

Interactive comment on “Hydrometeor classification from polarimetric radar measurements: a clustering approach” by J. Grazioli et al.

Anonymous Referee #2

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This paper presents an exceptional work. It describes a novel approach of a hydrometeor classification using polarimetric data. It is a "a-prioriless" method where the hydrometeor types are not defined in the beginning. 7 common behaviors or clusters have been detected where each one has been related to a hydrometeor type at the end. The results are compared to a classical hydrometeor classification algorithm and to a 2DVD classification output.

My comments start with some general comments or ideas and then by some minor remarks :

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1- The authors mentioned at the beginning that 3000h have been used. Then filtered with a SNR threshold and ground clutter contamination. What is the number of hours used at the end. its ok to not correct in solid precipitation cases but what about attenuation with liquid precipitation. Does the authors planned some sensitivity study?

2- What about calculation time? can this method used in operational environment?

3- At the beginning, the paper is really interesting. After when the equations start, it becomes really hard to follow. In my opinion, the Appendix B is not really important. I suggest, instead, to add a numerical example which better explains better the concept.

4- this paper missed some statistical or scores to show better the performance of the approach vs others.

5- Some sentence are long and commas are missed.

Different remarks :

8473, 4 and 11 : can the authors add the total scanning strategy including the time?

8473, 18 : the unit is dB km⁻¹ and not dBZ km⁻¹

8473, 25 : can the authors add some references?

8474, 16 : what is the degree of confidence about the Z₀ and what is the error margin?

8475, 6 : 25 deg/km !!! I think it is obvious. The intervals should be more realistic.

8482, 5.1 : I suggest to remove the numbering while the authors use first second ... Are all these indices are used? when? how?

Table 2 : I prefer to see more details about the scanning strategy.

Figure 1 : couldn't be better if the background is the topography instead of the google view?

Figure 5 : the light blue color is not really shown.

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