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*Supplement of*

## **Retrieval of snowflake microphysical properties from multifrequency radar observations**

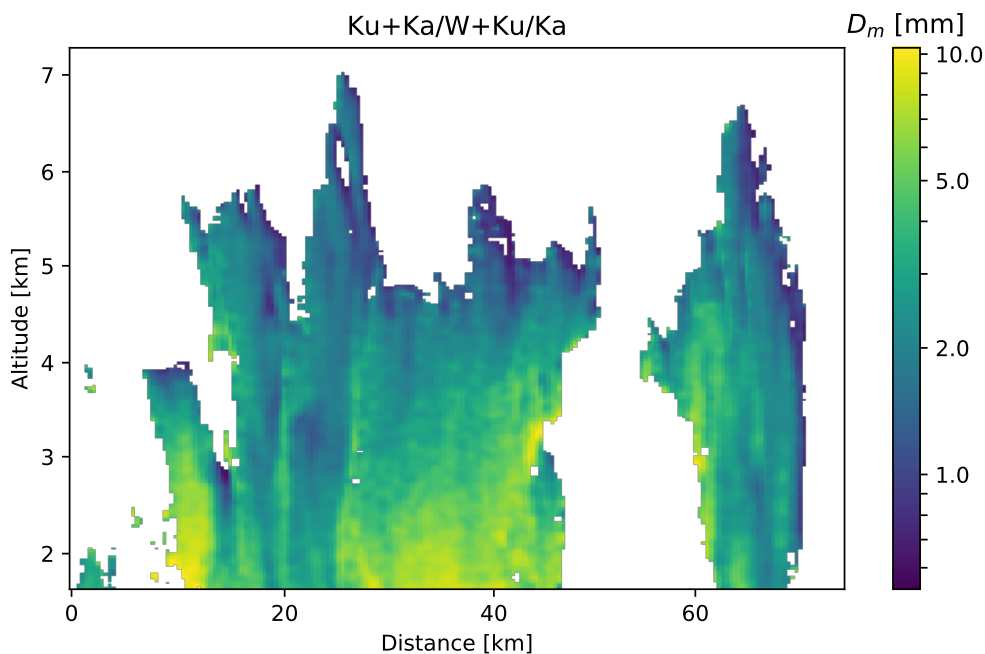
**Jussi Leinonen et al.**

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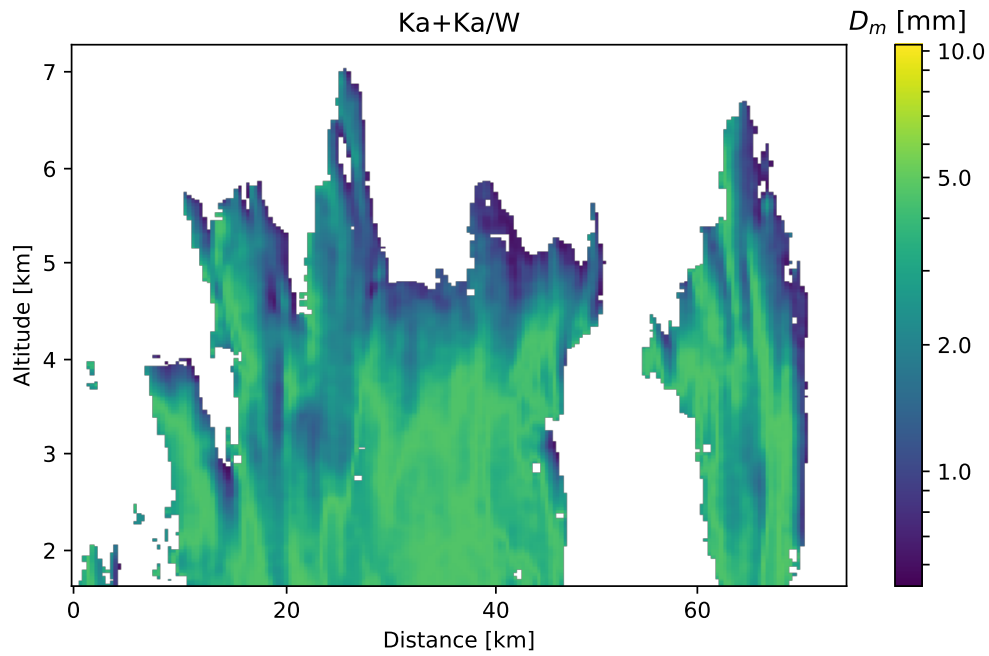
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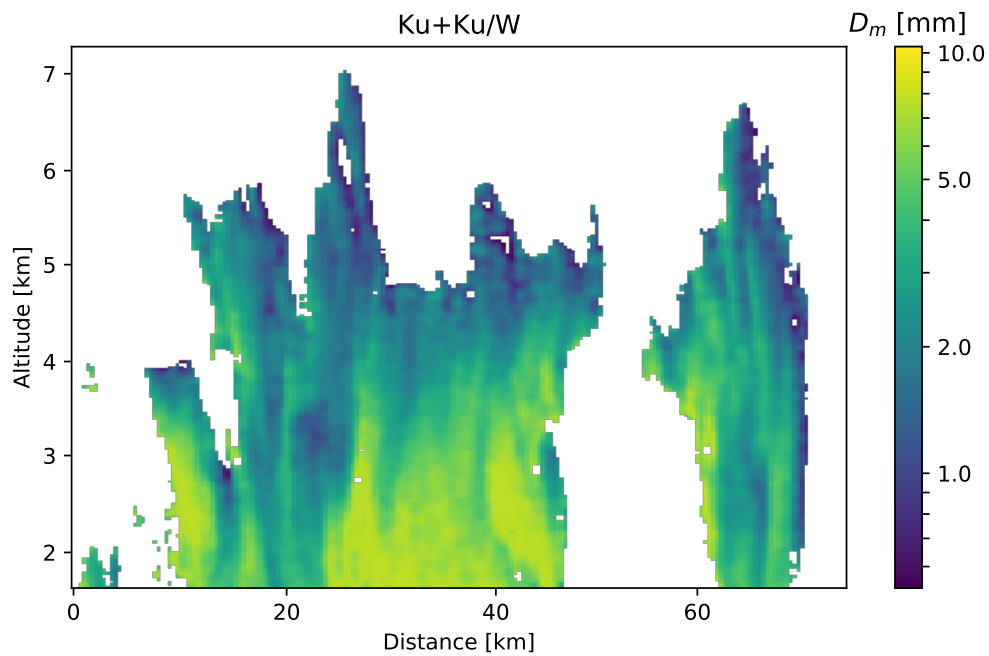
This supplement contains the microphysical parameter plots of Fig. 3a–c of the main article, but retrieved using different radar band combinations. The mass-weighted mean diameter is shown in Figs. S1–S7, the bulk density in Figs. S8–S14, and the ice water content in Figs. S15–S21. The prior sensitivity analysis of Fig. 6 of the main article is also shown in Figs. S22–S28 using 5 different band combinations.



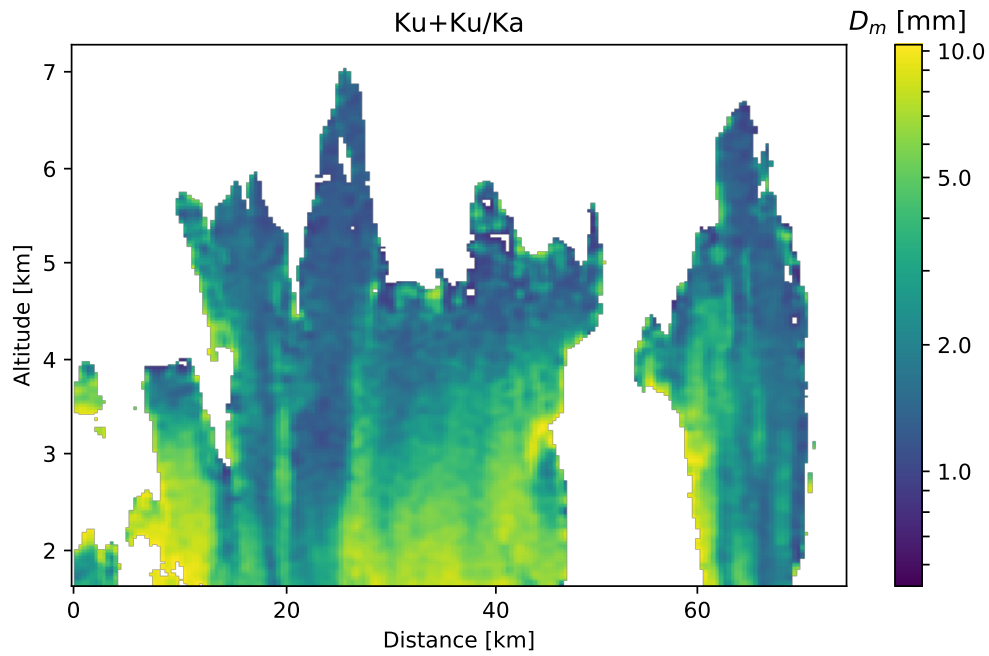
**Figure S1.** The mass-weighted mean diameter for the December 4, 2015 case, retrieved using the Ku-band reflectivity, the Ka/W band dual-wavelength ratio (DWR) and the Ku/Ka-band DWR. This plot is equivalent to Fig. 3a of the main article, but the colors have been rescaled in order to retain consistency between Figs. S1–S7.



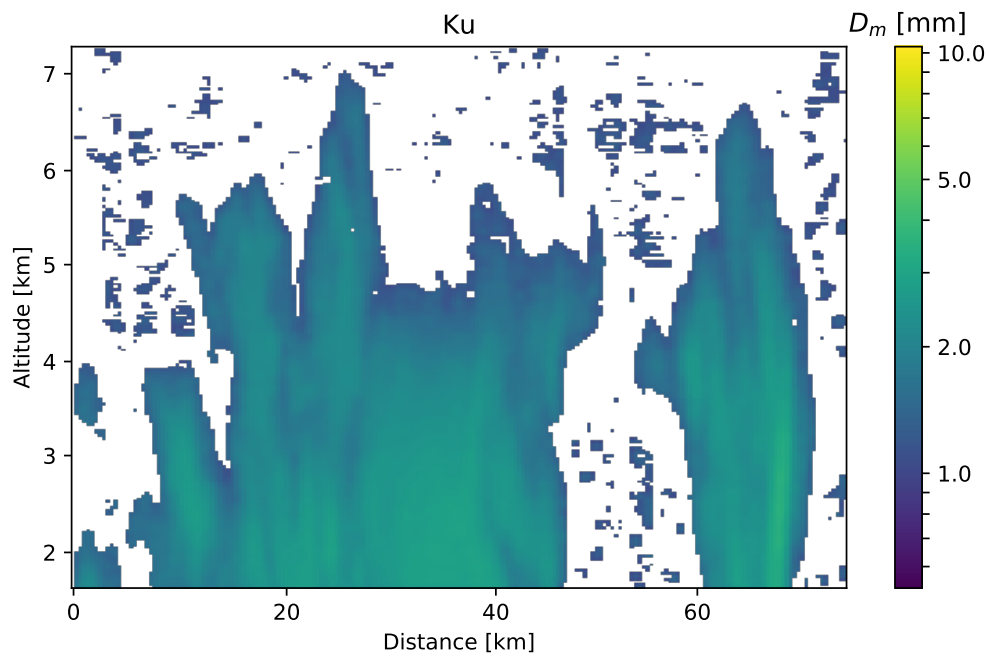
**Figure S2.** As Fig. S1, but retrieved using the Ka-band reflectivity and the Ka/W band DWR.



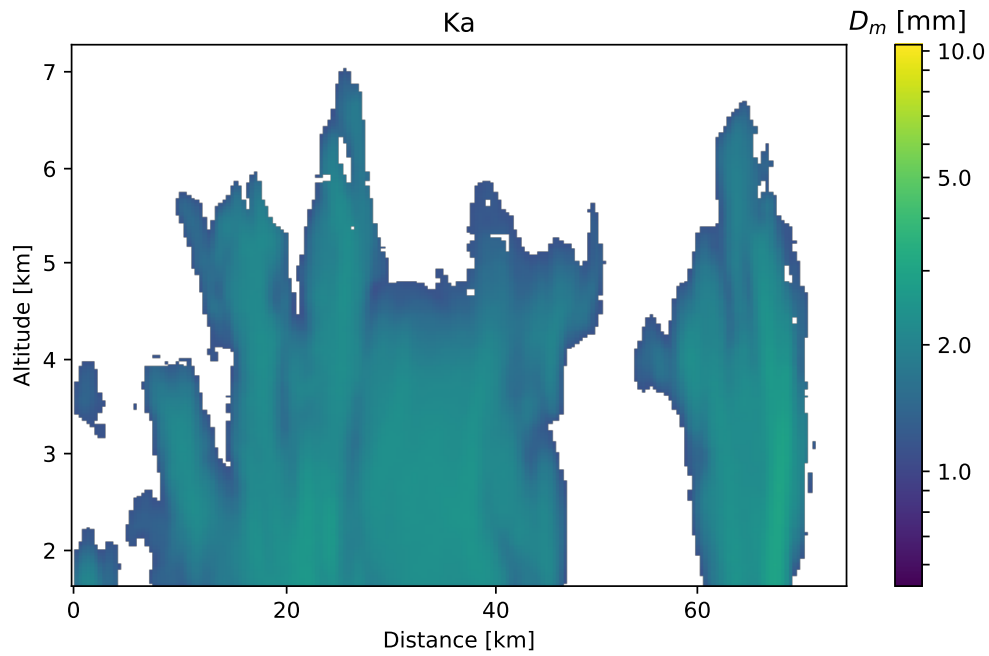
**Figure S3.** As Fig. S1, but retrieved using the Ku-band reflectivity and the Ku/W band DWR.



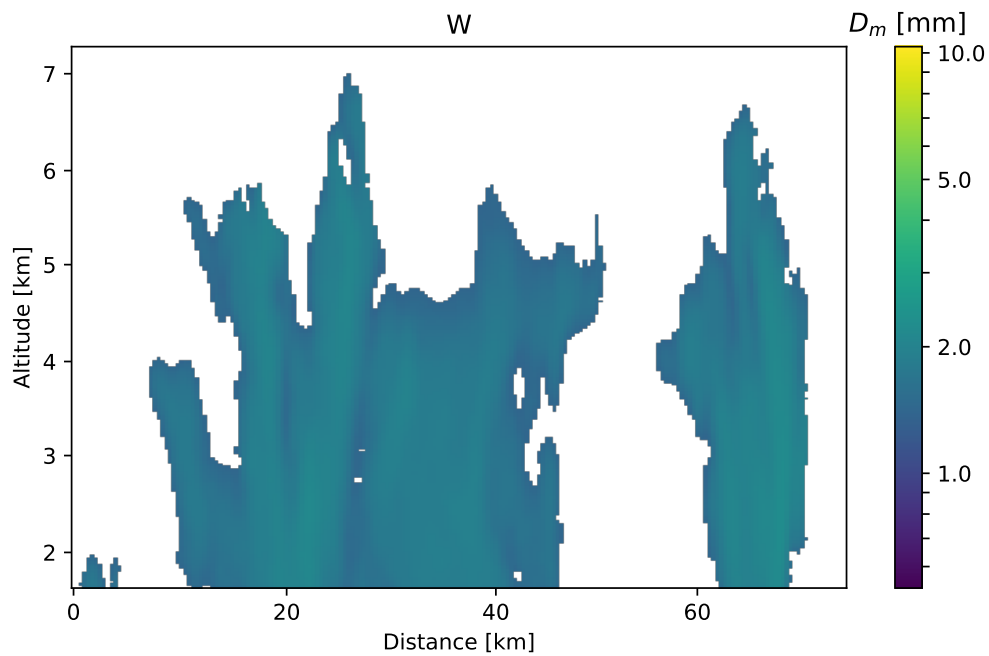
**Figure S4.** As Fig. S1, but retrieved using the Ku-band reflectivity and the Ku/Ka band DWR.



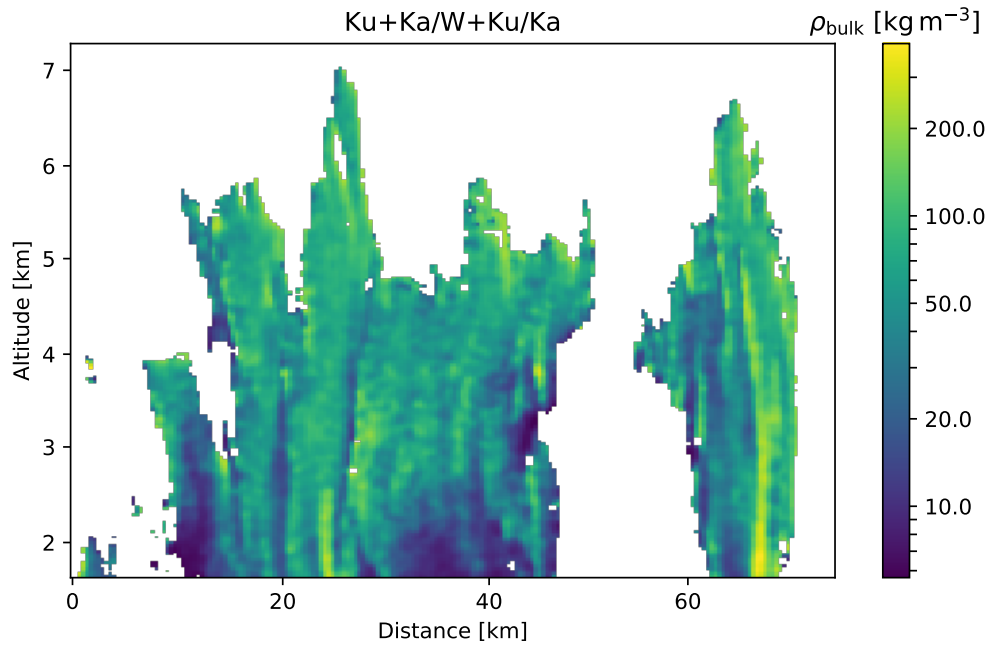
**Figure S5.** As Fig. S1, but retrieved using the Ku-band reflectivity only.



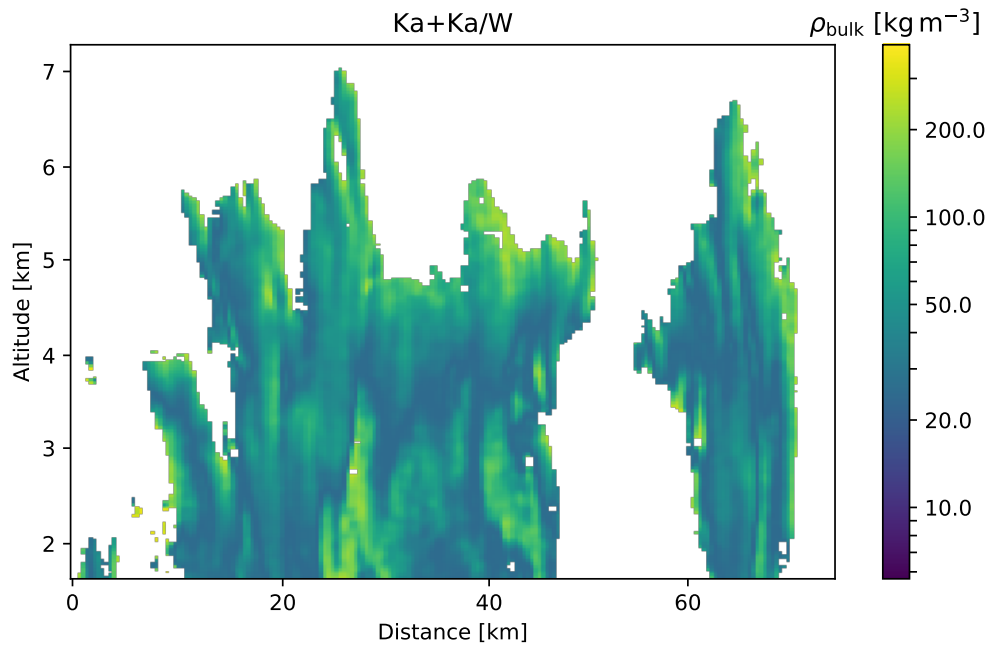
**Figure S6.** As Fig. S1, but retrieved using the Ka-band reflectivity only.



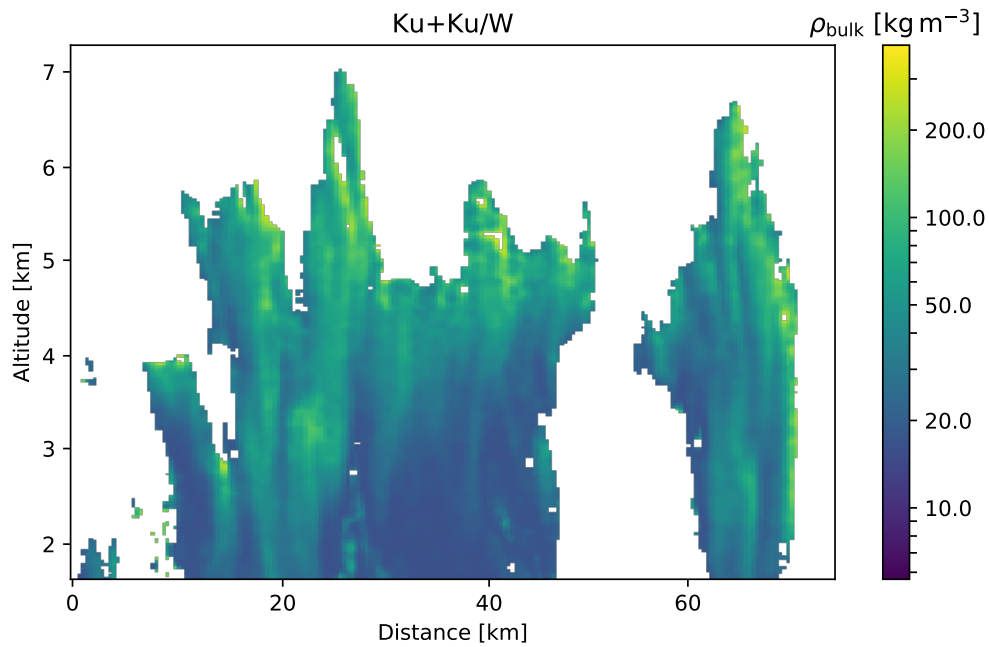
**Figure S7.** As Fig. S1, but retrieved using the W-band reflectivity only.



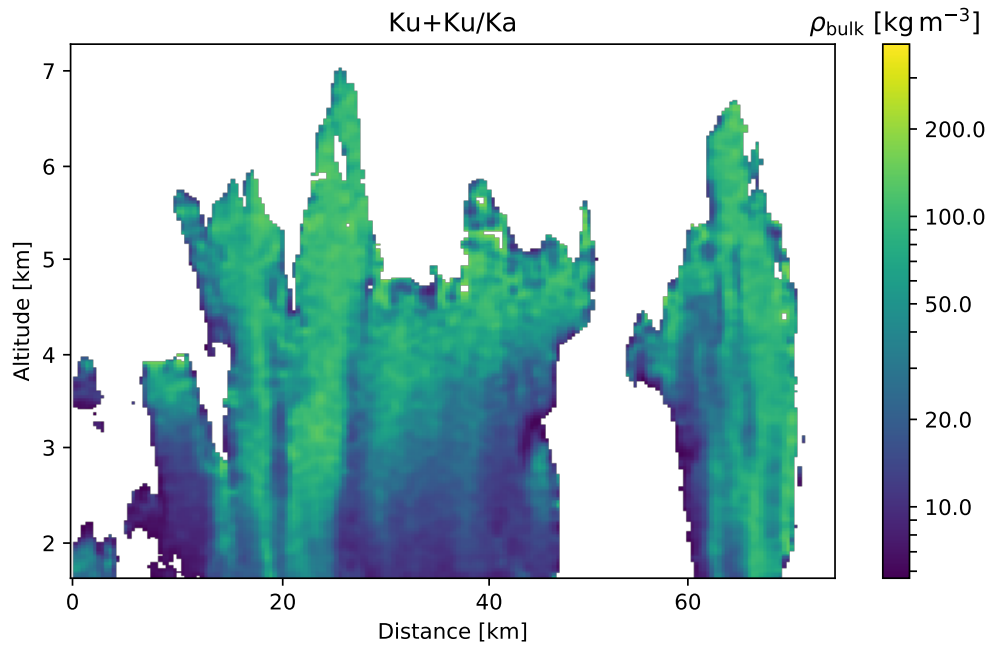
**Figure S8.** The bulk density for the December 4, 2015 case, retrieved using the Ku-band reflectivity, the Ka/W band dual-wavelength ratio (DWR) and the Ku/Ka-band DWR. This plot is equivalent to Fig. 3b of the main article, but the colors have been rescaled in order to retain consistency between Figs. S8–S14.



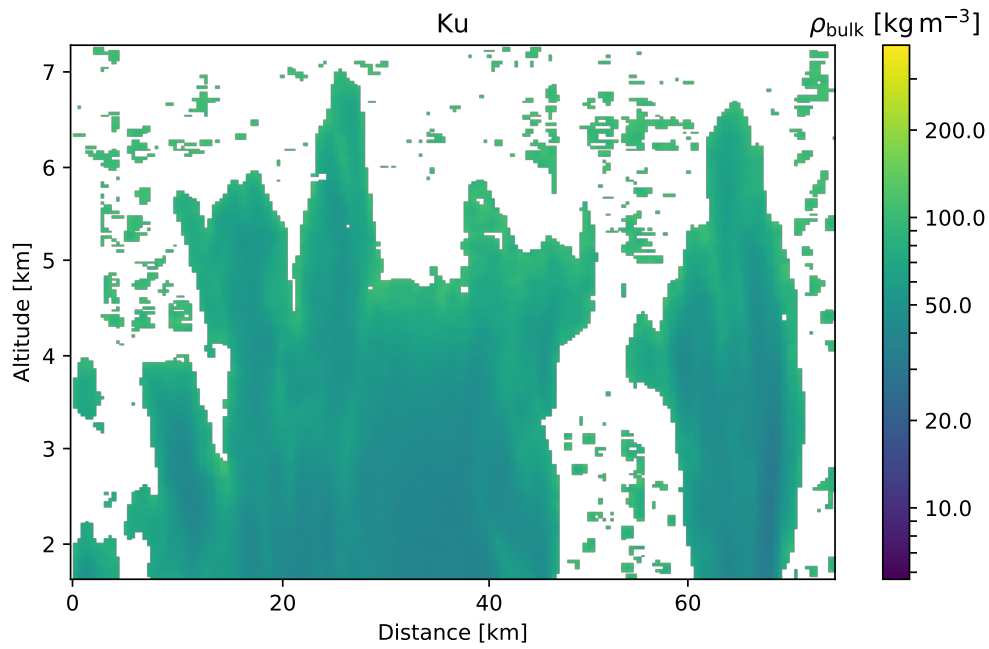
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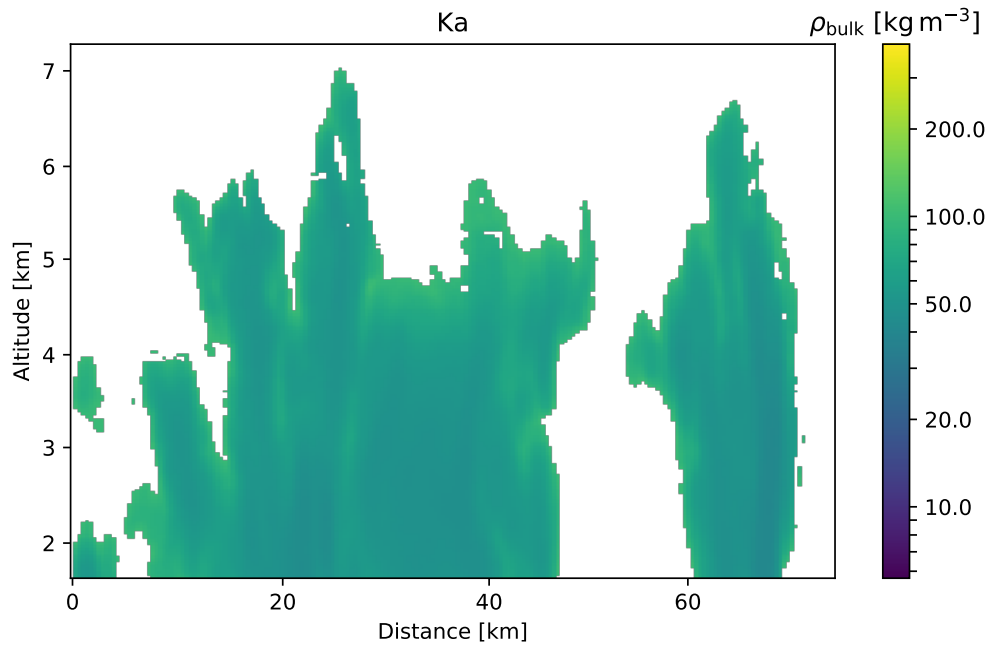
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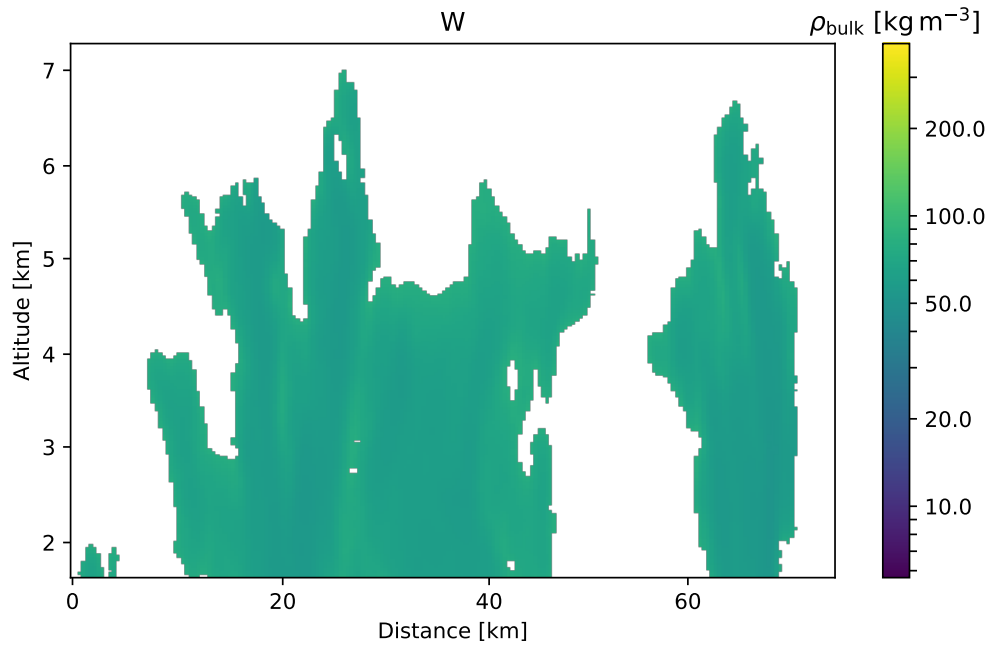


**Figure S12.** As Fig. S8, but retrieved using the Ku-band reflectivity only.

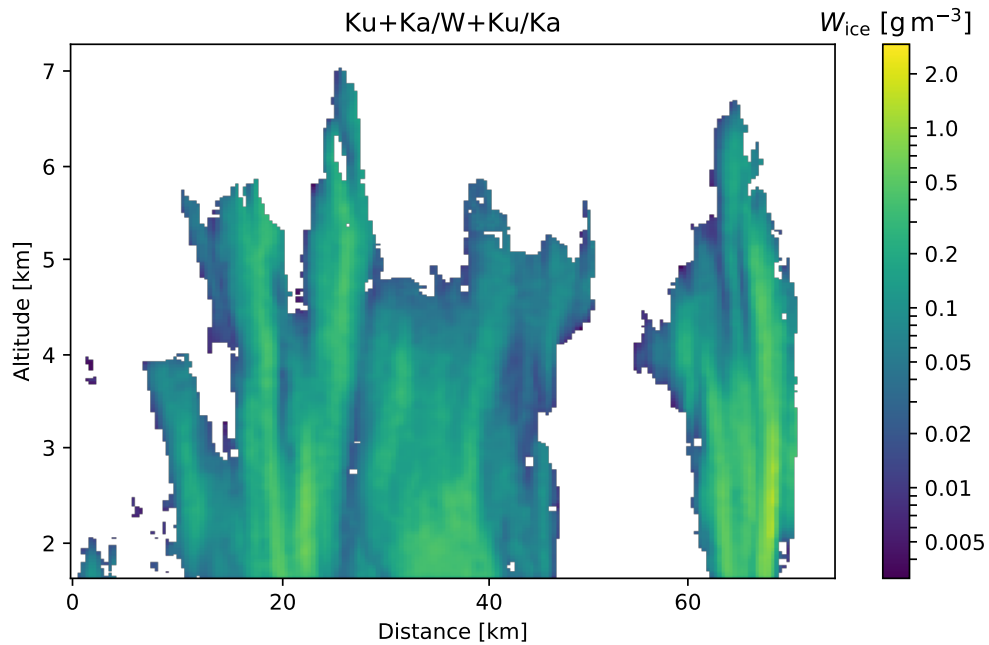


**Figure S13.** As Fig. S8, but retrieved using the Ka-band reflectivity only.

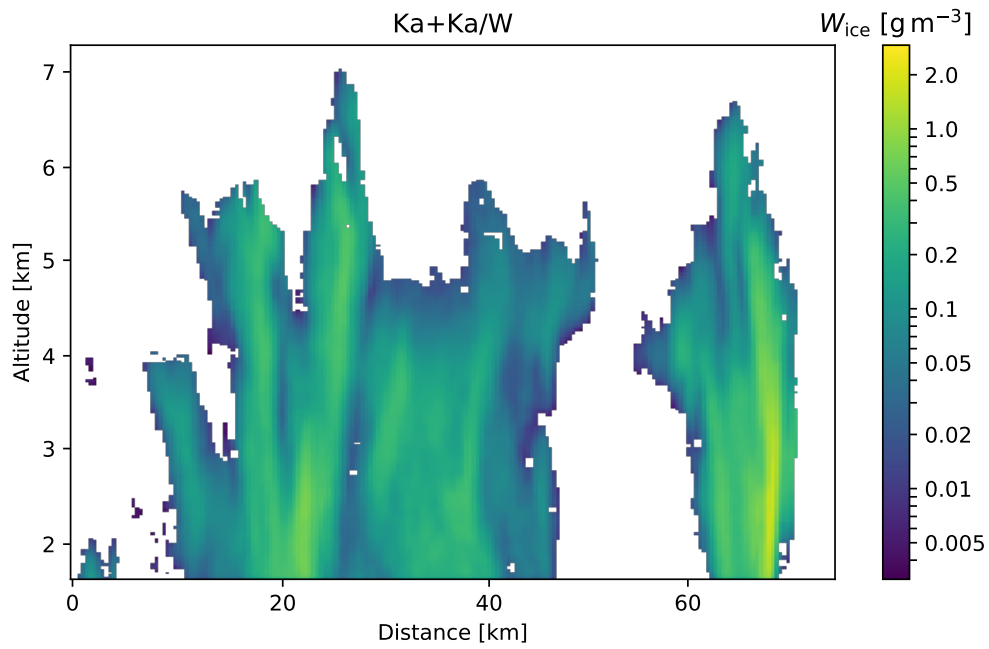




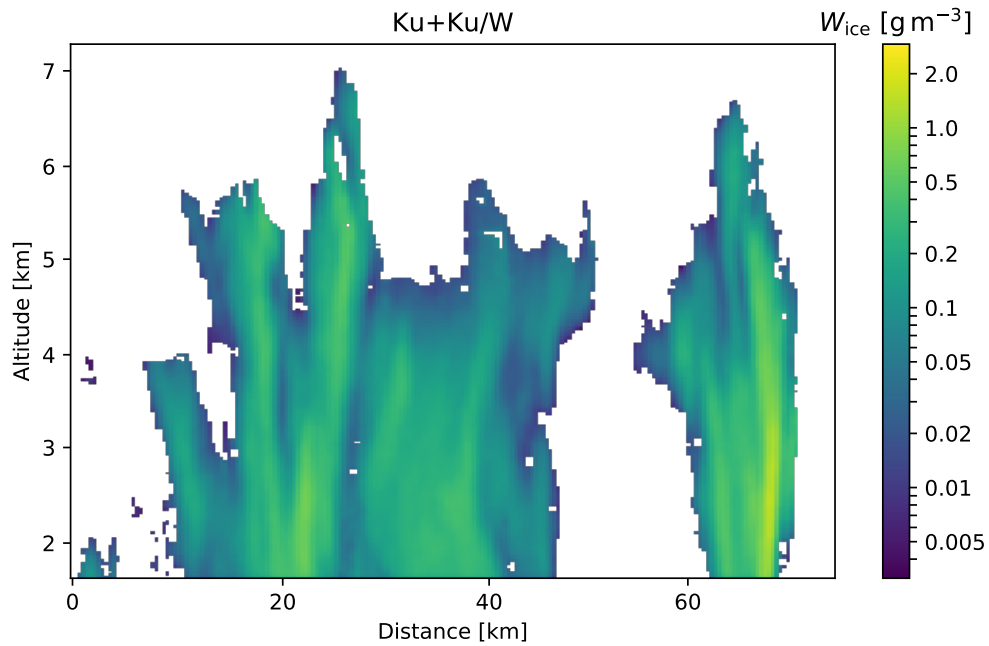
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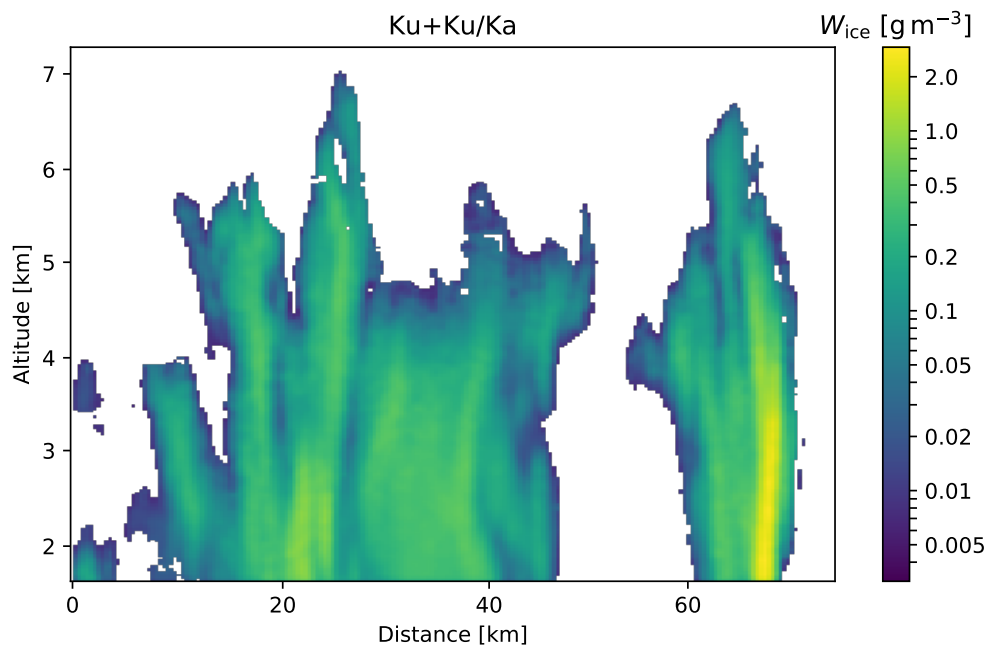
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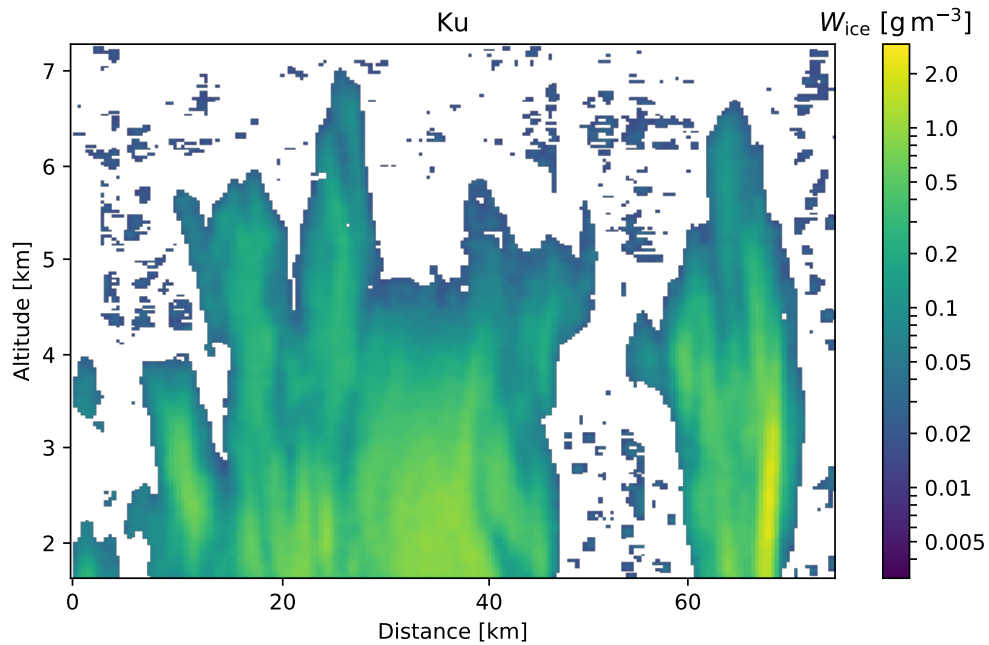
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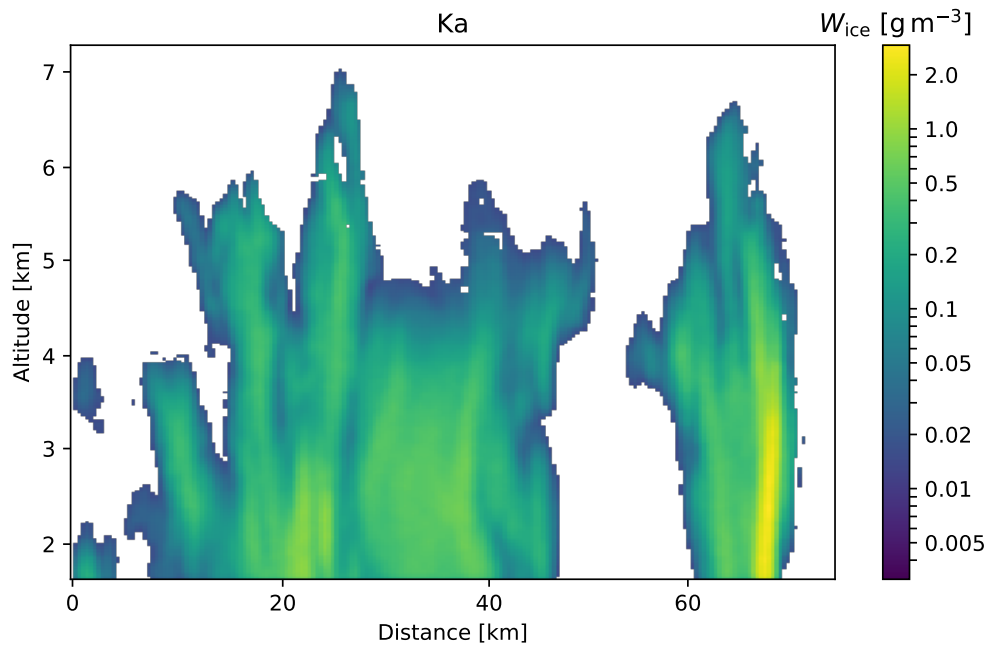
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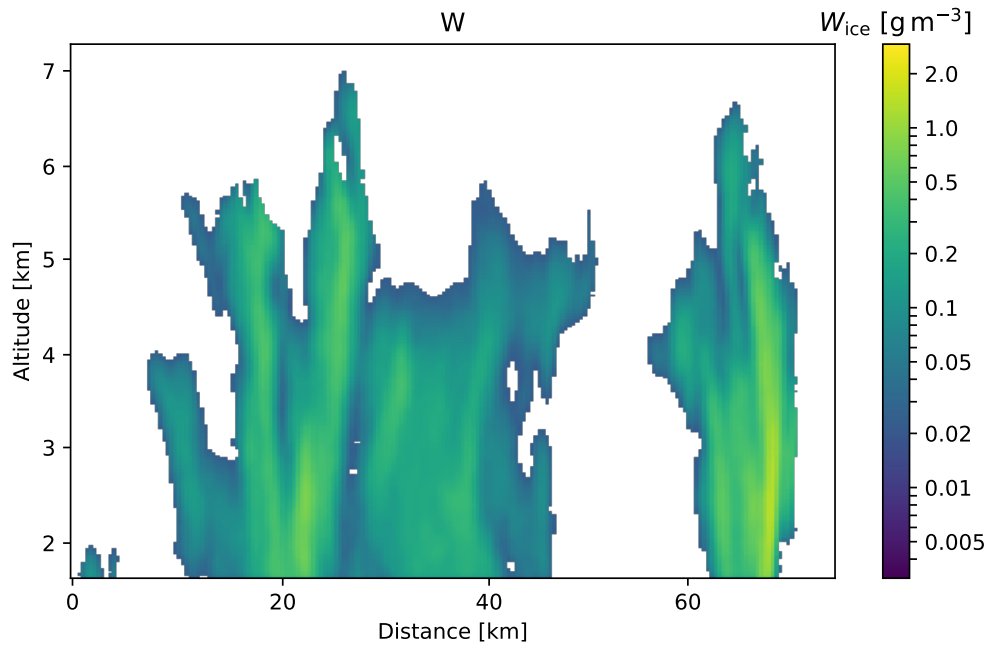
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**Figure S19.** As Fig. S15, but retrieved using the Ku-band reflectivity only.



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**Figure S22.** This is equivalent to the prior sensitivity study of Fig. 6 of the main article, but the colors have been rescaled for consistency between Figs. S22–S28.



**Figure S23.** As Fig. S22, but retrieved using the Ka-band reflectivity and the Ka/W band DWR.



**Figure S24.** As Fig. S22, but retrieved using the Ku-band reflectivity and the Ku/W band DWR.



**Figure S25.** As Fig. S22, but retrieved using the Ku-band reflectivity and the Ku/Ka band DWR.



**Figure S26.** As Fig. S22, but retrieved using the Ku-band reflectivity only.



**Figure S27.** As Fig. S22, but retrieved using the Ka-band reflectivity only.



**Figure S28.** As Fig. S22, but retrieved using the W-band reflectivity only.