

***Interactive comment on “Ship-borne aerosol profiling with lidar over the Atlantic Ocean: From pure marine conditions to complex dust-smoke mixtures” by Stephanie Bohlmann et al.***

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The paper presents results of shipborne lidar measurements using Raman lidar on two expeditions across the Atlantic Ocean. This is a very nice paper with some useful findings of the marine aerosol under changing relative humidity conditions that have applications to aerosol typing algorithms. In particular the authors find a highly depolarizing aerosol layer above the marine boundary layer when the environment is dry. This may indicate crystallized seasalt particles. The paper also discusses smoke-dust mixtures over the ocean and the relative distribution of these species in the vertical. My concerns and comments are embedded in the attached document. I do

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not see any unsurmountable issues and would recommend the paper for publication if the concerns and comments are addressed.

Please also note the supplement to this comment:

<https://www.atmos-chem-phys-discuss.net/acp-2018-54/acp-2018-54-RC1-supplement.pdf>

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