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# MARSHALL STAR

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## **NASA Creates Human Exploration and Operations Directorate**

*NASA News Release*

NASA has announced the creation of the Human Exploration and Operations (HEO) Mission Directorate. The new organization, which combines the Space Operations and Exploration Systems mission directorates, will focus on International Space Station operations and human exploration beyond low Earth orbit.

"America is opening a bold new chapter in human space exploration," NASA Administrator Charles Bolden said. "By combining the resources of Space Operations and Exploration Systems, and creating the Human Exploration and Operations Mission Directorate, we are recommitting ourselves to American leadership in space for years to come."

The new organization combines the talents, skills and experiences of the two previous directorates. It more fully integrates the operation of NASA's in-space assets and current capabilities with planning for the agency's future, including the size and type of the work force, facilities and contracts.

While the transition and personnel assignments will take several weeks to finalize, the HEO Mission Directorate already is supporting space station operations. The directorate also will manage commercial crew and cargo developmental programs; construction of the Orion Multi-Purpose Crew Vehicle, a spacecraft designed to travel beyond low Earth orbit; development of a new heavy lift rocket, known as the Space Launch System; and other programs within the directorates.

Associate Administrator Bill Gerstenmaier will head the new organization. He previously served as the associate administrator for Space Operations.

For more information about NASA and agency programs, visit:

<http://www.nasa.gov>

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## **Fireworks, Astronauts, Live Music to Highlight Marshall Shuttle Event Aug. 20**

*By Rick Smith*

Thousands are expected to flock to NASA's "Celebrate the Ride" shuttle event Aug. 20 at the U.S. Space & Rocket Center in Huntsville. Hosted by the Marshall Space Flight Center, the celebration will commemorate the historic, 30-year Space Shuttle Program, and honors the legacy of innovation and inspiration the shuttle represents for current and future generations of American explorers.

Marshall Center civil service employees and retirees, contractors and their families are encouraged to join Huntsville-area residents and the public for the event, set for 6-10 p.m. CDT.

"We look forward to joining with friends, coworkers past and present and NASA supporters across our community to salute the thousands of men and women who sent America's flagship to space for three decades," said Marshall Center Director Robert Lightfoot. "We are proud of our heritage of flight -- and the foundation it has laid for our future in space."

Tickets are \$5 per person, which includes a meal of a hot dog, chips and soft drink for each guest and access to the entire museum and most rides. Admittance is free for children 3 or younger. IMAX movie presentations are an additional \$5 per person. Other meals, drinks and refreshments will be available for purchase. Cake and a commemorative Space Shuttle Program cup will be provided to each guest at no additional charge.

Participants are encouraged to preregister for the event [here](#). Marshall team members also may purchase tickets Aug. 17-19 at the Space Shop in Building 4203. Those who preregister or buy tickets at the Space Shop should bring with them a printout of their registration for admission and to receive their meal. Visitors also may register at the door Aug. 20.

Overflow parking for the event will be available, and continuous bus service will be provided to and from all parking sites, including the former Chrysler Building at 103 Wynn Drive; Redstone Federal Credit Union at Wynn Drive; Calhoun Community College/Sci-Quest parking lots at 102-D Wynn Drive; the Teledyne Brown Engineering lot at 300 Sparkman Drive Northwest; and the Lockheed Martin lot at 4800 Bradford Drive Northwest.

The event is sponsored by The Boeing Company and cosponsored by the Space & Rocket Center; the Huntsville operations of Lockheed Martin Space Systems Co., ATK Space Launch Systems, Jacobs, United Space Alliance and Teledyne Brown Engineering; and by Sam's Club of South Huntsville.

### **Special guests, performances and activities**

During the festivities, participants can meet and mingle with a number of veteran shuttle astronauts, including Lee



Archambault, Jan Davis, Jim Halsell, Shane Kimbrough, Fred Leslie, Lee Morin, Dan Tani and Butch Wilmore. Archambault piloted STS-117 in 2007 and served as commander of STS-119 in 2009. Davis was a mission specialist on STS-47 in 1992 and STS-60 in 1994 and payload commander on STS-85 in 1997. Halsell piloted STS-65 in 1994 and STS-74 in 1995, and commanded STS-83 and STS-94 in 1997 and STS-101 in 2000. Kimbrough served as a mission specialist on STS-126 in 2008. Leslie was a payload specialist on STS-73 in 1995. Morin was a mission specialist on STS-110 in 2002. Tani was a mission specialist on STS-108 in 2001 and again on STS-120 in 2007. Wilmore piloted STS-129 in 2009. NASA shuttle managers and engineers from the Marshall Center, Kennedy Space Center and Johnson Space Center also will participate. Autograph sessions will be available at sites across the Space & Rocket Center throughout the evening.

Live music acts will perform on a number of stages throughout the evening. Performers will include ensembles from the U.S. Army Materiel Command Band, including their Dixie band, jazz combo, rock band and jazz orchestra; the Wranglers, a group of Marshall Center engineers who work in the Space Shuttle Projects Office; and members of the Marshall Music Club.

The event also will include rides, games, large-screen shuttle videos, Oscar the interactive robot, an inflatable space shuttle slide and other activities for children. Special Marshall Center exhibits and presentations will showcase the center's role in developing and flying the shuttle throughout the life of the program, and the many accomplishments it enabled.

The event will conclude with a 20-minute fireworks display provided by the event sponsor and cosponsors.

The Marshall Center developed the shuttle's powerful propulsion elements -- the external tank, solid rocket boosters and the space shuttle main engines -- when the program began in the early 1970s. The center managed these elements throughout the shuttle's 30-year history of flight.

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

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## **Last Space Shuttle Astronauts Visit Marshall Center Aug. 11**

*By Sandra Martel*



The four astronauts who flew the final space shuttle mission -- STS-135 -- visited the Marshall Space Flight Center Aug. 11 to thank the Marshall team for giving them a safe ride to orbit and to share highlights of their 13-day trip to the International Space Station.

***Image left: Commander Chris Ferguson, right, presents a pictorial montage of the STS-135 mission to Marshall Center Director Robert Lightfoot. (NASA/MSFC/Ray Downward)***

"You are the folks who made it all happen," Commander Chris Ferguson told a standing-room-only crowd in Building 4200's Morris

Auditorium. He was referring to the Marshall-developed and -managed propulsion systems that lifted space shuttle Atlantis from the launch pad July 8 at Kennedy Space Center. The systems include the space shuttle main engines, external tank and reusable solid rocket boosters.

Other crew members visiting Marshall included Pilot Doug Hurley and Mission Specialists Sandy Magnus and Rex Walheim.

"It's great to be in Huntsville," Magnus told Huntsville media prior to the astronauts' mission highlights presentation. She mentioned her work and close association with Marshall's Payload Operations Center in 2008 during her four-and-a-half-month stay aboard the orbiting complex. The operations center manages science experiments conducted on the space station.

The astronauts' presentation featured not only the traditional video highlights of their historical final mission, but also included a tribute to the 30-year Space Shuttle Program.

STS-135 was a mission solely designed to stock the orbiting complex with as many supplies and spare parts as possible for sustenance of the outpost and its crews in the post-shuttle era.

Those supplies were delivered to the space station in the Raffaello Multi-Purpose Logistics Module, managed by engineers at the Marshall Center. The 21-foot-long, 15-foot-diameter cargo carrier was packed with more than 9,000 pounds of supplies.

***Image right: STS-135 astronauts present mission highlights to a packed crowd of Marshall employees and guests in Morris Auditorium Aug. 11. (NASA/MSFC/Ray Downward)***



"The reception we've received everywhere we've visited has been overwhelming," Ferguson said. "Folks' appreciation has not just been for us, but for the program -- the entire shuttle team -- because everyone is so proud of the space shuttle's accomplishments."

The crew summarized their feelings with the quote, "Don't cry because it's over. Smile because it happened," from Theodor Seuss Geisel, a famous American writer and cartoonist best known for his children's books.

"One of the greatest legacies of the shuttle program is the space station, and we will be performing science there for the next 10 years," said Magnus. "The majesty and beauty of the International Space Station is one of the largest legacies of the shuttle program."

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

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**38 Marshall Team Members Honored with Space Flight Awareness Award**



# Space Flight Awareness

NASA  
Marshall Space Flight Center

Thirty-eight Marshall Space Flight Center team members received Space Flight Awareness awards during the STS-135 mission for their outstanding contributions to the space program. They participated in a number of events planned in their honor at the Kennedy Space Center, including meeting with NASA's executive management and astronauts, and touring the center.

Eighteen of the Marshall honorees were recognized during a ceremony at Kennedy June 1. They watched the rollout of space shuttle Atlantis in preparation for its July 8

launch and viewed the landing of STS-134 June 1. For a list of Space Flight Awareness rollout honorees, click [here](#).

On July 7, the 20 other Marshall honorees were recognized at Kennedy. During their visit, they watched space shuttle Atlantis launch July 8 on its last mission to the International Space Station. For a list of Space Flight Awareness launch honorees, click [here](#).

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## A Cosmic Exclamation Point

*NASA News Release*

VV 340, also known as Arp 302, provides a textbook example of colliding galaxies seen in the early stages of their interaction. The edge-on galaxy, near the top of the image, is VV 340 North and the face-on galaxy, at the bottom of the image, is VV 340 South. Millions of years later these two spirals will merge -- much like the Milky Way and Andromeda will likely do billions of years from now. Data from NASA's Chandra X-ray Observatory (purple) are shown here along with optical data from the Hubble Space Telescope (red, green, blue). VV 340 is located about 450 million light years from Earth.

**Image right: Galaxy VV 340 (X-ray NASA/CXC/IfA/D.Sanders et al; Optical NASA/STScI/NRAO/A.Evans et al)**



Because it is bright in infrared light, VV 340 is classified as a Luminous Infrared Galaxy (LIRG). These observations are part of the Great Observatories All-Sky LIRG Survey (GOALS) combining data from Chandra, Hubble, NASA's Spitzer Space Telescope and Galaxy Evolution Explorer (GALEX), as well as ground-based telescopes. The survey includes over 200 LIRGs in the local universe. A chief motivation of this study is to understand why LIRGs emit so much infrared radiation. These galaxies generate energy that is tens to hundreds of times larger than that emitted by a typical galaxy. An actively growing supermassive black hole or an intense burst of star formation is often invoked as the most likely source of the energy.

The Marshall Space Flight Center manages the Chandra program for the agency's Science Mission Directorate in

Washington. The Smithsonian Astrophysical Observatory controls Chandra's science and flight operations from Cambridge, Mass.

More information, including images and other multimedia, can be found at:

[http://www.nasa.gov/mission\\_pages/chandra/main/index.html](http://www.nasa.gov/mission_pages/chandra/main/index.html)

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## NASA, Marshall Honor Awards Recognize Outstanding Contributions by Marshall Team



Bryan O'Connor, NASA chief of Safety & Mission Assurance, presents the keynote address during the 2011 Marshall Space Flight Center Honor Awards Ceremonies July 28 in Morris Auditorium. (NASA/MSFC/David Higginbotham)

While family and friends cheer them on, Marshall Space Flight Center honorees file in for the morning awards ceremony. Award presentations were made during two ceremonies -- agency-level awards in the morning and center-level awards in the afternoon -- to recognize Marshall team members in over 20 categories. (NASA/MSFC/David Higginbotham)





Among the over 200 Marshall Space Flight Center team members honored July 28 was Robert Wingate, lead aerospace engineer in the Engineering Directorate's Spacecraft & Vehicle Systems Department. Wingate received the Distinguished Service Medal, which recognizes individuals in the federal service who, by distinguished service, ability or courage, has personally made a contribution representing substantial progress to the NASA mission in the interest of the United States. From left, Bryan O'Connor, NASA chief, Safety & Mission Assurance, Marshall honoree Robert Wingate and Marshall Center Director Robert Lightfoot. (NASA/MSFC/David Higginbotham)

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### Shuttle Operations Coordinators Honored in Payload Operations Center

From left, Shuttle Operations Coordinators Lynn Farris and Kirk Teitge hang a commemorative plaque in the Payload Operations Center in Building 4663. The plaque honors 17 shuttle operations coordinators who for the past 10 years supported science payload activities while a space shuttle was docked to the International Space Station. They coordinated the transfer of payloads between the shuttle and space station, and monitored shuttle crew operations for the Payload Operations Center. From STS-97 in December 2000 through STS-135 in July, this elite group supported 32 missions. Coincidentally, three shuttle coordinators who supported the first mission also supported the final mission. (NASA/MSFC/Ray Downward)



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### Marshall Center Hosts 3rd Annual NASA/Army Systems and Software Engineering Forum



NASA/Army Systems and Software Engineering Forum general chairman Tim Crumbley and committee members gather at a space shuttle exhibit during the 3rd annual NASA/Army Systems and Software Engineering Forum held July 26-27 at UAHuntsville University Center. The Marshall Space Flight Center hosted the event, which focused on the challenges associated with the systems engineering and software engineering disciplines. The forum, with the theme "Acquisition of System Integrations and Software Products," featured local, national and international subject-matter experts from government, industry, research and academia. It provided the opportunity to hear about and discuss topics such as the challenges facing the systems engineering and software

engineering disciplines. The event also provided a chance to network and collaborate with other systems and software engineers supporting different projects across our local area. The next Forum, in the summer of 2012, will be hosted by the Army. (NASA/MSFC/Fred Deaton)

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### Marshall Shuttle Legacy Exhibit Makes Debut in Mobile



"Conquering Low Earth Orbit," a new 700-square-foot artifact-based space shuttle exhibit, opened Aug. 5 at the Gulf Coast Exploreum Science Center in Mobile, where it will be on display through Oct. 5. Built in-house at the Marshall Space Flight Center and funded by the Shuttle Propulsion Projects Office, this exhibit highlights the program's discoveries, spin-offs and technology advances. This exhibit primarily will be offered to science, technology and history museums in Marshall's assigned six-state outreach service region during the next three years. (NASA/MSFC)

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### Marshall Association Awards Four Scholarships

*By Janet Anderson*

The Marshall Association has awarded scholarships to four college-bound children of association members.

***Image right: Kent Criswell, left, chairman of scholarship committee awards 2011 Marshall Association scholarship recipients to Matthew Volz, Hanna Hicks, Maria Torres, and Earl Pendley, accepting the scholarship for his son, Robert Pendley, along with Dan Schumacher, Marshall Association president. (NASA/MSFC)***



Matthew Volz, Maria Torres, Hanna Hicks, and Robert Pendley, all children of Marshall Space Flight Center team members, received Marshall Association scholarships for the 2011-12 school year. 2011-12 awards totaled \$3,000.

The Marshall Association, which includes civil service employees, retirees and contractors, provides informal networking and community-building opportunities for members. In addition to the annual college scholarship competition, the association sponsors a speaker program addressing topics of interest to Marshall Center workers.

Membership dues and donations are used by the association to provide the annual monetary awards in technical and nontechnical fields of study. To be considered, students must submit scholarship applications. Winners are chosen by a team of Marshall Association members.

Applicants are judged on classroom performance, SAT and or ACT scores, extracurricular activities, community involvement and an essay on what they want to be doing 10 years from now.

"This is an extremely bright group of young people," said Dan Schumacher, president of the Marshall Association. "We congratulate these students, and we are delighted to provide these scholarships to help them continue their education."

#### **About the award recipients**

Matthew Volz, son of Martin and Susan Volz, is a graduate of Virgil I. Grissom High School in Huntsville and plans to attend Vanderbilt University in Nashville, where he will study physics and engineering.

East Limestone High School graduate Maria Torres, daughter of Pablo and Maria Torres, plans to study engineering at the University of Alabama in Huntsville.

Robert Pendley, son of Earl and Lori Pendley, graduated from Brewer High School in Morgan County, Ala., and plans to attend the University of Alabama in Tuscaloosa, where he will study political science and Spanish.

Hanna Hicks, daughter of Shawn and Kellie Hicks, plans to attend Birmingham Southern College in Birmingham, Ala., to study elementary education and library science. She is a graduate of Hazel Green High School in Hazel Green, Ala.

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

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**Shuttle Buddies to Meet Aug. 22**

The Shuttle Buddies will meet at 8:30 a.m., Aug. 22, at Mullins Restaurant on Andrew Jackson Way. For more information, call Deemer Self at 256-881-7757.

**Find this article at:**

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