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Atmospheric Chemistry and Physics Discussions

Interactive comment on "A parameterisation of the soot aging for global climate models" *by* N. Riemer et al.

Anonymous Referee #2

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The paper addresses the important topic of soot aging. Compared to the previous version the manuscript has been improved. Still there are points that need to be addressed before the manuscript can be accepted for publication.

Major comments

Two scenarios were investigated, a typical summer situation and a typical winter situation, for three days each: How general are the results using only these two scenarios? If they are cloud-free days, how can they be representative of continental conditions?

In the previous version of the manuscript it was said during the night the production of H2SO4 ceased and in the model condensation stopped. Has this condition been removed? Is now sulfuric acid condensing on the particles during the night?

Furthermore there is not a discussion about whether the range of conditions for which the parameterizations were derived covers the conditions encountered at the global scale; to my opinion without this the paper cannot be published.

Minor comments

Can the authors suggest the maximum height up to which they expect that the parameterisations work?

After stressing that the removal rate and the aging time scale is height dependent in winter case (pag 8) the authors neglect the dependence in winter conditions and it is not clear why.

Interactive comment on Atmos. Chem. Phys. Discuss., 4, 2089, 2004.