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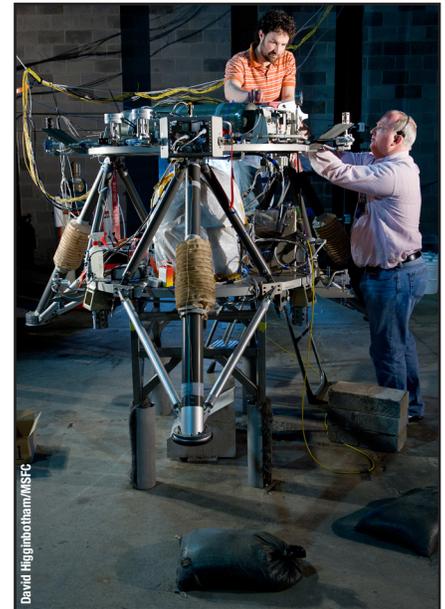
NASA makes use of historic test site for new robotic lander prototype tests

By *Kim Newton*

On March 3, engineers at the Marshall Space Flight Center began the first phase of integrated system tests on a new robotic lander prototype at the Redstone Test Center's propulsion test facility on the U.S. Army Redstone Arsenal. These tests will aid in the design and development of a new generation of small, smart, versatile robotic landers capable of performing science and exploration research on the surface of the moon or other airless bodies, including near-Earth asteroids.

This initial test phase, or strapdown testing, allows the engineering team to fully check out the integrated lander prototype before moving to more complex free flight tests. The team secures the prototype during hot fire tests to validate the propulsion system's response to the flight guidance, navigation and control algorithms, and flight software prior to autonomous free flight testing.

"Moving the robotic lander tests to the Redstone Test Center facility is an example of intergovernmental collaboration at its best," said Larry Hill, Robotic Lunar Lander Development Project Office test director at the Marshall Center. "Engineers and technicians from

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Marshall engineer Josh Moore, left, and Teledyne Brown Engineering avionics engineer Scott Gilley prepare the robotic lander prototype for tests at the U.S. Army Redstone Arsenal Test Center in Huntsville.

Contractor Excellence Award judges receive Director's Commendation Certificate

By *Jessica Wallace Eagan*

Marshall Space Flight Center Director Robert Lightfoot has awarded the Director's Commendation Certificate to 13 Marshall employees who judged the Contractor Excellence Award applicants, citing them for their outstanding efforts and dedication while serving as members of the 2010 process team.

Receiving the commendation certificate March 3 were Susan Cloud, special assistant to the director in the Office of Human Capital; Dave Cockrell, aerospace engineer

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Payload Operations Center marks 10th anniversary at Marshall

By *Lori Meggs*

With a ceremony and plaque hanging March 8, the Payload Operations Center at the Marshall Space Flight Center celebrated a decade of round-the-clock support to the International Space Station.

The Payload Operations Center went online as the science command post for the space station March 8, 2001. It links Earth-bound researchers with their experiments – or payloads – in orbit. The job of coordinating space station research is critical because the team manages all NASA science assets and calculates the time and space required to accommodate experiments

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Spacelab: A short-term spaceborne laboratory

Editor's Note: STS-1 lifted off April 12, 1981, marking the first launch of a reusable spacecraft. Space shuttles have repeatedly carried people into orbit; launched, recovered and repaired satellites; conducted cutting-edge research, and built the largest structure in space, the International Space Station. As the program nears its 30th anniversary, the Marshall Star is featuring images and highlights from past shuttle missions.

By Sanda Martel

The ninth space shuttle flight, launched Nov. 28, 1983, from Kennedy Space Center, Fla. On board – in addition to crew members Commander John Young; Pilot Brewster Shaw; Mission Specialists Owen Garriott and Robert Parker; and Payload Specialists Byron Lichtenberg and Ulf Merbold of the European Space Agency – was Spacelab-1, a reusable orbital laboratory in space shuttle Columbia's cargo bay.

Spacelab was a versatile laboratory that consisted of multiple facilities, components and capabilities, including a pressurized module, unpressurized carriers – called pallets – and other related hardware. Its components were arranged in various configurations to meet the needs of each mission, which were science investigations to demonstrate the capability for advanced research in space.

During the first Spacelab mission, STS-9, 73 separate investigations were carried out in astronomy and physics, atmospheric physics, Earth observations, life sciences, materials sciences, space plasma physics, and technology. After a successful 10-day mission, Columbia landed Dec. 8 at Edwards Air Force Base, Calif.

Spacelab flew on 23 space shuttle missions between November 1983 and April 1998.

When space shuttle development began in the 1970s, planners at the Marshall Space Flight Center studied



The Spacelab module in shuttle Columbia's payload bay during STS-9.

how to use the proposed vehicle's capabilities for scientific research. Early studies called for development of a versatile, reusable laboratory facility. Marshall was responsible for technical and programmatic monitoring of Spacelab development activities, which involved 50 manufacturing firms in 10 European countries.

The European Space Agency built the original laboratory modules dedicated to spaceflight, and a second Spacelab mockup module used for training and mission design. Upon completion of module and carrier development, Marshall assumed the responsibility for maintaining and operating the Spacelab suite of hardware.

Marshall also built related Spacelab flight components and developed a pressurized transfer tunnel for passage of crew and equipment between the orbiter cabin and the laboratory module.

In May 1990, the Marshall Center announced that beginning with the STS-35 mission, which was to be launched in December 1990, all Spacelab missions would be controlled from NASA's new Spacelab Mission

Operations Control Center at Marshall. The facility supported the science astronauts on Spacelab in much the same way that Mission Control in Houston supported the flight crew. Marshall also managed the majority of the Spacelab science missions, performing the mission management and mission scientist roles.

Marshall controllers and researchers at the Spacelab Mission Operations Control Center directed NASA science operations and sent commands directly to the spacecraft during Spacelab missions throughout the 1980s and 1990s. Controllers also received and analyzed data from experiments aboard the vehicle. Hundreds of scientists from around the world worked from the Marshall Center during Spacelab missions.

The lessons learned during Spacelab flights paved the way for space research now being realized aboard today's full-time laboratory in orbit – the International Space Station – where experiments are performed for months instead of just days or weeks at a time.

Martel, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis and Communications.

Jimmy Smith focused on the journey – and the destination – in 50 years at Marshall

By Megan Norris Davidson

Jimmy Smith has gone the extra mile – literally – in his 50-year career at the Marshall Space Flight Center.

Since his first job in March 1961 as a cab driver for the center, Smith has logged thousands of hours on the road in support of the ultimate journey – putting new rockets and explorers into space.

“The space program was so important to us at that time and to then-President John F. Kennedy,” remembered Smith, now lead truck driver for distribution with URS Corporation, supporting Marshall’s Office of Center Operations.

In those years, Smith transported people not only around the center, but also to other cities in the region to meetings and other business-related events. He even drove some notables, including

U.S. Rep. Bob Jones of Huntsville, representing Alabama’s 5th Congressional District, and a staunch supporter of the space program throughout his 30-year service in the House; and Marshall’s first director, renowned rocket scientist Dr. Wernher von Braun.

“I was von Braun’s driver for awhile,” Smith said. “I really liked him. He was very polite, and sometimes he would ride in the front seat and talk with me.”

Smith has seen and done a lot since those early days at Marshall. He drove a box truck and then a semi-tractor trailer in the mid-1960s through the early 1970s, hauling supplies – including rocket fuel for the Apollo and Gemini missions – all over the Southeast for NASA. While making deliveries to the Kennedy Space Center in Florida, he met the

seven original Mercury astronauts – Gordon Cooper, Scott Carpenter, John Glenn, Alan Shepard, Virgil Grissom, Walter Schirra and Donald Slayton. It was an opportunity and memory that he cherishes.

“I talked and had coffee with all of them,” Smith recalled. “That was one of the best parts of traveling – getting to meet interesting people.”

One of his favorite memories in his golden career was seeing the first prototype of the space shuttle land at the Redstone Army Airfield. “That was such an important moment in Marshall’s history,” he said. “Look at all the missions we’ve accomplished because of the Space Shuttle Program. I’m glad I was able to be a part of it.”

Smith also has helped load NASA’s Super Guppy aircraft,

which transports large components and equipment. He worked in Marshall’s public affairs office in the exhibits department for a few years, traveling to various state fairs to set up displays and exhibits – all helping to promote the nation’s space program.

While his traveling days for Marshall have passed, his experience has helped him in his role as a team lead – a position he’s held since 1995. He oversees a 24-person crew, making sure furniture, equipment

and other supplies are distributed to the appropriate places across the center.

“After being here for 50 years, Jimmy’s knowledge of the center – and the people – actually helped me in my job,” said Craig Murdoch, Smith’s supervisor of almost 11 years. “It is rare nowadays that people stay in the same job for so long. It is definitely something that deserves recognition.”

Smith said he will continue to do his part in furthering Marshall’s initiatives. “I don’t have any plans to retire. I like the work I do, and I like the people. I’ve made a good living for my family. And as long as I’m physically able to do my job, I’ll keep going.”

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



Jimmy Smith, a URS Corporation employee supporting Marshall’s Office of Center Operations, celebrated 50 years at the Marshall Center March 16.



Endeavour moves to launch pad for final mission

Space shuttle Endeavour arrived at the launch pad at Kennedy Space Center, Fla., March 11, setting the stage for the orbiter's last mission. NASA is targeting April 19 for Endeavour's launch on the STS-134 mission to the International Space Station. Commander Mark Kelly and his crew members will deliver the Alpha Magnetic Spectrometer – a state-of-the-art particle physics detector – and spare parts to the orbiting outpost. Launch time is 6:48 p.m. CDT. For more information about Endeavour's 14-day mission, visit http://www.nasa.gov/mission_pages/shuttle/shuttlemissions/sts134/index.html.

United Space Alliance employee dies at Launch Pad 39A

On March 14, a United Space Alliance employee James D. Vanover fell at NASA Kennedy Space Center's Launch Pad 39A. NASA emergency medical personnel responded, but they were unable to revive him. All work at Launch Pad 39A was suspended for the rest of the day, and counseling and other employee assistance are being provided to workers.

United Space Alliance Chief Executive Officer Virginia Barnes expressed grief and condolences for the family. "Our heartfelt sympathy goes out to the family of Mr. Vanover," Barnes said. "Our focus right now is on providing support for the family and for his coworkers."

The incident is under investigation.

Tests *Continued from page 1*

NASA, the Army and our Huntsville-based support contractor, Teledyne Brown Engineering, have worked tirelessly over the last month to modify the historic test facility formerly used for missile testing to accommodate NASA's lander test in record time, saving NASA time and money."

"Our team has been on a record-paced design and development schedule to deliver the robotic lander prototype to the test site," said Julie Bassler, Robotic Lunar Lander Development Project Office manager. "We have succeeded in designing, building and

testing this new lander prototype in a short 17 months with an in-house NASA Marshall team in collaboration with our partners."

Development and integration of the lander prototype is a cooperative endeavor led by the Robotic Lunar Lander Development Project Office at the Marshall Center, Johns Hopkins Applied Physics Laboratory and the Von Braun Center for Science and Innovation – which includes the Science Applications International Corp., Dynetics Corp., Teledyne Brown Engineering Inc., and Millennium

Engineering and Integration Co., all of Huntsville.

The project is partnered with the U.S. Army's Test and Evaluation Command's test center located at Redstone Arsenal. Utilizing a historic test site at the arsenal, the project is leveraging the Redstone Test Center's advanced capability for propulsion testing.

For more photos of the hardware visit <http://www.nasa.gov/roboticlander>.

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

Anniversary *Continued from page 1*

and programs, including those of the Canadian Space Agency, European Space Agency and Japan Aerospace Exploration Agency. For 10 years, the Payload Operations Center team has supported more than 6,000 hours of science experiments conducted by 41 space station crew members, and coordinated more than 1,100 experiments aboard the orbiting outpost.

"It's our mission to ensure each crew member has the knowledge and the resources they need on-orbit to achieve the highest possible science results," said Lybrease Woodard, manager of Marshall's Payload Operations. "The crews and scientists have been remarkable to work with. This milestone is a tribute to everyone who has supported payload operations, whether as part of the flight control cadre, ground operations or planners – it's a big team effort."

When the Payload Operations Center opened for business at Marshall, many processes were still being developed. Yet the team's prior experiences supporting Spacelab – science missions carried out in the space shuttle's payload bay in the 1990s – helped them transition more quickly into support of the space station.

"Our experiences with Spacelab really led to our success," recounted Pat Patterson, a Payloads Operations manager who



From left, Marshall Center Director Robert Lightfoot, at the 10th anniversary celebration at the Payload Operations Center, talks with Rod Jones, manager of the Payloads Office at the Johnson Space Center; Julie Robinson, International Space Station Program scientist at Johnson; and Lybrease Woodard, manager of Marshall's Payload Operations.

in 2001 was director of the first shift of flight controllers at Marshall. "Spacelab was our roadmap, but with a continuous laboratory we have gone so much further. We know that those people orbiting 220 miles above Earth count on us, and so do the researchers here on Earth."

By serving as virtually an extra space station crew member, the team of ground-based flight controllers helps increase experiment

efficiency which saves precious crew time for operations that require a human touch. The Payload Operations Center can send commands to the space station as fast as eight per second. Since 2001, more than 870,000 commands have been sent to payloads.

With the help of the payload operations team, orbiting crew members and the scientists on the ground accomplish their science goals, and have produced and published more than 300 research papers developed from science experiments aboard the station.

"That's what our work is all about, doing everything we can to ensure scientists get the results with a well-operated laboratory," said Julie Robinson, International Space Station Program scientist at the Johnson Space Center in Houston. "In previous Spacelab days, it was all for just two weeks of opportunity. Now the operations center supports hundreds of experiments around the clock. They are masters of coordinating research operations in space at a level never done before."

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



Marshall Director Robert Lightfoot assists Jenn Whitworth, a payload rack officer, in hanging a plaque in the Payload Operations Center. The plaque commemorates the team's 10 years of continuous support to the International Space Station.

Marshall's Les Johnson to speak at Marshall Association on March 31



Les Johnson

The Marshall Association will host a luncheon March 31 featuring Les Johnson, deputy manager for the Advanced Concepts Office in the Marshall Space Flight Center's Engineering Directorate.

Johnson will discuss three science books he co-authored – “Back to the Moon,”

“Paradise Regained: The Regreening of Earth” and “Solar Sails: A Novel Approach to Interplanetary Travel.”

The meeting, in Building 4203, Room 1201, will begin at 11 a.m. Lunch will be \$8 for Marshall Association members and \$9 for nonmembers. Those planning to attend should contact Janet Anderson, vice president for communications, at janet.l.anderson@nasa.gov or at

544-6162 by March 29.

For those interested in joining the association, a \$25 membership fee can be paid at the door. Membership is open to the entire Marshall community.

For more information about the association, visit http://inside.msfc.nasa.gov/marshall_association/.

For more information about Johnson's books, visit <http://www.lesjohnsonauthor.com>.

Award

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in the Safety & Mission Assurance Directorate; Greg Frady, aerospace engineer supervisor in the Engineering Directorate; Gary Gray, financial manager in the Office of the Chief Financial Officer; Trista Guthrie, program analyst in the Shuttle Propulsion Office; David Iosco, manager of the Engineering Support Office in the Office of Procurement; Jeanette Johnson, computer scientist in the Office of the Chief Information Officer; Willie Love, assistant director of the Office of Diversity & Equal Opportunity; Marie Malone, team lead in Project Planning & Control in Ares Projects; Michael McLean, program specialist in the Safety & Mission Assurance Directorate and Contractor Excellence Award judges team lead; Betty Mullins, management support assistant in the Safety & Mission Assurance Directorate; Patrick Rasco, contractor industrial relations officer in the Office of Center Operations; and Steve Spearman, aerospace engineer in the Science & Mission Systems Office.

The Contractor Excellence Award is given annually to Marshall contractors who have made significant contributions toward the accomplishment of the center's mission. Companies are evaluated on seven criteria: contract technical performance; schedule and



Recipients of the Director's Commendation Certificate are, from left, front row, Willie Love, Jeanette Johnson, Marie Malone and Trista Guthrie; back row, Michael McLean, Gary Gray, Steve Spearman, Greg Frady, Patrick Rasco and Dave Cockrell. Not pictured: Susan Cloud, David Iosco and Betty Mullins.

cost performance; leadership and quality improvements; customer satisfaction; innovation; and a category that included safety, diversity and outreach.

“This award recognizes the best of the best,” said McLean. “The process gives the companies the benefit of valuable feedback from their customer that can help them become better contractors and, in turn, help Marshall become a better center. I would encourage all Marshall contractors to participate.”

The application for the 2011 award competition will be mailed in the near future.

Recipients of the Contractor Excellence Award may become nominees for NASA's George M. Low Award. Named for the former NASA deputy administrator who served from 1969 to 1976, the Low Award is the agency's oldest and most prestigious award for quality and performance in the aerospace industry.

For more information, contact McLean at 544-0397 or at mclean@nasa.gov.

Eagan, an AI Signal Research Inc. employee and the Marshall Star editor, supports the Office of Strategic Analysis & Communications.

'Focus on Marshall' marks milestone with 50th episode

Hard to believe, but it's been five years since the Marshall Space Flight Center began a video program called "Focus on Marshall." In those years, co-hosts Bill Hubscher and Lori Meggs have traveled from Utah to the Gulf Coast and, of course, the Space

Coast to bring you stories about Marshall's contribution to our nation's space program.

Fifty episodes have aired on NASA TV and on the Web, highlighting the work and capabilities at the Marshall Center.

In the March episode, the "Focus on

Marshall" team looks back at some special moments, favorite segments – and shares some bloopers, too.

"Focus on Marshall" airs on Marshall TV March 22 and 24 at 11 a.m., noon and 1 p.m. The series is available on NASA TV, Inside Marshall and on the NASA Portal.

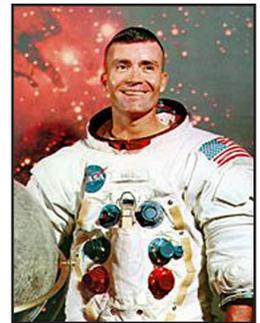
Former astronaut Fred Haise to share Apollo 13 mission experience March 18 at Space & Rocket Center

The U.S. Space & Rocket Center will present excerpts from the 1995 movie "Apollo 13" with commentary from former astronaut Fred Haise, the lunar module pilot for that mission. The event will be at 7 p.m., March 18, at the Davidson Center for Space Exploration.

Haise also will discuss the engineering challenges of Apollo 13 and his role with testing the space shuttle Enterprise – the first shuttle orbiter. Enterprise never flew in space, but was crucial to the Space Shuttle Program. Its series of approach and landing tests in 1977 proved the orbiter could fly in the atmosphere and land like an airplane.

Apollo 13 was scheduled for a 10-day lunar mission, but the flight plan was modified because of a failure of the service module's cryogenic oxygen system. Haise and fellow crew members James A. Lovell and John L. Swigert, working closely with NASA ground controllers in Houston, converted their lunar module into an effective lifeboat. Their emergency activation and operation of lunar module systems conserved enough electrical power and water to assure their safety and survival in space and their return to Earth.

Tickets to the Space & Rocket Center event are \$25. For additional information, visit <http://www.spacecamp.com/store/haise>.



Fred Haise

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, March 24, is 4:30 p.m. Thursday, March 17.

Miscellaneous

Salt water 16-inch Akoya pearls, 14k clasp, \$250. 256-701-5304

Three Gerber 1.6 gallon commodes, \$25 each. 256-527-0110

Three Piggly Wiggly signs from the 1950s. 256-497-8766

Men's 15-speed Roadmaster bike, 26" tires, mountain bike

tread, \$60. 256-508-6947

Antique telephone table with light fixture, curved table, picture available, \$150. 256-882-3895

Bunk Beds, medium brown, changing table/dresser in butternut, white train table with drawers. 256-216-1039

Whirlpool electric dryer, wrinkle shield selector, auto dry sensor, wide-opening door, control panel, \$99. 256-881-1449

Vehicles

2007 Mazda3 iTouring 4D sedan, 67k miles, \$10,500. 256-698-1568

2004 Honda Accord EX-L coupe, all options except navigation, 64k miles, \$11,900. 256-830-6584

2003 American Star 5th wheel travel trailer, two slideouts, \$12,500 obo. 256-489-0292

2003 Kawasaki Voyager XII touring motorcycle, low mileage, intercom, four helmets, \$7,500. 256-859-8489

1997 Pontiac Sunfire, two door, two new tires, needs paint/A/C compressor, 137k miles, \$1,650. 256-520-3874

1996 Ford Ranger XLT Supercab, green, 4.0L V6, automatic, 150k miles, \$2,000 obo. 256-520-2062

Wanted

Band looking for drummer, classic to modern rock, weekly practice. 256-975-2034

Log splitter. 256-527-8116

Shuttle Buddies to meet March 28

The Shuttle Buddies will meet at 8:30 a.m. March 28 at Mullins Restaurant on Andrew Jackson Way. For more information, call Deemer Self at 881-7757.

Marshall hosts live chat between astronauts, students



On March 4, the Marshall Space Flight Center hosted an in-flight education downlink, relaying questions based on feedback from high school and college students nationwide to the crews of space shuttle Discovery and the International Space Station. Participating in the event are, from left, Marshall team members David Hitt, Joel Stein, Kelley Walsh, Joe Charbonnet and Heather Smith. Hitt, Walsh and Smith are Marshall Information Technology Services contractors supporting the Office of the Chief Information Officer at Marshall. Stein and Charbonnet are Marshall student interns in the Engineering Directorate. The live chat was organized by the NASA Educational Technology Services at Marshall and the "Teaching From Space" program led by the Johnson Space Center in Houston. To learn more, visit <http://education.nasa.gov>.

Jared Haymaker, son of Marshall Academic Affairs Office project coordinator Tina Haymaker, joined his mother and Marshall team members in the Payload Operations Center for the live downlink March 4 with shuttle and station crews. Participating from space were Expedition 26 crew members Scott Kelly and Cady Coleman and, from STS-133, Commander Steve Lindsey; Pilot Eric Boe; and Mission Specialists Alvin Drew, Nicole Stott, Michael Barratt and Steve Bowen. The downlink reached an estimated 875,000 students and space enthusiasts, and video of the event will be used to further engage and inspire students. Read more about the downlink on the "Taking Up Space" blog at <http://www.nasa.gov/education/takingupspace>.



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