

Interactive comment on “The effect of varying levels of surfactant on the reactive uptake of N₂O₅ to aqueous aerosol” by V. F. McNeill et al.

Anonymous Referee #2

Received and published: 9 February 2006

The manuscript deals with the influence of surfactants in sub-monolayer and monolayer concentrations on a reactive uptake process. The paper gives another example for the complexity of atmospheric-chemical processes introduced by organic aerosol components. The discussion of the importance of films on particles lasts several decades and is still not settled yet. The paper is excellently and carefully written and should be published in ACP with a minor changes.

p. 22 line 15 Based on a surface area weighted average particle volume ... Is that V calculated for R at the maximum of the surface size distribution S_{max} ?

p.22 line 25 log normal size distribution with GSD = 1 is an infinitely sharp spike

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

p.23 line 6ff, Fig1b The cut point of the DMA seems more like 400nm, how do you know that the effect is only 30-50% in S.

p. 29 line 23 the value of the rate coefficient k_5 would be helpful

p.28 1st paragraph 1, lines 5 - 18 Regarding the larger Δ ; on NSW aerosol: is it possible, that the data on uncoated NSW aerosol are on error? In Fig. 4 it looks like that both systems NaCl and NSW are similar within the errors, when coated. Only the non coated NSW and the point with the smallest SDS load fall out of line! Were the CMD's of these size distribution for these two larger than for the other measurements so that SMPS cut point is more severe?

I support the view of the authors that surfactant layers do have significant effects on reactive uptake. I have some doubts, if they are really inhibiting non-reactive gas-particle processes, like water uptake and evaporation, on atmospheric relevant time scales. An exception maybe fast rising air parcels and cloud formation

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 17, 2006.

[Full Screen / Esc](#)[Print Version](#)[Interactive Discussion](#)[Discussion Paper](#)