

## ***Interactive comment on “Sensitivity of black carbon concentrations and climate impact to aging and scavenging” by Marianne T. Lund et al.***

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We thank Dr. Cenlin He for useful comments and for making us aware of the additional literature.

1) We agree and have added a paragraph discussing the limitation of not considering secondary organic aerosols in the aerosol microphysics parameterization in our study, including reference to He et al. (2016a).

2) These are indeed important issues. As for i), we already include this topic. Regarding ii), we have added a comparison of our study with the paper by Fan et al. (2012) who investigate ice formation processes, including the WBF process (we do not cite the Qi et al. (2016a) paper at this point as it is still under review).

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3) The absorption enhancement is a key factor for the RF of BC. In our RF calculations, we use the precalculated kernel from Samset and Myhre (2015). Samset and Myhre (2015) discussed the missing coating effect during BC aging in CAM4 in detail. We have added a reference to that discussion, but do not include further details our study since we focus on RF differences from the baseline case.

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[Interactive comment on Atmos. Chem. Phys. Discuss., doi:10.5194/acp-2016-782, 2016.](#)

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