

Interactive comment on “Detailed Analysis of the Blade Root Flow of a Horizontal Axis Wind Turbine” by I. Herráez et al.

Anonymous Referee #1

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General comments: In this paper, the authors investigated the Himmelskamp effect and the origin of root vortex of a horizontal axis wind turbine by means of PIV and RANS. The RANS computed results show overall good agreement with the PIV measurements. The flow in the blade root region was analyzed in detail. The presented results are interesting and helpful for improving people’s understanding of the dynamics of blade root flow and developing advanced correction models to account for the three-dimensional effects when employing two-dimensional airfoil data .

Specific comments: 1. Is the nacelle modeled in the simulation? 2. Figure 9 shows that the computed radial velocity is much smaller than that from measurements. The other possible reason could be that the RANS model is not very accurate in predicting such flows.

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Technical corrections: 1. Is figure 10 from the RANS simulation or PIV measurements? 2. In figure 4, V_x denotes the axial velocity. On the other hand, x denotes chordwise direction in other figures, e.g. figure 10 and 11. This needs to be consistent. 3. Figures 4, 5 and 6: axes with titles, labels and ticks are needed.

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