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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Simulation of particle size distribution with a global aerosol model: contribution of nucleation to aerosol and CCN number concentrations" *by* F. Yu and G. Luo

J. Pierce (Referee)

jeffrey.robert.pierce@gmail.com

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Thanks for response, Fangqun.

I am still unclear about specific comment #12, the coagulation timescale. Is the variable coagulation timescale tied to the timescale of nucleation/condensation/h2so4 production? If the coagulation timescale is reduced from 15 minutes to 1 minute because of very high particle concentrations, do you also reduce nucleation/condensation/h2so4 production to 1 minute and integrate all 4 of these processes together? If you don't, a particle may form and grow to a larger size within the nucleation/condensation/h2so4 production timestep (that hasn't been reduced because it isn't been coupled to coagu-

lation) without having accounted for the coagulation during this time (even if you have a variable coagulation timestep).

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 10597, 2009.