

The authors have adequately addressed the comments raised during the initial review. The revisions have significantly improved the clarity and coherence of the manuscript. The objectives of the study are now more clearly stated, making it easier to understand the scope of the work and its contribution to the field.

In addition, the structure of the paper has been reorganized in a meaningful way, resulting in a smoother reading experience and a more logical flow of ideas. The description of the model, in particular, is now clearer: the assumptions, variables, and methodological choices are presented in a more detailed and rigorous manner, which strengthens the approach.

Overall, the revised version satisfactorily addresses the initial concerns, and the manuscript has gained in both scientific quality and readability.

A few remaining remarks:

- L 69: a closing parenthesis seems to be missing
- L 94: You could emphasize your point by recalling that even though this formula (the power law) is simple, it is still a very common assumption in the offshore wind industry, and it is even supported by the standard
- Table 2 could be moved to page 17 in Section 5 to make the reading easier
- In Section 5.1, it would be interesting to know if the 2020  $\Delta T$  and stability distributions match those from the training period.
- L 440: Mention “at sea surface” in the title.
- In Section 6, numbering should be incremented for subsections.
- L 494: typo “??” to be replaced by the subsection number
- L 516: This finding requires further elaboration, as its origin is not clear from the preceding sections.

Some comments to extend the analysis in future work (not expect to be addressed in the current manuscript):

- It would be interesting to conduct a sensitivity study to quantify the impact of the number of SAR images used to train the wake model (Table 2)
- About the theoretical considerations in Section 6, do you think that your analytical analysis could be the same at hub height? Under which assumptions?
- L 475: can this finding be checked on individual SAR images? Or compared to statistics retrieved from SAR images?