



MARSHALL STAR

Serving the Marshall Space Flight Center Community

May 17, 2007

NASA building new stand at Stennis to test Ares rocket engines

From a NASA HQ news release

NASA will test one of the rocket engines it is developing for its new launch vehicles at the Stennis Space Center in Mississippi. The agency will build a new test stand at Stennis for the J-2X engine. The engine will power the upper stages of NASA's Ares I and Ares V rockets.

Stennis already is home to Apollo-era test stands that have served the nation's space program through the shuttle era. The newly proposed structure will be the first large test stand built at the center since the 1960s. Unlike the older structures, the new 300-foot-tall, open-frame design will allow engineers to simulate conditions at different altitudes.

NASA engineers need to simulate various

altitudes to test the J-2X's ability to function as a second stage engine for the Ares I crew launch vehicle and the Earth Departure Stage engine for the Ares V cargo launch vehicle. To do that, the test stand will generate approximately 4,620 pounds per second of steam and use it to reduce the engine test cell pressure.

NASA will complete the new stand in time to support the first J-2X engine test in December 2010. An existing test stand at Stennis also is being modified to test the J-2X engine at sea level conditions.

Ares I will launch the Orion spacecraft, taking astronauts to the International Space Station no later than 2015 and then to the moon by 2020. The Ares V will carry cargo and components into orbit for trips to the

moon and later to Mars. The new spacecraft are key components of NASA's Constellation Program.

"This new test stand will enable the critical testing needed to verify the Ares I upper stage engine performance at altitude conditions," said Stennis Center Director Rick Gilbrech. "The Apollo-era test stands have served us well over the last 40 years, and I'm excited that NASA will have a new stand to help us accomplish these new goals."

The test stand, along with its control center, propellant barge docks and access roadways, will be built in Stennis A Complex.

For more on Ares I, Ares V and the Constellation Program, visit <http://www.nasa.gov/constellation>.

Robert Lightfoot appointed Marshall's deputy director



Robert Lightfoot

stakeholders.

Appointed in October 2005 as Shuttle Propulsion Office manager, Lightfoot was responsible for the manufacture, assembly and operation of the primary shuttle propulsion elements.

"Robert Lightfoot is an outstanding leader who has the experience and expertise we need at the Marshall Center to continue to be a key player in NASA's space exploration mission," said David

Robert Lightfoot, manager of the Shuttle Propulsion Office, has been appointed deputy director of the Marshall Center. He replaces Charles Chitwood, who has accepted a position in private industry.

Lightfoot will be responsible for finding opportunities to integrate the missions and programs that Marshall accomplishes with the center, other parts of NASA and external

King, Marshall Center director.

Lightfoot began his NASA career at Marshall in 1989 as a test engineer and program manager for the space shuttle main engine technology test bed program and the Russian RD-180 engine testing program for the Atlas launch vehicle program. Since then, he has served in leadership positions at Marshall; Stennis Space Center in Bay St. Louis, Miss.; and NASA Headquarters in Washington.

In 1998, Lightfoot was named deputy division chief of Marshall's Propulsion Test Division. He joined Stennis in 1999 as chief of Propulsion Test Operations where he managed Space Shuttle Main Engine testing and multiple NASA, Department of Defense, and industry rocket engine test programs. Lightfoot was named director of the Stennis Propulsion Test Directorate in 2002. He served as deputy director of the organization beginning in 2001, until his appointment as director.

See Lightfoot on page 6

Daniel Dumbacher appointed director of Marshall's Engineering Directorate

Daniel Dumbacher has been selected director of the Marshall Center's Engineering Directorate. He replaces Michael Rudolphi, who retired in March.

Since September 2005, Dumbacher has served as the deputy manager of the Exploration Launch Projects Office. He was responsible for assisting the manager in overall project management of NASA's Ares I crew launch vehicle and Ares V cargo launch vehicle.

Dumbacher began his federal career in 1979 as an engineering aide in Marshall's Structures and Propulsion Laboratory. Since then, he has served in a variety of leadership positions at Marshall and has continually demonstrated exceptional leadership and technical

expertise in numerous areas of advanced space transportation research and technology development.

Dumbacher has contributed to important NASA programs and projects such as the X-37 and X-33 projects, the Orbital Space Plane Program, the 2nd Generation Reusable Launch Vehicle Program and the Delta Clipper-Experimental Advanced Flight Vehicle Project.

He has served in such strategic positions as assistant manager of the Space Shuttle Main Engine Project at



Daniel Dumbacher

See Dumbacher on page 6

Jerry Cook appointed to Senior Executive Service position in Marshall's Shuttle Propulsion Office



Jerry Cook

Jerry Cook has been appointed to the Senior Executive Service position of manager of the Space Shuttle Main Engine Project in the Marshall Center's Shuttle Propulsion Office. He replaces Gene Goldman, who transferred to the Stennis Space Center, in Bay St Louis, Miss., in February.

The Senior Executive Service is the personnel system covering top managerial positions in approximately 75 federal agencies.

Cook joined Marshall in 1985 as a test engineer in the Technology Evaluation Department after earning a bachelor's degree in

mechanical engineering from the University of Alabama in Tuscaloosa. He later served as a test conductor for the space shuttle main engine test program at Marshall.

Since then, he has held a variety of positions at Marshall, including deputy manager of the Space Launch Initiative Program Planning & Development Office, manager of the Orbital Space Plane Acquisition Management Office, deputy manager of the Business Development Office, and most recently deputy manager of the Upper Stage Office. In 2000, he accepted a one-year assignment at NASA Headquarters where he served as the Space Launch Initiative representative of the Office of Aerospace Technology.

See Cook on page 6

Marshall to 'star' on PBS children's science program May 19



At the National Space Science and Technology Center, a PBS film crew interviews Marshall atmospheric scientist Robbie Hood.

By Sherrie Super

Marshall Center employees tuning in to PBS this month may see some familiar faces — Marshall team members Robbie Hood and Dr. Katherine Stevenson-Chavis. Both will appear Saturday, May 19, on the PBS children's science program, "Dragonfly TV."

The segments starring Hood and Stevenson-Chavis were filmed in December 2006 when a PBS crew visited Huntsville. Filmed at the National Space Science and Technology Center, the segment featuring Hood, a Marshall atmospheric scientist, highlights her role as a hurricane researcher.

Hood has participated in numerous NASA hurricane studies, most recently in 2006 as a mission scientist for the NASA African Monsoon Multidisciplinary Analyses, or NAMMA — a

See PBS on page 7

Space exploration artifacts spared in U.S. Space & Rocket Center fire

By Shelley Miller from combined reports

On May 7 the U.S. Space & Rocket Center — the official visitor information center for the Marshall Center — experienced a fire in the bus maintenance facility located on the museum grounds.

According to a museum news release, the fire may have been caused by sparks from a welding project in the building. The fire began in an area known as the “bus barn,” an outbuilding for repairing shuttle buses and exhibits. The fire was confined to the exhibit maintenance shop.

Huntsville firefighters were successful in stopping the fire from reaching space exploration artifacts stored in the area, although some artifacts suffered smoke and heat damage.

A Saturn V Instrument Unit being refurbished and prepared for display in the new Davidson Saturn V Center, scheduled to open early next year, is considered to have suffered only cosmetic damage. The instrument ring is 22-feet in diameter and is part of an on board computer system located in the upper stage of the Saturn V. The tip of the Saturn V’s Launch Escape System nose cone, however, was damaged and will need to be reconstructed.

Marshall’s exhibits team — part of the Public & Employee Communications Office in the Office of Strategic Analysis & Communications — is working with museum officials to assess restoration and repair needs. It is anticipated that both artifacts will be available for display when the museum’s new building opens.

The writer, an ASRI employee, supports the Office of Strategic Analysis and Communications.



The tip of the Saturn V’s Launch Escape System nose cone suffered damage from the fire at the U.S. Space & Rocket Center and needs to be reconstructed.

Register by May 25 for ‘Take Our Children to Work Day’

By Rita Roberts

Children can experience a space shuttle launch, watch a penny break into pieces and create their own windmill on “Take Our Children to Work Day,” June 5 at the Marshall Center.

NASA employees and on-site contractors can register children in grades 3-12 for organized activities. Scheduled tours and classes will be held from 8 a.m. to 1 p.m. and have limited space available. The deadline to register is May 25. To register, go to <http://oscar.msfc.nasa.gov/toctwd/07.nsf/rf>.

“Take Our Children to Work Day’ is a great opportunity for tomorrow’s scientists and engineers to experience the work NASA does,” according to event co-chairpersons, Phyllis Olinger and Abbie Johnson in Marshall’s Office of Diversity & Equal Opportunity. “We are growing the next generation of space adventurers who will probe new frontiers of space exploration.”

Children can tour the Huntsville Operations Support Center and the Payload Operations Integration Center at Marshall to learn more about shuttle launch operations and how people on Earth support

science operations on the International Space Station. They can learn about a student experiment called HUNCH, short for “High School Students United with NASA to Create Hardware” — a project for high schools to build 30 custom-designed cargo stowage lockers for the International Space Station.

Parents also can register their children for space-oriented classes that teach kids about everything from the different states of matter to making their own model of the planet Saturn. Children are encouraged to join their parents at job sites after 1 p.m.

T-shirts that display this year’s event theme — “Revolutionizing the Workplace” — can be ordered through Friday, May 18. For further details, including a schedule of activities and T-shirt orders, visit <http://eo.msfc.nasa.gov/c2w/index.html>. To volunteer for the event, e-mail your name and phone number to Phyllis Olinger at phyllis.y.olinger@nasa.gov or Abbie Johnson at abbie.j.johnson@nasa.gov.

The writer, an ASRI employee, supports the Office of Strategic Analysis and Communications.

Marshall Center engineers team with Auburn University to build 'parking garage' for next lunar rover

By Miria Finckenor

If you had a brand new car, you wouldn't leave it parked outside in a bad storm, would you? Likewise, astronauts on the moon would prefer to park the lunar roving vehicle in some kind of shelter or "garage."

That's why scientists and engineers at the Marshall Center and engineering professors at Auburn University in Auburn, Ala., are working on a concept for a lunar shelter that would protect rovers and other equipment from meteoroid strikes, radiation damage and extreme temperature swings.

The shelter would be built of bags made of a woven polymer such as Kevlar™, which is used in tires and bulletproof vests, and filled with raw lunar regolith, or moon dirt and rocks. The bags would be stacked somewhat like sandbags to form the shelter.

Dr. Roy Broughton and Dr. David Beale of Auburn University and Gweneth Smithers, an engineer in Marshall's Nonmetals Engineering Branch of the Engineering Directorate, recently analyzed a number of polymer materials such as Vectran™, Nextel™ and Goretex™ for their structural properties and strength under extreme temperatures. Mary Hovater and Scott Miller, of Marshall's Environmental Effects Branch of the Engineering Directorate, then tested these materials in simulated space environments.

Strips of the polymer samples were exposed to both ultraviolet and electron radiation in the Marshall Combined Environmental Effects Facility — a lab that uses a solar simulator to test the samples.

Marshall's Micro Light Gas Gun was used in the tests to simulate meteoroid impact on fully loaded bags of regolith. The tool shoots 1-millimeter-diameter particles at speeds around 7 kilometers per



A full-scale lunar shelter prototype was built in Marshall's Space Systems & Integration Test Facility.

second, or 15,600 mph.

A full-scale prototype arch for a garage and proof-of-concept was built at Marshall. Kevlar™ fabric was woven by Lincoln Textiles of Opp, Ala., and sewn into bags by Kappler Inc. of Guntersville, Ala. The bags were filled with vermiculite — a type of potting soil that holds water very well and is neither acidic nor alkaline — to simulate a variety of soil sizes, similar to soil on the moon.

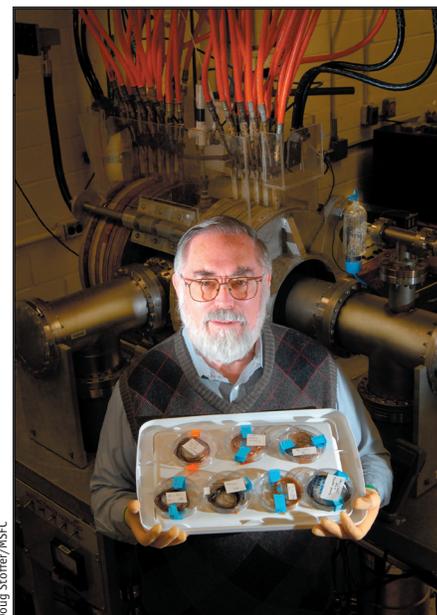
The prototype was assembled in Building 4493, the Space Systems Integration & Test Facility. A coating was needed on the Kevlar™ to keep fine dust from seeping out of the bags. "The shelter seemed to stand up to the testing very well," said Carole McLemore, project manager for Marshall's In Situ Fabrication and Repair/In Situ Resource Utilization Office, which funded the regolith bag research. "We are pleased to work with Auburn University on such an exciting endeavor."

Auburn is continuing its coated polymer work for another space endeavor — tethered satellites. Broughton recently delivered seven samples for testing in Marshall's Atomic Oxygen Beam Facility, which is used to accelerate oxygen atoms toward a material sample with the same energy you would find on orbit.

Most polymers break down quickly in low-Earth orbit because of atomic oxygen erosion. Ultraviolet radiation from the sun breaks down molecular oxygen in the upper atmosphere into oxygen atoms. When a spacecraft is moving 17,500 mph in low-Earth orbit, it hits those oxygen atoms with enough energy to break the bonds of most polymer materials.

Auburn is experimenting with various coatings that can protect the polymer from this erosion without impacting the flexibility and strength needed for a space tether made from polymers.

The writer is a NASA employee in Marshall's Engineering Directorate.



Doug Stoffer/MSFC

Auburn University professor Dr. Roy Broughton holds seven samples of polymers he plans to have tested in Marshall's Atomic Oxygen Beam Facility.

Classified Ads

To submit a classified ad to the *Marshall Star*, go to *Inside Marshall*, to "Employee Resources," and click on "Employee Ads — Submit Ad." Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue is 4:30 p.m. Thursday.

Miscellaneous

Wii game system bundle with 5 sports games, \$310. 828-1234

Riding lawnmower, \$220. 679-3430

Indy 500 tickets, outside third turn, \$85 each. 881-1249

Chesapeake Bay Retriever pups, AKC registered, two males, two females, can e-mail pictures, \$400. 725-3691

Bulldogs, half boxer, quarter American, quarter English, both parents at residence, \$250. 303-7123

AKC Golden Retriever puppies, two males, 9 weeks old, parents on premises. 247-5780

New carpet, 12 feet by 11 feet, blue/tan, low-loop, commercial grade, \$50. 881-1005

King-size brass headboard, footboard, bed frame, call for photo, \$200. 651-5570

Two tickets to "Cats," May 29 at 7:30 p.m., Row T15-T16, \$101. 503-7060

Two 10 by 10 by 6 chain link dog kennels with gates, \$100 each or both for \$175. 498-3864

White pedestal sink and faucet, \$35. 464-3135

Foosball table, 5-inch square legs, \$295; queen brass headboard, \$60; twin oak headboard, \$25. 683-7015

Antique Telefunken hi-fi console, \$50; motorcycle helmet, \$20; stereo cabinet, \$15. 348-9381

NordicTrack Sequoia ski machine, \$40. Chuck, 885-2448

Genz Benz acoustic guitar amp, 200 watts, stereo, dual Alesis digital effects, \$900. 457-0206

2003 Epiphone Casino guitar, sunburst, hardshell case, \$500. 684-0910

Off-white, strapless Maggie Sottero wedding gown, size 12, hemmed for 5-foot-3-inch height, \$600. 508-5086

Queen-size Swedish memory-foam mattress, new in original packing, \$425. 996-5617

42-inch rear-projection TV, one bad CRT, \$300 obo. 772-0364

Ryobi 9-inch band saw with stand, \$100; solid oak entertainment corner cabinet, \$250. 503-6773

42-inch plasma television, LG Electronics Model RU-42PZ61, hi-def capable, \$600. 429-8534

Proportional braking system, Voyager control 9030, inertia activated, electric trailer brake control, \$30. 837-6776

Woman's diamond cluster ring, seven small diamonds, \$225. Tom, 783-4866

Portable Foreman-style grill, Teflon, integrated Thermos cooler, Grill2Go/FireNice, \$100 obo. 233-0705

One-year Silver Membership, Family Fitness Center in Madison, \$250. 777-0606

Riding lawn mower, rear two-bagger, extra mulching blades (Scotts/Deere). 679-3214

Five-piece set, solid oak, two dressers, two hutches, desk, \$450. 337-1471

Alpine CD changer CHM-S630, CD-R/RW playback, digital servo, three-hour play time, \$250 firm. 683-8401

Washer/dryer, \$75 each; two French Provincial antique sofas, \$350 each. 539-5995 / 457-3545

Patio set, rectangular tempered glass table, 38.5x60, six chairs, taupe metal finish, \$100. 772-1989

Water filter for full-size swimming pool, \$50 obo. 828-0901

Set of four Tahoe OEM alloy wheels, 2000-2003, 16x7, 5 spoke, 6 bolt, \$150. 653-9519

Men's titanium 6mm ring, 10.5 size, \$58; 512Mb DDR2 RAM, 667MHz, \$32. 655-1986

Complete garden fountain kit, overflowing blue ceramic urn, never installed, \$30. 325-2919

Maple student desk, 3 drawers, \$30; dresser w/mirror, \$35. Good condition. 882-1382

Kathy Smith's ARTECH GLIDER, no impact walker exercise equipment, \$30 firm. 895-6722.

Vehicles

2006 Toyota 4-Runner SR5, warranty, 23k miles, \$27,000 obo. 293-9135

2005 Honda ST1300, 7-year warranty, 6,300 miles, \$11,500. 527-1587

2004 Cherokee travel trailer, 30 feet, rear living room, 14-foot slide. \$15,000. 865-548-4277

2004 Nissan Frontier XE, automatic, CD, keyless, alloy wheels, 37,500 miles, \$11,995. 355-5870

2004 Harley Davidson Heritage Classic-Stage I, 4,700 miles, \$16,900. 683-1230

2004 Dodge Ram, SWB, black, Hemi, 41K miles,

\$13,500. 468-9377

2003 Harley-Davidson Ultra Classic Electra Glide, 100th Anniversary edition. 683-1846

2003 Harley Davidson 1200 Sportster, 100th Anniversary edition. 233-8505

2003 Chevy Tahoe, leather, 3rd row seat, garage kept, \$20,300. 468-0854

2002 Infiniti I35, new tires, can show records, 77k miles, \$12,500 obo. 682-1621

2002 Honda Odyssey EX, leather, heated quad seats for seven, 59K miles, \$13,900. 603-1273

2002 Kia Sedona. 233-6197

2001 Ford Taurus, red, 125k miles, \$3,475. 714-3067

2001 Cadillac SLS, 80k miles, \$15,000. 303-8649

2000 GMC Sonoma 4X4, off-road, 87k miles, \$10,000. 931-967-7307

2000 Corvette, magnetic red, oak interior, 6 speed, new tires, 83K miles, \$19,500. 232-0246

1998 Dodge Stratus, 5 speed, sunroof, 78K miles, \$3,000. 797-1300

1997 HydraSports 185ER with 1997 Evinrude 150, Intruder V6, \$8,900. 777-6725

1995 Maxum 2300SC cuddy cabin sport cruiser boat, \$10,900. 468-1999

1994 Ninja 250, \$1,200 obo. 721-0637

1992 Ford Bronco XLT, 4WD, leather, power, new tires, towing package, 170k miles, \$2,500. 682-6937

1986 Nissan 300zx, red, 166k miles. 759-3009

1976 Chevrolet pickup, 6 cylinder, LWB, \$900. 881-6094

Lost

French five-Franc coin, very worn, early 1970s, great personal value. Reward. 882-0133

Found

Found in building 4600: Bluetooth ear piece. 544-4680

Shuttle Buddies to meet May 28

The Shuttle Buddies will meet at 9 a.m. Monday, May 28, at Mullins Restaurant on Andrew Jackson Way. For more information, call Deemer Self at 881-7757.

OCIO conducts customer experience survey

'Voice of the Customer' essential to delivering effective information technology services

The Marshall Center's Office of the Chief Information Officer is conducting a customer experience survey — "Voice of the Customer" — now through June 1.

The 10-15 minute online survey includes questions about how center personnel learn about and order information technology products and services, and what they typically do to resolve issues. The survey is anonymous and is open to all Marshall Center team members.

"Voice of the Customer' helps us shape the groundwork in being better service providers," said David Earnest, manager of the Planning, Policy & Integration Office in the Office of the Chief

Information Officer. "To improve the delivery of products and services, it is important to first understand customer perceptions of how we're doing today. The survey feedback enables us to examine areas for improvement in our customer interactions so that we can better enable our mission and mission support customers with IT products and services."

The survey may be found online at <http://cio.msfc.nasa.gov/cea/survey.html>.

For more information, call Steve Celuch at 544-3577, Bernadette Buzzell at 544-7076 or Earnest at 544-3715.

Lightfoot

Continued from page 1

From 2003 to 2005, Lightfoot was assistant associate administrator for the Space Shuttle Program, Office of Space Flight, at NASA Headquarters. Reporting directly to the deputy associate administrator for International Space Station and Space Shuttle Program, Office of Space Flight, he was responsible and accountable for providing technical advice and recommendations on the readiness, execution and initial transition and retirement of the

Space Shuttle Program.

A native of Montevallo, Ala., Lightfoot received a Bachelor of Science degree in mechanical engineering in 1986 from the University of Alabama in Tuscaloosa. He has received numerous awards, including a NASA Exceptional Achievement Medal, a Silver Snoopy Award, Space Flight Leadership Recognition Award, and several group achievement and special service awards. In 2006, he was awarded the Presidential Rank Award for Meritorious Executives — the highest honor attainable for federal government work.

Dumbacher

Continued from page 2

Marshall, program manager of the Space Shuttle Main Engine Project at NASA Headquarters and deputy director for Program Assurance in Marshall's Safety & Mission Assurance Directorate.

Throughout his NASA career, Dumbacher has received numerous awards and honors. In 2003, he received the Outstanding Mechanical Engineer award from his alma mater, Purdue University.

He has also received numerous NASA commendations, including two Medals for Exceptional Achievement and a Center Director's Commendation.

A native of Indianapolis, Ind., Dumbacher graduated in 1981 with a bachelor's degree in mechanical engineering from Purdue University. In 1984, he received his master's degree in administrative science from the University of Alabama in Huntsville.

Cook

Continued from page 2

Throughout his 22-year NASA career, Cook has received numerous awards, including the NASA Medal for Exceptional Achievement, a Silver Snoopy Award and Special Service Group Achievement awards.

He has authored and co-authored numerous American Institute of Aeronautics and Astronautics papers and has been published in "Aerospace America" and the "McGraw-Hill Yearbook of Science and Technology."

Cook and his wife, Felicia, and their two children, Preston and Peyton, live in Huntsville.

Marshall employees invited to Asian Pacific American Heritage Month luncheon May 31

By Sherrie Super

Marshall employees are invited to attend a luncheon at the Redstone Arsenal Officer's and Civilian's Club on Thursday, May 31, marking Asian Pacific American Heritage Month. The cost of the luncheon is \$11 per person, and reservations are due by Wednesday, May 23.

The keynote speaker is Dr. Hyo Sang Lee, president of Science and Engineering Services Inc. of Columbia, Md., with key sites

in Huntsville and Fort Knox, Ky. Lee, who earned his bachelor's degree from Seoul National University in Korea and his master's and doctorate degrees from Lehigh University in Bethlehem, Pa., is an expert in lasers, electro-optical system development, medical optics and remote sensing.

The luncheon is one of several Team Redstone events marking Asian Pacific American Heritage Month, observed each May. Team Redstone, which includes the Marshall Center, also is sponsoring display and essay contests during the month-long celebration. Plaques and trophies will be awarded to contest winners at the luncheon.

To make reservations, Marshall employees should contact Julia Story, garrison protocol assistant by e-mail at julia.story@us.army.mil or by phone at 842-7954. Reservation forms also can be faxed to 842-2991. Payment is due at the time of reservation.

The writer, an ASRI employee, supports the Office of Strategic Analysis and Communications.

Partnering with Marshall

NASA Explorer Schools announced

Harding Middle School in Des Moines, Iowa; Northeast Nodaway School District in Ravenwood, Mo.; and Church Point Middle School in Church Point, La., have been selected to begin a special three-year partnership with the Marshall Center.

They are among 25 school teams nationwide named as new NASA Explorer Schools. The goal of the NASA Explorer School Program is to use NASA's unique missions to inspire student learning in science, technology, engineering, mathematics and geography.

To begin the formal partnership, a team of educators and

administrators from the three newly added schools in Marshall's region will attend a one-week professional development workshop June 18-22 at the Marshall Center. Each school team will develop a strategic plan to address its students' needs in mathematics, science and technology education.

The NASA Explorer School Program began in 2003 in collaboration with the National Science Teachers Association. The program targets students in grades 4-9. There are now 200 schools in the program, representing 50 states, the District of Columbia, Puerto Rico and the Virgin Islands.

PBS

Continued from page 2

month-long hurricane research expedition off the coast of Africa.

The segment featuring Stevenson-Chavis, a Marshall engineer who has participated in numerous NASA projects such as Orbital Express — an autonomous rendezvous and docking mission that was launched in March — was filmed at Marshall's Flight Robotics Laboratory Flat Floor Facility.

The center's flat floor facility is a precision air-bearing surface that helps engineers simulate the movement of spacecraft in Earth orbit. By allowing spacecraft to float on a thin layer of air, the one-of-a-kind facility helps engineers like Stevenson-Chavis test techniques for spacecraft rendezvous and docking or controlling robotics remotely.

"Dragonfly TV" airs locally on Alabama Public Television at 11 a.m. May 19. Other viewing times are available on the Web from <http://www.pbs.org>.

The writer, an ASRI employee, supports the Office of Strategic Analysis and Communications.



Katherine Stevenson-Chavis, left, a Marshall engineer, was interviewed at Marshall's Flight Robotics Laboratory Flat Floor Facility.

Progress launches to International Space Station

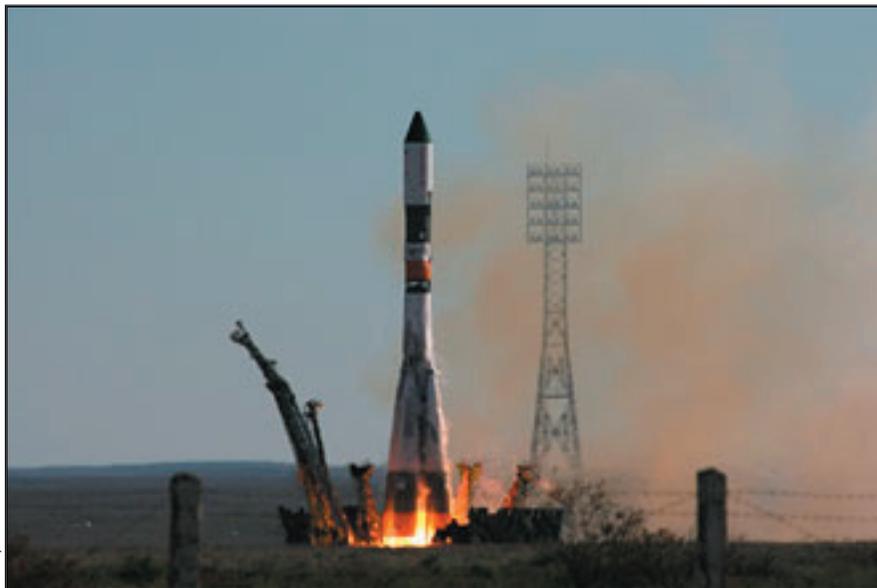
NASA Headquarters news release

A new Progress freighter launched to the International Space Station at 10:25 p.m. CDT Friday, May 11, with more than 2.5 tons of fuel, air, water, and other supplies and equipment on board.

The station's 25th Progress unpiloted cargo carrier delivered to the orbiting laboratory more than 1,050 pounds of propellant, almost 100 pounds of air, more than 925 pounds of water and 3,042 pounds of dry cargo — a total of 5,125 pounds.

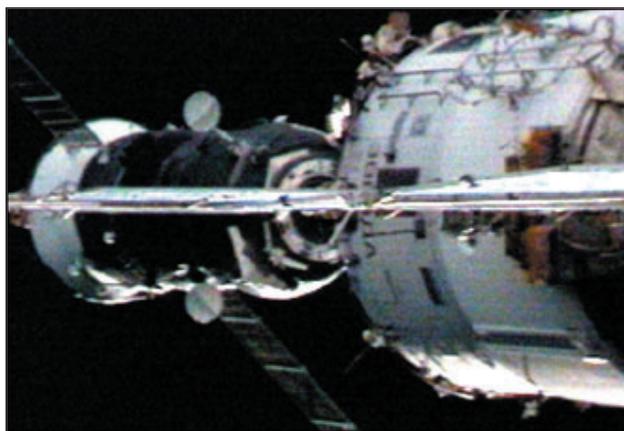
P25 launched from the Baikonur Cosmodrome in Kazakhstan. The cargo craft docked with the International Space Station on Tuesday, May 15, at 12:10 a.m. CDT.

Expedition 15 crew members, Yurchikhin and flight engineers Sunita Williams and Oleg Kotov, will continue to use oxygen from the Progress 24 at the Pirs Docking Compartment. It is scheduled to remain



NASA/Mark Bowman

The ISS Progress 25 spacecraft launches from the Baikonur Cosmodrome in Kazakhstan.



NASA

The ISS Progress 25 spacecraft approaches the International Space Station.

there until mid-August.

Once its cargo is unloaded, P25 will be filled with trash and station discards. It is scheduled to be undocked, deorbited and incinerated on re-entry on July 20.

The Progress is similar in appearance and some design elements to the Soyuz spacecraft, which brings crew members to the station, serves as a lifeboat while they are there and returns them to Earth. The aft module, which is the instrumentation and propulsion module, is nearly identical.

But the second of the three Progress sections is a refueling module, and the third, uppermost as the Progress sits on the launch pad, is a cargo module. On the Soyuz, the descent module, where the crew is seated on launch and which returns them to Earth, is the middle module and the third is called the orbital module.

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