

Interactive comment on “Saharan dust and ice nuclei over Central Europe” by H. Klein et al.

Anonymous Referee #3

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The manuscript by Klein et al. is interesting; I recommend publication after minor revisions, as listed below.

1. For clarity PM10-dust should be renamed PM10-model .
2. Model description (Section 2.2): The size bin should be left out of table 1 as it is not used, instead it can be noted in the text that the model can simulate dust up to 20µm. Since the different dust size fractions do not interact in the model (to my knowledge) just describing the 7 size bins that are actually used is sufficient.
A sentence each on the dust emission and deposition parameterization in the model would be good
3. Section 3.1: Showing the vertical distribution of dust concentration along the trajectory arriving at the measurement site on May 29 would be interesting (not urgent, just

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would be a nice addition helping to understand the dust transport

4. Figure 4: The colour bars should be adapted to match each other at least crudely to get a better feel for model matches/mismatches with observations

Case description: 5. Figure 5 (and Figure 7): The numbers and letters are hardly readable, please increase font size.

6. Figure 5: Please compare also with model size distribution to evaluate how well the size distribution at for the larger particles match, also to see if the argument that the small particles in the observations are not influenced by dust is shown in the model results.

7. The authors mention convection and thunderstorm development in the vicinity of the Taunus, is there an indication that the dust cloud itself encountered those conditions?

8. Figure 6: What is the time of day where peak concentrations are observed? Any indication for meteorological patterns modifying the peaks?

9. The model results should also be compared with other data, notably modelled aerosol optical thickness with sunphotometer measurements from the Aeronet network rather than show just the results at the sampling site to strengthen the model credibility.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 14993, 2010.

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