

Response to Review of paper titled “An experimental campaign to measure turbulence in the marine boundary layer” by Jakob Mann et al. (wes-2026-39)

July 15, 2026

Thank you for these final comments. Our reply is in blue, while the original comments are the black.

1 Overall paper summary

Overall, the authors have significantly improved upon the earlier draft of the manuscript, with more clarity on uncertainties and campaign details. There are only some minor details that still remain unanswered from the first review that need to be addressed.

We would also recommend the authors to once again go through the changed sections/lines to ensure proper grammar and clarity, some of which have been highlighted in the technical comments.

2 Specific comments

- The abstract still contains references to the now removed WRF comparison, please correct.
We have removed the WRF sentence from the abstract.
- L139ff.: In the previous round of review, we alluded to the importance of time synchronization, which could affect the analyses to which the authors commented that it was trivially achieved with UTC timestamps. While this may seem trivial, there could be software issues that could affect the system clocks, which was present in the Streamline systems before the campaign. What are the time lags here of the Windscanner systems and what is their source?
We have clarified the text (Section 2.2) to state that all lidars were synchronizing their internal clocks using GPS modules to a global reference. Further, we have monitored the system clocks to ensure that there were no continuing issues during the main measurement campaign.
- L254: A comment from the previous round was concerning LOS measurements at hard targets. Although the authors mention that this has been removed from the manuscript, the paragraph following this line still seems to indicate a zero LOS velocity comparison at the hard target location. Please clarify this.
We have removed the text regarding the hard target zero-speed analysis from Section 2.3.4, as we are unsure if the photodetector was saturated during the test period and if we can trust the results.
- In the response document, this comment was left unanswered:

Table 11: The LOS velocity offsets for Sterenn and Brise show notable changes (e.g., Sterenn: -0.3 m s^{-1} pre-campaign vs. cup, compared to -0.7 m s^{-1} in the final

values; Brise: -0.2 m s^{-1} vs. cup, compared to -0.4 m s^{-1} final). Please comment on the cause of these variations. Do these offsets evolve over the course of the campaign relative to the cup-based reference? How would a user downloading the data process the wind speeds for example in the middle of the campaign (since a fixed final offset is specified)?

We lack sufficient data under comparable conditions to definitively answer the question of the progression of offsets over the campaign period. The pre-campaign test resulted in an offset being found on Sterenn and Brise, however the cup and vane uncertainty has a contribution. We find the lidar-lidar comparisons to be more consistent than the lidar-cup comparison. Unfortunately we did not have the opportunity in this project to repeat the lidar-cup comparison, however we would strongly recommend that be done in future campaigns to provide traceability. We can go in more detail with this question, but we believe the discussion would become too specialized, and is not worth including in the paper.

3 Technical comments

All items below have been fixed and Fig. 17 has been modified according to the suggestion.

- L72: In this Diagram, also section n..
- L74: description
- Table 2: Spatial resolution, not spacial.
- L206: It should be noted?
- L209: Full stop missing at sentence end.
- L290: Table reference missing.
- Fig. 17: Fix the titles on the images. The velocity, wind direction, distances are common for both images and can be elaborated in the caption (some details are mentioned) and keep only the labels for the sub-figures.