



# The Dryden XPRESS

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## New birds arrive

By Gray Creech

Dryden Public Affairs

Dryden has received three F-15D Eagle aircraft from the U.S. Air Force for use in flight research and mission support roles. The demilitarized high-performance aircraft arrived at Dryden Sept. 21 after being transferred from the 325th Fighter Wing at Tyndall Air Force Base, Fla.

One of the twin-engine, two-seat tactical fighters will replace Dryden's aging F-15B research test bed aircraft, tail number 836. A second F-15D will be used as a mission operations support aircraft, and a third will serve as a spare parts source. Built in the late 1970s by McDonnell Douglas Corp. (now part of The Boeing Co., St. Louis), the three aircraft bear Air Force serial numbers 78-0564, 78-0565 and 79-0007.

The F-15B they will replace reached a major milestone this summer, making its 400th NASA research flight on July 28. This distinction makes F-15B No. 836 the record-holder for the most research flights ever made by a single aircraft at Dryden.

By comparison, Dryden's iconic red, white and blue NF-15B, tail number 837, flew 250 flights at Dryden prior to its retirement in



ED10 0283-32

NASA Photo by Carla Thomas



ED10 0283-81

NASA Photo by Tony Landis

early 2009. The first X-31 flew 292 flights, the second 267.

Acquired in 1993 from

the Hawaii Air National Guard, Dryden's F-15B has also been used for crew training, pilot proficiency

and safety chase support of other research aircraft in addition to research experiments.

*Above, a trio of F-15D Eagles in tight formation arrive at Dryden Sept. 21. Two of the aircraft will be used to conduct flight research. The third is expected to be a source for spare parts.*

*At left, Center Director David McBride, right, and chief engineer James Smolka, second from right, welcome crewmembers from the 325th Fighter Wing at Tyndall Air Force Base, Fla., who delivered the aircraft.*

# GRIP mission complete

The DC-8 and Global Hawk aircraft flew the final flights of NASA's Genesis and Rapid Intensification Processes, or GRIP, mission during the first week of September, with flights over Tropical Storm Matthew. The six-week mission was a study of the formation and strengthening of tropical storms in the Gulf of Mexico and the western Atlantic Ocean.

The remotely operated Global Hawk landed at Dryden Sept. 24 after a more than 25-hour mission that included several data-collection passes over the developing storm system in the Gulf.

The four-engine DC-8 flying laboratory and its team of scientists concluded data-collection flights Sept. 22 with a 7.7-hour survey flight over the same general area, south of Hispaniola and north of Venezuela. The flight encompassed aerosol sampling and a coordinated data validation under the path of NASA's Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observation and Cloudsat satellites.

The converted jetliner and its team of scientists, flight crew and support personnel have returned to the DC-8's home base at the Dryden Aircraft Operations Facility in Palmdale, Calif. The DC-8 had been deployed to Ft. Lauderdale, Fla., for the mission, though some of its flights were staged out of St. Croix, Virgin Islands.

Global Hawk flights in the mission were monitored and controlled from the Global Hawk operations center at Dryden.

A high-altitude WB-57 from Johnson Space Center, Houston, was also used for several GRIP campaign missions. In addition, aircraft from the National Oceanic and Atmospheric Administration, the National Science Foundation and the U.S. Air Force were deployed in the campaign.

The trio of NASA environmental science aircraft flew more than 200 hours of data-collection flight time during the mission, the DC-8 amassing more than 140 flight hours during 25 flights since the campaign began in early August. The long-endurance, high-altitude Global Hawk flew several missions of more than 24 hours' duration during the campaign.

The missions included coordinated flights by the DC-8, Global Hawk and WB-57 over several hurricanes and tropical storms, including major hurricanes Earl and Karl.

The GRIP field experiment was managed at Ames Research Center, Moffett Field, Calif., with participation from the Jet Propulsion Laboratory, Pasadena, Calif., Dryden, Johnson, Goddard Space Flight Center, Greenbelt, Md., and Marshall Space Flight Center, Huntsville, Ala.



ED10 0190-131

NASA Photo by Tony Landis

*A Dryden-based NASA Global Hawk made its final GRIP mission flight Sept. 24.*



ED07 0256-05

NASA Photo by Jim Ross

*Dryden's DC-8 returned to home base at the Dryden Aircraft Operations Facility in Palmdale after a six-week deployment to Florida for the GRIP mission.*

## Review fire safety, car care in October

October is Fire Safety and Auto Care month. During the month of October, take time to review your home's fire safety and prepare your auto for winter. Some suggestions follow:

### Fire Safety:

- Replace batteries in smoke and carbon monoxide detectors.
- Test detectors monthly.
- Replace detectors that are 10 or

more years old.

- Discuss with your family fire safety, emergency escape and meeting place. You might even try practicing with a drill.

- Have your home's heating system tested for proper operation and ensure that carbon monoxide levels are safe.

- Replace or clean (if cleanable) forced-air furnace air filters.

- Check fire extinguisher pressure

visually. Replace unit if pressure is low.

- More tips can be found at <http://www.firepreventionweek.org/>.

### To prepare your vehicle for winter:

- Check all fluids: oil, coolant and windshield washer; replace as required.

- Check tire pressure when tires are cold. Inflate tires to the

recommended pressure. Properly inflated tires will increase traction and fuel mileage and will wear longer.

- Replace windshield wiper blades.

- Put a can of HEET in your fuel tank to remove water from the tank.

- Purchase a good window scraper/brush.

- Replace tires, belts and hoses as

**See Car Care, page 4**

# BWB returns to flight

## Upgrades, major overhaul complete

By Gray Creech  
Dryden Public Affairs

After undergoing a major overhaul and upgrades, flight test of the Boeing/NASA X-48B blended wing body research aircraft resumed with a checkout flight from Dryden Sept. 21.

The subscale, manta ray-shaped, remotely piloted airplane, also called a hybrid wing body, is a tool of NASA's new Environmentally Responsible Aviation, or ERA, project. The ERA effort aims to develop the technologies needed to create quieter, cleaner and more fuel-efficient airplanes for the future.

After completion of the first phase of flight-testing, the airplane was disassembled for a complete inspection and refurbishment. The new test series will be focused on additional parameter identification investigations following installation and checkout of a new flight computer. Parameter identification work will evaluate the new computer's control of flight control surfaces



ED10 0056-35

NASA Photo by Tony Landis

*The first phase of flight tests on the X-48B blended wing body aircraft wrapped up at Dryden with the 80th flight on March 19. After it underwent upgrades and a checkout flight, a second phase of testing began with the aircraft.*

and aircraft performance.

Ohio.

In addition to NASA and Boeing, the X-48B team includes Cranfield Aerospace Ltd. in the United Kingdom and the U.S. Air Force Research Laboratory in Dayton,

The team completed the 80th and final flight of the project's first phase on March 19, nearly three years after the X-48B's first flight on July 20, 2007.

# News at NASA

## NASA funds boost STEM

NASA has awarded grants to nine academic institutions and their partners that serve large numbers of minority and underrepresented students to strengthen offerings in science, technology, engineering, and math, or STEM. The grants total approximately \$1.15 million through the agency's Curriculum Improvement Partnership Award for the Integration of Research, or CIPAIR, project.

Seven institutions and their partners will receive one-year funding ranging from approximately \$145,000 to \$150,000 per year for up to three years, based on performance and availability of funds. Two organizations will receive planning grants. The grants must be used to increase the quantity and quality of STEM curricula.

Selections were based on proposal reviews by scientists and educators from private industry, academia, the National Science Foundation and NASA. The formal award, financial arrangements and grant administration will be made through the NASA Shared Services Center. The CIPAIR project is managed for NASA by the Jet Propulsion Laboratory in Pasadena, Calif.

The awards provide funding that continues NASA's commitment to achieving broad-based, competitive aerospace research and technology development capability among the nation's minority-serving institutions. For more information, visit [http://www.nasa.gov/offices/education/programs/descriptions/Curriculum\\_Improvements\\_Partnership\\_Award.html](http://www.nasa.gov/offices/education/programs/descriptions/Curriculum_Improvements_Partnership_Award.html).

## NASA marks first bilingual Web chat

*Dryden pilot Hernan Posada, right, who flies the Global Hawk and Ikhana remotely operated unmanned aircraft, takes questions during NASA's first bilingual Internet Web chat Sept.*

*21. Posada was supported by Dryden public affairs moderator Gray Creech and translator Carmen Arevalo. More than 220 questions from more than 30 people were received during the 90-minute on-line Web chat.*



ED10 0285-1

NASA Photo by Tony Landis

**Oct. 23, 1951** – Last flight of X-1-2 (46-063). Airplane was subsequently rebuilt as the X-1E.



**Oct. 23, 1968** – Maj. Jerauld Gentry piloted the first powered flight of the HL-10 lifting body research aircraft.

**Oct. 26, 1977** – Fred Haise and C. Gordon Fullerton piloted the final Approach and Landing Test of the space shuttle orbiter Enterprise. This was the first landing of the orbiter on a concrete runway.

**Oct. 24, 2000** – The orbiter Discovery (OV-103) completed the 100th space shuttle mission with a landing at Edwards Air Force Base.

## Car Care... from page 2

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|---|--|
| needed.   | include blanket, extra clothing,                                 |
| • Get an engine tune-up.  | gloves, hat, jumper cables, snack                                |
| • Check battery and clean terminals.                                  | food, small shovel, flashlight with                              |
| • Pack an emergency safety kit for the trunk. At a minimum, it should | new batteries and cat litter or Ice Bite for emergency traction. |

## Mishap investigations close; lessons learned

Several mishap investigations were closed during the month of September, and the lessons learned were as follows:

- Spider bites: Always check for webs and nests around and under work areas prior to starting work. Report any incident to your supervisor, medical unit or safety office. Black widows, brown recluse spiders, bees, wasps and fire ants are just a few creatures willing to take a bite out of you.
  - \* Deep-vein thrombosis: Prolonged sitting and immobility can be your worst enemy. Whether sitting for a long flight or at your desk, a variety of calf and leg stretching exercises can be performed to help reduce the risk of these and other, similar conditions.
- Wrist fracture: Remember to wear appropriate footwear to ensure proper protection and regularly inspect shoes for wear and tear or defects.
- Gem cart ejection: Wear seat belts, even on short trips. It's the law!

## Station partners meet to discuss future of ISS

The International Space Station partner agencies met Sept. 21 by videoconference to discuss technology development and other opportunities.

Each partner agency reaffirmed commitment to gaining maximum return from the station through increasing operational efficiency.

Ongoing research with potential societal impact, announced recently by NASA and the National Institutes of Health, includes new biomedical experiments using the station's unique microgravity facilities and aimed at improving human health on Earth.

The experiments will use the station to study how bones and the immune system weaken in space.

The CSA will focus its life science research program on mitigating health risks associated with spaceflight. More information is available at <http://www.asc-csa.gc.ca/eng>.

The ESA recently began a fluid physics experiment in the Microgravity Science Glovebox on board the station's Columbus module. More information is available at <http://www.esa.int/spaceflight>.

The Russian agency continues experimental programs focused on human adaptation to future long-term expeditions. More information is available at <http://www.federalspace.ru>.

Complete information about the space station and its future is available at <http://www.nasa.gov/station>.

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