

Interactive comment on “Small Ice Particles at Slightly Supercooled Temperatures in Tropical Maritime Convection” by Gary Lloyd et al.

Anonymous Referee #1

Received and published: 23 October 2019

The author present a case study of challenging measurements of cumulus clouds using a set of in-situ instruments, in particular a holographic imager. Surprisingly, ice crystal were found at temperature were the prevailing Sarah dust is not active in laboratory studies. The authors claim that secondary ice processes produced this the majority of these ice crystals The finding are relevant for publication and fits well in the scope of ACP. The authors describe well the measurements and discuss the results. I have only minor comments.

Page 2 Line2-10: Not sure if this detail discussion of the Sarah dust layer is necessary.

Page 4 Line 19: The resulting sample dimensions would be interested in addition or instead of the total sample dimensions.

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Page 7 Line 10-11: Could a broad contribution with a mean mode diameter of 10 μm have particles in the size range of the observed ice crystals?

Page 8 Line 2-4: Could the tail of a broad aerosol distribution be the source of the ice crystals? In particular as the aerosol concentration are a few magnitude higher than the ice crystals concentration.

Page 8 Line 4-5: I am not convinced that the pictures shows frozen droplets. The morphology would be better to judge from greyscale images and more example would be more convincing.

Figure 1 and 5c: Showing the exponent ($\times 10^3$) only on one tick can lead to confusion. I recommend using it on all ticks, showing it together with the unit [10^3 L^{-1}] or using a different unit [cm^{-3}].

Figure 6 and 7: Particular the small ice crystals in Figure 7a look larger than indicated by the scale. Can the authors please double check if the shown scale is correct? To get a better impression of the particles I recommend showing the greyscale images from the holographic imager.

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2019-345>, 2019.

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