

Responses to Referee #2

Thank you for your appreciation of our study. We have revised the manuscript following your suggestions. Taking into account the Referee#1's comment, we have changed the title to "Analysis of the Microphysical Properties of Snowfall Using Scanning Polarimetric and Vertically Pointing Multi-Frequency Doppler Radars."

Minor comments

- In the methods section, the authors indicate that the technique proposed by Tridon et al.(2020) to retrieve liquid-water content was applied after adaptations. It would be beneficial for future works if the authors describe the motivation for those adaptations.

We selected the values of the parameters of this technique very close to Tridon et al. (2020), but the parameter settings could depend on radar data and cases. The first adaptation was the gates for averaging of DWR. This adaptation was due to the difference in range resolution of the data. The range resolution of our data was 15 m, so we selected 450 m for the averaging (the original was 500 m). The second adaptation was the window size for the calculation of a variance. Because our DWR data were still noisy after averaging, we used the larger window size, 450 m (the original one was 150 m). We have added this to Sect. 3.1.

Technical suggestion

- The plots in the PDF file suggest that the authors are using the default jet colourmap. This colourmap is known for having a non-uniform transition between the different colours, and it is not friendly for colour blind people. An alternative to the jet colourmap is the newly available turbo colourmap. Below, you can find a link to a brief comparison between turbo and jet colourmaps. Please consider using turbo or some other colourmap that would improve the accessibility of the figures. For the density plots, it would be beneficial to use a perceptually uniform sequential colourmap (see links below).

Thank you for the valuable suggestion. We have changed the colormaps and used consistent y-axes for Figures 4 and 5.

Figure issues

- Figure 1: The identification from panel d is missing. The hollow circles in cyan and yellow from panels a, c, and d are not easy to distinguish from the white background. What if the authors use filled circles.

We have changed the colormap for the diameter scale and line colors in Fig. 1 and Figs. 8-10. We have revised Figs 1c and 1d following a coauthor's suggestion; now the new figures use DWR_XW for the X-axis and DWR_XKa for the y-axis.

- Figure 5: The comparison between the different panels would be easier if they had the same vertical range. Suggestion panels d, e, and f could have the same range from panels a, b, and c.

Done.

- Figure 8: The cyan and yellow curves in panel d are difficult to distinguish from the density plot in the background.
Figure 9: The cyan curve in panels a, d and g is difficult to distinguish from the density plot in the background.
Figure 10: Panels a and b have a similar issue from figure 9.

We have changed the colors of the curves in Figures 8-10.

Typos

- Pg 7, ln 253: Should it be FMCW instead CFMCW?

The radar system is a Compact Solid-State Frequency Modulated Continuous Wave radar which is also called “C-FMCW” using the first letter of “Compact.” We revised the title of the section.

- Pg 9, ln 333: ... total attenuation c should (typo) then ...

Corrected.

- Pg 20, ln 695: ... effects and the PSDs. .(there is an extra period) Figure 10 shows dependencies ...

Corrected.

- Pg 22, ln 759: These time series are (missing space) consistent with

Corrected.