

Going Beyond BEM with BEM: an Insight into Dynamic Inflow Effects on Floating Wind Turbines

F. Papi, J. Jonkman, A. Robertson, A. Bianchini

Dear Reviewers, dear Editor,

Thank you for your time managing and reviewing our work and for your feedback. Based on the Reviewers' suggestions, we have done our best to improve the paper.

We have provided detailed answers to your comments below, in [blue colored text](#) for your convenience.

Best regards,

F. Papi, J. Jonkman,
A. Robertson, A. Bianchini

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Reviewer #1 (anonymous) comments:

Dear authors,

thank you very much for the very well elaborated work. It is rare to have a submitted paper to be so well prepared on first submission. Thus, I only have a few very minor aspects to improve:

1. Please make sure, that all variables in the equations are explained at least once. Even if they seem very clear, in other papers, someone might use the exact same variable for something different, which also seems clear. To avoid this confusion, please define once. In most cases this is done, but not in all. So check.

[Thank you for pointing this out. We have added explanation of the parameters used in the equations where missing, such as in equations 1 and 2, 8 and 9 and 13.](#)

2. On line 303 there seems to be a typo before "LC 2.12"

[Thank you again for pointing this out. Corrected.](#)

3. In the paragraph from line 317 on, please use one or two sentences to explain first what step tests are and what they are used for before you go into the discussion.

As the Reviewer pointed out, not everyone may be familiar with this sort of test. We have added the explanation as requested (Lines 343-345)

4. The sentence starting in line 320 is not really good and hard to read. Please check it.

We have split the paragraph in two (L345-348). Hopefully it is clearer now.

5. On line 331 “and on the operating point in exam.” What is exam?

This phrase generically refers to the fact that the mentioned cancellation effect depends on rotor design and operating point that is being considered. We have rephrased: “The magnitude of this cancellation effect depends on the rotor design and on the operating point under consideration”. (L358)

6. In line 340 the sentence “While not to the same extend, this consideration holds true for most of the blade.” is not very specific and clear. Either leave it away or get or precise, I would say.

The Reviewer is right. The change in induced velocity is greater for a step change in blade pitch and rotor speed respect to that recorded for a step change in surge velocity in the outer 50% of the blade. In the inner 20%, the changes in induced velocity are small for all step tests, while from approximately 20 to 50% of the blade, changes in induced velocity are greater for surge step tests. We have changed the paper to be more specific in this regard. (L373)

7. In line 352 “This is indeed very different form a step test”, most likely it is “from a step test”, isn’t it?

Corrected, thank you!

8. On line 416: “BEM-based models are called to perform reliably in ...”, I would always say: “BEM-based models are said to perform reliably in ...”. What do you think?

The Reviewer has a point. On second thought this phrase does not flow very well. We meant to highlight that BEM models need to perform well also in other conditions. We changed the phrase to: “BEM-based models need to perform reliably in even more challenging conditions than those [...]” (L449)

9. On line 539 you write about windmill wakes – do you really mean windmills?

We were referring generically to “windmill” as a rotating device that extracts energy from the flow. “Wind turbines” is probably more appropriate and avoids confusion. We have changed the text to reflect this. (L586)

Otherwise, the paper opens a lot of room for specific aerodynamic discussion, which most likely cannot be finalized in one single paper. Thus, I find it good this way. But there are still open questions also coming from this paper, which will most likely need to be answered in the further discussions. I’m looking forward to it.