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# Dynamic Stall Regulation of the Darrieus Turbine

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## Abstract

A two-dimensional unsteady airfoil analysis is described which utilizes a doublet panel method to model the airfoil surface, an integral boundary layer scheme to model the viscous attached flow, and discrete vortices to model the detached boundary layers which form the airfoil wake region. This model has successfully predicted steady lift and drag coefficients as well as pressure distributions for several airfoils with both attached and detached boundary layers. Unsteady calculations have thus far been limited to attached flow situations. Instantaneous pressure distributions have also been obtained on a single-bladed rotor operating in a tow tank in order to provide experimental data for eventual comparison with analytical predictions.