The manuscript provides a valuable 15-year dataset of PM10, PM2.5, and PM1 in southern Finland, with a comparative evaluation of gravimetric, SHARP, and DMPS-APS methods. The integration of multi-technique measurements with seasonal and episodic event analysis is it is an important scientific contribution.

This is a solid and relevant study which presents novel comparative insights, and has high relevance for long-term air quality monitoring and that could be further improved by addressing these points:

We thank the referee for the positive evaluation of our work. Below we present the improvements made to the manuscript based on the referee comments in red color while the original comments are in black.

- Uncertainties for each method should be quantified more explicitly, including potential biases when it is possible to quantify them (e.g., constant density assumption for DMPS+APS, semi-volatile losses in SHARP)

We thank referee for the comment. We now calculated the mass from DMPS+APS method using 1.1 and 2.0 g cm-3 densities (Kannosto et al., 2008) to get lower and upper estimates for the PM masses due to the constant density assumption. The results are presented in Table S1. The difference of the average concentrations to the original is 6-29 %, and it is larger for smaller particles. The analysis is added in lines 307-314 and the methods are described in lines 214-217.
We additionally calculated semi-volatile losses of SHARP using the other two methods as a reference. The corresponding analysis is added to the section 3.1 (l. 330-337).

- The relative contribution of episodic events to annual loads and further chemical markers for natural sources (biogenic, combustion) would strengthen the interpretation.

While we agree with the referee, we acknowledge that the calculation of the exact annual load of episodic events would require detailed air mass source area analysis, information of all possible episodes as well as quantification of the background level of decreasing PM concentration, which is out of scope of this manuscript. However, we added figures of monoterpene (biogenic source of particles) and black carbon (combustion source of particles) concentrations in Fig. S4 of supplementary information to support the analysis of sources of the particles.

Small corrections to the lines:

428: Possible typo: “warn” should be “warm”.
The typo is corrected.

431: Perhaps “at the 95% confidence level” is more correct.
The text is changed as suggested.

465: Unnecessary comma after “SHARP”.
Corrected.

470: “Reason why” or simply “cause” is better.
The sentence is revised:
Any disturbances or deposited dust particles can lead to overestimated mass concentration. This might even be the cause why impactor data…
-> Any disturbances or deposited dust particles can lead to overestimated mass concentration, which might be the reason why impactor data…

References:

Kannosto, J., Virtanen, A., Lemmetty, M., Mäkelä, J. M., Keskinen, J., Junninen, H., Hussein, T., Aalto, P., and Kulmala, M.: Mode resolved density of atmospheric aerosol particles, Atmos. Chem. Phys., 8, 5327-5337, DOI:10.5194/acp-8-5327-2008, 2008.