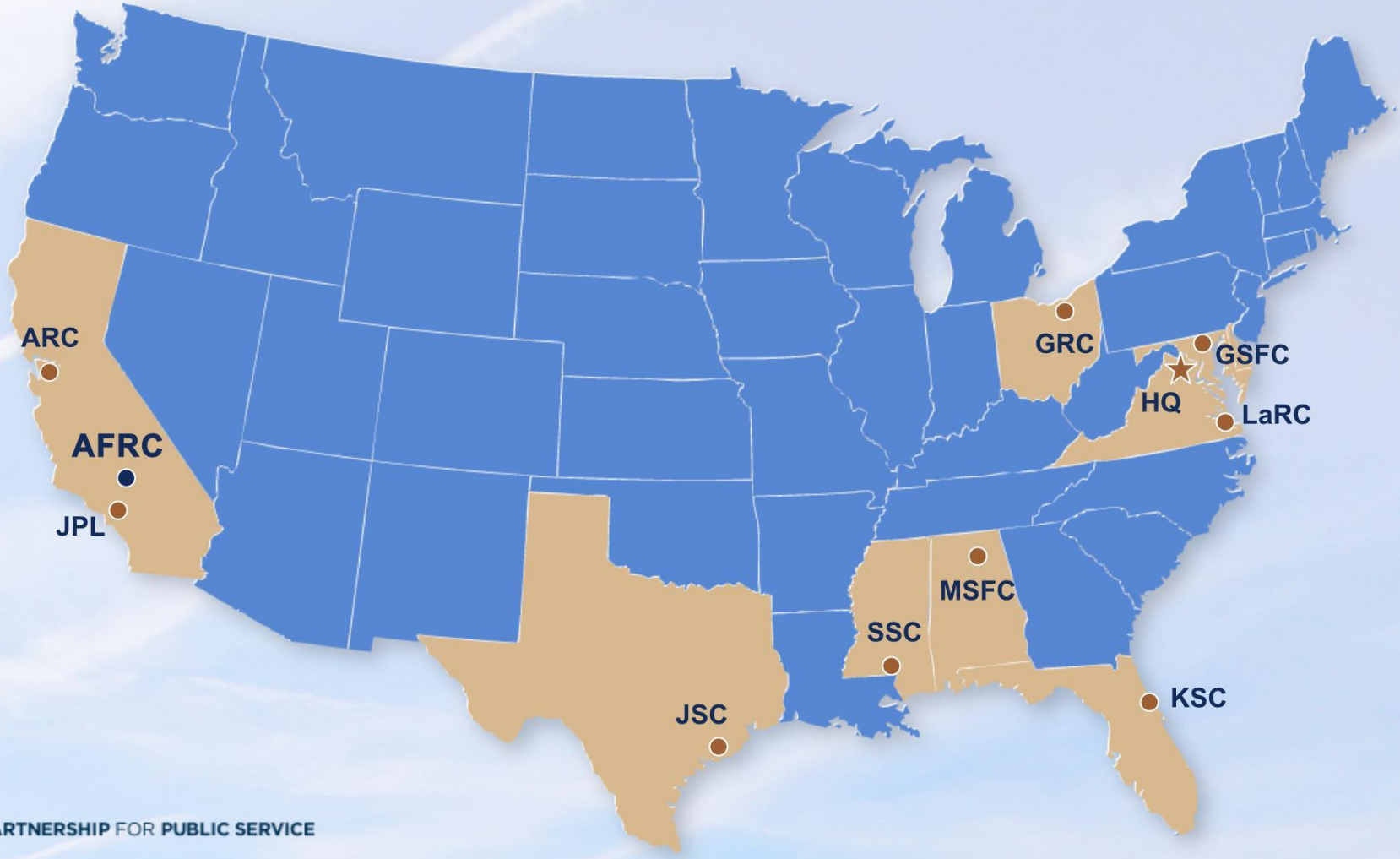
Center Overview for the San Diego Chapter of Women in Aviation

NASA Armstrong Flight Research Center

CJ Bixby
May 2017

NASA Centers



PARTNERSHIP FOR PUBLIC SERVICE

THE BEST PLACES TO WORK in the Federal Government®

NASA rated #1 Large Agency five years running!

Fiscal Year (FY) 2016 Budget

NASA

~$19.3 billion budget

17,220 civil servants

40,000 contractors

Armstrong

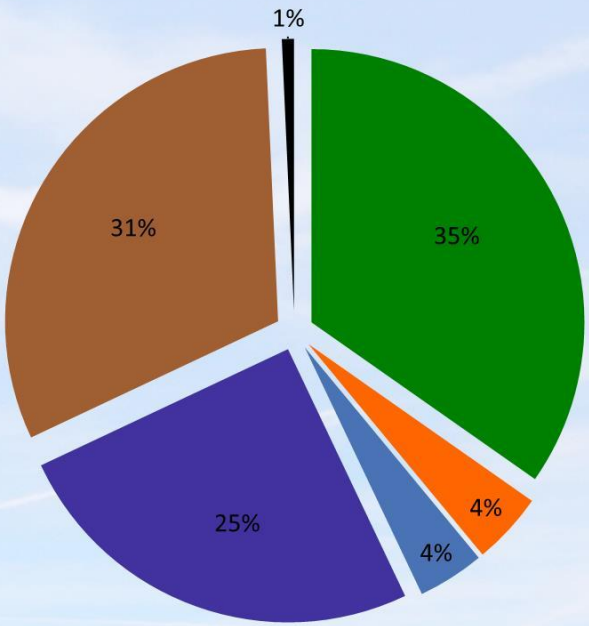
~$230 million budget

538 civil servants

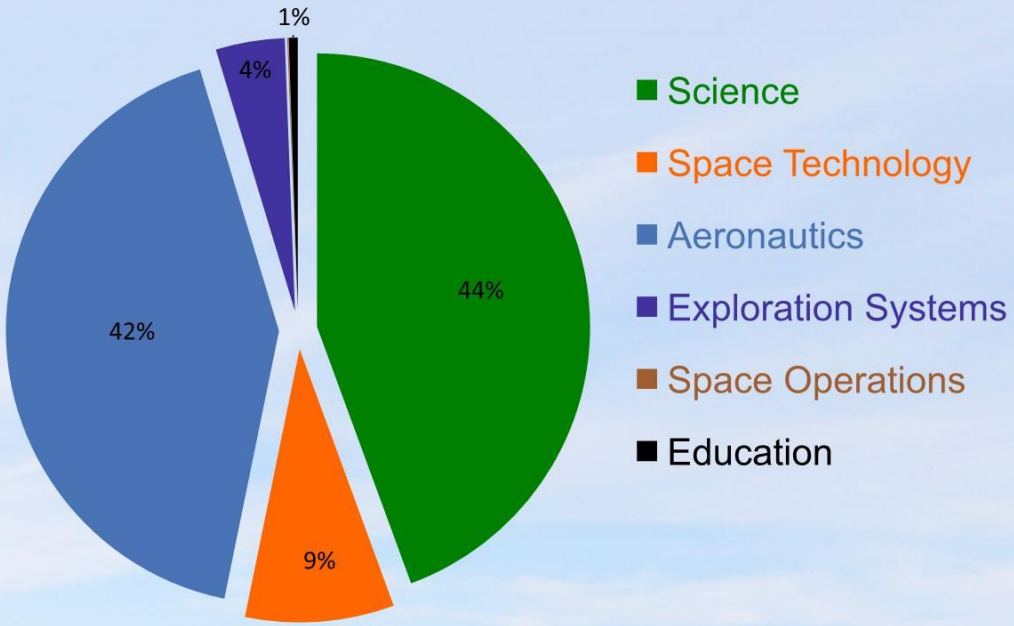
549 contractors

127 student interns

NASA Program Funds



AFRC Program Funds



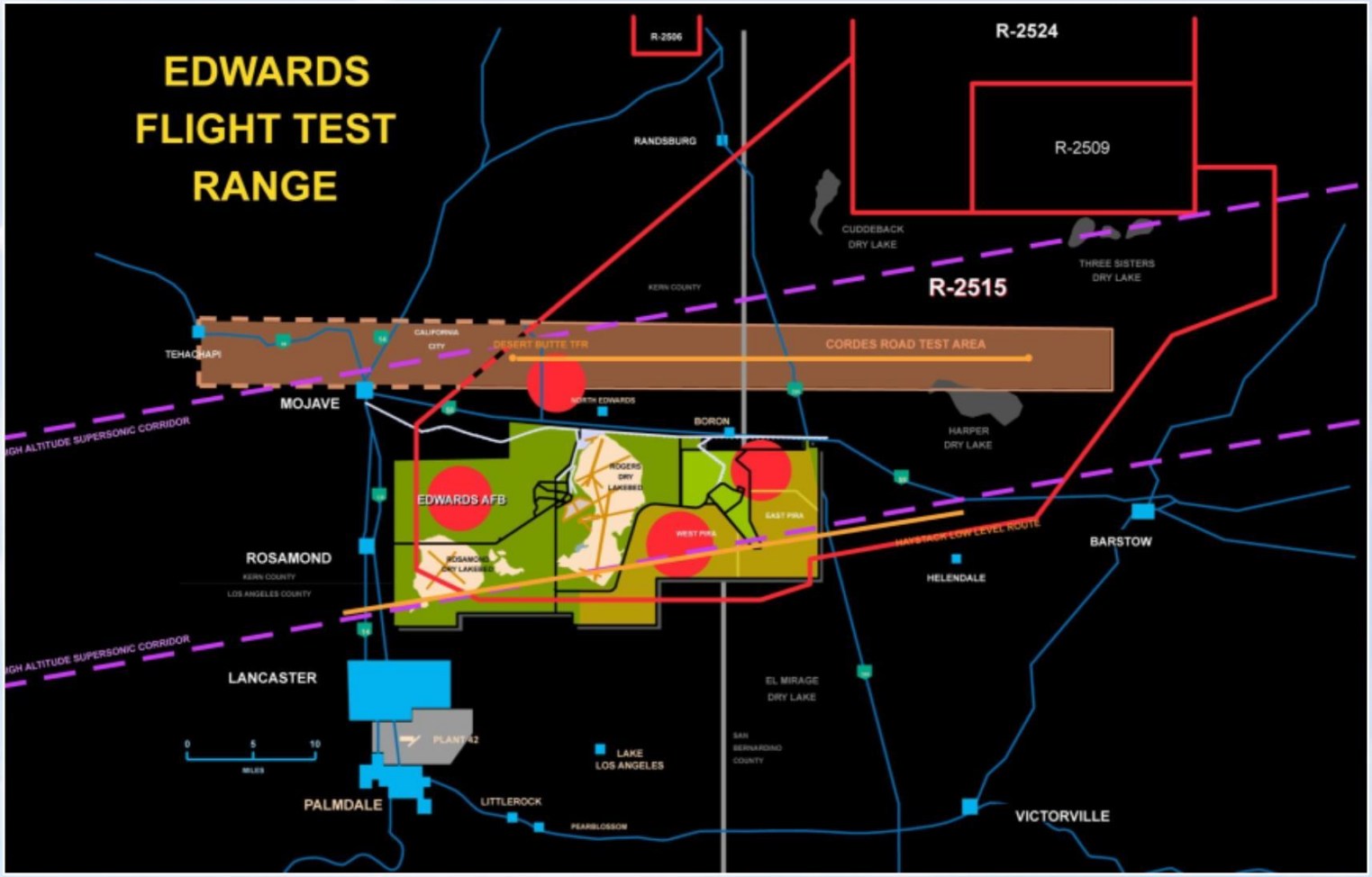
Armstrong Flight Research Center

Edwards AFB, California,
main campus:

- Year-round flying weather
- 301,000 acres remote area
- Varied topography
- 350 testable days per year
- Extensive range airspace
- 29,000 feet of concrete runways
- 68 miles of lakebed runways
- Supersonic corridor
- U.S. Air Force Alliance

Armstrong Shares Airspace with U.S. Air Force Test Center

~ 12,000 square miles



Neil A. Armstrong Flight Research Center

Neil A. Armstrong

Research Test Pilot (1955-1962)

Command Pilot of Gemini 8 (1966)

Commander of Apollo 11 (1969)

Armstrong Mission

Advancing Technology and Science Through Flight

1. Perform flight research and technology integration to revolutionize aviation and pioneer aerospace technology
2. Validate space exploration concepts
3. Conduct airborne remote sensing and science observations

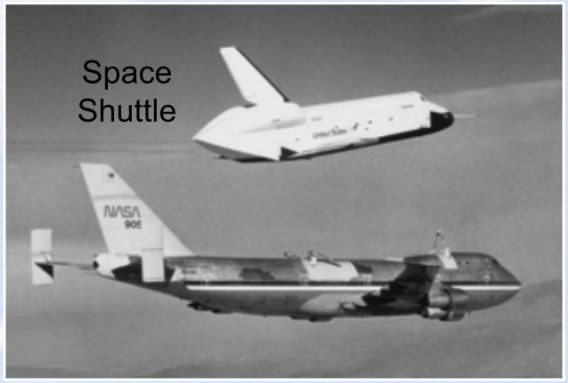
Ikhana MQ-9 Predator B
Unmanned Aircraft System

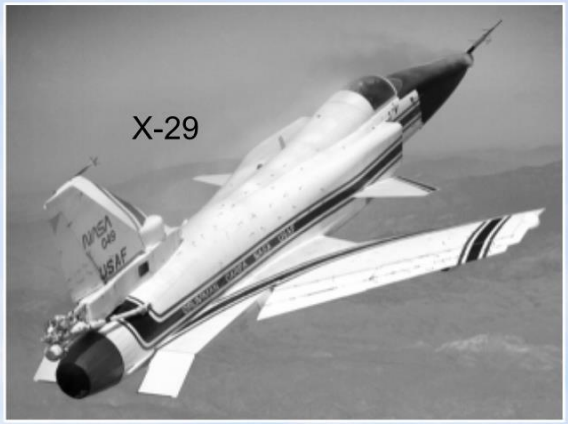
Stratospheric Observatory for Infrared Astronomy (SOFIA)

X-56 Multi-Utility Technology Testbed

Armstrong Vision

To Separate the Real from the Imagined Through Flight



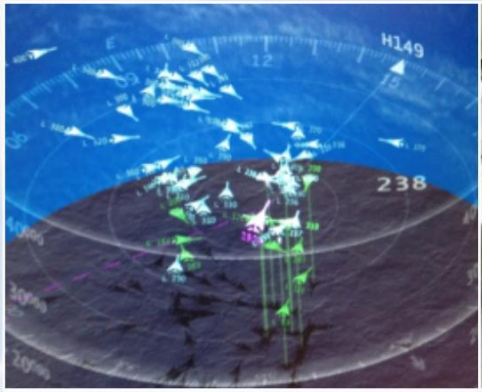


Armstrong Vision

To Separate the Real from the Imagined Through Flight

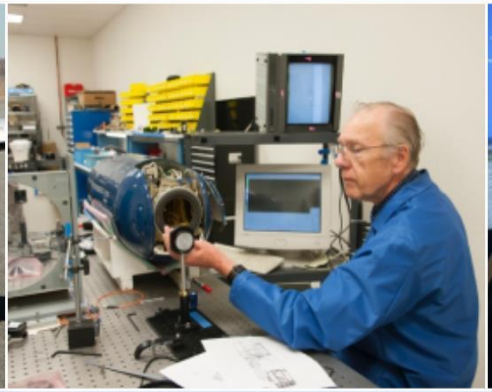
Aeronautics

NASA is With You When You Fly










Ensure the right balance among physics-based analysis, simulation, ground testing, and flight research.

Six Aeronautics Research Strategic Thrusts

What Led to This Strategic Direction?

The World Wants to Travel More …

1. Safe, Efficient Growth in Global Operations
2. Innovation in Commercial Supersonic Aircraft

While Being Fuel Efficient and Reducing Environmental Impacts …

3. Ultra-Efficient Commercial Vehicles
4. Transition to Low-Carbon Propulsion

And Taking Advantage of the New Technologies

5. Real-Time System-Wide Safety Assurance
6. Assured Autonomy for Aviation Transformation

https://www.youtube.com/watch?v=PUYbvI09c2g

New Aviation Horizons

Hybrid Electric Aircraft

Transition to Low-Carbon Propulsion

Ultra-Efficient Commercial Vehicles

Pioneer technologies for leaps in fuel efficiency, reducing environmental impact

Improving commercial aircraft energy and environmental impacts

X-57 Maxwell

Aircraft Integrated Research Vehicle Optimal Loading Test Stand (AirVolt)

Leading Edge Asynchronous Propeller Technology (LEAPTech)

X-57 Maxwell

Low Boom Flight Demonstrator

Ultra Efficient Subsonic Transport (UEST)

Aircraft Concepts

Lockheed Martin HWB X-Plane Demonstrator

DZYNE BWB X-Plane

Boeing BWB X-Plane

Aurora D8

Boeing TTBW Flight Demonstrator

Technology

Technology Drives Exploration





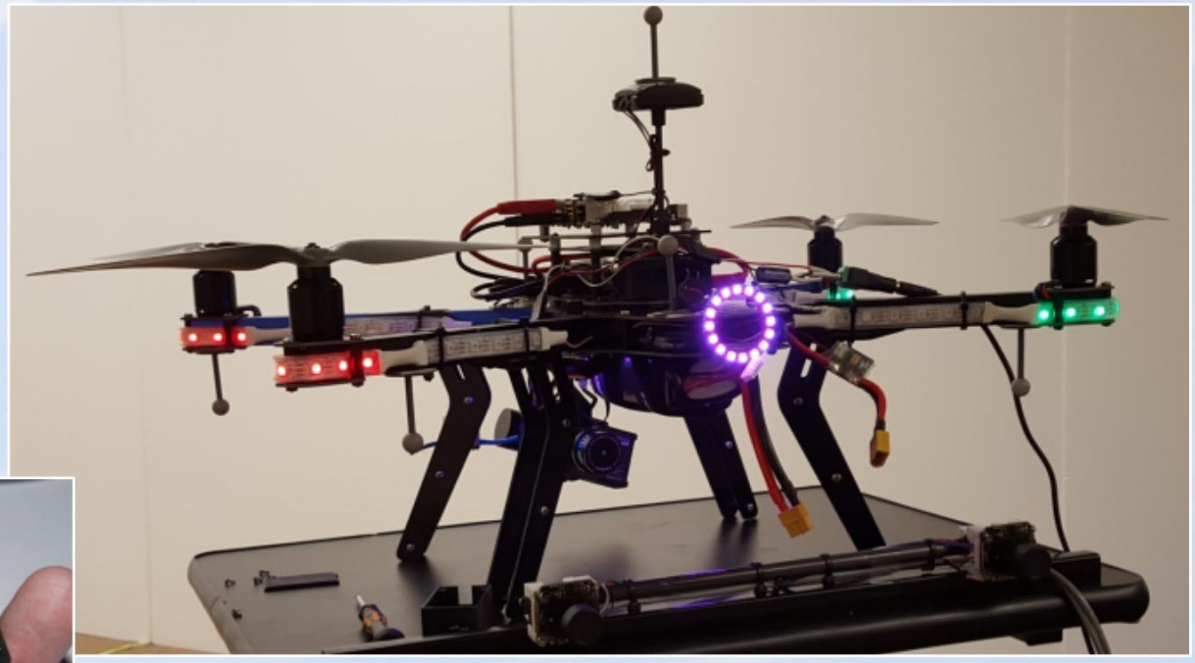


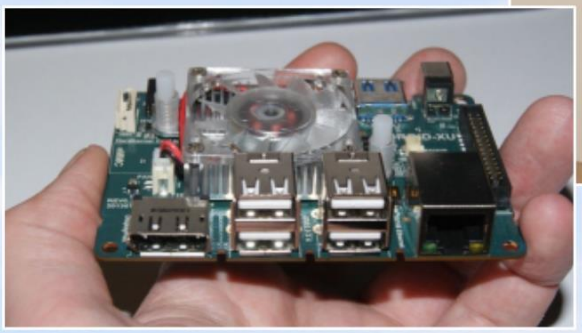

Sonic Boom Research

Assured Autonomy for Aviation Transformation

Develop autonomous systems in harmony with humans and reap benefits of flight

Advancing autonomous technologies to improve safety and efficiency of future vehicles





Quad rotor, above, equipped with Expandable Variable-Autonomy Architecture (EVAA) processor (left) and experimental lighting system for human system interface (above).

ACAT

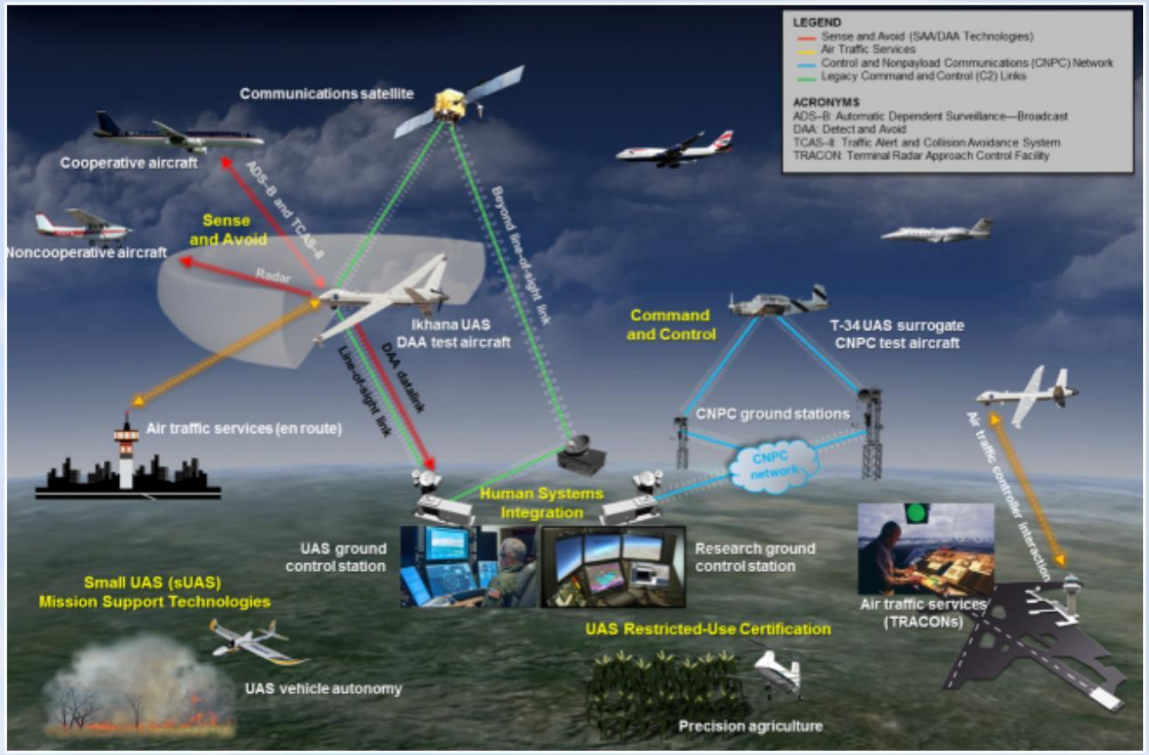
sully2

Safe, Efficient Growth in Global Operations

Assured Autonomy for Aviation Transformation

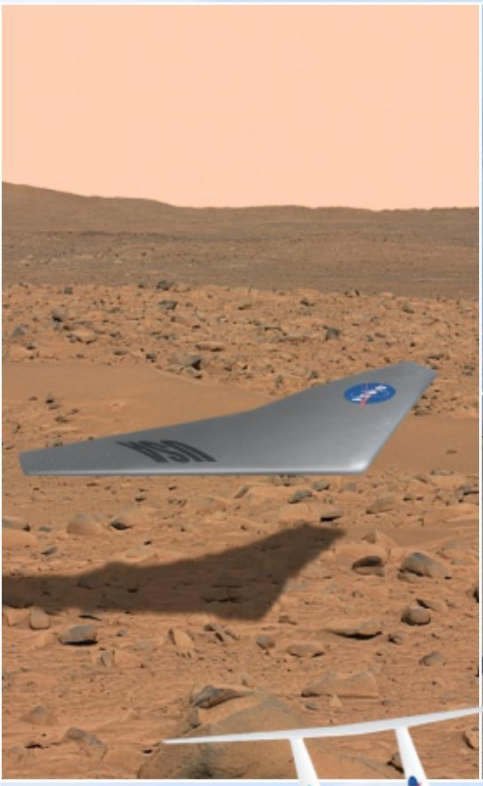
Develop autonomous systems in harmony with humans and reap benefits of flight

Developing practices, procedures, and information to use unmanned aircraft systems in the National Airspace alongside commercial airlines and also closer to the ground



Unmanned Aircraft System (UAS) Integration in the National Airspace System (NAS) Project

Future is Exciting, Formidable Technical Challenges with Tremendous Benefit



- https://www.nasa.gov/centers/armstrong/education/video_feature/afrc_internship_experience.html


Neil A.
ARMSTRONG
Flight Research Center