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Interactive comment on "Free flow wind speed from a blade-mounted flow sensor" *by* Mads Mølgaard Pedersen et al.

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Dear Antoine

Thank you for your comments, thoughts and questions.

You are probably right that the method is not suitable to characterise the mean power and load performance because a few percent of bias or uncertainty will change the life-time production considerably.

Looking at the single 10-min-mean observations , however, reveals that a large/huge range of values are observed at the same wind speed (see example in Fig. 1) because power and loads are also influenced by e.g. turbulence, mean wind speed variations within the rotor and the instant wind speed history. A blade-mounted flow sensor is

able to provide information about these factors and the measurements can thereby be used to characterise the inflow conditions that results in e.g. low power or high loads. Furthermore, the measurements can be used as input for aeroelastic simulations to improve the correlation between e.g. the measured and simulated loads.

Thank you for pointing our focus to your interesting paper.

You are certainly right - it is natural that the "reverse" approach counterbalances the forward approach, and that was why we did an effort to verify the method using the independent EllipSys3D/Flex5 approach.

This approach is, however, also a model, and similar to HAWC2, the EllipSys3d/Flex5 approach is also relying on the tabulated CL/CD-polars. Nevertheless, we have applied the method to measurements of a full-scale field campaign as well. The results are promising and have been submitted to Wind Energy Science in a separate paper.

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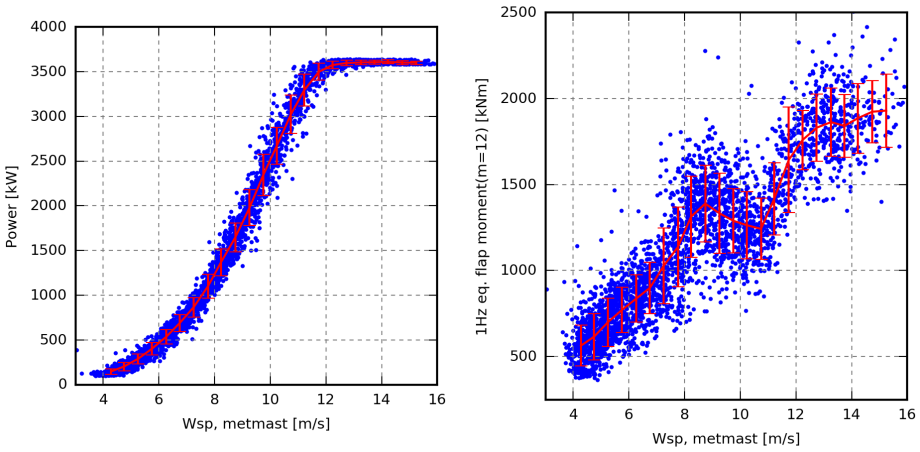

Fig. 1. Example of 10-min-mean power (left) and flap-moment fatigue load(right) measurements plotted as a function of met-mast wind speed.