CALL FOR PAPERS

3AF
Association Aéronautique
et Astronautique de France

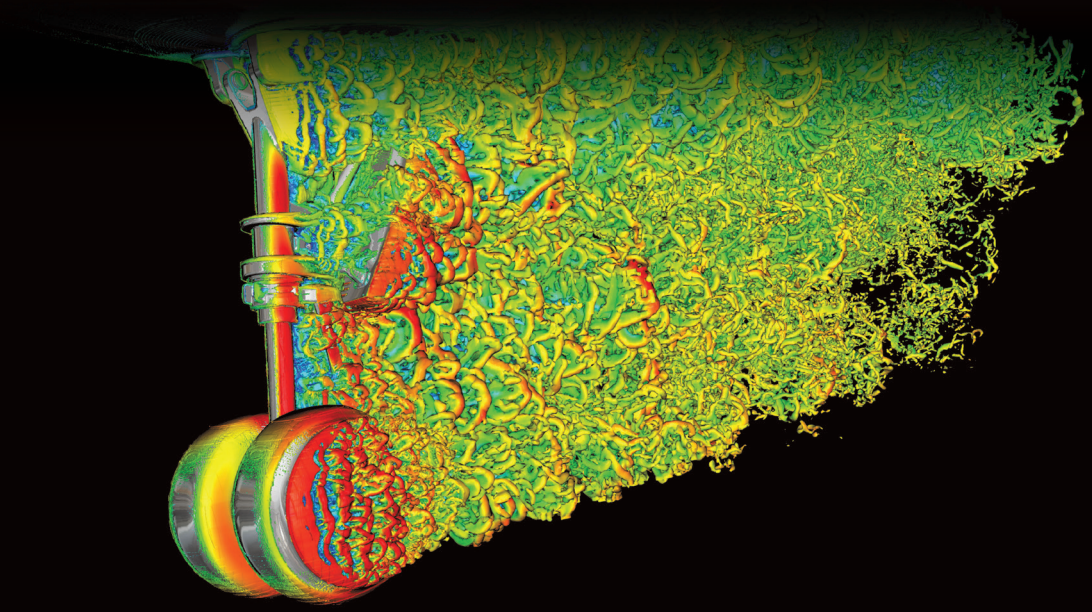
59th 3AF International Conference on Applied Aerodynamics

Unsteady Flows

Recent developments and applications

Strasbourg, France – March 24-25-26, 2025

www.3af-aerodynamics.com



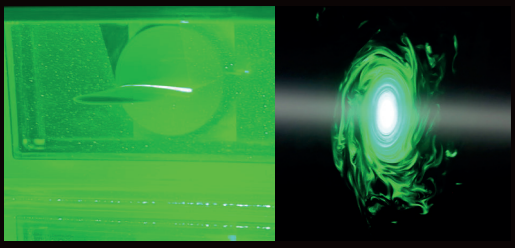
WMLES of a landing gear using Immersed Boundary Condition - Credit ONERA

Université de Strasbourg · ICUBE · La Région Grand Est · CEAS Council of European Aerospace Societies · AIAA Shaping the Future of Aerospace · Royal Aeronautical Society

CALL FOR PAPERS

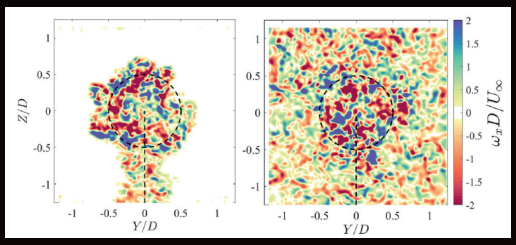
Communication abstracts (300 to 500 words, preferably with figures) have to be mailed to the 3AF Executive Secretary before **November 12, 2024**.

The Scientific Committee will inform the authors of acceptance by **December 09, 2024** at the latest.



Wing tip vortex - Credit ONERA

OFFICIAL LANGUAGE & PUBLICATIONS



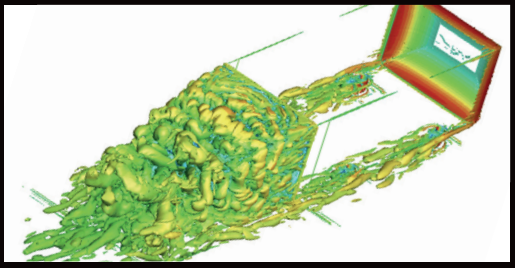
Wind turbine wake w/o and w/ external turbulence - Credit PRISME

Papers must be submitted and presented in English. The written version of the communications will be in English and must be sent to the 3AF Executive Secretary (aero.conf@3af.fr) before **March 03, 2025**, to allow their insertion in the conference proceedings. A 3AF template file will be provided for the preparation of the manuscript.

Authors of the most instructive contributions will be invited to submit an extension of their works for possible publication in a special issue of an international journal. This special issue dedicated to the theme "Unsteady Flows" does not constitute the proceedings of the conference. Each submitted paper is reviewed by Guest-Editor-in-Chief and Advisory Editor of the journal. If the article is judged suitable for publication, it will be sent to at least two independent referees for peer review with the rigorous expertise process of the journal. Authors are however free to publish their paper in any other journal, a reference to the conference being then appreciated.

CONFERENCE DEADLINES

Abstract submission:	**November 12, 2024**
Paper acceptance:	**December 09, 2024**
Full length paper:	**March 03, 2025**
Conference in Strasbourg:	**March 24-26, 2025**



Wake of road vehicle - Credit PRISME

CONFERENCE SECRETARIAT COORDINATES

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3AF
Association Aéronautique et Astronautique de France

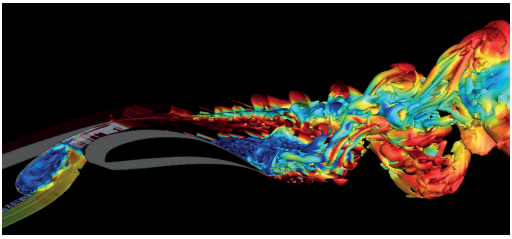
UNSTEADY FLOWS

The 3AF International Conference on Applied Aerodynamics focuses each year on a different topic that is representative of the present concerns in the field of aerodynamics. **In 2025, the conference will focus on unsteady flow phenomena** which are critical across various fields of aerodynamics. They have a significant impact on the external aerodynamics of aircraft and helicopters, the internal aerodynamics of propulsion systems and play a crucial role in the performance of missiles, launch and ground vehicles under critical conditions.

Recent years have seen remarkable progress in our understanding and modelling of unsteady flows. The development of advanced computational tools and high-fidelity simulations has revolutionised our approach, allowing us to address these phenomena at a fundamental level. Modern computational and experimental methods now enable us to capture the transient behavior of unsteady flows with unprecedented accuracy, providing deeper insights and more reliable predictions.

This conference aims to highlight the most recent developments and their applications across various fields. We will explore how advanced computational techniques and experimental methods are being used to address complex unsteady flow challenges in aerospace (both military and civil), in transportation, and in energy.

This 59th Edition is organized by the 3AF Technical Committee "Aerodynamics" will be hosted by the ICube Laboratory of Strasbourg University.



Innovative Detached Eddy Simulation - Credit ICUBE

APPLICATION DOMAINS

- **Aircraft** (fixed-wing, morphing wing, control surfaces, landing-gear, engine-airframe integration, air intake...)
- **Rotorcraft** (helicopters, tilt rotors) and Urban Air Mobility vehicles (drones, eVTOLs)
- **Turbomachinery** and **Propulsion Systems** (gas turbines, compressors, fans, propellers)
- **Space Launchers**
- **Ground Vehicles** (automotive, train)
- **Maritime Vessels** (ship hull, sails)
- **Wind Energy and Industrial Buildings** (wind turbines, ventilation systems, heat exchangers)

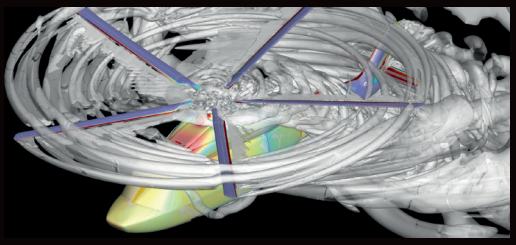
KEYNOTE SPEAKERS

Prof. Olivier **CADOT**	Liverpool Univ. (UK)
Dr. Jeffrey **CROUCH**	Boeing (USA)
Prof. Grigorios **DIMITRIADIS**	Liège Univ. (B)
Dr. Jérôme **HUBER**	Airbus (F)
Dr. Arnaud **LE PAPE**	ONERA (F)

MAIN TOPICS

The following items will be considered to address the above challenges (the list not being exhaustive):

- Aerodynamic design and optimization
- Take-off, Landing and off-design conditions (Gust, buffet...)
- Surge effects, reignition
- Transition prediction and control
- Flow separation and control
- Loads and vibro-acoustics environments
- Flight Stability & Control
- Aeroacoustics and noise reduction
- Flow-structure interaction, unsteady loads and aeroelastic effects (e.g. flutter, LCO)
- Unsteady heat transfer, flow simulation coupled with heat transfer models
- Experimental techniques for unsteady flows: Wind tunnel tests, visualization and measurement
- Numerical methods for unsteady simulations (CFD, High-performance computing...)
- Turbulence modelling for unsteady flows (multi-scale modelling, URANS, hybrid RANS-LES, LES...)
- Uncertainty quantification in simulations
- Data-driven methods and Machine Learning applications in unsteady flows



Vortex flow from rotor in 6DoF forward flight - Credit Airbus Helicopters

EXECUTIVE SCIENTIFIC COMMITTEE

Abderrahmane **BAÏRI**	Paris Nanterre University
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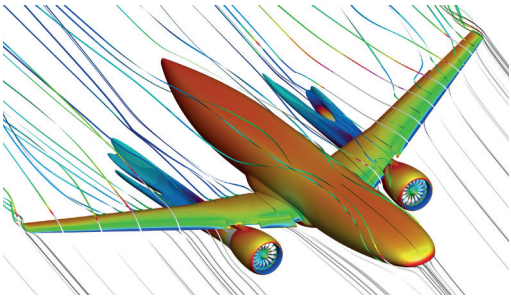
Philippe **SPALART**	Boeing Commercial Airplane (retired)

SCIENTIFIC COMMITTEE

Members of the 3AF Aerodynamics Technical Committee



Unsteady simulations of an aircraft in take-off conditions with installed engine and rotating fan · Credit ONERA

CONFERENCE LOCATION

Siège du Conseil Régional Grand Est

1, Place Adrien Zeller
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www.grandest.fr

Université de Strasbourg

ICUBE

La Région Grand Est

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