

Atmos. Meas. Tech. Discuss., community comment CC3  
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## Reply on RC1

Alexander Shelekhov

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Community comment on "Wind measurement comparison of Doppler lidar with wind cup and L band sounding radar" by Zizhong Zhou and Zhichao Bu, Atmos. Meas. Tech. Discuss., <https://doi.org/10.5194/amt-2020-516-CC3>, 2021

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The paper compares the wind speed and direction data measured with different devices. As follows from the paper, the measured results are different for different methods. However, in addition to only stating the fact of discrepancy, it is also interesting to provide an explanation to this issue. I believe that a possible mechanism for the difference in measurements is the different spatial resolution of the used devices. This leads to the appearance of a non-Gaussian component in signal fluctuations. The appearance of the non-Gaussian component has been studied by me and Evgenia, and the results were published in the papers, two of which can be found in the attachment. The main result obtained by us was that the signal of a Doppler lidar is a non-Gaussian random process, which is a consequence of optical radiation scattering at an aerosol in the turbulent atmosphere. I am interested in the results of the discussed article just from this point of view.

On advantages (+) and disadvantages (-) of the paper

+) The paper deals with the urgent problem, which is of great fundamental importance and has great practical application. The authors have done a lot of work that allows them to draw important scientific conclusions.

-) In my opinion, the obtained materials are enough for the paper, but they should be revised and summarized. Unfortunately, I have to agree with reviewer's opinion that the paper should be substantially modified to meet the requirements of the *AMT* Journal.

I would like to ask the Editorial Board to give the authors the opportunity to publish the paper upon revision and the following review.

Please also note the supplement to this comment:

<https://amt.copernicus.org/preprints/amt-2020-516/amt-2020-516-CC3-supplement.zip>