

Atmos. Meas. Tech. Discuss., referee comment RC1
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Comment on amt-2020-401

Anonymous Referee #1

Referee comment on "Quantifying organic matter and functional groups in particulate matter filter samples from the southeastern United States – Part 2: Spatiotemporal trends" by Alexandra J. Boris et al., Atmos. Meas. Tech. Discuss., <https://doi.org/10.5194/amt-2020-401-RC1>, 2021

This manuscript reports an original analysis of 6 years of filters collected from 4 different monitoring sites in the SE US. The application of the method is novel and the analysis is original. The results provide interesting insights on trends in PM_{2.5} during this period, which could fit equally well in ACP rather than AMT. Authors provide substantive comparisons of their results to relevant literature, and generally this is well done and sufficient for publication. In sum, this is a very high-quality set of original measurements by a very experienced group and merits publication.

My only misgiving is the extent to which the technique is different from the cited work. I ask the authors to revise the manuscript to be specific about this to merit publication in AMT rather than ACP.

As a note, I find the most interesting part of the discussion to be about the contribution of fires to particular functional groups, but that seems a bit buried in the Discussion and is omitted from the Abstract, Title, and Conclusions. To that point the authors note the potential usefulness of PMF, but apparently did not have the time/resources to do this, which seems a shame. Perhaps future work on this is planned?

Other questions:

- to volume or are volumes same?
- Fig4 annual median spectrum is an interesting concept; can you provide more details about how this was determined?
- Table 2 – trends are not consistent; can you provide explanations for lack of consistency?