

Interactive comment on “A simple improvement of a tip loss model for actuator disc and actuator line simulations” by Georg Raimund Pirrung and Maarten Paul van der Laan

Anonymous Referee #1

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A simple improvement of a tip loss model for actuator disc and actuator line simulations

This paper presents a possible improvement for Shen’s tip loss correction which takes into account tangential induction. The idea is interesting, however the explanations, derivations and results in the manuscript are unclear. The manuscript is also missing many important details. The following suggestions should be addressed before the manuscript can be considered for publication in WES.

It is difficult to assess the validity of the correction presented when it is only compared to another tip loss correction (Wilson and Lissaman).

There is no physical insight for why the new correction has a term “h”.

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A description of the actuator disk model is missing.

Actuator line model is mentioned but it is never used? I doubt that this correction would work on the actuator line model because it does not take into account the part of the tip vortex that is resolved. It seems the model will only work if there is no resolved tip vortex at all.

Derivation: The derivation presented is not clear.

I do not see how equation 5 comes from equations 3 and 4.

This sentence is unclear: “The change in inflow angle is identical with α ”

Table 1: Use the same number of significant digits.

Section 5.2 – This section is unclear. What is the difference between all these corrections, and which one should be used? All the results are quite different. What is the reference? Are results supposed to match the reference?

I’m sure that there is a physical insight to the model presented? Please describe this.

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