Simulation of Single and Twin Impinging Jets in Cross-flow of VTOL Aircrafts (Review)

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Abstract: When operating near the ground beneath a Vertical/Short Take-Off and Landing (VSTOL) aircraft a complex turbulent 3D flow is generated. This flow field can be represented by the configuration of twin impinging jets in a cross-flow. Studying these jets is a significant parameter for the design of VTOL aircraft. This flowfield during very low speed or hover flight operations is very complex and time dependent. An important number of experimental researches and simulations have been carried out to be able to understand much better these flows related with powered lift vehicles. Computational Fluid Dynamics (CFD) approach will be used in this paper work for simulation purposes of a single and twin impinging jet through and without crossflow.

Keywords: VSTOL, Impingement jet, CFD, Crossflow