

Wind Energ. Sci. Discuss., referee comment RC1  
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## **Comment on wes-2021-12**

Anonymous Referee #1

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Referee comment on "UNAFLOW: a holistic wind tunnel experiment about the aerodynamic response of floating wind turbines under imposed surge motion" by Alessandro Fontanella et al., Wind Energ. Sci. Discuss., <https://doi.org/10.5194/wes-2021-12-RC1>, 2021

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The paper entitled "UNAFLOW: a holistic experiment about the aerodynamics of floating wind turbines under imposed surge motion" investigates the effects of surge motion on a model floating wind turbine using hot-wire and PIV measurements. The wake energy is found to increase in correspondence to the surge motion. The thrust force follows the quasi-steady theory for reduced frequencies below 0.5.

The paper presents the experiments and model design well. The results analysis is systematic and insightful. Two major comments are 1) the aim of the manuscript needs to be rewritten. The current aim stated in line 57 page 2 is more of a paper outline than an aim. The scientific findings that the paper is trying to uncover and the broader impact of these findings are not found. 2) the coordinate system used in the manuscript is not clear. It is hard to tell whether "y" is the vertical or spanwise direction. I suggest a clear statement clarifying the coordinates so it is easier to follow the results' discussion. Also, the axes in the figures should be checked for the same issue (e.g. figure 14) and ensure that the coordinates are consistent throughout the manuscript.

Please revise the manuscript for typos. Below are some of the technical comments;

Page 1 Line 12: an hysteresis ( a hysteresis).

Page 2 Line (29-31): Unclear sentence.

Page 3 Line 69: because the flow (check).

Page 3 Line 82: The second condition. (which one the second condition, please clarify).

Page 3 Line 82: is increase (is increased).

Page 3 Line 83: what is the turbulence index?

Page 11 Line 182: to measured (to measure)

Page 21: Figure 14 (check the vertical axis label).