

Wind Energ. Sci. Discuss., referee comment RC2
<https://doi.org/10.5194/wes-2021-32-RC2>, 2021
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Comment on wes-2021-32

Maarten van den Broek (Referee)

Referee comment on "Experimental results of wake steering using fixed angles" by Paul Fleming et al., Wind Energ. Sci. Discuss., <https://doi.org/10.5194/wes-2021-32-RC2>, 2021

General Comments

The paper describes the results of an experimental campaign with fixed yaw offsets on a small wind farm. The results are used to investigate wake-steering asymmetry and validate model predictions of recent additions to the FLORIS modelling tool.

The experimental design seems well thought-out and the results appear to support the conclusions that are drawn. The findings are thoroughly discussed with respect to other work in the field. However, little information is provided on the wind farm that is studied.

In my opinion, the paper provides a valuable contribution the wind energy community. It would benefit from a little more information on the wind farm being measured and the inclusion some quantitative measure of the model prediction quality.

Specific Comments

- Could you provide more details of the wind farm? What is the size of the wind turbine used in the experiment?
- What is the variability on the measured wind vane offset? Is it valid to assume it to be constant?
- Visually, the model seems to achieve a "good match" (135). What is considered "good"? Could you quantify the quality of the predictions in terms of percentage error, RMS, or a similar measure?

Technical Corrections

- Parenthesized citations should be adjusted to (Author, year) instead of (Author (year))
- Several figures have a font size that is too small to read, please increase size.
- 19 "... turbines. Wagenaar et al. (2012) Research" - adjust citation formatting
- 24 "analytical, or statistical," - statistical is not equivalent to analytical, remove comma's
- 24 "(Laboratory (2019))" - adjust reference to NREL

- 39 "(Churchfield et al. (2014).)" - comma after closing parenthesis
- 61 "Results show agreement between model predictions and measured results." - this statement does not belong in the introduction.
- 117 "and below, as shown in Fig. 4, and that above 14 m/s the offset is turning off." - adjust sentence structure
- 162 - "energy rations" - should be "energy ratios"?
- 173 "... the gains of correct steering, are more ..." - redundant comma
- 229 "critical.Boccolini et al. (2021)" - adjust citation formatting
- Figure 3 - it would be good to have the turbines be numbered
- Figure 6 - a legend would be of value for clarity, could you consider another way to save space?
- Figure 4 - might add the number of the controlled turbine here as well
- Table 2 - move caption above table