

Large eddy simulation of flow Separation Control over a NACA 2415 airfoil

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Abstract : This study involves numerical simulation of the flow around a NACA2415 airfoil, with a 15° angle of attack, and flow separation control using a rod. It involves putting a cylindrical rod in the upstream of the leading edge in order to accelerate the transition of the boundary layer by interaction between the wake behind the rod and the boundary layer. The viscous, non-stationary flow is simulated using ANSYS FLUENT .13 Our results show a substantial modification in the flow structure and a maximum drag reduction of 51%.

Keywords : CFD, Flow separation, Active control, Boundary layer, rod, NACA 2415.

Conference Title : ICEP 2014 : International Conference on Electronic Publications

Conference Location : journal city, WASET

Conference Dates : November 23-23, 2014