

# MARSHALL STAR

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## Remembering a Legacy: Neil Armstrong, 1930-2012

*On Aug. 31, members of the Huntsville-area community gathered at the U.S. Space & Rocket Center to celebrate the life of former NASA astronaut Neil Armstrong who died last week. Marshall Space Flight Center Acting Associate Director Jonathan Pettus, left, who spoke at the memorial, said employees at Marshall are committed to continuing the space exploration journey that Armstrong inspired. Former astronaut Jan Davis, third from left, recalled traveling to see the Apollo 11 launch and meeting Armstrong, whom she described as "humble." Former astronaut Owen Garriott, second from left, and former astronaut Fred Leslie, right, also attended the memorial. (NASA/MSFC/Fred Deaton)*





A large group gathered near the life-size model of the Saturn V rocket at the U.S. Space & Rocket Center and released red, white and blue balloons at a memorial to celebrate the life of former astronaut Neil Armstrong. In honor of Armstrong, flags flew at half-mast across America on Aug. 31. (NASA/MSFC/Fred Deaton)

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## **Marshall Team Members Invited to Innovation & Technology Day on Sept. 12**

*By Megan Davidson*

Innovation and technology are part of the collaborative culture at the Marshall Space Flight Center. To foster these forward-thinking initiatives, the Marshall Center will host its first Innovation & Technology Day from 10 a.m. to 3 p.m. Sept. 12. The event is open to all of Team Redstone -- which includes the Marshall Center and U.S. Army organizations on Redstone Arsenal.

Several activities are planned throughout the day, including:

**Conversation with Curiosity:** Marshall team members can attend a video teleconferencing service with Curiosity team members to share information and engage in the exchange of ideas. The event will be held at noon in Building 4200, Room

P110. NASA's Curiosity rover successfully landed on Mars on Aug. 6. Click [here](#) for more information on Curiosity's mission.

**Technology Expo:** In Building 4316, a technology expo will be held from 10 a.m. to 3 p.m. The expo will increase awareness of information technology, engineering, science programs/projects, services and products available to the Marshall and Redstone communities. Marshall Acting Director Robin Henderson will kick off the event. More than 60 technology exhibits, displays and demonstrations will be featured. A full listing of technology expo activities is available to Marshall team members on [ExplorNet](#).

Lunch will be available for purchase from Marshall Exchange vendors at Building 4316. Vendors include Papa John's, Dallas Mill Deli and Curbside Grill.

Buses will run to buildings 4200 and 4316. Bus routes are forthcoming and also will be posted on [ExplorNet](#).

An Innovation & Technology Day mobile app with updates and event information is available for download [here](#).

Innovation & Technology Day is hosted by Office of the Chief Information Officer and the Office of Strategic Analysis & Communications.

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

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## **Marshall Center, Team Redstone to Commemorate Hispanic Heritage Month**

Throughout September, the Marshall Space Flight Center and Team Redstone are partnering for a series of activities commemorating National Hispanic Heritage Month. All team members are invited to participate.

On Sept. 11, the Marshall Center will host a food-tasting event from 11 a.m. to 12:30 p.m. in the lobby of Building 4203. A variety of ethnic dishes will be available. David McBride, director of NASA's Dryden Research Center, will speak about NASA's strong diversity ethos and his own Hispanic heritage at 2 p.m. in Building 4200, room P110.

On Sept. 18, Marshall team members are invited to help celebrate a military milestone for Marshall engineer Hernando Gauto, who works in the Space Systems Department of the Engineering Directorate. Gauto will become a commissioned officer for the U.S. Navy Reserve; his pinning ceremony will be held at 9 a.m. in Building 4200, Morris Auditorium.

Team Redstone will host its main Hispanic Heritage Month event Sept. 25 at 10 a.m. in Bob Jones Auditorium in the Sparkman Center, Building 5304. Details will be available for Marshall employees on ExplorNet in coming days.

Team members also are encouraged to take part in the annual Hispanic Heritage Month essay and poster contest sponsored by Team Redstone. This year's theme is "Diversity United, Building America's Future Today." The deadline for entries is Sept. 19; winners will be announced at the Sept. 25 event. Complete details are available for employees on ExplorNet.

National Hispanic Heritage Month is celebrated each year from Sept. 15 to Oct. 15, honoring the contributions of Hispanic and Latino Americans throughout the nation's history, and celebrating their heritage and culture. The month-long commemoration was enacted into law in 1988.

For more information about Marshall/Team Redstone Hispanic Heritage Month events, contact Erika Alvarez at 256-544-2009 or Elia Ordonez at 256-544-6658.

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## Robots, Rocks and Rovers Featured on New NASA 360 TV Program

*From combined reports*

If you like rock stars -- of the roving, robotic variety -- here's your chance to see a NASA-sized competition that's all about them. "NASA 360: Robots, Rocks and Rovers" will take NASA Television viewers to the 2012 Sample Return Robot Centennial Challenge held at Worcester Polytechnic Institute in Worcester, Mass., June 14-17, attracting 7,000 guests and spectators.

***Image right: Teammates from the University of Waterloo in Canada work with their robot on the practice field at the Sample Return Robot Challenge at Worcester Polytechnic Institute in Worcester, Mass., in June. (NASA/Bill Ingalls)***



Fans around the world will have a chance to see the live premiere of the latest episode of the NASA 360 series Sept. 5. Producers and guests of the new episode plan to interact with fans online through social media channels including Facebook and Twitter during a special online broadcast of this Emmy-award winning series.

The live broadcast of NASA 360: Robots, Rocks and Rovers will begin at 4 p.m. CDT at <http://www.livestream.com/nasa360>. NASA Television plans to simulcast the premiere on the NASA TV public channel, available at <http://www.nasa.gov/nasatv>, and across continental North America, Alaska and Hawaii through cable carriers and on AMC-18C.

NASA's Centennial Challenges promotes technical innovation through a program that includes prize competitions. The challenges are designed to tap the nation's ingenuity to make revolutionary advances in technology that are of value to NASA and society. During this challenge, teams were asked to build autonomous robots that could identify, collect and return samples to compete for a potential \$1.5 million prize purse.

"NASA needs autonomous robotic capability for future planetary exploration, and this new episode of NASA 360 gives our viewers an up-close look at how NASA uses prize competitions to push technology forward in a cost-effective, yet exciting way," said Sam Ortega, Centennial Challenges program manager, who provides insight into the robot rover competition during the show.

Other program guests include Dr. Mason Peck, NASA chief technologist; Chris Ferguson, astronaut and commander of the final space shuttle mission; Dr. Bill Moore, Hampton University/National Institute of Aerospace planetary geologist; leading robotics experts from Worcester Polytechnic Institute; and the talented teams that traveled to the institute to compete in the Sample Return Robot Challenge. The program also showcases new NASA 360 hosts, Molly McKinney and Caleb Kinchlow.

"We are thrilled to introduce Molly and Caleb to NASA 360's faithful fans," said Harla Sherwood, NASA 360's principal investigator and communications director for the National Institute of Aerospace. "Our NASA 360 team interacts daily with an audience of more than 50,000 devoted followers through Facebook and Twitter and they are especially enthusiastic about the opportunity to share the premier of NASA 360: Robots, Rocks and Rovers."

NASA 360 programs have been downloaded more than 8 million times from <http://www.nasa.gov/nasa360>. The series is based at NASA's Langley Research Center and is produced for NASA by the National Institute of Aerospace. In addition to airing on NASA TV, the series is broadcast on more than 400 public broadcasting, cable and commercial stations across the country, as well as select airlines and cruise ships, iTunes, Hulu and YouTube.

For additional information about the Sample Robot Return Challenge, visit <http://www.nasa.gov/robot>.

More about NASA 360, useful links and photos related to the new episode can be found at <http://www.nasa.gov/nasa360>.

Information about NASA and agency programs is online at <http://www.nasa.gov>.

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## First-Ever Racin' the Station Duathlon to be Held Sept. 29

By Jessica Eagan



Ever wanted to race the International Space Station? You can Sept. 29!

The first-ever Racin' the Station Duathlon -- sponsored by the Marshall Association -- will begin at the Marshall Space Flight Center's Building 4316 at 8:30 a.m., where participants will run, bike and run again to race the space station as it completes one Earth orbit.

The station circles the Earth every 91 minutes, 12 seconds. The duathlon committee will track the starting location of the station at the race start time and those who "beat" the laboratory before it orbits the world will be given a small prize.

The event is open to the public. The cost is \$35 for one person; \$60 for a two-person relay team. Registration is available [online](#) until Sept. 28 and will be capped at 300 racers.

"If you have three people interested in participating as individual racers and they all work for the same organization/agency/company, then form a team!" said Kent Criswell, the event's organizer. "The fastest aggregate times for the team division also will receive prizes."

The current space station expedition crew will provide pre-recorded statements from the station to be played at the opening ceremony.

Anyone wishing to participate who does not have Redstone Arsenal access will be permitted to register but must be a U.S. citizen. Additional information will be needed to access the arsenal. More details can be found [here](#). Those without access will not be permitted to register after Sept. 14.

The first 175 racers will receive a free T-shirt. Bring family and friends, and they can cheer you on at 4316 while tracking the station as it orbits high above.

Criswell expressed "thanks to the center's Mission Operations Laboratory for their assistance in preparing for this race. They've helped out tremendously and we look forward to this new and fun event!"

Participants must be 16 years or older.

For more information and details about the course, visit [here](#). To review results following the duathlon, visit [here](#). The race will support the Marshall Association Scholarship Fund.

For questions, contact Criswell at 544-6421.

For more information about the Marshall Association and for details on how to join, visit [here](#). An association luncheon will be held Sept. 20, with more details to follow in next week's Marshall Star.

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

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## **Steven J. Wofford Named Deputy Director of Marshall's Safety & Mission Assurance Directorate**

Steven J. Wofford has been named deputy director of the Safety & Mission Assurance Directorate at the Marshall Space Flight Center.

Appointed to the position in August, he is responsible for assuring safety and mission assurance for the full range of center programs, projects and institutional services. He provides the focus for an integrated safety program in the areas of system and industrial safety within the center, as well as component Marshall Center and contractor facilities. As deputy director, Wofford helps oversee a budget of approximately \$16 million and a combined workforce of more than 200 civil service and contract support personnel.

Prior to his current appointment, he was business manager of Marshall's Safety & Mission Assurance Directorate and directed planning, programming and budgeting activities. From 2009 to 2011, Wofford was deputy manager for the Space Shuttle Main Engine Project Office, assisting the manager in directing the efforts of all civil service and contract employees and managing day-to-day activities.

From 2006 to 2009, he served as the chief safety officer of the Safety & Mission Assurance Directorate. He was responsible for formulating and communicating flight rationale, and the Marshall Center Safety Technical Authority's position on a wide variety of propulsion technical issues. He was lead of the RS-68 engine component design and development for the Ares V launch vehicle in 2006 and lead of the RS-25 engine manufacturing and production for the Ares I launch vehicle in 2005.

He was appointed lead of space shuttle main engine manufacturing in 2004. In 2000, he began his NASA career as a subsystem manager in Marshall's Space Shuttle Main Engine Project Office.

Wofford has led numerous failure investigations critical to flight safety. He served as safety and technical advisor to the Space Shuttle Mission Management Team from 2006 to 2009 and as a fully certified Space Shuttle Mission Management Team member from 2009 to 2011.



Steven J. Wofford (NASA/MSFC)

He has more than 25 years of safety, reliability and quality assurance experience, and program/project oversight. Prior to joining NASA, he was in private industry for more than 13 years as a space shuttle main engine assessment engineer and space shuttle main engine project integration engineer.

Wofford earned a bachelor's degree in mechanical engineering in 1986 from the University of Alabama in Tuscaloosa, and a master's degree in aerospace engineering in 1991 from the University of Alabama in Huntsville.

He has earned several NASA awards throughout his career, including the NASA Exceptional Achievement Medal in 2009 for leadership in the definition, implementation and execution of safety and mission assurance technical authority for the Space Shuttle Program. In 1998, he received a NASA Silver Snoopy Award -- awarded to outstanding civil service and contractor employees who have significantly contributed to the human spaceflight program -- and a Space Flight Awareness Award in 1992.

A native of Crystal City, Mo., Wofford and his wife, the former Marisa Stanley of Gadsden, Ala., and their two sons live in Huntsville.

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## SLS Honors Team Members at Awards Ceremony



*Space Launch System Program Manager Todd May takes a moment to honor the memory of former astronaut Neil Armstrong during a short presentation to the SLS team at the SLS Awards Breakfast on Aug. 28 at the U.S. Space & Rocket Center's Davidson Center for Space Exploration. May and SLS Deputy Program Manager Jody Singer presented individual and group awards to SLS civil service and contractor employees who work out of the program office at the Marshall Space Flight Center, and reviewed the year's activities toward building NASA's next flagship rocket.*

*"This event is to thank and recognize the people whose hard work has gotten us so far in such a short period of time," May said. "I'm proud to be part of this team. We're doing things differently on this program, but we're moving forward to write the next chapter in space exploration."*

*Awards presented during the event included group achievement awards for the Space Launch System PPBE14 Team, Stages Element Integrated Acquisition Team, SLS Move Team, Marshall Resident Office Hardware Disposition Team, and the SLS System Definition Review/System Requirements Review Life Cycle Review Team. Civil service employees also received length-of-service awards for 10, 25 and 30 years of service to NASA.*

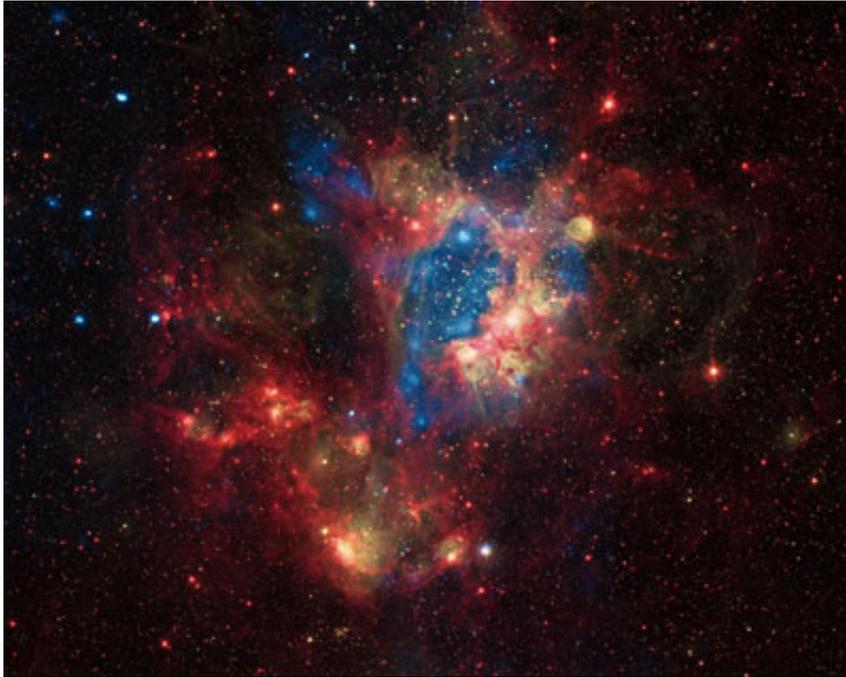
*The SLS Executive Leadership Award was given to Singer and the Management Award to Spacecraft & Payload Integration Office Deputy Manager Craig McArthur. Peer awards were also presented at the event. (Photo Courtesy: Andy Hardin)*

The Space Launch System team gathers in the 3-D Theater at the Davidson Center for Space Exploration for the first SLS Awards Breakfast. (Photo Courtesy: Andy Hardin)



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## A Surprisingly Bright Superbubble



This composite image shows a superbubble in the Large Magellanic Cloud, or LMC, a small satellite galaxy of the Milky Way located about 160,000 light years from Earth. Many new stars, some of them very massive, are forming in the star cluster NGC 1929, which is embedded in the nebula N44, so named because it is the 44th nebula in a catalog of such objects in the Magellanic Clouds. The massive stars produce intense radiation, expel matter at high speeds and race through their evolution to explode as supernovas. The winds and supernova shock waves carve out huge cavities called superbubbles in the surrounding gas. X-rays from NASA's Chandra X-ray Observatory (blue) show hot regions created by these winds and shocks, while infrared data from NASA's Spitzer Space Telescope (red)

outline where the dust and cooler gas are found. The optical light from the 2.2-m Max-Planck-ESO telescope (yellow) in Chile shows where ultraviolet radiation from hot, young stars is causing gas in the nebula to glow.

A long-running problem in high-energy astrophysics has been that some superbubbles in the LMC, including N44, give off a lot more X-rays than expected from models of their structure. These models assume that hot, X-ray emitting gas has been produced by winds from massive stars and the remains of several supernovas. A Chandra study published in 2011 showed that there are two extra sources of N44's X-ray emission not included in these models: supernova shock waves striking the walls of the cavities, and hot material evaporating from the cavity walls. The Chandra observations also show no evidence for an enhancement of elements heavier than hydrogen and helium in the cavities, thus ruling out this possibility as a third explanation for the bright X-ray emission. Only with long observations making full use of the capabilities of Chandra has it now become possible to distinguish between different sources of the X-rays produced by superbubbles.

The Chandra study of N44 and another superbubble in the LMC was led by Anne Jaskot from the University of Michigan in Ann Arbor. The co-authors were Dave Strickland from Johns Hopkins University in Baltimore, Md.; Sally Oey from University of Michigan; You-Hua Chu from the University of Illinois; and Guillermo Garcia-Segura from the Instituto de Astronomia-UNAM in Ensenada, Mexico.

The Marshall Space Flight Center manages the Chandra program for NASA's Science Mission Directorate in Washington. The Smithsonian Astrophysical Observatory controls Chandra's science and flight operations from Cambridge, Mass.

Credits: X-ray: NASA/CXC/U.Mich./S.Oey, IR: NASA/JPL, Optical: ESO/WFI/2.2-m

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## Obituaries

**Sheryl Cothren**, 48, of Decatur died Aug. 20. She was an information technology specialist in the Marshall Center's Business Process & Application Operation Process Office of the Office of the Chief Information Officer.

**George A. Bailey Jr.**, 77, of Huntsville died Aug. 22. He retired from the Marshall Center in 1984 as a flight systems engineer.

**Claude Baldwin**, 88, of Huntsville died Aug. 27. He retired from the Marshall Center in 1989 as an aerospace engineer.

**John Harmon Hurt Sr.**, 92, of Fayetteville, Tenn., died Aug. 29. He retired from the Marshall Center in 1980 as an inventory management specialist.

**Irene Elizabeth Taylor**, 56, of Harvest died Aug. 30. She was an aerospace technologist/technical management assigned to Marshall's Safety & Mission Assurance Directorate.

**Benjamin Franklin Curtis Jr.**, 91, of Athens died Aug. 31. He retired from the Marshall Center in 1974 as an electronics equipment specialist.

**Bedford F. Tuten**, 89, of Huntsville died Aug. 31. He retired from the Marshall Center in 1983 as a measurement and instruments system engineer.

**Find this article at:**

<http://www.nasa.gov/centers/marshall/about/star/index.html>