

## ***Interactive comment on “Long-term chemical analysis and organic aerosol source apportionment at 9 sites in Central Europe: Source identification and uncertainty assessment” by Kaspar R. Daellenbach et al.***

**Anonymous Referee #3**

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Comments on “Long-term chemical analysis and organic aerosol source apportionment at 9 sites in Central Europe: Source identification and uncertainty assessment” by Daellenbach et al. The manuscript presents new research which clearly fits within the scope of the journal. The text is well-written and fairly easy to follow. Some of figures, however, compile several information and are not as straightforward to interpret (e.g. Figure 8) – please make sure to modify them (color axis, split into subplots, etc.) to improve readability.

The technique described here is a follow-up of the characterization of OA measure-

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ments based on filter collections followed by water extraction and analysis by HR-AMS, previously published, being the novelty a large statistics from 9 sampling sites and, most importantly, PMF analysis of the OA spectrum from filters. Although the former is unquestionably of scientific interest, it is the latter that will allow others to apply the technique and indeed reach its goals as described in the introduction. At its current stage, the manuscript doesn't fully achieve it.

Major comments:

- \* The description depth of the PMF applied to this very specific dataset doesn't seem to be proportional to its level of development in regard to the widely used techniques. Please detail it more carefully.
- \* Section 4.2.2 seems quite weak, three methods to estimate PBOA are presented, but no clear conclusion is given other than it underestimates based on previous literature. From my perspective this section doesn't add too much to the manuscript and could easily be removed, however if the authors wish to keep it, please make sure to better constrain the methods into a valid scientific output.

Minor comments:

- \* Abstract. L.21: add the word “from” between  $\mu\text{m}$  and 9.
- \* Abstract. L.24: remove “which is” and add a comma before related.
- \* P.2, L.31: Please remove “restricted to WSOA in”.
- \* P.12, L.10: Remove the word “here”.
- \* External gas-phase tracers (besides the use of NO<sub>x</sub> just to separate HOA, COA) could also add some information of the surrounding chemistry – for example, what is the ozone (over 24h, or just afternoon) in regard to SOOA and WOOA? And Ox?