

## CFD SIMULATION OF VERTICAL AXIS WIND TURBINE WAKE FLOW

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**Abstract.** Vertical axis wind turbines (VAWTs) are being intensively studied due to some advantages shown over the most common type of wind turbines, the horizontal axis wind turbines (HAWTs). In this work, the computational simulation of the interaction between the air flow and a Darrieus like vertical axis wind turbine is performed and analyzed. The wind turbine is assumed to be located inside a boundary-layer wind tunnel and the focus of this study is on its wake. The computational fluid dynamics (CFD) simulations of the VAWT for the complete coupling between the rotating rigid solid and the fluid flow is performed by using the Open source CFD toolbox OpenFOAM. The unsteady simulations are based on URANS turbulent calculations using sliding interface capability. The obtained results are compared with previous experimental work.

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