

# MARSHALL STAR

In This Week's Star 

## CFC 2012 Kicks Off with Rally Oct. 10; Sign up for Community Service Days, Bus Tours

By Megan Davidson

It's time again for the season of giving -- get ready for the 2012 Combined Federal Campaign!

**Image right: Miss Alabama, Anna Laura Bryan (Special to the Star)**

The Marshall Space Flight Center's annual goodwill drive officially began Oct. 1 and will run through Dec. 15. The theme for this year's campaign is "Find Your Passion." The Marshall Center's fundraising goal is set at \$700,000.

"When I was working the early stages of this year's campaign, I was struck by the sheer volume and incredible diversity of charitable organizations represented by the CFC," said Patrick Rasco, chairman of Marshall's CFC campaign. "That's how we came up with the slogan 'Find Your Passion.' With more than 2,600 charities participating in CFC, I think people will easily find an organization that they are passionate about supporting -- whether it is one that funds medical research, veterans, the arts, children's relief, local universities, the environment or the homeless."

A CFC kickoff rally will be held at 10 a.m. Oct.

10 at Activities Building 4316. The "crowning" highlight of the event will be a presentation by the reigning Miss Alabama,



Anna Laura Bryan. Her platform is autism awareness. Bryan works with Paws 4 Autism, an organization whose mission is to help the families of children with autism connect to the world through the use of service dogs. Bryan will be available after the rally for autographs and pictures.

Also speaking at the event will be a local hero from the Wounded Warrior Project, which raises awareness and provides services to injured military service members. More information about the speaker is forthcoming and will be available to Marshall team members on [ExplorNet](#).



Representatives from numerous charitable organizations will participate in a CFC expo during the rally, talking with team members about their services. Guests also can enjoy a free lunch, including hot dogs, chips, drinks and desserts. Door prizes will be given away at the end of the event.

Community Service Days -- in which volunteers lend their time to support charities and special events -- are already in full swing. A host of

Marshall team members recently helped with applicant registration for the Salvation Army's annual Angel Tree, which provides Christmas assistance to qualifying children and seniors. Other local nonprofit organizations and events -- including the Downtown Rescue Mission, Special Olympics and the Burritt Museum Association -- have volunteer opportunities available for sign-up [here](#).

The wheels also will be turning soon for bus tours, in which team members can visit and get a first-hand look at how CFC dollars help charitable organizations in the community. Tours will begin Oct. 18 to the Ability Plus Day Habilitation Center in Huntsville, which specializes in vocational preparation and independent living skills for individuals with intellectual and developmental disabilities. Other stops include the National Children's Advocacy Center; the Land Trust of North Alabama; and the Huntsville Hospital Neonatal Intensive Care Unit. To see a full listing of bus tours, and to sign up, go [here](#).

The Marshall Center's CFC effort is part of the Tennessee Valley Combined Federal Campaign -- a joint effort that also includes the Army's Aviation and Missile Command and other federal agencies at Redstone Arsenal and in surrounding Alabama and Tennessee counties.

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

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**NASA Building a Better Solid Rocket Booster for Space Launch System Rocket**

The largest and most powerful solid rocket booster ever built for flight is being assembled for NASA's Space Launch System at ATK Space Systems in Promontory, Utah, incorporating new cost-savings measures. The SLS, managed at the Marshall Space Flight Center, will launch NASA's Orion spacecraft and other payloads beyond low Earth orbit, and provide an entirely new capability for human exploration.

**Image right: ATK moves a segment of the solid rocket booster for assembly at the company's facility in Promontory, Utah. (ATK)**



Although similar to the solid rocket boosters that helped power the space shuttle to orbit, the five-segment SLS boosters include several upgrades and improvements implemented by NASA and ATK engineers. In addition, the SLS boosters will be built more affordably and efficiently than shuttle boosters, incorporating new and innovative processes and technologies.

"America's next steps in deep space exploration build on the lessons learned from our nation's rich human spaceflight history, said Dan Dumbacher, NASA's deputy associate administrator for Exploration Systems Development at NASA Headquarters. "By using the best-of-the-best from shuttle and improving on previous investments, we will produce the needed solid booster for the first SLS flights. We are encouraged by the progress being made at ATK. Their commitment to deliver a safe and high-quality rocket booster is vital as we build SLS to enable exploration to new frontiers in the solar system."



**transport. (ATK)**

New process improvements have been implemented throughout the manufacturing of Qualification Motor-1, the next full-scale test article for the SLS booster. Four case segments have now been cast, and the motor will begin assembly in the test stand next month in preparation for a ground test in the spring of 2013.

**Image left: ATK employees at the company's Promontory, Utah, facility prepare a segment of a qualification motor for NASA's Space Launch System for**

Implementing new handling processes, ATK estimates the total assembly time for the SLS booster can be reduced by approximately 46 percent overall. In one area, ATK optimized inspection methods and replaced X-ray inspections with an ultrasonic examination of the booster's nozzle, allowing technicians to evaluate the hardware on the production floor. In another, ATK reduced the number of moves from 47 to seven during one phase of booster assembly, reducing the chance of any damage in transit and greatly reducing the time it takes to complete that production process.

"By improving upon proven space shuttle solid rocket motor hardware and operations, our shared goal is to deliver a safe,

affordable and sustainable launch vehicle," said Alex Priskos, SLS booster manager. "We are embracing innovation both technically and in our management processes as we design and build SLS. Through the use of new streamlined approaches and techniques we have been able to drive down costs and enhance the reliability of the hardware."

The booster team has successfully completed its Booster Requirements Review confirming the five-segment solid rocket motor had a well-understood set of requirements. The review, held at the Marshall Center, included independent consultants and determined the team is ready to proceed to a Preliminary Design Review in 2013.

***Image right: The forward segment of the qualification motor for the Space Launch System is transported through manufacturing and assembly at ATK's facility in Promontory, Utah, in preparation for a full-scale ground test there next spring. (ATK)***



The initial 70-metric-ton (77 ton) configuration of the SLS will provide 10 percent more thrust than the Saturn V rocket at liftoff. The rocket's first stage will be powered by four RS-25 former space shuttle main engines flanked by two, five-segment solid rocket boosters. The SLS solid rocket boosters will generate a combined 7.2 million pounds of thrust to help power the massive rocket off the launch pad.

The Marshall Center manages the SLS Program for the agency and is working closely with its partners at the Orion program office managed by NASA's Johnson Space Flight Center and the Ground Systems Development and Operations Program, which manage the operations and launch facilities at NASA's Kennedy Space Center.

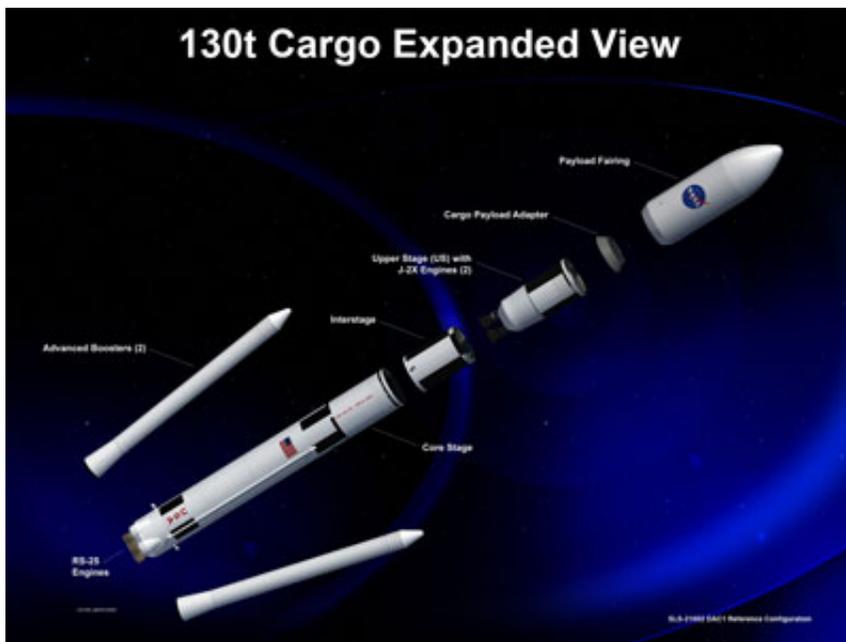
For information about NASA's Space Launch System, visit <http://www.nasa.gov/sls>.

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## **NASA Awards Space Launch System Advanced Booster Contracts**

*NASA news release*



NASA has awarded three contracts totaling \$137.3 million to improve the affordability, reliability and performance of an advanced booster for the Space Launch System, or SLS, which is managed by the Marshall Space Flight Center. The awardees will develop engineering demonstrations and risk reduction concepts for a future version of the SLS, a heavy-lift rocket that will provide an entirely new capability for human exploration beyond low Earth orbit.

*Image left: An expanded view of an artist rendering of the 130-metric-ton configuration of NASA's Space Launch System shows the many different elements of the rocket design. Used primarily to launch heavy cargo, this two-stage vehicle will be the largest rocket ever built and will*

*enable exploration missions beyond low Earth orbit, supporting travel to asteroids, Mars and other deep space destinations. (NASA)*

The initial 77-ton (70-metric-ton) SLS configuration will use two, five-segment solid rocket boosters similar to the boosters that helped power the space shuttle to orbit. The evolved 143-ton (130-metric-ton) SLS vehicle will require an advanced booster with more thrust than any existing U.S. liquid- or solid-fueled boosters. These new initiatives will demonstrate and examine advanced booster concepts and hardware demonstrations during a 30-month period.

The companies selected for SLS Advanced Booster contracts are:

-- ATK Launch Systems Inc. of Promontory, Utah, which will demonstrate innovations for a solid-fueled booster. The contract addresses the key risks associated with low-cost solid propellant boosters, particularly in the areas of composite case design and development, propellant development and characterization, nozzle design and affordability enhancement, and avionics and controls development.

-- Dynetics Inc. of Huntsville, which will demonstrate the use of modern manufacturing techniques to produce and test several primary components of the F-1 rocket engine originally developed for the Apollo Program, including an integrated powerpack, the primary rotating machinery of the engine. Additionally, the contract will demonstrate innovative fabrication techniques for metallic cryogenic tanks.

-- Northrop Grumman Corp. Aerospace Systems of Redondo Beach, Calif., which will demonstrate innovative design and manufacturing techniques for composite propellant tanks with low, fixed costs and affordable production rates. Independent time and motion studies will compare demonstration affordability data to SLS advanced booster development, production and operations.

Additional contracts may be awarded following successful negotiation of other proposals previously received for this NASA Research Announcement, or NRA, subject to funding constraints.

Designed to be flexible for launching payloads and spacecraft, including NASA's Orion spacecraft that will take humans beyond low Earth orbit, SLS will enable the agency to meet the Obama Administration's goal of sending humans to an asteroid by 2025 and to Mars in the 2030s.

The first flight test of NASA's SLS, an uncrewed mission to lunar orbit featuring a configuration for a 77-ton lift capacity, is

scheduled for 2017. As SLS evolves, a two-stage launch vehicle configuration will provide a lift capability of 143 tons and include the improved, more powerful advanced booster.

These new contracts are funded under an NRA risk mitigation effort and acquisition. There will be a future competition for design, development, testing and evaluation for the SLS advanced booster. This future competition is planned for 2015 and will be acquired through a separate solicitation. The 2015 competition will not be limited to awardees announced in this NRA. Successful offerors to this NRA are not guaranteed an award for any future advanced booster acquisition.

As NASA endeavors to send humans to a range of new destinations, agency initiatives are helping develop a U.S. commercial space transportation industry with the goal of achieving safe, reliable and cost-effective transportation to and from the International Space Station and low Earth orbit. Ongoing advances made by NASA's commercial space partners are paving the way for regular contract flights of cargo to the space station and marking progress toward a launch of astronauts from U.S. soil in the next five years.

NASA's Johnson Space Center manages the Orion Program for the agency. SLS will launch from NASA's Kennedy Space Center. For information about NASA's Space Launch System, visit <http://www.nasa.gov/sls>.

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## **Marshall Researcher Dr. Chryssa Kouveliotou Listed Among 25 Most Influential People In Space**

*By Janet Anderson*

Dr. Chryssa Kouveliotou, an astrophysicist at the Marshall Space Flight Center, has been noted among TIME Magazine's 25 most influential people in space. The listing was published in TIME's recent "New Space Discoveries" edition.

The caption under Kouveliotou's photo in the publication reads: "Gamma-Ray Argonaut. As a child growing up in Greece, Chryssa Kouveliotou spent summer nights lying on the beach searching the sky for falling stars and tracings of satellites. Her determination to explore the heavens graduated to more exotic phenomena. 'My first love was always gamma-ray bursts,' recalls Kouveliotou, of NASA's Marshall Space Flight Center, 'tremendous explosions that rock the universe like nothing else.' One source of gamma rays is magnetars, the tiny, superdense remains of supernovas that generate the most powerful magnetic fields in the universe; imagine a magnet strong enough to pull the keys out of your pocket from a distance halfway to the moon."



Chryssa Kouveliotou (NASA)

Kouveliotou, a NASA astrophysicist since 2004 and longtime collaborator on the agency's science mission, has been the principal investigator on numerous research projects in the United States and Europe. She currently is a co-investigator on the Gamma-ray Burst Monitor, an instrument flying aboard the Fermi Gamma-ray Space Telescope; a Swift-associated scientist; and a member of the NuSTAR Science Topical Team. Over her career she has worked on multiple high-value missions: the International Sun Earth Explorer-3, the Solar Maximum Mission, and the Burst and Transient Source Experiment, or BATSE, which flew on NASA's Compton Gamma-Ray Observatory.

Throughout her career, Kouveliotou has made numerous contributions to the fields of astronomy and astrophysics. Her research has expanded our scientific understanding of fleeting, transient phenomena in the Milky Way galaxy, and throughout the high-energy universe. Besides determining the unique properties of the highly energetic emissions from gamma-ray bursts -- the brightest and most powerful events in the universe -- she was part of the team which first revealed the extragalactic nature of these sources. She and her team made the first confirmed detection of ultra-dense neutron stars called magnetars -- the cinders of stars left over after a supernova, which have incredibly powerful magnetic fields.

A native of Athens, Greece, Kouveliotou received her doctorate in 1981 from the Technical University of Munich, Germany. She earned her master's degree in science from the University of Sussex, England, in 1977, and her bachelor's degree in physics from the National University of Athens, Greece, in 1975.

Kouveliotou has received many awards for her work, including the 2012 Dannie Heineman Prize in astrophysics, the Rossi Prize in 2003, the Descartes Prize in 2004 and the NASA Space Act Award in 2005. She has published 368 papers in refereed journals and has been among the top 10 most-cited space science researchers in published journals worldwide.

Kouveliotou is a member of multiple international advisory committees, boards and review panels. She was elected chair of the Division of Astrophysics of the American Physical Society, sits on the Council of the American Astronomical Society and serves as chair of that organization's High Energy Astrophysics Division. She is a Fellow of the American Physical Society and of the American Association for the Advancement of Science.

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

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**Singer/Songwriter Bill Withers to Speak at Disability Employment Awareness Month Program Oct. 11**



Bill Withers, a singer/songwriter who wrote and performed such music hits as "Ain't No Sunshine" and "Lean on Me," will be the keynote speaker at the Marshall Space Flight Center's Disability Employment Awareness Month program Oct. 11.

***Image left: Bill Withers (Special to the Star)***

The event will be held at 10 a.m. in Building 4200, Morris Auditorium. The Disability Awareness Month theme for 2012 is "A Strong Workforce is an Inclusive Workforce: What Can You Do?" All Marshall team members are encouraged to attend and can read more about Withers on [ExplorNet](#).

Held each October, National Disability Employment Awareness Month is a national campaign that raises awareness about disability employment issues and celebrates the many and varied contributions of America's workers with disabilities.

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**Space Shuttle Solid Rocket Motor Arrives at Marshall for Display at Building 4205**

One empty, joined four-segment space shuttle solid rocket motor arrived at the Marshall Space Flight Center on Sept. 21. In the coming weeks, Marshall engineers and technicians will add forward and aft booster hardware to match the configuration that powered the space shuttle. These booster segments flew on a combined 34 space shuttle flights including STS-1, the first shuttle mission. The booster will join the Saturn V F-1 engine, right, and other historic Marshall propulsion elements in the "propulsion pavilion" outside Building 4205, Marshall's Propulsion Research and Development Laboratory. (Photo courtesy)



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## 550 Learn About Moon, Planets in Third Annual 'International Observe the Moon Night'



The third annual "International Observe the Moon Night" was held Sept. 22 at NASA's Education Training Facility at the U.S. Space & Rocket Center. Left, Dr. Bill Cooke, lead of the Marshall Space Flight Center's Meteoroid Environments Office, takes visitors on a tour of the solar system in one of two inflatable planetariums at the event. Over 550 people filled the facility, viewing the moon and planets through several telescopes, and attending presentations by NASA scientists. The event featured several fun activities for kids including the "Bristle Bot" station where participants built a robot out of a toothbrush, and saw a special presentation of the movie "Fly Me to the Moon."

Different stations allowed kids to get NASA tattoos and to color pictures of space. Lonnie Puterbaugh from the Astronomy Channel was on hand with his astronomy van, complete with movies and information on the moon and Mars. International Observe the Moon Night encourages scientists, educators and moon enthusiasts to gather together to learn more about the celestial body that humans first set foot on 43 years ago. (NASA/MSFC/Emmett Given)

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## Marshall Takes COCOA Cryo

Testing of the James Webb Space Telescope's Center of Curvature Optical Assembly, or COCOA, recently was completed in the X-ray & Cryogenic Test Facility at the Marshall Space Flight Center.

***Image right: ITT Exelis and Marshall Center engineers integrate the large Center of Curvature Optical Assembly into the Cryogenic Vacuum Chamber at Marshall's X-ray & Cryogenic Facility. (NASA/MSFC/Emmett Given)***



The optical assembly was operated in a vacuum at both room temperature and cryogenic -- or deep cold -- temperatures to certify its performance before it is used to test the performance of the Webb telescope's 21.3-foot primary mirror. COCOA's operation and performance must be verified alone before it can be used to test the Webb telescope under conditions that the observatory will experience in space.

The Webb telescope includes 18 six-sided mirror segments, which work together to form one large, 21.3-foot mirror.

COCOA was built by ITT Exelis Geospatial Systems of Rochester, N.Y., and its subcontractor Micro Instruments Corp., also in Rochester.

The James Webb Space Telescope is the world's next-generation space observatory and successor to the Hubble Space Telescope. The most powerful space telescope ever built, the Webb telescope will provide images of the first galaxies ever formed, and will explore planets around distant stars. It is a joint project of NASA, the European Space Agency and the Canadian Space Agency. For more information about the Webb telescope mirrors, visit <http://www.jwst.nasa.gov/>.

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**Trash Pickup Reminder: Dispose With Care!**



Marshall Space Flight Center team members are asked to help maintain a clean and "critter-free" workspace by disposing of discarded food wrappers, drink cups and related trash in break room, kitchen or common-area trash cans instead of cans in their own offices or cubicles.

Common area, break room, bathroom and kitchen trash cans -- and blue Single-Stream Recycling containers in these areas -- are picked up daily. Single-Stream Recycling bins and trash cans in individual offices and cubicles are picked up twice a month, on Tuesdays and Thursdays, respectively.

Extra trash bags are available upon request; ask your building's custodian.

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**High School Students Tour Marshall, Redstone Arsenal During 12th Annual Adventures in Engineering Career Day**

*Nearly 300 high school juniors and seniors from North Alabama and parts of Tennessee toured Marshall Space Flight Center facilities on Sept. 26 during the 12th annual Adventures in Engineering Career Day. Left, Marshall Center engineer Johnnie Clark explains rapid prototyping technologies to the students in the National Center for Advanced Manufacturing in Building 4707, NASA's principal resource for aerospace manufacturing research, development and innovation. The goal of the Adventures in Engineering event is to capture the attention of students in science, technology, engineering and mathematics, or STEM, encouraging them to consider pursuing a technical career field. (NASA/MSFC/Fred Deaton)*





*Marshall engineer Dee Vancleave, at right, describes how the center's Video Image Correlation system in Building 4619 uses calibrated camera pairs to measure and display full-field deflections and strain of a test article in real time. The Adventures in Engineering Career Day is sponsored by the Army Space and Missile Defense Association, University of Alabama in Huntsville and Junior Achievement of North Alabama Inc. The students also toured various agencies and companies associated with the arsenal and the defense industry. (NASA/MSFC/Fred Deaton)*

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## Obituaries

**Harry Kent Bennett**, 89, of Huntsville died Sept. 13. He retired from the Marshall Center in 1985 as a program analyst.

**John Thomas Wheeler**, 82, of Atlanta died Sept. 13. He retired from the Marshall Center in 1998 as a structural dynamics aerospace engineer. He is survived by his wife, Margaret Stallworth Owens Wheeler.

**David Strode Akens**, 91, of Huntsville died Sept. 15. He retired from the Marshall Center in 1974 as a historian supervisor.

**William Luther Hopkins**, 89, of Fayetteville, Tenn., died Sept. 16. He retired from the Marshall Center in 1985 as an electronics technician.

**David Clark Cramblit Sr.**, 77, of Huntsville died Sept. 22. He retired from the Marshall Center in 1994 as a technical management engineering supervisor. He is survived by his wife, Joyce Cramblit.

### Find this article at:

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