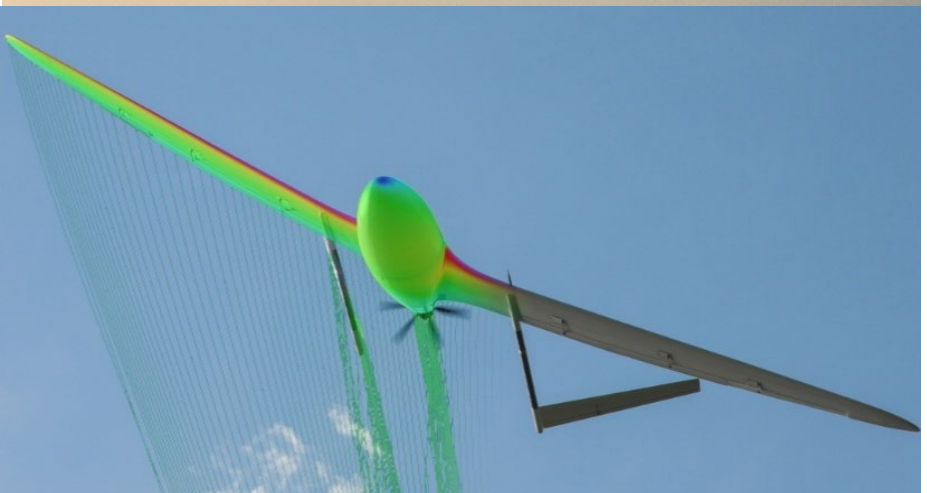
School of Engineering

Welcome to the Centre of Aviation

School of Engineering
15th June 2026

Prof. Dr. Michel Guillaume

The Centre for Aviation



Vision

The Centre for Aviation is the leading **competence center for manned & unmanned aviation** among the institutions of higher education at tertiary level in Switzerland and beyond.

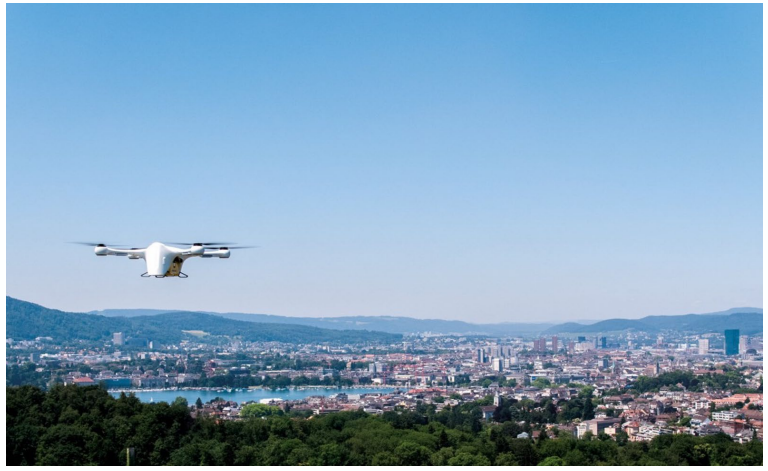
Mission

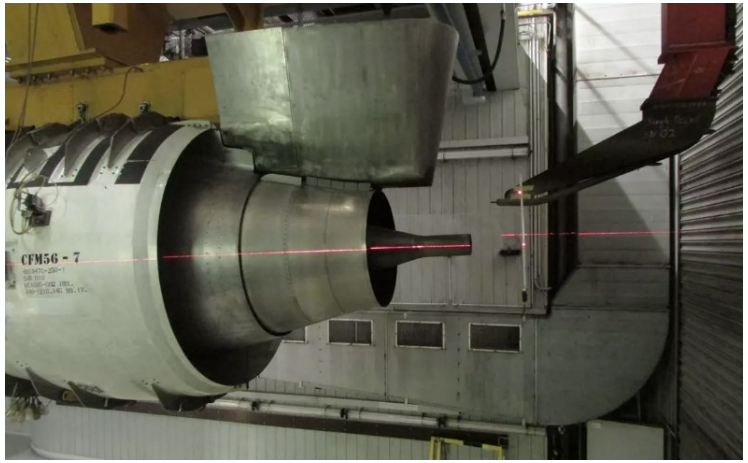
The Centre for Aviation supports the National and European aviation industry in the implementation of future-oriented projects. With its **interdisciplinary competencies** and outlook, the Center for Aviation **promotes sustainability in aviation**.

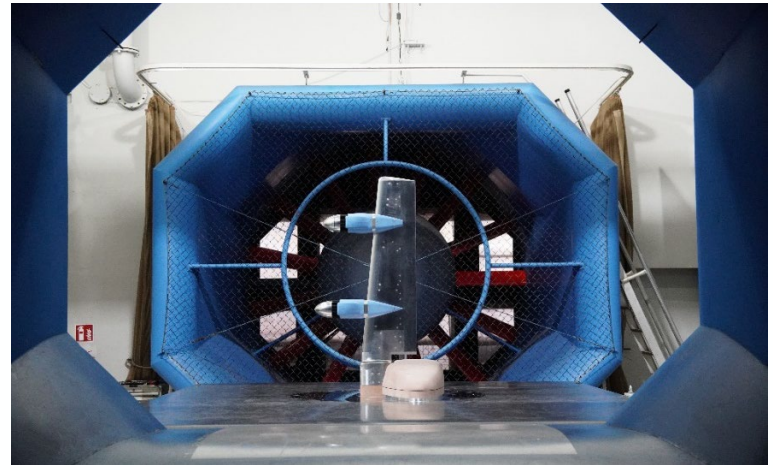
Humans in Safety Cricital Systems

Aviation Infrastructure and Atmospheric Research

Air Vehicle Design and Technology







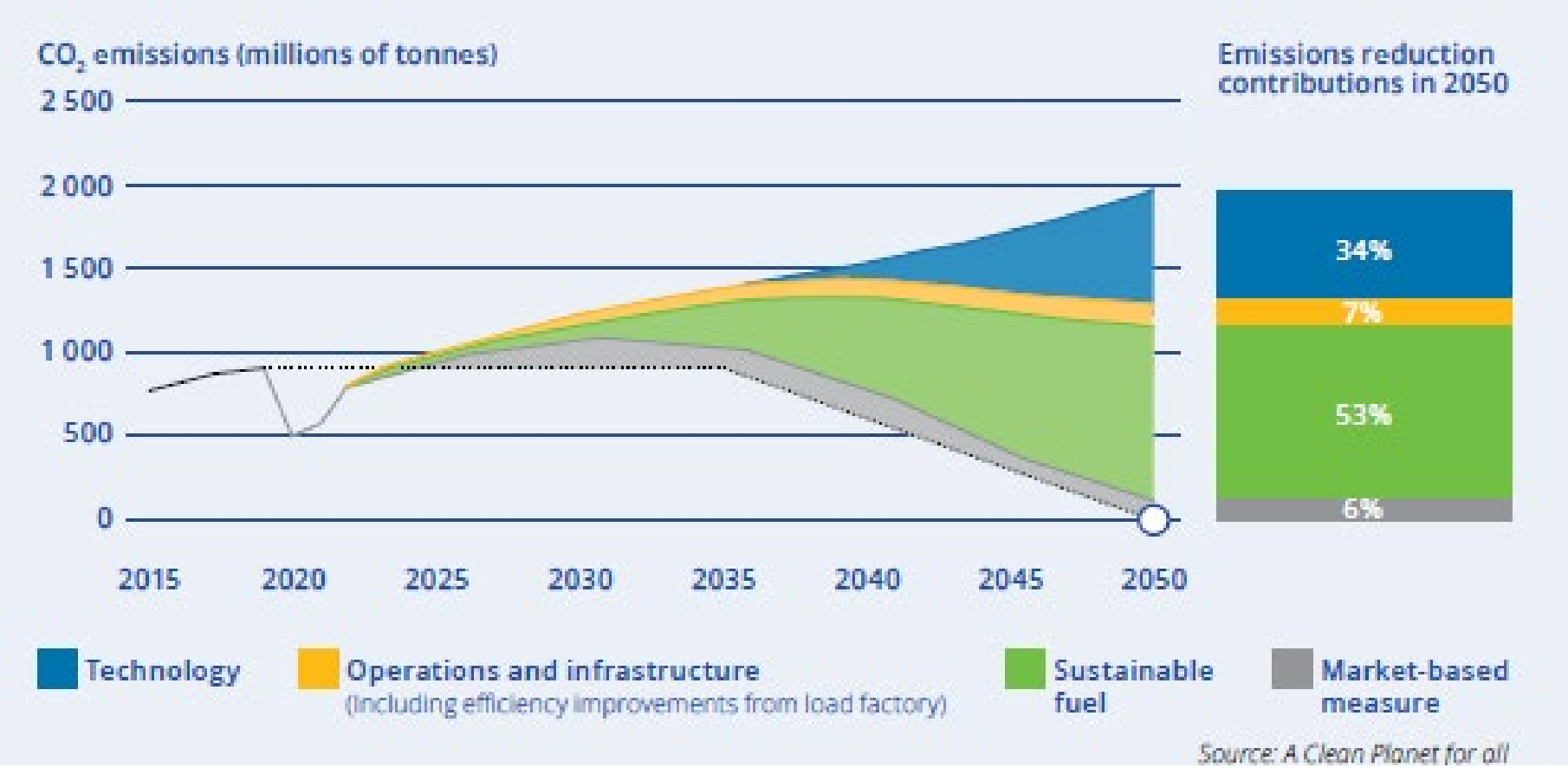
Sustainable Aircraft

More than 50 Years of Aircraft Evolution

Do we need new Aircraft Configurations?

Prof. Dr Michel Guillaume

Forecast 3 to 4 % Annual Air Traffic Growth

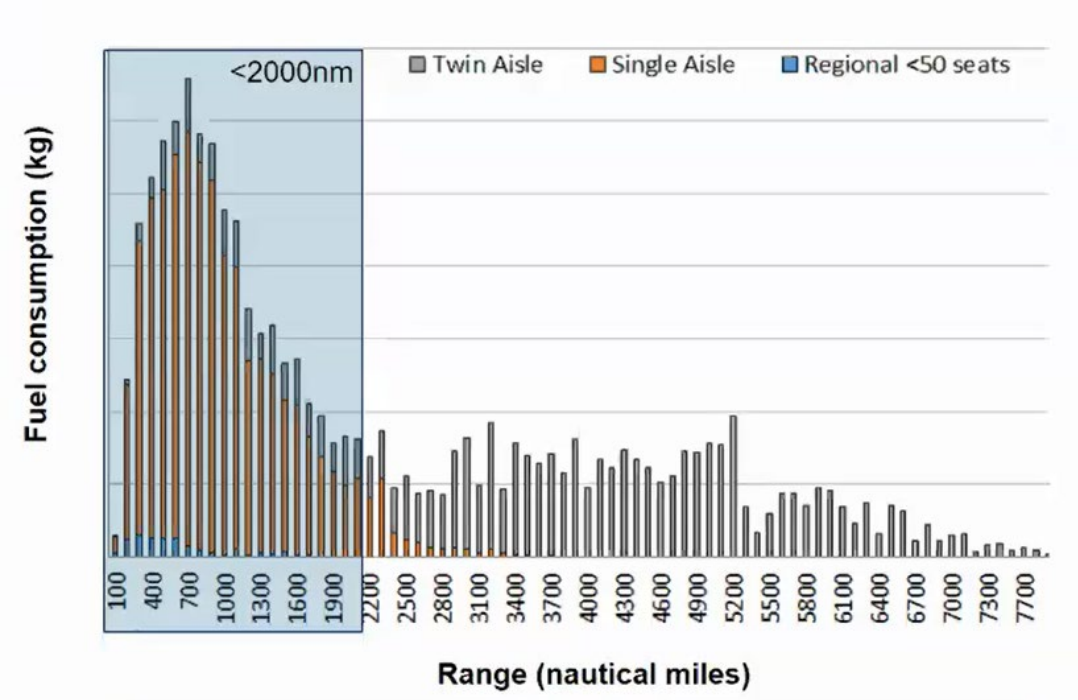


Fact Emissions will increase from 1000 $MTCO_2$ to 2000 $MTCO_2$ by 2050

Aviation would be a major Contributor to Global Warming!

Major Contributor of Fuel Consumption

Aircraft operations up to 2‘000 Nm causes 58% of the CO_2 Emissions



This trend will even increase further by 2050

Three Aircraft Concepts for Short Range (EIS by 2040)

Sustainable Aviation Fuels

Hydrogen

Electric

Baseline with new Technology

Baseline Aircraft :
D70-840-2040 (D70-BL)

Energy: SAF (Synth. Air Fuels)

Fuel Cell with Hydrogen

Fuel-Cell Aircraft:
D70-FC10-2040 (D70-FC)

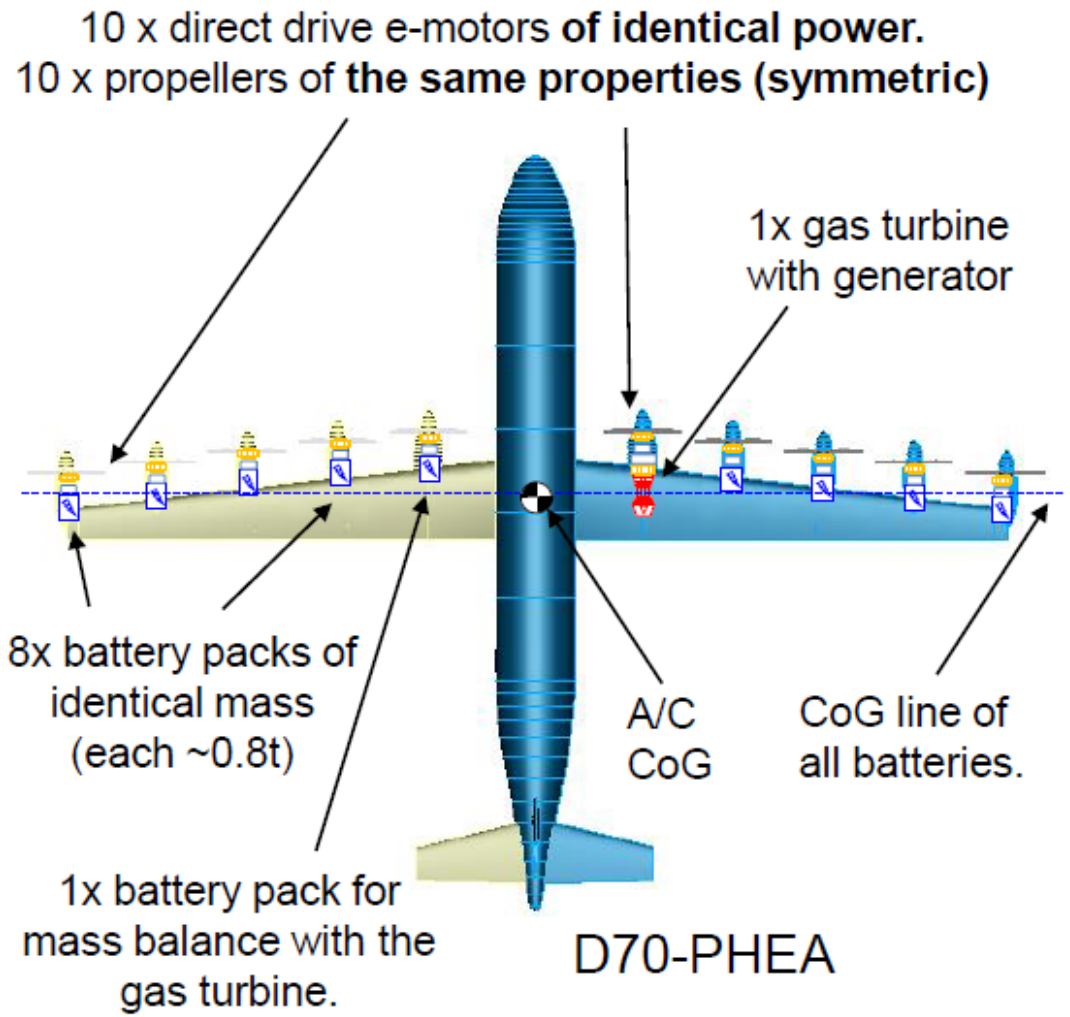
Energy: LH2

Plug-In Hybrid Electric

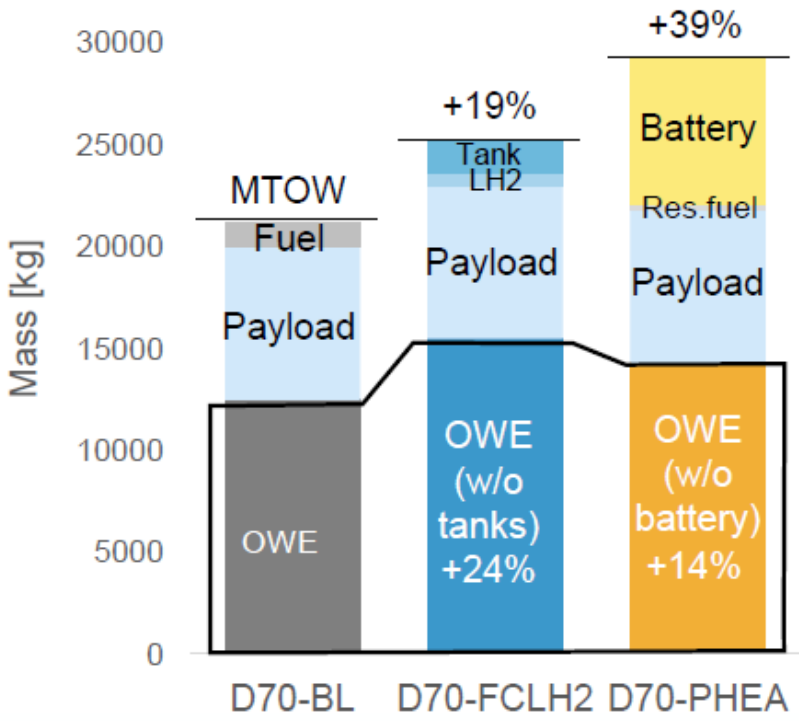
Plug-In Hybrid-Electric Aircraft :
D70-PHEA-2040 (D70-PHEA)

Energy: Electric + SAF

Real Challenges: Research to build Demonstrators are needed



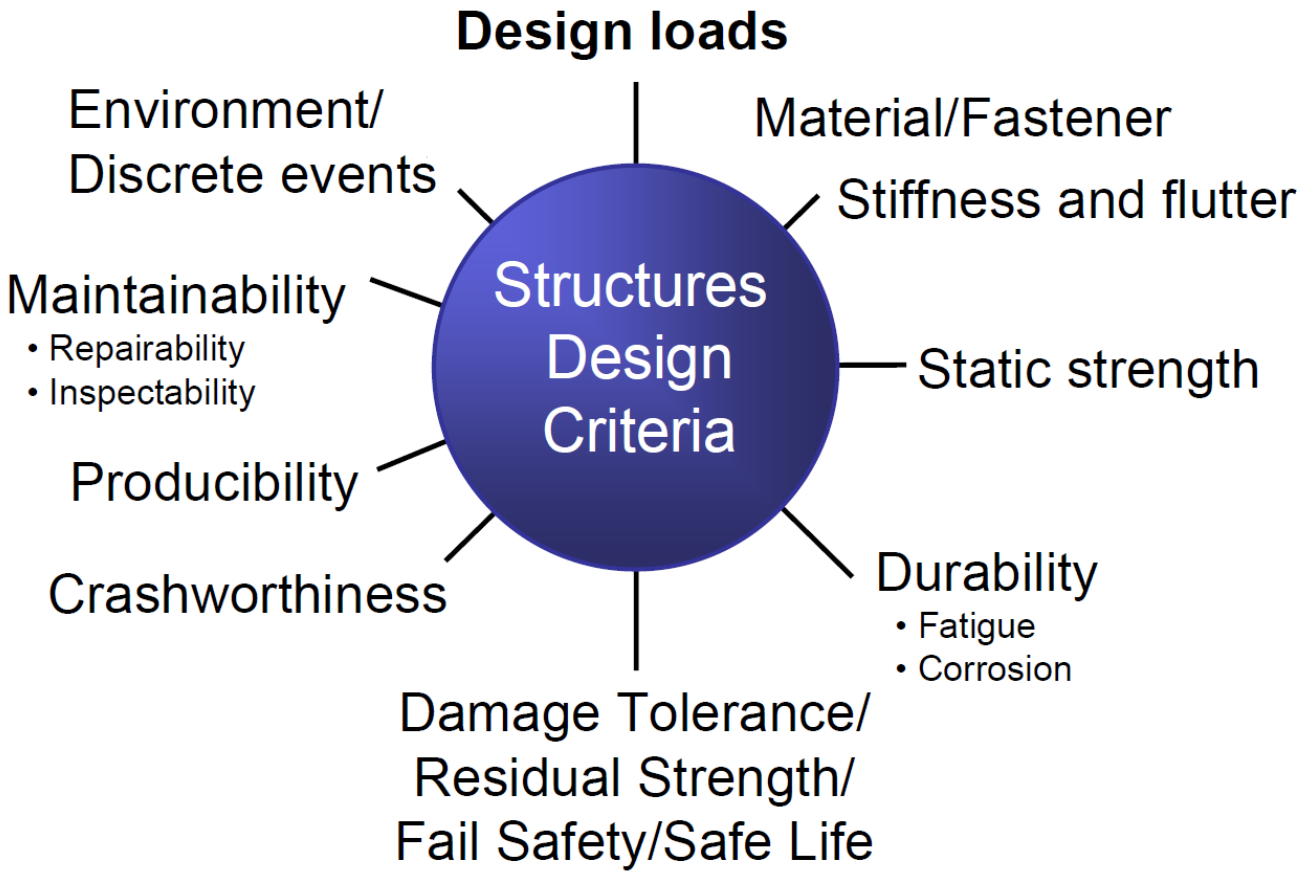
Max Take Off Weight (MTOW)

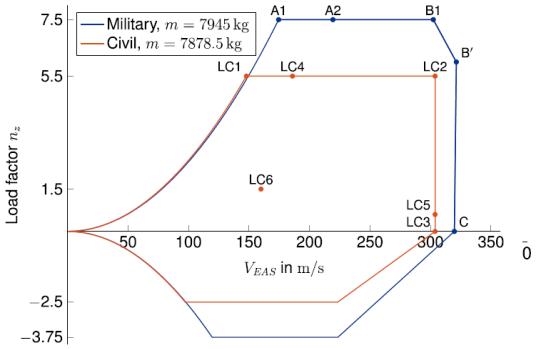


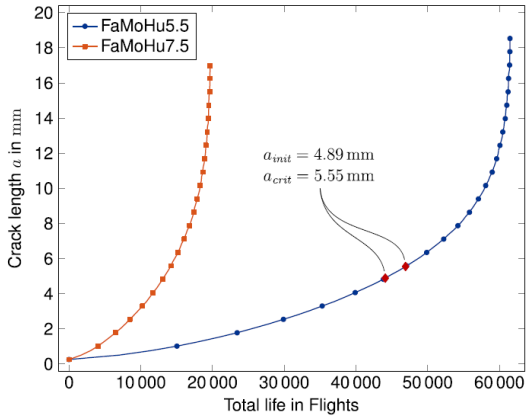
Emission Measurements for ***Sustainble Aviation***

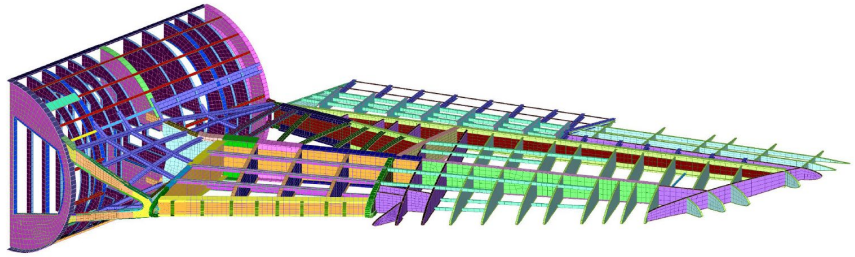
Measurement Campaigne at Stans for Pilatus PC-24

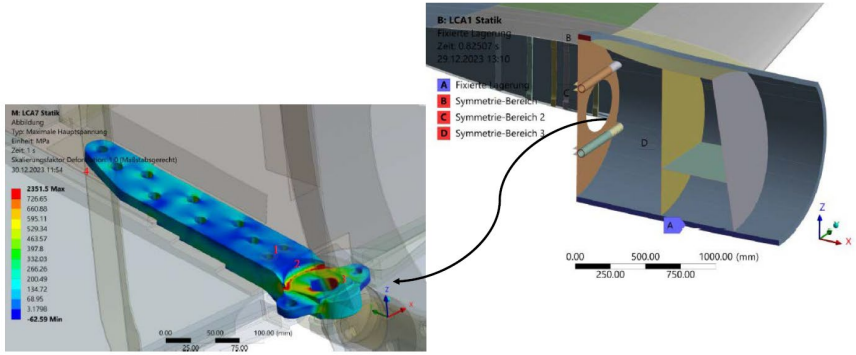
Structural Integrity (Corrosion, new materials, digital design)











Thank very much

Have a great Meeting with Sucess