

# Supporting Information for Observations of fog-aerosol interactions over central Greenland

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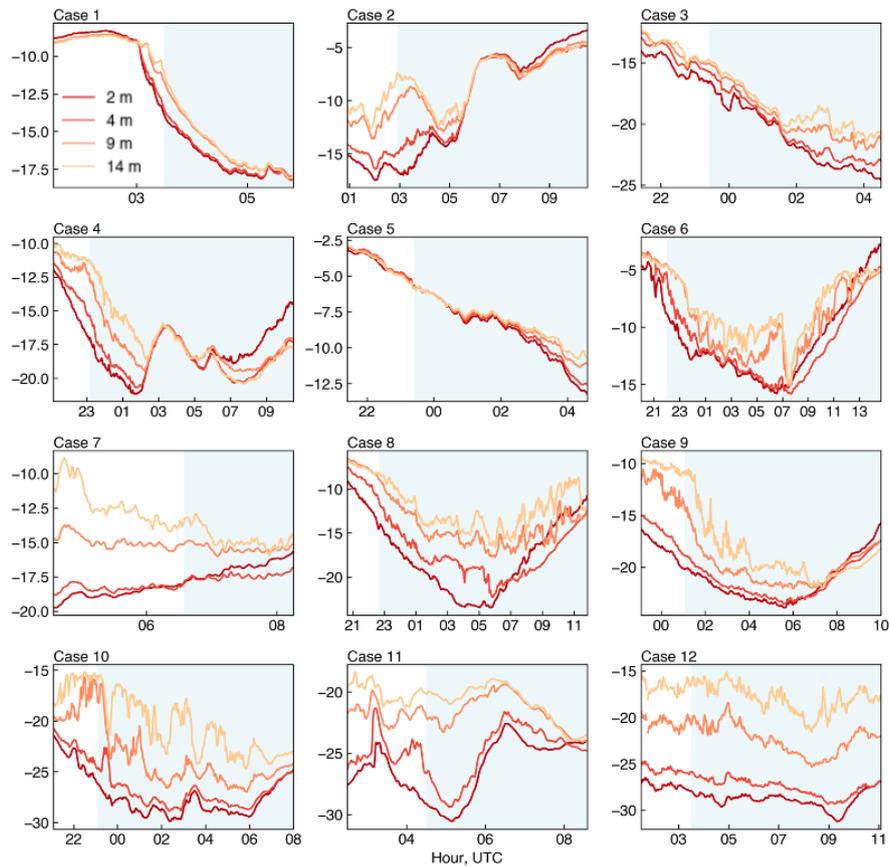
1. Figures S1 to S5

## Introduction

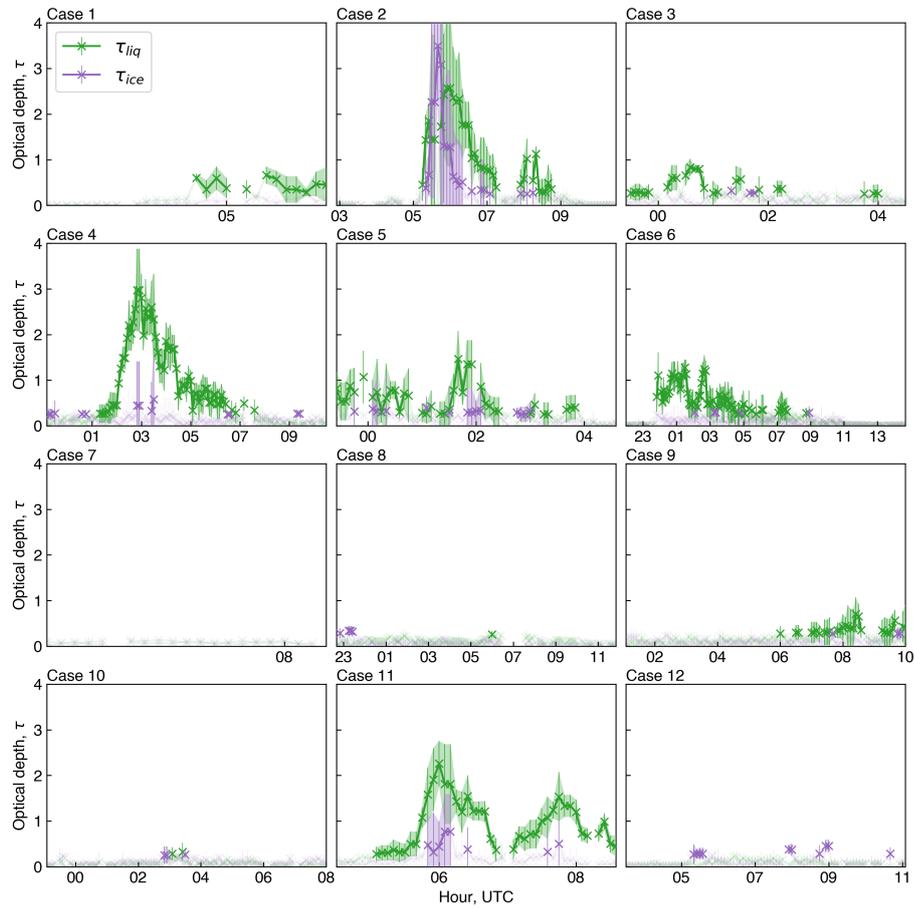
This supporting information contains additional figures that expand on and support the figures and ideas presented in the main text, but that are not used to generate the main conclusions.

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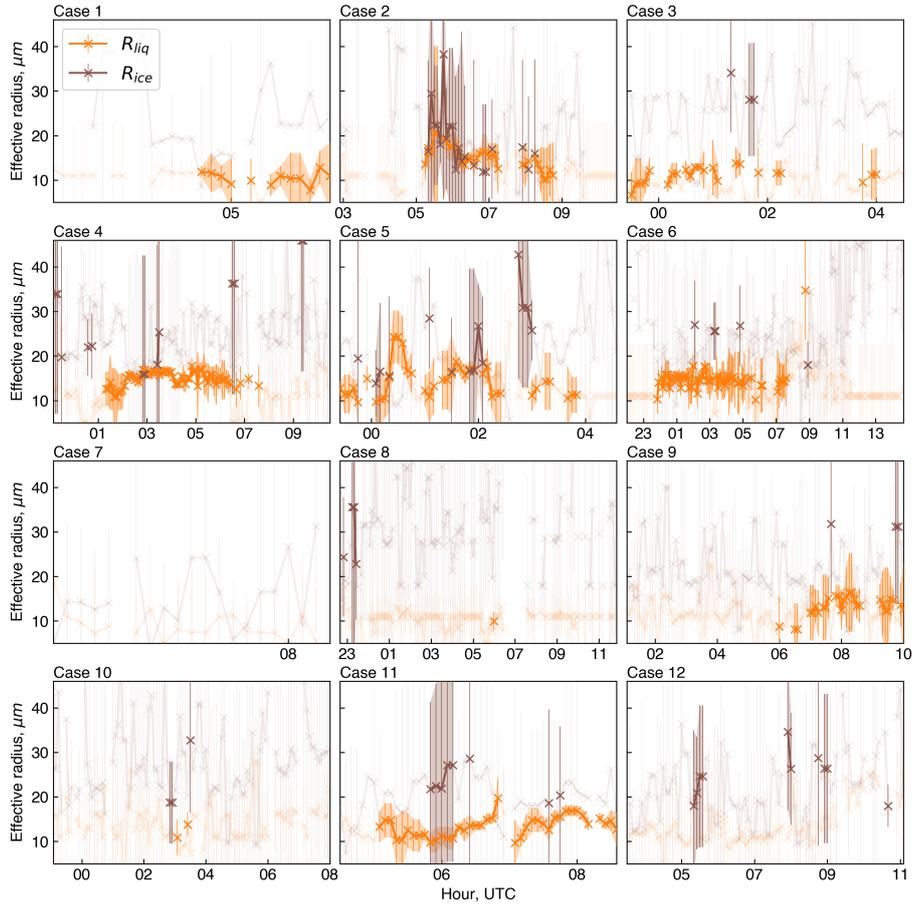
Corresponding author: H. Guy, ([heather.guy@ncas.ac.uk](mailto:heather.guy@ncas.ac.uk))



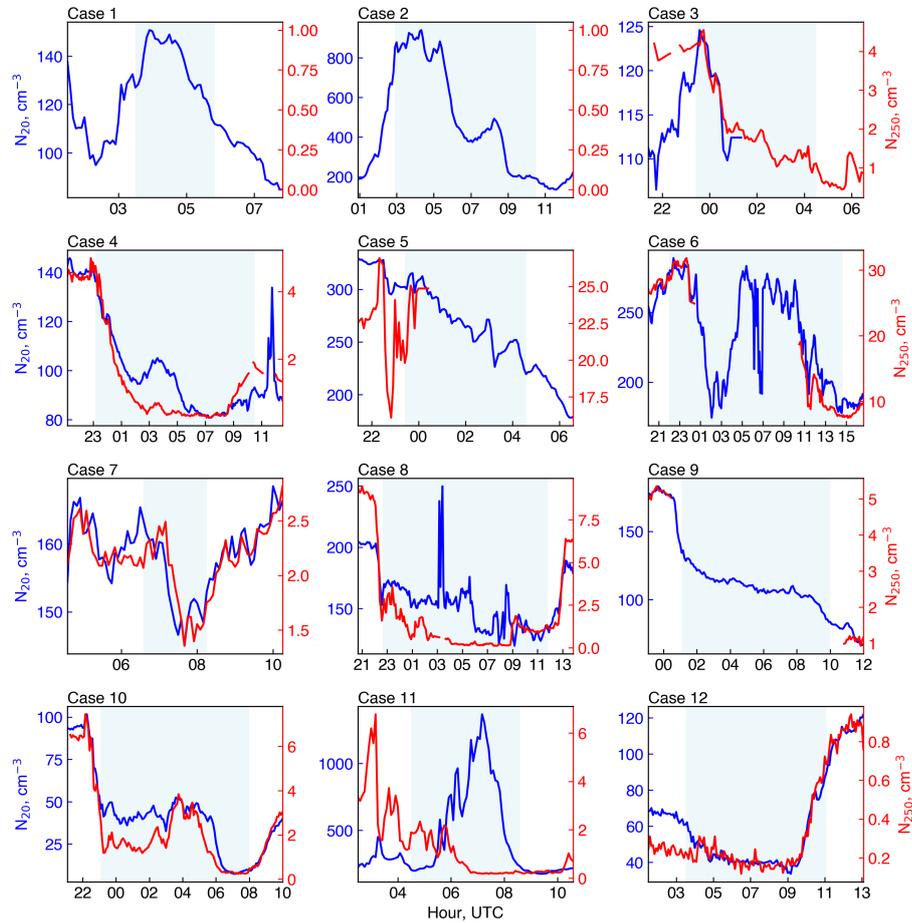
**Figure S1.** The temperature at four heights (2 m, 4 m, 9 m, and 14 m, see legend inset) measured by tower-mounted in-situ probes during each fog case. Plots include the two hours prior the event, the duration of each event (when there was a detectable radiative impact at the surface) is shaded in blue. Note the different y-scales on each plot.



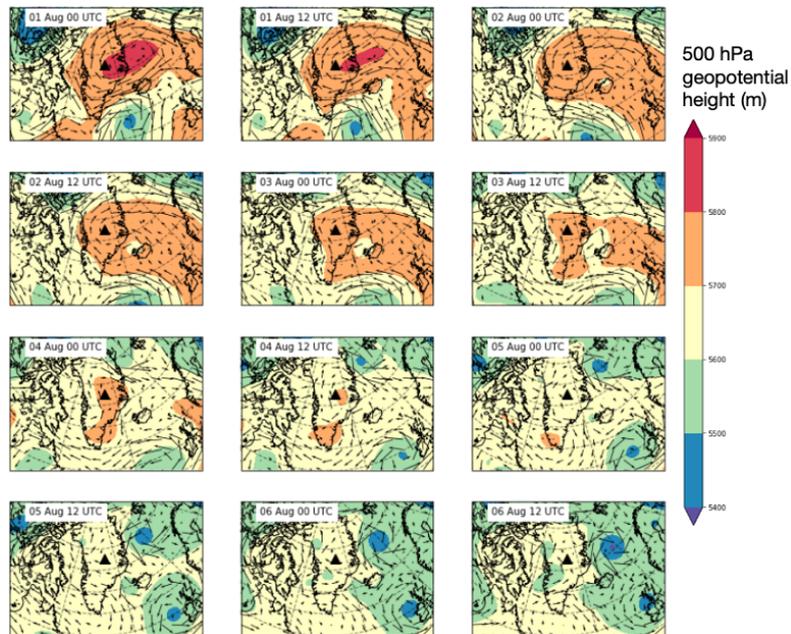
**Figure S2.** Temporal evolution of optical depth retrievals for the liquid ( $\tau_{liq}$ , green) and ice ( $\tau_{ice}$ , purple) phase of each fog event. Error bars show  $2\sigma$  uncertainties. Retrievals for which the optical depth is insufficient ( $\tau < 0.25$ ) are included on the plot but are faded out.



**Figure S3.** Temporal evolution of fog particle effective radius retrievals for the liquid ( $R_{liq}$ , orange) and ice ( $R_{ice}$ , brown) phase of each fog event. Error bars show  $2\sigma$  uncertainties. Retrievals for which the optical depth is insufficient ( $\tau < 0.25$ ) are included on the plot but are faded out.



**Figure S4.** Aerosol particle number concentration measurements ( $N_{20}$ , blue, and  $N_{250}$ , red) during each fog case. Plots include the two hours prior to and after each event, the duration of each fog event (when there was a detectable radiative impact at the surface) is shaded in blue. Note the different y-scales on each plot.



**Figure S5.** 500 hPa geopotential heights (shaded) and winds (barbed) from ERA5 reanalysis during the first week of August 2019. Plots show the mean value averaged over the 12 hours centered on the time labelled in the upper left. The location of Summit Station is indicated by a black triangle.