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Discussions

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 #1

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The manuscript presents the results obtained from the off-line analysis of filter samples collected at 9 sites in central Europe with different exposure characteristics. The study is mainly focused on the identification of the different sources that contribute to the organic aerosol loadings using PMF analysis. The obtained results indicate that biomass burning is a major contributor to primary organic aerosol with 88% in the alpine valley and 43% north of the alpine crest. On the contrary, the sum of HOA, COA and BBOA contributes less at the sites north of the alpine crest than at the southern alpine valley. Secondary organic aerosol production is enhanced during summer due to the increased biogenic emissions with temperature. Finally, it is estimated that primary

biological particles which cannot be resolved by PMF could contribute significantly to PM10 organic aerosol.

The manuscript is very well written, coherent and easy to follow. A lot of effort has been put into the selection of the PMF solutions and the subsequent sensitivity analysis in order to provide the most sane and justified selection of factors, given the statistical nature of the analysis. This paper can be recommended for publication after some minor corrections listed below:

1) As the title reads "Long-term chemical analysis and organic aerosol source apportionment.." I would expect a short description of the trends in the chemical species as well of the 9 sites. It would be helpful as in a subsequent section the correlation with ammonium and nitrates is mentioned.

2) The possibility that WOOA could partially originate from the oxidation of BBOA could also be mentioned. During BB events ammonium is in a significant excess compared to sulfate, and this could possibly explain the good correlation between WOOA and NH4+.

Minor corrections:

Abstract L21: . . .smaller than 10 μm from 9 stations. . .

P16, L26: . . .closely correlates with NH4+.