



Global Hawk

High-altitude, long-endurance science aircraft



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Two developmental model Northrop Grumman Global Hawk aircraft have been transferred from the U.S. Air Force to NASA's Dryden Flight Research Center at Edwards Air Force Base, Calif., for use in high-altitude, long-duration Earth science missions. These autonomously flown aircraft are the first and sixth Advanced Concept Technology Demonstrators built under the original Global Hawk development program sponsored by the Defense Advanced Research Projects Agency.

The ability of the Global Hawk to autonomously fly long distances, remain aloft for extended periods of time, and carry large payloads brings a new capability to the science community for

measuring, monitoring and observing remote locations of Earth not feasible or practical with piloted aircraft, most other robotic or remotely operated aircraft or space satellites.

The aircraft's 11,000-nautical-mile range and 30-hour endurance, together with satellite and line-of-site communication links to the ground control station, allow for eventual worldwide operation. Dedicated satellite communication links will provide researchers with direct access to their onboard instrument packages during missions. Researchers will have the ability to monitor instrument function from the ground control station and evaluate selected data in real time.



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Northrop Grumman Systems Corporation, Rancho Bernardo, Calif., and NASA Dryden have created a partnership for establishment and operation of Global Hawk mission capability at NASA Dryden. NASA and Northrop Grumman will share use of the ground control station, maintenance facilities, and the two NASA Global Hawk aircraft.

NASA's Science Mission Directorate is supporting initial NASA research activities on the aircraft through the Airborne Science Program. The Science Mission Directorate has teamed with the National Oceanic and Atmospheric Administration and the Department of Energy to evaluate unmanned aircraft systems, specifically the Global Hawk, for Earth observation research.

Initial operational capability for Global Hawk science missions from NASA Dryden is expected in 2009. When a portable ground control station is developed, deployments and missions will be possible worldwide.

The 44-foot long Global Hawk has a wingspan of more than 116 feet, a height of 15 feet, and a gross takeoff weight of 25,600 pounds, including a 2,000-pound payload capability. A single Rolls-Royce AE3007H turbofan engine powers the aircraft. The distinctive V-tail, engine cover, aft fuselage and wing are constructed of graphite composite materials. The center fuselage is constructed of conventional aluminum, while various fairings and radomes feature fiberglass composite construction.

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