



EGUsphere, referee comment RC2  
<https://doi.org/10.5194/egusphere-2022-822-RC2>, 2022  
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## **Comment on egusphere-2022-822**

Anonymous Referee #2

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Referee comment on "Validation of Aeolus wind profiles using ground-based lidar and radiosonde observations at Réunion island and the Observatoire de Haute-Provence" by Mathieu Ratynski et al., EGU sphere, <https://doi.org/10.5194/egusphere-2022-822-RC2>, 2022

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In my opinion this is an excellent paper summarizing the comparison of an extensive data set of radiosonde and surface-based lidar observations with Aeolus wind estimates. The paper is quite comprehensive in its analysis of the data set. I especially like that the authors have compared their results with results from other groups carrying out similar investigations at different locations and using different instruments. This work is quite important for evaluating Aeolus performance and assessing the potential utility of the Aeolus observations.

Most of my comments are minor and editorial in nature, and I leave it to the authors and editor to decide on whether or not to include them in a revised manuscript.

Specific comments

Line 32: It seems that there should be an "is" inserted after "wind profiling".

Line 56: Perhaps I missed it, but it's a bit unclear whether the work described in the paper is investigating total bias or residual bias. As noted, bias correction schemes were implemented to the Aeolus data at different times in the mission. Although a fully bias-corrected data set is being developed for Aeolus, this analysis seems to be using data that may have included intermittent changes to the bias. A sentence or 2 to perhaps discuss bias correction in the Aeolus data set and which data are being used for comparison could be helpful to the reader.

Line 79: Is LIOvent an acronym? If so, please define.

Line 93: Does the LIOvent lidar measure only Rayleigh winds?

Line 230, Figure 1 caption: I think that the caption could use a bit more explanation. Although I think that the straight colored trajectories represent lidar measurements from Aeolus and the ground-based lidar, this isn't described in the caption so it required some scrutiny on my part to discern what they represent. The same is true for the Figure 2 caption.

Line 244: Looks like a word is missing after "however".

Line 300 (Figure caption): It would be useful for the caption to differentiate between the lighter and darker shading and c and relate them (presumably) to the orbit.

Line 319: I find the paragraphs beginning at line 305 and line 320 to be unclear. Does paragraph 305 refer to the radiosonde comparisons while 320 refers to the lidar comparisons? Also the text beginning on line 305 refers to figures 3a, 3c, (wind measurement differences), while the text beginning on line 320 refers figures 3c(wind measurement differences) , 3d (data count), but seem to be doing an equivalent comparison. These two paragraphs seem to require some clarification or correction.

Lines 345 and 347: I think the authors mean "4a" instead of "5a" here.