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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Do organic surface films on sea salt aerosols influence atmospheric chemistry? – A model study" *by* L. Smoydzin and R. von Glasow

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I wish to draw the attention of the authors to papers in the literature which are of relevance to their interesting work. There are important papers dating back to 1999 which are directly originators of some key ideas in the surface oxidation of organic coatings on aerosols. A few examples are given below.

This paper cites the work of Gill et. al. who, in 1983 proposed that an inert, unreactive and impenetrable surfactant coating can exist on marine aerosols and affect their properties. The paper mistakenly cites Gill et. al. for explaining the role of organic surfactants on atmospheric aerosols, ideas developed in Ellison, Tuck and Vaida1 who

pointed out that atmospheric processing of the surfactant layer is responsible for generating a hydrophilic coating, a process which affects droplet activation and growth. Citation to this paper and related literature is missing1-3.

The authors cite a few papers, which use laboratory models to study the properties of organic films, mostly using oleic acid and comment on the lack of relevant work. Missing from the literature cited are studies using other laboratory models relevant to atmospheric aerosols4-8.

The paper states, incorrectly, that chemical analysis of sea salt aerosols can only give information about functional groups. Particularly striking is the omission of references to literature that can give molecular speciated results, especially about the composition at the surface9-11.

1. " Atmospheric Processing of Organic Aerosols" G.B. Ellison, A.F. Tuck and V. Vaida J. Geophys. Res. 104, 11,633-11,641 (1999) 2. "Optical and Chemical Properties of Atmospheric Aerosols" V. Vaida, A. F. Tuck and G. B. Ellison Phys. Chem. Earth 25, 195-198 (2000) 3. "The influence of organic films at the air-aqueous boundary on atmospheric processes" D. J. Donaldson, V. Vaida Chem. Rev. 106 (4): 1445-1461 (2006) 4. "Processing of unsaturated organic acid films and aerosols by ozone" T. L.Eliason , S. Aloisio, D. J. Donaldson, , D. J. Cziczo and V. Vaida Atmos. Environ 37, 2207-2219 (2003) 5. "Permeability of Acetic Acid through Organic Films at the Air-Aqueous Interface" J. B. Gilman and V. Vaida J. Phys. Chem. A 110, 7581-7587 (2006) 6. "Oxidation of organic films relevant to atmospheric aerosols" T.L. Eliason, J.B. Gilman and V. Vaida Atmos. Environ 38(9) 1367-1378 (2004) 7. "Kinetics and products of the reaction of gas-phase ozone with anthracene adsorbed at the air-aqueous interface" B.T. Mmereki, D.J. Donaldson, J.B. Gilman, T.L. Eliason and V. Vaida Atmos. Environ 38(36), 6091-6103 (2004) 8. "Selectivity and stability of organic films at the air-aqueous interface" J.B. Gilman, T.L. Eliason, A. Fast and V. Vaida J. Colloid and Interface Science 280, 234-243 (2004) 9. "Identification of an organic coating on marine aerosol particles by TOF-SIMS" H.Tervahattu, J.Juhanoja, K.Kupiainen J. Geophys. Res. 107, Art. No.

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4319, (2002) 10. “Fatty acids on continental sulfate aerosol particles” H.Tervahattu, J.Juhanoja, V.Vaida, A.F.Tuck, J.V.Niemi, K.Kupiainen, M.Kulmala, H.Vehkamaki J. Geophys. Res. Atm. 110, (D6) Art. No. D06207, doi:10.1029/2004JD005400 (2005) 11. “New Evidence of an Organic Layer on Marine Aerosols” H. Tervahattu, K. Hartonen, V-M. Kerminen, V. Vaida, A.F. Tuck, K. Kupiainen, P. Aarnio and T. Koskentalo, J. Geophys. Res. 107 (D7), Art. No. 4053, doi:10.1029/2000JD000282, (2002)

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