Atmos. Chem. Phys. Discuss.,
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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Source apportionment of the submicron organic aerosols over the Atlantic Ocean from 53° N to 53° S using HR-ToF-AMS" *by* Shan Huang et al.

Anonymous Referee #2

Received and published: 22 May 2018

The technical aspect of the current paper is very good, and the data of very high quality. Being able to collect so many cruises with HR-ToF-AMS data is a really valuable contribution to the field. The paper is very suitable for ACP, but unfortunately major (big major) revision are needed:

- Introduction. Decide if you want to focus on the study area, or on the techniques, decide one flow and report it. At the moment there is confusion.

- There are 144 references, really there is no need to add all these references, suggestion to cut to 60 max.

- Figure S8. Factors F1-F4 and F1-F6 in PMF analysis need to be better described and

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named accordingly to the names of Factor 5 solution. Report also correlations among factors so the reader can understand how the factors evolve.

- The paper is very descriptive, and many papers are cited and referenced. There is no need. For example the whole section of Page 13 can be cut

- pg 14 delete all topic of aminoacid, it creates confusion. These markers used are not unique of aminoacids.

- naming. perhaps you want to simplify the naming, for example the aPOA may simply be anthropogenic organic aerosol (surely there will be a component that is secondary) and perhaps clearly stat that MOA POA and NOA are marine. NOA is marine, produced via secondary productions. Maybe start with "marine" or "anthopogenic" then "primary" or "secondary" then if it is Organic, nitrogen, MSA containing. Just a suggestion.

- Overall it is advised that the senior scientists co-authoring this paper suggest how to improve the flow of the current manuscript.

I congratulate to the authors (both corresponding authors in particular) for the impressive dataset collected - once the flow of this paper is improved, it will make a very important contribution in the field.

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