Atmos. Chem. Phys. Discuss., 10, C12531–C12532, 2011
www.atmos-chem-phys-discuss.net/10/C12531/2011/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Atmospheric homogeneous nucleation of H_2SO_4 and H_2O" *by* D. R. Benson et al.

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Received and published: 19 January 2011

I am a chinese phd student, currently i am working on a project regarding atmospheric nucleation (focus on the effects of ammonia and amines). Not sure whether my comments are useful, but i would like to point out that:

(1)The role of ammonia in the nucleation should always be paid careful attention. Indeed, impurities of NH3 are hardly to remove. So a clear explaination and treatment to ensure a contition for binary nucleation is necessary.

(2)on the other hand, the effects of amines might be much more important. Recently, i found a couple of important papers, probably worthy to be mentioned.

Lin Wang, Alexei F. Khalizov, Jun Zheng et al. Nature Geoscience 3, 238 - 242 (2010)

(Nanoparticle growth increased with relative humidity in the presence of glyoxal and trimethylamine)

X.Ge, A.S.Wexler, S.L.Clegg. Atmospheric amines – Part I. A review Atmospheric Environment. doi:10.1016/j.atmosenv.2010.10.012 (Sources of a lot of amines are summarized, clearly shows that amines have similar sources as NH3, probably can be referred as NHx to indicate NH3 and amines)

X.Ge, A.S.Wexler, S.L.Clegg. Atmospheric amines – Part II. Thermodynamic properties and gas/particle partitioning. (I am communicating with the authors why they didn't present the results regarding aminium sulfate/bisulfate while there are results for chlorides and nitrates. At least, they showed that amines typically have a stronger partitioning ability into the particle phase than ammonia based on equilibrium thermodynamics.)

(3)I am wondering Why 287K is chosen to be "atmospherically relevant conditions"?

(4) D. Brus, et al. Homogenous nucleation of sulfuric acid and water at atmospherically relevant conditions. Atmos. Chem. Phys. Discuss., 10, 25959-25989, 2010.

This MS almost talked about the same question as this paper. The authors should compare with each other.

Thanks a lot

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Interactive comment on Atmos. Chem. Phys. Discuss., 10, 29051, 2010.