



MARSHALL STAR

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March 31, 2005

Marshall successfully tests Solid Motor Rocket

By Sanda Martel

A scaled-down version of the Space Shuttle's Reusable Solid Rocket Motor was successfully tested March 24 at the Marshall Center.

The 28-second firing tested a 48-inch-diameter, modified NASA motor.

Space Shuttle's solid rocket motors are periodically tested to ensure they can withstand environments similar to those generated by an actual motor during flight. For example, the motor's insulation materials must withstand chamber gas temperatures that reach 5,652 degrees Fahrenheit during a Shuttle launch.

Testing a sub-scale version of the Shuttle's Solid Rocket Motor is a versatile, quick-turnaround and low-cost way to determine the performance of new materials and instrumentation. Test results will be used to evaluate the performance of internal replacement insulation materials in the aft dome of the motor. The best performing insulation candidate will be tested in a full-scale motor test firing in July 2006.

The test is expected to further evaluate the performance of the Intelligent Pressure Transducer, a gauge which samples motor pressure 25 times faster than instruments now used.

The test, replicating launch conditions, is part of the Shuttle program's ongoing verification of components, materials and manufacturing processes required by the Space Shuttle Program and the Reusable Solid Rocket Motor Project Office at the Marshall Center.

"Testing continues to be a key element to the success of the Solid

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Discovery rolls to major Return to Flight milestone

From Kennedy Space Center release

NASA's Space Shuttle Discovery is one important step closer to launch. Discovery was rolled from its hangar Tuesday morning to the Vehicle Assembly Building at NASA's Kennedy Space Center, Fla.

Discovery will be attached to its propulsion elements, a redesigned External Tank and twin Solid Rocket Boosters. "This is a tremendous accomplishment for the Space Shuttle Program," said Bill Parsons, Space

Shuttle Program Manager. "This effort has taken a talented team dedicated to meticulously preparing the vehicle and implementing all the modifications for a safe Return to Flight," he added.

Discovery's launch window is from May 15 to June 3. Its mission, designated STS-114, will take Commander Eileen Collins and six crew members to the International Space Station. The mission is the first of two test

flights to check out new inspection and repair techniques, as well as to deliver supplies to the Station. It is the first Shuttle mission since the Columbia accident in February 2003.

Discovery's journey began as it was moved from its hangar to the Vehicle Assembly Building. In the VAB, a lifting sling was attached to the orbiter in preparation for

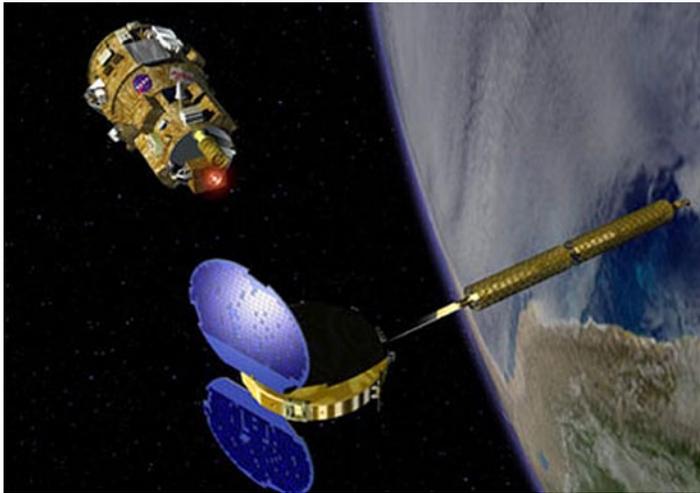
See Discovery on page 4



Photo by Tony Steele/ Marshall Center

A successful test firing of the Space Shuttle's Reusable Solid Rocket Motor at Marshall Center's East Test Area.

NASA sets DART launch date for April 15



An artist's rendering of the DART spacecraft.

By Sanda Martel

NASA's Demonstration of Autonomous Rendezvous Technology or DART spacecraft is scheduled to launch at 12:21 p.m. CDT, April 15 from Vandenberg Air Force Base, Calif.

A prelaunch mission update press conference will be Friday from 10 - 11 a.m., in the Marshall Center Multimedia Services Bldg. 4207.

Press conference participants include Jim Snoddy, DART project manager; NASA Launch Director Omar Baez; and Jeff Campbell, Pegasus Program Manager, Orbital Sciences Corporation.

The briefing will be broadcast live on NASA TV with questions and answers for media at participating NASA centers.

DART is a flight demonstrator that provides a key step in establishing autonomous rendezvous capabilities for the U.S. space program. DART will rendezvous with the Multiple Paths, Beyond-Line-of-Site Communications (MUBLCOM) satellite. It will perform several close proximity operations, such as moving toward and away from the satellite using navigation data provided by onboard sensors.

DART is the first demonstration program selected by NASA's Exploration Systems Mission Directorate to develop technologies for the Vision for Space Exploration. The Vision calls for the safe return to flight of the Space Shuttle, completion of the International Space Station and human and robotic exploration of the Solar System.

The DART project is managed by the Marshall Center.

The writer, an ASRI employee, supports the Public Affairs Office.

Center's Ombuds here to listen, help find solutions

By Patricia Dedrick Lloyd

For Bruce H. Anderson and Daniel Dumbacher, each workday is a new opportunity to help a Marshall Center team member solve a problem.

Anderson, special assistant in the Office of Center Operations, is the Marshall Center's Ombud. Daniel Dumbacher, deputy of Program Assurance in the Safety and Mission Assurance Directorate, is the alternate ombud.

Selected in December 2004, Anderson and Dumbacher "provide the civil servant and contractor workforce a confidential, supplemental, and informal channel to communicate critical issues and concerns that could impact safety, organizational performance, or mission success by addressing matters that are not the exclusive responsibility of existing administrative systems or offices," said David King, Marshall Center director, when he announced the appointments. Anderson and Dumbacher perform these duties in addition to their full-time responsibilities.

NASA's Ombuds Program, established in January 2004, evolved from recommendations made by an Agency-wide team in response to findings of the Columbia Accident Investigation Team. The Ombuds at each center are "honest brokers" put in place to ensure that NASA becomes more accountable and results-oriented.

"The program provides an alternate means of raising concerns and issues that management needs to hear," said Anderson. "It also communicates to the workforce and others that NASA is serious in its efforts to listen to, heed, and act in response to weak signals that may impart significant information," he said.

Anderson and Dumbacher confidentially assist Marshall team members who are experiencing conflict to organize their ideas, acquire relevant information and create options for resolving the conflict. The Ombuds may need to conduct a thorough, but informal inquiry into matters brought to them by using a variety of sources to study all sides of the issue. The Ombuds may then suggest actions or policies that will be equitable to all parties, but must remain an informal and off-the-record resource.



Anderson



Dumbacher

See Ombuds on page 4

Marshall to host national physics conference in city

By Rick Smith

NASA will gather some of the world's most brilliant scientific thinkers -- and many students of science -- next week to grapple with physics problems that vexed even the late, lauded physicist Albert Einstein.

Organized and hosted by the Science and Technology Directorate at the Marshall Center, the conference, "Physics for the Third Millennium: II," will be held Tuesday through Thursday at the Von Braun Center. Science students are expected to join well-known physicists, including two Nobel Prize winners, for open discussion of the challenges of physics.

Topics of discussion will range from "dark matter" -- invisible particles that may exist throughout the cosmos that could explain the puzzling gravitational drag on stars and galaxies -- to string theory, the concept that all matter exists not as three-dimensional particles, but as flowing "strings" inhabiting up to 26 dimensions.

More than 300 are expected to attend the conference, including students from across the country. "There are student scientists with career interests who may never have met a working scientist before," said NASA

scientist Mitzi Adams, conference outreach coordinator and researcher at the National Space Science and Technology Center in Huntsville. "We want to keep the meeting productive and useful to all parties, but informal enough to encourage students to interact with the professionals, discussing problems and gaining new scientific insight.

The conference is part of a series of science-themed "Year of Physics" events scheduled around the globe in 2005. This year marks the 100th anniversary of the "annus mirabilis," or "miracle year" of 1905, when Einstein delivered what physicists consider his most important contributions -- on the nature of matter and energy, the speed of light, and the startling likelihood that space and time can bend and stretch like cosmic taffy.

"Joining physicists around the world to celebrate and advance this area of scientific endeavor is of vital importance to NASA," said Dr. Ann Whitaker, director of the Science and Technology Directorate at the Marshall Center. "To meet the spaceflight and space science challenges that lie ahead of us, we seek breakthrough technologies that are dependent on a comprehensive understanding of the physical laws of the

universe."

Whitaker said pursuit of the unresolved mysteries of physics -- among them dark matter, string theory and the study of quantum mechanics, which analyzes forces of motion and stability at the atomic and subatomic level -- will help NASA meet the goals of the Vision for Space Exploration. The Vision is NASA's ambitious effort to return humans to the Moon and send robotic and crewed missions to Mars and beyond in coming decades.

Conference speakers include Dr. Leon Lederman, director emeritus of Fermi National Accelerator Laboratory in Batavia, Ill.; Dr. Riccardo Giacconi, a physicist at Johns Hopkins University in Baltimore; and Dr. Francis Everitt, a professor of experimental physics at Stanford University in Stanford, Calif.

The conference is the second gathering of its kind in Huntsville. Leading physicists and mathematicians convened here in 1998 to debate the challenge of developing futuristic propulsion concepts such as warp drives and "zero-point energy," a potentially bottomless sea of invisible, ultra-powerful energy suspected to exist in the vacuum of space.

The writer, an ASRI employee, supports the Public Affairs Office.

Firing

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Photo by David Higginbotham/ Marshall Center

Applauding the static firing of the scaled-down Solid Rocket Motor are front row from left, Charles Chitwood, Marshall Center deputy director; Chitwood's daughter Grace; and her friend Elizabeth White. Behind Chitwood, from left are Sandy Kirkindall, Mayor of Madison and former Marshall employee; and Jim McCamy, of U.S. Rep. Bud Cramer's staff.

Rocket Motor, providing valuable information on design, process and material changes," said Jody Singer, manager of the Reusable Solid Rocket Motor Project Office.

Engineers from the Marshall Center Engineering Directorate and Shuttle Reusable Solid Rocket Motor Project Office conducted the test. ATK Thiokol of Promontory, Utah, manufactures the Shuttle's Solid Rocket Motor. The motor test -- used to qualify any proposed changes to the motor -- is a stepping stone to a Flight Support Motor test performed at ATK Thiokol's Test Services facility in Promontory.

At 126 feet long and 12 feet in diameter, the Shuttle's Reusable Solid Rocket Motor is the largest solid rocket motor ever flown and the first designed for reuse. During its two-minute burn at liftoff, each motor generates an average thrust of 2.6 million pounds. During Space Shuttle flights, Solid Rocket Motors provide 80 percent of the thrust during the first two minutes of flight.

The writer, an ASRI employee, supports the Public Affairs Office.

Job Announcements

MS05D0032, Information Technology Specialist (Security), GS-14, IFM Integration Project Office. Closes April 4

Contact: Carolyn Lundy, 544-4049

MS05D0033, Information Technology Specialist (Application Software), GS-14, IFM Integration Project Office. Closes April 4

Contact: Carolyn Lundy, 544-4049

MS05D0034, Information Technology Specialist (Application Software), GS-14, IFM Integration Project Office. Closes April 4

Contact: Carolyn Lundy, 544-4049

MS05D0035, Information Technology Specialist GS-15, IFM Integration Project Office. Closes April 4

Contact: Carolyn Lundy, 544-4049

MS05C0036, Supervisory Contract Specialist, GS-14, Office of Procurement. Closes April 1

Contact: Allan Day, 544-4079

Discovery

Continued from page 1

attachment to the External Tanks and twin Solid Rocket Boosters. Work on Discovery in the VAB includes installation of a new digital camera, testing electrical and mechanical attachments between the orbiter and External Tank and umbilical checks.

"I could not be more proud of the team that spent the last two years working on Discovery. We are extremely excited to reach this point in the processing for flight," said Stephanie Stilson, NASA Vehicle Manager for Discovery. "Seeing the orbiter roll to the VAB is the culmination of all of that hard work. We look forward to a safe Return to Flight," she said.

While in the Orbiter Processing Facility, Discovery underwent 41 modifications in response to the Columbia accident and the recommendations of the Columbia Accident Investigation Board. They included addition of the new Orbiter Boom Sensor System; equipping the orbiter with cameras and laser systems to inspect the Shuttle's Thermal Protection System (heat shield) while in space; sensors in the leading edge of the Shuttle's wings, a new safety measure that monitors the orbiter's wings for debris impacts; and a new digital camera to view the External Tank during launch.

Discovery also completed its Orbiter Major Modification (OMM) period that began in September 2002. Technicians completed 107 additional modifications to Discovery, 17 will be flying for the first time. OMMs are scheduled at regular intervals to enhance safety and performance and to infuse new technology.

The next Return to Flight milestone is scheduled early next week, when Discovery begins its four mile journey to Launch Pad 39-B.

Ombuds

Continued from page 2

Ombuds serve independently, reporting directly to the Center director and must be willing to address what may be "unpopular" issues when necessary.

The Ombuds office, however, does not address issues or concerns that are the exclusive responsibility of another administrative office, such as Equal Employment Office, Inspector General, Contract Disputes Act, union representational authority, the Office of Procurement, or NASA Safety Reporting System.

Issues that fall under those offices will immediately be redirected to the appropriate department for resolution.

If Anderson or Dumbacher determines an issue has imminent or significant risk of impact to the Agency's mission, either one may send it to the Center director for review.

The writer, an ASRI employee, is the Marshall Star editor.



Photo by Emmett Given/ Marshall Center

Marshall's protocol chief speaks to public relations group

Sandra Turner, the Marshall Center's chief of protocol, holds up a pineapple, the international symbol of hospitality, as she speaks last month in Huntsville to the North Alabama chapter of the Public Relations Council of Alabama. Turner spoke as a volunteer with the Marshall Speaker's Bureau, a function of the Office of Strategic Communications.

Announcements

Redstone Arsenal Quality Summit is April 12-13

The Redstone Arsenal 2005 Quality Summit is April 12 and 13 in the Bob Jones Auditorium of the Sparkman Center. The summit's theme is "Incentives for Quality Improvement." Invited speakers include Brian Hughitt, manager of Quality Assurance at NASA Headquarters. On day two, workgroups will focus on developing ideas and concepts related to the summit theme.

AIAA dinner topic is 'Mars: Rovers Today, Humans Tomorrow'

The American Institute of Aeronautics and Astronautics will hold a dinner meeting at 7 p.m., April 21 at the Holiday Inn Research Park in Huntsville. Dr. Benton C. Clark, AIAA Distinguished Lecturer and chief scientist of Space Exploration Systems at Lockheed Martin Co., will speak on "Mars: Rovers Today, Humans Tomorrow." The cost is \$15 for students and \$20 for all others. Call Kevin Higdon at 256-679-3143 for reservations by April 20.

World Year of Physics Conference is Tuesday-Thursday

The World Year of Physics Conference will be held Tuesday-Thursday at the Von Braun Center in Huntsville. Invited speakers include Nobel Prize in Physics winners Dr. Leon Lederman and Dr. Riccardo Giacconi, a key developer of the Chandra X-ray Observatory. For an agenda, go to <http://www.wyp-ptm.org>.

Great Moonbuggy Race runs April 8-9 at U.S. Space & Rocket Center

High school and college students are working in classrooms, garages and shops all across the country trying to figure out the best way to design, build and race a human-powered buggy capable of traveling around a half-mile track on Earth. Come to the 12th Annual Great Moonbuggy Race on April 8-9 at the U.S. Space & Rocket Center to see their creations.

Seventy-two teams from 20 states, Puerto Rico and Germany will participate. See "Inside Marshall" for more details.

Redstone Scientific Information Center celebrates library week

The Redstone Scientific Information Center will celebrate National Library Week April 13 from 10 a.m. to 1 p.m. with refreshments and demonstrations of the center's various resources. The Redstone Scientific Information Center is located at Bldg. 4484, just off Martin Road behind Garrison Headquarters. For more information, call 876-9309.

MARS Skeet and Trap Club leagues to form Wednesday, Thursday

MARS Skeet and Trap Club leagues will form Wednesday and Thursday. These informal, recreational leagues are intended to accommodate all skill levels. For more information, call Randy Thornton at 544-1141.

Scholarship Ball set for April 14 at Von Braun Center North Hall

The 5th Annual Black-Tie Scholarship Ball will be held at 7 p.m., April 14 at the Von Braun Center North Hall. The event is sponsored by the Alabama A&M University Office of Corporate Relations. Tickets are \$50 and may be purchased from Madeline Hereford of the Marshall Center Equal Opportunity Office.

Mars Ballroom Dance Club spring dance is April 9

The MARS Ballroom Dance Club spring dinner dance will be April 9 at the Von Braun Center East Hall from 6:30 p.m. to 11 p.m. Dinner will be served at 7 p.m. Tickets are \$20 for MARS Club members and \$25 for all others. Tickets may be purchased until April 5 from MARS Club members, including Linda Kinney at 461-0230 or Hugo Berry at 572-0047.

Earth Day class offers continuing education credit

A free continuing education class on environmental sustainability will be held from noon to 2 p.m. April 19 in Bldg. 4316, following the Earth Day ceremony. The class will be taught by Dr. Brian Natrass and Dr. Mary Natrass, experts in the field of sustainability. Each participant will earn two continuing education credit hours.

Classified Ads

Miscellaneous

Oak dining table w/6 chairs, \$575; wooden desk, \$20; bookcase w/glass doors, \$50. 256-534-0939

Troy Built Pony tiller, 5HP Briggs & Stratton engine, tiller width 16", front bumper, low hrs., \$750. 883-8186

Formal sofa, \$100; formal chairs, \$25; exercise bike, \$20; Sega CD Power Rangers game, \$5. 430-6842

Sony Vidimagic video projector, 72" screen, portable 40" screen; Dell Latitude CPi 300XT laptop, \$200. 797-8895

Nikon N90 35mm SLR w/Nikon 35-80mm AF F/4.0-5.6D zoom lens, \$350. 772-9930

Intel Pentium III 500MHz Slot 1 processor, \$20. 256-850-4185

Utility trailer, 6'x10'x2'sides, black, \$425. 579-2651

Mobile home, Madison, 12'x48', 2BRs, 2 baths, 200amp electric, \$3,995. 256-267-1177

Trolling motor, 12/24 volt Evinrude w/foot control, \$325. 325-8002/Bobby

Baby Guinea pigs, \$10 each, \$15 pair. 468-8177

Landscape trailer, 6'x12', \$1,100. 479-5711

Handcrafted 44 wooden fish mobile, \$18. 464-9408

Two Talladega race tickets, Tri-oval Tower, Saturday/Sunday, April 30-May 1, reserved camping spot, \$390. 679-2165

Coral sofa and loveseat, \$850; picnic table, 2 benches, \$125. 256-508-3387

Wrought iron & glass round table, 48", 4 chairs w/beige upholstered seats, \$175. 379-2581

Diamond solitaire ring, .25 carat, \$75; diamond cluster heart-shaped ring, \$125. 683-1279

Pennsylvania House video cabinet, up to 30" TV, VCR/DVD, \$750. 931-427-2059

Yamaha studio piano w/bench, American Walnut, \$2,200. 256-682-5690

Dell 8400, 3Ghz, 19" LCD, 128MB-PCIE, 169Gb-SATA, 16x-DVD-RW, 512-DDR2, DVD-ROM, \$1,170. 489-0136

Pine king-size bedroom suite, double mirror dresser, 5-drawer chest, night stands, \$550. 922-9311

1997 travel trailer, 19', equalizer bars and receiver included, \$9,500. 508-7902

Hot tub, 6' diameter, SofTub, self sustaining, all accessories, \$2,000. 509-3392

Two Nikon 8008S SLR camera bodies w/MF-21 data backs,

\$175 each, \$325 both. 256-656-2965

Four Disney 3-day Park Hopper passes, never expire w/2 days water park add-on, \$850. 797-8895

Wedding dress w/veil, ivory, size 8, \$125; computer desk, \$125. 776-9165

HP1300 printer, 20ppm, 1200x1200 dpi, \$250; Two Little Tykes desks w/storage \$10 each. 882-3326

Coachman classic travel trailer with all hitch accessories, \$4,000. 683-3745

Hoover SteamVac V2, \$75; Eureka upright vacuum, \$10; fish tank kit, 5-gal., \$5. 256-776-1230

Rheem 50-gallon hot water heater, \$30; 55-gallon aquarium with everything, \$200. 890-0799

Town & Country van, 50k miles, leather, \$8,000. 256-881-4067

1999 Ford Explorer, 4x4, 75k miles, \$8,299. 353-3229

2003 Neon SE, 4-door, cobalt blue, automatic, new tires, \$8,600. 256-874-4286

1993 Nissan Quest, 201k miles, leather, automatic, v6, loaded, transmission problems, \$1,500 negotiable. 851-8447

2000 Ford Explorer Sport, v6, 5-speed, 2wd, am/fm/cas-sette/cd, 68k miles, one-owner, \$6,500. 256-828-4547

Vehicles

2001 Tahoe LT, 4wd, 3rd row, leather, towing, climate control, 68k miles, \$19,700. 256-541-2435

2002 Jeep Wrangler Sport, white w/dual tops, 6 cyl., auto, cd, 52k miles, new tires. 256-572-6527

2003 Honda Odyssey van, 36k miles, captain chairs, auto, am/fm/cd, power seats/doors, \$18,500. 726-0311

2001 Yamaha Raptor 600r, electric w/reverse, Yoshimura exhaust, aftermarket parts, new tires, brakes, \$4,750. 256-931-4684

1998 BMW 740IL, hunter green, tan leather interior, 101k miles, new tires, \$16,000. 682-0888

1997 Ford F-150 XLT, extended cab, V*-Triton, 140k miles, \$7,100. 256-233-7506

1999 Mercury Mountaineer, 2wd, 95k miles, loaded, new tires, one-owner, \$5,990. 337-4107

2003 Nissan Pathfinder, v6, 2wd, automatic, 4-door, 22k miles, leather, cd, tow, silver, \$23,500. 256-880-3337

1997 Mustang GT, red, Saleen spoiler, unpainted front bumper, 133k miles, \$5,000. 797-2632

1987 Dodge D100 truck, one-owner, 139k miles, maintenance records available, \$2,500. 895-9520

1997 BMW 740IL, 135k miles, dark green, tan leather, loaded, \$12,500. 536-8692

Ransome Bobcat, 56.5 inch Z.T.R. motor, 23hp, Kawasaki engine, 122 hrs., blades, \$5,500. 348-2353

1983 Honda XL600R dirt bike, \$750. 256-353-6358

1998 Dodge Grand Caravan, 109k miles, well-maintained, \$3,950. 652-6856

1994 Pontiac Bonneville, 50k miles, \$2,500; 1997 Chrysler

Wanted

Sony Beta Hi-Fi, Model SL-HF 600, 750, 900, 1000, working or not. 883-8588/leave message

Used 24" (wheel diameter) bicycle for young adult. 828-5879

CRT computer monitor, 21". 776-4175

Lost

Burgundy legal pad notebook w/ED logo, vicinity of Bldg. 4207. 544-3029

Found

Gold necklace in the stairs of Bldg. 4200. 544-8824 to claim identify

USB flash drive and man's watch on the 2nd floor of NSSTC Bldg. 961-7601

SD memory card at Medical Center, apparently used for PALM data storage. 544-2390

Single shaved blade knife, side-mount, in front of Bldg. 4711. Call 544-6680 to claim/identify

Free

Six mature boxwood shrubs, you must dig up. 828-2178

German Shepherd pups needing homes. 882-6947 after 5 p.m.

Seven week old male Rottweiler mix puppy, crate trained, vet checked, has shots. 830-6826

To good home, Patterdale Terrier mix puppy, male, black/white, 11-12 " high. 464-8960

MARSHALL STAR

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