2D Simulation of H-Darrieus type vertical axis wind turbine using transition turbulence model in OpenFOAM

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Abstract

Turbulence modeling is used to predict the airflow behavior past objects. Based on the type of flow conditions different turbulence models are available. Transition turbulence model is one such models which can be used for both laminar and turbulent flow conditions. This can be helpful in a situation where the airflow changes from laminar to turbulent and back continuously, like the airflow past wind turbines. A study on this is already performed using ANSYS in the paper 2D CFD Modeling of H-Darrieus Wind Turbines using a Transition Turbulence Model Rosario Lanzafame, Stefano Mauro*, Michele Messina Department of Industrial Engineering, University of Catania, Viale A. Doria 6, 95125, Catania, Italy, a similar environment is setup and a 2D model of flow around vertical axis H Darrieus type wind turbine is developed and analysed with the help of opensource tools.