

Inside Wallops

National Aeronautics and Space Administration
Goddard Space Flight Center
Wallops Flight Facility, Wallops Island, Va.

Volume XX-07 Number 21

June 4, 2007



Wallops Mission Checks Health of Greenland's Ice Sheet and Glaciers

A NASA-led research team has returned from Greenland after an annual three-week mission to check the health of its glaciers and ice sheet. About 82 percent of Greenland is made up of a giant ice sheet. During the Arctic Ice Mapping Project, researchers measured critical areas of the island's ice sheet as well as its glaciers and monitored changes that may be connected to global climate change.



NASA Image

A laser sensor scans and collects a series of overlapping elevation measurements that are combined into a "ribbon" or swath of data about 1,300 feet wide. Using Global Positioning System (GPS) technology, researchers obtain data that precisely overlaps data taken in the same location in previous years.

The science team, using laser and radar instruments aboard aircraft, has been closely monitoring the changes in the ice cover since 1991. Past measurements from the team have shown that areas of ice along the Greenland coast have been thinning while inland areas have thickened. However, when these changes are taken as a whole, Greenland has experienced a significant loss of ice.

The data from past mapping missions and from Earth-orbiting satellites such as

NASA's ICESat spacecraft has shown that the ice sheet and glaciers have been melting at an increasing rate over the past several years.

"Knowledge of how ice sheets and glaciers like those on Greenland are changing provide an indirect measure of sea-level changes and indicate trends in world climate," said Bill Krabill, lead investigator of the Greenland mission from the NASA Wallops Flight Facility. "Some of the island's major glaciers have sped up since the turn of the century, with documented thinning from 65 to nearly 100 feet per year. With this mission we measured what's happening to Greenland's ice with a low-flying state-of-the-art laser from just a third of a mile above the surface."

It has been estimated that a 9-inch change in the average height of the central Greenland ice sheet would result in a .12-inch change in the sea level of the world's oceans.

"This mission builds on our existing data from past flights and aids in correlating data from the ice-observing satellites," said Krabill. "The 16 years of very precise data we've gathered over the same flight paths gives us a very good look at the health of Greenland's ice cover."

The 19-person research team, which headed for Greenland on May 1, used a Wallops-built scanning laser system aboard a GPS-guided NASA P-3B aircraft to take detailed measurements of ice elevations, with accuracy within a few inches.

Also onboard, an ice-penetrating radar system from the University of Kansas, Lawrence, provided elevation measurements of the bedrock as far as two miles below the ice sheet's surface. From the measurements of these two instruments, researchers determine the thickness of the ice.

"Each year, we refer to the views of glaciologists, NASA radar data, and information from other federal agencies to locate areas where thinning may be occurring and fly out to those critical areas that may be changing more rapidly," said Krabill. "In the end, weather conditions always dictate our data gathering success. We were terrain-hopping at just a third of a mile above the surface with a laser pulsing 5,000 times per second that cannot shoot through the clouds. So low-lying clouds could have prevented us from capturing any data."

This year, the aircraft also carried two new, high-altitude ice-measuring radars tested by their developers, Ohio State University, Columbus, and the Johns Hopkins University Applied Physics Laboratory, Laurel, Md. If effective, the new sensors could serve as precursors to instruments that could be used aboard a future satellite mission.

Multiple aircraft lifted off from the former U.S. air base Kangerlussauq and Thule Air Base and primarily covered flight paths flown nearly every year since 1991.

"The aircraft performed in outstanding fashion this year, with no down time in the field, and the crew was outstanding on what were relatively long eight-hour missions," Krabill said. "All of our objectives for the sensors onboard were accomplished. In about two months, we'll finalize results that will offer researchers around the world a glimpse of what we expect will indicate a continuing trend of ice loss on the island."



"Diversity is the one true thing we all have in common. Celebrate it everyday."

Author Unknown

Wallops Teams with Air Force Academy for Launch

Senior cadets from the U.S. Air Force Academy planned, designed, fabricated and tested their FalconLAUNCH V rocket and launched it from on May 22.

The FalconLAUNCH V launched from Wallops Island at 8:15 a.m. EDT carried a 5 pound payload. The rocket, nearly 10 feet in length and 7 inches in diameter, was recovered and returned to the cadets.

“The Air Force Academy cadets put a lot of effort in this project.

This project was a great

collaboration between NASA and the U. S. Air Force that allowed the Air Force Academy cadets to learn the NASA approach to conducting a small suborbital space mission,” said Phil Eberspacher, chief of NASA’s Sounding Rockets Program Office.

The academy’s FalconLAUNCH sounding rocket program began in 2002.

It is a two semester capstone design course for seniors majoring in astronautical engineering, systems engineering and systems engineering management.

The goal for the program is to provide a “hands-on” educational experience for cadets while applying a high level of practical engineering to solve real-world problems.

The Air Force Academy project is one of several university student design activities being supported by NASA Wallops. These projects develop critical skills and capabilities needed to support science research and the Vision for Space Exploration.



NASA Photo

Wallops Shorts..... Launches

A NASA scientific balloon was launched from Ft. Sumner, N.M., on May 27. The 39.57 million cubic foot balloon carried the High-Energy Replicated Optics (HERO) instrument. HERO is a focusing x-ray telescope to measure hard x-ray emissions of galactic and extra-galactic sources. Dr. Brian Ramsey, NASA Marshall Space Flight Center, was the principal investigator for the mission. Total flight time was 30 hours, 51 minutes at a float altitude of 131,800 feet. The flight was an operational and science success. The payload was recovered.

The second scientific balloon was launched from Ft. Sumner on June 2. The 39.57 million cubic foot balloon carried the Tracking and Imaging Gamma Ray Experiment (TIGRE) instrument, a new gamma-ray telescope concept using silicon strip detectors as both the gamma-ray converter and secondary particle tracker. Dr. Allen Zych, University of California at Riverside, was the principle investigator. Total flight time was 27 hours, 4 minutes. Float Altitude was 133,800 feet. The flight was an operational and science success. The payload was recovered.

In the News

“Space News”, NASA Selects Payloads for Sounding Rocket Missions

Wallops Mission Celebration!

Thursday, June 7

2:30 - 5 p.m.

Building N-159

Join us as we celebrate a year of mission success at Wallops with food, entertainment, and fun!

All NASA contractors and civil servants are invited to a celebration hosted by Dr. John Campbell, Director of Wallops

Also, the 1st Annual Launch Wing-Off!

This is a wing cook-off between Codes 200 and 800.

Teams are already preparing and the competition is hot and spicy!

There will be two categories: Judges' Choice and People's Choice.

Judging will take place at the beginning of the party.

For more information, contact Sherry Kleckner at x1204.



Aerobics Club Summer Schedule

By request, Donna Smith will be instructing the Monday and Wednesday afternoon classes for the Wallops Aerobics Club offering a new Split Routine, a cardio and strength training program. Classes will be at 4:30 - 5:30 p.m. in the Wallops Gym, Building D-10. This is a great workout!

Zumba dance and body sculpting classes remain in popular demand on Tuesday and Thursday afternoon from 4:30 to 5:30 p.m.

Friday afternoon classes have been canceled for the summer.

For more info visit the Wallops Aerobics Club web page: <http://www.wff.nasa.gov/WAC> or call Ginny Johnston, Aerobics Club president at x1551.



Theme Park Tickets

The new ticket pricing for Busch Gardens is \$39 per person. This is a savings of \$15.95 off the regular gate admission. Tickets are valid June 1 - September 4, 2007, and are now available at the Exchange Store, Building E-2.

Tickets also are available for the following parks:

Kings Dominion

Water Country

Delmarva Shorebirds

Call Karen Shannon at x2020 or 2010 for more information

Inside Wallops is an official publication of Goddard Space Flight Center and is published by the Wallops Office of Public Affairs, Extension 1584, in the interest of Wallops employees. Recent and past issues of *Inside Wallops* also may be found on the NASA Wallops Flight Facility homepage: www.wff.nasa.gov

Editor
Asst. Editor

Betty Flowers
Rebecca Hudson