



Research in Romania related to Clean Sky

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- Romanian background in aeronautics
- Preparing Romanian CS participation
- Participation to Clean Sky
- Romanian Aeronautical Industry Beyond 2020

Romanian aeronautical industry – main characteristics

...Before

- complementary capabilities distributed at national level
- integrated development system – product orientated
- major national interest in both civil and military programs
- centralized allocation of resources

Now ...

- decentralization of all industrial capabilities – privatization
- no major national development program in industry (incl. aeronautics)
- major national interest in acquisition programs (incl. aeronautics)
- major national policies orientated towards EU integration (national R&D Program)

Romanian background in aeronautics (cont.)

Product development - civil

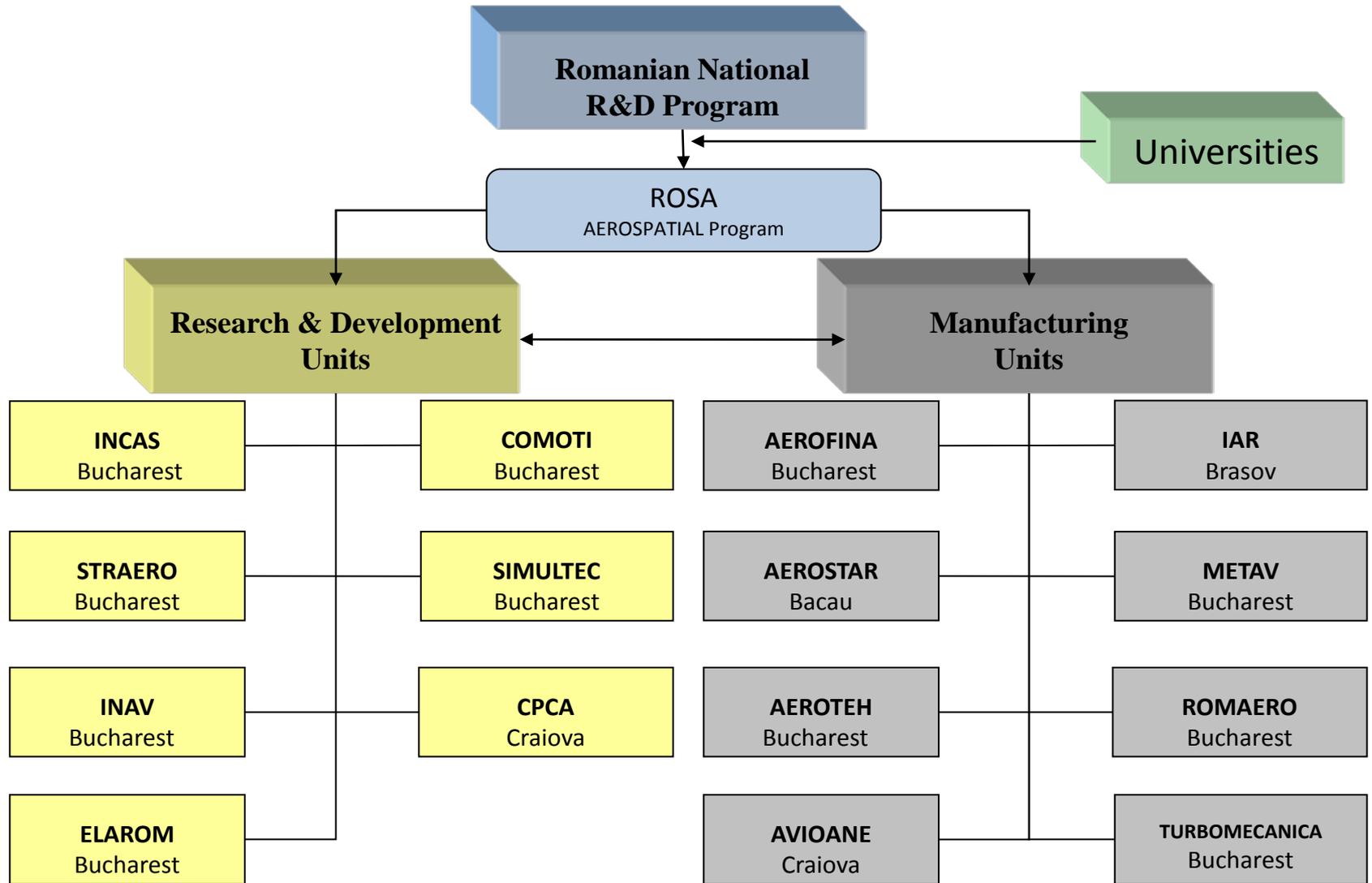


Romanian background in aeronautics (cont.)

Product development - military



Preparing Romanian CS participation ...



Preparing Romanian CS participation ...

National R&D establishments

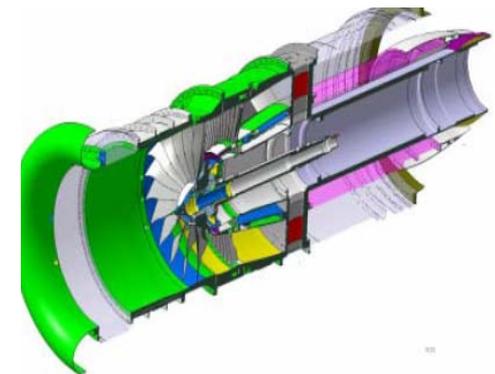
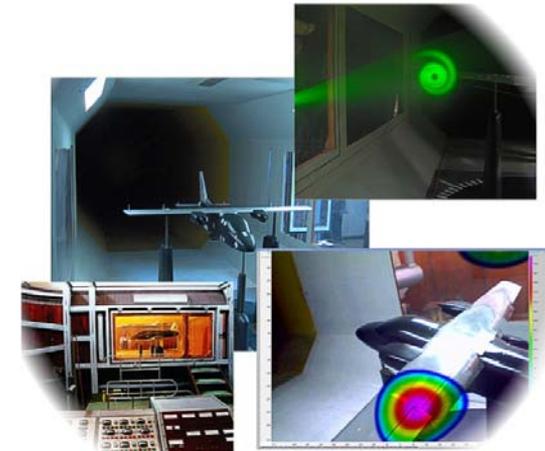
- **INCAS** – National Institute for Aerospace Research “Elie Carafoli”
- **COMOTI** – National R&D Institute for Gas Turbines

New R&D units – *private R&D sector is growing very fast*

- *GEI International*
- *Stork Aerospace/Fokker Romania*
- *other...*

Academic R&D units

- University Politehnica Bucharest – Aerospace Dept.
- Military Technical Academy
- Univ. Brasov/Craiova/...



Industrial capabilities - aerostructures



Large subassemblies

- BAE Systems
- Boeing,
- Gulfstream



Large components

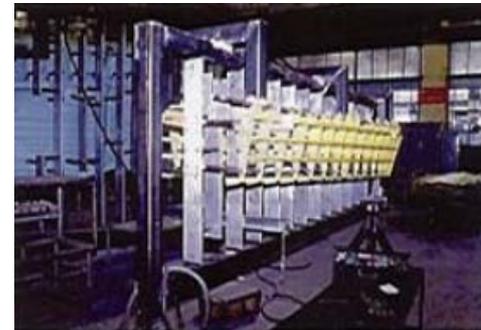
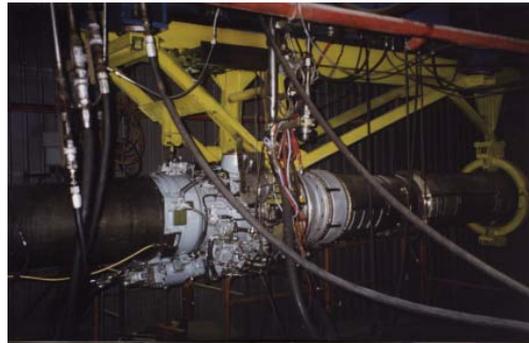
- Airbus
- Boeing
- Bombardier



Preparing Romanian CS participation ...

Industrial capabilities – systems & other

- Engines (license)
- Landing gears
- Actuators and hydraulics
- Wire harnesses and looms
- Turn and mill parts
- Jigs and tooling

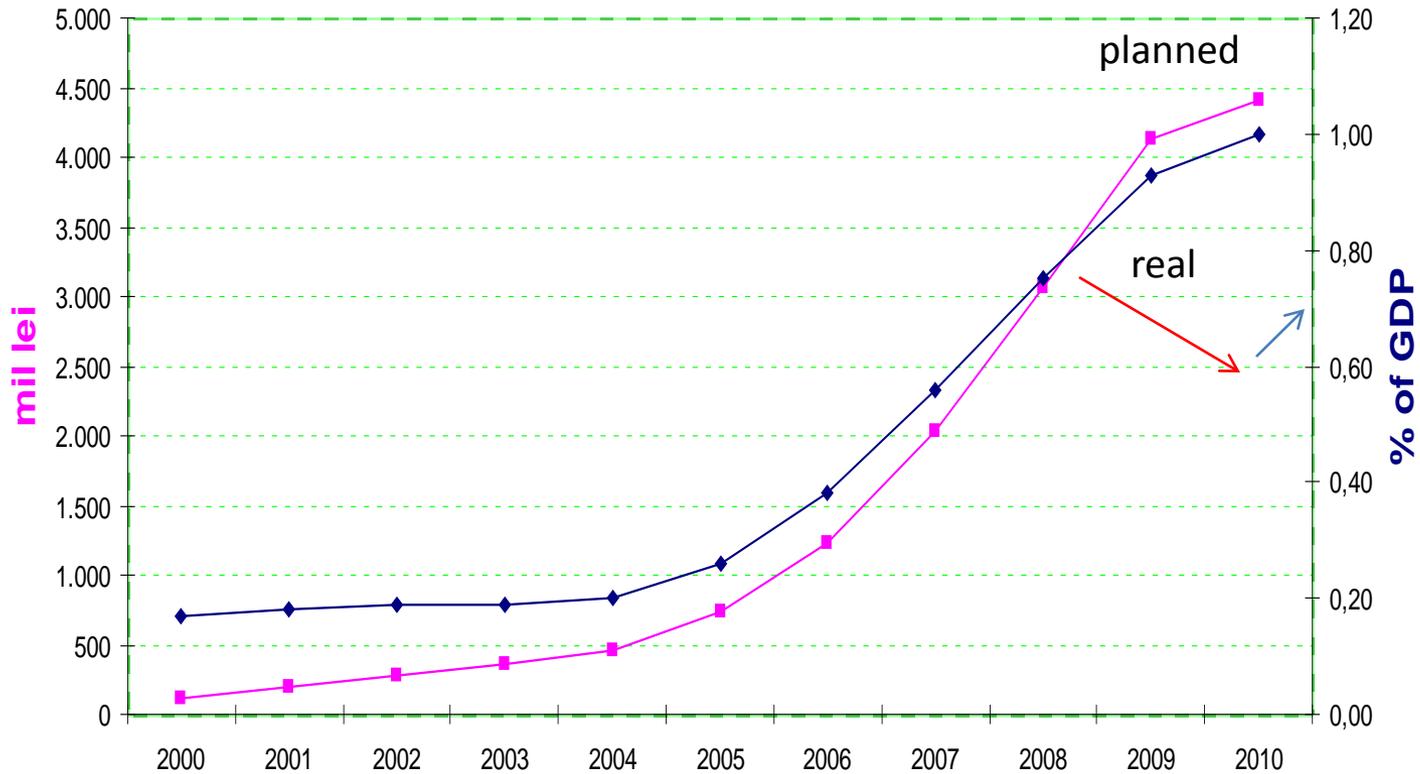


AEROSPATIAL Program

- Started with pilot phase in 1993
 - Continuity of projects, Stability of management and staff for one decade
 - Since 2001, multi-year budget basis (Gvn. Decision No. 556/2001) as a National R&D Program
- Work Program for 2001-2006, 2007-2013
 - Projects 12-36 months
 - Major areas of space and aeronautics included
 - Basic and applied research
 - Technology development
 - Infrastructure (Centers of excellence)
 - International cooperation
 - Open only for national organizations, but gives incentives for international cooperation
 - Stimulates consortia institutes-universities-industry
 - 5 calls for bottom-up projects, 2 for top-down

Romanian National R&D Program

Public expenditures during 2000-2010



Participation to Clean Sky

Participation to Clean Sky was enabled by:

- Participation to the preliminary preparatory actions for Clean Sky (with the Commission – first opinions with technical groups)
- Participation to the preliminary preparatory actions for Clean Sky (in PC – Transport using NCP and experts)
- Cluster participation approach – national/international
- Participation to the process of selection of associates (for SFWA and GRA)

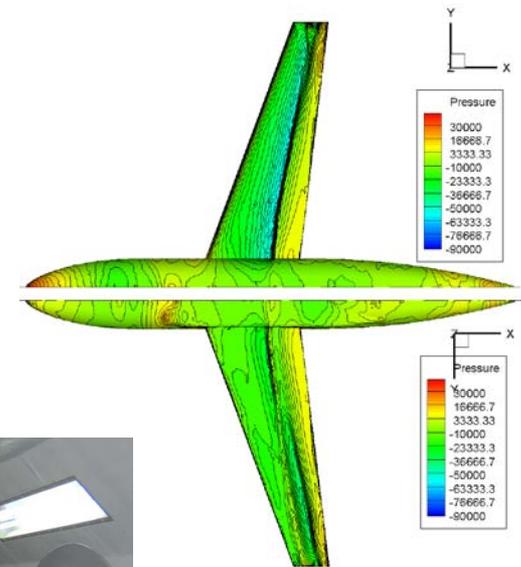
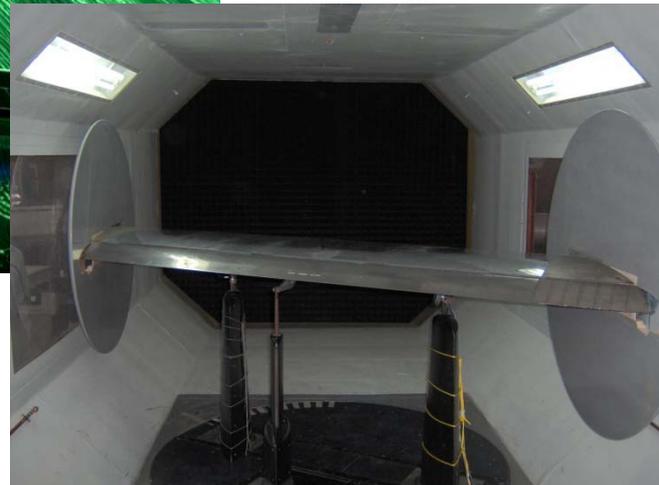
Major areas of interest for participation

- Low TRL areas – (flow physics, systems, materials&structures)
- Smart airframe structures
- New actuation systems
- Cost-effective manufacturing processes
- Integration of testing infrastructure (mainly wind tunnels)

SFWA participation – INCAS Cluster

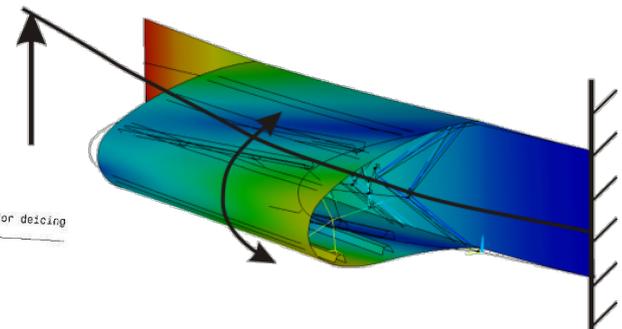
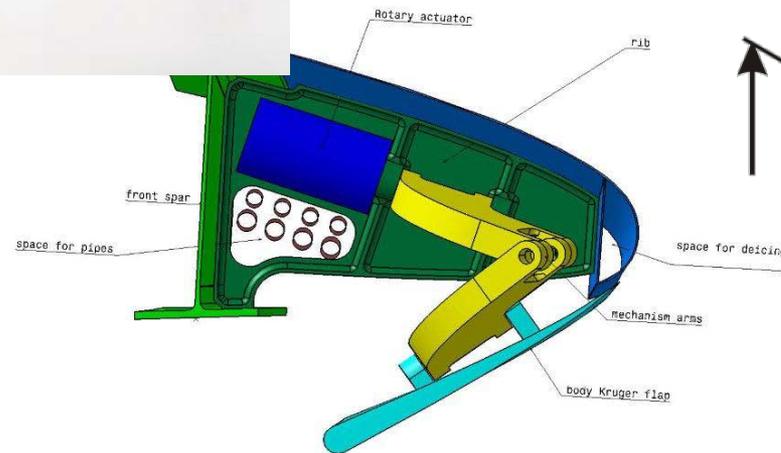
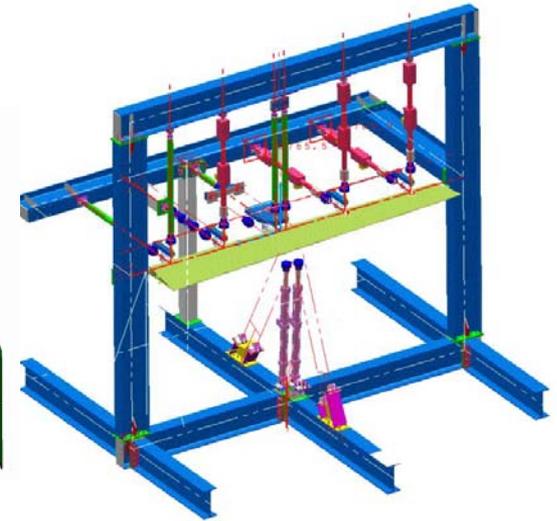
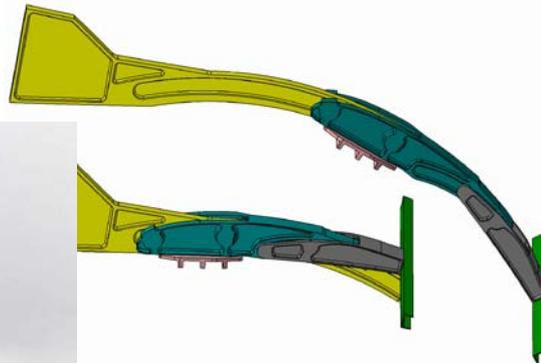
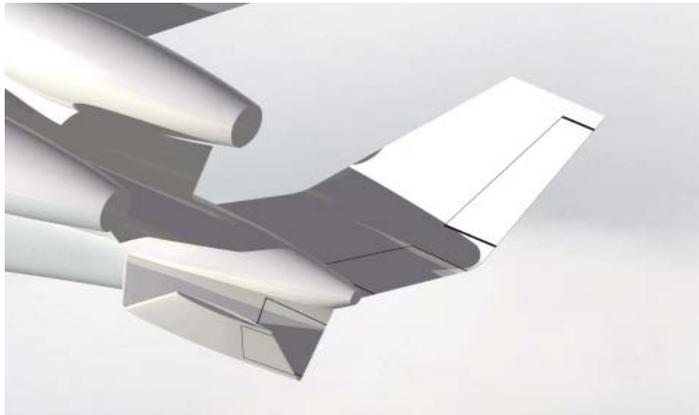
Following the process of selection of Associate Partners to the JTI “Clean Sky”, INCAS Consortium (INCAS, STRAERO, Avioane Craiova and ROMAERO) is part of the **SFWA** – Smart Fixed Wing Aircraft

➤ WP1 – WP112/114



SFWA participation – INCAS Cluster (cont.)

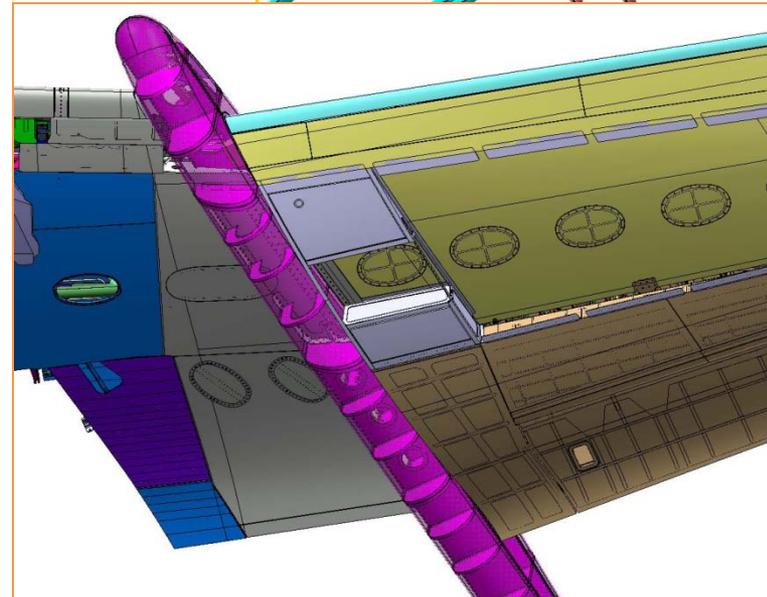
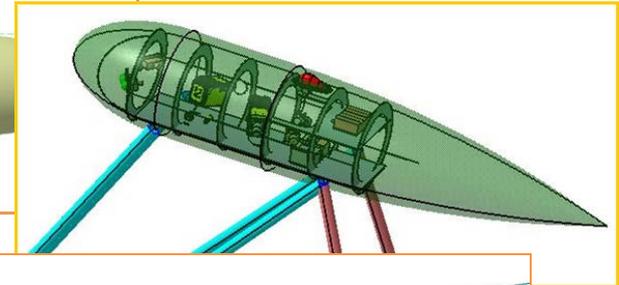
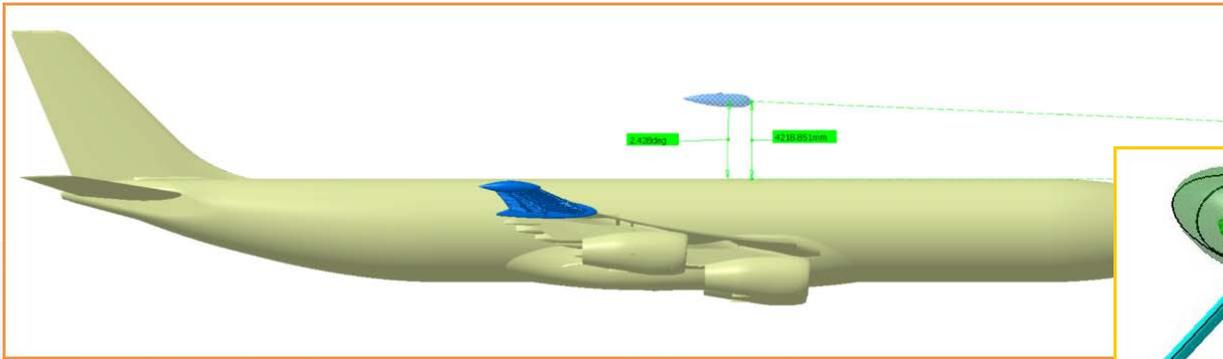
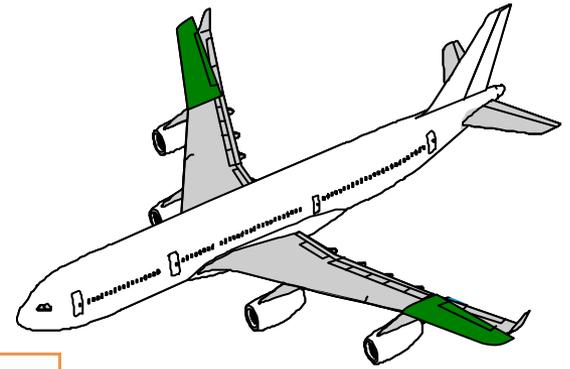
WP -2



CS Participation

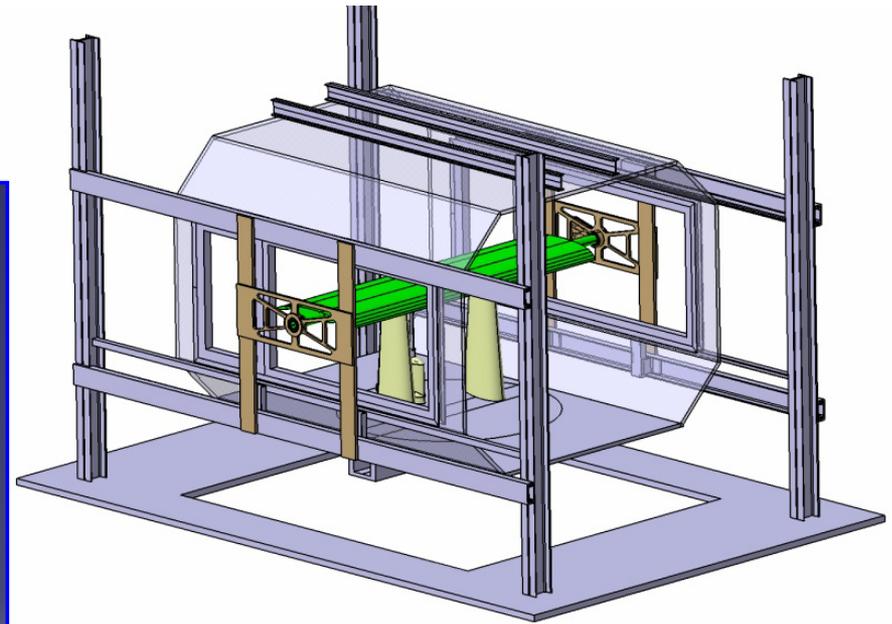
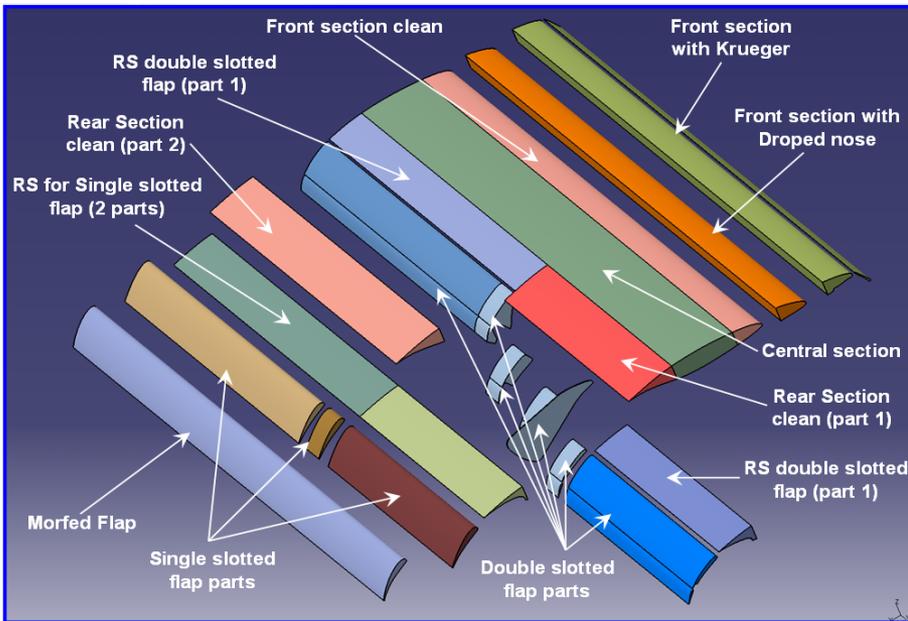
SFWA participation – INCAS Cluster (cont.)

WP -3

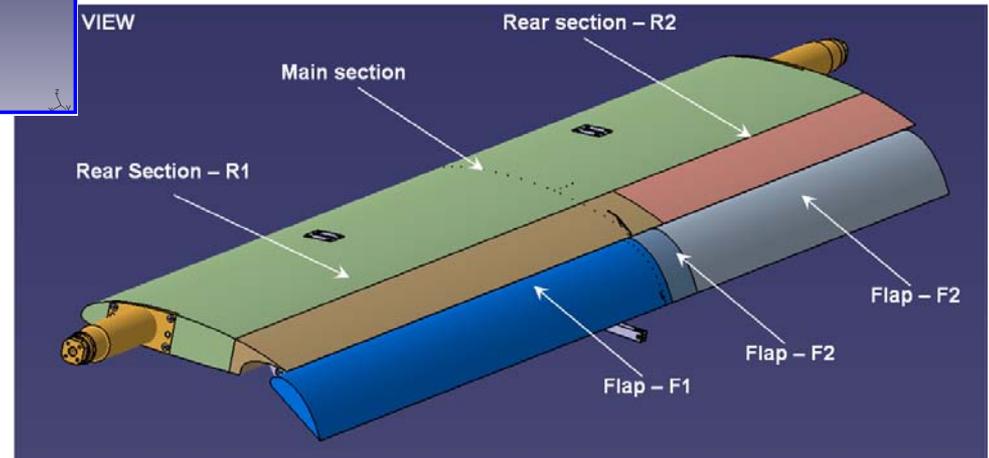


CS Participation

GRA participation – INCAS



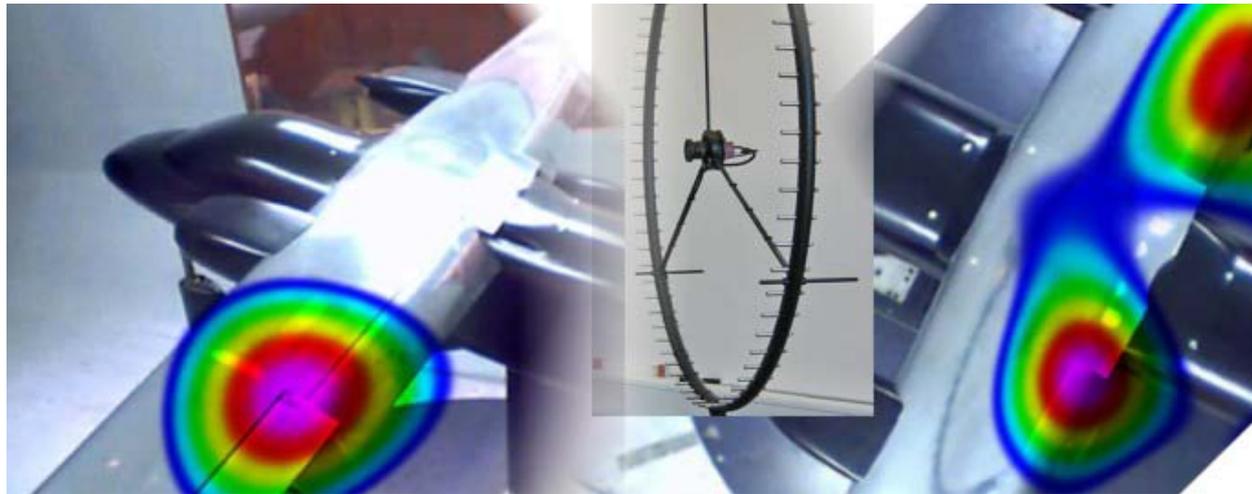
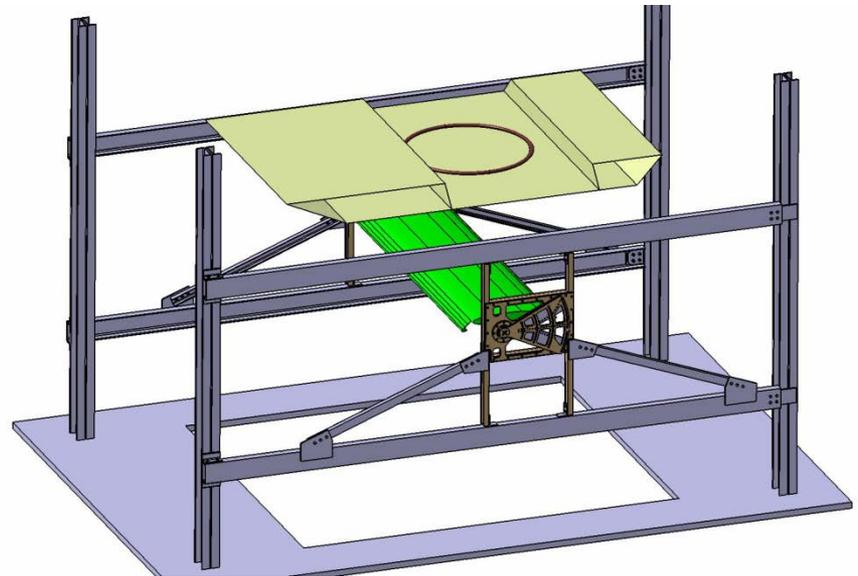
Following the process of selection of Associate Partners to the JTI “Clean Sky”, INCAS is a member of CIRA Plus Cluster in LowNoise wp of GRA



CS Participation

GRA participation – INCAS (cont.)

Aeroacoustic test - beamforming



CS Participation

Other ITDs

STRAERO – CfP for test rig in SGO – (in negotiation phase)

COMOTI – main interest in engines CfP

INCD – TP – consortium with INCAS in Eco-design

AEROSTAR Bacau – CfP in SFWA (rigs, oth.)

Other

Enhancing Romanian participation to Clean Sky

Other planned potential participations in Clean Sky :

- Participation to SFWA - ITD and GRA - ITD – main focus for INCAS Cluster
- Enabling potential participation of Romanian partners using CfT/subcontracting
- Using CfP mechanism for enlarging Romanian participation:
 - - participation of INCAS cluster members in other ITDs
 - - participation of other Romanian entities in CfP for SAGE, SGO and EcoDesign
 - - joint partnerships/participation with external partners (CfP and CfT)



Thank you for your attention!