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Goddard Space Flight Center

Wallops Flight Facility, Wallops Island, Virginia

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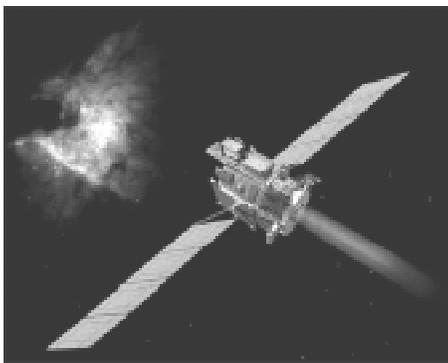
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Exotic Technologies Finish Road Test on Cosmic Highway

NASA's Deep Space 1 mission has successfully demonstrated most of its exotic technologies in space -- including an ion engine that is expected to be ten times more efficient than conventional liquid or solid rocket engines -- proving they are ready for use in science missions of the 21st century.

Of the 12 advanced technologies onboard the spacecraft, seven have completed testing, including the ion propulsion system, solar array and new technologies in communications, microelectronics and spacecraft structures.



"We've taken these technologies around the test track, and now they're ready for the production line," said Dr. Marc Rayman, deputy mission manager and chief mission engineer for Deep Space 1 at NASA's Jet Propulsion Laboratory (JPL), Pasadena, CA.

Launched October 24, Deep Space 1 is the first mission under NASA's New Millennium Program, which features flight testing of new technology, rather than science, as its main focus. These new technologies will make spacecraft of the future smaller, cheaper, more reliable and more independent of human control.

By summer, engineers expect to have finished testing all 12 advanced technologies aboard the spacecraft.

Testing of two technologies that make the Deep Space 1 less reliant on humans is 75 percent complete, while testing of a third is scheduled to begin in May. These technologies include a robotic navigator, called AutoNav, that will guide the spacecraft to a rendezvous with asteroid 1992 KD on July 29 without active human control from the Earth.

In addition, Deep Space 1's two advanced science instruments -- a combination camera/spectrometer and an instrument that studies electrically charged particles emitted by the Sun

and other sources -- are on schedule, having finished 75-percent of their tests.

"What has pleased us more than anything is how well the technologies have been working in general," Rayman said, noting that their performance is remarkably close to engineers' estimates developed before launch.

"Of course, everything hasn't worked perfectly on the first try," Rayman added. "If it had, it would mean that we had not been sufficiently aggressive in selecting the technologies. Diagnosing the behavior of the various technologies is a fundamental part of Deep Space 1's objective of enabling future space science missions."

When the ion propulsion system was first activated November 10, the engine shut itself off after 4-1/2 minutes, and engineers were unable to restart it later that day. During the next attempt two weeks later, however, the engine started up easily and has performed flawlessly since then, logging more than 1,300 hours of operation.

Engineers believe the problem was caused by a piece of grit stuck to high-voltage grids within the ion engine. The grit was later dislodged, they believe, when parts expanded and contracted as the ion engine was exposed alternately to sunlight and shade.

Engineers also discovered after launch that stray light enters the camera/spectrometer, resulting in streaks of light when pictures are taken with a long exposure. The streaks are a result of how the instrument was mounted on the spacecraft, Rayman said.

The camera should be able to take acceptable pictures when Deep Space 1 flies by asteroid 1992 KD this summer, because it will use short exposures.

Despite such glitches, the great majority of the advanced technologies have worked extremely well, according to Rayman. "Mission designers and scientists can now confidently use them on future missions," he said.

Deep Space 1 will continue testing technologies until its prime mission concludes on September 18. NASA is considering a possible extended mission that would take the spacecraft on flybys of two comets in 2001.

NASA's Future: On-line Video Presentation

Peek into NASA's future through a new, online multimedia presentation. Check out a future Mars airplane concept or float around the International Space Station. Fly alongside a new hypersonic vehicle or survey the Earth from space. NASA's future is yours. The multimedia presentation was part of NASA Administrator Dan Goldin's Fiscal Year 2000 budget request to the U.S. House of Representatives, Feb. 24, 1999.

<http://www.hq.nasa.gov/office/ese/nra/gspeech>

Wallops Shorts.....

Wallops Fire Department

The Wallops Fire Department ambulance and Emergency Medical Technicians responded to a mutual aid request in Atlantic on April 11.

Sounding Rocket Launch

A Terrier-Black Brant NASA sounding rocket was successfully launched on April 12 from the White Sands Missile Range, N.M.

Using the Wide-Field Imaging Survey Polarimeter, scientists studied the properties and geometric distribution of diffuse dust in our galaxy and nearby galaxies. The payload flew to an altitude of 361.7 kilometers and was recovered. The principal investigator was Ken Nordsieck from the University of Wisconsin and the payload manager was Frank Lau (Sounding Rocket Program Office).

P-3B and Crew Return

The P-3B and crew returned April 12 after successfully supporting the Global Tropospheric Experiment Pacific Exploratory Mission. Since departing March 10, the P-3 flew 148.7 mission flight hours in support of the project to study human-induced changes in the chemistry of the Earth's troposphere.



Employee Afternoon Tea

Instead of the monthly employee coffee, we will hold an employee tea with Center Director Al Diaz from 1 to 2 p.m., April 29, in the E-2 Conference Room.

All employees are invited to attend. The first 30 minutes will be an informal session to talk individually with Mr. Diaz and Wallops senior managers and the second 30 minutes will be an open forum. Iced drinks will be available.

Protect Your Hearing



The damage caused by excessive noise, the most common cause of hearing loss, is often painless and gradual. The amount of hearing loss depends on "how loud the noise is" and "how long it lasts." The following is a list of common and not so common noises that we encounter in daily routines and their decibel rating.

- * 190 dB - 105 mm Howitzer
- * 163 dB - Bazooka, at one foot
- * 140 dB - Jet aircraft at takeoff, several hundred feet away
- * 130 dB - Air-raid siren; live rock concert
- * 120 dB - Loud thunderstorm/the threshold of pain
- * 110 dB - Lawnmower
- * 100 dB - Jackhammer (street construction), chain saw, motorcycle
- * 90 dB - Subway train
- * 80 dB - School cafeteria, alarm clock
- * 70 dB - Vacuum cleaner
- * 60 dB - Loud conversation
- * 50 dB - Rainfall
- * 45 dB - Refrigerator
- * 40 dB - Dripping faucet
- * 10-20 dB - Leaves rustling; human breathing

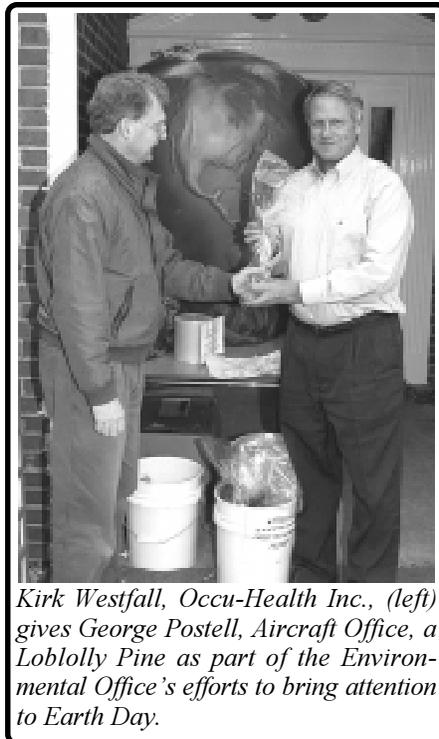
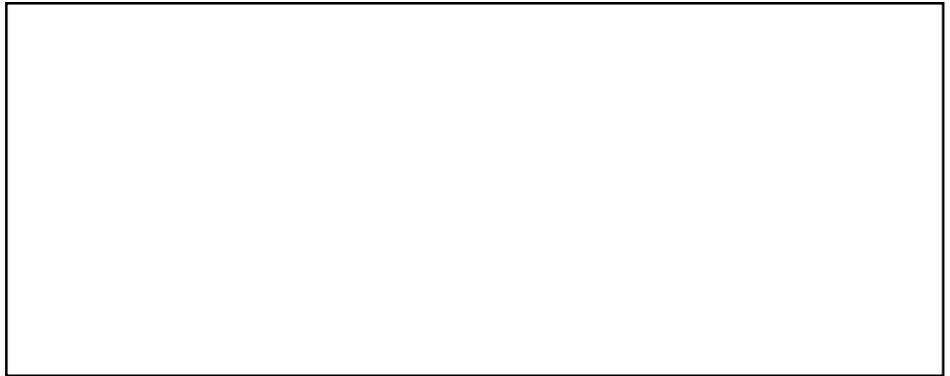
Wallops on the Road

Lisa Johnson, Office of Human Resources, served as a judge at the Metompskin Elementary School Science Fair on April 13.

Several Wallops employees served as judges at the Worcester County Tech Festival on April 14. Those participating were Tony Goodyear (Public Affairs Office), John Brinton (Environmental Office), Tom Taylor (Real-Time Software Engineering Branch) and Richard Mitchell (EG&G).

Suborbital Projects and Operations Directorate personnel from Wallops and Greenbelt participated in the RideShare Conference on April 15 and 16 in Chantilly, Va.

Wallops personnel staffed an exhibit at the Earth Day Celebration at the Salisbury Zoo on April 17.



Kirk Westfall, Occu-Health Inc., (left) gives George Postell, Aircraft Office, a Loblolly Pine as part of the Environmental Office's efforts to bring attention to Earth Day.

Landsat 7 Successfully in Orbit

A new spacecraft that will gather data from Earth's land surface and surrounding coastal regions soared into space April 15. The Landsat 7 spacecraft aboard a Delta II rocket, lifted off at 2:32 p.m. EDT from Vandenberg AFB, CA. More than an hour later, the spacecraft separated from the Delta II second stage. Landsat is a dual-agency program between NASA and U.S. Geological Survey (USGS).

"We're off to a great start," said Phil Sabelhaus, Landsat 7 project manager at NASA's Goddard Space Flight Center. "The spacecraft is now in orbit, the solar array has deployed and is power positive. All data indicates we have a healthy spacecraft.

"The next couple weeks will be spent performing calibration activities and detailed checkout and deploying the scientific instrument," he said. NASA will turn operational control of the spacecraft over to USGS on Oct. 1, 2000. The spacecraft is currently in a polar orbit 438 miles (705 kilometers) above the Earth.



Training Classes

The following training classes are scheduled at Wallops. Contact Sherry Kleckner, x1204 for further information on these offerings.

High Pressure System Safety

DATE: April 26 and 27
TIME: 8 a.m. - 4 p.m.
LOCATION: E-2 Conference Room

Configuration Management

(16 hours - Two 8-hour sessions)
DATES: April 29-30, 1999
TIMES: 8:30 a.m. - 4 p.m.
LOCATION: E-108, Room 318

DESCRIPTION: Configuration Management is a course which is designed to help project managers and project support personnel work effectively with the configuration management experts to implement configuration management on a project system design and to help them and others on the project know which role they should play. The course will allow participants to understand the basic Configuration Management requirements for NASA projects; to know the ideas involved in configuration identification, documentation, and baselining; and to understand configuration accounting and verification.

* Please forward a copy of your training request to Sherry Kleckner, F-6.

* For further information, call Mark Goldman, x66-8852.

Retirement Planning Workshop

DATE: May 12 - 14, 1999
TIME: 9 a.m. to 4:30 p.m.

COST PER STUDENT: N/A
FUND SOURCE: Center

CONTACT: Laura Potler, 301-286-4853 by COB April 28, 1999

For Sale

1988 Olds Custom Cruiser, fully loaded, new tires, good condition. Call (757) 787-4828 after 5 p.m.

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