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Aerodynamic Coefficients Prediction from Minimum Computation Combinations Using OpenVSP Software

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Abstract : OpenVSP is an aerodynamic solver developed by National Aeronautics and Space Administration (NASA) that allows building a reliable model of an aircraft. This software performs an aerodynamic simulation according to the angle of attack of the aircraft makes between the incoming airstream, and its speed. A reliable aerodynamic model of the Cessna Citation X was designed but it required a lot of computation time. As a consequence, a prediction method was established that allowed predicting lift and drag coefficients for all Mach numbers and for all angles of attack, exclusively for stall conditions, from a computation of three angles of attack and only one Mach number. Aerodynamic coefficients given by the prediction method for a Cessna Citation X model were finally compared with aerodynamics coefficients obtained using a complete OpenVSP study.

Keywords : aerodynamic, coefficient, cruise, improving, longitudinal, openVSP, solver, time
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