

Interactive comment on “Retrieving wind statistics from average spectrum of continuous-wave lidar” by E. Branlard et al.

Anonymous Referee #1

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The manuscript suggests a method to derive second-order atmospheric turbulence statistics from cw wind lidar data. This is a timely issue which deserves consideration for air quality studies as well as for wind energy generation. Therefore, I suggest to publish this manuscript after minor revisions.

On page 1953 (l 21) it is said that the precision of the lidar deteriorates for wind speeds less than 4 m/s. Is this a specific feature of the used Zephir lidar or is this a common feature of every wind lidar? Could you please give a clue, why the precision deteriorates with low wind speeds? Is there a reason why that threshold is at 4 m/s?

On page 1957 (l 15) Fig. 3 is discussed in the text. The reviewer does not understand why Fig. 1 and Fig. 3 are so different. There seems to be just a correction for the systematic underestimation of mean wind speed (shown in Fig. 2) which had been

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applied to the data shown in Fig. 1. So Fig. 3 and 1 should look quite alike. Please explain the difference.

Figs. 6 to 9 are referenced only once in the text and have to be compared to each other. Therefore, it might be useful to integrate these four Figures as four frames in one Figure.

On Page 1961 (l 17/18) it is said that the benefit of the new method would be more significant at larger focus distances than those presented in the manuscript. The question is, why didn't the authors choose a longer distance between the lidar and the sonic when designing their field experiment?

Finally, there seems to be some superfluous material in the reference Sathe and Mann (2012b) on page 1964, l 28/29.

Interactive comment on Atmos. Meas. Tech. Discuss., 6, 1943, 2013.

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