Dear reviewers,

Thank you so much for your time and effort in reviewing our revised version of the paper. Please find our answers to your comments and the corresponding updates to the manuscript below. We hope to have addressed most of your comments which helped us improve the manuscript, and we will be happy to continue the discussion. In the coming days, we will submit the revised manuscript.

Emmanuel and co-authors

Reviewer 1

1. Abstract, line 12: it would be fair to add that the estimated errors of 10% refer to the tower fore-aft damage equivalent loads.
> Thank you for noting this. We agree, and have added this precision in the text.
In this simulation realm, we obtain estimated damage equivalent loads of the tower fore-aft bending moment with an accuracy of approximately 5% to 10%.

2. Model, section 2.3.3: why did the Authors consider only the fore-aft tower bending mode, when the side-side is also important as it is low-damped?
> This is a fair point and we agree that this degree of freedom should be added in the future. We didn't include the side-side for simplicity (even though he effort to add it is not too large). One extra complication is that YAMS and OpenFAST handle rotations differently, and having two rotations at the tower top would lead to differences in results between the two frameworks. We've added the following to the text (not diving into details, but your point about the low damping makes a lot of sense):
"The side-side tower bending can be added in a similar way, but for simplicity, it was not considered in this study."

3. Linearization of the system: I would suggest that the linearization of the entire system could be done in multiblade coordinates to also capture the effect of the periodicity of the system. For example, whirling modes, that affect tower loads and fatigue, are only captured after applying MB transformation.
> This is a good point that would probably require some thoughts as to how to apply our methodology for more general cases. In our case, we do not have degrees of freedom for the blades or the shaft bending, therefore we didn't have to worry about the quantities being expressed in the rotating frame of reference. We can still expect some periodicity of the state matrix due to tilting. We had look at this in the past and found little variation of the A matrix with azimuth, and a simple averaging over different azimuthal values was seen to give good steady state linear model. To your point, MB would indeed be required if the model where to use states, inputs and outputs that are specified for each blade. We did not add anything in the text as we would probably need to investigate this issue more to see how it would affect our methodology.