www.onera.fr

ONERA
THE FRENCH AEROSPACE LAB

PROPOSITION DE STAGE EN COURS D'ETUDES

Référence : **DAAA-2025-08**
(à rappeler dans toute correspondance)

Lieu : Meudon

Département/Dir./Serv. : DAAA/AMES

Tél. : +33 1 46 23 51 66

Responsable(s) du stage : Nicolas Rembaut

Email. : nicolas.rembaut@onera.fr

DESCRIPTION DU STAGE

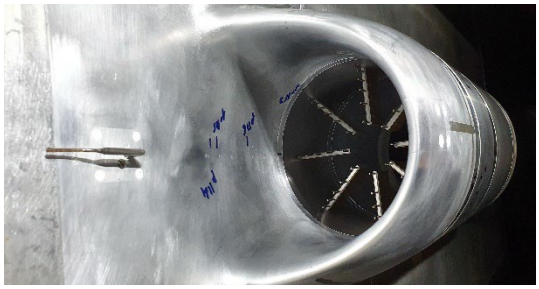
Thématique(s) : Aérodynamique

Type de stage : ☐ Fin d'études bac+5 ☒ Master 2 ☐ Bac+2 à bac+4 ☐ Autres

Intitulé : Experimental characterization of distortion in a semi-embedded engine intake

Sujet : As part of efforts to reduce fuel consumption and aircraft noise, the NOVA project by ONERA is exploring new technologies, including boundary layer ingestion (BLI). This technology involves partially integrating the engine nacelles into the fuselage, which reduces viscous drag and improves propulsive efficiency. The deceleration of the airflow caused by the boundary layer development reduces the power required to accelerate the flow, thereby lowering fuel consumption. This could potentially lead to a 5 to 10% reduction in fuel consumption.

However, heterogeneous airflow entering the engine can diminish this gain. An experimental campaign has been conducted as part of the SUBLIME project to characterize the distortion of the airflow in a semi-buried air intake. Based on the data already acquired and a new test campaign supplemented with PIV measurements, the intern will participate in conducting the tests, processing, and analyzing the data, as well as cross-referencing various data sources.



The intern will specifically:

-Discover the experimental facilities,

-Participate in particle image velocimetry (PIV) tests,

-Contribute to the analysis of experimental data and processing.

Experience in PIV image analysis is preferred.

Rembaut, N., Atinault, O., & Brion, V. (2023). Experimental characterization of flow distortion in a semi-embedded engine intake for boundary layer ingestion application. In AIAA AVIATION 2023 Forum (p. 3255).

Est-il possible d'envisager un travail en binôme ? **Non**

Méthodes à mettre en oeuvre :

☐ Recherche théorique ☒ Travail de synthèse

☐ Recherche appliquée ☐ Travail de documentation

☒ Recherche expérimentale ☐ Participation à une réalisation

Possibilité de prolongation en thèse : **Non**

Durée du stage : Minimum : 4 mois Maximum : 6 mois

Période souhaitée : Avril 2025

PROFIL DU STAGIAIRE

Connaissances et niveau requis :	Ecoles ou établissements souhaités :
Fluid dynamics, data analysis, experiments	Engineering school, Master, University