



NASA Public Use Aircraft Operations

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NASA Aircraft Program

- **Missions**

- Space Operations
- Science Research
- Aeronautics Research

- **Capabilities**

- **Operational**

- Worldwide
- Flight Test/Research
- Remote Sensing
- In situ Sampling

- **Maintenance**

- O-I-D-OEM
- Fabrication

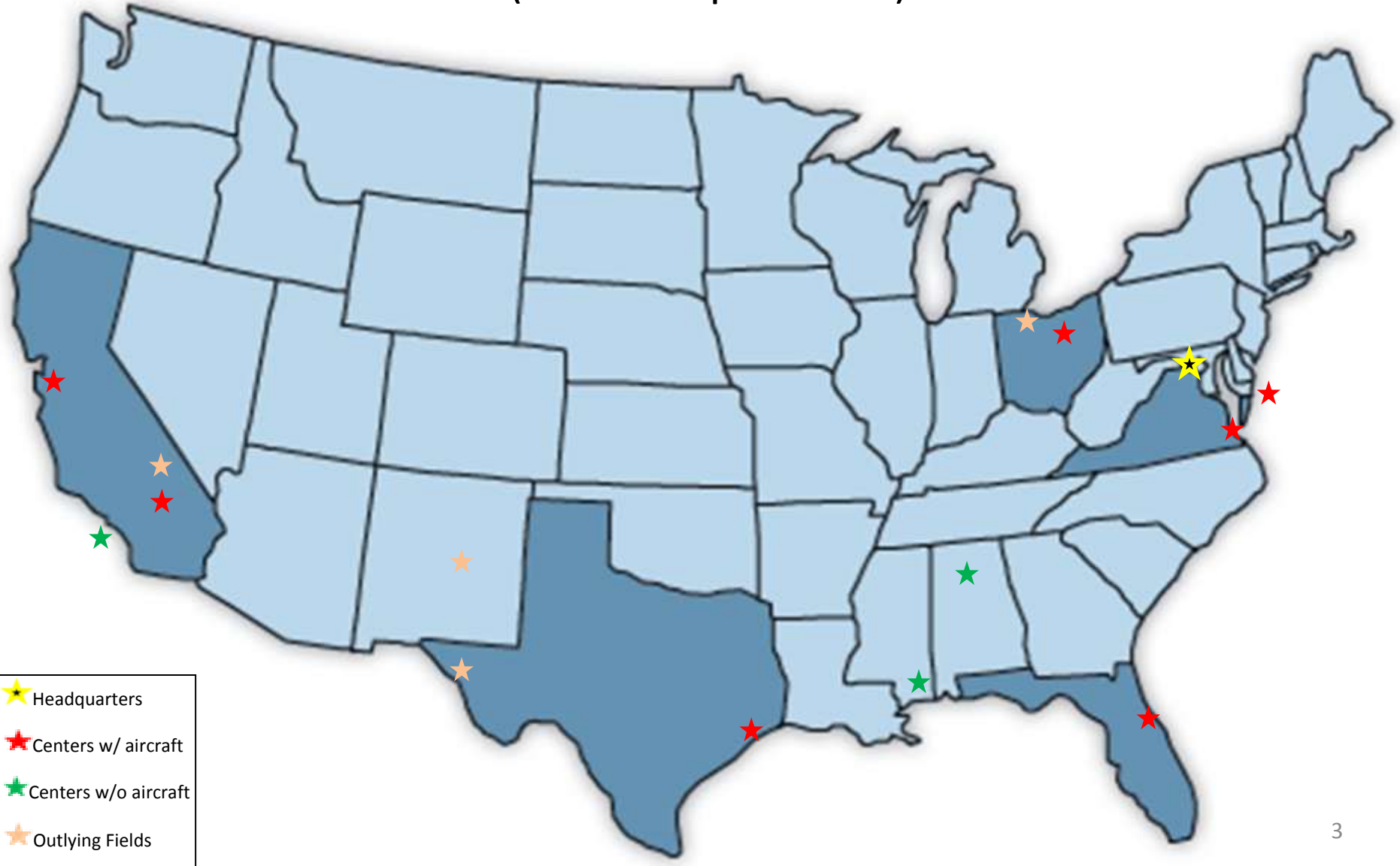
- **Engineering**

- Airworthiness
- Wind Tunnels
- Simulations
- Test Articles



Center Locations

(Aircraft Operations)



NASA Aircraft

64 active aircraft ~11,700 flight hours annually ~7,200 sorties



DC-8



Ikhana



Global Hawk



F-18



G-III



UH-2



S-3



B-747



F-15



B-747



T-38

NASA Authority

- The National Aeronautics and Space Act
 - “...plan, direct, and conduct aeronautical and space activities;”
- Public Law 106-181, codified in Title 49 U.S.C., Chapter 401, Sections 40102(a)(37) and 40125
 - Definition of Public Use Aircraft
- OMB Circular A-126
 - Improving the Management and Use of Government Aircraft
- 41 CFR 102-33
 - Management Of Government Aircraft
- FAA Circular 00-1.1 “Government Aircraft Operations”
- NASA Procedural Requirements 7900.3C
 - NASA Aircraft Operations Management Manual

NASA Aircraft Operations Oversight

- NASA Headquarters Aircraft Management Division
 - Agency Functional Oversight
- Center Flight Operations
 - Program Independent
 - Day-to-day operations
- Inter-Center Aircraft Operations Panel
- Inter-Center Aircraft Operations Review Program
 - Agency conducted inspection program
- Readiness Reviews
 - Airworthiness
 - Flight/Operational
 - Mission
- Safety Management System
 - External Audit
- Aerospace Safety Advisory Panel
 - Established under P.L. 90-67, codified at 42 U.S.C. § 2477
- NASA Office of Inspector General

NASA Operational Control

- **General aircraft operations are operated in accordance with applicable provisions of the FAA FARs except:**
 - Where this directive prescribes more stringent requirements.
 - Where deviations from the FAA FAR have been approved by the FAA, a Center airworthiness/flight readiness review board, or NASA policy
- **Specific aircraft operations and maintenance based on the original aircraft certification**
 - NASA Aircraft
 - Military or Commercial Derivative
 - Pilots/Aircrew (Civil Servants/Military/Contractor)
 - Mechanics (Civil Servants/Contractor)
 - Contractor Aircraft
 - Commercial Derivative
 - Pilots/Aircrew (Civil Servants/Contractor)
 - Mechanics (Contractor)
- **Infrastructure**
 - Airports/Ranges
 - Special Use Airspace
 - Instrumented Ranges
- **Aircraft Airworthiness**
 - NASA Airworthiness Boards
 - FAA Certificate Baseline
 - Military Clearance Baseline
 - NASA Deviations

Astronaut and Space Operations

T-38

- Astronaut training



Super Guppy

- Oversized cargo



Shuttle Carrier

- Shuttle repositioning



Shuttle Trainer

- Shuttle simulation



Technology Development

Quiet Spike
-Sonic boom



Variable Thrust Vectoring



Autonomous Aerial Refueling



Airborne Science Research



DC-8

- Mid-altitude
- Payload: 30k lb



P-3

- Mid-altitude
- Payload: 15k lb



ER-2

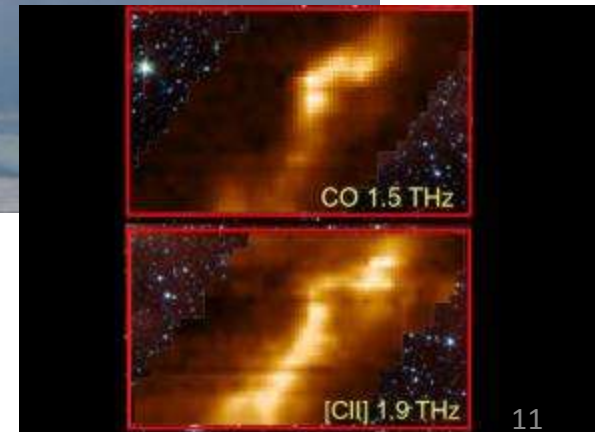
- High-altitude
- Payload: 3k lb

Stratospheric Observatory for Infrared Astronomy (SOFIA)



B-747 SP

- Telescope assembly: 17 t.
- Cavity opening: 9' dia.



Unmanned Aircraft Systems

Global Hawk Operations Center



Mobile GCS



Global Hawk



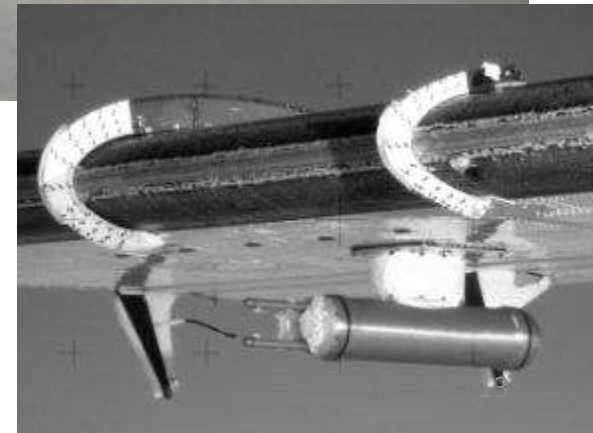
Ikhana



Commercial Aircraft Services

High Water Ice Content

- Instrumentation
- Flight regime



Reduced Gravity

- Overboard Venting
- μg tolerance



Summary

- Authority and responsibility is well established in the “Space Act” and Public Law
- Core Values
 - Constant attention to safety is the cornerstone upon which we build mission success.
 - Excellence to achieve the highest standards in engineering, research, operations, and management in support of mission success
- Specialized Capabilities
 - NASA employs some of the nation's top scientists, engineers, and other technical staff to inspire and serve America.
 - Professional, Engineering, and Scientific (60% of NASA's positions)
 - Maintaining installations around the country conducting day-to-day work in laboratories, on air fields, in wind tunnels, and in control rooms.
 - Internal controls to manage operational and safety procedures and oversight
- Unique Needs and Specific Operational Requirements
 - Solving challenges that still exist in our nation's air transportation system: emerging technologies, air traffic congestion, safety and environmental impacts
 - Space operations support related to human exploration in and beyond low Earth orbit
 - Seeking new knowledge and understanding of our planet Earth, our Sun and solar system, and the universe out to its farthest reaches and back to its earliest moments of existence
- Build on and leverage the core standards established by FAA regulations and certifications as well as DoD standards and specifications for aircraft operations