

Interactive comment on “Sources and characteristics of size-resolved particulate organic acids and methanesulfonate in a coastal megacity: Manila, Philippines” by Connor Stahl et al.

Anonymous Referee #1

Received and published: 7 September 2020

General Comments: The paper presents aerosol composition data results in Manila during an 18-month sampling period including 2 monsoon seasons. Overall, the results provide a detailed connection between aerosol composition, pollution source and source region. Many related analyses are performed and provide for a complete picture of the measured organic acids and MSA. The authors did a very good job of weaving together such detailed analysis into one manuscript. However, minor revisions are needed to help with the readability of the paper.

Specific Comments:

1) The fact that the PMF did not include sea salt as a contributor for MSA is alarming

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and needs to be addressed more (first described in lines 401-405). While it is possible that there are other sources as seen in the Beijing and California studies, the fact that there is absolutely no link between sea salt and MSA needs further analysis. Could it be that local sources of sea salt were not aged enough to allow for MSA formation (the sea salt air masses were too fresh)? What was the height of the roof where the sampler was placed? Does this possibly suggest an error in the PMF?

2) In the paper, the individual sources are linked to a source and to a season but I don't think there is a clear link between which sources dominate on whole for each season. ie: during the monsoon, biomass is strongest with a source region from the southwest. . . (made up results)

3) Section 2.2: include information on filter extraction

4) Line 230-231: include a reference for PMF

5) Line 253-283: this should not be shown in results. Move to new section in methods section – such as new section 2.3

6) Line 291-293: are these accumulated rain over the entire period or rain per day. If per day this should be noted. If accumulated rain, how is there variability?

7) Discussion: Many related analyses are performed and are summarized in the first paragraph of each subsection. This should be a numbered, indented list so they stand out more allowing for comparison between the different species. Currently this good discussion is presented as a long run-on sentence at the beginning of each subsection.

8) Discussion: a long list of measurements in other locations are included for each compound (ie: Line 4750-479; 519-524; 556-561. . .). This is not needed as this is not a review. I would suggest including 1 or 2 relevant measurements for comparison and including the rest in the supplemental information if needed.

9) Line 630 and following: this is not a clear bi-modal distribution. Rather 2-3 modes

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that run together possibly showing a similar secondary source for all sizes

10) Throughout: the use of “Trans” as an abbreviation is unneeded and a little distracting. Replace with “Transition”

11) Table 3: I think switch Table 3 and Table S6 so only the correlation for all size distributions is in the main text.

12) Figure 1: include clearer labels for each season above each panel

Technical Corrections:

1) Line 32 and throughout: 148.59 +/- 94.26 has too many significant figures. Your variability should be trimmed to 1 or 2 significant figures and then your average adjusted to match the decimal place. That is it should be 149 +/- 94. Other places noted (not a complete list): lines 289-290; line 337-338

2) Line 33: define PMF

3) Line 35 & 38: line 35 remove “(SWM18)” and line 38 replace “SWM” with “monsoon”

4) Line 37: “linked to burning” should be “linked to biomass burning”

5) Line 44-48: run-on sentence. Split into two easier to understand sentences

6) Line 67: new paragraph

7) Line 132: 12.9 million

8) Line 136: word choice for quintessential – maybe use “fitting”

9) Line 181: “a subset of species were listed here, which were used for analyses.” should be replaced with “a subset of species used for analyses are listed here.”

10) Line 199: Replace “the roof of MO. Measured” with “the roof. Measured”

11) Line 227: should use CWT and not WCWT

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12) Line 320: replace “(0.80 ± 0.66 %), ranging from 0.23 – 1.49 % across” with “(0.80 ± 0.66 %) across” – this was redundant with later in the paragraph

13) Line 364-380: suggest making these a numbered list so they stand out more

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