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Concerning the research article:

Methane sulfonic acid enhanced formation of molecular clusters of sulfuric acid and dimethyl amine

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Letter to the editor:

Reviewer nr. 2 requests that we address the importance of heterogenous MSA formation pathways. From the original comment, we mistakenly got the impression that the reviewer was referring to homogeneous MSA formation, hence our inaccurate reply.

Upon reviewing the suggested references, we acknowledge that DMSO or MSIA oxidation at the particle surface forming MSA is a plausible explanation for the high MSA/sulfate ratios found in aerosol particles. We agree with the reviewer that our manuscript need some adjustments.

In the introduction we have added the following:
It is generally accepted that much particulate MSA originate from surface oxidation of dimethyl sulfoxide (DMSO) and methane sulfinic acid (MSIA) (Davis et al., 1998; Barnes et al., 2006). However, in a recent study by Dall'Osto et al. (2012), gaseous MSA concentrations were found to decrease during marine particle formation events, suggesting that MSA may contribute to growth and possibly formation of the initial molecular clusters seeding aerosol formation.

And in the conclusions the following:
Using this model, we are thus unable to explain MSA/H_2SO_4 ratios up to 30 % observed by Ayers et al. (1991), Huebert et al., (1996) and Kerminen et al. (1997) in small aerosol particles. This strengthen the hypotheses that surface oxidation of DMSO or MSIA is the major source of particulate MSA (Davis et al., 1998; Barnes et al., 2006). However, we have shown that MSA may enter the aerosol particle at the earliest possible stage and significantly assists in cluster formation.

On behalf of all authors,

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