



EGUsphere, referee comment RC1  
<https://doi.org/10.5194/egusphere-2022-269-RC1>, 2022  
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## Comment on egusphere-2022-269

Anonymous Referee #1

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Referee comment on "*Rolling vs. seasonal* PMF: real-world multi-site and synthetic dataset comparison" by Marta Via et al., EGU sphere,  
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The manuscript by Marta Via et al. performed a comprehensive comparison between the two methodologies of fine organic aerosol (OA) source apportionment through the Positive Matrix Factorization (PMF) model: rolling and seasonal PMF. They found that the rolling PMF can be considered more accurate and precise, globally, than the seasonal one, although both meet the standards of quality required by the source apportionment protocol. In addition, the results showed that the selection of anchor profiles is highly influencing the OA factors, so local reference profiles are encouraged to minimise this impact. The topic fits well within the scope of Atmospheric Measurement Techniques.

Overall, the data analysis is solid and the manuscript is clearly written. Before its publication, the following comments need to be addressed.

Specific comments:

1 Line 308: What are the contributions of SOA species to  $m/z$  55? Looking into these datasets would be helpful to evaluate the uncertainty of using  $m/z$  55 as a marker for HOA.

2 Are comparisons of Rolling vs. Seasonal PMF depended on the type of site (e.g., Urban Background, Suburban) and/or the instruments(i.e., Q-ACSM and ToF-ACSM). Please be specific.

3 Figure 3: I noticed that there are three distinguished lines in the triangle plot of  $f_{44}$  vs.  $f_{43}$  using seasonal PMF data, while this phenomenon does not appear using the rolling PMF and the truth PMF. Please describe and explain these differences in detail.

4 The sampling period that appears in Figure 2 is not in Table 1 (Participant sites). Please have a check.

5 It would be better to change the name of "truth PMF", because no one knows what the truth is like, and our goal is to pursue infinite access to the truth

6 The figure captions for each panel should be clearly stated. Take Figure S4 for example, what is SHINDOA representing? In addition, "58-OOA" must be defined.