



Supplement of

**Characterization of size-segregated particles’
turbulent flux and deposition velocity by
eddy correlation method at an Arctic site**

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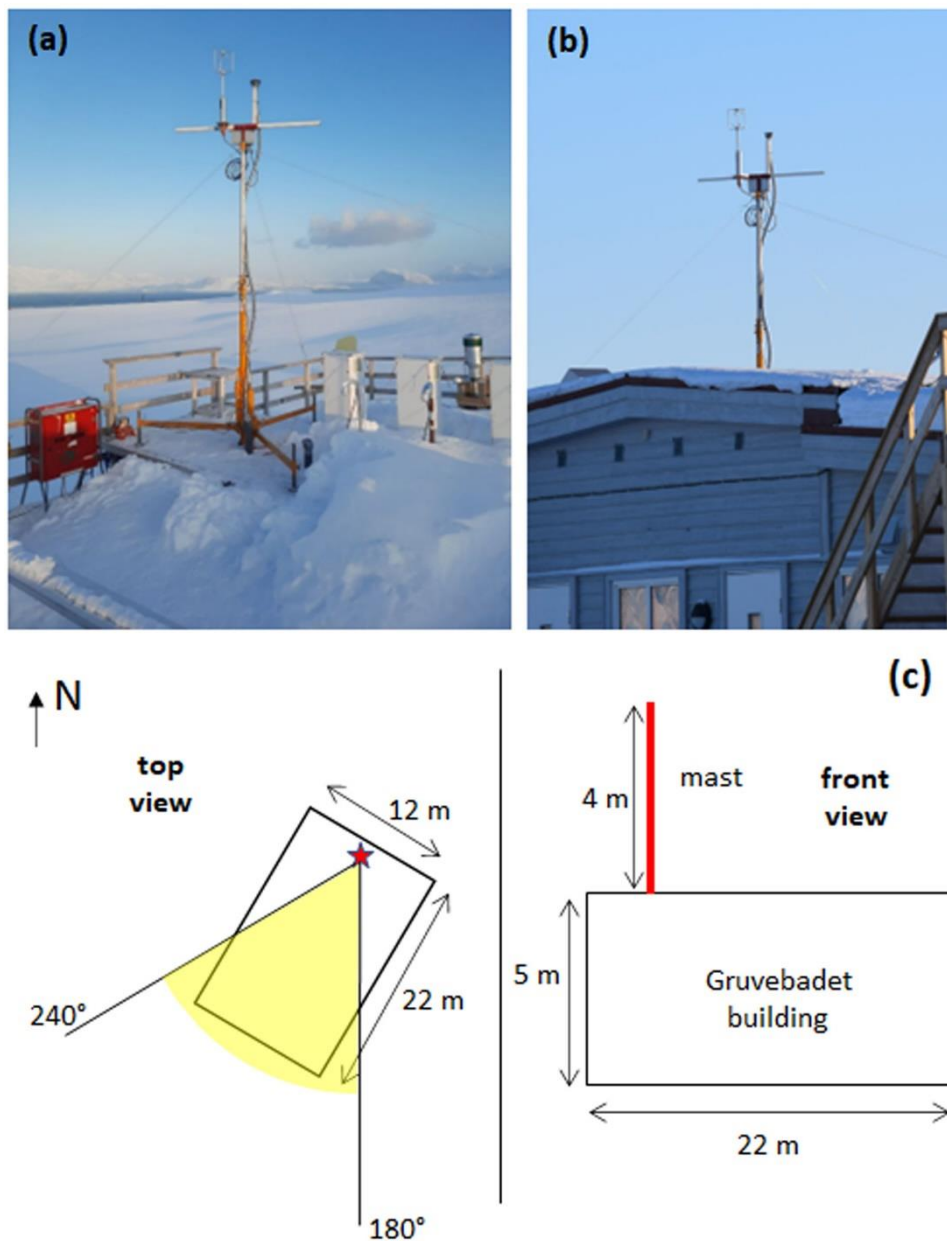


Figure S1. (a) Picture of the EC mast located on the roof of Gruvebadet lab and (b) a front view of the building. (c) A sketch of the top and front view of Gruvebadet lab and EC setup. The mast is 4 m tall above roof level. The building is 5 m high. The anemometer sensing volume and head of the inlet is height 60 cm and 50 cm, respectively. The total height above the ground level is 9.60 m. The short side of the building is 12 m, and the long side is 22 m. The mast is located very close (red star) to roof edge (northeast-facing side). Yellow sector in c) represents the roof fetch.

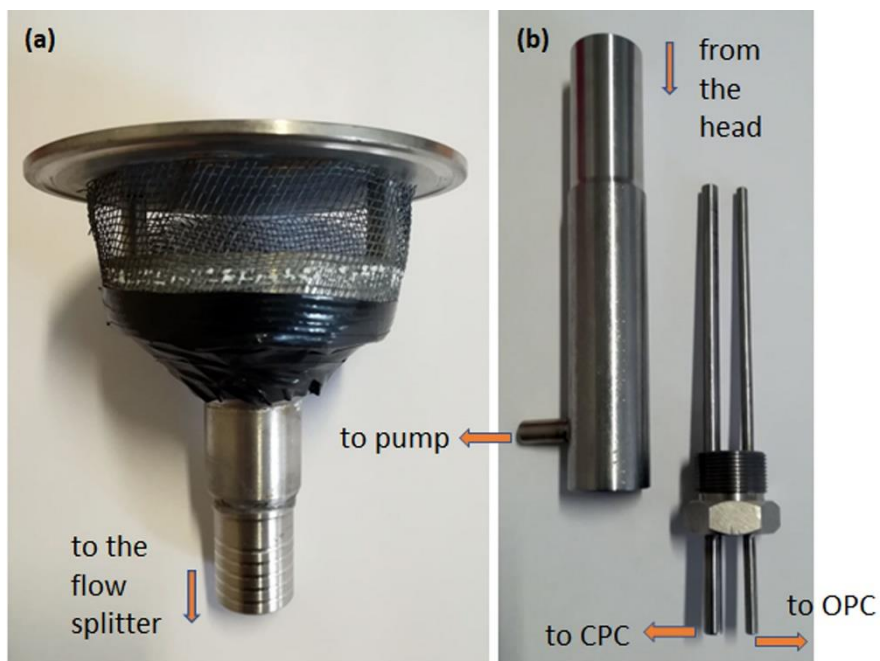


Figure S2. A picture of the (a) inlet head with a metallic hat for precipitation repair and (b) the flow splitter.

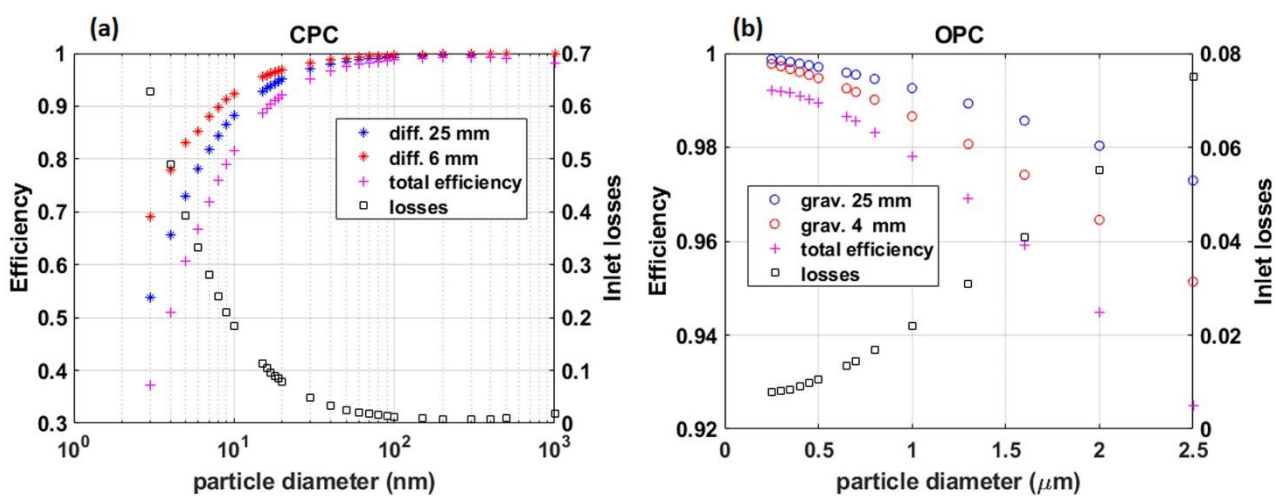


Figure S3. Inlet penetration efficiency. (a) diffusional particle losses (both for the 25 mm and 6 mm tube) and the total penetration efficiency for the CPC. (b) gravitational particle losses (both for the 25 mm and 4 mm tube) and the total penetration efficiency for the OPC. Total inlet losses (in black) of the system on the right axis for each panel.

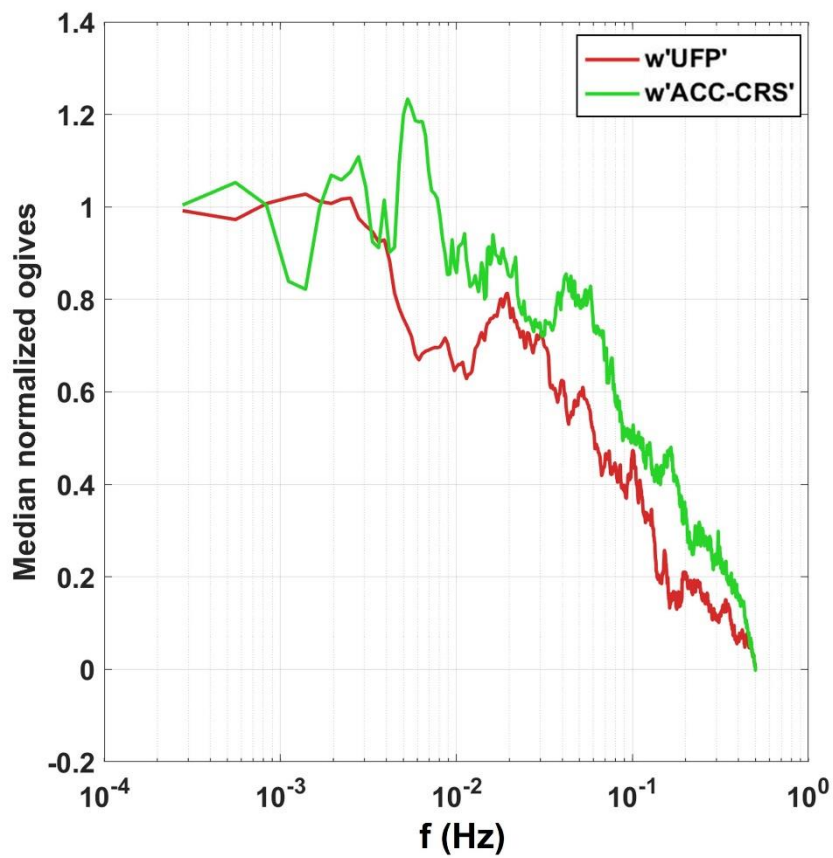


Figure S4. Median normalized ogives for UFP flux (red) and ACC-CRS particle flux (green).

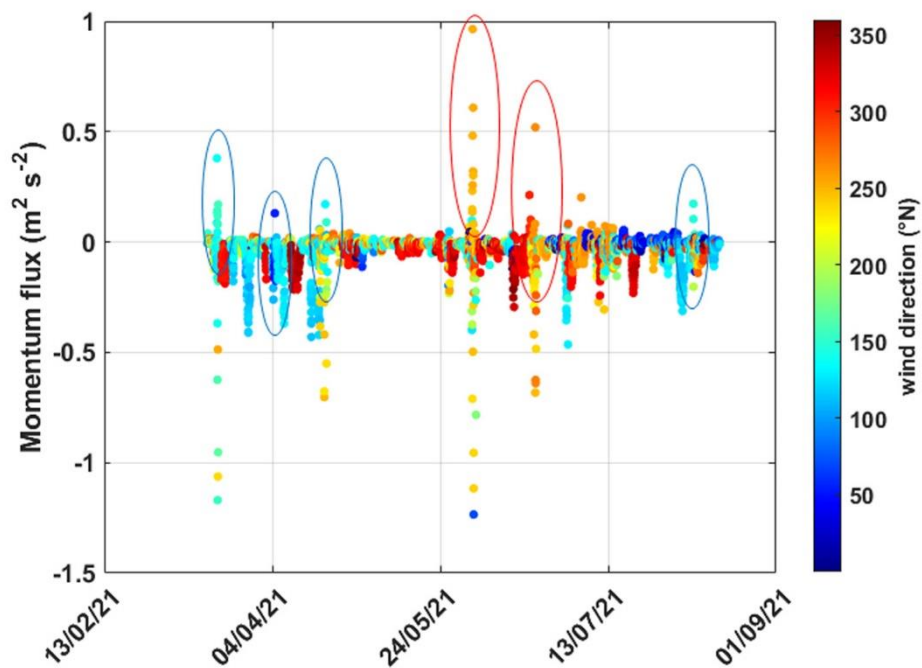


Figure S5. Momentum flux for the measurement campaign reported as a function of wind direction ($^{\circ}$ N). Red circles highlight large positive momentum flux events, while blue ones indicate weaker events raising from E-SE air masses.