Interactive comment on "Performance study of the QuLAF pre-design model for a 10MW floating wind turbine" *by* Freddy J. Madsen et al.

Anonymous Referee #1

Received and published: 21 May 2019

General comments

The manuscript presents a comparison between the results of QuLAF and FAST for the pre-design phase of floating wind turbines. The paper is clear, interesting, and fits within the journal scope.

Specific comments

I have only one main comment relating to the reliability of using QuLAF for different conditions and designs. The paper clearly shows that QuLAF can either under-predict or over-predict the results from FAST, and can sometimes match them perfectly through a favourable combination of discrepancies. For example, the authors show that for DLC1.6, a perfect match between the two models in tower base bending moments

is obtained. However, this perfect march results from opposite discrepancies which cancel one another. In such a case, the reliability of the approach can be questionable as a good result is obtained for "bad reasons". Although the tool is of course intended for use in a pre-design phase, it would be useful if the authors could elaborate more on the reliability/repeatability of such results for different conditions and design types.

Additionally, the QuLAF approach is restricted to 2D analyses with aligned wind and waves. It also models different physics than FAST (e.g. the mooring system in FAST introduces different sources of damping). More insights could be given on how these assumptions are likely to affect the accuracy and reliability of the results for different designs.

Minor corrections

- P. 4 L. 27: This allow -> This allows - P. 21: where applied -> were applied - An estimation of how much faster QuLAF is compared to FAST could be valuable

Interactive comment on Wind Energ. Sci. Discuss., https://doi.org/10.5194/wes-2019-20, 2019.