

Interactive comment on “Close-range radar rainfall estimation and error analysis” by R. van de Beek et al.

Anonymous Referee #3

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This manuscript is an excellent overview of the most important error sources affecting radar-based QPE, with a focus on observations collected at short distances from the radar. This overview is well presented and the reader is guided step-by-step through the case study of August 2010. The manuscript reads well, it is well suited for AMT and it should be published after very minor corrections.

General comment: It would be interesting to have the confirmation that similar outcomes can be expected for other rainfall events, and thus that the results are general (for the given set-up). The manuscript should still be based on the current precipitation event (as it reads very well this way), but could anything be added in the appendix?

Short comments: 1) Clearly the manuscript focuses on non-polarimetric radars. Could the author define in the text (briefly) the concept of polarimetric radar?

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- 2) Page 2, Lines 20-25. Here it may be interesting to talk about some polarimetric methods for attenuation correction.
- 3) Page 2, Line 32. It could be stated that above the melting layer precipitation is usually under-estimated given the dielectric properties of ice (snow).
- 4) Page 4, Line 5. For expert readers, it may be useful to mention the "generation" of Parsivel used.
- 5) Page 5, Line 1. Could you give an order of magnitude of how similar those measurements are? Are they another order of magnitude with respect to the corrections proposed later on?
- 6) Page 8, Line 1. How often is operationally re-calibrated the radar, by means of this procedure?
- 7) Page 8: Clutter correction. Could you give the filter width of the notch filter operationally implemented?
- 8) Figures 6 and 7: i would prefer a lot to see the 3 panels vertically aligned, with the same width.
- 9) Page 9, Line 3. If not dBZ, please give the units here (units are given only later on in section 4.4.2)
- 10) Page 11, Z - R relations. Among the different corrections, this one seems more difficult to implement real-time. It is not the main focus of the manuscript, but could you spend some words about the potential real-time implementation of those corrections?
- 11) Page 12, Lines 5-10. Could you define also D as the equivalent volume diameter?

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