Dear Annika Länger-Möller,

Thank you for your interesting questions. English is not my mother language as you noticed, I will try to correct the mistakes.

Concerning the rest questions:

2. cm is no good measurement unit. Please use m (10^-2m) instead.

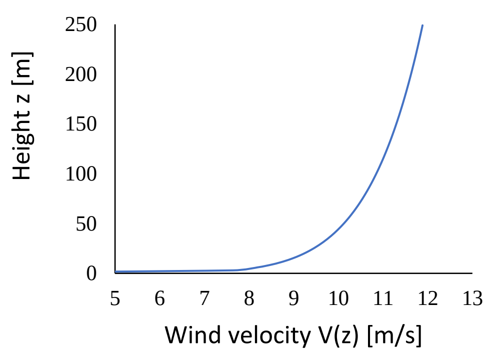
[Authors] You are right, I'll change the unit in the final version.

3. Section 1: I missed the point on what is new in the present paper with respect to your previous publications, Could you please clarifiy?

[Authors] Additional section after "Related literature" can be added to clarify the objective of the manuscript. In short, the idea behind this work is to use the CFD as an aerodynamic tool to predict flow structure and to study the response of the wind turbine structure (namely the tower) due to blade-tower interaction. The previous publication focused on the effect of tower shadow on the blades and assumed rigid tower. In this work we introduced a flexible tower in addition to flexible blades. Using this method, the aerodynamic loads on the tower can be predicted with much more details than using the classical BEM method and consequently structure dynamics.

4. I did not get the inflow conditions. Is it constant in height? Logarithmic law? Exponential law? Constant in time? Do you use veer? Please clarify.

[Authors] Wind speed gradient (wind shear) has been considered at the inflow with a velocity profile following the power law function below:



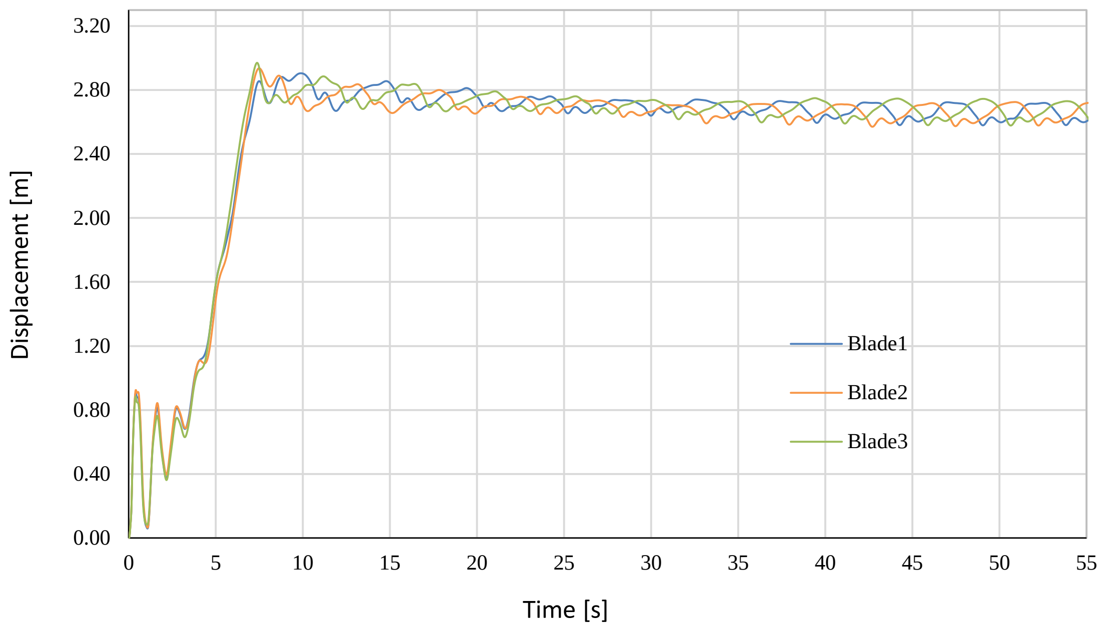
$$V(z) = \mathrm{V_m} * \left(\frac{Z}{\mathrm{Z_{hub}}}\right)^{0.1}$$

Where, $V(z)$ is the velocity at any height, V_m is the mean velocity (in this case 11.4 m/s), Z is the height and Z_{hub} is the hub height.

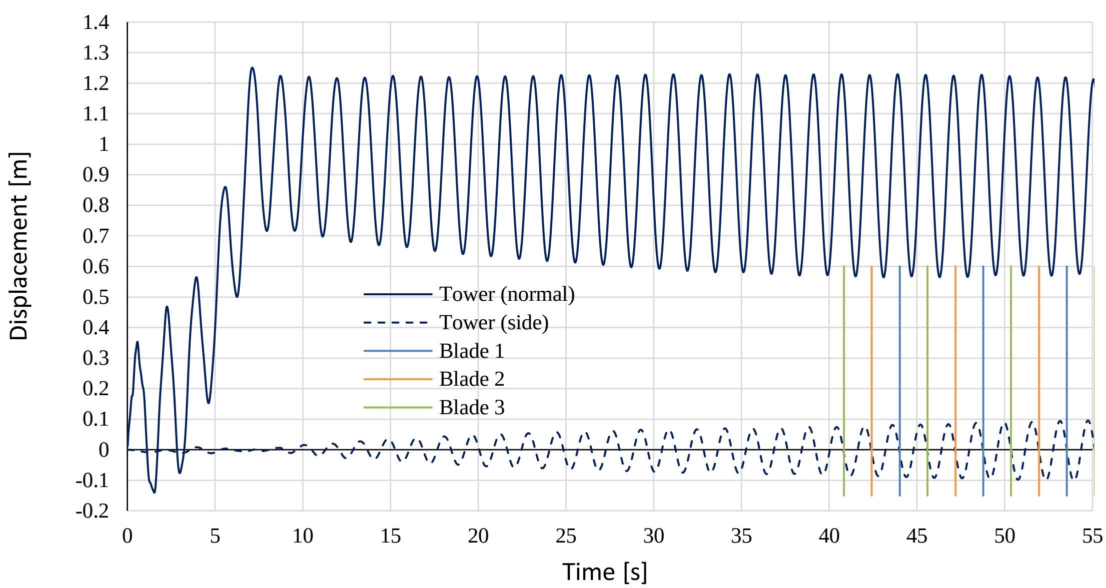
5. Could you please provide the convergence histories of the blade and tower deflection over time? (Deflection over cycle number)

[Authors] The deflection history of the blades over time are figures 13 and 14 for the flapwise and edgewise directions respectively. Tower deflection history is figure 9. Deflection over cycle number is quite clear from the position of the tower indicated by the vertical lines, where each three sequential vertical lines present one rotor rotation.

If you mean the history from the beginning of the simulation (i.e from time=0 sec.), blades flapwise deflections for example:



Tower deflections:



Where the vertical lines in the last figure refer to the time point when the blades are positioned in front of the tower. Please note that to avoid high structure deformation at the beginning of the simulation (due to the assumption of non-deformed structure at time=0 sec), the rotation velocity of the rotor is ramped up linearly from 0 to 12.1 rpm during the first 7 simulation seconds. As a result, the thrust force that leads to blade flapwise and tower streamwise deflections are distributed smoothly during the first 7 seconds, reducing the risk of grid collapse.

6. Would it be possible to add a table with the results of section 3.2.2 included?

[Authors] if I understood your question correctly, you asked to add a tables for the blades deformations with time. The data in these tables would be huge as the sampling rate was 0.02 sec. it doesn't make sense to increase time step in the table as the curves won't be smooth anymore. Therefore we reduce the amount of these data by plotting them in the figures above.

7. In section 2 you mention that "modelling a complete aeroelastic wind turbine poses a huge number of challenges" but you name only one afterwards. Is it one or more than one?

[Authors] Yes there is more than one. We didn't go into details, but some other points can mentioned as well. The aerodynamic model should satisfy the following requirements, which are not easy to combine in one software:

- Support more than one flexible body interacting with each other (rotor blades and the support structure).
- Provides an appropriate presentation of the blade structure as the blades have numerous composite layers making the calculation very computationally expensive.
- Should be able to operate in transient state so that the output can be used to compute the response of the structure in the time domain.

8. Why did you choose the flow domain to be so small? They are usually ten times larger in each direction comprising more points.

[Authors] For four main reasons:

1. All of the simulations were run on a local computer with limited computational resources, therefore increasing the domain and cells sizes will increase computational time (the current model has been run for more than three weeks).
2. We have limited software (Ansys) license, which mean we cannot use many processor cores (the current simulation was run using 3 cores).
3. The aim of this work is to study the dynamic response of the structure and the near field flow structure, but not the far wake of the wind turbine for example. Therefore, there is no need for large domain downstream, also upstream as the incoming flow is laminar with 0 turbulent intensity.
4. Increasing the domains size will increase the time to reach the quasi-steady state of the wind profile as the wind has to travel along the depth of the domain till the end of the domain (the simulation domain was initialized with the constant mean wind speed 11.4 m/s for all the cells).

Nevertheless, we have made sure that the chosen domain size and the number of cells won't have influence on the results.

9. Could you give more details on the grid? What is the resolution on the blade surface, of your boundary layer grid, boundary conditions on the blades and tower?

[Authors] Each blade has 51 elements around the airfoil section and the tower has 40 elements around its section. The first layer is located 1 cm above blades and tower surfaces with a growth ration of 1.3. This is the minimum cell height we could achieve so that the dynamic grid solver can work without problems of grid collapse when the structure deforms. All wind turbine surfaces have been defined as no slip wall as mentioned in Table2.