



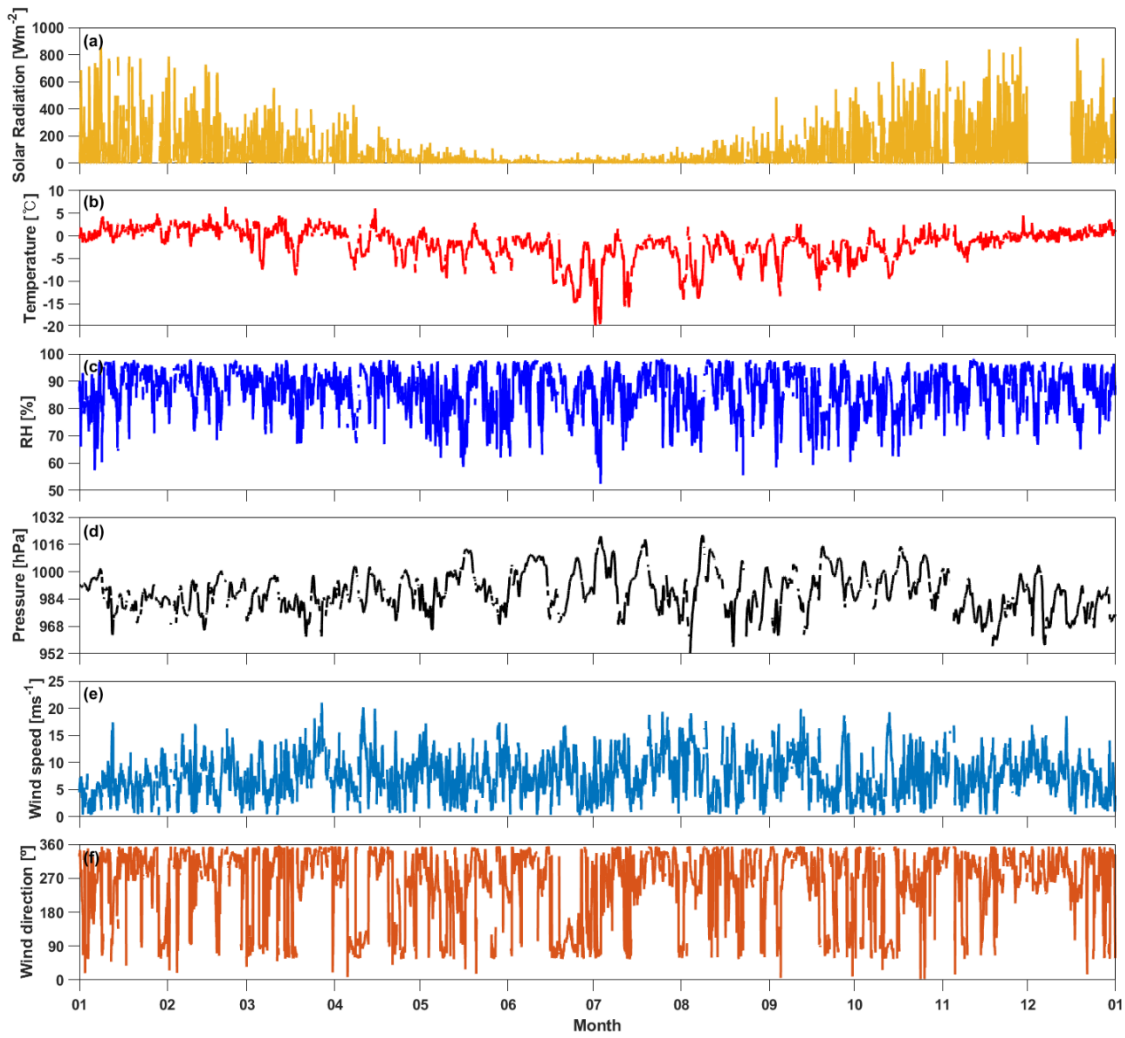
Supplement of

New particle formation leads to enhanced cloud condensation nuclei concentrations on the Antarctic Peninsula

Jiyeon Park et al.

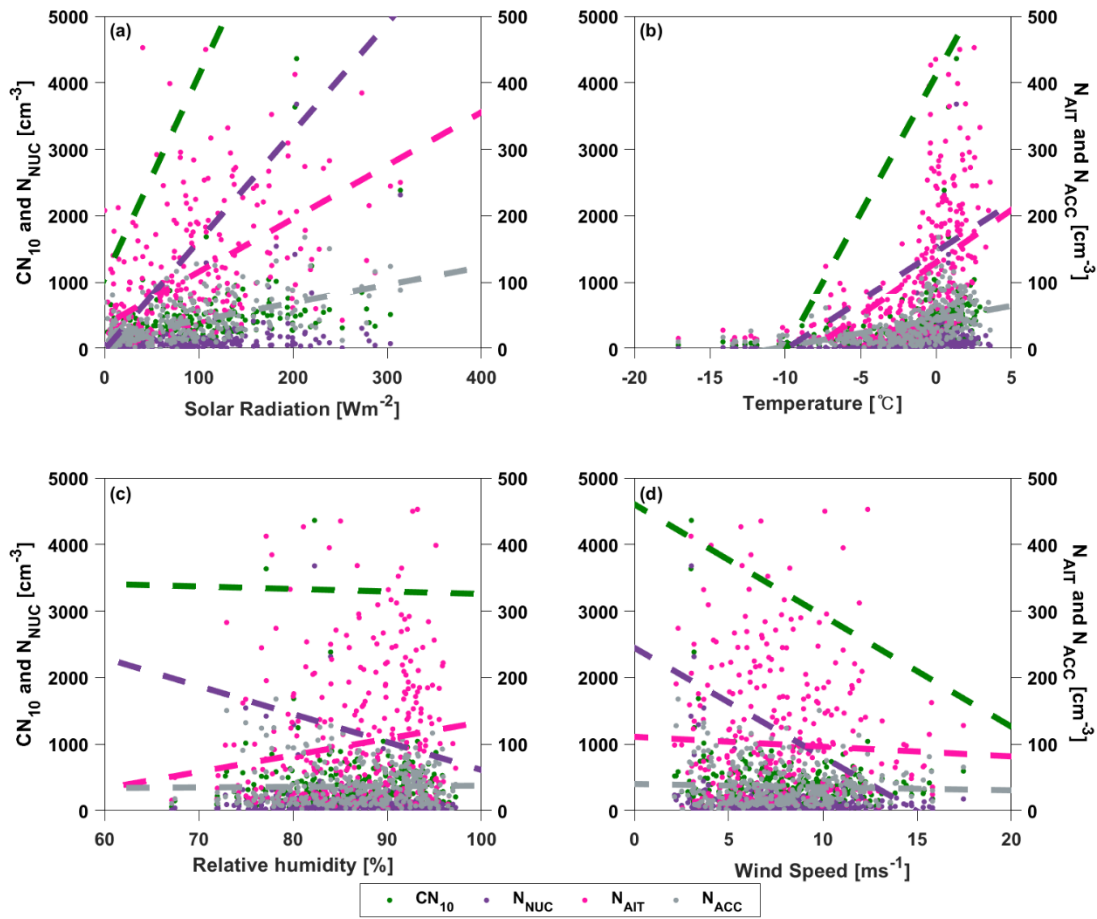
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 16 Figure S1. Time series of the 1 h average meteorological parameters: (a) solar radiation, (b) temperature,
 17 (c) relative humidity, (d) air pressure, (e) wind speed, (f) wind direction, throughout the studied periods
 18 (January 2018 – December 2018).

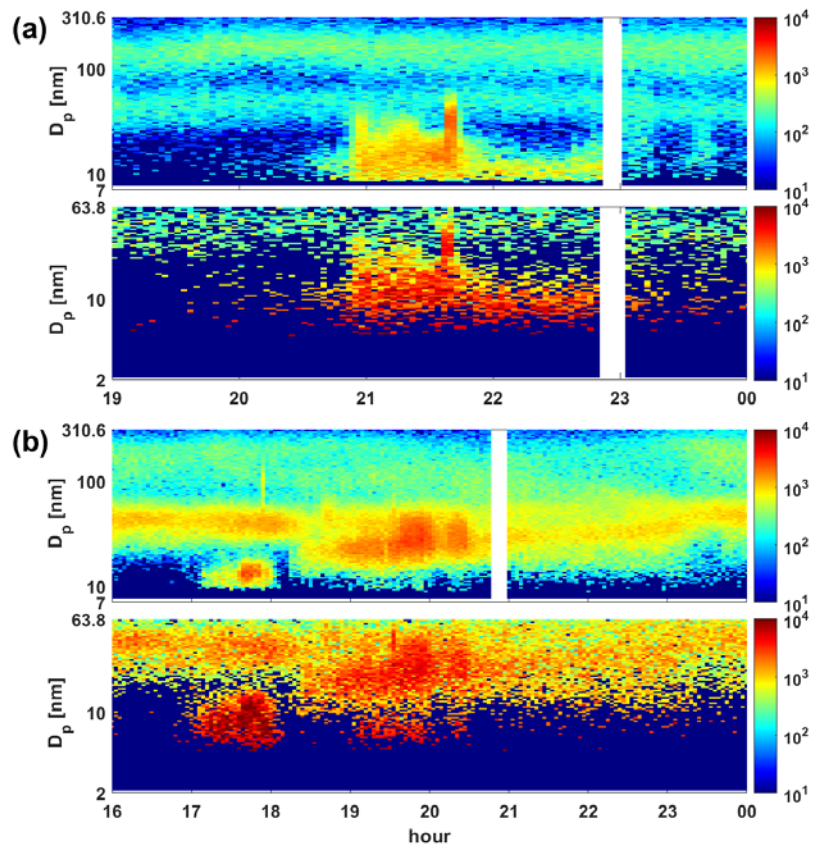
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21 Figure S2. Relationships between size-segregated particle number concentrations and meteorological

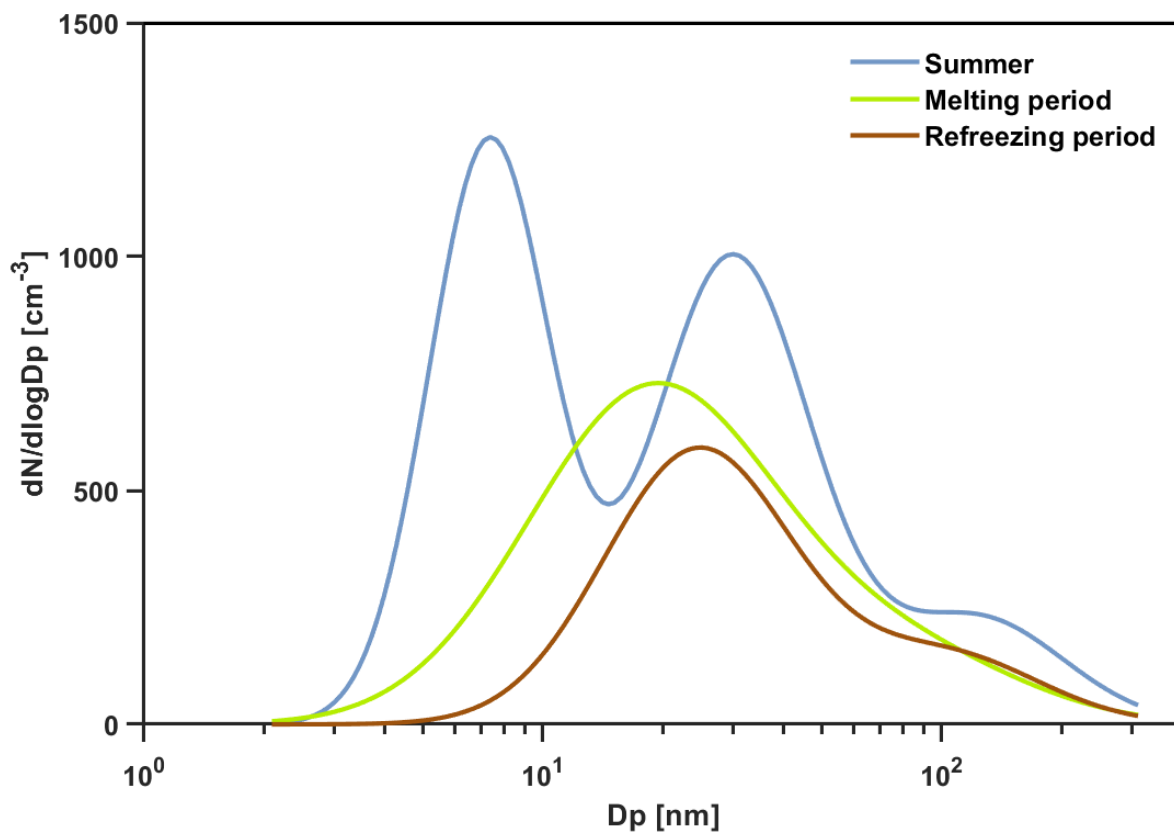
22 parameters such as (a) solar radiation, (b) temperature, (c) relative humidity, (d) wind speed.



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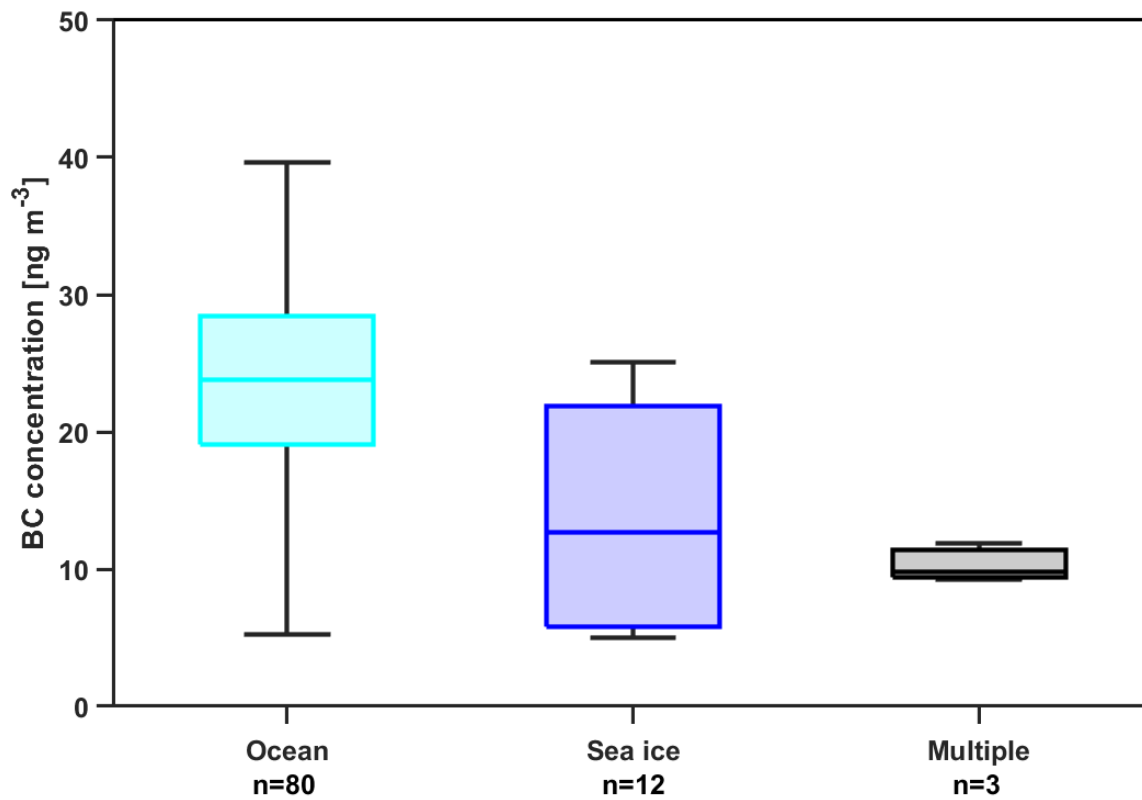
24 Figure S3. Example of two types of the NPF based on the SMPS data. (a) burst event (1 January 2018)
 25 and (b) nucleation with growth (16 December 2018).

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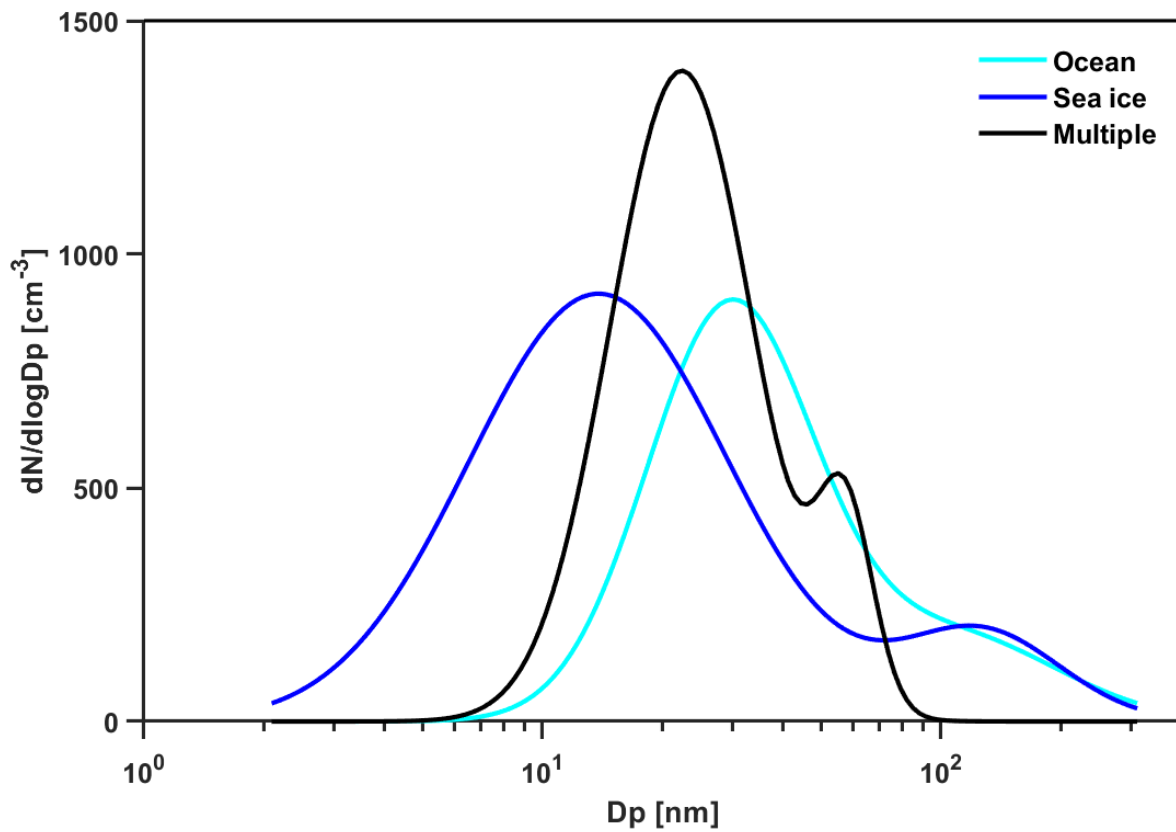
28 Figure S4. Mean size distributions of aerosol particles for summer (December–February) and transition
 29 periods of the melting of the ocean (September–November) and refreezing of ocean (March–May), when
 30 NPF event occurred. The average size distribution of aerosol particles for wintertime (June–August) was
 31 not displayed because we did not detect NPF events during the season.



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33 Figure S5. Median, 25 and 75 percentile BC concentration for marine, sea-ice, and multiple air masses

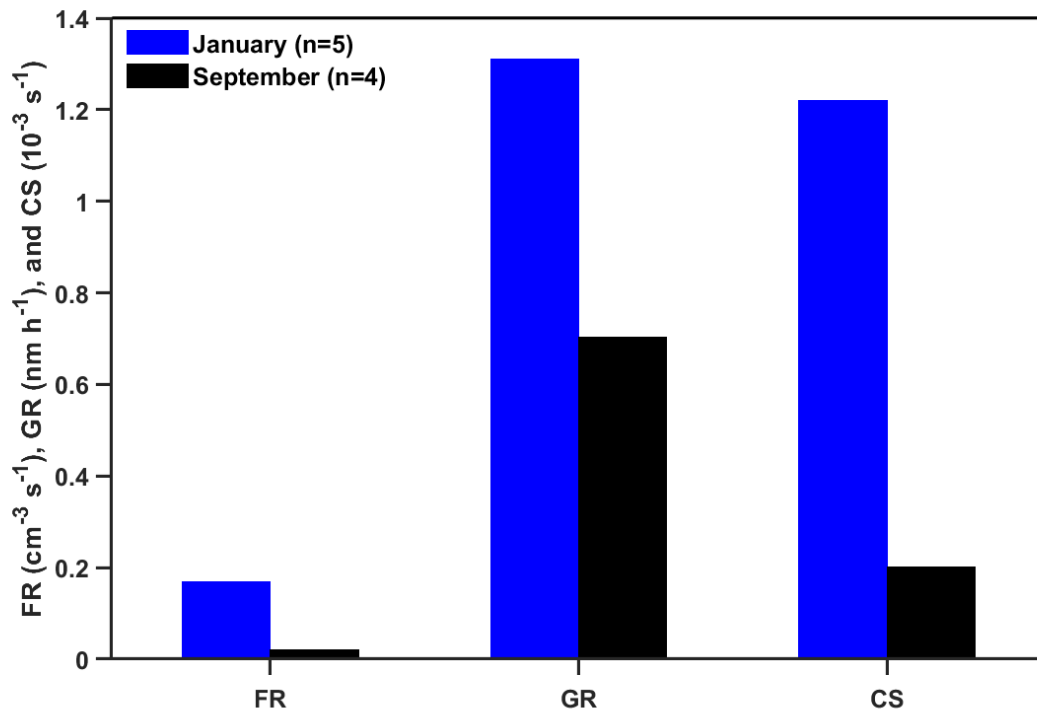
34 analyzed in this study.



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36 Figure S6. Mean size distributions of aerosol particles ranging between 2.5 to 300 nm in diameter for

37 ocean, sea ice, and multiple air masses.

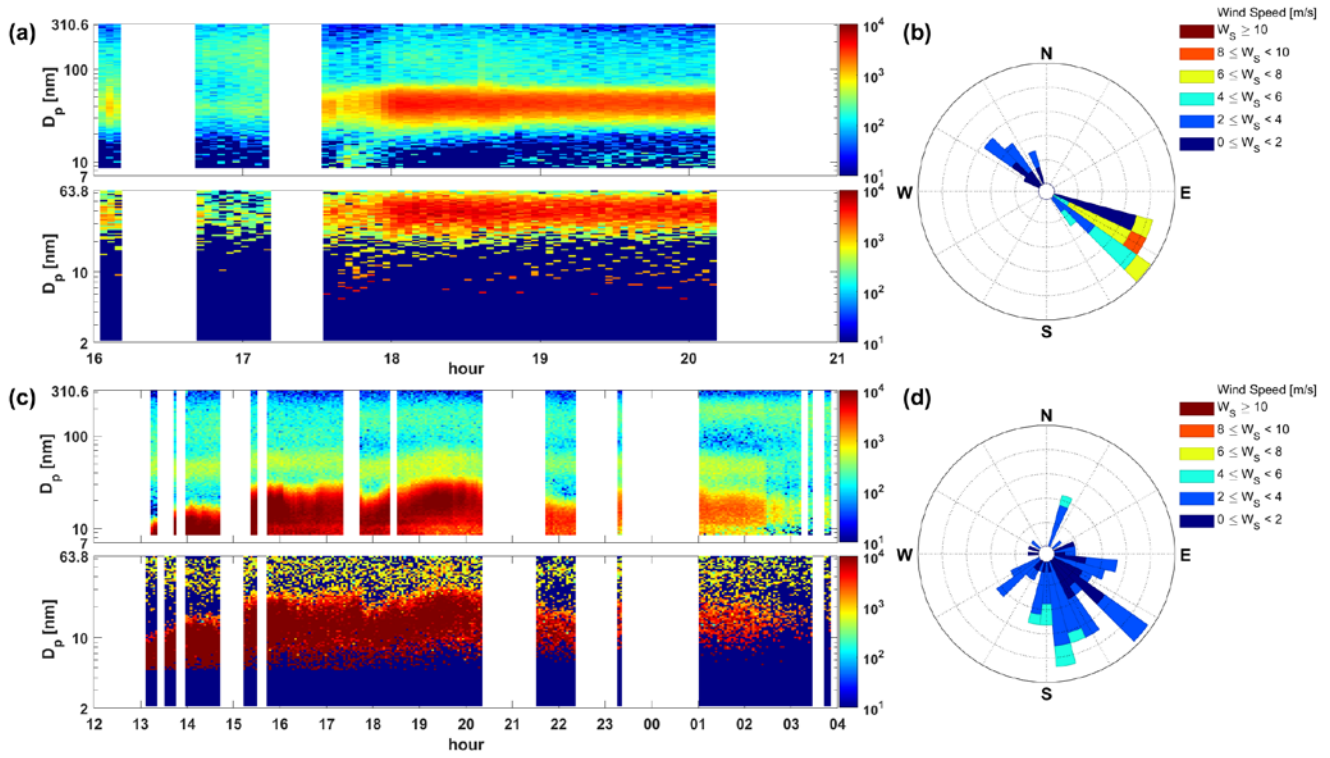


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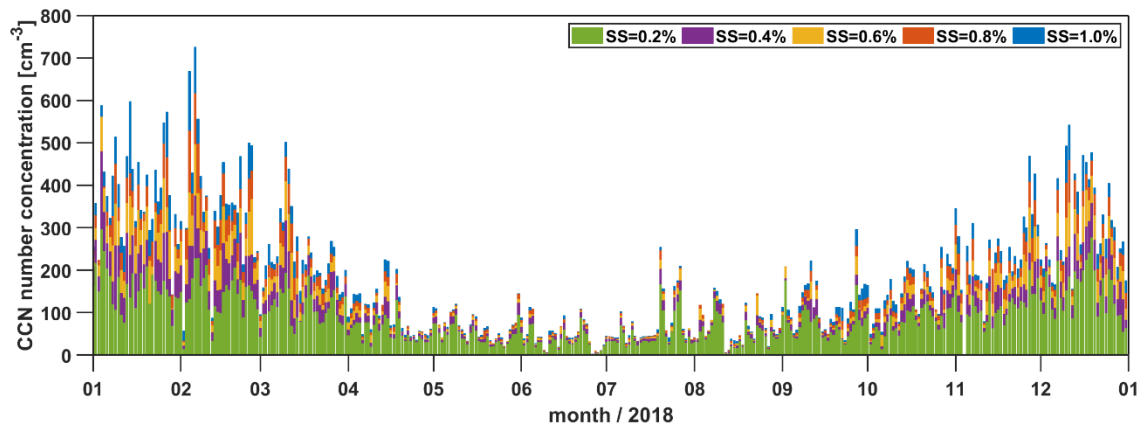
40 Figure S7. Comparison of mean values of formation rate (FR), growth rate (GR) and condensation sink

41 (CS) for Antarctic sea ice NPF cases observed between January and September.



42

43 Figure S8. (a) Contour plots of the size distributions and (b) wind rose on 4 February 2018 and (c) contour
 44 plots of the size distributions and (d) wind rose on 18 February 2018. The southeast direction (106–140°)
 45 is designated as a sector where strong emission from the penguin colonies may originate. The x-axis
 46 represents local time.



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48 Figure S9. Time series of daily mean CCN concentration under different supersaturation conditions.

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