



Unmanned Aircraft Systems (UAS) and NASA Armstrong Flight Research Center

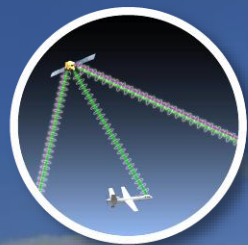
SER Jobs for Progress National, Inc.

Santa Fe, New Mexico

Presented by Robert Navarro

NASA Armstrong Flight Research Center

October 18, 2019





NASA's Vision

To discover and expand
knowledge for the benefit of
humanity.



What does NASA do?

- Exploration of Earth
- Exploration of the solar system and beyond
- Conduct aeronautics and aerospace research



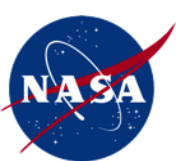
NASA Research Centers and Facilities





Grand Challenge





2001 - Helios Prototype 100k ft Mission





2003 - Helios Prototype Fuel Cell





Pathfinder+ Aeroelastic Research





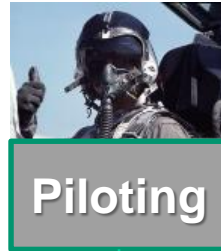
X-56 – Aeroelastic and Flutter Suppression Research



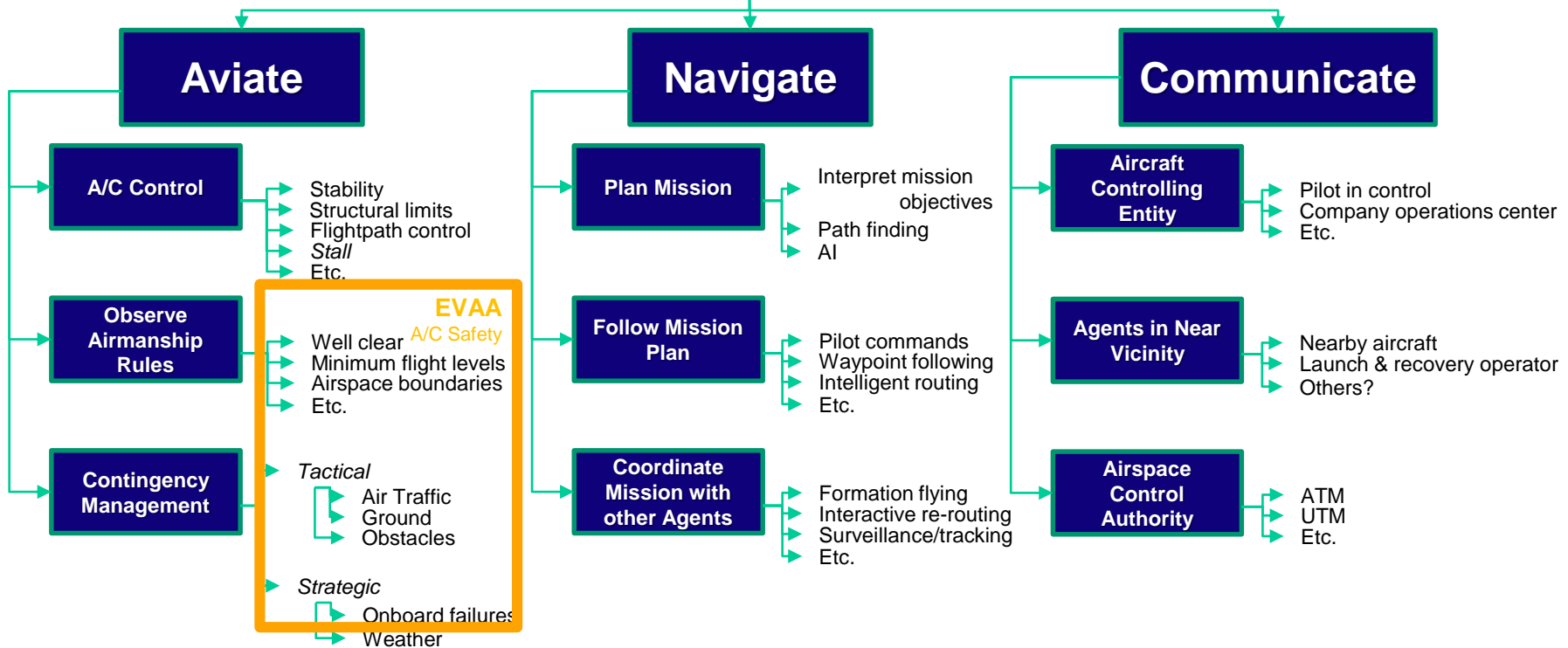


EVAA (Expandable Variable-Autonomy Architecture) Resilient Autonomy

Certification Approach

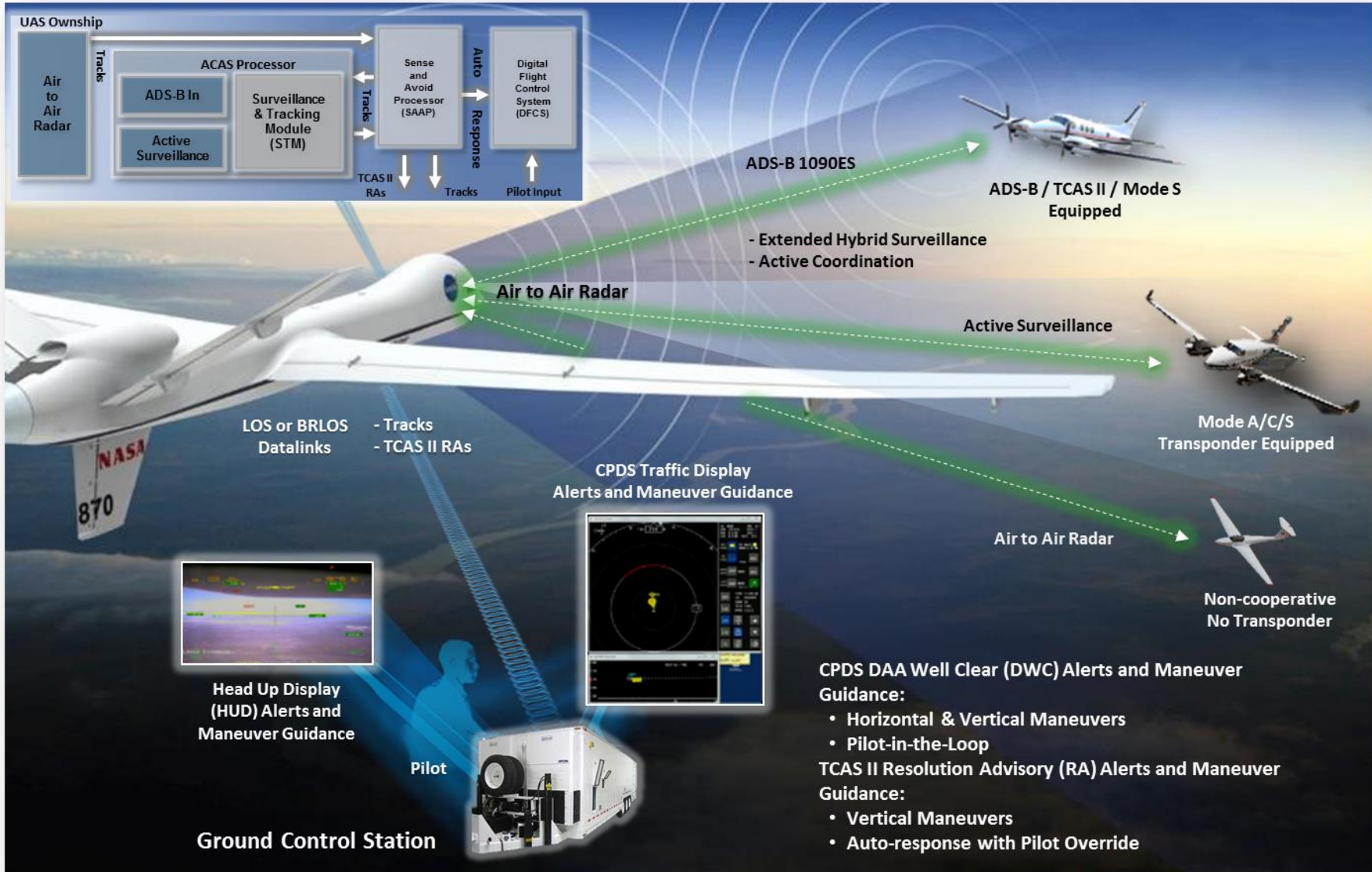


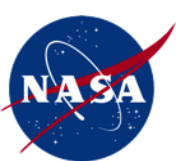
Functional Decomposition of Piloting





NCC - Well Clear in the NAS





FT6 – Well Clear in the NAS





Resilient Autonomy

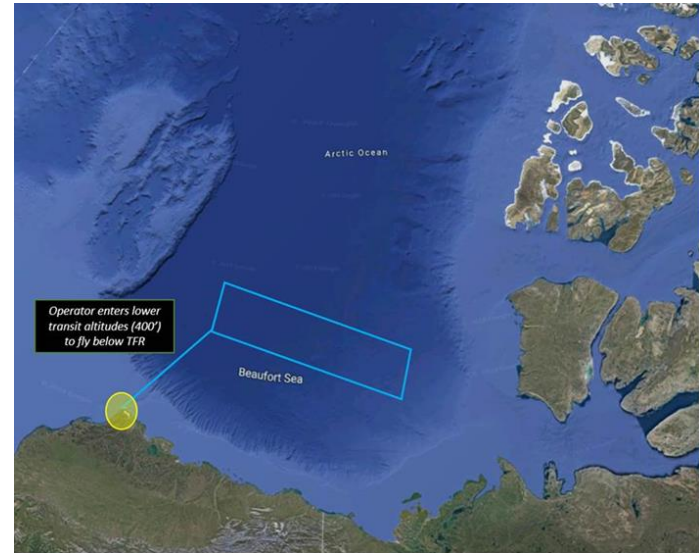
- Joint NASA / FAA / OSD / Industry Project
- Benefits
 - NASA
 - Pathfinder for Autonomy in Advanced Air Mobility
 - FAA
 - Findings to Inform the Development of Certification for Autonomy
 - DoD
 - Increasing Use of Autonomy
 - Industry's Safe Urban use of Autonomy
 - Urban Air Mobility
 - Drone Package Delivery
 - Search and Rescue Operations
 - Infrastructure Surveys



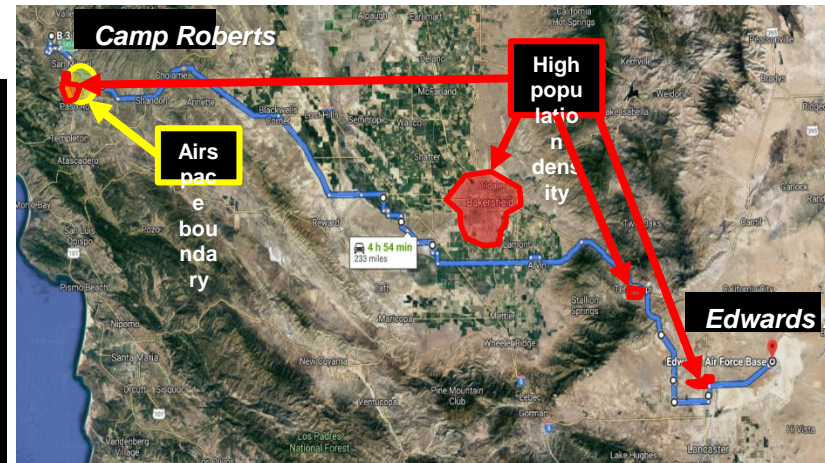
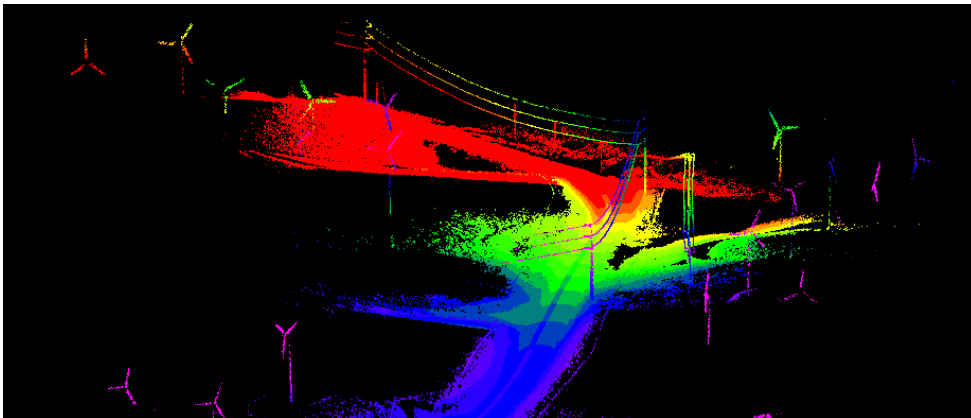


Operational Considerations

- Search Mission Over Ocean
 - Rendezvous and land



- Long-Distance Low-Altitude Rural Delivery
 - Transit below 400' above ground level





Unmanned Aircraft Systems Traffic Management (UTM) Demo





Questions?

