**WIND ENERGY SCIENCE DISCUSSIONS**

*Interactive comment on* "Wind Field Reconstruction from Nacelle-Mounted Lidars Short Range Measurements" *by* Antoine Borraccino et al.

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The authors present the experimental results of a strategy of Wind Field Reconstruction from two LiDARs Nacelle-Mounted measurements by comparing the estimated wind speed to a classical mast sensors (cup anemometer) measurement. The two LiDARs, namely a 5-beam Avent and a ZephIR Dual-mode, are able to collect several wind speed measurements at different distances and directions from the wind turbine. These measurements are used to identify the parameters of a wind field model (that includes the induction), by using a Damped Least-Squares method, which aims at minimizing the error between the Lidar measurements and the model prediction. The model is used to reconstruct the wind speed in several points, including the mast sen-

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sors positions (2.5 times the rotor diameter from the WT). This allows to compare the estimation to the measurements and to evaluate the performance of the reconstruction algorithm. The paper is well written and the topic is relevant. The Lidar, the wind and the induction models are explained clearly and in details, explaining the meaning of the parameters to be identified (WFC) and their impact on the model. The results are well detailed and discussed. Minor remark: The minimization problem and the optimization algorithm are just briefly described, in particular if compared to the model description. More details could be added or discussed in details, as the convexity of the problem and the impact of the algorithm tuning parameters (damping parameter or tolerance, for instance) on the algorithm results.

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