Thank you for the careful review of our paper and your thoughtful suggestions. We hope that you will find our responses and the corresponding revisions for the original manuscript satisfactory. Please find below your comments/suggestions (bold) and our responses with manuscript changes indicated in italic.

Major suggestions

1. End of Page 5 and the beginning of page 6 you have mentioned the differences in the field of view of the instruments. This is good. However, the effective field of view of the radar and lidar is essentially FOV plus dwell-time times the wind speed (advection). I suggest you add a few sentences to describe this effect. When you are generating the 15-min or 30-min statistics, then the differences from the two methods will largely governed by the wind speed.

We believe your comment is related to narrow-FOV FSC ("CF-like") introduced in Section 3.3. We've added the following three sentences (section 3.3, lines 174-78):

The narrow-FOV (3x3 pixel region) "CF-like" observation has 4.1° (original) and 2.3°(improved) angular resolution. For comparison, the narrow-FOV ARSCL cloud products, including the lidar-radar CF, have much finer angular resolution (about 0.2°). The corresponding spatial resolution of the lidar-radar CF can be estimated by multiplying wind speed at cloud base height by lidar-radar dwell time (about 10 sec). For example, its spatial resolution is about 100 m for 10 m/sec wind speed.

2. In a similar vein, it will be good if you can make a figure of the CF from radar-lidar and FSC as a function of the wind speed. You already have the wind speed from the radar wind profiler, and the other two are shown in Figure 3. A figure like this will tell us how much high or low wind contributes to the differences in the two methods. Thanks.

As you suggested, we've added a new Figure 6 in the revised manuscript to illustrate relative contributions of low and high wind speed to the difference between cloud cover obtained from the narrow- and wide-FOV observations. Also, we've added the following paragraph (section 4.2, lines 305-316).

The effective spatial area sampled by either narrow or wide FOV instruments is a function of both sampling duration and wind speed. High wind speed in comparison with low wind speed (1) increases sample size for a given period and (2) tends to organize horizontal arrangement of clouds (e.g., Weckworth et al. 1999, Atkinson and Zhang 1996). These two factors associated with sample size and spatial arrangement of clouds should be considered when differences between cloud cover obtained from narrow- and wide-FOV observations as function of wind speed are considered (Fig. 6). In particular, Figure 6 illustrates that both CF-FSC and "CF-like"-FSC differences are reduced noticeably as the wind speed increases from 1 m/s to 3 m/s, and continue to reduce slightly as the wind speed grows up to 11 m/s. The CF-FSC and "CF-like"-

FSC differences obtained at a higher wind speed (above 11 m/s) should be considered with caution due to limited number of the corresponding cases with high wind speed (e.g., fewer than 100 cases for 60-min time average). The increased sampling area associated with increased wind speed does not necessarily result in an improved agreement between the narrow- and wide-FOV observations for both hourly and sub-hourly observations due to the impact of wind speed on cloud organization.

3. Lastly, the lane approach is very novel. If incorporated properly, it will tell us how the clouds are organized within a cloud field and move in relation to each other. Such an analysis is outside the scope of this article. However, I suggest you add a paragraph on the potential scientific usage of the statistics derived by this approach. Thanks.

Thank you for your valuable suggestion. We've added a new paragraph (section 4.3, lines 464-374) in the revised manuscript to highlight expected scientific applications of our "quick-look" tool.

There are two main expected applications of the introduced "quick-look" tool. The first potential application is a classification of spatial organization of cloud fields using, for example, cross-wind cloud field variability (e.g. peaks and valleys in Fig. 7b) and within-lane variance of cloud amount (e.g. vertical bars in Fig. 7b). Numerous images generated by the "quick-look" tool (e.g., Figure 8b) for the extended period (2000-2017) can be considered as a valuable training dataset for machine learning with focus on automated detection of desired features of the cloud fields (e.g., "cloud streets") and unwanted contaminations of TSI images (e.g., Figure 9). Second potential application is a visual inspection of the generated images for a given period of interest (e.g., a short-term field campaign) to check for the impact of instrumental detection differences and cloud field organization on the observed cloud amount. Visual inspection may be feasible given a limited number (about 40) of ShCu events annually during the warm season. For example, a spread of the lane CFs (gray region in Fig. 8c) gives an idea about the cross-wind cloud field variability within a given FOV, and thus aids in understanding the difference between cloud amounts obtained from the narrow- and wide-FOV observations.

Minor Suggestions

Page 2 line 5: I think you mean "partitioning" and not "proportioning". Thanks.

- Corrected, thank you.

Page 2 line 17: Might be better to refer to the ARM monograph in the AMS

- Citation to the ARM Program website (https://www.arm.gov/) was added.

Page 2, line 22: Remove "for example, a recent report" and just say "Zhang et al. (2017) suggested .."

- Corrected, thank you.

Page 3, Line 2 and Line 16: Also, at other locations. Please either use radar-lidar or lidar-radar for consistency.

- Changed to lidar-radar throughout.

Page 3, line 30: "height is used here"

- Corrected, thank you.

Page 7 line 5: Figure B1 not 1B

- Figure 1a and 1b are now Figure 7a and 7b in the revised manuscript.
- All figure names have been changed as a result of inserting new Figure 6.

Figure 1 caption: I suggest using "vertical bars" rather than "error bars" to avoid confusion.

- Suggestion accepted, thank you.

Figure 2: As the brown and blue bars are on top of each other, maybe it will be better to show them as line plots. It will be good to know how far apart they are for low CF values. Also, I see light brown bars in (a) and (b), and a dashed red line in (d). Both of these have not been explained in the caption.

- Figure 2 is now Figure 1 in the revised manuscript.
- Thanks for the suggestion. This figure has been updated to use a line plot instead of bars. The figure caption has been edited.

Figure 3-6: It will be good if you can bin the shades in bins of 10% and use only one color for each bin. It is difficult to identify the actual values in the current versions. There are also dashed magenta lines in some of the panels.

- These are count histograms. We've changed the colorbar to be in increments of 10 counts, which seems to improve the legibility.
- We have clarified that the units are "counts" in the legends of figures 1 and 2.