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We thank the reviewer for his comment. The question is raised about a Stokes number dependency of the particle matter (PM) concentration. First of all, we would like to emphasize that we do not propose a new kind of calibration or measurement procedure. High-Volume air sampling is a robust and widely used method (Refs: Jutze & Foster,1967; Clements et al., 1972; Salamova et al. 2014, Salamova et al., 2016) and the main equations for calibration and flow rates are well established (Refs: USEPA, 1999; Tisch, 2015). The point of this paper is to offer a derivation of these established equations and methods that is currently missing in the literature.

Nonetheless, we would like to address the issue. It seems that the reviewer is considering a high-vol sampler with particle pre-separation. Typical flow rates of high-vol samplers such as the e.g. the Tisch TE-1000 are in the range of 200-400 L/min. Typical factors between the standardized (i.e. density adjusted) and actual volume flow rate can be calculated with ρ/ρ_0 and range from 0.94 (T=35°C) to 1.16 (T=-25°C). Assuming a case with a flow rate of 300L/min and an inlet section of 10cm², this translate into flow velocities of 0.5m/s and a Reynolds number in the order of 10^0 which may indicate Stokes flow. In such cases the relaxation time of a 10micron particle with a density of 1000kg/m³ can be estimated to 0.0003s which results in a Stokes number in the order of magnitude 10^{-3}. For low Stokes numbers it may be assumed that the particles will follow the streamlines. The aforementioned correction factor in the order of 0.94-1.16 is therefore very unlikely to change the particle behaviour in a significant way. Nonetheless, we acknowledge that there is a possibility of a relevant effect for some cases. Hence, we will include a comment in the paper addressing this issue and highlighting that the method explained in the paper can be easily adjusted to represent real flow (instead of density standardized flow) by omitting Equation 10.

Best regards,
Richard Hann

Richard Hann, PhD candidate
Phone: +47 48 020 891
Mail: richard.hann@ntnu.no

Norwegian University of Science and Technology (NTNU)
Autonomous Marine Operations and Systems (AMOS)
Centre for Integrated Remote Sensing and Forecasting for Arctic Operations (CIRFA)
Department of Engineering Cybernetics (ITK)
Address: O.S. Bragstads plass 2D, NO7491 Trondheim, NORWAY