

Interactive comment on “Comparison between CARIBIC aerosol samples analysed by accelerator-based methods and optical particle counter measurements” by B. G. Martinsson et al.

Anonymous Referee #2

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GENERAL

The work presents a performance analysis of an impactor system used in aircraft as part of the CARIBIC project. The CARIBIC is a very important research program for studying the atmospheric composition in large geographical areas. The impactor method analyzed here is useful for measuring the chemical composition of aerosols and will obviously be used a lot. The analysis is clearly presented and I can recommend its publication in AMT after minor modifications.

I have two fairly general questions. In the paper a lot is discussed based on the bounc-

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ing of particles outside the impaction zone. I have used multistage impactors so that some well-known grease is spread on the impactor substrates before sampling, just to prevent bouncing. Why couldn't this be used in the present setup? Discuss this with a few lines. The second is that you calculate the ratio C_v/C_m and discuss that a lot. Why wouldn't you calculate C_m/C_v ? That number would be directly the effective density and easy to interpret. Is there some fundamental reason for not presenting the results and discussion in that way? If not, I suggest considering presenting them so. But I leave that to the authors to decide since I know it would require a bit extra data processing.

DETAILED COMMENTS

P3259 L20 Give some more details of the polyamide film – manufacturer, type code or similar, so that people may possibly acquire the same material for analogical measurements.

p3259, L21 Description of the impactor could be a bit more detailed. I checked Nguen et al. (2006) and found there are many nozzles and orifices with different flow rates. Which ones are used here?

.P3263 L28-29. "The analyses of the aerosol samples are undertaken in high vacuum. This will cause losses of chemical compounds" At what pressure does the analysis take place? For how long time is the sample in this pressure? Give a few more examples of compounds that would be lost at that pressure.

P3266 L7 – 15. A lot of the readers of the paper are experimentalists like me. Potential vorticity is not a familiar concept. I understand it doesn't make sense to start explaining basic meteorology in an AMT paper but please write at least a reference to a paper where it is explained how these different ranges of PV can be associated to different layers.

Section 3.1. How significant is nickel in the upper atmosphere? Can it come from anywhere but the inlet?

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Title of section 3.4 “Relation between OPC and IBA measurements” is a bit strange – most of the paper is discussing just this relationship.

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 3253, 2014.

AMTD

7, C790–C792, 2014

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