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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Compositional changes of present-day transatlantic Saharan dust deposition" *by* Laura F. Korte et al.

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Dear Dr. Schwarz,

Thank you very much for handling the review process of our manuscript. We received three positive reviews from anonymous reviewers with constructive comments improving the readability and understanding of our manuscript. For this, we would like to thank the three reviewers, and we now acknowledge this in the manuscript.

Firstly, we received comments on the title of the manuscript, which is crucial for the public reading. We agree to the reviewers' comments and decided to change the title from: "Compositional changes in present-day transatlantic Saharan dust deposition", to: "Downward particle fluxes of biogenic matter and Saharan dust across the equatorial North Atlantic". Secondly, the introduction of the manuscript was modified, con-

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Discussion paper

centrating on the uniqueness of our experimental set-up of simultaneous particle flux sampling across the entire Atlantic Ocean, including Saharan dust particles.

We received comments on the horizontal dust fluxes collected on the Mauritanian coast. Initially, we used these pure dust samples mostly showing that their element composition is very similar to that of the residual (lithogenic) mass fraction in our samples from the deep ocean, i.e. are derived from the same dust source. Relationships between particle size and the meteorology of dust deposition have recently been accepted as an ACP-Discussion paper by Friese et al., (doi:10.5194/acp-2017-131). However, in order for our manuscript to be clear as such, we added meteorological data to the dust fluxes to set these into context.

Furthermore, questions were raised on the XRF method we used to evaluate the element composition of the samples. We agree that we should elaborate on these XRF-analyses, since they provide a well-accepted and much applied easy and quick way to analyse wet sediment cores but have not been applied to dry sediment trap material before.

Additional concerns about the methods, analyses and calculations of the marine particle fluxes were taken into account and the appropriate parts of the manuscript were rephrased accordingly. In addition, more information is now provided to clarify the methods as such, also for a wider scientific audience. Lastly, minor comments were implemented to promote the readability.

Modifications in response to referee #1 are colored in red, to referee #2 in green and to referee #3 in blue. The comments of the reviewers are in normal text and our reply in italics. We hope you agree with us that the manuscript has much improved and merits publication in ACP.

On behalf of all co-authors, yours sincerely, Laura Korte

Please also note the supplement to this comment:

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http://www.atmos-chem-phys-discuss.net/acp-2016-1068/acp-2016-1068-AC1-supplement.pdf

Interactive comment on Atmos. Chem. Phys. Discuss., doi:10.5194/acp-2016-1068, 2016.

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