



Serving the Marshall Space Flight Center Community [www.nasa.gov/centers/marshall/about/star/index.html](http://www.nasa.gov/centers/marshall/about/star/index.html) December 18, 2013

## Inside This Issue:

**Dom Amatore, Marshall Star Tell Marshall Center's Story for Decades** [page 2](#)



**Marshall Engineers Crush Tank to Build Better Rockets** [page 6](#)



**Check us out online! Scan the QR code**



Marshall Space Flight Center, Alabama 35812  
256-544-0030  
<http://www.nasa.gov/centers/marshall>

The Marshall Star is published every Wednesday by the Public and Employee Communications Office at the George C. Marshall Space Flight Center, National Aeronautics and Space Administration. The Star does not publish commercial advertising of any kind.

Manager of Public and Employee Communications: Dom Amatore  
Editor: Jenalane Rowe

## Interview: Jody Singer, Manager of the Flight Programs & Partnerships Office (FP01)

The Marshall Star spoke recently with [Jody Singer](#), who became manager of the Flight Programs & Partnerships Office in June. The FPPO has an annual budget of about \$108 million and a combined workforce of more than 500 civil service employees and contractors. Singer was previously deputy program manager of the Space Launch System Program Office and deputy manager of the Space Shuttle Propulsion Office, among her many leadership roles.

**Q. The "Flight Programs" part of your**

**office seems to embody the heart of NASA. What do you tell people about the mission of the Flight Programs & Partnerships Office?**

The people in FPPO have the opportunity to support many NASA goals and priorities. We support all the basic strategic goals in Science, Space Technology, Human Exploration and Operations, and External Partnerships. We provide critical work in all of Marshall's mission areas including "Living and Working in Space,"

*See [Jody Singer](#) on [page 3](#)*

## SLS Chief Engineer Driven by 'Challenge' of Building America's Next Great Rocket

*By Megan Davidson*

During the Saturn V days, a 10-year-old boy came to NASA's Marshall Space Flight Center with his dad and uncle for an open house. There to shake that young boy's hand was Wernher von Braun, the first center director of Marshall who would later be hailed as one of the all-time champions of space exploration.

That day, as S1 stage engines ignited every hour in the test stand,

*See [Garry Lyles](#) on [page 3](#)*



*SLS Chief Engineer Garry Lyles presents at the preliminary design review for the new deep-space launch vehicle. Lyles is responsible for the overall system design of the SLS. (NASA/MSFC/Fred Deaton)*

## Dom Amatore, Marshall Star Tell Marshall Center's Story for Decades

The Marshall Star, Marshall Space Flight Center's weekly employee newspaper, has been published since the Center began operations in September 1960, a run of more than 53 years. For most of the years since 1986, Dom Amatore, manager of the Public & Employee Communications Office in the Office of Strategic Analysis and Communications, has overseen the publication, which is an unbroken chronicle of Marshall Center's most significant activities throughout six decades.

"I joined Marshall Center shortly after the Challenger accident," said Amatore. "It was a dramatic time at NASA. I was the center's media manager and spent two years talking to national news media daily about the work we were doing to return the space shuttle to flight. It was very important to communicate accurately and appropriately not only to the outside world, but also to our own workforce."

A key activity of returning the space shuttle to flight after the Challenger accident was redesigning the shuttle's solid rocket motors and testing the redesign. That activity captured the nation's interest, and media coverage was intense.

"We enabled news media organizations to have full access to all of our solid rocket motor tests in Utah," said Amatore. "NASA is a very transparent agency that makes its work accessible to the public. We worked hard to keep the public fully informed during the return to flight of the space shuttle, and to keep Marshall's workforce informed by means of the Marshall Star."

Spacelab missions, development and launch of the Hubble Space Telescope and the Advanced X-Ray Astrophysics Facility (later named the Chandra X-Ray Observatory), hardware development and launches of the International Space Station, the Columbia accident and the space shuttle's return to flight, the successful completion of the space shuttle program, development of the Space Launch System -- Amatore led a team of communicators who ensured that these and many more vital NASA missions supported at Marshall Center were communicated to the public and chronicled in the pages of the Marshall Star. That is, when the employee newspaper actually had pages. In 2011 the Marshall Star, like many other newspapers these



*Dom Amatore looks over the first issue of the Marshall Star from September 1960. Amatore has managed the publication of the weekly employee newspaper for most of the time since he joined Marshall Space Flight Center as media manager in 1986. (NASA/MSFC/Emmett Given)*

days, became strictly a digital publication. It is still published weekly though, the only weekly employee newspaper remaining in NASA. And it's available to the world on NASA.gov, where it receives nearly 300,000 page views a year.

"Communicating about NASA and Marshall Center has been my passion," said Amatore. "I have worked with a great team of people within the center and throughout the agency, coming together to tell NASA's story. It's a great story, and there's no end in sight."

"Dom Amatore has been Marshall Center's point person for news and information for decades," said Bobby Watkins, director of the Office of Strategic Analysis & Communications. "His long tenure in this role is remarkable and his extensive knowledge and experience are a real asset to NASA."

## **Jody Singer** *Continued from page 1*

“Understanding our World and Beyond” and “Traveling to and Through Deep Space.”

There are four major areas that comprise FPPO’s broad portfolio. In support of the Human Exploration and Operations Mission Directorate, our primary focus is on International Space Station sustained operations and utilization and on enabling human exploration and development; which includes support to Commercial Crew. We also support the Exploration Systems Directorate in beyond-Earth orbit explorations and we support the Orion’s Launch Abort System managed through Johnson Space Center. In a nutshell, we support all of Marshall’s Human Exploration and Operations activities except for the Space Launch System, under

## **Garry Lyles** *Continued from page 1*

something ignited in that little boy, as well -- a dream to one day work “at one of the coolest places” he’d ever been. Today, he’s living that dream.

That boy was Garry Lyles, now responsible for the overall system design of the most powerful rocket in history -- NASA’s Space Launch System (SLS). Only with a vehicle of this magnitude will America be able to explore deep-space destinations, including Mars. And as chief engineer of the SLS Program, Lyles keeps his experienced engineering eye on progress toward that first mission in 2017.

“It’s funny -- at that open house all those years ago, I didn’t think much about being an engineer, but Marshall sure did impress me as an exciting place to work,” Lyles recalls. “Later on when I was in high school, I had a couple of friends who wanted to be engineers. The only thing we knew then was engineers designed things, and that’s what we wanted to do. We wanted to create things.

“We all decided to go to engineering school. I took one of those career aptitude tests, and according to it, the probability of me making passing grades in engineering was relatively low. But that just made me want it more. I said, ‘You know what? I’ll show you.’”

And “show” he has, with a successful, near 38-year career at the Marshall Center.

Todd May.

Under the Science and Space and Technology Mission Directorates, the FPPO performs program management for Planetary Science Division robotic missions under Discovery and New Frontiers Program Offices. In STMD, FPPO performs program management of Technology Demonstration Missions, which bridge the gap between early development space technologies and their infusion into flight-ready systems.

Critically important is the FPPO’s role as Marshall’s “front door” for working with external partners interested in doing business with the center. These include commercial, other government agencies, academia, and international

*See Jody Singer on page 4*

Lyles’ job is to integrate the different elements of the SLS into a design that will fly successfully and safely beyond low-Earth orbit. The **elements** include the boosters, engines, core stage and Interim Cryogenic Propulsion Stage (ICPS). The ICPS will boost the Orion spacecraft to the correct altitude and trajectory needed to send the spacecraft around the moon in order to check out vital systems during the initial test flights.

Lyles also chairs a design organization, which includes all the engineering disciplines -- things like systems engineering, loads and environments, flight mechanics, and operation production and tests. He also is responsible for each element’s system design. “All of the element chief engineers report up through me for their elements,” Lyles said. “And then we integrate it at my level with all the other engineering disciplines.”

“Rockets are a complicated piece of equipment,” he said. “A lot of the complexity is how all the pieces and parts work together. What I’ve found is a lot of what makes the rocket work is not just the physics. It’s the people.”

To read Lyles’ full story, click [here](#).

*Davidson, an ASRC Federal/Analytical Services employee, supports the Office of Strategic Analysis & Communications.*

partners that want to use our expertise and capabilities. We align them with the appropriate departments and experts either at the center or elsewhere in NASA to enable the work they want done.

**Q. How significant is it that “Partnerships” is paired with the “Flight Programs” office? Are partnerships growing more important to mission success?**

With declining budgets and the need to, as I call it, do the “and” -- as in “we want to enable Commercial Crew and go beyond Earth orbit” -- I think partnerships are essential to develop synergies with other centers, academia and international or other partners. All areas of Marshall are involved in partnerships, and they're a critical part of us being able to collaborate and bring forward science and exploration.

The number of partnerships has increased. That's partly due to the economy, but also because of the opportunities for partnership with SLS, with utilization of the ISS, and elsewhere. NASA is being very proactive in many areas to get industry involved in helping us develop more technology. And Marshall is doing a good job of helping the community understand our capabilities and our willingness to help industry partners be successful. It's a win-win.

Today we have more than 300 Space Act Agreements, and we want to see that continue to rise. One thing I'd like to point out to employees is that partnerships do not always depend on money changing hands. We have partnerships for knowledge sharing, use of technical facilities, skill support and more.

**Q. How do the office's partnership responsibilities differ from what the Office of Strategic Analysis & Communications (OSAC) does in the way of Marshall Center strategic development? Is there a synergy and collaborative relationship between the two organizations?**

The Office of Strategic Analysis & Communications and the Partnerships office work together and are critical in forming partnerships between the center and our partners. The Partnerships office serves as the front door to partners who want to do business with Marshall, but do not have a contact or know-how. We have a small team that serves as point-of-contact to industry, other government agencies, local government, and academia

and make access and doing business with NASA easier and make sure they have an advocate in getting their needs met. OSAC helps guide the center leadership in looking for strategic partnership opportunities. They do analysis and advise the center on which partnerships may be most beneficial to Marshall based on our capabilities and core competencies. We both work together with the center (Engineering, Institutional Offices, Chief Technologist, and Mission Directorates) to share information about key stakeholders and pass along any opportunities to engage. In addition to working with the center, the Partnerships office works with other centers to share their capabilities, too. If our partners need a capability that Marshall can't provide or can't do as well as another center, we coordinate with our counterparts at other centers to see that our partners get what they need.

While we have separate functions, both of our offices recognize the mutual benefits to partnering and helping companies to work directly with center experts and have access to our capabilities. For us, partnering keeps our core competencies strong; our employee skills sharp; it keeps us in tune with the community needs; and it helps us learn new ways of doing business, which helps all of us in meeting our nation's space exploration goals.

**Q. Have you found your new role and its scope very different from your previous work with shuttle, SLS and other programs?**

It's definitely a different environment. However, it's still the people I want to invest in. It's my job to enable folks to be able to do their job, which they know and do better than anyone. They are making the big contributions to helping us fly and reach the next destination. Some of the key things we do in the Flight Programs office are trying to develop the next leaders and develop strong program and project management skills. In FPPO, particularly in the Human Exploration areas and in our flight and mission program offices, there are opportunities to take small projects from beginning to end; to be part of a small team, get exposure to all aspects of a program and see it fly.

Shuttle and SLS were large programs, with more of a consolidated focus and a group of stakeholders looking to a common goal. In Flight Programs, there is a diverse portfolio with a lot of projects and programs and numerous stakeholders and customers. Each project may have different acronyms and a different “speak.” There

*See Jody Singer on page 5*

are more partners and collaboration, so communication is especially critical. And of course, there is the day-to-day business management of the office to keep it running effectively. We have 500 civil service and contract workers and an annual budget of \$108 million, so we are managing a significant piece of the center's business.

Marshall Space Flight Center is blessed with a lot of capable, fantastic, energetic people. Being a leader, it's my job to enable them and let them do their jobs. To me that's consistent regardless of which area of Marshall or NASA that you're in. It's a unique challenge with the diverse portfolio of the Flight Programs & Partnerships Office. But we've got great people; they know their areas and do a great job of keeping me informed.

**Q. There have been a number of milestones and accomplishments in FPPO programs in the past year. What, for you, are most memorable or noteworthy?**

What really makes me go "wow!" is when I think about the accomplishments of the team. It's amazing when I see our ISS team supporting the Environmental Controls and Life Support Systems -- when you see them working through the furlough to get critical spares and utilization of our ISS facilities and the EXPRESS science racks, when you see them get delivered and flown on time -- that's near and dear to you.

I'm also proud of LADEE (Lunar Atmosphere and Dust Environment Explorer), which launched in September. It's now 155 miles above the moon, the instrument checkout is complete and it's beginning its science work. It will orbit for six months to study the moon's thin exosphere and the lunar dust environment.

With some missions that are launched, you don't get the data back or engage with the destination planet for five or six years. You think about all the intensity, all the planning, all the coordination, all the readiness reviews that had to happen to get that mission ready, to be able to successfully execute that mission in five years, it's mind-boggling.

And it's great when you see technology evolve from the Marshall-managed [Technology Demonstration Missions](#) and then be used on the space station or in a critical part of SLS. It makes you extremely proud. Among TDM accomplishments in the past year were seven tele-robotics demonstrations aboard the ISS.

**Q. Are there some goals particularly important to you for the coming year?**

In 2014 I want to make sure we keep building on the work we did this year. That's going to mean increasing ISS utilization, keeping planetary exploration affordable with the Discover New Frontiers missions, continuing to help NASA's commercial crew and cargo companies, and developing more productive relationships that lead to collaboration. It also includes our support to the critical Launch Abort System for Orion, which goes to the launch pad for Exploration Flight Test -1 next year. So there's a lot that's on our plate.

Another really important area for me this year, as the new leader of FPPO, is to really get to know my team, our strengths, and continue to find new and innovative ways to collaborate. Our team does such a magnificent job, I want to find ways to recognize the great work they are accomplishing and make a concerted effort to celebrate our milestones and our successes as an internal team. I was incredibly impressed with how we kept continuity of operations in the critical areas during the government shutdown. From the POC to MSG processing, and keeping required facilities up and running, it was really challenging and impressive.

The men and women of the Flight Programs & Partnerships Office, like many around Marshall, are very skilled. I really do think this team is one that can help write the next chapter of NASA and space exploration, because we cross so many areas and we're working hard to pull it all together.

# Marshall Engineers Crush Tank to Build Better Rockets

By Tracy McMahan

Last week, NASA engineers completed a series of tests by crushing an enormous tank under the pressure of nearly a million pounds of force -- all in the name of building lighter, more affordable rockets. With 20 cameras aimed at the test article and more than 800 sensors recording data, engineers were ready for the “big crush” when the aluminum-lithium tank buckled.

The tank test article was manufactured at NASA’s Marshall Space Flight Center using hardware left over from the space shuttle program. The testing was made possible by the unique capabilities found in Marshall’s Structural and Dynamics Engineering Test Laboratory. In the past, this facility was used to test large structures for the Saturn rocket, the space shuttle, and the International Space Station.

The NASA Engineering and Safety Center at Langley Research Center funded the effort to develop new shell buckling knockdown factors -- a complex set of engineering data that designers are using to make rockets lighter and safer. The test data will help Marshall Center engineers design, build and test the biggest rocket tanks ever made for NASA’s Space Launch System, which will be the most powerful rocket ever built.

“In addition to providing data for the Space Launch System design team, these tests are preparing us for upcoming full-scale tests,” said Matt Cash, Marshall’s lead test engineer for the shell buckling tests. Cash also is the lead test engineer for the SLS forward skirt structural qualification test and the structural lead test engineer for



Ken Artis, left and Ron Ziegler, right, technicians with ERC Inc., assist Matt Cash, Marshall lead test engineer, as they prepare instrumentation used to record data for the shell buckling knockdown factor testing. More than 800 sensors were placed on the tank to record data as force was applied to buckle the tank. The test took place in the unique Structural and Dynamics Engineering Laboratory at Marshall. (NASA/MSFC/Fred Deaton)



Dr. Mark Hilburger, senior research engineer in the Structural Mechanics and Concepts Branch at NASA’s Langley Research Center, prepares to buckle an aluminum-lithium cylinder that is similar in size to fuel tank barrels for the largest rockets ever built. The black-and-white polka dots on the upper portion of the tank allowed 20 high-speed cameras to record minute changes in the tank as almost a million pounds of force pressed down upon the tank during a series of tests conducted inside the Structural Test Area at Marshall. (NASA/MSFC/Fred Deaton)

the liquid oxygen tank testing. “This was my first time to lead a large structural test, and I am learning on real hardware that is the same size as SLS hardware.”

Because the Marshall test facility could accommodate a full-scale test article, important data could be acquired for the Shell Buckling Knockdown Factor Project. The team completed a similar test at Marshall in 2011.

“In the past, nobody has tested a full-scale structure of this size to buckling,” said Dr. Mark Hilburger, senior research engineer in the Structural Mechanics and Concepts Branch at Langley. “These full-scale tests along with our computer models and subscale tests will help NASA and industry design lighter, more affordable launch vehicles.”

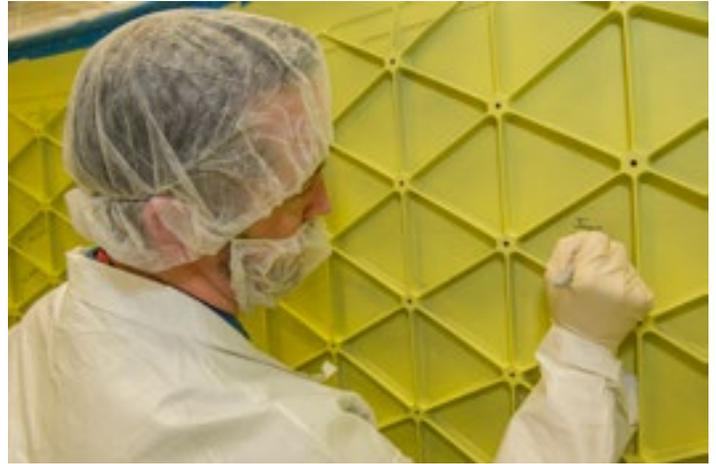
Hilburger and his team are already in the process of updating old launch vehicle design data from the 1960s era with new design guidelines that have the potential to reduce launch vehicle weight by 20 percent. Lighter rockets can carry more equipment into space or travel farther away from Earth for exploration missions to Mars, asteroids or other distant locations.

To see a video featuring the tank buckling, visit [here](#).

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

## Signatures to Space in 2014

Jason Eldridge, an ERC Inc. employee supporting the Materials & Processes Laboratory at NASA's Marshall Space Flight Center, signs his name on the interior of the adapter that will connect the Orion spacecraft to a United Launch Alliance Delta IV rocket for Exploration Flight Test (EFT)-1. Marshall Center team members who were involved in the design, construction and testing of the adapter had the opportunity to autograph it before the hardware is shipped to NASA's Kennedy Space Center in February. Eldridge was on a team that performed ultrasonic inspections on the adapter's welds -- ensuring they are structurally sound. EFT-1, scheduled for 2014, will provide early experience for NASA Space Launch System (SLS) hardware ahead of the rocket's first flight in 2017. (NASA/MSFC/Fred Deaton)



## First Dome, Vertical Assembly Center Foundation Pour Completed at Michoud

By Megan Davidson

Progress continues at NASA's Michoud Assembly Facility toward the agency's Space Launch System (SLS) -- capable of powering humans, habitats and support systems to deep space.

The first SLS core stage forward liquid oxygen (LO2) tank dome recently was completed on the Circumferential Dome Weld Tool at Michoud. The dome was welded as a "confidence" article to ensure that the weld tool can produce the qualification and flight domes. The SLS core stage liquid hydrogen and liquid oxygen tanks will each have two domes similar to the confidence article. The core stage will be more than 200 feet tall with a diameter of 27.6 feet, and will store cryogenic liquid hydrogen and liquid oxygen that will feed the vehicle's RS-25 engines.

The dome will be used to develop inspection techniques for the flight articles. It also will be used for future confidence welding on the Vertical Assembly Center -- one of the world's largest welding tools scheduled to be completed in 2014. The foundation recently was poured for the tool, and is currently being cured. It took 90 truckloads of material to pour the 900 cubic yards of concrete for the groundwork. To see a video of the pour, click [here](#).

The first flight test of the SLS, which will feature a configuration for a 70-metric-ton (77-ton) lift



The first SLS core stage forward liquid oxygen (LO2) tank dome recently was completed on the Circumferential Dome Weld Tool at Michoud. (NASA/Michoud/Eric Bordelon)

capacity and carry an uncrewed Orion spacecraft beyond low-Earth orbit to test the performance of the integrated system, is scheduled for 2017.

Davidson, an ASRC Federal/Analytical Services employee, supports the Office of Strategic Analysis & Communications.

# Marshall Center Hosts Second Annual Collaboration Forum

By Shannon Ridinger

NASA's Marshall Space Flight Center hosted the second annual Marshall Collaboration Forum on Dec. 12 at the U.S. Space & Rocket Center's Davidson Center. The forum, titled "Partnerships for the Future," was designed to encourage collaboration among industry, academia and government agencies.

Representatives from the center's Flight Programs & Partnerships Office, the Office of Strategic Analysis & Communications and the Technology Transfer Office presented information on the center's core capabilities, partnering opportunities, how to do business with the Marshall Center, and facilities available at the center for use by partners.

"From large-scale manufacturing to propulsion and in-space research, Marshall has numerous capabilities and expertise to share with our partners," said Jody Singer, manager of the Flight Programs & Partnerships Office. "We are sought out for our expertise in human spaceflight, launch vehicle certification and our experience designing and building spacecraft. We hope this forum helps open the door for new partnership and collaboration opportunities with industry and the aerospace community."

Speakers included Singer and Bobby Watkins, director of the Office of Strategic Analysis & Communications. Marshall Center Director Patrick Scheuermann welcomed Singer and Watkins, and



Charlie Nola from the Marshall Center Partnerships Office shares information on partnerships with an attendee at the forum. (NASA/MSFC/Emmett Given)



Jody Singer, manager of the Flight Programs & Projects Office, is interviewed by Marshall TV at the forum as she explains the importance of partnerships. (NASA/MSFC/Emmett Given)

the attendees to the forum, as he kicked off the day with opening remarks. Singer spoke on "Partnering in Changing Environments" and the role her office has played in helping to facilitate partnerships at the Marshall Center.

In addition to speakers, forum guests were treated to informative panel discussions on a variety of subjects, and were also able to view exhibits on center capabilities that were on display.

For more information on partnerships at the Marshall Center, click [here](#).

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

## Message from Renee Higgins, Manager of the Marshall Space Flight Center's Training and Incentives Office and Executive Chairperson for This Year's Combined Federal Campaign

Time and again, from missions to the far reaches of our solar system to scientific discoveries here on earth, NASA has proven that we have an amazing team. This is also evident when it comes to taking care of our friends and neighbors in the communities we call home through the Marshall Center's annual Combined Federal Campaign.

If you have seen some of the recent articles in the Marshall Star, you've met a few team members who, at one point in their lives, needed the help of charitable organizations. You may even be one of them. Perhaps you have taken some time this holiday season to volunteer for a non-profit group or contribute an extra few dollars to help ease the pain of someone in need and for that, I thank you. But while the holiday season is drawing to a close, the season of giving continues for the CFC.

The end of this year's campaign is less than a month away and our goal is in sight. We only need \$170,000 to reach the goal of \$700,000. I hope you will take just a few minutes and visit the [CFC page on ExplorNet](#) and help a charity in need. There is no contribution too small and every dollar adds up to help those who may not be able



to help themselves. Let us share our bounty by helping others so they don't have to bear their own difficulties alone.

Thank you for your contributions thus far and I hope you have a safe and peaceful holiday season!



Marshall's Office of Strategic Analysis & Communications also "adopted" 15 children and nine seniors as part of the Salvation Army's "Angel Tree" campaign. The gifts were gathered and wrapped in the center's press room in Building 4200 and will be delivered to those two-dozen people in need this holiday season. This is the 13th year the office has supported this effort. (NASA/MSFC/Brooke Boen)



The Marshall Space Flight Center's Office of Strategic Analysis & Communications wrapped up a shoe drive this week, collecting more than 1100 gently used shoes for the less fortunate. The footwear will be distributed to the local community as well as countries around the world by Inside Out Ministries of Madison as part of the center's annual Combined Federal Campaign. (NASA/MSFC/Ola Metcalfe)

# Seventh Annual Science & Technology Jamboree Held at NSSTC

By Molly Porter

Ask Dr. Melissa McGrath what it's like to enforce a two-minute time limit on scientists and technologists who want to talk about their work, and she'll tell you, "It's fun!" Don't let her good nature and holiday sweater fool you, she'll show you fear in a handful of jingle-bells. That's what she used to call time during the Seventh Annual Science & Technology Jamboree, held Dec. 6 at the National Space Science & Technology Center.

McGrath, chief scientist in the Science & Technology Office at NASA's Marshall Space Flight Center, has organized the Jamboree every year since 2007 "with the help of many elves," to use her words.

Whether you're interested in gamma rays or raindrops, the Jamboree gives area scientists, technologists, students, educators and researchers a forum to share what they do and a way to find out what other members of the science and technology community are doing.

"Presentations spanned the breadth of science and technology work we do at Marshall and included more human spaceflight topics than previous years," McGrath said of the 2013 event.

Dave Scott, aka "Scotty," a payload communications manager, described his concept for a social media-inspired Communications Dashboard to support [International Space Station](#) payload operations.

Dr. Andrew Molthan, a research meteorologist, explained how [SPoRT](#) activities helped measure impacts of Super Typhoon Haiyan using [Visible Infrared Imager Radiometer Suite \(VIIRS\)](#) data.

Dr. Colleen Wilson-Hodge, a gamma-ray astrophysicist, and researcher Tomasz Lis gave [HOPE HEROES](#) project highlights, while Dr. Jessica Gaskin, HEROES principal investigator, introduced SuperHERO, the next generation HEROES telescope.

The room buzzed with cross-talk and questions. Conversations spilled out into hallways, over to the holiday party that followed. By the end, nearly 70 speakers had discussed their work in astrophysics, earth science, heliophysics, planetary science, technology disciplines and more.



*Dr. Melissa McGrath, chief scientist in the Science & Technology Office at NASA's Marshall Space Flight Center, compares different solar system bodies at the Seventh Annual Science & Technology Jamboree, held Dec. 6 at the National Space Science & Technology Center. (NASA/MSFC/Molly Porter)*

McGrath proved she has mastered the art of Jamboree momentum. The Seventh Annual Jamboree ended in just over three hours -- right on time for lunch.

*Porter is a Pathways Program Intern in the Office of Strategic Analysis & Communications.*

# NASA Taps Student Teams to Simulate Human Exploration of Other Worlds: Introducing the Human Exploration Rover Challenge

*From NASA News Release*

NASA is debuting a new engineering design challenge to engage students worldwide in the next phase of human space exploration. The NASA Human Exploration Rover Challenge is a more complex follow-on to the successful NASA Great Moonbuggy Race.

The competition is open to high school and college students and challenges them to create a vehicle designed to traverse the simulated surface of another world. Registration closes Jan. 10 for international teams and Feb. 7 for U.S. teams.

During its 20-year run, the Great Moonbuggy Race -- managed by the Marshall Space Flight Center's Academic Affairs Office and hosted at the U.S. Space & Rocket Center -- engaged more than 10,000 students and demonstrated these budding scientists and engineers were capable of even more complex undertakings. The NASA Human Exploration Rover Challenge will provide that complexity through an authentic engineering experience. The student teams will design, build and test technologies that enable vehicles to perform in a wide variety of environments. Their results and findings will inform the design process for NASA's next generation space systems.

"We designed this engineering challenge to align with NASA's commitment of sending humans to Mars by the 2030s," said Rocky Lind, who manages education and outreach efforts in the Human Exploration and Operations Mission Directorate at NASA Headquarters. "The student teams will be timed, ranked and scored based on design, safety and how well they traverse the set course. The results of the competition will contribute to the design process for NASA's future exploration goals."

With the agency taking a stepping-stone approach to building capabilities necessary for sending astronauts to Mars, this student design challenge represents a logical next step. It also continues NASA's effort to use the appeal and intrigue of its space missions and programs as catalysts for engaging students in STEM -- science, technology, engineering and mathematics.

"Students will create their own vehicles to power around a rugged course at the final competition," said Tammy Rowan, manager of Marshall's Academic



Affairs Office. "The obstacles around the course will mimic some of the real terrain challenges of solar system exploration, so students must design robust and durable rovers with the traction to scale obstacles and meet other challenges."

The culminating event of the NASA rover competition is scheduled April 10-12 at the U.S. Space & Rocket Center, which is home to Space Camp and serves as the official visitors center for Marshall. Corporate sponsors will award prizes for winning various components of the challenge.

The planned course for the competition will require teams to traverse a terrain that includes a simulated field of asteroid debris -- boulders from 5-15 inches across; an ancient stream bed with pebbles about 6 inches deep; and erosion ruts and crevasses in varying widths and depths. A full description of the obstacles and qualifications for vehicle designs can be found at the NASA Human Exploration Rover Challenge website listed below.

The NASA Human Exploration Rover Challenge looks to the next generation of scientists and engineers to aid in the design process by providing innovative designs and unique perspectives. It also continues the agency's legacy of providing valuable experience to students who may someday be responsible for future mission planning and crewed space missions to other worlds.

For more information about the NASA Human Exploration Rover Challenge, visit [here](#).

For more information about NASA's education programs, visit [here](#).

# Marshall Center Reports Lessons Learned During Government Shutdown

By Bill Hubscher

Part of NASA's mission requires us to perform contingency planning for a variety of situations. When the congressional budget disagreements forced a government shutdown on Oct. 1, the agency's own shutdown plan was put into action, but not without a few bumps along the way.

When the Marshall Space Flight Center team returned to work 16 days later, they also were invited to submit ideas to improve upon this plan should a government shutdown occur again. The solicitations for input resulted in more than 100 observations from organizations and individuals across the center for improvements on the agency and the center level.

These employee and contractor observations fell into a variety of themes including improved shutdown planning, employee communications, unemployment claims and IT infrastructure and related services. To the credit of those who made the observations, each came with a recommendation for a solution.

The most common suggestion regarded finding methods to improve the communications to the workforce before and during the shutdown period. Complaints were received about the effectiveness of the government website and call-in emergency phone number, as well as the lack of guidance and timing of the phone calls from the Emergency Notification System alerting employees and contractors to return to work.

Questions also were raised about the availability of center assets and facilities, including equipment and IT devices, especially when it came to contract administration and "excepted" work. This led to another common observation, requesting clarification of shutdown terminology such as "excepted" or "on-call" employees.

Recommendations from the Marshall Center team were consolidated into 20 different suggestions and delivered to the agency, which received a collective total of more than 500 observations from the various centers and NASA mission and functional organizations. The administrator's Office of the Chief of Staff is reviewing these inputs and will work with the NASA centers to finalize recommendations and new implementation plans over the course of the next month.

The entire process, regardless of the situation or mission, proves NASA's commitment to due diligence and contingency planning. Preparation is key, from the "just in case" initial planning stages, through the reluctant but necessary implementation in October and now the current round of review and corrective update to procedures.

*Hubscher, an ASRC Federal/Analytical Services Inc. employee, supports the Office of Strategic Analysis & Communications.*

## Marshall Star to Take Break for Holiday Season; Resumes Jan. 8 with Special 2013 Year-in-Review Issue

This will be the last issue of the Marshall Star for 2013. The Star, published 50 times each year, will not publish for two weeks during the holiday season.

Publication will resume Jan. 8, with the special year-in-review issue, highlighting the 2013

accomplishments of NASA's Marshall Space Flight Center, its programs and projects, and its people. Visit the [Marshall Star website](#) on Jan. 8 at 2 p.m. for the new edition.