

## Comprehensive Studies on the Aerodynamic Characteristics of Subsonic Scarf Inlets

**Authors :** M. Jegannath, V. Akshaya, B. Arunkumar, G. Lakshmi Soundharya, V. Thenmozhi, S. Varun, V. R. S. Kumar

**Abstract :** For scarf inlet design, the primary variable of interest is the circumferential extent over which the extended lower lip is formed. In this paper, an attempt has been made to optimize the aerodynamic shape of a subsonic scarf inlet with aerodynamically shaped center-body with a particular value of the circumferential extent. The parametric analytical studies have been carried out using a Spalart-Allmaras turbulence model. From our preliminary studies, we concluded that for a particular value of circumferential extent, there will be an exact shape of the center-body with certain geometric orientation for the existence of an aerodynamically efficient scarf inlet for modern aircraft engines. This numerical study is a pointer towards for the design optimization of scarf inlets for modern aircraft engines.

**Keywords :** aerodynamics of scarf inlets, inlet design, modern aircraft inlets, subsonic scarf inlet

**Conference Title :** ICAMAME 2017 : International Conference on Aerospace, Mechanical, Automotive and Materials Engineering

**Conference Location :** Kuala Lumpur, Malaysia

**Conference Dates :** August 24-25, 2017