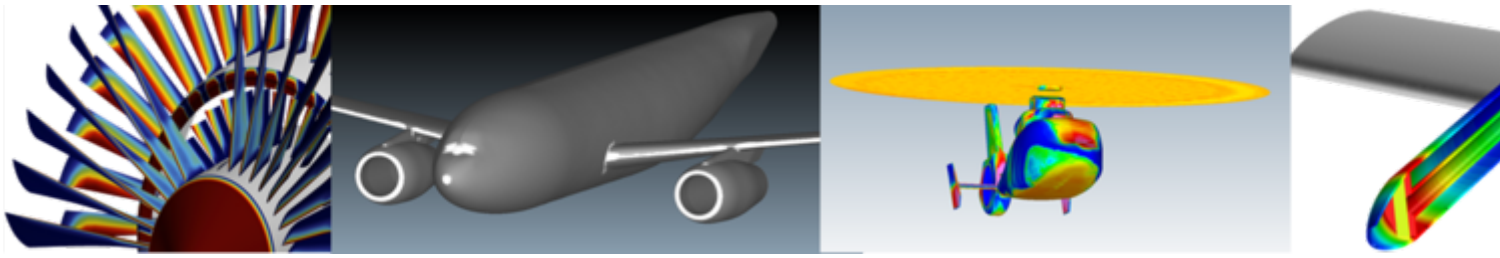
Simulation Methods Used for the In-flight Icing Certification of Aircraft, Rotorcraft and Jet Engines



By instructors who have teamed up on certification projects and published scientifically together !

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For an aircraft, rotorcraft or jet engine to obtain a type design certification, it must be demonstrated that it can sustain safe flight into known or inadvertent icing conditions. OEMs thus embark on complex icing certification campaigns that involve Computational Fluid Dynamics (CFD), wind and icing tunnel testing (Experimental Fluid Dynamics – FFD), prior to final demonstration of compliance through Natural Icing Flight Testing (Flight Fluid Dynamics – FFD).

Modern 3D CFD-Icing methods, working as a direct extension of current 3D CFD-Aero technologies, have become an indispensable, if not a primary tool, in the certification process. Using “realistic” 3D icing simulations, based on modern highly validated models, allows the inclusion of icing requirements at the aerodynamic design stage, a more comprehensive exploration of the combined aircraft/icing envelopes, optimized ice protection system design, and targeted/focused/reduced wind and icing tunnels and flight tests. The end result is a safer product that is faster to certificate.

The course illustrates the state-of-the-art of 3D CFD applications in icing simulations and links theory to application by demonstrating how an integrated CFD + EFD + FFD approach provides a cost-effective aid-to-design-and-to-certification, when made part of a well-planned compliance plan.

The course is structured to be of equal interest to aerodynamicists, icing, environmental systems and flight simulation engineers, regulators and Designated Engineering Representatives.

Detailed knowledge of CFD is not essential. The lectures cover the major aspects of in-flight icing simulation, ice protection system equipment, handling quality issues, as well as current (APP C) and upcoming (APP D & O) icing certification regulations.

The instructors bring an amalgam of knowledge, as scientists who have produced codes in current use and practicing engineers with experience in cost-effective methods for the certification of aircraft for flight into known icing conditions.

Attendees will be provided with a very large and detailed set of notes, refreshed annually with the latest technological advances. The number of attendees may be limited, so come and meet the who's-who of the aerospace industry.

Social Activity:

On the evening of Thursday - 11th of December

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Materials

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There will be given full lecture notes.

For more details please see the broshure

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

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