

ROLE OF COMPUTATION OF FLUID FLOWS IN THE DESIGN OF AEROSPACE VEHICLES

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Aerodynamic characterization of the configurations is crucial in designing any airborne vehicle, and this paper explains the role of fluid flow simulation in the design process. In recent years, computational fluid dynamic analysis has become an integral part of the aircraft design, right from the preliminary phase to certification and beyond. The basics of fluid dynamics and different simulation methodologies are presented in this paper while explaining the experience of CSIR-NAL in SARAS Mk II aircraft configuration design as a case study. The importance of CFD in aiding design choices and reducing wind-tunnel campaigns is high-lighted.

Keywords: Aircraft, Aerodynamics, Fluid flow simulations, CFD, RANS
