

The article concerns the analysis of the flow on an actuator disc, with the aim of understanding and analyzing the velocity distribution on the disc when applying the axisymmetric Joukowski rotor model for both wind turbine and propeller states. The background for the Joukowski model is that it assumes a constant circulation on the rotor disc, which makes the model very convenient as a simple means for rotor analysis. On the other hand, it may introduce some unwanted properties at small tip speed ratios (or high advancing ratios) if not treated properly. This has been the issue for discussions and the author has in earlier papers contributed to the understanding of the model. The present work is based on and is a continuation of the previous work, with the main original contribution being the understanding of the velocity distribution at small tip speed ratios and the difference observed when comparing wind turbine flows with propellers. The introduction gives an overview of previous work in order to explain the news of the present article, which among others thing include new computations of higher accuracy than what has previously been presented.

The overall analysis and conclusion are easy to understand. In particular, the analytical analysis in section 5 and its support by numerical results is excellent. Based on this, I have no problems in accepting the paper. However, there are some issues, shown below, I will ask authors to clarify:

- I don't understand the sentence (p6, line 146-149): 'The resulting flow has wake with constant radius, so $v_x = U_0$, $v_r = 0$ throughout the flow. In the wake $v_\phi = \Gamma/(2\pi r)$. The vortex sheet separating the wake from the outer flow consists of axial vorticity across which $\Delta H = \frac{1}{2} (\Omega R)^2$. The line $u_d = 1$ in Fig. 3 indicates this flow state.'
- What is written is not a flow state, but just the difference in vorticity between outside and inside of the wake. How can this be a flow state? And how can this be related to Fig.3? Please explain.
- I find it difficult to relate Fig. 4 to Fig.3. If it is a horizontal cut, then U_d must be a constant, which I doubt. If it is not horizontal, I suggest that the U_d -value is given for the various cases (a-e) to help the reader to better understand the figure. I fully aware that this not important as long as the different a-e situations represent different significant cases. But it can be somewhat confusing for understanding the figure.
 - Page 8 line 159: Here you introduce a $\gamma_1/U_0 = -2/3$, but we don't know what γ_1 is and why this is important. Would it not be more correct to show U_d/U_0 . Or is this the same? Please explain.