Supplement of Atmos. Chem. Phys., 26, 15633–15651, 2026
https://doi.org/10.5194/acp-26-15633-2026-supplement
© Author(s) 2026. CC BY 4.0 License.



Atmospheric Chemistry and Physics
Open Access
EGU

Supplement of

EarthCARE Observations of Vertical Motion and Cloud Microphysical Structure in Tropical Cyclones

Jin-De Huang et al.

Correspondence to: Jin-De Huang (jdhuang@aori.u-tokyo.ac.jp)

The copyright of individual parts of the supplement might differ from the article licence.

Supplement

The figures are shown in this file as follows:

Figure S1. Distribution of the radius of maximum wind (RMW) for the EarthCARE-intercepted TCs used in the analysis.

Figure S2. Number of independent EarthCARE intercept events and valid profiles contributing to each radial bin.

Figure S3. Mean vertical profiles of radar reflectivity, Doppler velocity, and vertical air velocity for the two independent EarthCARE intercept events contributing to the inner-core region.

Figure S4. Sensitivity of the Doppler velocity PDFs to using 4 RMW as the boundary between the rainband and outer regions.

Figure S5. Same as Fig. S4, but using 6 RMW as the boundary between the rainband and outer regions.

Figure S6. Same as Fig. 9, but for NICAM T24 simulation.

Figure S7. Same as Fig. 10, but using all NICAM samples within 300 km of the TC center for K21 and T24.

Figure S8. Same as Fig. 11, but using all NICAM samples within 300 km of the TC center for K21 and T24.

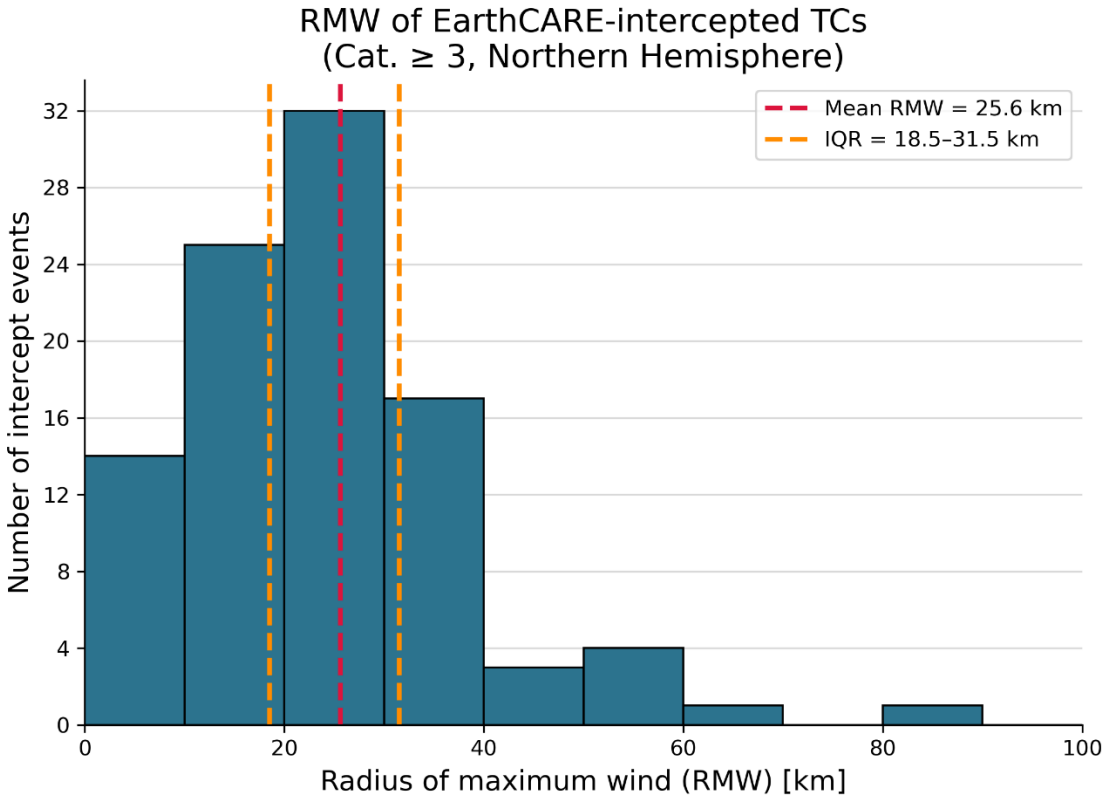


Figure S1. Distribution of the radius of maximum wind (RMW) for EarthCARE intercept events of Category 3 or stronger TCs. The dashed line indicates the mean RMW (25.6 km) and interquartile range (18.5-31.5 km).

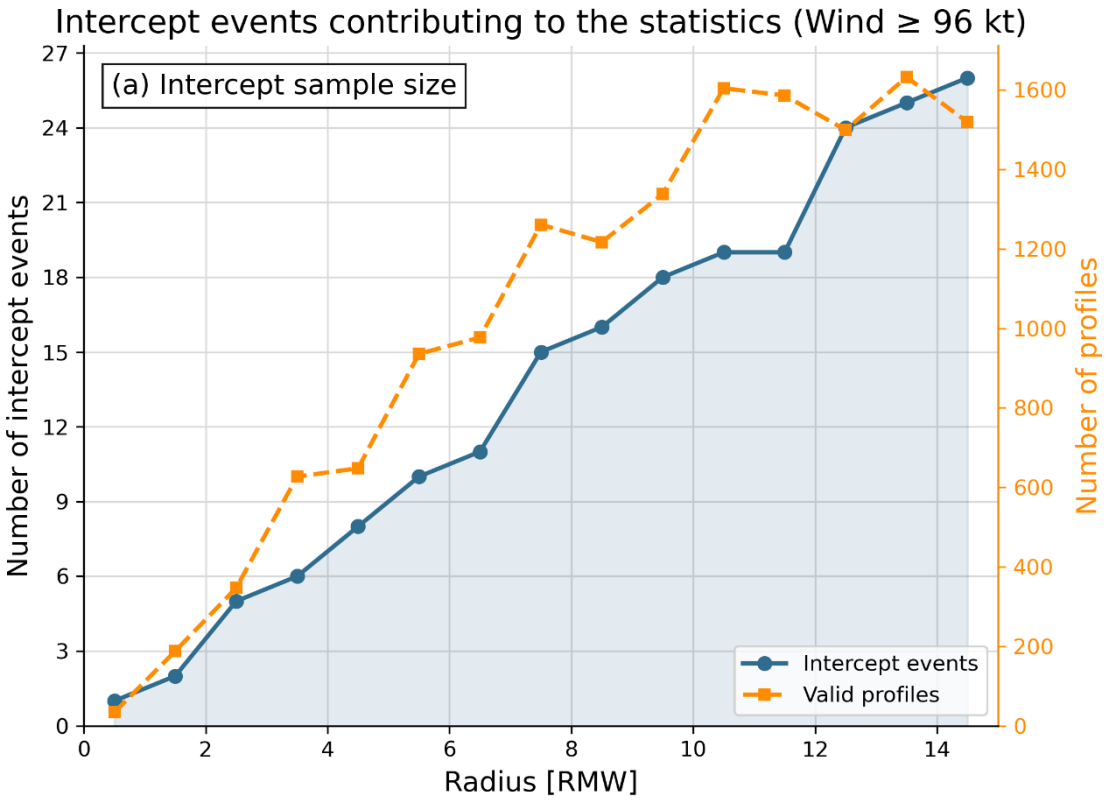


Figure S2. Number of independent EarthCARE intercept events (blue) and valid profiles (orange) contributing to each normalized radial bin for Category 3 and stronger TCs.

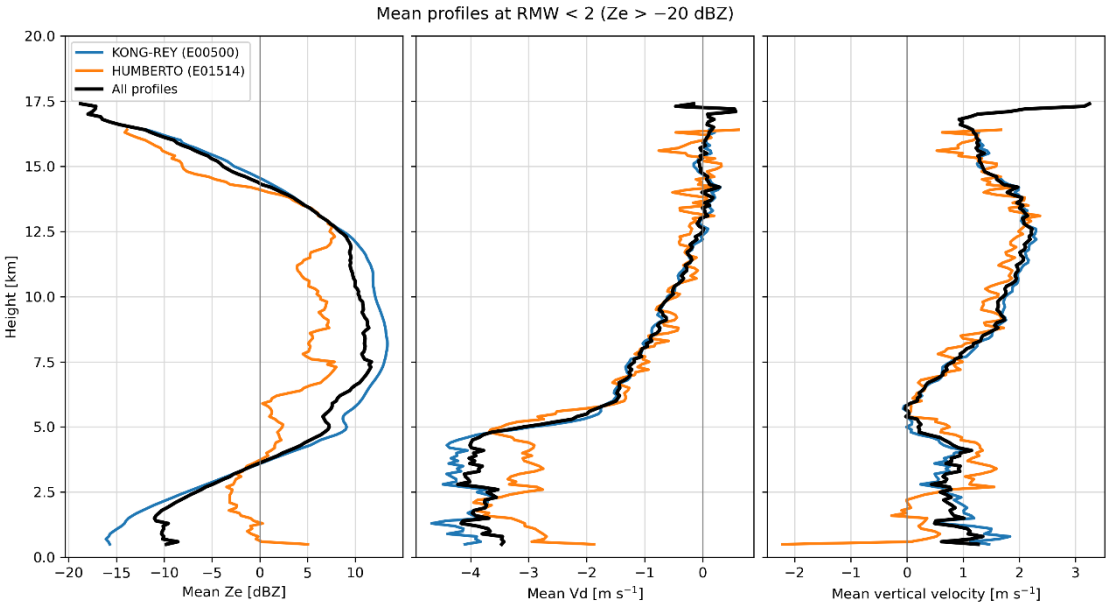


Figure S3. Mean vertical profiles of radar reflectivity (left), Doppler velocity (middle), and vertical air velocity (right) for the two independent EarthCARE intercept events contributing to the inner-core region (R < 2 RMW). The black lines show the profiles calculated using all inner-core samples.

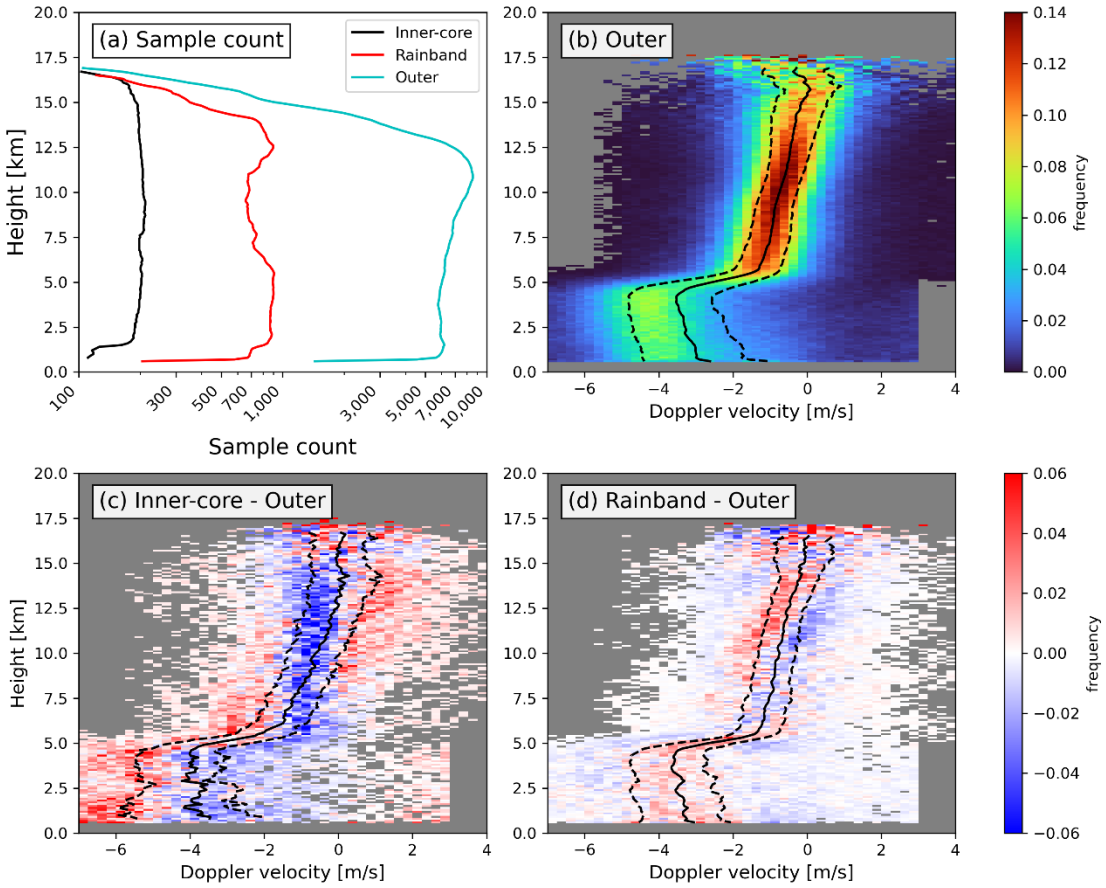


Figure S4. Same as Fig. 3, but using 4 RMW as the boundary between the rainband and outer regions. The rainband and outer regions are therefore defined as 2–4 RMW and 4–15 RMW, respectively.

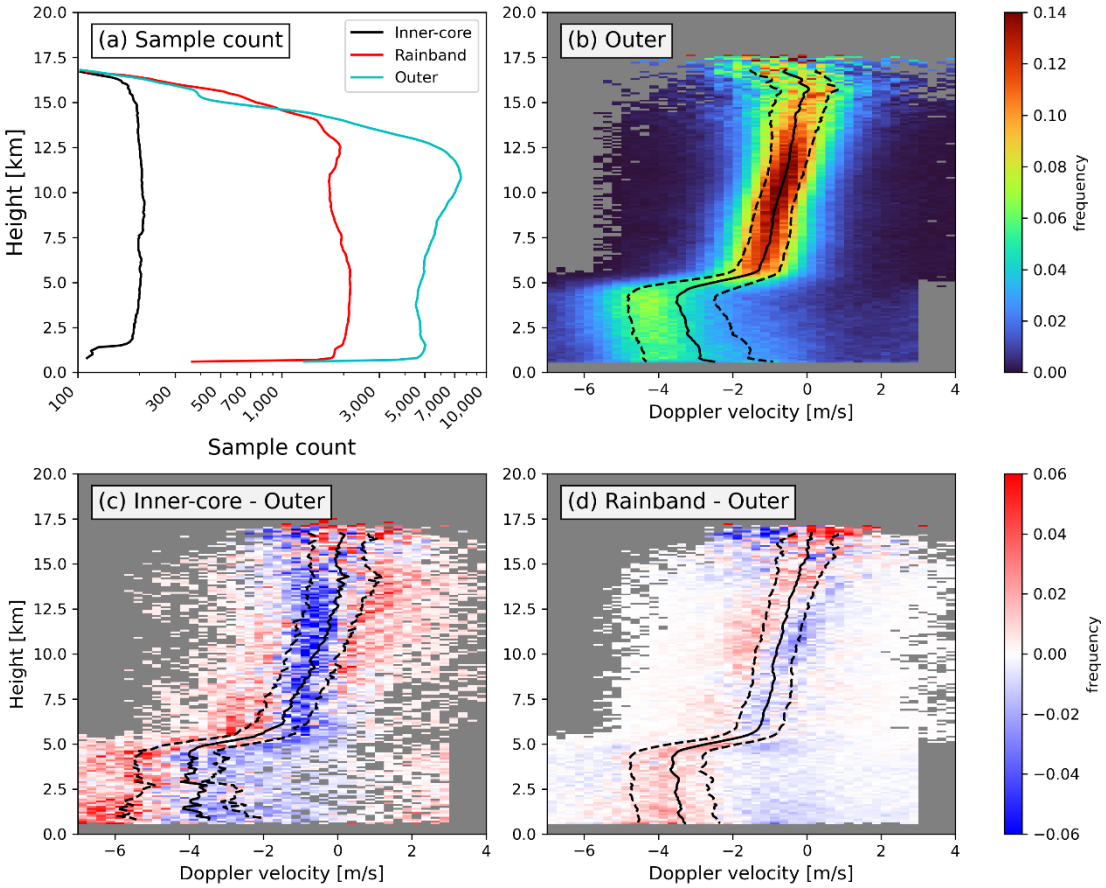


Figure S5. Same as Fig. 3, but using 6 RMW as the boundary between the rainband and outer regions. The rainband and outer regions are therefore defined as 2–6 RMW and 6–15 RMW, respectively.

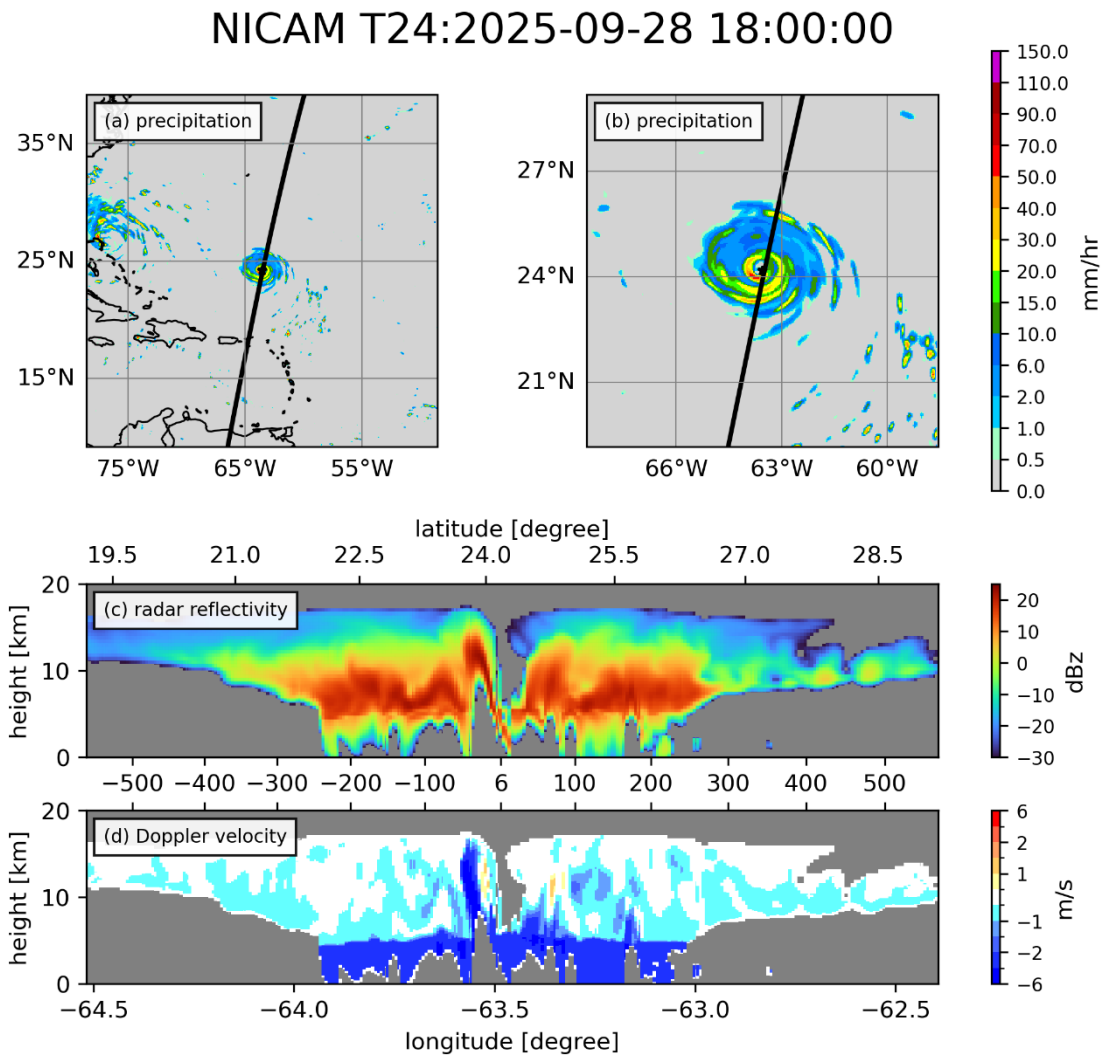


Figure S6. Same as Fig. 9, but for NICAM T24 simulation.

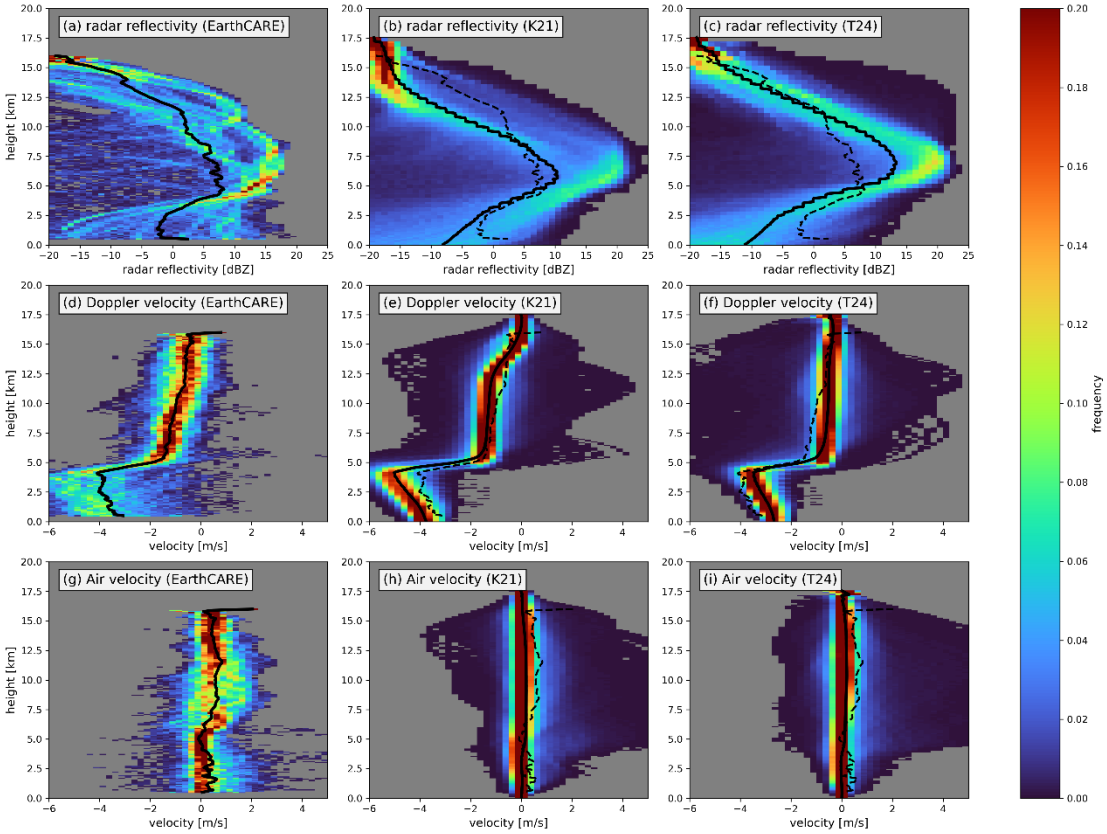


Figure S7. Same as Fig. 10, but using all NICAM samples within 300 km of the simulated TC center to construct the PDFs for K21 and T24. The EarthCARE distributions are the same as those shown in Fig. 10.

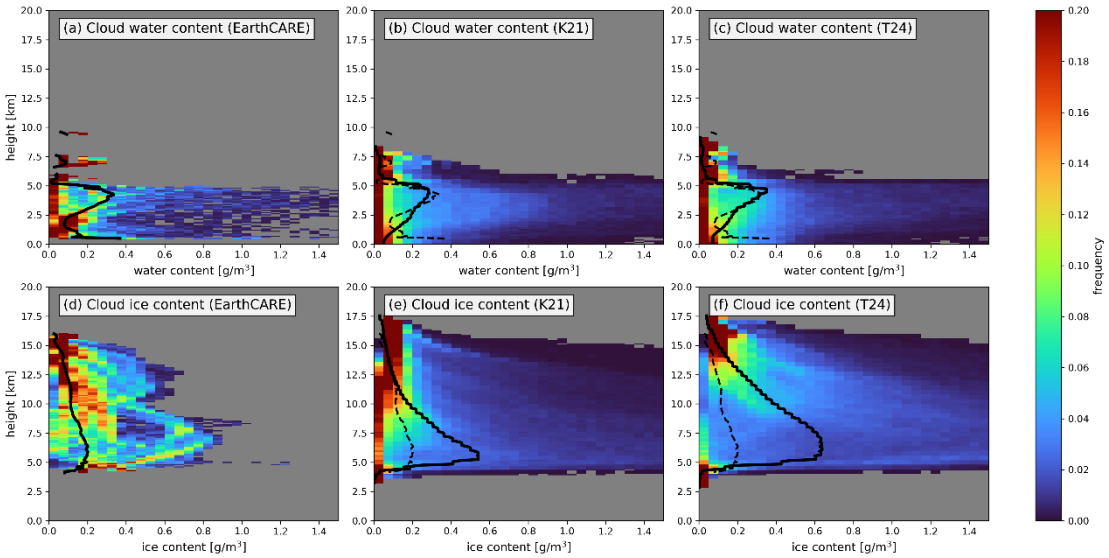


Figure S8. Same as Fig. 11, but using all NICAM samples within 300 km of the simulated TC center to construct the PDFs for K21 and T24. The EarthCARE distributions are the same as those shown in Fig. 11.