective, in addition to the other referee's comments, I have the following remarks:

1. I suggest that the description of observations data set (section 3) is expended to include parts of the discussion that refer to the observations like i) page 7302, problems with NH4NO3 evaporation form filters, ii) page 7303, line 16, biases in EC measurements, iii) page 7304, lines 15-18, comments on EC measurement techniques.

2. At different places in the paper, the authors mention: "assuming correct NOx emissions" (page 7286, line 15 and page 7307, line12). Is there any way to check the correctness of the NOx emissions (for instance coherence with observations)?

3. page 7292, lines 1-2, provide references.

4. page 7292, lines 24-26: break in two sentences

5. page 7293, line 7: '1-product isoprene scheme' provide equation.

6. page 7294: justify choice of lumping compounds for terpenes (why limonene and not b- pinene?)

7. page 7296, last two lines: Could the authors provide an explanation for the underestimate of the observations by the nested simulations?

8. page 7299 (4.3): It seems that there is a better correlation between large scale simulations and observations than for the nested simulations. This deserves discussion and an explanation, if possible. One would expect that the nested simulations perform better! Are the emissions that are too high? Is chemistry that is significantly different?

9. page 7300, lines 3-6: rephrase

10. page 7300, lines 12-14: Could you provide the physical meaning of the "annual average over all correlation coefficients" ?

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11. page 7300, lines 10-11: Can the authors distinguish between the effect of emissions and that of transport? If yes, discuss. If not, could they comment what information could help in this direction?

12. page 7308, lines 1-2: I did not find a clear support to /proof for this statement in the main text.

13. Figure 2 is of poor quality, improve and add titles in the various panels.

14. Improve Figure 3 captions explaining the different columns.

15. Finally a list of acronym definitions would be very useful.

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 7285, 2006.