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Atmospheric Measurement Techniques Discussions

Interactive comment on "Wind Turbine Wake Measurements with Automatically Adjusting Scanning Trajectories in a Multi-Doppler Lidar Setup" *by* Norman Wildmann et al.

Anonymous Referee #2

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This manuscript describes the method how to measure fluctuating wakes behind a wind turbine with a system of three synchronised wind lidars.

The manuscripts mainly focuses on the measurement method which is very much appropriate for the chosen journal.

Nevertheless, the interpretation of the sample measurements should be scientifically sound and interesting for a broader audience.

I have two major points.

I do not fully understand why two lidars have been sited close to each other and the

third one further away. I would expect the greatest flexibility in measuring fluctuating wakes when having the lidars in a sort of an equally-sided triangle around the expected measurement volume.

I do not fully understand why the results have been discussed in terms of the Jensen Park model. This model has been developed for flat terrain and essentially neutral thermal stratification. The formula given for kw essentially says that kw is equal to turbulence intensity. Thus, turbulence measurements could be used to test the validity of the calculation of kw.

For the assessment of the samples shown, it would be really interesting to learn something about thermal stability and overall turbulence intensity during these measurement periods. Maybe, this would be the clue to the overestimation or underestimation of the wake.

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