HIGH-SPEED TRANSPORT AIRCRAFT RESEARCH

HI STAR

- Unique, high-speed propulsion
- Designer fuels
- Long-life, thermal structures
- Tailored aerodynamics
- Flight management

Tu-144 Concorde

SR 71

HiSTAR OBJECTIVE:

To provide technology to enable the U.S. aerospace industry to lead in the development of long-range, high-speed transportation systems.
HISTAR - GUIDANCE, NAVIGATION AND CONTROL

OBJECTIVE

Develop criteria and methodology for optimized integration of crew/controls/aircraft/air traffic:

- Flight path management
- Advanced flight deck
- Active controls
- Avionics reliability, safety, maintainability (RSM), certification

PARTICIPANTS AND FACILITIES

PARTICIPANTS:
- LARc Flight Systems Directorate
- CALSPAN
- Airframe Companies

FACILITIES
- Advanced Concept Simulation
- Advanced Display Evaluation Cockpit
- Terminal-area simulation
- AIRLAB
- Contractor simulators

SCHEDULE AND FUNDING

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<th>FY89</th>
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HISTAR – ATMOSPHERIC ENVIRONMENT

Objectives

- Define Flight Environment
  - Aerosol, $O_3$, and density climatologies
  - Turbulence and wave breaking
- Assess Environmental Impact
  - Effect of vehicle effluents
  - Other effects

Participants and Facilities

Participants:
- LaRC Atmospheric Sciences Division

Facilities:
- SAM II/SAGE II Satellites
- Ground-based and Airborne Lidar
- Computer Models of Atmosphere:
  - Photochemistry and dynamics
  - Constituent global data base

Schedule and Funding ($K)

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HiSTAR ACOUSTICS

Participants and Facilities

Participants:
- LaRC Acoustics Division
- LeRC

Facilities:
- Aircraft Noise Reduction Laboratory
- Jet Noise Laboratory
- Thermal Acoustic Fatigue Apparatus
- Contractor Boom Simulators

Objectives

- Understand mechanisms of noise generation
- Predict community/passenger response
- Predict and measure acoustic loads and their effects
- Assess noise reduction alternatives

Schedule and Funding, ($K)

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Attendees for HiSTAR Meeting
(High Speed Transport Aircraft Research)
Friday, February 13, 1987
Room 625
10:00a.m.- 1:00p.m.

Langley
- Charlie Jackson
- Samuel Dollyhigh
- Thomas Bales - MATERIALS

Ames
- Paul Kutler
- Thomas Galloway

Lewis
- Joseph Ziemianski
- Daniel Mikkelson
- William Strack - will do advocacy

HQ
- RP/Gary Hicks
- George Unger
- RP/John Facey
- RM/Samuel Venneri
- RJ/Goochey
- RP/P. Evanich

- Too much discipline research included, should be
  more system technology.
  - All code development & validation
    (tools but not objectives)
- Didn't have advocacy for enabling technologies
  - Show leverage for each

- Roadmap how it fits together
- Charts
- Lack: definitive milestones or none at all
  # 150 M/YR for first two years