NASA Airborne Science Capabilities to Support Geophysics and Geology

Role: Remote sensing, Upper Tropospheric and Stratospheric In situ sampling

Altitude: 70,000 ft
Payload: 2,900 lbs
Range: 5,000 + Nmi
Based: AFRC

Role: Remote sensing, Upper Tropospheric and Stratospheric In situ sampling, vertical profiling

Altitude: 65,000 ft
Payload: 6,000 lbs
Range: 2,172 Nmi
Based: JSC

Role: Remote sensing, Laser profiling, Tropospheric In situ sampling

Altitude: 51,000 ft.
Payload: 8,000 lbs
Range: 5,500 Nmi
Based: JSC

Role: UAVSAR and mid-altitude remote sensing

Altitude: 45,000 ft
Payload: 2,610 lbs
Range: 3,400 Nmi
Based: AFRC & JSC (UAVSAR)
LARC (w/ nadir ports)

Role: Tropospheric In situ sampling, vertical profiles, Synthetic Aperture Radar, remote sensing

Altitude: 41,000 ft
Payload: 30,000 lbs
Range: 5,400 Nmi
Based: AFRC / UND

Role: Mid-altitude remote sensing and In situ sampling

Altitude: 32,000 ft.
Payload: 2,000 lbs
Range: 1,883 Nmi
Based: AFRC, LARC, Conracted

Role: Remote sensing, Laser profiling, Tropospheric In situ sampling

Altitude: 30,000 ft.
Payload: 16,000 lbs
Range: 3,800 Nmi
Based: Wallops

Role: High altitude long endurance remote sensing and stratospheric sampling

Altitude: 65,000 ft.
Payload: 10 lbs
Endurance: 30 Days
Based: CAS through ARC

Role: Low altitude remote sensing and in situ sampling

Altitude: 12,000 ft
Payload: 100 lbs
Range: 550 Nmi
Based: ARC

Role: Low altitude remote sensing and in situ sampling

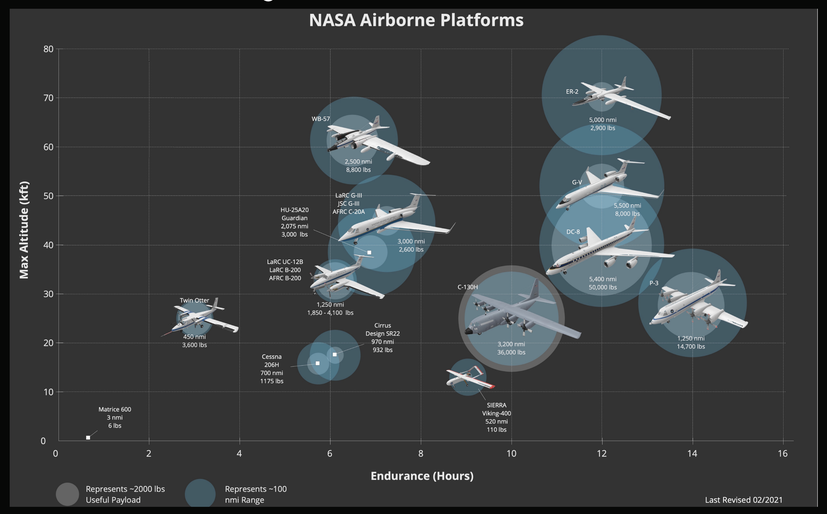
Payload: 5 lbs (90 min)
Range: 55 Nmi
Based: ARC & LARC

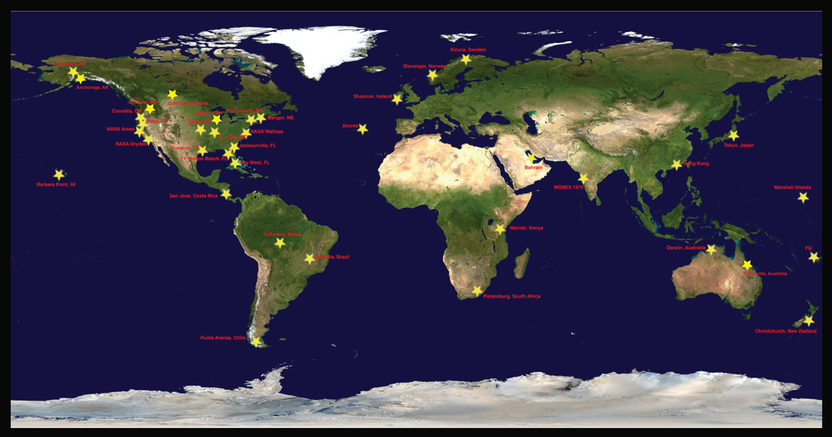
Role: Low altitude remote sensing and in situ sampling

Altitude: ELOS
Payload: 35 lbs
Range: ELOS
Based: ARC, AFRC, LARC

Overview

The Airborne Science Program is a key component of the NASA Earth System Observatory by providing in atmosphere measurements, high spatial and temporal resolution data for satellite calibration and process studies, and flight test support for next generation instruments. The Program supports the maintenance and operations of various crewed and uncrewed aircraft at NASA Centers around the country. The Program also facilitates access to contracted aviation services if NASA aircraft aren't a good match.





Past Deployment Sites Used by the Airborne Science Program Platforms

Contact Information

http://airbornescience.nasa.gov
Bruce Tagg – Director, NASA Headquarters
Derek Rutovic – Deputy Director for Engineering, NASA JSC
Matt Fladeland – Airborne Science Program Office, NASA ARC

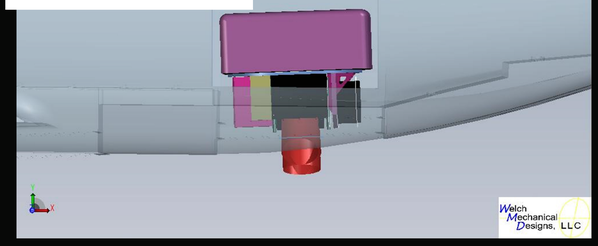
The Flight Request Process

Requests for the use of the catalog aircraft (both government and commercial) are submitted via the web tool at http://airbornescience.nasa.gov (new users first complete a quick registration step.) Details regarding platform and schedule requirements, together with a short science rationale and funding sponsorship, are entered. In many cases NASA-subsidized flight hour rates are made available to qualified researchers. Upon evaluation of the request, costs estimates are provided, and final approvals are obtained from Earth Science Division management.

NASA Flight Operations requirements and policies are outlined in NASA Procedural Requirements 7900.3D and is applicable to crewed and uncrewed aircraft whether NASA owned or commercially operated.

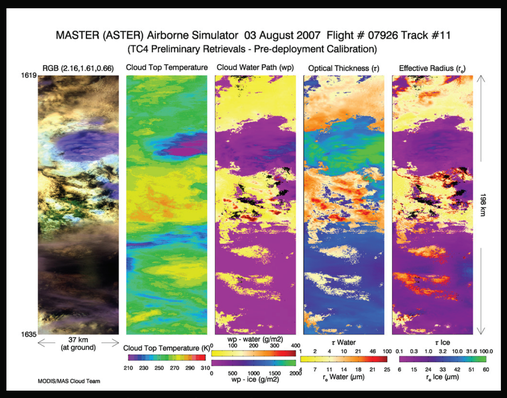
Instrument Integration Support

The program provides engineering support through dedicated program staff in addition to engineering teams associated with each aircraft at NASA flight operations centers.to facilitate the installation of new instrumentation onto the various platforms. This includes assistance with mechanical and electrical interfaces, and compliance with NASA airworthiness directives. New instrument development projects intending to fly on NASA airborne platforms are strongly encouraged to consult with ASP engineers early in the design process to streamline the integration process.



Facility Sensors and Support Equipment

The NASA Earth Science Division funds the development and operations of airborne instruments that are available upon request by the science community. These include calibrated imagers such as the JPL AVIRIS (Airborne Visible and Infrared Imaging Spectrometer,) the MODIS and ASTER Airborne Simulators (MAS and MASTER,) and the UAVSAR (mounted on the G-III) together with a variety of digital cameras and video tracking systems. Precision platform navigation and aircraft state data are provided to payloads via either embedded or stand-alone systems. Several two-way satellite communication systems are also available. For more information on these systems see the Instrumentation page on the ASP web site.



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