

## ***Interactive comment on “In-Situ Measurements of Cloud Microphysical and Aerosol Properties during the Breakup of Stratocumulus Cloud Layers in Cold Air Outbreaks over the North Atlantic” by Gary Lloyd et al.***

**Anonymous Referee #1**

Received and published: 7 July 2018

This work examines in situ data from multiple cases of cold air outbreaks over the eastern Atlantic with a focus on their breakup and link with development of precipitation and decoupling of the boundary layer. The authors specifically focus on a case first presented from an earlier study (Abel et al., 2017) and then enhance the work by adding three additional cases. This topic is of importance for the research community interested in boundary layer clouds improving their treatment in numerical weather predictive models. The paper is written well and logically organized. The findings are supported by the analyses presented quite well. Overall, I found this to be an easy

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manuscript to read with important findings. I recommend publication and only have minor comments below.

Specific Comments: I believe the authors accidentally labeled two sections as "4.0 Discussion". the second one likely should be "5.0 Conclusions"

Figures: I am unclear about what is meant by "PCASP size" in some of the figures such as Figure 6c and analogous figures for the other cases. How is size calculated? Please provide some discussion.

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Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2018-553>, 2018.

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