



MARSHALL STAR

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Nov. 24, 2010

NASA's newest microsatellite FASTSAT launches

By Kim Newton

NASA's Fast, Affordable, Science and Technology Satellite, or FASTSAT, launched at 7:25 p.m. CST Friday aboard a Minotaur IV rocket from Kodiak Launch Complex on Kodiak Island, Alaska. FASTSAT is a unique platform that can carry multiple small payloads to low-Earth orbit creating opportunities for researchers to conduct low-cost scientific and technology research on an autonomous satellite in space.

FASTSAT separated from the Minotaur IV rocket approximately 22 minutes after launch, entering low-Earth orbit 406 miles above Earth and immediately began powering up the spacecraft. On Nov. 20, FASTSAT made contact with ground stations at Svalbard, Norway and Kodiak, Alaska, and received commands from and communicated with mission controllers at the small satellite command center located at the Huntsville Operations and Science Control Center at the Marshall Space Flight Center. The satellite continues to function nominally as the commissioning phase of the mission continues.

"This milestone is a testament to our FASTSAT team that worked

See *FASTSAT* on page 4



Microsatellite FASTSAT launches from Kodiak, Alaska, on Nov. 19.

Steven Young/Spaceflight Now

Space shuttle *Discovery* to launch no earlier than Dec. 3

By Sanda Martel

NASA managers have postponed space shuttle *Discovery*'s launch on the STS-133 mission to the International Space Station. The most recent launch delay was announced Nov. 18 after a Space Shuttle Program meeting determined more analysis is needed before proceeding toward the launch. The new launch window opens Dec. 3.

A Program Requirements Control Board meeting held Nov. 18 identified

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Marshall holiday celebrations right around the corner



Team invited to 'rocket-lighting' Dec. 2, center reception Dec. 7

The Marshall Space Flight Center team will usher in the holiday season with a pair of festive celebrations in early December.

On Dec. 2, the center will hold a holiday "rocket-lighting" ceremony from 3:45-4:30 p.m. at the Marshall Rocket Park, near the intersection of Rideout and Mercury roads. Organizers will transform the tallest of the park's historic rockets – a Saturn I – into a space-age holiday tree, stringing it with some 3,600 feet of colored lights. They'll be officially lit by Marshall Center Deputy Director Gene Goldman – and a bearded guest from the northlands – as guests enjoy hot cocoa and songs by children from Marshall's Child Development Center.

See *Holiday* on page 2

Ares I-X roll control system used in flight test is on display at Space & Rocket Center

By Rick Smith

A critical element of NASA's Ares I-X flight test vehicle, developed at the Marshall Space Flight Center for the rocket's successful suborbital flight in October 2009, is on display in Huntsville – serving as a powerful example of Marshall's continuing role in the future of space exploration.

The Ares I-X roll control system, designed, fabricated and tested for Marshall by Teledyne Brown Engineering of Huntsville, is now a permanent museum piece at the U.S. Space & Rocket Center. The engineering development unit on display served to verify assembly procedures and flow test propulsion elements prior to flight-testing of the final element.

The roll control system, affectionately dubbed "RoCS" by the team, was the only major Ares I-X hardware element manufactured in Huntsville.

Mounted in the rocket's interstage, the system is made up of two modules set 180 degrees apart. Each module contains two thrusters capable of generating up to 2,250 pounds of force. NASA used decommissioned U.S. Air Force Peacekeeper missiles to provide the thrusters and propellant tanks – reducing cost and development time.

"Ares I-X was as much a social demonstration of 'can-do' attitude as it was a technical demonstration," said Ron Unger, manager of the Ares I-X Roll Control System Project at Marshall. "To be successful, the mission as a whole required crossing numerous NASA centers, contractors and other government agency lines."

On the roll control system alone, he said, contributors included Langley Research Center in Hampton, Va.; Glenn Research

Center in Cleveland, Ohio; Kennedy Space Center, Fla.; White Sands Test Facility in Las Cruces, N.M.; Hill Air Force Base in Roy, Utah; Davis Monthan Air Force Base in Tucson, Ariz.; and numerous Teledyne Brown subcontractors and vendors.

"An enormous amount of effort went into Ares I-X," Unger added, "and I think everyone was highly pleased with the results."

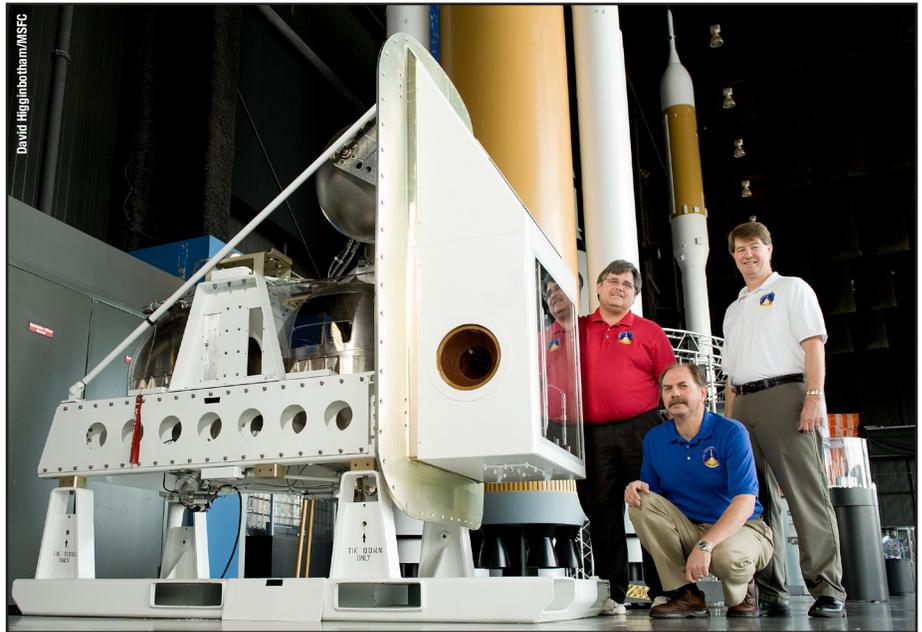
During launch, the system guided Ares I-X through a 90-degree roll once the rocket cleared the launch tower. It then maintained roll orientation until separation of the first stage from the upper stage. The first stage of the Ares I-X rocket splashed down in the Atlantic Ocean and was retrieved by NASA for analysis. The upper stage, containing the RoCS, was not recovered.

The roll control system module went on display in October at the Space & Rocket Center's Davidson Center for Space Exploration.

"To see it there – a tangible reminder of the RoCS team's three-and-a-half years of effort – is very satisfying," Unger said.

For museum hours and other information, visit <http://www.spacecamp.com/museum>.

Smith, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.



Inspecting the Ares I-X roll control system at the U.S. Space & Rocket Center are, from left, Bruce Askins, Ares I-X project integration manager; Ron Unger, roll control system project manager; and Ed Massey, project manager for Teledyne Brown Engineering in Huntsville.

Holiday *Continued from page 1*

The Marshall Center will hold its annual holiday reception Dec. 7 from 1-3 p.m. in Activities Building 4316. This year's theme is "Marshall's 50th Anniversary Cosmic Holiday." The venue will be turned into an

interstellar holiday spectacle, complete with special lighting, exhibits and out-of-this-world wall displays. Live holiday music will be offered by Marshall engineer Shane Adkins and other performers. A variety of light

refreshments, drinks and desserts will be served.

Watch Inside Marshall for parking information for the lighting ceremony, a bus schedule for the reception and other updates.

Marlon Walker has 'done it all' during 50-year career at Marshall

By Megan Norris Davidson

On Nov. 28, 1960, 20-year-old Marlon Walker started his first day on the job at the newly opened Marshall Space Flight Center. Getting to work early every morning, Walker, then a contractor shop attendant, maintained and repaired Marshall's vehicles, and made a good living to help support his mother and five young brothers and sisters.

"My father died when I was 17, so being the oldest, I became the man of the house," Walker recalled. "Before he passed away, I promised him I would take care of our family. So when a friend told me about some job openings with a contracting company at Marshall, I took a chance."

That "chance" has turned into a golden career for Walker, who will celebrate 50 years of service at Marshall next week. And he says he has no plans of slowing down.

"I really enjoy my job. It keeps me going every day. So as long as I physically can, I'll keep working," said Walker, now a parts clerk with EG&G Logistics Services supporting Marshall's Transportation & Logistics Engineering Office.

Just as he did in his beginning days at Marshall, Walker, 70, arrives at work early every morning at the Motor Pool in Building 4483. He opens the shop, gets the coffee brewing and begins a day filled with ordering parts, picking up orders and other tasks that keep the center's vehicles and machinery – such as cranes and bulldozers – in running order.

"The eight years I've worked with Marlon have been great. I admire and have a lot of respect for him," said Larry Dumont, EG&G logistics and quality control manager, who also supports Marshall's Transportation & Logistics

Engineering Office.

"He is a conscientious individual – always on time and seldom takes time off from work. He and I joke around with each other a great deal – we've had some great laughs together."

"I told Marlon the day he decides to retire, I'd like to retire with him," said Walker's supervisor, Steve Walters. "That's how much we value him here. He is a highly motivated and very dedicated employee."

'I've done everything'

Walker has held many positions and has done "everything" at the shop over his 50-year career, he said, including mechanic work, keeping generators fueled around the clock during bad weather, driving a fuel truck, helping to build test stands and supervising a second-shift crew. He also has helped escort and fuel NASA's Super Guppy aircraft, which transports large components and equipment.

Walker also was part of a volunteer crew that traveled to Gulfport, Miss., to fuel emergency vehicles and generators after Hurricane Camille devastated that area in 1969. "I drove the fuel truck down there and stayed about a week," he said. "I was glad I could help in some way because it was horrible – a lot of people died in that hurricane."

Though he's seen and done a lot throughout his career, Walker said one of his favorite memories was meeting Marshall's first director,



Marlon Walker, an EG&G employee supporting Marshall's Transportation & Logistics Engineering Office, will mark 50 years at the Marshall Center Nov. 28.

Wernher von Braun.

"I helped work on von Braun's vehicles when I first started working at Marshall," he said. "He would come by and talk to us, and was a really nice guy. He was very humble – never wanted us to do too much or make a fuss over him. I'm glad I can say I met him."

Family man

When he's not busy at work, Walker is running after his two grandsons, Aaron and Caleb, and spending time with his wife of 45 years, Lynn, and their daughter, Kellie Strange. "We are so proud of him," Strange said. "Not many people can say they have stayed in the same job or worked at one place for 50 years. It's an amazing accomplishment."

So what could someone with a 50-year career, who's seen and done it all, and met Wernher von Braun still want to do?

"See a space shuttle launch," Walker said with a smile.

Davidson, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.

Marshall Association toy drive starts Nov. 29

The Marshall Association will conduct a toy drive Nov. 29 to Dec. 13 to support the children of families in need.

New toys will be collected in the lobby of Building

4203 beginning Nov. 29 from 11:15 a.m. until 12:45 p.m. Contributions do not need to be wrapped.

For questions, please contact Tina Swindell at 544-6738 or Whitney Young at 544-0615.

tirelessly to design, build and test a fully functional, low-cost satellite in a year," said Mark Boudreaux, FASTSAT project manager at the Marshall Center. Boudreaux said the team maximized the number of payloads onboard and designed the satellite to support the Evolved Expendable Launch Vehicle Secondary Payload Adaptor, or ESPA, ring to increase opportunities for ride sharing with U.S. Department of Defense ESPA configurable launch vehicles.

For the first 11 days after launch, the spacecraft and six onboard atmospheric and technology demonstration experiments will go through an on-orbit commissioning phase. Once commissioning is complete, the next 180 days will be focused on science operations. A checkout and performance analysis of each science instrument will be performed and then, one by one, each experiment will turn on to perform its science objectives.

After the science phase is complete, additional characterization of the spacecraft will be performed to test additional flight objectives. These operations will be performed in parallel to test the overall abilities of the spacecraft. This will occur for approximately 100 days. After completion of this phase of the mission, the command will be sent to shut down the spacecraft, which will go into a decommissioning phase.

The microsatellite FASTSAT, weighing just under 400 pounds, will serve as a scientific laboratory containing all the resources needed to carry out scientific and technology research operations for the mission time period. FASTSAT was developed with a simplicity in the design of the spacecraft subsystems that provide power management, onboard storage of experiments data, control of experiments, communications with ground stations, propellantless mechanisms for attitude control and a GPS system for navigation.



On Nov. 19, mission controllers at Marshall's small satellite command center wait to begin FASTSAT commissioning operations after the Minotaur IV rocket carrying the satellite launched from the Kodiak Launch Complex at Kodiak Island, Alaska.

FASTSAT launched on the STP-S26 mission – a joint activity between NASA and the Department of Defense Space Test Program. The satellite was designed, developed and tested at the Marshall Center in partnership with the Von Braun Center for Science & Innovation and Dynetics Inc. of Huntsville. Dynetics provided key engineering, manufacturing and ground operations support for the new microsatellite. Thirteen Huntsville-area firms, as well as the University of Alabama in Huntsville, also were part of the project team.

For more information about the FASTSAT mission and status updates visit <http://www.nasa.gov/fastat>.

Newton is a public affairs officer in the Office of Strategic Analysis & Communications.

Classified Ads

To submit a classified ad to the Marshall Star, go to Inside Marshall, to "Employee Resources," and click on "Marshall Star Ad Form." Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue, Dec. 2, is 4:30 p.m. Thursday, Nov. 25.

Miscellaneous

Foosball table, \$100; oak entertainment center, \$150; pet barrier, \$50. 256-882-0461

Stainless steel side-by-side refrigerator, Frigidaire Gallery, 26 cu.ft., water filter, ice maker, \$600. 256-520-6951

Diamond engagement ring, \$3,500 obo. 256-721-1398

Four Winds hot tub, seats six, 50 jets, fiber optic lighting, waterfall, \$1,200. 256-852-1994

Golf metal wood set, matching D-9.5*, D-11.5*, 3, 5, 7, graphite shafts, headcovers, \$190. 256-509-5906

Art Deco waterfall cedar chest, \$100. 256-882-3895

9-foot pre-lit Christmas tree, \$150. 256-337-7943

Baby monitor and camera, \$75. 256-759-3009

CKC Shih Tzu, male, born Sept. 16, black. 256-200-6046

Camper shell, aluminum, 81" x 63" for pickup truck, no clamps, \$50. 256-572-1867

Ion Audio sound session IED01 electronic drum set, \$175. 256-783-4850

Luxfer scuba tank, Dacor Octopus with gauges, BC, Performance L/mens 3mm dive suit, \$300. 256-656-3196

Computer desk with hutch, \$100; gas grill, \$100; futon, \$50. 256-318-2158

GE gas dryer, \$150. 256-651-5847

Two rustic pine end tables, coffee table, pics available, \$75. 256-777-1810

Amana 3.3 cubic foot washer; 7.1 cubic foot dryer, both

electric, \$200. 931-625-1144

1988 Volvo 240 engine, transmission, engine computer, wheels, radiator, grille, electrical parts, \$150 for lot. 256-714-0377

Playstation 3 game, Little BIG Planet, Game of the Year edition, rated E, \$25. 256-828-1234

Fisher Price ImagiNEXT toys: Pirate Ship, Batman Cave, Gorilla Mountain, Castle, accessories, \$25 per set. 256-714-3067

Vehicles

2004 Honda Odyssey, \$8,500 obo; 2000 Honda 750 Shadow, \$3,300 obo Call 256-721-1398

1966 Ford Mustang convertible, all original, 289 V8, cruise-omatic transmission, \$16,500. 256-353-5030

Wanted

HP 205 calculator, needs to work, all buttons firm, will pay \$35. schulkd@gmail.com

Found

Black Plantronics Bluetooth earpiece, Nov. 15, B4312 parking lot. 544-4680

Thousands of resources available at Redstone Scientific Information Center

By Megan Norris Davidson

Need some help with a technical paper, or want a wide range of resources for that latest research project? The Redstone Scientific Information Center may be just the place for Marshall Space Flight Center team members to go for those services – and many more.

Established in 1962, the Redstone Scientific Information Center – located in Building 4484 – is a comprehensive scientific and technical library open to all employees and contractors on Redstone Arsenal. It houses an extensive collection of materials, including:

- A 250,000 volume book collection, covering all technical and scientific subject areas; encyclopedias; dictionaries; and other reference sources
- More than 1,400 subscriptions to journals in hard copy, covering many scientific areas. The center also has 111,000 bound volumes
- 2.27 million documents – including historical materials – in hard copy, microfiche and digital format
- 2.78 million U.S. patents

“We have so many resources available to Marshall employees and contractors,” said the information center's chief librarian, Martha Knott. “And new materials are continuously being added about subjects important to those in the space industry – such as physics and aviation. We are the only facility that provides such a broad spectrum of resources specifically geared toward the needs of Redstone Arsenal's many organizations, including the Marshall Center.”

Reference services are available on the first and third floors of the information center. Each floor is staffed by professionals with master's degrees in information science and expertise in a variety of scientific, technical and military fields. The reference staff offers in-depth research assistance, and a librarian is on duty at all times to help users with the library's resources. Conference rooms, which can be reserved, are equipped with a computer, projector, television, video player and white board. A classified conference room with a video player also is available.

When materials are not accessible at the library, registered users may request items through the interlibrary loan service. The library will make every attempt to locate and borrow books, articles, conference papers, technical reports and dissertations. An interlibrary loan request may be initiated in person at the library; by phone at 256-876-5197; or by e-mail at Redstone-RSIC.InterLib@conus.army.mil.

The library also has desktop accessibility on its website at <https://rsic.redstone.army.mil/>. With an alternate identification and pin, users have access to:

- iLink – The library's online catalog/gateway, with browsing and word-phrase searching. Users can make remote requests and renew their checked-out materials.
- Online, paid subscriptions index databases, many with full-text retrieval – numerous indexing/abstracting tools for various subjects and types of publications
- E-journals/E-books – many with full text, from diverse publishers and vendors
- Selected Internet links – numerous connections to websites relevant to the Redstone community
- Aviation and Missile Research, Development and Engineer Center and Marshall Center digitalized reports

The information center also has current awareness alerting services, which send journal articles, conferences and report citations automatically to a user's e-mail address every time something is newly published in a specific subject area. Alerting services can be programmed to run daily, weekly or typically on a monthly basis depending on the user's research needs.

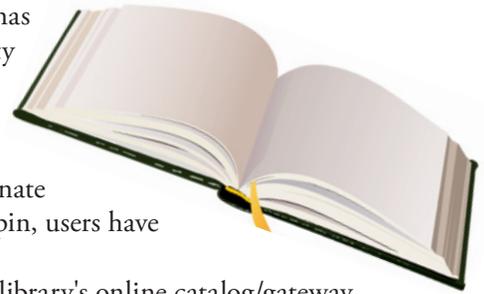
Marshall team members must register to use the library's services by filling out an application – available at <https://rsic.redstone.army.mil/registration.htm> – and delivering it to the secured area on the library's third floor. The form also can be faxed to 256-876-6000, or mailed to:

U.S. Army Research, Development & Engineering Command
Redstone Scientific Information Center
ATTN: RMDR-CSI/Chief Librarian
Bldg. 4484
Redstone Arsenal, AL 35898-5000

Contractors must have a security officer sign and validate a user's security clearances, contract number, contract end date and employment. Contact Sherman Wilson in Marshall's Protective Services Office at 544-1268 for a signature. An additional form must be filled out for access to classified materials. Applicants will be notified by someone at the library once all registration materials have been received.

For more information, including library hours, visit the library's website or call 256-876-5181. To set up a library orientation, current awareness alerting services or online training, call 256-876-5195.

Davidson, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.





CFC donations near \$510,000

Contributions to the Marshall Space Flight Center's Combined Federal Campaign totaled \$509,951 as of Nov. 22. Marshall's goal for 2010 is to raise \$675,000 by the campaign's end Dec. 10.

To donate, or to browse a comprehensive list of qualified charitable organizations, visit <http://cfc.msfc.nasa.gov>. Team members also may use paper pledge forms to contribute by payroll deduction. Forms are available from organization leads or assigned monitors. For a complete list of organization leads, visit http://cfc.msfc.nasa.gov/2010_org-chart.pdf.

STS-133 *Continued from page 1*

the analysis and repairs required to safely launch Discovery. This analysis will be reviewed at a special control board meeting Nov. 24. Pending a successful review of the flight rationale at that meeting, a launch status briefing will be held with senior NASA managers Nov. 29.

Work has been under way at the launch pad at Kennedy Space Center, Fla., to fix a leaking hydrogen system that caused the initial launch delay Nov. 1 and to repair cracks atop two, 21-foot-long support beams called stringers, on the exterior of the shuttle's external fuel tank.

The launch countdown will begin no earlier than Nov. 30. That would support a launch attempt for Discovery no earlier than Dec. 3 at approximately 1:52 a.m. CST.

Between Nov. 1 and Nov. 5, the launch was delayed by a combination of weather and mechanical problems, including a hydrogen leak at the Ground Umbilical Carrier Plate during the fueling process Nov. 5 and a foam crack on the external fuel tank's liquid oxygen flange, discovered during detanking operations. In the following days, cracks



Technicians reattach the vent line to the Ground Umbilical Carrier Plate on space shuttle Discovery's external fuel tank.

were found on the stringers.

For the latest information about the STS-133 crew and mission, visit http://www.nasa.gov/mission_pages/shuttle/main/index.html.

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