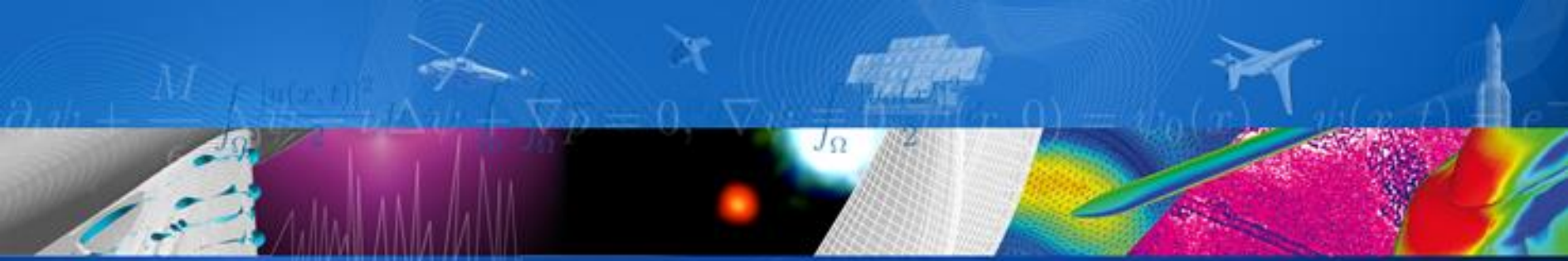

ONERA–Lille Center

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retour sur innovation

A Piece of History

Institute of Fluid Mechanics of Lille (created in 1929)
(A. Caquot - J. Kampé de Fériet)

A Piece of History

Creation of ONERA and integration of IFML: 1946

IFML moved back to Lille University: 1950

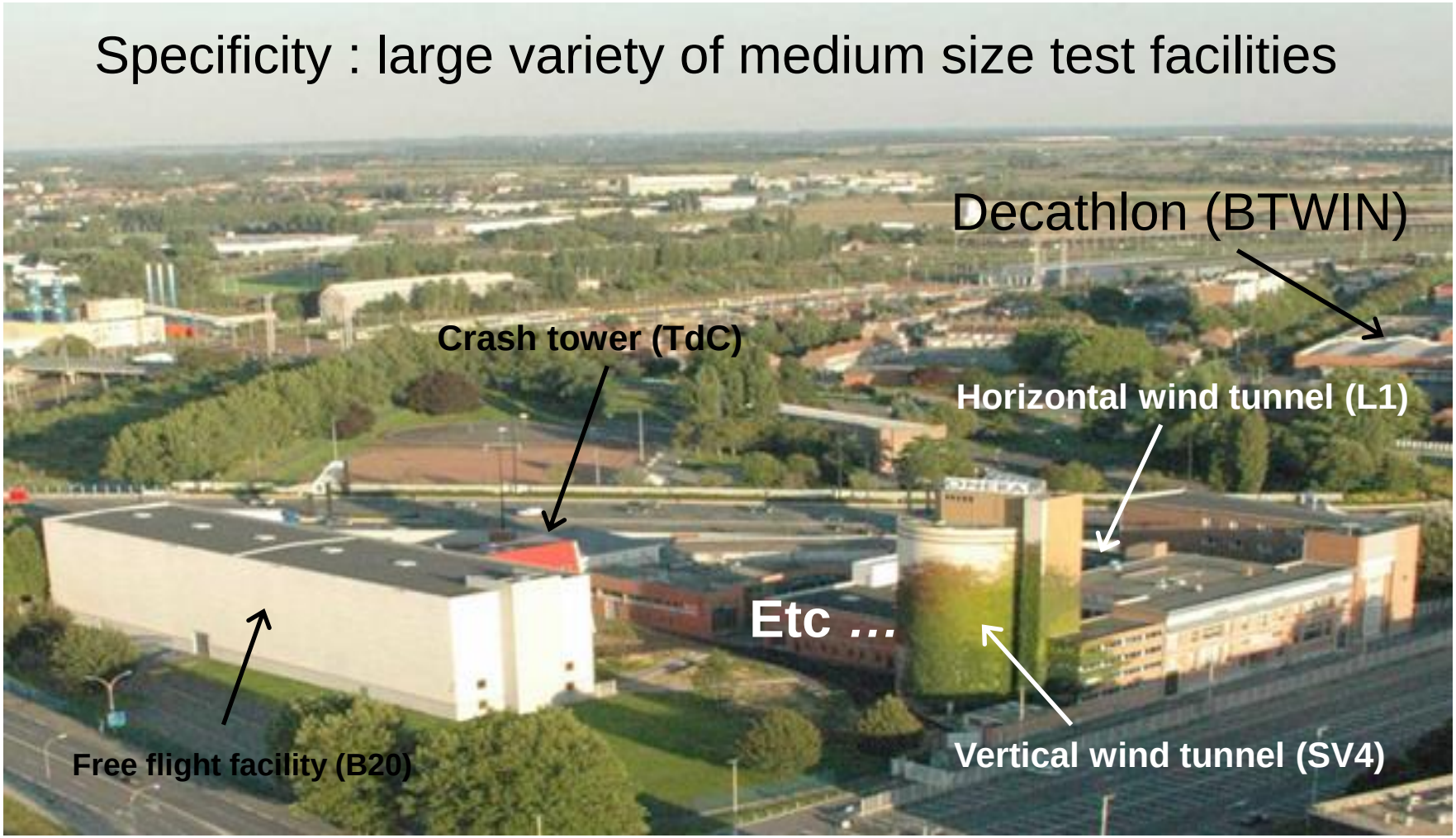
IFML back to ONERA and MoD: 1983 – 8 ONERA Centers

ONERA reorganisation in Scientific Departments: 1997, IFML officially becomes …

ONERA-Lille Center

ONERA Departments have been re-organised in 2017 : 7 iof 17

Aerial View of the actual OLC Site Lille



General Organisation of ONERA-Lille Center

Scientific Research Units (2) and Design Office (incl. workshops) belonging to larger technical (national) Departments

AAAD/EFL – Fluid & Flight Mechanics (DAAA)
Applied Aerodynamics Department
Experimentation and Flight Limits (ELV)

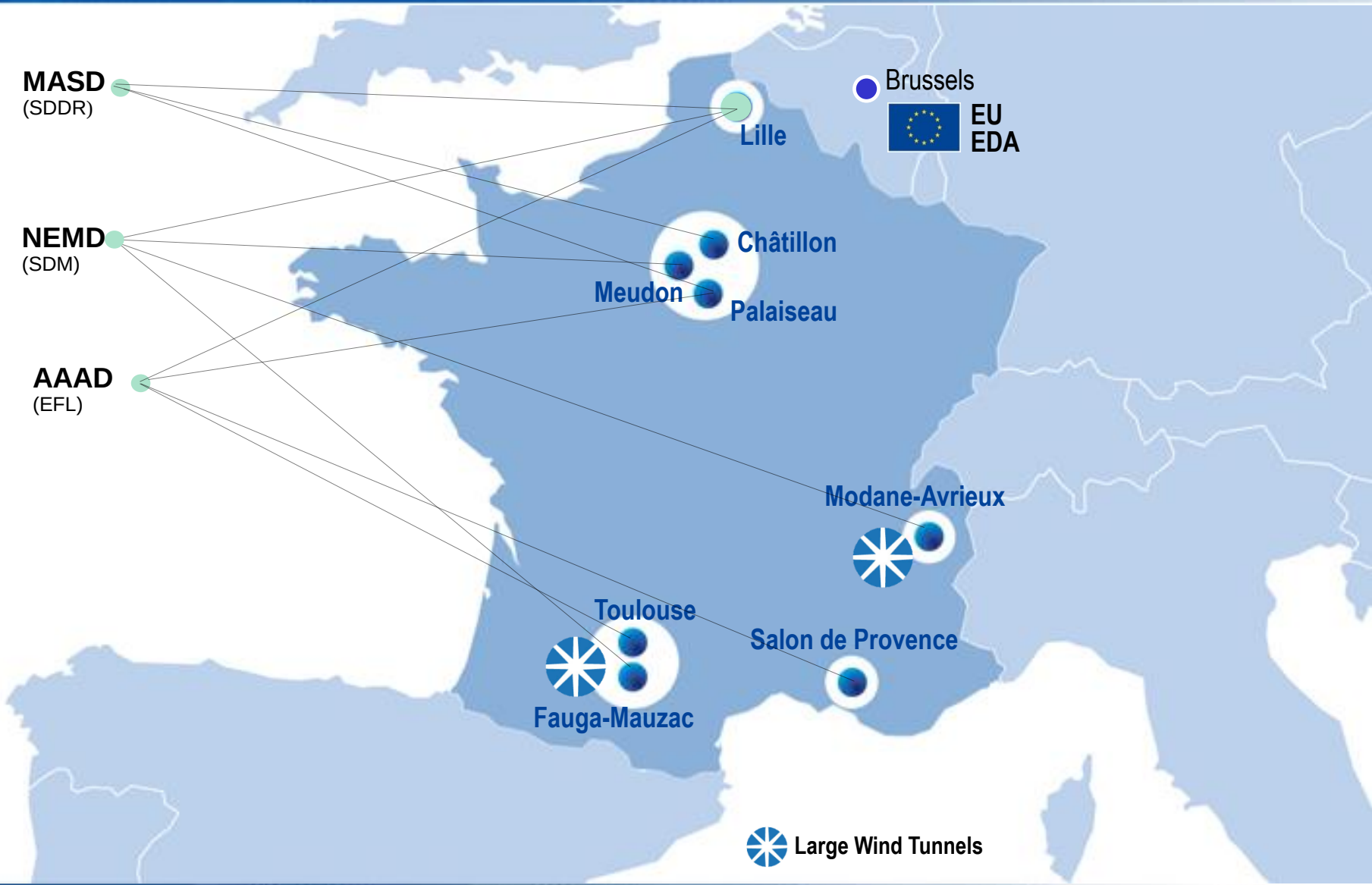
MASD/SDDR – Structural Mechanics (DMAS)
Materials & Structures Department
Structural Design and Dynamic Resistance (CRD)

NEMD*/SDM – Design and Manufacturing of Scale Models (DSIM)
Model Aircraft Manufacturing and Instrumentation Departement
Specific Devices and Scale Models (DMS)

Total staff (incl. administrative services): # 80 people

Budget/turnover: 10 M€ HT / year

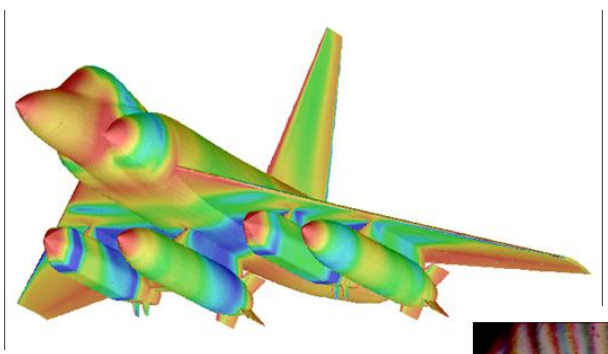
Connected with all ONERA Centers since 1997

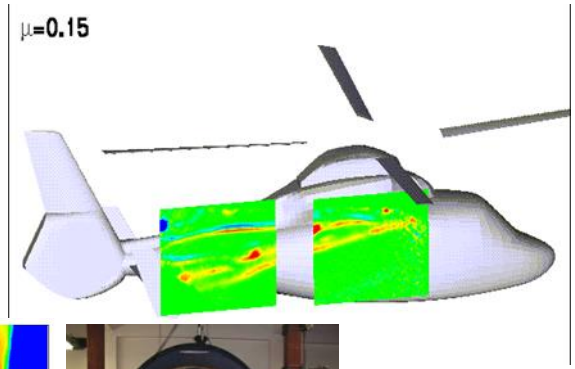


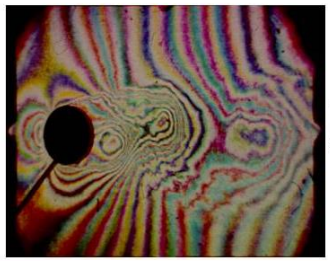
Experimentation & Flight Limits (1/2)

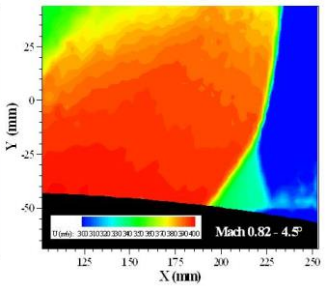
AAAD/EFL – Fluid Mechanics:

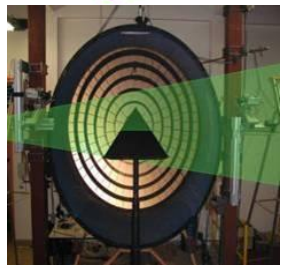
- # 25 people research unit, incl. #1-3 PhD, working in …
- Various test means / codes : wind tunnels, hydrodynamic pools / elsA, Fluent
- Mechanical measurement techniques : Wind tunnel aerodynamic balance
- Optical measurement techniques: laser based PIV, interferometry, strioscopy
- Customers & applications: EU, DGAC, DGA, Dassault Aviation, Airbus, SAGEM, THALES, local PME-PMI …







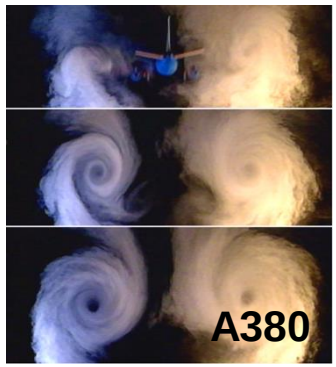


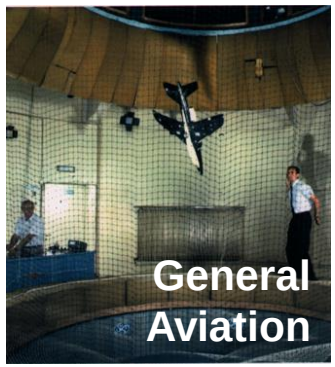


Experimentation & Flight Limits (2/2)

AAAD/EFL – Flight Mechanics:

- Free flight facilities : horizontal catapult & UAV aviary, vertical wind tunnel in forced motion configuration (using aerodynamic balance)…
- Optical measurement techniques: laser based PIV (Particle Image Velocimetry)
- Customers & applications: EU, DGA, DGAC, Dassault Aviation, Airbus …

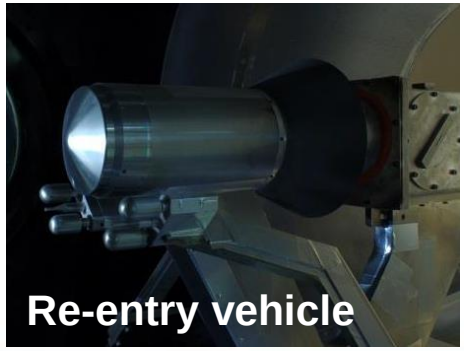




Specific Devices & Models

NEMD/SDM – Design and Manufacturing of Scale Models:

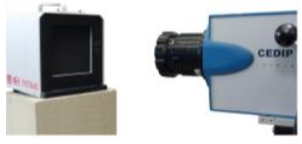
- #15 people design office (+ workshops)
- A Variety of manufacturing tools & means: CAO, CAD, oven (composites), high speed prototyping machine, machining tools
- Blades, aircraft & space instrumented scale models (e.g. incl. balance, actuators …)
- Customers & applications: EU, ONERA, Airbus, Dassault-Aviation …

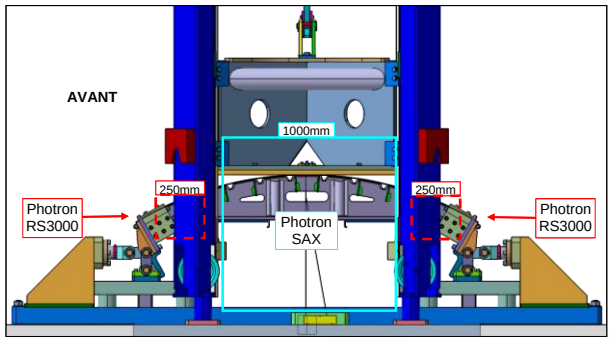


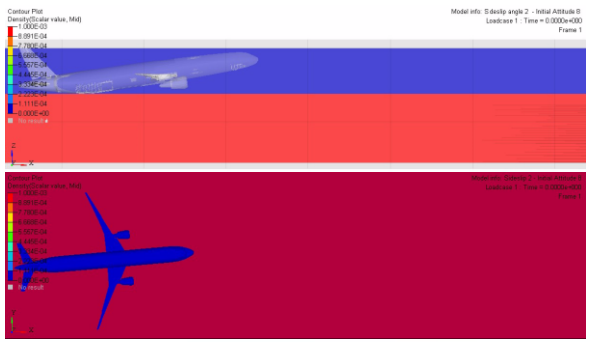
Design and Dynamic Resistance of structures

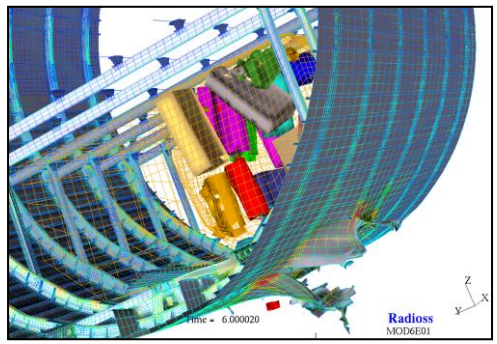
MASD/SDDR – Structural Mechanics:

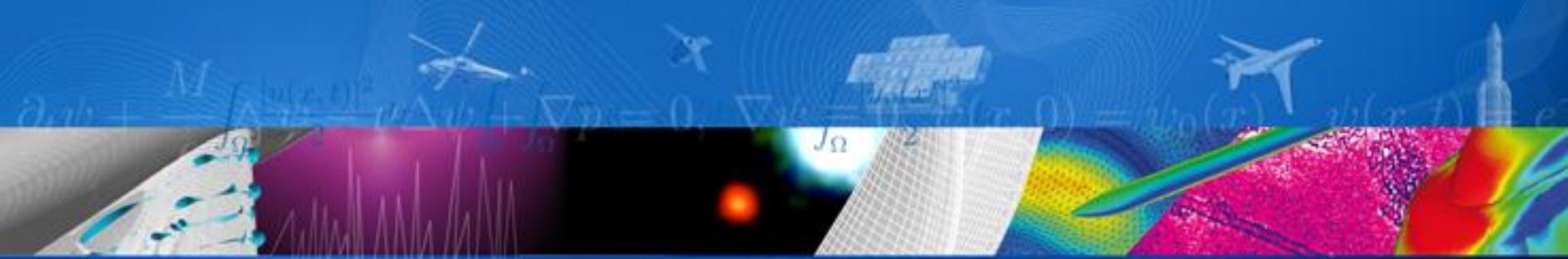
- #20 people research unit incl. #4-5 PhDs
- A variety of dynamic test means: Crash Tower, high speed cameras
- A variety of simulation tools: Commercial CSM codes, EUROPLEXUS
- Customers & applications: EU, DGA, DGAC, Airbus, Dassault-Aviation, SAFRAN …











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