

***Interactive comment on “Comparative measurements of ambient atmospheric concentrations of ice nucleating particles using multiple immersion freezing methods and a continuous flow diffusion chamber” by Paul J. DeMott et al.***

**Anonymous Referee #1**

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In this manuscript, DeMott and co-workers present temperature dependent concentration measurements of atmospheric ice-nucleating particles (INPs) with four offline immersion freezing methods and an online aerosol sampling method. Major goals of the work are to demonstrate the comparability of the different methods at different locations and in different sampling scenarios, and, on this basis, to present and discuss a range of INP measurements. This is a timely and very important topic of interest and impact for the atmospheric sciences community that fits well into the scope of the ACP

journal.

The authors well described the experimental methods and procedures. The manuscript is well structured and written, and it can in principle be accepted and published as is. I only would like to ask the authors to consider the following minor comments for preparing the final version of the manuscript:

Line 362-364: Because in section 2.2 only rough estimates are given for the size-dependent sampling efficiencies of the different techniques, I recommend removing or weaken the statements about INP abundance in different size ranges here.

The black and blue crosses can hardly be distinguished in Figs. 1 and 2. I recommend using other colors or other symbols.

Why are only 1:1 lines shown in Fig. 3? I recommend to also show linear fit lines to the data sets. Why are error bars only shown in panel d of Fig. 3?

Conclusions line 540: I would not say the agreement achieved is excellent. In my view it is good or very good within uncertainty limits.

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Discussion paper

