

The paper by Castarède et al. (2023) is a nice addition of ice nucleation chamber to the community. Our recent chamber (Kulkarni et al. 2020; see below the reference) also employs long evaporation (nucleation) section (0.45m), and we found that this feature evaporates supercooled droplets very efficiently. Figure 5 in Castarède et al. (2023) paper indicates droplet formation at $RH_w = 100\%$. These observations are also reflected in the droplet breakthrough section (3.2) and Figure 7. Just wondering and curious, as the evaporation section is long (0.43m) in PINCii, does the evaporation section evaporate the droplets? What are the evaporation section conditions (T and RH) while performing measurements shown in Figures 5 and 7? In our study, we maintain the evaporation section at $RH_{ice} = 100\%$ and isothermal experimental temperature conditions.

Reference:

Kulkarni, G., Hiranuma, N., Möhler, O., Höhler, K., China, S., Cziczo, D. J., and DeMott, P. J.: A new method for operating a continuous-flow diffusion chamber to investigate immersion freezing: assessment and performance study, *Atmos. Meas. Tech.*, 13, 6631–6643, <https://doi.org/10.5194/amt-13-6631-2020>, 2020.

Response: Thank you for your comments and questions.

For the droplet activation experiments shown in Figure 5, the evaporation section was not running in the normal “evaporating mode”, but was running with the same temperature gradient as in the main chamber. This was done in order to keep the temperature gradient along the entire chamber length (1.43 m) to allow droplet activation and growth, which we show in Figure 5. It seems like this was not clear in section 3.1, also from the referees’ comments, so we added more information to the text:

L167 “In this work, we use this feature to show that the chamber can actively grow droplets.”

And we added a sentence at L169:

“First, we study the activation of polydisperse ambient aerosol particles, and then we present a deliquescence experiment with 200 nm Sodium Chloride (NaCl) particles. For both experiment types, the temperature gradient along the main chamber is extended to the evaporation section, so the evaporation section is no longer evaporating droplets.”

Note that it is different for the droplet breakthrough experiments presented in Figure 7, where the evaporation section is running in the normal “evaporating mode” described L73-75. As in your study, the evaporation section is held at isothermal temperature conditions (at the same temperature as the warm wall) and $RH_i = 100\%$ to evaporate the droplets, at least below droplet breakthrough.