

Response to reviewer's comments, Gasparini et al., 2025

We thank the reviewer for their final comments.

In addition to the requested revisions, we have also added a new IWC estimate to Figure 3 (panels a and b), based on Clausius-Clapeyron relationship. This estimate is introduced in the main text (page 10, lines 236-241) and fully derived in Appendix C.

We are content with the article being published with the previous consideration of two minor corrections:

1- Both Fig.6 and Table 1 captions should be explicit that they are based on the simulated data. Even though it is made clear earlier in the section, the phrasing in the text referencing the figure/table is not explicit about this, so it would be good to remind the reader in the captions.

Done.

2- The adjustments to the in-situ/anvil illustration (Fig.4) are an improvement. However, I still take issue with it. On what basis do you decide what range of IWP the convective core spans? — this has not been part of your analysis. If I saw this in a presentation, I would take no issue, it's a pretty figure. But this is to be published, and anyone can view and consider it multiple times. Readers may have very different levels of scientific literacy or understanding of anvil clouds. Combining illustrations with plotted data risks encouraging assumptions based on nothing. Are there PhD students that will waste their time trying to confirm that the anvil core spans 4000+ g m⁻² range of IWP? If you have based this on something, then I take it back, but perhaps express the reasoning in the caption. I have stated my, probably pedantic, point. If the authors and editor remain happy with the illustration, then please go ahead and publish.

We revised Figure 4 to better reflect the underlying data and added clarification regarding the deep convective core. Now it extends in the ice water path range between 1 and 10 kg/m², following the "deep core" definition by Sokol and Hartmann, 2020 (<https://doi.org/10.1029/2020JD033107>).

We share the reviewer's concern about the potential pitfalls of combining qualitative illustrations with quantitative data. We added a statement to the text (lines 260-261) to clarify that the IWP range reflects statistical occurrence, not the extent of an individual convective column. We hope this clarification reduces the risk of misinterpretation by less experienced readers.