

Interactive comment on “An Extended Radar Relative Calibration Adjustment (eRCA) Technique for Higher Frequency Radars and RHI Scans” by Alexis Hunzinger et al.

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Response to Reviewer 1

We would like to thank the reviewer for their time reading and reviewing our paper and their feedback which will improve the paper.

“The paper is well written and concise and contributes significantly to the radar community in that it allows for a posteriori calibrations to radar reflectivity data, as well as near-real-time health monitoring of radar systems. The eRCA was first applied to the CSAPR2 (C-band) radar that was recently deployed during the CACTI field campaign

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in Argentina. CSAPR2 was able to perform both PPI and hemispherical PPIs over several angles. Conventionally, the authors use the 0.5 elevation scan in the PPIs to calculate the RCA, but also develop a novel approach to the RCA by using the lowest 5 of the RHIs to calculate an independent RCA estimate. This paper does provide a substantial contribution to scientific progress in that it extends a very powerful method to monitor the relative calibration of radars at higher frequencies than have been used. They also improve the robustness of the method by proposing a composite clutter map whereby they use multiple days for determining the clutter area reflectivity. They also extend the original PPI-based method to RHIs, which is an important improvement for radars that do not routinely perform PPI scans. The discussion in the Appendices is very useful, particularly Appendix 1 that discusses PIA filtering necessary for utilizing the RCA at higher frequencies. Overall this is an exceptional paper that should be published.”

We thank the reviewer for their very kind words. In regards to the appendix, it is something we felt very strongly should be included in more radar processing papers, where the details of the processing is laid out and we are glad that sentiment is shared.

“Minor comments: 1) Table 1 in Appendix 1 should probably be labelled Table A1.1 to prevent being confused with Table 1 in the main text. Similarly so for Table 1 in Appendix 2 to be labelled Table 2A.1 “

The reviewer is absolutely correct and it was our mistake in the LaTeX file that caused incorrect numbering. We thank you for catching this. The document has been updated and Figures are now labeled A1, A2 in accordance with AMT style.

“2) Appendix 1: Can you please provide some more detail on how the co-mounted and co-located radars are configured? Are the independently scanning? Maybe a picture would help.”

The radars each have their own antenna co-mounted on the same pedestal and are aligned prior to each field campaign. We agree an image of the radars would help the

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readers to understand their unique layout. We have included a figure showing the Ka/X SACR deployed at the CACTI field campaign in Argentina as figure 2.

Again we would like to thank the reviewer for their time and feedback.

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