Wind Energ. Sci. Discuss., referee comment RC2
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Comment on wes-2021-95

Anonymous Referee #2

Referee comment on "Field measurements of wake meandering at a utility-scale wind turbine with nacelle-mounted Doppler lidars" by Peter Brugger et al., Wind Energ. Sci. Discuss., https://doi.org/10.5194/wes-2021-95-RC2, 2021

Major issue ---------- The data is analysed without any wind sector information. The surrounding of the turbine has different roughness lengths and obstacles that can cause different internal boundary layers effecting the short distance behind the turbine, measured free wind and wind speed at hub height. Things around the turbine (Financial Park, Johns Hall etc.) look like around 9-10m tall. It is too optimistic to assume that they do not have impact. Therefore, selection criteria are not clear to me. Compared (or summed up) results might be from different conditions and current filtering methods might not be enough. Some inconsistent data (see minor issues) might be product of this situation and that should be addressed at least at discussions or conclusion. If it is assumed that the wind direction does not matter for the analysis, a proof comparison from different sectors with similar conditions can be used. Minor issues ---------- Page 2/line 50: Although I have found the location quite easily over Google Earth, I think you should add the exact coordinates (41.916578Â°, -91.650871Â°) to the paper. Page 3/Lines 65: Says â□□The rejection criteria for wake scans not suited for further analysis based on data quality, turbine yaw activity, and inflow characteristics will be presented at the beginning of Sect. 3.â□□ But Section 3 does not give any information about directional rejection (if any). If all wind directions are accepted, wouldnâ□□t there be a discussion about the wind flow coming from urban areas? Wouldnâ□□t that effect the lateral or vertical advection? Page 4/Figure 2 I did not understand the parenthesis saying, â□□not to scaleâ□□. (Sorry) Page 4/ Line 74 I think â□□radial velocities are converted to vertical components in x-axesâ□□ is rather more correct then â□□.. are correctedâ□¦â□□. Page 4/ Line 76 I donâ□□t understand the simplification of the trigonometric equation! Why do you need to do that? Page 5/line 83 An example figure would be nice to see the steps 5 and 6 to see and understand the quality of the process since no single instantaneous wake measurement is shared. Page 5 / Line 91 See my comments about Page 3/line 65 for inconsistent data