Comment on acp-2021-1102

Anonymous Referee #2

Referee comment on "New insights on the prevalence of drizzle in marine stratocumulus clouds based on a machine learning algorithm applied to radar Doppler spectra" by Zeen Zhu et al., Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2021-1102-RC2, 2022

General comments:

This a very important study that will have a significant impact on the field. The article is well structured and written. I have no major comments, just a few minor suggestions. I would like to propose that the article is accepted after the minor changes.

My main suggestion is to use standard verification metrics when presenting the performance of the method, i.e. In Fig. 2. I would suggest that you show probability of detection, false alarm rate and critical success index as functions of Z, instead of CDF.

Minor comments:

Line 157: "…cloud/drizzle datasets is trained by a machine learning algorithm…"

Do you mean a machine learning algorithm is trained by the datasets?

Line 170: "…turbulence broadening is set as 0.2 m/s which is obtained from local observations…"

You use spectra width for cases where Z is less than -20 dBZ, do you do any other data filtering? As you show later, spectra shape might be modified by auto conversion even for

such low reflectivity values.