

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

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Responses to Ge

Thank you for commenting on our paper.

1) We agree that it is very likely that the amines and amino acids originate from the hatching of penguins. Based on the process of elimination that we demonstrate in the paper, this is the only plausible explanation. It is interesting to see that you have made related observations in animal husbandry. This supports our conclusion.

2) We have now compared your MSA spectrum with ours (based on the PMF result). And the correlation is $R^2 = 0.36$. With regard to the question whether aqueous chem-

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istry is responsible for SOA formation, we cannot give a clear answer. The emission sources for organic species are partly very different from your study in Fresno while meteorological conditions in terms of frequent rains and fogs might be comparable to some degree. Based on our analysis we can say that sulfuric acid plays an important role in the aerosol chemistry but cannot say whether SOA was primarily formed or oxidized due to aqueous phase chemistry.

3) That is correct, the average mass loading of all aerosol species is relatively low. For organics this is $0.26 \mu\text{g}/\text{m}^3$. For the PMF OA factors however not the overall organic LOD is relevant but the specific factor LODs. We did not apply any special treatment for noisy data. In fact, just because average values are low doesn't mean that the data is very noisy. In Figs. 9, 11, and 14 for example you see that we derived clear signals and PIKA fittings are good. The reason for publishing the UMR PMF analysis is that we already generate quite a large amount of results that are worth sharing. There is still the opportunity to perform HR PMF analysis.

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