

Interactive comment on “Polarimetric radar observations during an orographic rain event and the performance of a hydrometeor classification scheme” by M. Frech and J. Steinert

Anonymous Referee #2

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Interactive comment on “Polarimetric radar observations during an orographic rain event and the performance of a hydrometeor classification scheme”

by M. Frech and J. Steinert

This paper analyze an event of an intense orographic precipitation with 2 polarimetric C-Band radars. The originality of this case is that the precipitation type at the ground change from liquid to solid during the passage. This paper is focused on the study of the orographic event and on the performance of the hydrometeor classification algorithm in verification phase. The main positive point on this paper is the use of

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the vertical profile of reflectivity and the vertical velocity to identify the different phases during such event.

Recommendation

In my point of view, this paper needs a serious reviewing in all its parts. The description is not complete for the HC and for the event, the comments are not sufficient, no statistical analysis. Despite only 68 km between the 2 C-band radars, there is no comparison between results, the figures are poor and not enough.

My recommendation is that this paper need more work, the authors should made major revisions.

List of comments :

Abstract :

I think the last sentence doesn't have place in an abstract, The abstract should contain more details about the results and not some suggestions.

Introduction :

P. 8847 L. 17 ; It would be better to add a table which details the scanning strategy with the corresponding angles.

P. 8848 L. 1006 : a.s.l. Should be rewritten here. I suggest to add a figure to show the position of the radars with the ground level as background.

P. 8848 L.27 : Section (S in capital letter).

Hydrometeor Classification :

P. 8849 L.2 : after the first sentence, can the authors either tell us why the polarimetric measurement allows the classification of the HT or add some references.

P. 8850 L.13 : is the attenuation correction is applied all along the path or only below the BB. More details are welcomed here.

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In this part, I suggest to add a table with the parameter values of the membership function for each hydrometeor type, to add the equation of the probability function, to add more details about the processing chain.

The orographic precipitation event :

P. 8852 L. 17 : I suggest to add more details about the clutter filters used (or no).

P. 8853 : In the paragraph of Rohv : what about the SNR ? Usually Rohv decrease when the SNR decrease.

In this part, I suggest to add more physical explanation about the results.

Memmingen radar :

I suggest to add a comparison study between the radar, or just ppis at the same time to see if both radars can see the same results (taking into account the difference in altitude and the distance ...).

Figure 8 :

It will be better to mention that it is a zoom of the fig. 7.

Figure 11 :

Honestly it is not a relevant figure, it is better to add the color table again to this figure, and zooming below 3km.

Figure 12 and 13 :

I suggest to replace them with one figure.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 11, 8845, 2014.