

Interactive comment on “Why the Coriolis force turns a wind farm wake clockwise in the Northern Hemisphere” by Maarten Paul van der Laan and Niels Nørmark Sørensen

Anonymous Referee #1

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Dear Author,

This is a very interesting article that point on a very interesting challenge in farm simulations.

I do agree with your conclusion but I would like to have a more extensive discussion on how one can make such a conclusion. In figure 6 you show very interesting results at two positions. I think it would be very interesting to see how the turbulence levels also vary with downstream position. You discuss that there are principal differences on how the farm is modeled and how the flow vary due to this. A plot of how the turbulence change with downstream position would ad a lot of understanding of what goes on. (Figure 4 with TI would be a fast solution)

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On page 9, about line 7-11, you state that the Coriolis force is indirectly causing the wind farm wake deflect clockwise because the present wind veer. But I do believe you need to discuss how you can make such a conclusion more in depth. You also use the single wake example to verify your conclusion but it is not very clear how that supports your conclusion.

a minor comment: page 1, line 17, "curved rows" is not very clear.

In summary, I agree with the authors and think it is an interesting article that could be modified and accepted with limited effort. However, a deeper discussion on how these conclusions can be made is needed. The result in figure 6 in combination with the large differences in setup with individual turbines (disks) or roughness needs to be supported by a discussion arguing that one can rule out other reasons. (Or at least say that they are of smaller order.)

Best regards

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