

## Second response of referee #2 to the authors

In this second review, the authors response is shown in black and referee's comments are shown in blue.

Thank you for your comprehensive revision. The manuscript has improved significantly in comparison to the previous version and is now acceptable for publication subject to some minor revisions, which are shown below.

L128: Calculation of relative errors: In this chapter, you are introducing all statistical measures to assess the wind product quality. I would like to see here also the equation of the scaled MAD, which you are showing later.

L204: Great that you now also calculate the MAD, you will see that your manuscript will be cited more often because the MAD (scaled MAD) is a much better variable for indicating the random wind error.

It would be even better, if you could remove the table here, and rather add the scaled MAD to Table 2 and Table 3, the overview of all errors for 2.5 deg and 1 deg. Please use the scaled MAD and not only the MAD. The scaled MAD is:  $MAD \times 1.4826$

Other Aeolus validation studies are all referring to the scaled MAD. Just multiply your result by 1.4826

L168: Thanks for adding an extra table for the 100 km distance. It clearly shows that the results are improved. I would recommend to also mention the numbers in the text.

Something like: .... The correlation coefficient is increased and the standard deviation is decreased, when applying a stricter collocation criteria of 100 km.

L324: "Besides, as the first spaceborne wind lidar, the analysis of factors affecting the detection performance of Aeolus will help provide a reference for the follow-up development of spaceborne

wind lidar", changed to, "Besides, this study is helpful to figure out the influence of clouds and wind direction on the detection performance of spaceborne wind lidar."

Now line L357: Thanks for updating the manuscript. However, I was suggesting to add some more information and not to remove the outlook to future developments of follow-on Doppler Wind Lidar missions. I like this outlook and would advise to take it back in the manuscript.