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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Tropospheric aerosol size distributions simulated by three online global aerosol models using the M7 microphysics module" *by* K. Zhang et al.

Anonymous Referee #1

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This paper presents a model intercomparison among three global models that include the same microphysical aerosol scheme, M7. Aerosol mass budgets, aerosol lifecycles and number concentrations are compared among the models and with observations. Furthermore the paper serves as well as model description paper of the LIAM model, as this model has not been published in the English literature. The paper is clearly written, and I have no mayor concerns, only some minor comments. Minor comments: P5804 l 2: modal approach of what? The word aerosol microphysical model should be part of that sentence. L5 The reason for this study is to identify the influence of the host model on the aerosol simulation. Rewrite the second sentence. P5807 L5: Give references for the different methods. P5806. I don't understand the meaning of the

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sentence in line 1 – 5. P5811 L 4: Is there a reference available for the inclusion of nucleation schemes into the M7 model respectively ECHAM or CAM. P5819 l8: What do you mean by 'other conditions'? P5825 l10: It is not clear why the influence of aging on the size distribution can't be investigated. That should be straight forward. Why not combine Fig1 and 6? Or at least present them next to each other. Fig 8: The campaign and region name could be mentioned in the map for easier orientation later. P 5843, table 1: Model resolution should all be given in degrees. P5845 table 3: nucleation etc typo

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Interactive comment on Atmos. Chem. Phys. Discuss., 10, 5803, 2010.