Reply to Reviewer #1:

Reviewer #2 comments in red italic.

Author reply in black.

Blue bold text refers to Track-Change document line numbers.

Thank you for taking the time to read our manuscript and provide helpful suggestions. Specific comments are entered immediately following the reviewer comments.

Review of:

"Calibrating Radar Wind Profiler Reflectivity Factor using Surface Disdrometer Observations",

submitted to the Atmospheric Measurement Techniques (AMT) Journal.

This manuscript presents a methodology to calibrate radar wind profiler reflectivity factor using disdrometer data collected during rain events.

The authors found that the ageing of the hardware over time greatly impacts the RWP sensibility as it produces smaller values of SNR. The authors proposed compensating for this by varying the calibration constant and several other methods clearly described and evaluated using long-term data sets.

It is great to see that the data sets and the code are available (or will be in the near future), thus increasing the reproducibility of the proposed methodology.

Yes, sometimes, the best way to share information with the community is to provide computer code. It improves long-term availability; the code has been submitted to Zenodo for permanent storage.

I reckon this manuscript totally fits the scope of the AMT journal, and it is an excellent contribution to the radar community.

I have minor comments and suggestions that may help improve the paper.

1. The Spectrum adjustment methods and the adjustments due to Nyquist velocity aliasing, coherent integration filtering, and increased noise power will benefit from a diagram. A flowchart describing the critical aspects of the proposed algorithm could help depict the method more clearly.

Good suggestion; a flowchart would help describe the processing steps. Therefore, Appendix A has been added to the manuscript providing a flowchart and supporting text. The appendix is referenced in Section 3.1. **Please see lines 76, 208-209, 244-248, 313-317, and 600-625, and Fig. A1 in the Track-Change document.**

2. The sensitivity of the radar plays an important role in the calibration procedure explained in this manuscript. If the RWP cannot collect data during rain events, I reckon this method will not be valid for calibration. I suggest the authors add a discussion regarding this or if some other meteorological target could be used instead.

Good observation. Yes, the calibration procedure requires observations to be collected during rain or for a mode to be collected during rain and then used as a reference when it is not raining. A paragraph

describing this concern is placed in the Section 2.2 describing the disdrometer data. **Please see lines 164-172.**