Supplement of Atmos. Chem. Phys., 25, 14099–14129, 2025 https://doi.org/10.5194/acp-25-14099-2025-supplement © Author(s) 2025. CC BY 4.0 License.





Supplement of

Advances in CALIPSO (IIR) cirrus cloud property retrievals – Part 2: Global estimates of the fraction of cirrus clouds affected by homogeneous ice nucleation

David L. Mitchell and Anne Garnier

Correspondence to: David L. Mitchell (david.mitchell@dri.edu)

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

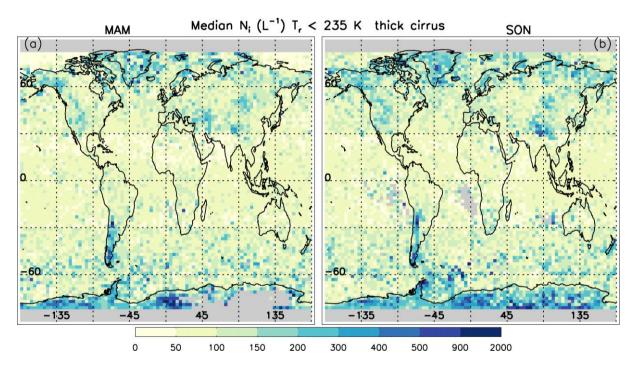


Figure S1. Same as Fig. 2 but for (a) March-April-May and (b) September-October-November.

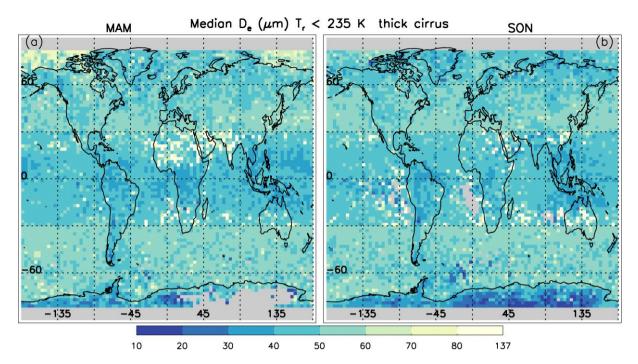


Figure S2. Same as Fig. 3 but for (a) March-April-May and (b) September-October-November.

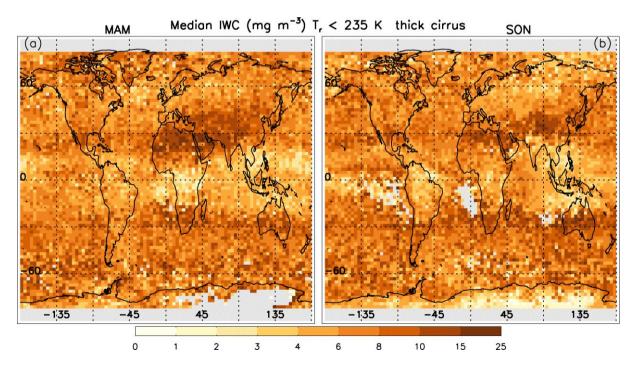


Figure S3. Same as Fig. 4 but for (a) March-April-May and (b) September-October-November.

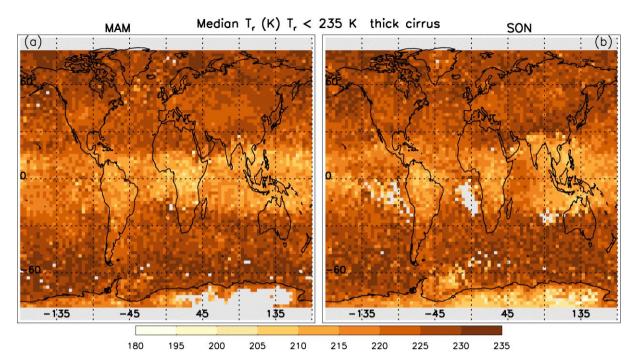


Figure S4. Same as Fig. 5 but for (a) March-April-May and (b) September-October-November.

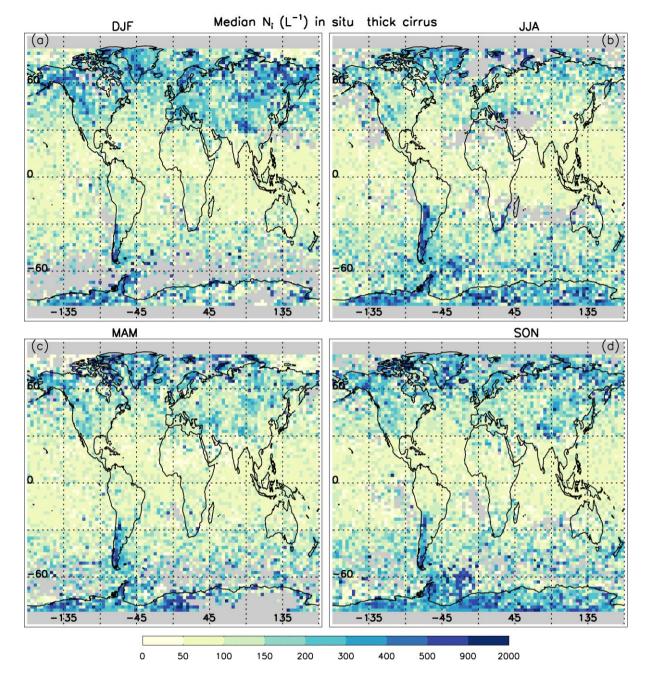


Figure S5. Same as (a, b) Fig. 2 and (c, d) Fig. S1 but based on only in situ cirrus clouds.

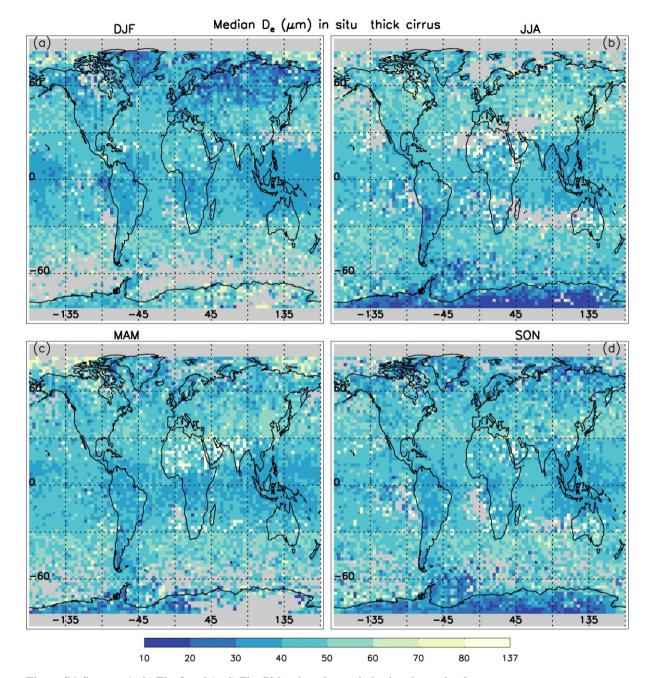


Figure S6. Same as (a, b) Fig. 3 and (c, d) Fig. S2 but based on only in situ cirrus clouds.

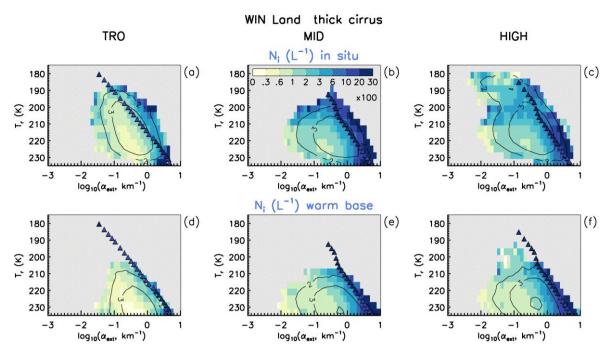


Figure S7. Same as Fig. 7 but for over land for thick cirrus clouds with τ ranging from \sim 0.3 to \sim 3. Predictions from simple hom theory are shown using Eqns. (4) and (5) for triangle position (using IWC_{hom} and D_{e,hom} for α_{ext}) and magnitude (using N_{max}), respectively.

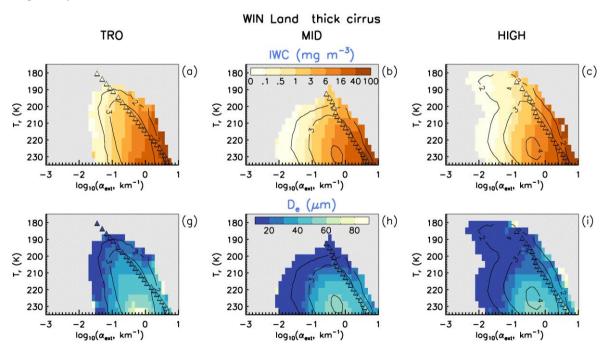


Figure S8. Same as Fig. 8 but over land for thick cirrus clouds, with τ ranging from \sim 0.3 to \sim 3. Only the predictions from simple hom theory using Eq. (4) are shown (triangles).

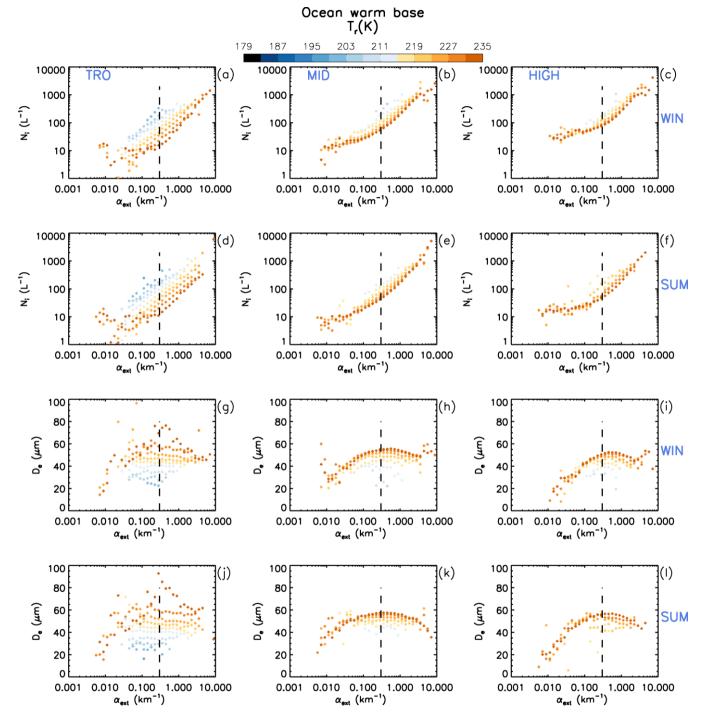


Figure S9. Same as Fig, 9 but based on warm base cirrus clouds.

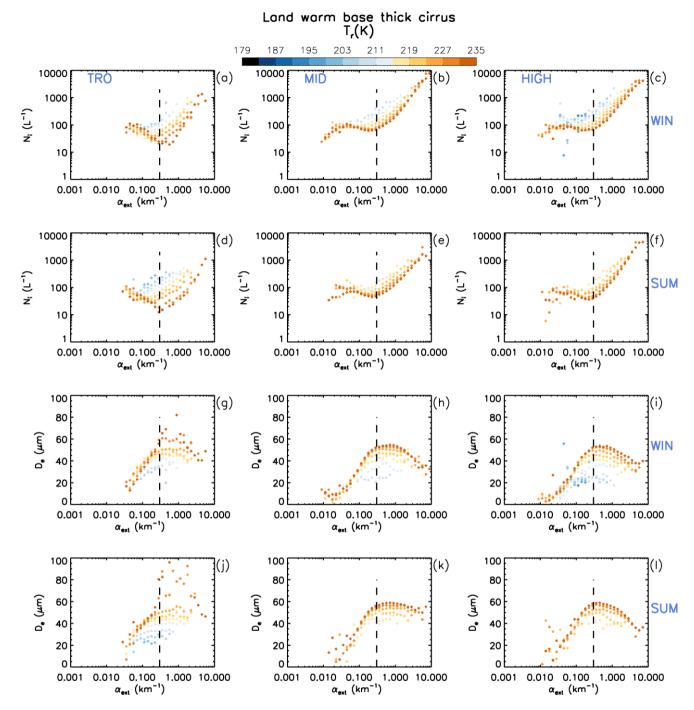


Figure S10. Same as Fig. 10 but based on warm base cirrus clouds.

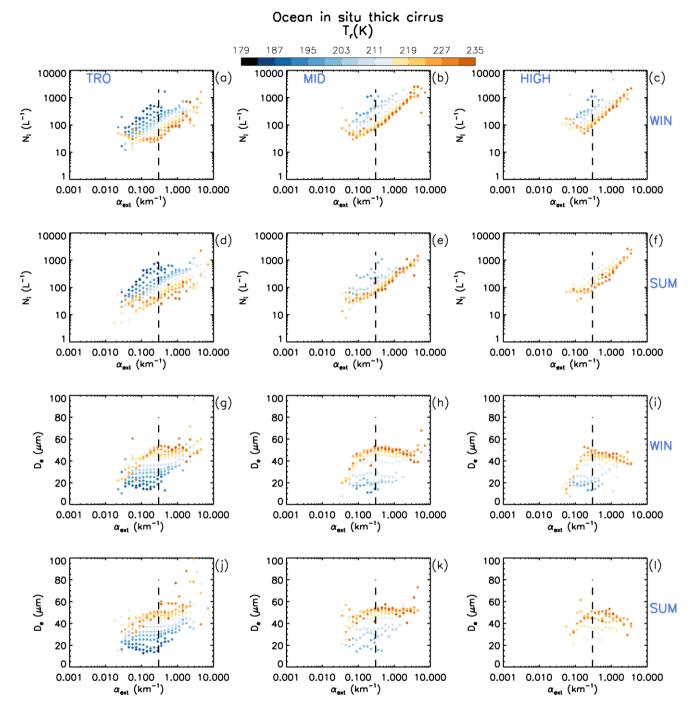


Figure S11. Same as Fig. 9 but for thick cirrus clouds with τ ranging from ~ 0.3 to ~ 3 .

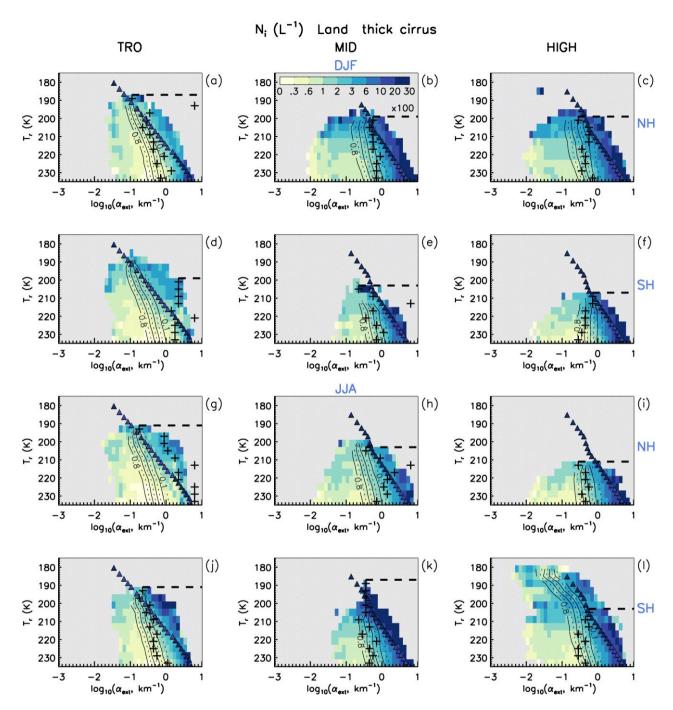


Figure S12. Same as Fig. 11 but over land with τ ranging from \sim 0.3 to \sim 3.