

STS 07

Progress in Simulation and Validation of High-Lift System Aerodynamics

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Session Abstract

Keywords: *High-lift aerodynamics, flow separation control, high-lift system design*

The aerodynamics of high-lift systems on transport aircraft still poses high challenges on the capabilities of numerical simulations. While the demand on accurately predicting stall onset is still not achieved to a sophisticated level, new challenges arise with the progress on active flow control technologies and load control.

Previous issues of this STS have concentrated on progress in European projects performing and using high-level validation experiments for steady flows at stall onset. This issue of the STS is intended to provide insight into activities tackling the improvement of simulation capabilities for current challenges of high-lift system development, as there are:

- progress in high-lift system design for laminar wing technology;
- unsteady phenomena of high-lift system aerodynamics during high-lift system deployment;
- usage of high-lift systems for dynamic load control in low speed flight regime;
- simulation of dynamic active flow control for stall performance improvements.

Contributions are expected from running international research projects governed by Horizon 2020 Research and Innovation Actions, contributions to Clean Sky 2, as well as other national and international cooperation activities.

The following papers and speakers are foreseen:

Design and Testing a Full Scale Laminar Wing Leading Edge High-Lift System

Jochen Wild, DLR, Salvatore Palazzo, CIRA, Ionut Brinza, INCAS

Unsteady CFD Results for Deflecting High-Lift Systems

Stefan Wallin, KTH Stockholm, Pierluigi Iannelli, CIRA, Ales Prachar, VZLU, Jorge Ponsin, INTA

A 2D Validation Experiment for Dynamic High-Lift System Aerodynamics

Jochen Wild, DLR, Moritz Schmidt, Antoon Vervliet, ASCO, Geoffrey Tanguy, Cranfield University

Active Flow Separation Control on a Generic UHBR Engine High-Lift Configuration by Means of Suction and Oscillatory Blowing

Junaid Ullah, Univ. Stuttgart, Aleš Prachař, VZLU, Vitaly Soudakov, TsAGI, Avraham Seifert, Tel Aviv Univ., Thorsten Lutz, Ewald Krämer, Univ. Stuttgart