**Atmospheric
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Discussions**

Interactive
Comment

Interactive comment on "Application of absolute principal component analysis to size distribution data: identification of particle origins" *by* T. W. Chan and M. Mozurkewich

Anonymous Referee #2

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General comment

It is my opinion that the MS is not acceptable as a stand-alone publication. First of all because it is a very short, more like technical note; secondly because it discusses localised results and thirdly because the method used for data evaluation is not explained nor summarised in this paper and the reader and reviewer are referred to another paper that gives all the details. As a reviewer of this paper I would need a "popular" summary. As said, the method is fully described in the other paper but that that seems I my more humble opinion overly too detailed. Hence the recommendation to the editor to combine the two MS and use this MS as an appendix. The main reason I suggest

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this is , as mentioned already that interpretation of local data is almost impossible for outsiders, especially when something so complicated is the subject, i.e. in essence the comparability of size-spectra (including number a s a function of size). Certainly there is very much information in such data but in this respect the present application paper does not make it clear what fractions were used nor why these were chosen for the factor analysis. Also, in the cited references there was a very visible choice for given fractions of the aerosol fraction, because these are connected to a scientific or environmental issue and not arbitrarily chosen so as to have maximum possibility to discern these from other fractions for the factor analysis. This makes the criteria in the analysis namely very arbitrary. In the case of Ruuskanen for instance UF and PM2.5 were used with the aim to factorise these with other well-known fractions aerosol parameters like blackness.

In this MS the naming of the various fractions appears to be based on the local circumstances and it is not explained if such an approach is a generic one in the sense that it can be extrapolated generalised to/for other locations. Summarizing what I miss is missing is the generic aspect of the MS. Hence, my explicit recommendation to incorporate the MS, in shortened form, in the other MS in ACPD, as an appendix showing the application of the method.

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 10493, 2006.

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