

The manuscript details a field experiment in dual-Doppler radar (DDR) instrumentation, a well-established remote sensing technology for obtaining wind energy-relevant wind measurements. In this case, DDR is applied to a smaller domain than that seen in the American Wake Experiment (AWAKEN), which serves as a sort of quasi-predecessor or precedent. The study aims to determine whether DDR was, for this domain, capable of resolving spatially coherent flow features (e.g., wakes, low-level jets) more effectively than point measurements like those from lidars or met masts. To make this determination, DDR measurements are (a) quantitatively compared against lidar measurements under a variety of wind directions, sky conditions, and precipitation states, and (b) plotted and visually analyzed for the presence of various wake features. The authors note that DDR generally agrees well with coterminous lidar measurements, and show evidence that wake-related features can be seen in DDR-generated fields.

The project's goals are articulated well, though there are a few areas that feel underexplained or could benefit from more thorough investigation.

- Clarifying questions/unclear areas
 - L55: Who does 'they' refer to? One or multiple of the mentioned publications?
 - L61: Why is uncertainty amplified over larger areas? Later in the manuscript it is implied that the degree of spatial averaging and widening beam width are the cause, but it would be good to specify it (or any other relevant explanation) here as well.
 - L72: "Scanning lidar observations with well-established performance and uncertainty characteristics" – could the authors provide citation(s) to previous studies or other resources that describe these well-established characteristics?
 - L112: I assume this should read 19 March 2025 - 9 January 2026?
 - L120: Regarding descriptions of the radar scanning strategies, we can infer azimuths from the figures (though it would still be good to specify them), but the elevation angles are only referenced in quantity ("up to 14") and cannot be inferred from any figures. Were there not consistently 14 elevation angles as the use of "up to" implies, and if not, why? Which elevation angles were used? Since the comparison is made that the AWAKEN sectors are larger and feature lower elevation angles, I assume the elevation angles here are known. If you can, please provide them.
 - L124-125: "To favor vertical wind fields over a more localized domain" – does this mean vertical *profiles* of horizontal wind, or values for the actual vertical wind w ? The phrasing as it is now makes it seem like the latter, but no analysis in this study is done with vertical components, so I assume it is the former. On the topic, some mention of the vertical component's role or absence in the study should be made, i.e., whether instruments measured it or not, and, if they did, why it was excluded from the study's analysis.

- L129-131: The conclusion that the increased wind speeds/distorted radial velocities are solely attributable to insects, and the editing steps implemented therein to remove them, feels a bit rushed. In fact, later this claim is qualified: “the removal of influence *supposedly* generated by insects...” (L235). I suggest including some examples of relevant literature on these signals and their behavior, and some information about the process used to remove them, in this section, as well as some metric or image that can demonstrate a marked difference in the before and after.
- L136: “The ratio of the number of bins that pass the filter” – which filter is being referred to here? The aforementioned insect filter? If so, I would specify it again, since some space exists between talking about filtering and talking about coverage factor calculation.
- L136-137: Regarding the overlapping of bins from both radars, is *any* location where data overlap exists between the two radars usable? Other studies that use dual-Doppler strategies typically list a range of ideal crossing angles between the two radars’ beams that are usable, so if that restriction is imposed here as well, it should be noted. Also, do the radars feature any range blanking zones?
- L153: How does the scanning lidar have a range gate length of 50 m but an overall range of 100 m to 3825 m? 3825 is not a multiple of 50.
- L163: From what source is the regional climatology defined?
- L201: The manuscript states that errors “increase notably above 150 m”, but in Figure 6 they actually decrease for both metrics (RMSE and MAD) and for both radar grids (coarse and fine) between 150 and 200 m. The error only begins increasing at 200 m, and we can only say so for the coarse grid, because the fine grid coverage stops. I suggest revisiting this figure to make sure it, and its interpretation, are correct.
- L225-226: How many of the nearest DDR grid points are used? In the Figure 2 caption, “a single grid point encompassing the location of the lidar” is used. Are these two referring to different things? A bit more information on the spacing of the radar bins, as well as the probe volume of the lidar, would be good to augment the trustworthiness of the comparison.
- L242: Should *Table 2* be *Table 1*? Table 1 contains the radar availability data, where Table 2 contains the list of (presently, all non-radar) instruments and corresponding notes.
- L242: How is ‘samples’ defined here? Bins, scans, volumes?
- L263-264: It is not a fundamental characteristic of X-band radars that they *require* hydrometeors to return a sufficiently strong signal; they can operate and obtain measurements in clear air environments, and in fact do so in this experiment as evidenced by nonzero availability during clear-air periods in Figure 9a-d I and II. The data availability may be *reduced* without the presence of hydrometeors, but data are still obtained. This statement is thus

too absolute, and is itself contradicted in L273. It is also worth noting that fog, which is composed of hydrometeors, virtually eliminates all valid return, so using *hydrometeors* as a blanket tracer to guarantee high availability is a bit too broad and should be moderated by a reminder statement on the effects of fog. Out of curiosity, was the same effect observed during periods of very light precipitation (i.e., drizzle)?

- L275: If I am interpreting the figure correctly, the jumps noted in the manuscript at the 0.1 and 0.4 particle count and rain intensity threshold do not exist. If these values are referring to the y-axis, the step function does not touch them in either of the top two panels in Figure 10. If they are referring to the x-axis, no change in the step function exists at 0.1 or 0.4 in the top panel, and in the bottom panel only a marginal, steady change occurs at 0.1 while a small peak occurs at 0.4. If I have interpreted the figure or text incorrectly, it should be made more clear what features are being referred to, and what exactly ‘thresholds’ means here.
- L277: As in the comment above, no gradient in availability fraction occurs around 1; counting logarithmic ticks, it looks like this actually occurs around $0.5 \text{ J m}^{-2} \text{ hr}^{-1}$. Am I missing something?
- L285: Are ‘fraction values’ and ‘availability’ synonymous? If so, limiting the number of names by which that quantity is referenced would improve readability.
- L285: What is meant by ‘artificial’ data? Could you provide an example(s)?
- L304-305: Should ‘Figure 11a and 11b’ be ‘Figure 11b and 11c’? Subplots (b) and (c) are the ones that show MWR data.
- L308: Which of T1-T5 correspond to before, during, and after LLJ formation? From the images alone it is hard to tell. It looks like maybe T3 and T5 are during, so T2 and T4 might be before, but what is T1? It would be good to state outright so readers do not assume incorrectly.
- L317: It is interesting that despite the SCADA data being unavailable/showing no generated power, there are wakes evident in Figure 12f and 12k. Since these turbines are within the authors’ “home domain”, so to speak, maybe more information is available to describe why this was the case?
- L331: Should 2025-06-06 be 2025-06-06? It is labelled as such in Figure 13.
- L333: As above, should 2025-07-23 be 2025-07-22?
- L334: “A more broadened and deepened velocity deficit” – relative to what? The right center figure looks smaller and less intense than the right top figure, so this description is a bit confusing.
- L349: If certain wind directions were indeed to be omitted to avoid radar artifacts, how seriously would the climatological representativeness assumption be violated? Since stability is, as is written here, highly dependent on wind direction in this geographic location, fully removing some wind directions could consequently remove certain conditions from the

dataset, could it not? Might this make it less true to the Northern Germany climate? A statement or statistic on this sensitivity would be helpful.

- L385-386: “temporal resolution of the radars” – this is not touched upon in the manuscript or in Table 2, so some information on this would be helpful. What was the revisit time for a full volume, how long did a single scan take, what was the azimuthal scan speed, etc. It could be added to Table 2, since information on the radars is conspicuously missing there.
- Figures
 - F1: The bird’s eye view is denoted as top left, but there is no top or bottom or row structure in this figure. Also, the caption mentions plural disdrometers, but only one disdrometer location is illustrated on the map.
 - F2a: It appears Channel A may be largely overlapped by Channel B; is there some way to also show the values obtained by Channel A more visibly? Perhaps by splitting the two traces?
 - F2c: Only a small portion of this colorbar is used, and negative values do not appear anywhere. Can the color axis be shrunk to reveal more detail?
 - F2: Some explanation of the reason for gaps in some traces would be helpful. Heavy precipitation, lack of tracers, instrument downtime, etc.
 - F2: The x-axis label lists [Month in 2025], though the data extend into 2026. Could the axis ticks be changed to include month and year to avoid this issue?
 - F2: What does it mean for DDR scans to have been “derived from a single grid point encompassing the location of the lidar”? How can a single point encompass something? Maybe it would be better to explain this from the perspective of the DDR interpolated Cartesian grid spacing and the physical volume it represents with respect to the location of the lidar and its measurement volume..
 - F4: Other images with panels are lettered, so this one should be as well. The caption can be augmented that way, so that all necessary information in the figure can be obtained from the caption alone.
 - F5: Since panels (a) and (b) have parentheses in the figure, they should in the caption as well.
 - F6: This figure appears before being referenced in the text, unless I missed an earlier reference somewhere.
 - F6: Could grid lines be added, or made darker?
 - F7: This figure appears before being referenced in text.
 - F9: Plots (a)-(f) on the left and the corresponding set on the right are not discernible as being from the warm season and cold season by the figure alone and rely on the caption, which could be misleading. Could they be re-labeled to avoid confusion?

- F9: The definition of ‘samples’ and ‘availability’ is a bit hard to follow in this caption as well. Are ‘samples’ bins, rays, sectors, volumes? A singular statement on how ‘availability’ is defined would also be helpful.
- F10: Lettered subpanels (a)-(c) are referenced in the caption, but do not exist in the figure itself.
- F10: The meaning of the colored vertical lines is a bit difficult to decipher. What do these signify? They’re referred to as ‘exact quantity thresholds’, but what of? How were these thresholds computed?
- F10: It seems a bit odd to conduct most of the study’s comparison with the fine grid and therefore focus the discussion on the fine grid, but show these stepwise curves for the coarse grid. Are the corresponding plots for the fine grid available, even if they show similar results?
- F10: The word ‘both’ is used, even though there are 3 subplots.
- F11: It looks like the LLJ max is centered around 400 m AGL, above the fine grid. Is there a reason the coarse grid was not used to corroborate these measurements, if it reached that altitude?
- F11: I would add titles to each subplot, even if they are defined in the caption, so that the figure can be visually parsed on its own.
- F11b: As with F2c, only a small portion of the colorbar is used. Could a different colorbar provide more detail?
- F13: I would add letters to each subpanel.
- F13: Where is the red dot on the left center overhead figure?
- Tables
 - T1: The caption and data are not intuitive to follow. For coverage factors greater than or equal to 8, indicating data coverage of 80-90%, what does the listed percentage (much lower than 80%) mean? Does the table suggest that, e.g. 10.29% of radar volumes met the 80% coverage threshold at 60 m in the coarse grid? The phrase “coverage out of the full spatial domain” is a little bit difficult to follow or conceptualize; giving more explanation or a hypothetical example would be useful.
 - T2: The Resolution/notes column for WiValdi Met Mast/Wind Vane/Vane-2: 88 ends with a trailing comma. Was information left out?
 - T2: Is there a reason the radars and their associated spatiotemporal frequencies are not included in this table?
 - T2: What are the sampling frequencies/temporal resolution of the sonic anemometers, cup anemometers, and wind vanes?
- There are a number of errors in conventions resulting in incorrect grammar, missing information, or unclear points. The manuscript should be re-proofed in full to make sure these types of errors are caught.
 - L14 (these results performance verification)
 - L21-22 (This gap in understanding grows increasing critical to address as wind)

- L32 (Doppler wind lidars has been used) - subject/verb agreement
- L40-41 (under a rapid return times) - articles/pluralization
- L60 (during AWAKEN, however, those) - comma splice
- L63 (*[an understanding of?]* how DDR performance varies with the prevailing atmospheric regime is necessary)
- L153 (a range gate lengths) - articles/pluralization
- L258-261 (Seasonally...effect) - unclear/hard to follow, are words or punctuation missing?
- L264 (to require requires hydrometeors)
- L267-268 (As such, Figure 10...droplets) - unclear/hard to follow, are words missing? The sentence could be rephrased to be clearer.
- L272 (approximately 50% and 70%) - is this 50% for one radar and 70% for the other, or should the range read 50% *[to]* 70%?
- L284 (condition) - should this be *[condition's]*?
- L287-288 (Since...turbine blockage) - a verb is missing somewhere in this passage
- L290 (so it recommended to)
- L324 (though they be offset) - should this be *[though they should be offset]*?
- L360-361 (overestimation in DDR samples were very limited) - subject-verb agreement
- L391 (Further, the DDR method is that strong)
- L407-408 (One strong...radar scans) – sentence fragment
- L442 (the were)
- L444 (lidar comparisons of is intentionally) - is something missing after *of*?
- Make sure acronym usage is consistent across the manuscript.
 - L437-438 (which the dual-Doppler radar...scanning lidar and DDR)
- Make sure unit conventions are consistent across the manuscript.
 - m vs. m AGL
 - m/s vs. m s⁻¹, sec. vs. s (especially check Table 2)
- Other notes
 - L134: The D in Dual does not need to be capitalized
 - L151: I didn't see the acronym VAD defined earlier in the manuscript.
 - L174: *Bulk* is not capitalized here but is in the caption of Figure 5, but not here. I've seen both styles, but a consistent one should be chosen.
 - L198: There are two spaces between *Figure* and 6.
 - L331-335: There is a tense shift in this paragraph from present (shows) to past (captured). I would, upon completion of the manuscript, read over to make sure a consistent, intentional tense is used.