Review: Improving Wind and Power Predictions via Four-Dimensional Data Assimilation in the WRF Model: Case Study of Storms in February 2022 at Belgian Offshore Wind Farms

The authors have successfully addressed most of my comments and the manuscript has improved immensely. The manuscript is much more coherent, and the analysis provides a more thorough investigation on the use of observational nudging with the wind farm parameterization for improving hour-ahead forecasts and simulations of past events relevant for wind turbine operations. I have a series of minor comments to clarify different aspects of the manuscript prior to publication.

Minor Comments:

1. Methods: Consider reframing the use of five domains to three simulations where the only difference is in the use of the WFP and FDDA in domain d03.
2. It appears you are nudging the simulations using lidar observations from a single height (104.5 m) and the vertical radius of influence will affect the wind profile across all vertical levels in the model. Please clarify why you did not nudge the simulations using the wind measurements from all the lidar-measured heights.
3. Page 8, Line 189: “contained” instead of “located”?
4. Please specify the distance between the last turbine row and the LEG and EPL lidars for the predominant wind direction.
5. Section 2.4: The objective for F1, F3, and F4 seems to be the same. However, the conditions under which the nudging happens may differ (negative wind speed bias in F3, and positive wind speed bias in F4). Please clarify.
6. “Cyclic” routine: Calling it a cyclic routine implies that the ON/OFF nudging procedure has a broader goal. However, as stated in line 383, the cyclic routine showcases the potential for improved hour-ahead forecasts only, there is minimal benefit afterwards. Also, Figure 8 shows that after nudging is deactivated the simulation will inevitably converge to the solution without nudging. Thus, I am not sure this should be framed as a “cyclic” procedure, but rather as exemplifying the improvement in hour-ahead forecasts.
7. Figure 4: Please show the radius of influence in the figure for reference.
8. Page 14, Line 317: Please clarify what you mean by “compensating”. Are you implying that the accelerations/decelerations near the radius of influence are due to mass conservation? I would think mass conservations will drive in vertical motions instead. These accelerations/decelerations are likely due to numerical diffusion and advection near the nudged region. Also, flow along a coastline typically displays horizontal gradients in wind speed along the cross-stream direction. So, the accelerations/decelerations within the radius of influence may be explained by the fact that you are nudging spatially using a point measurement.
9. It is worth pointing out that observational nudging may improve the results near the radius of influence, but the large-scale background flow will remain largely unaffected and will still dominate flow evolution far from the nudging location. You clearly show this in Figure 6 (small changes in RMSE and MAE for the LEG and EPL lidars).