

**Review of “Mixed-phase Direct Numerical Simulation: Ice Growth in Cloud-Top Generating Cells”  
by Chen et al. (egusphere-2022-1142)**

My comments have been considered with great care. I now support the publication of the manuscript. I have a few technical comments below that the authors might like to consider. Line numbers refer to the tracked-changes version of the manuscript.

**Technical Comments**

Consider writing about "quasi-stationarity" instead of "quasi-steady state", as the prior seems to be more correct in my eyes.

L. 16: “precipitation from rain or snow”, not “precipitation in rain or snow”.

LI. 107 – 110: “Note that ice crystals are assumed to be spherical in this study”, not “Noted that the ice crystals are spherical in this study”.

L. 191: I believe that the spatial resolution of 0.15625 m is a typo. It should be much smaller to resolve the Kolmogorov lengthscale.

L. 191: Use a lower-case “t” for the time step.

LI. 209 – 214: Introduce  $\tau_{\text{phase}}$  the first time it is mentioned (l. 209). The equation for  $\tau_{\text{phase}}$  lacks an “N” (l. 213). The diffusivity of water is usually represented by a “D” or “D<sub>v</sub>” (l. 213), a “K” is usually used for thermal conductivities.

Fig. 11a and b: Name the panels “droplet-supersaturation correlation” and “ice-supersaturation correlation”, not just “droplet” or “ice”.