



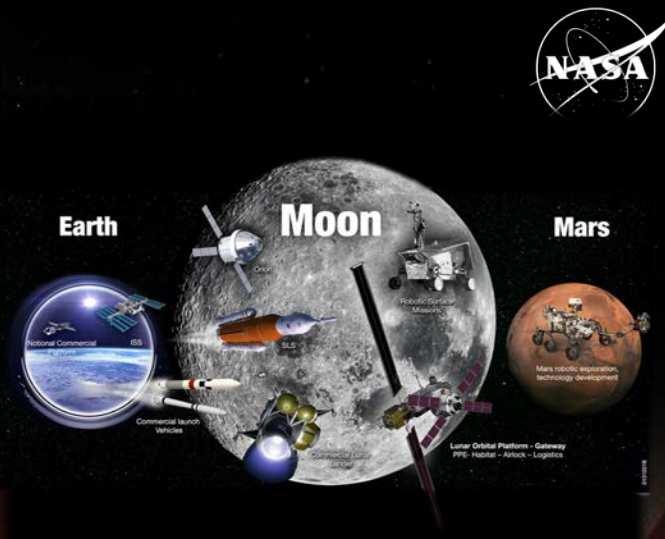
NASA Ames Research Center

An Overview

Dr. Eugene Tu, Director



International Space Station



TECHNOLOGY DRIVES EXPLORATION



**EARTH
RIGHT NOW**

Your planet is changing. We're on it.



NASA Centers and Installations




78 Years of Innovation

This collage features numerous hexagonal tiles, each representing a significant innovation in aerospace and space exploration. The tiles are arranged in a grid-like fashion, with years 1940, 1950, 1960, 1970, 1980, 1990, 2000, and 2015 marking specific decades. The innovations include:

- 1940:** Conical Camber, Arcjet Research
- 1950:** Hypervelocity Free Flight
- 1960:** Apollo Re-Entry Shape, CFD
- 1970:** Life Sciences Research, Pioneer Venus
- 1980:** Tiltrotor, Air Transportation System
- 1990:** Human Centered Computing, Nanotechnology
- 2000:** Mars Science Lab, ISS, Space Biology
- 2015:** SSERVI, Kepler, Sustainability Base, Quantum Computing

Other notable innovations include: Tekites, Apollo Guidance System, X-36, Lunar Prospector, SOFIA, Flight Simulator, Blunt Body Concept, Pioneer 10/11, Galileo, Apollo Heat Shield Tests, Lifting Body, Transonic Flow, Viking, Mars Science Lab, IRIS, Aero Institute, ECROSS, LADEE, Astrobology Institute, Pleiades, 80x120 Wind Tunnel, Kuiper Observatory, ER-2, NASA Research Park, and the Apollo 5000 Guidance System.

Ames Research Center

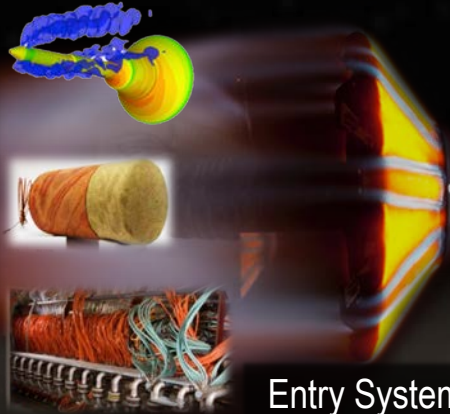


- Occupants:
 - 1175.8 civil servants (FY18 “ceiling”); ~2,100 contractors; 1,650 tenants
 - 855 summer students in 2016
- FY2016 Budget: ~\$915M (including reimbursable/EUL)
- ~1,900 acres (400 acres security perimeter); 5M building ft²
- Airfield: ~9,000 and 8,000 ft runways

Core Competencies at Ames Today



Air Traffic Management



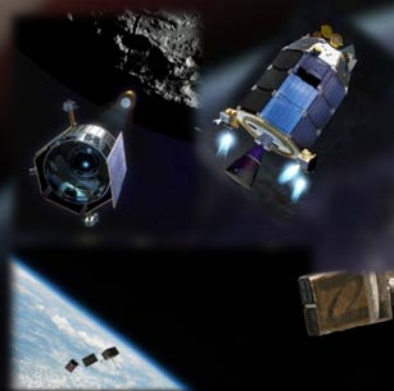
Entry Systems



Advanced Computing & IT Systems



Intelligent/ Adaptive Systems



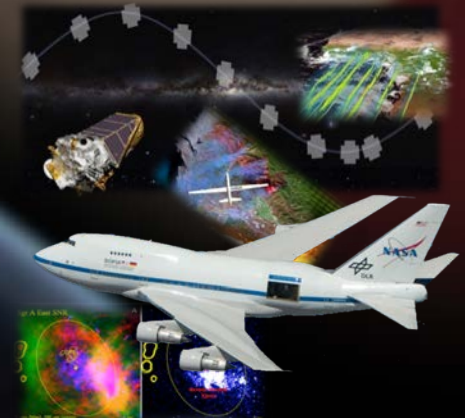
Cost-Effective Space Missions



Aerosciences

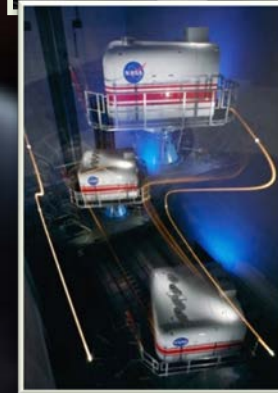
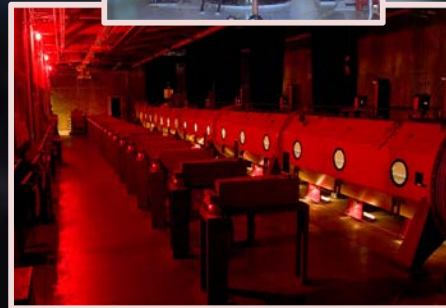
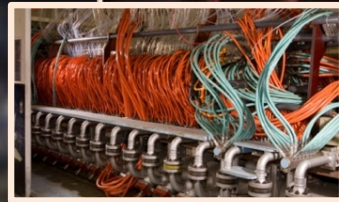
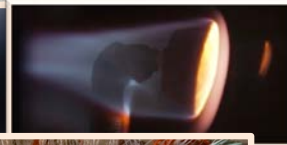
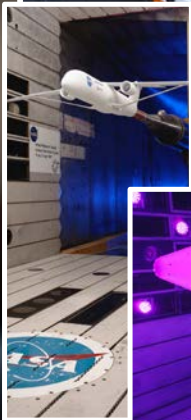
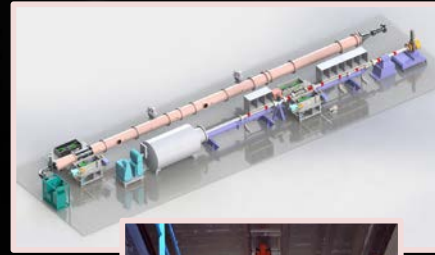


Astrobiology and Life Science



Space and Earth Sciences

Major Research Facilities



Wind Tunnels

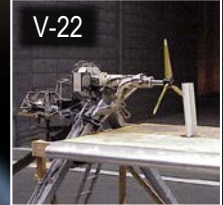
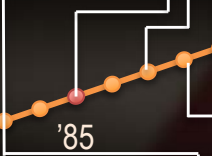
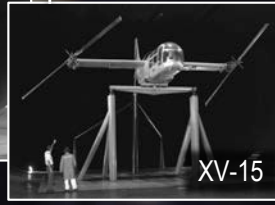
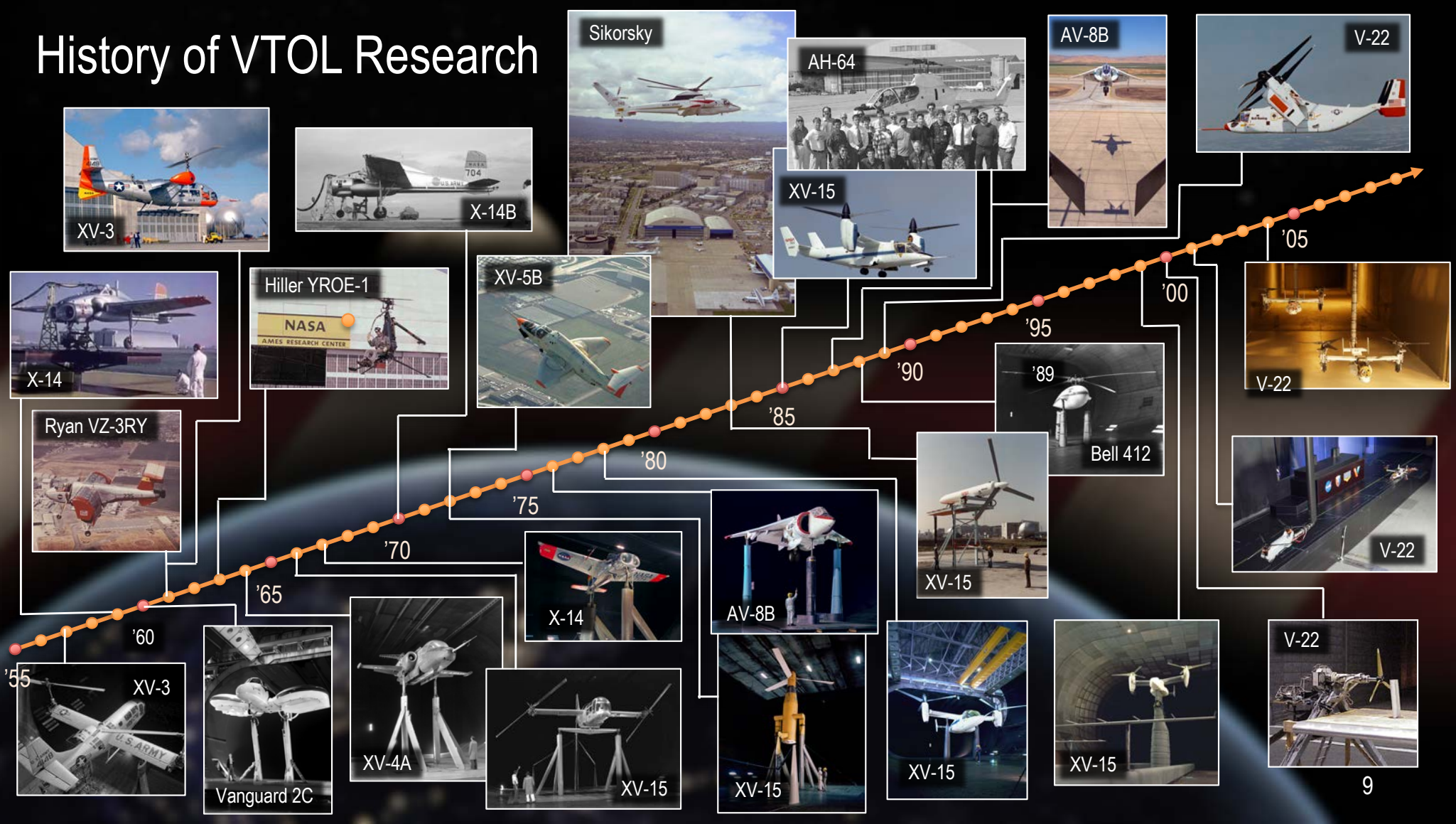
ARC Jet Complex

Range Complex

Simulators

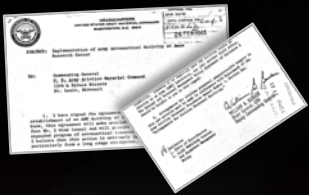
Advanced
Supercomputing

History of VTOL Research

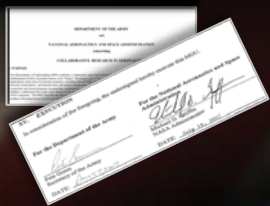


Collaboration with the Army

1965 Joint Agreement



2007 MOU



- Leadership Development
- International partnership
- Contribute to University Rotorcraft/ Vertical Lift COEs and industrial collaborations
- Publications/awards



Test Capabilities



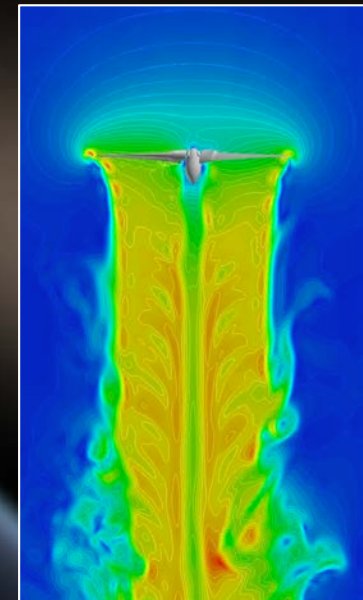
Measurement Techniques



Configuration Development



Flight Dynamics and Control

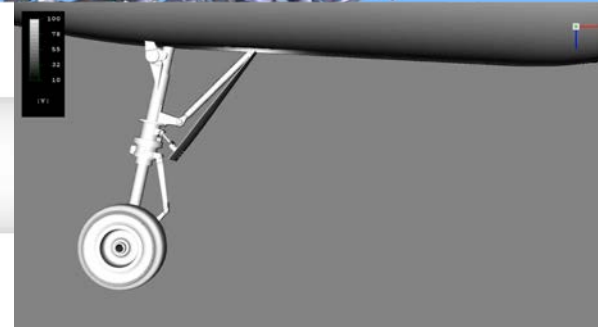
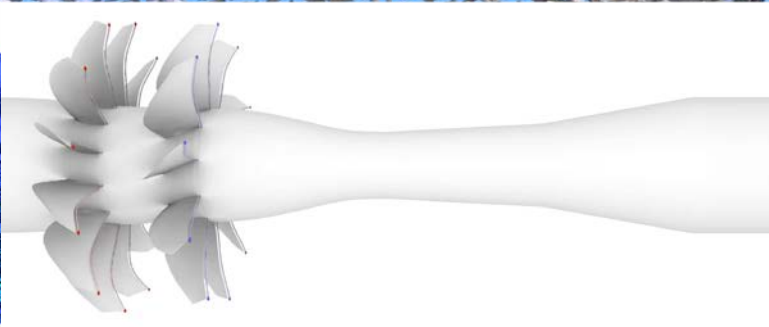
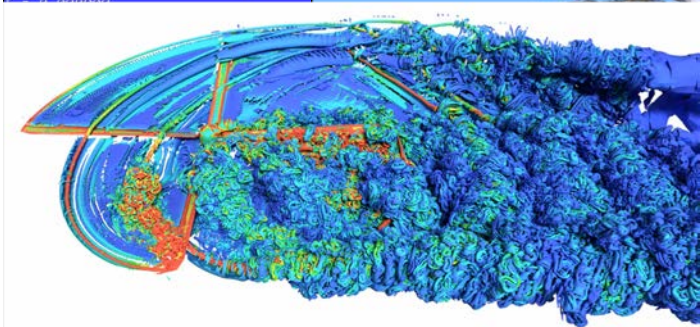
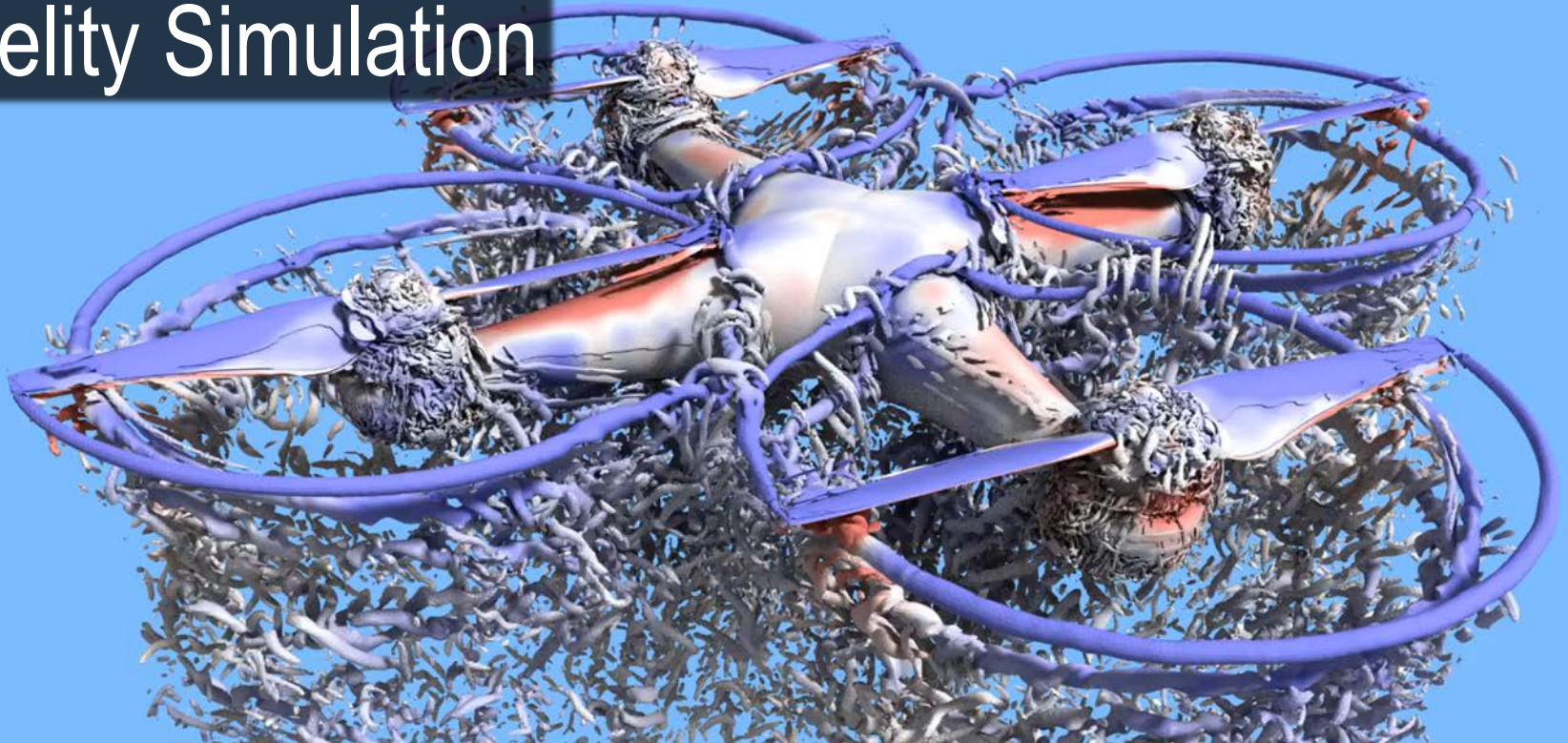
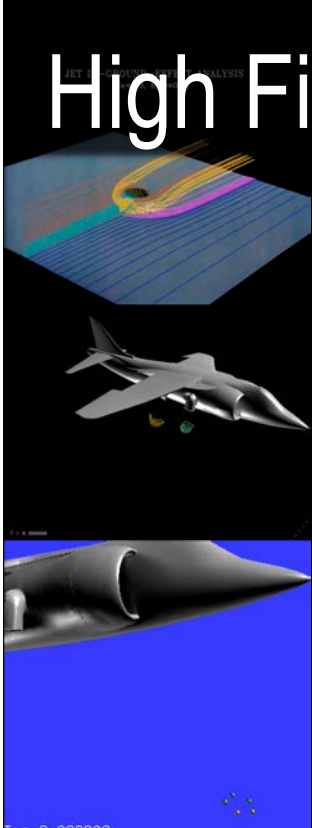


Simulation

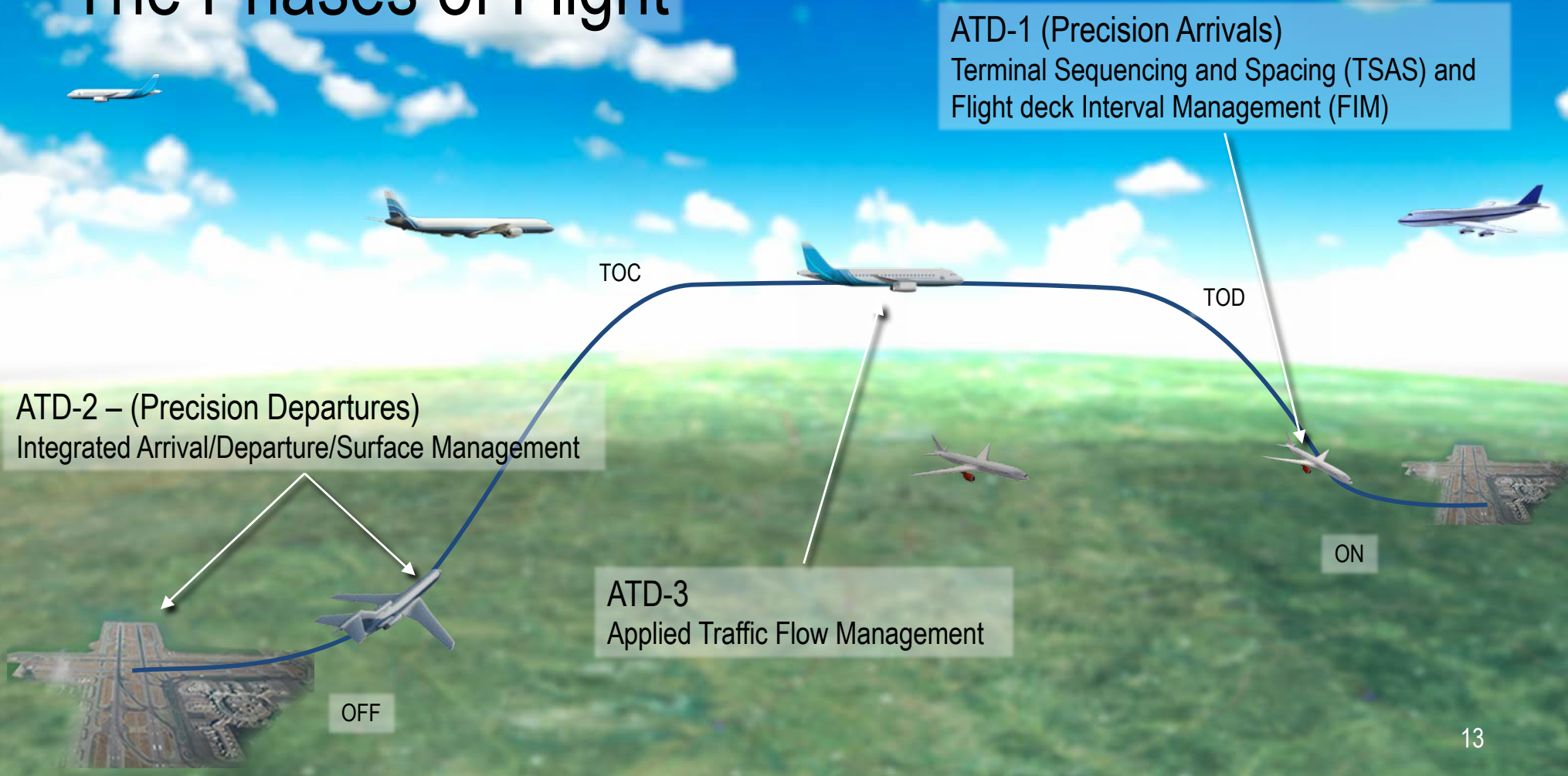
Tiltrotor Test Rig in the 40- by 80-Ft Wind Tunnel



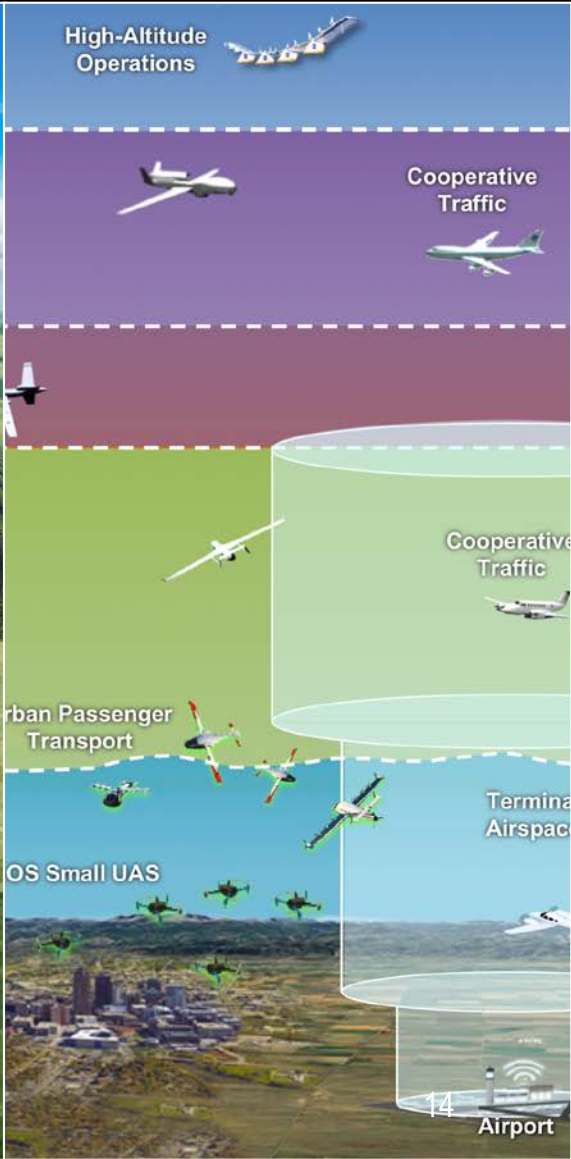
High Fidelity Simulation



The Phases of Flight



Integrating UAS in the NAS



Partnerships at Ames

Commercial



Virtual Institutes



Inter-Agency



NASA Research Park



International



Academia



