

Wind Energ. Sci. Discuss., referee comment RC1
<https://doi.org/10.5194/wes-2021-62-RC1>, 2021
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Comment on wes-2021-62

Anonymous Referee #1

Referee comment on "Alignment of scanning lidars in offshore wind farms" by Andreas Rott et al., Wind Energ. Sci. Discuss., <https://doi.org/10.5194/wes-2021-62-RC1>, 2021

General comments:

This paper focuses on obtaining high-precision positioning, orientation, and leveling of lidar device at the offshore measurement campaign. This is a prerequisite for obtaining accurate lidar wind measurement dataset and clearly understanding or explaining meteorological phenomena of offshore wind energy. The authors describe Hard Targeting and Sea Surface Leveling to accurately estimate the position, orientation, and leveling of a long-range lidar without additional equipment or sensors. Considering the quasi-static inclination caused by the thrust loading of the wind turbine, this paper presents a Platform Tilt Model. Results are generally very convincing. However, before the manuscript can be recommended for acceptance for publication, I have several suggestions and comments here that need to be addressed.

Special comments:

Line 115: Please try to give the explanation of the symbol " $=\#$ ".

Line 164-165: Why do you use the midpoint as an estimation of sea surface distance? Could you please explain more?

Line 346: What does the text "in very similar values for the angles" mean? Do you want to say that the result of the consecutive measurements has small variations with the time series? Please explain better.

It would be good to give a suggestion on how often should we use these methods during a lidar measurement campaign. Every 10 minutes, every day??

Technical corrections:

Figure 6 and figure 10: It would be better to try to make the pictures bigger so that readers can clearly see the labels of the pictures. If you want to show two or more sub-figures in one picture, it would be clearer to give them symbols like "a)" and "b)".

Figure 9: Please give units of the variables of the x-axis and y-axis in Figure 9.

Figures 13, 14, and 15: The "m" in the pitch angle should be changed to subscript.

Line 104: "probe length volume" -> "probe volume".

Line 252: It should be Equation 30 instead of Equation 27.

Line 318, 474: It seems that the right parenthesis is missing.

Some places: "Exemplary" -> "Example".

It would be better to keep the size of all pictures and text in pictures as consistent as possible, basically some plots have to have larger fonts.