

Interactive comment on “Exploring sources of biogenic secondary organic aerosol compounds using chemical analysis and the FLEXPART model” by Johan Martinsson et al.

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This is a nice and interesting approach to fold back trajectories with land surface data for qualitative aerosol source apportionment. It strongly reminds me of some of our earlier work (van Pinxteren et al., 2010), where we derived a "residence time" parameter very similar to the "exposure" parameter described here and included it into a PCA as done here as well. We used HYSPLIT back trajectory ensembles, which might give somewhat coarser results than FLEXPART footprints, but nevertheless proved themselves valuable in a number of further qualitative source apportionment studies, including one on small-chain dicarboxylic acids (van Pinxteren et al., 2014). The authors might want to consider these papers and maybe reassess their statement on P10

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L11-12 that such information cannot be derived from simple trajectories.

References

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van Pinxteren, D., Neusüß, C., and Herrmann, H.: On the abundance and source contributions of dicarboxylic acids in size-resolved aerosol particles at continental sites in central Europe, *Atmos. Chem. Phys.*, 14, 3913-3928, doi: 10.5194/acp-14-3913-2014, 2014.

[Interactive comment on Atmos. Chem. Phys. Discuss., doi:10.5194/acp-2017-90, 2017.](#)

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