Atmospheric Chemistry and Physics Discussions

Atmos. Chem. Phys. Discuss., author comment AC1
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Comment on acp-2021-562

Aki Virkkula et al.

Author comment on "Aerosol optical properties calculated from size distributions, filter samples and absorption photometer data at Dome C, Antarctica, and their relationships with seasonal cycles of sources" by Aki Virkkula et al., Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2021-562-AC1, 2022

Dear Editor

We thank the Editor and the reviewers for using their time voluntarily for reading and commenting this long manuscript. Answering the questions and comments hopefully improved the paper. The paper was revised according to most of the suggestions and questions of the reviewers, but not all.

Below the reviewers' texts are written in **bold** font and the replies in standard font.

Major additions to the text are written here an intended paragraph

The largest changes in the paper

- According to the wishes of Reviewer 2, the data were corrected for inlet and sampling line losses and all results and tables, including those in the supplement. The changes are very small, however, as will be shown below.

- Description of the loss calculations were added in the supplement.

- The discussion about the source area analyses using the relative differences was too short. To answer the reviewer's question we added discussion about emissions and transport of BC in the Southern Hemisphere in section 3.4.2, including new references.

- Both reviewers were wondering whether the residence time of two months is possible. We added discussion about that and new references.

- The references were crosschecked

- Added new text has been highlighted by yellow.

On behalf of all coauthors,

Aki Virkkula

Please also note the supplement to this comment:
https://acp.copernicus.org/preprints/acp-2021-562/acp-2021-562-AC1-supplement.pdf