The article by Kelberlau and Mann addresses an interesting problem that profiling lidar measurements are facing. Now-a-days, the site suitability of wind plants depends on the profiling lidar data, and the cross-contamination issue is a great concern for it. Thank you for working on this topic.

The article provides the required background theories and explanations to follow the document. The article is a follow-up of their previous article (Kelberlau and Mann (2019)) that they have published on a technique called squeezed wind vector reconstruction to reduce the cross-contaminations of lidar measurements. This article is an application of the published technique to the WindCube V2 profiling lidar data. The published technique is based on the Taylor 'frozen' hypothesis (turbulent eddies are advected by the mean wind speed), and the hypothesis can only be applied along the mean wind direction. However, the authors have worked on the non-aligned (line-of-sight (LOS) is not aligned to the mean wind direction) flow using the concept of Taylor 'frozen' hypothesis. In the end, the authors show that their method works mainly for the aligned flow. Even for the aligned flow the technique does not work for the spanwise component. Therefore, the application and effectiveness of the work is limited.

In the article, the authors have introduced separation distance as a part of the squeezed reconstruction technique. Separation distance should a parameter based on the mean wind speed and time lag. The authors have mentioned that separation distance represents statistical average, not the actual separation, and I do not understand the exact application of this parameter in this work. The temporal frequency of the data collection by the lidar is low unlike continuous wave lidar (what the authors have worked on their previous article) and LOS measurements (full scan) are updated in every 3.85 s. The authors have not provided any clear data on the amount of reduced distance (and corresponding time delay) between the LOS measurements due to their technique. Considering the low temporal frequency of the lidar (WindCube V2) data, the authors will not get measurement data at the target time after the considered advection. The method would be beneficial if there is high frequency data so that the user can get more data in space to take the benefit of the reduced spatial distance. It is not clear what the authors do here. It would be nice if the authors provide a block diagram of the work process of the squeezed reconstruction method applied in this work (with a sample data). In addition, showing a figure like Figure-4 of Kelberlau and Mann (2019) article would be nice.

Coherence model based on mesurements is showing that the longitudinal coherence drops to approximately zero with 90 m separation distance and the corresponding wave number is close to 0.06 (Davoust et al. 2016). Then why is the Taylor 'frozen' hypothesis effective here?

Specific comments:
1. Page-4, L-8: These line-of-sight velocities are the product of…
   Is this the way lidar measures? We numerically model the lidar measurements in this way. Make it clear.

2. WindCube V2 has pulse repetition frequency (PRF) 30k. The default PRF used by the lidar is 20k; then required time for LOS measurements should be 30/20=0.6667 s. Why it is 0.72 s? And also, why the required total time to finish the scan pattern is 3.85 s?
3. How do the authors get Equation 17?
4. Are all the conditions provided in Page-9, L-10 and L-11 correct?
5. Is K_{scan} (Equation-23) related to the scan pattern time? Or is it particularly related to the vertical beam (5th beam)? Due to the vertical beam, there are no measurements for horizontal wind speed. Could the authors make a comment on it?
6. Page -11, L-19: what do the authors mean by, "for the combination of LOS2 and LOS4 it is similar"?
7. Do the authors use Equation 25 (separation distance, r_{rep}) to calculate the time delay? How Equation 25 is different from Equation 24? It is not clear here.
8. Second paragraph of Page 12, L-8 to L-12: "The methods of squeezing.." is irrelevant here. Remove the whole paragraph.
9. Page-14, L-6: In case of three?
10. Page-14, L-20 to L-25: Rewrite the sentences so that reader can understand the process: "In the process of reconstructing…"
11. Page-17, L-1: The authors mention to explain the results: "the reason is that two different longitudinal separation distances are involved in the wind vector reconstruction process…. ". However, in Table-1, authors showed that the second longitudinal separation distance is zero for the aligned flow. Could the authors explain what are they trying to explain here?
12. This article is particularly trying to solve an active industry problem and the article needs to be coherent in terms of explanation which I don't see in Section 4. Explanation of the results is so vague that I get always lost.