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comment

Interactive comment on "Numerical airfoil catalogue including 360° airfoil polars and aeroacoustic footprints" *by* Manfred Imiela et al.

Anonymous Referee #2

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The manuscript submitted by the authors is in my opinion more an internal progress report than a scientific journal article. The manuscript includes 65 figures presenting results of numerical simulations in form of aerodynamic polars and acoustic spectra without critical analysis of the results. In my opinion, the manuscript lacks a clear objective and does not contribute new insights to our current state of knowledge on the aerodynamics or aeroacoustics of wind turbine blades. It merely serves as a database.

If it is the authors' sole purpose to provide a database of numerically obtained aerodynamic and aeroacoustic properties of wind turbine blades, I believe that they should still provide further justification on:

- their choice of Re and free stream velocity (why 40m/s?). How do these numbers

relate to relevant conditions encountered by wind turbines?

- the choice of turbulence intensity of 0.001. This does not seem to be a relevant level of turbulence intensity in the atmospheric boundary layer.

- why they consider a range of angles of attack of 360

- the use of RANS. As the authors state multiple times, their RANS calculations "suffer from severe converge problems" and do not capture the separation behaviour. While I understand the need for low order models to predict the aerodynamic and aeroacoustic behaviour of wind turbines blades for design and flow control purposes, the authors do not provide a sufficient argumentation how their RANS calculations can contributed to the derivation of improved low order models.

- the validity of their fusion approach and how they decide on when to select the results of one method in favour of the other. The authors validated their three numerical methods based on a single incomplete data set (p19: the exact procedure for obtaining the experimental values is unknown). They conclude that neither of the numerical approaches was superior to all the angles of attack and propose to combine results of the both method without justification nor validation of the result.

- the relevance of using 2D steady simulations to provide insight into an inherently unsteady 3D problem

Furthermore:

- the authors use a lot of abbreviations which they do not explain

- figures should be cited in the order in which they appear

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