

Interactive comment on “Wind turbine impact on operational weather radar I/Q data: characterisation and filtering” by Lars Norin

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I thank the referee for the time and effort devoted to review this manuscript as well as for the constructive comments and suggestions together with the encouraging words. Below, please find a point-by-point reply to the comments (reproduced in italics).

Questions to the author

Author states that the shape of the normalised signature is independent of the yaw angle of the wind turbine. Nevertheless, results from several studies referenced in the manuscript show differences in the amplitude of the echoes up to 40–50 dB, due to the variability of the scattering pattern of the rotor. One of the references of the paper demonstrates that these variations do not occur for a short range of elevation angles, as the mast is the main reflector in this sector (Angulo et al., 2015, referenced in page

C1

8, line 27). Does the author think that this is the reason of the absence of variability with the yaw angle? If not, what could be the reasons that could justify this unexpected result?

I agree that the amplitudes of wind turbine echoes can vary greatly depending on rotor blade orientation and/or the yaw angle. It is also true that as the influence of the wind turbine tower increases, the variation in the echo amplitudes decreases. However, from Fig. 3c it can be seen that a large variation in amplitude exists, suggesting that the echo amplitudes are not dominated by the tower.

The absence of variation in the wind turbine signatures for different yaw angles can be explained by the fact that the signatures are normalised by the maximum amplitude value. They are therefore independent of the echo strength. For a single pulse, the wind turbine appears like a point target. Once normalised by the maximum amplitude, the signature becomes independent of the rotor blade orientation and the yaw angle.

Technical corrections

Just a minor comment about the description of the results. In some sentences, mainly those in the first part of the manuscript, where the methodology is still to be described, it should be clearly specified if signatures from wind turbines are normalised or not; otherwise, this may cause ambiguity. As an example, the sentence in the abstract “...is manifested as a distinct and highly repeatable signature. The shape of this signature is found to be independent of the size, ...” may be understood as the size of the turbine is not relevant for a not-normalised signature. A review according this aspect is recommended.

The text in the manuscript has been revised accordingly.

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