Authors' Response to Reviewer 2

General Comments. The presented review article is very comprehensive and covers in detail all important areas of wind direction variability related to wind turbines and their control. It summarizes important results on wind direction variability from a large number of publications and provides a comprehensive basis for current and future research.

Response: Thank you very much for your feedback.

Your feedback has fundamentally improved the quality of the review paper and we are extremely grateful for it.

Comment 1

Equation (1) implies that z_R is the mean vector of unit vectors z_i. Therefore, its length/norm is bounded by $0 \leq |z_R| \leq 1$. In Figure 2, z_R is shown as the sum of the unit vectors z_i. For $\arg(z_R)$, this makes no difference since the angle is the same, but the length of the vector is used to define the circular variance v_R in Equation (2). Either the caption of the figure should clarify that z_R in this figure illustrates the sum and not the mean (so it is 3 times as long), or the dashed arrow should be adjusted to its correct length.

Response:

Thank you, this error has been corrected by changing z_R in Equation 1 to z_R/N and adding the subscripts C and L to make it clearer when circular or linear statistics are being referenced. Now, v_R is referred to as v_C, the circular mean as $\bar{\theta}_C$, and the linear mean as $\bar{\theta}_L$.

Comment 2

In Equation (5), the formula for the linear variance is given, which uses the distance to the mean $\bar{\theta}$. It is important to clarify that the mean $\bar{\theta}$ being referred to in this context is the linear mean. This distinction is important because using the circular mean in Equation (5) would lead to a different result and not resemble the linear standard deviation.

Response:

Thank you, we've added the subscripts C and L to make it clearer when circular or linear statistics are being referenced. Now, it is clear which calculation of the mean value we are referencing.