Dear Editor,

Please find below our responses to your comments

Public justification (visible to the public if the article is accepted and published):
For the most part the authors have addressed the comments from the reviewers, but there are a couple of issues that I think still need to be addressed related to the new paragraph in the Introduction, the limitations of the study and future research. I will inform the authors and reviewers.

Additional private note (visible to authors and reviewers only):
For the most part the authors have addressed the comments from the reviewers, but there are a couple of issues that I think still need to be addressed.
1. Responses to R1 mention "we have added a paragraph to the Introduction addressing this point" and "The new text in the Introduction has recommended repeating sampling tracks and mixing in fixed-sensor data into the analyses and interpretation of the data, and these should be incorporated as key aspects of best practices for the use of mobile sensors for reasons described". I can't find the added paragraph you mention "Profile measurements from a moving platform ..." Please check this as the Introduction of v4 seems to be the same as v1. Should there be a later version than v4?

The missing paragraph was added after Line 83.

“Profile measurements from a moving platform document the horizontal variability of the flow, which could (for example) be due to turbine wakes or terrain-related flows, within a curtain of data along the track. But also included is variability due to temporal changes during the transect (Pichugina et al. 2012). For instance, a frontal passage halfway through a sampling leg will appear as a difference between the first and second half of the leg. Lacking additional information, one cannot determine whether these measurements show a genuine, persistent difference in the flow between the two regions. Other small-scale phenomena over the sampling track at timescales smaller than the sampling time interval of the leg may similarly appear to be horizontal variations. One approach for clarification is to retrace the path, as in the offshore LLJ example of Pichugina et al. (2012: see their Fig. 15 and accompanying text), to look for persistence of flow structures, indicating stationarity. Another is to use a mix of mobile and fixed-platform sensors to sort out the spatial and temporal variabilities, as proposed by Banta et al. 2013 In the following we use both approaches.”

2. You mention in response to reviewers,
a. "It is a first experiment, and measurements during stronger winds or over different seasons are needed.
b. "Also, the results will be used to develop better driving pattern".
c. " We have not examined the obtained higher orders of turbulence such as variance and skewness in this article as we expect or already know that turbine wake effect would just be masked by daytime turbulence. The rich dataset obtained can be used for more analysis and future research papers", d. "all data including as time-series of pitch, roll, lidar height (ASL), measured and motion corrected vertical velocity are available for a future detailed analysis."
e. "Ideally it would be great to obtain long-term measurements over various seasons and atmospheric events."
I think these are useful additions to the manuscript in terms of a section on limitations of the study and future research. Can you add a paragraph based on these comments (a -e)?

The sub-section is added to the text after line 678:

Limitations of the study and future research.

The results presented in this paper are obtained from the short pilot study, mostly during daytime hours and low wind conditions. Therefore, we have not examined the obtained higher orders of turbulence such as variance and skewness in this article as we expect or already know that turbine wake effect would just be masked by daytime turbulence. Anyway, the rich dataset obtained can be used for more analysis and future research papers, the development of longer transects and driving patterns around wind farms. In addition, all data including as time-series of pitch, roll, lidar height (ASL), measured and motion corrected vertical velocity are available for a future detailed analysis. Ideally it would be great to obtain long-term measurements over various seasons and atmospheric events.

3. Line 108 missing full stop after capability.

The dot after the word capability was added.

4. Line 39. “Cupp 1990_,” was changed to “ Cupp 1990,”