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Interactive comment on "On the role of aerosols, humidity, and vertical wind shear in the transition of shallow to deep convection at the Green Ocean Amazon 2014/5 site" *by* Sudip Chakraborty et al.

Anonymous Referee #2

Received and published: 24 April 2018

In this paper the transition between shallow to deep convection during the wet-to-dry season is examined. They show elevation in the humidity levels prior to the development of deep convection. When examining the links to winds and CCN concentrations they show sensitivity of mostly the shallow convection.

This study can add a measurement-base reference for the convection cycle over the tropical rain-forest. As such more details should be provided about the frequency of measurements. Information about how many blooms where used altogether? When averaging, how many profiles are used? How large the variance is? What exactly meteorological ground-based data is used and does it provide information above the

surface (profiles)? How well the surface CCN measurements reflects the conditions near cloud base?

This study focuses on the dry-to-wet season, while (to the best of my knowledge) the ARM measurements covered all seasons. Since, in my opinion, the strength of this paper is on the direct, detailed measurement approach, why not providing information on transitions during other seasons using the same methodology?

Technical comments P8 L140: Add space in "hPa(Weisman and Rotunno, 2004);". P10 L168 and L170: You denote mixing ratio as "MR". In the figures you denote it as "mr". Please correct and be consistent. P11 L191: You use the acronym "CWV" without first using the full term. P11 L191: What does "T" stand for at the end of the line? If it's a mistake, please correct it. P11 L209: You define 500-300 hPa as the upper-middle troposphere. In figure 2 panel d. it's defined differently (500-350), please correct it. P17 L335-336: The units slipped to the next line. In the figures you use different colors for the BSHDP and BSH conditions (blue, red, black, and orange). For example, you use red color for BSHDP and the blue for BSH in figure 1, but the other way around as in figure 2. I've found it confusing to the reader, please be consistent. Figures 1-4: What do the error bars stand for? Figure 3: Please add an explanation clarifying what the dashed and solid curves stand for. Figure 4: According to the text (P12 L219) the y-axis is CCN concentration, in the figure itself you just write "CCN". Please add the "concentration" and the units to the y-axis and to the figure caption. Figure 5-9: Please use bigger font size. Also, if you use colors, please explain in the legend or in the figure caption what do they stand for. Figure 10: Same note as for figure 4 for panels a and b. How many cases were included in each bin?