Atmos. Meas. Tech. Discuss.,
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Atmospheric Measurement Techniques Discussions

Interactive comment on "A Statistical Comparison of Cirrus Particle Size Distributions Measured Using the 2D Stereo Probe During the TC^4, SPartICus, and MACPEx Flight Campaigns with Historical Cirrus Datasets" *by* M. Christian Schwartz

Anonymous Referee #3

Received and published: 17 April 2017

General Comments:

Overall the paper is suitable for publication with minor changes. The microphysical probe comparisons presented are similar to past work, but the analyses are done in a slightly different and more systematic way. My main comment is that the paper would benefit from a more thorough introductory section, with historical insight into the probes discussed and the characteristics that make them different. This should include not only the ice shattering issue, but a brief summary of other technical differences.

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Discussion paper

Minor Comments:

Lines 21-22: Without reading the paper, this sentence in the Abstract is confusing and does not logically follow. Please clarify or simplify abstract.

Line 44: Add Garrett et al.: Small, highly reflective ice crystals in low-latitude cirrus, GRL 2003.

Line 72: “which results jibes” is awkward–please rephrase.

Line 104-108: Perhaps a simple diagram would be helpful here to eludicate the method and steps used?

Line 164: Why not use the actual size distributions?

Line 166: Please quantify “nominally matches”, particularly since the data aren’t shown.

Line 339: Is it really the “true” value?

Line 369: Missing subscript in NT.

Line 376: Delete this sentence as it’s not really necessary?

Lines 387: A long and wordy sentence. Suggest breaking it up for clarity.

Line 391: If your other work giving better alternatives to the Gamma distribution is now published, please refer to it here.

Line 396-398: Redundant with statements in prior paragraph; remove.

Acknowledgements: No acknowledgements to those scientists who provided the field data?

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