
Aeronautics Committee Report to the NASA Advisory Council

Gen. Lester Lyles (Chairman)
Dr. John Sullivan
Dr. Gene Covert
Dr. Ilan Kroo
Dr. Ray Colladay (ex-officio)

February 5, 2009

Areas of Interest Explored at Current Meeting

- Thomas B. Irvine, Deputy Associate Administrator for Aeronautics Research Mission Directorate(ARMD), NASA
 - Status of NASA's System-level research activities
 - Feedback from ARMD's interactions with the transition team
- J.D. Kundu, NASA Aeronautics Program Examiner, Office of Management and Budget
 - Input from OMB on NASA's Aeronautics Budget and Administration Changes in Direction
- Dr. Robie Samanta-Roy, Assistant Director for Space and Aeronautics, Office of Science and Technology Policy (OSTP)
 - Technical Appendix to the National Plan for Aeronautics R&D and Related Infrastructure and 2009 Plans for the NSTC Aeronautics S&T Subcommittee
- Robert Pearce, Deputy Director for the Joint Planning and Development Office (JPDO)
 - Feedback from the JPDO on How Well NASA's Aeronautics Programs are meeting the research needs of the Next Generation Air Transportation System (NextGen)
- Dr. John Cavolowsky, Director (Acting), Airspace Systems Program (ASP, ARMD, NASA)
 - NASA Airspace Systems Program Contributions to the Next Generation Air Transportation System (NextGen)



NASA's Aeronautics Research Mission Directorate



Thomas B. Irvine
NASA Advisory Council's Aeronautics
Committee Briefing
February 3, 2009



Outline

- National perspective on Aeronautics R&D
 - Aeronautics R&D is more important than ever
 - What we are working on in NASA Aeronautics
 - Where would we like to go
- Interactions with the NASA Transition Team
- NRC Study of NASA Aviation Safety Research
- NASA/Air Force Executive Research Committee (ERC)
- Aeronautics Test Program/Infrastructure Status
- ARMD request to the NAC Aeronautics Committee
- Summary



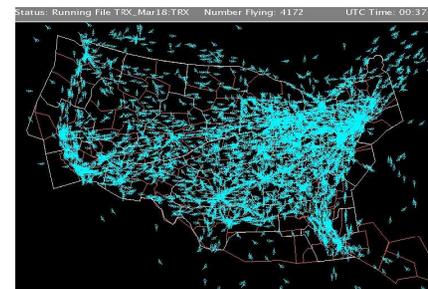
Aviation's Economic Impact

Domestic Impact

- Manufacturing and services account for \$436 billion in direct economic activity
- Provides positive contribution to trade balance
- 25% of all companies sales depend on air transportation
- 634,500 jobs in the U.S. Aviation Industry
- 762 million travelers annually (~ 2 million travelers/day)
- 87,000 domestic flights/day

Global Impact

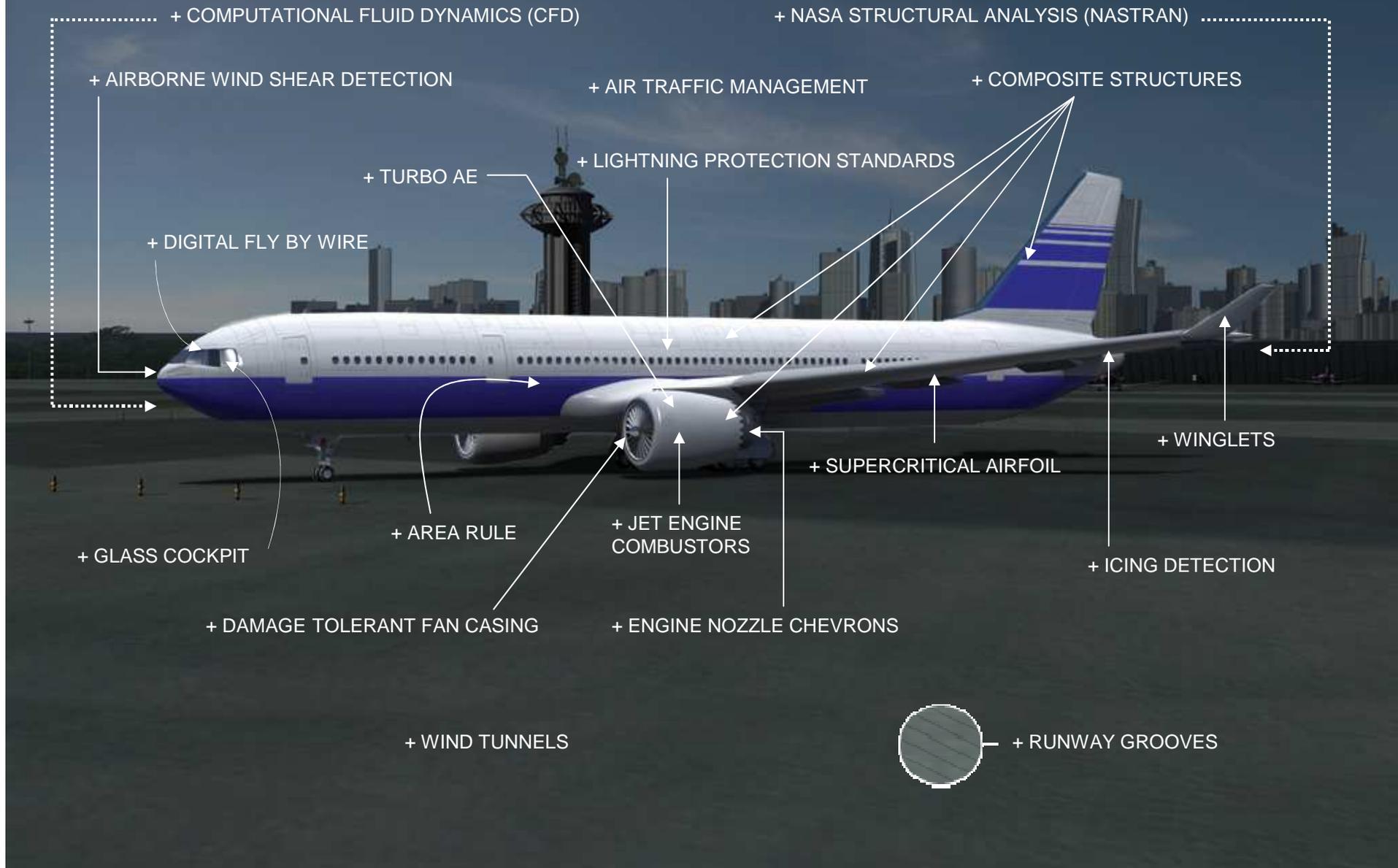
- \$3.5 trillion estimated economic impact (8% of world GDP)
- 2.2 billion travelers annually (~ 6 million travelers/day)



Aviation has a major impact on the nation's economy and touches most of the general public/taxpayers

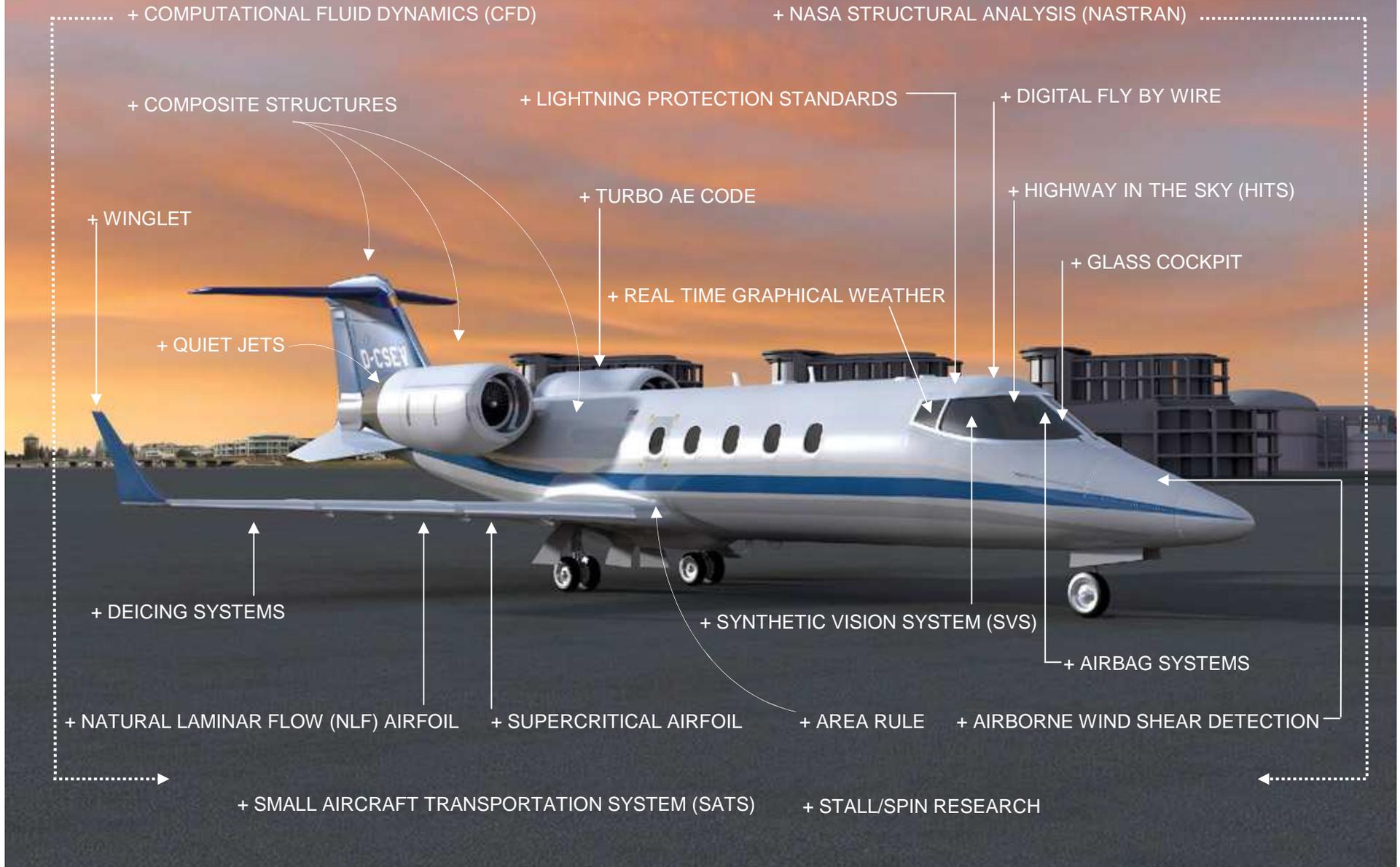
NASA Aeronautics Research Contributions

COMMERCIAL AVIATION



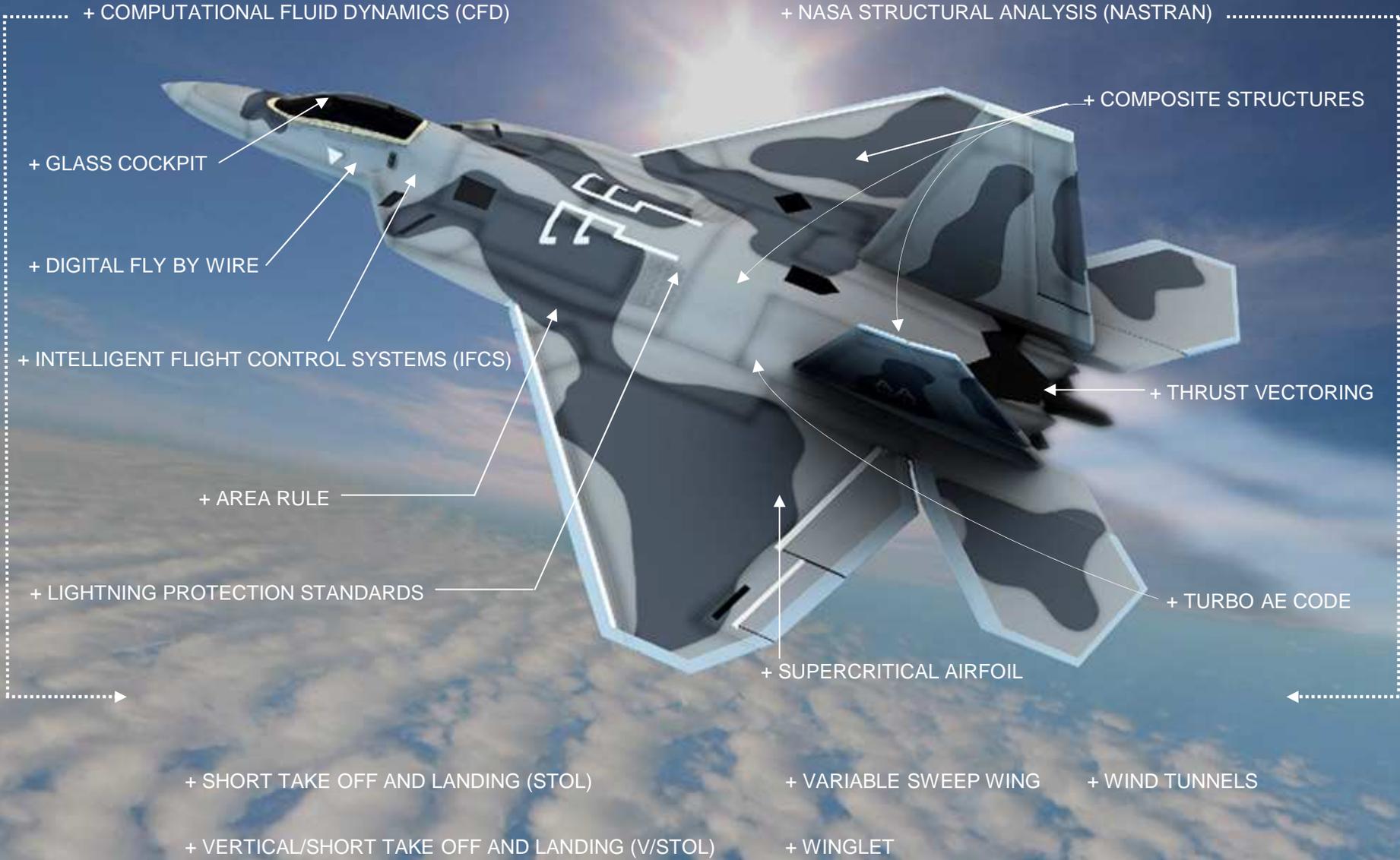
NASA Aeronautics Research Contributions

GENERAL AVIATION



NASA Aeronautics Research Contributions

MILITARY AVIATION



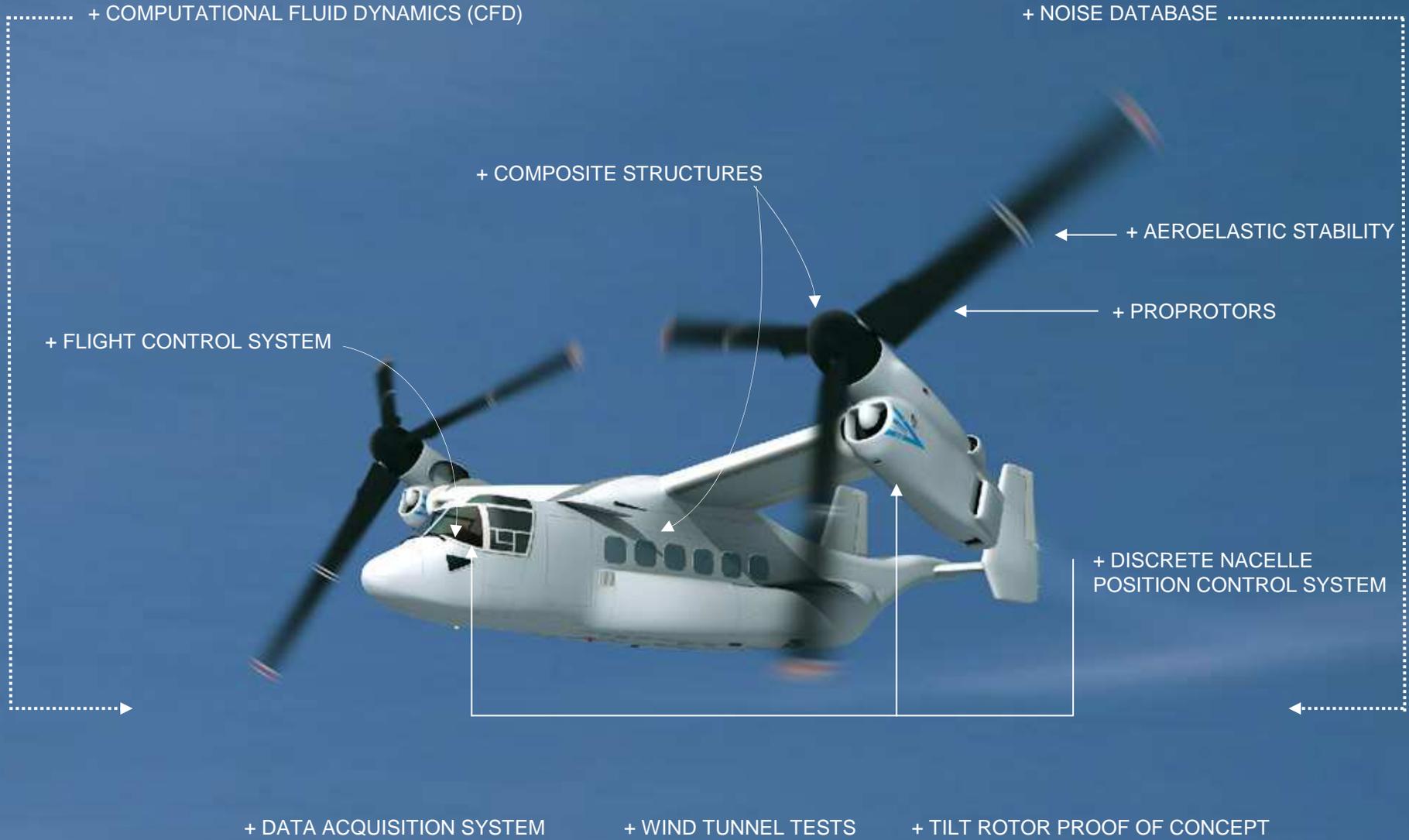
NASA Aeronautics Research Contributions

ROTORCRAFT AVIATION

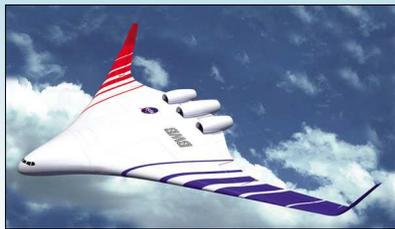


NASA Aeronautics Research Contributions

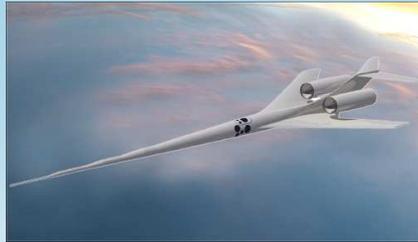
TILT ROTOR AVIATION



Vision for NASA Aeronautics

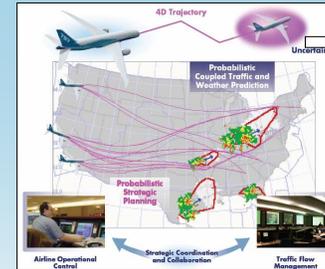


Environmentally Responsible Aviation



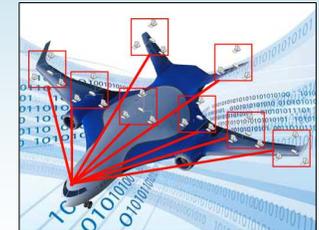
Supersonic Testbed

UAS routine access to NAS



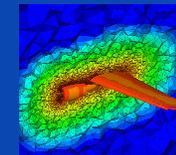
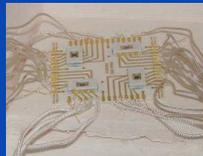
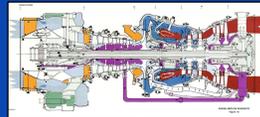
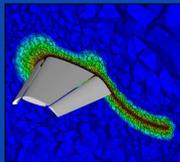
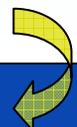
High-Fidelity NAS Simulation

V&V of Complex Systems



System-Level Research

Fundamental Research



Environmentally-Responsible Aviation Initiative

With the expected three-fold increase in global air travel over the next 30 years, the reliability and environmental impact of aviation are becoming critical issues for the future of flight.



Issues:

Safety

Efficiency

Noise

Emissions & Fuel
Consumption

NO_x

CO_2

H_2O

New government initiatives are needed.

Environmentally-Responsible Aviation Initiative

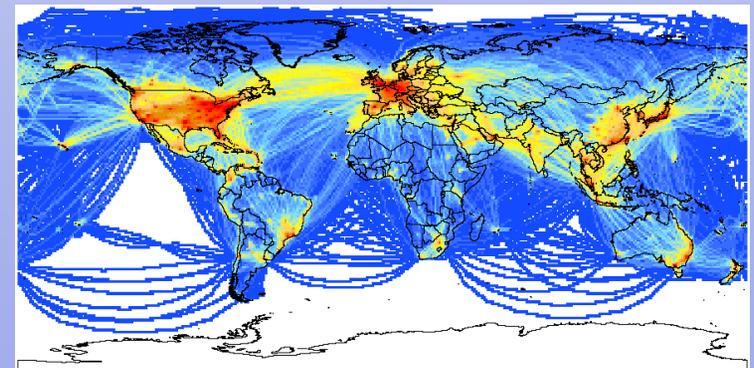
System-Level Research

Program Elements

- Vehicle
- Operations
- Testbeds

Goal:

Develop technologies to reduce fuel consumption and environmental impact



Committee Recommendation

Convene a small, 2 step workshop under the NAC Aeronautics Committee to provide external community input to NASA's formulation of the system-level program on Environmentally-Responsible Aviation.

Task Force Logistics

Timeline for NAC ERA Program Development Task Force

- Mid February - Draft the Task Force charter and identify potential members
- Late February - NAC Chair/NASA Administrator approval
- Mid March - Submit read-ahead materials to Task Force
- Late March - 1st Meeting of the Task Force – ARMD Briefing
- April 14-16th – NAC Meeting GSFC/HQs
- ARMD revises plans based on feedback received
- Mid June - Closure Meeting of the Task Force – ARMD Response

Logistics for NAC ERA Program Development Task Force

- Location for Meetings: Washington, D.C.
- Meeting length: 1.5 days with a group dinner
- Task Force make-up: 20 representatives
- Task Force Lead: Dr. Ilan Kroo

Plans for Next Meeting

- Feedback from ERA Program Development Task Force 1st Meeting
- Status/Update from ARMD
 - Budget and programmatic changes to the ARMD portfolio
 - Status of NRC Aviation Safety Study
 - Status of Aeronautics Test Facilities
 - Update on NASA/Air Force Executive Research Committee (ERC)
- Update from NASA Chief Engineer on NASA's Entry, Descent and Landing activities to Joint Aeronautics/Science/Exploration Committee meeting
- Update from OMB on NASA's Aeronautics Budget