

red: point-by-point response

blue: relevant changes made in the manuscript

## Replies to referee comments

1. *In figure 16 the 'conservative thresholds' (ct) for CNR/SNR could be marked, and it should be noted that the 'weak threshold' (wt) is in all subplots the lowest value of the ordinate. The low CNR acceptance based on the used image restoration method occurs only between these two thresholds. The errors in the range between ct and wt should be discussed: Is there a systemic increase in bias and MAE in this region.*

We thank for this suggestion. We slightly extended the ordinate and marked both thresholds in Figure 16. We added the proposed discussion.

Added the thresholds in the Figure and the discussion in Section 5.3.

2. *I understand that properly quantifying uncertainty in Doppler lidar measurements is very difficult as it depends upon not only the measurement of LOSV, but sampling, and assumptions of homogeneity. Having said that the purpose of the paper is to have wind retrieval algorithm for data assimilation which requires information about uncertainty in individual profiles. So, I would think having some metric that informs the quality of individual profile or individual height bin would be very helpful.*

We thank the referee for the clarification. In the last reply we had a focus on uncertainty as a quantity, not as a quality indicator and apologize for the misunderstanding. We have indeed some suitable indicators and agree that they become important for quality metrics. Hence, we now added this aspect and the available indicators to the text.

Added a paragraph on the quality metrics and indicators at the end of Section 4.1.