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Interactive comment on "Technical Note: First comparison of wind observations from ESA's satellite mission Aeolus and ground-based Radar wind profiler network of China" by Jianping Guo et al.

Anonymous Referee #1

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Aeolus is the satellite means for measurements of wind information for the first time, which is the milestone for wind observations for a global scale. In this paper, the authors evaluated the accuracy of wind products of Aeolus with ground-based wind observations from the RWP network in China. The results show that Rayleigh-clear wind products of categories 1 and 2 are better than category 3 with RWP winds, Mie-cloudy wind products are consistent with RWP winds in most of east China. This manuscript is of significance to understand the accuracy of the Aeolus product in China. Overall, this manuscript is clear and well written. However, the following major issues

need to be improved:

(1) In the introduction part, the author proposes that the significance of this study is to systematically evaluate the accuracy of Aeolus products in the high aerosol background in China for the first time. However, the time of Aeolus products analyzed in this study is from May to September 2020. In this period, the concentration of aerosol in China is generally low. In addition, due to the influence of covid-19 this year, there is little air pollution from May to September, which does not match the hypothesis of "research significance: product accuracy evaluation under the background of high pollution in China". Therefore, is it more reasonable to choose a time with heavy pollution background to reevaluate Aeolus products? What is the author's consideration? (2) The paper mentioned the quality of satellite product and ground-based observations, is there any high levels of quality flag in the satellite products? Like low, middle and high? For the ground-based observations, how many 100% confident level data used? Or how many data were dropped? (3) What's the meanings of Rayleigh-clear and Mie-cloudy? How do these two algorithms calculate wind information? (4) What's the estimated errors (x-axis) in the Figure 4? How about all accuracy when using all quality's data (not control the quality using estimated errors)? (5) Fig.6 shows a spatial distributions of correlation coefficients for each site. Why coastal areas have larger R values while inner of China has lower R values? Especially in the Sichuan basin. (6) Number of points of each site for validation of winds are important in calculating R, and SD, etc., some sites show a lower R values (e.g. Sichuan basin) in the Figure 6. So, what's the number of each site used in the validation? Give a spatial distribution of each site's number of paired data. (7) Why Rayleigh wind in the descending has a large error than ascending in the 0-2 km in the Figure 11 (b, c)?