

Response to editor for “Measurement report: Evaluation of the TOF-ACSM-CV for PM<sub>1.0</sub> and PM<sub>2.5</sub> measurements during the RITA-2021 field campaign” by Xinya Liu, Bas Henzing, Arjan Hensen, Jan Mulder, Peng Yao, Danielle van Dinther, Jerry van Bronckhorst, Rujin Huang, and Ulrike Dusek. (Manuscript ID: EGUSPHERE-2023-967)

Thank you to the editor for the thoughtful comments. We have considered and addressed each point in the following sections, and have made the necessary updates to the manuscript accordingly.

Editor comments:

I would like to thank the authors for promptly replying to all the reviewers’ comments and corrections. I have only a few minor points to be further clarified. After that, I believe the manuscript will be accepted. Thus, please consider the points listed below.

1 – Could you please add a sentence to the manuscript to clarify about the pre-baking of the quartz filters?

In the revised manuscript, we have included an additional sentence at Line 165 to clarify the procedure for pre-baking the quartz filters

2 – P10, L248: “indicated by a slope of from  $2.21 \pm 1.27$  for PM<sub>1.0</sub> and  $2.27 \pm 0.92$  for PM<sub>2.5</sub>”, are the slope values correct? I mean, if they are related to Fig. 1, then the slopes indicated are different (2.77 and 2.11). Could you please verify?

We are sorry for the typo mistake and have corrected it in the revised manuscript.

3 – In the answer to the Reviewer #1 (C2.1) the authors estimate the positive artefacts, based on previous unpublished data, up to 20%. However, in the manuscript (P.10, L256) the authors mention 20-30%. Could you please clarify which one is correct? Or clarify if they refer to different artefacts.

Thank you for your careful observation. Based on our previous campaign data, high-volume filter samplers indicated that organic carbon (OC) on the backup filter was approximately 10-20% of that on the front filter (Dusek, unpublished data). However, considering that a different sampler was employed in the current study's campaign, we conservatively estimated that this discrepancy could be between 20-30% as we indicated in the manuscript.

Remarks from the preceding review file validation

We have improved Figures 2, S5, and S6 to ensure accessibility for readers with color vision deficiencies.