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Supplement of

Resolving the size of ice-nucleating particles with a balloon deployable aerosol sampler: the SHARK

Grace C. E. Porter et al.

Correspondence to: Grace C. E. Porter (ed11gcep@gmail.com) and Benjamin J. Murray (b.j.murray@leeds.ac.uk)

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S1 Sampling information

Table S1. Details of sampling dates, times, locations and SHARK component information.

Site	Date (dd/mm/yy)	Sampling period	Impactors	Volume sampled by Impactor 1 at 9 L min ⁻¹ (L)	Volume sampled by Impactor 2 at 100 L min ⁻¹ (L)	Impactor 1 after-filter?	Windsond?	OPC?
Cardington (UK)	15/05/2018	14:15-16:15 (2 h)	Impactor 1 and 2 installed, only Impactor 2 sampling	-	12,000	No	No	Installed but not sampling
Hyytiälä (Finland)	11/03/2018	10:45-16:00 (5 h 15 min)	Impactor 1 only	2,835	-	No	No	No
Leeds (UK)	07/06/2018	12:21-15:21 (3 h)	Both impactors	1,620	18,000	Yes	Yes	Yes
Longyearbyen (Svalbard)	23/09/18-24/09/18	20:00-04:30 (8 h 30 min)	Both impactors	4,590	51,000	Yes	Yes	Yes
High Arctic	20/08/2018	10:40-15:30 (4 h 50 min)	-	-	-	-	Yes	Yes

S2 Fraction frozen curves for collected samples

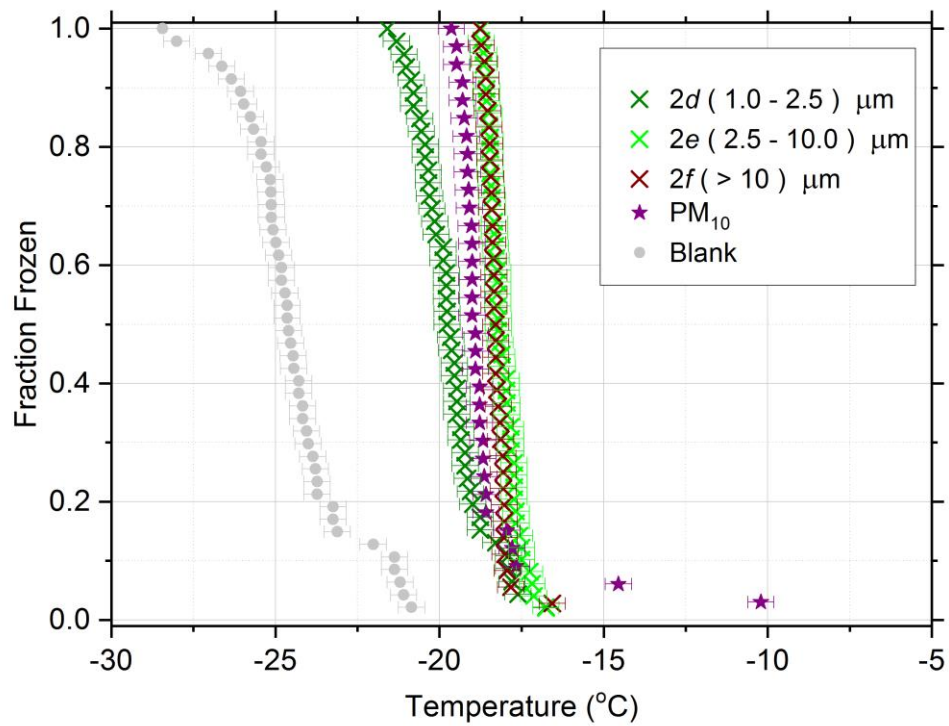


Figure S1. Fraction frozen curves for samples collected in Cardington (UK).

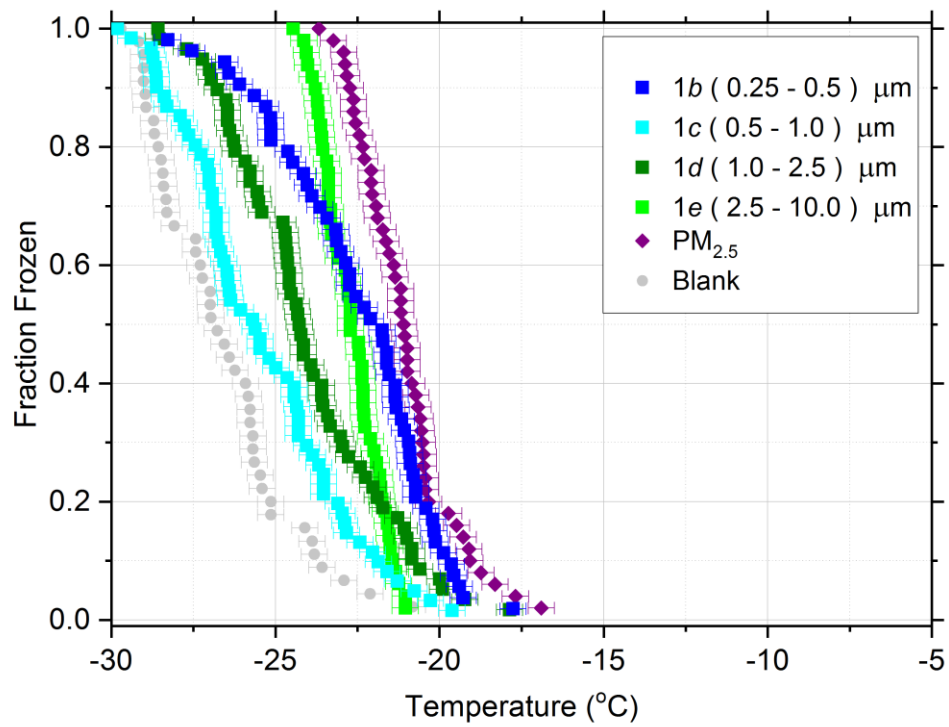


Figure S2. Fraction frozen curves for samples collected in Hyttiälä (Finland).

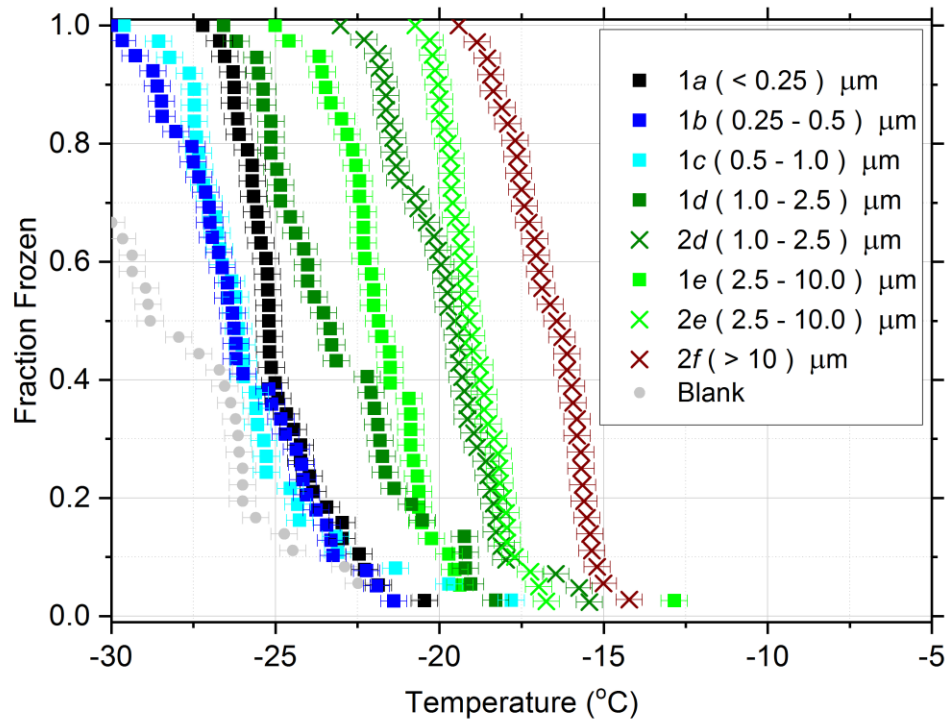


Figure S3. Fraction frozen curves for samples collected in Leeds (UK).

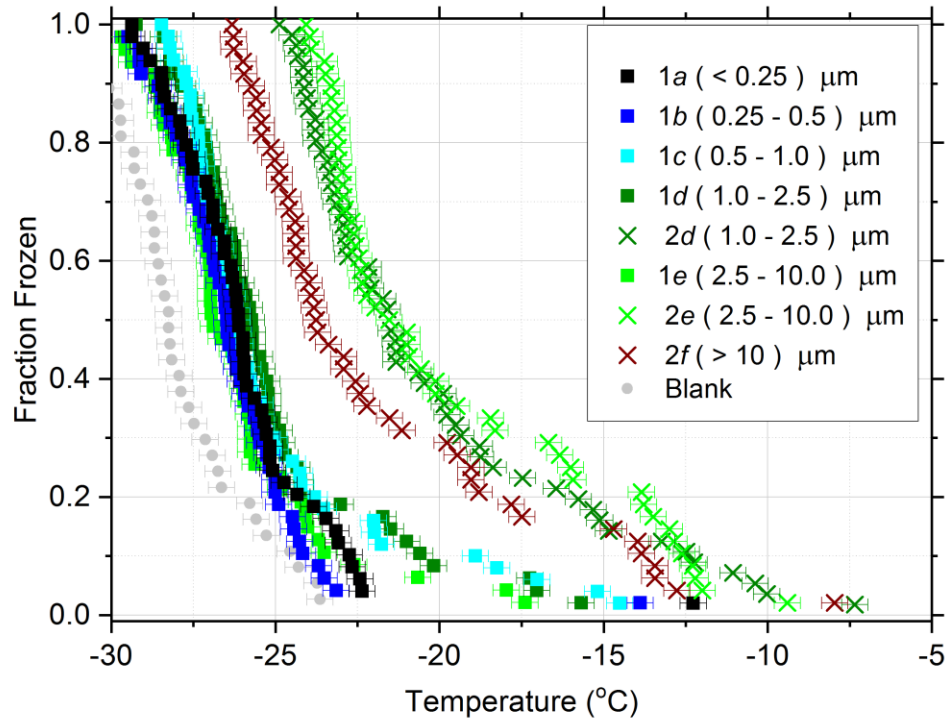


Figure S4. Fraction frozen curves for samples collected in Longyearbyen (Svalbard).

S3 Aerosol data from sampling in Leeds (UK)

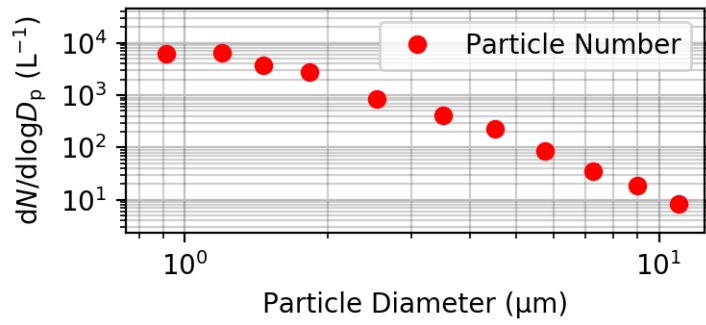


Figure S5. Particle number size distribution data for samples collected in Leeds (UK).

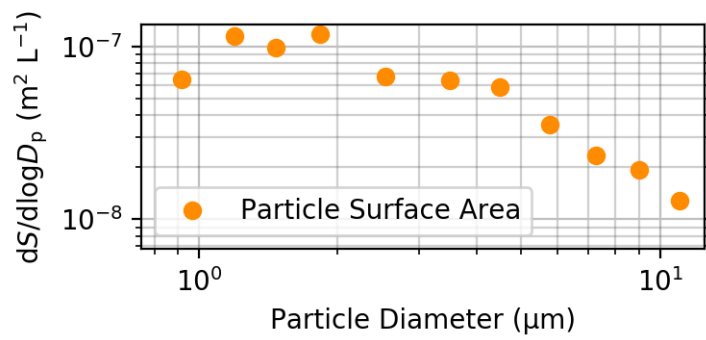


Figure S6. Particle surface area size distribution data for samples collected in Leeds (UK).

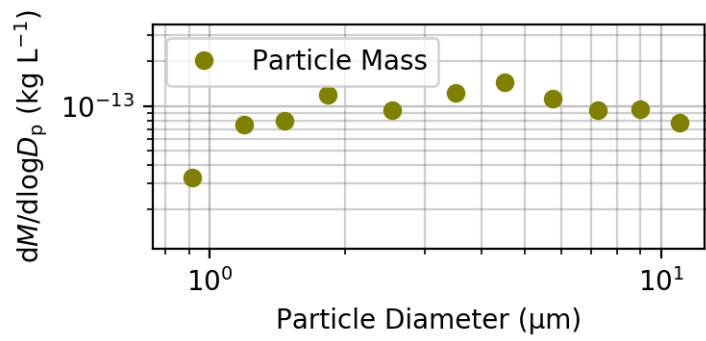


Figure S7. Particle mass size distribution data for samples collected in Leeds (UK).

S4 Aerosol data from sampling in Longyearbyen (Svalbard)

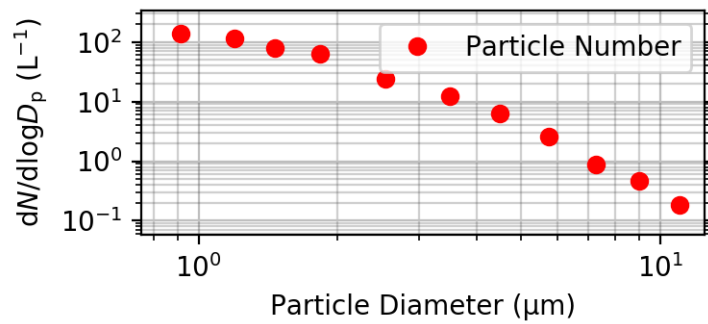


Figure S8. Particle number size distribution data for samples collected in Longyearbyen (Svalbard).

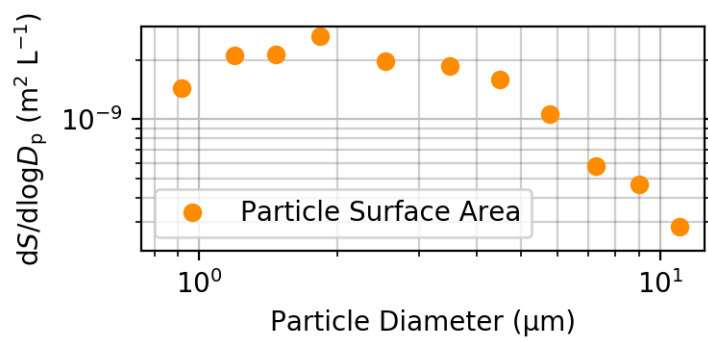


Figure S9. Particle surface area size distribution data for samples collected in Longyearbyen (Svalbard).

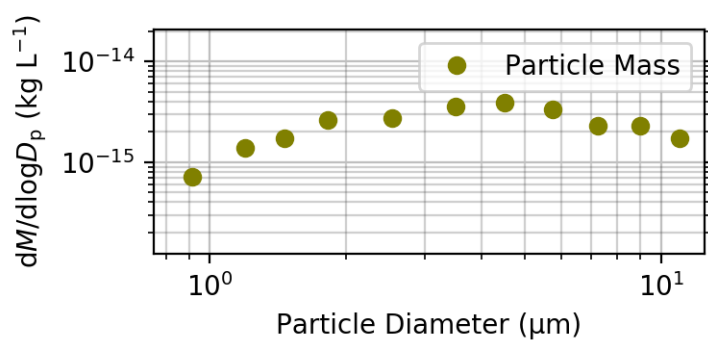


Figure S10. Particle mass size distribution data for samples collected in Longyearbyen (Svalbard).