

Interactive comment on “Sub-Antarctic marine aerosol: significant contributions from biogenic sources” by J. Schmale et al.

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This is a very interesting, comprehensive and also detailed paper. I am specially interested in the PMF identified AA factor and MSA-OA factor due to my recent work. 1) I agree that AA factor arises from the hatching activities of penguins although there is no direct evidence. Our recent review (Ge et al., Atmos Environ, 45, 524-546) points out that anaerobic biological processes, for example in animal husbandry, can produce amines. 2) The study identified MSA-related ions, and the MSA-OA factor shows also a good correlation with SO₄. This is somehow similar to our observations in Fresno (Ge et al., Environmental Chemistry, 9, 221-235). We provided HR-AMS spectrum for pure MSA in this paper. However, our results suggest significant aqueous-phase

C2673

production of both MSA and SOA species, is this also likely in this study? 3) The air in this region is very clean so that overall mass loading were very low. The LOD for the organics is 0.1 microgram m⁻³, while the average mass concentration of total OA is very low according to Figure 4. For the individual PMF OA factor, the loading are frequently lower than the LOD. Did the authors have some special measures to treat the very noisy data? Is this why PMF is applied on UMR data rather than HR data, since fitting results are not very well for some ions?

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C2674