



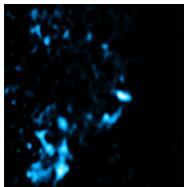
Serving the Marshall Space Flight Center Community www.nasa.gov/centers/marshall/about/star/index.html October 30, 2013

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Hitting the Road with CFC to Tour Local Charities

By Bill Hubscher

Despite the recent furlough, organizers for the annual Combined Federal Campaign, or CFC, are moving forward with bus tours and Community Service Days to help spread awareness about the many different organizations in need.

While the government shutdown forced the cancellation of many of the bus tours, the Marshall Space Flight Center workforce is invited to



See CFC on [page 2](#)

Smile as Big as the Moon for Disability Awareness Month at Marshall

Michael Kersjes, author of *A Smile as Big as the Moon*, addressed Marshall Space Flight Center team members Oct. 29 in recognition of October as National Disability Awareness Month. Kersjes' book, published in 2002, documents the struggles and victories he experienced in 1989 when he sent a group of learning disabled and emotionally impaired children to Space Camp at the U.S. Space & Rocket Center in Huntsville. As the president and founder of *Space is Special Inc.*, Kersjes has sent nearly 2,600 special needs children to Space Camp since 1990. (NASA/MSFC/Emmett Given)



Save the Date: CFC 'Thanks-for-Giving' Charity Fair Set for Nov.12

The annual Combined Federal Campaign, or CFC, is under way and organizers are hosting an event to thank the Marshall Space Flight Center workforce for their donations, and to encourage contributions to the charity drive from those who have yet to donate.

The "Thanks-for-Giving" Charity Fair will be held in the Activities Building 4316 on Nov. 12 from 10:30 a.m. to 12:30 p.m. Marshall Center Director Patrick Scheuermann is expected to speak and more than 30 local non-profit organizations will set up displays to help inform Marshall Center team members how they can help those in need.

CFC *Continued from page 1*

register for the remaining scheduled visits to local charities that receive donations as part of CFC's annual philanthropy campaign. There are limited seats available and reservations for the tours are on a first come, first served basis.

"On every CFC tour I've taken, I've seen charities providing much needed assistance, aid and services," said Paul Johnson, Interim Response Team manager with the center's Safety & Mission Assurance Directorate and this year's executive vice-chairperson for CFC bus tours. "I can think of no better way to spend a couple of hours than to visit at least one of these charities to see all the good that is done with our contributions."

The complete list of tour stops and the registration form are available on [ExplorNet](#), and the remaining tours are listed below:

Ability Plus -- Nov. 13, 9-11 a.m.

American Red Cross -- Nov. 12, Nov. 21, 1-3 p.m.

Christian Woman's Job Corps of Madison County -- Nov. 5, 1-3 p.m.

Huntsville Bible College -- Nov. 5, Nov. 12, 1-3 p.m.

Huntsville Hospital -- Nov. 13, 1-3 p.m.; Nov. 21, 9-11 a.m.

Huntsville Madison County Senior Center -- Nov 6, Nov. 7, 9-11 a.m.

"In spite of the furlough, I remain optimistic that our co-workers will come through for this very important community effort," said Scheuermann. "I've completed my CFC donation form and I encourage all employees to do the same and find opportunities to volunteer."

Lunch and transportation will be provided and door prizes awarded. Details are posted on the [CFC page on ExplorNet](#).

Huntsville Madison County Rescue Squad -- Nov. 14, 9-11 a.m. and 1-3 p.m.

Happy Trails Therapeutic Riding Center -- Nov. 6, Nov. 7, 1-3 p.m.

The Marshall Center workforce also is invited to participate in Community Service Days. These scheduled shifts offer employees the chance to volunteer for hands-on work with one of a dozen different charities during the holiday season. A complete list of the dates to volunteer and online registration is available on [ExplorNet](#).

The CFC mission is to support and promote philanthropy, giving all employees an opportunity to improve the quality of life for all. Marshall's fundraiser is part of the annual Tennessee Valley Combined Federal Campaign, a joint effort between the Marshall Center, other federal agencies at Redstone Arsenal, and in surrounding Alabama and Tennessee counties.

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

NASA Engages the Public to Discover New Uses for Out-of-this-World Technologies

From web release

The technologies NASA develops don't just blast off into space. They also improve our lives here on Earth: Life-saving search-and-rescue tools, implantable medical devices, advances in commercial aircraft safety and efficiency, increased accuracy in weather forecasting -- even the miniature cameras in our cell phones. For over 50 years, NASA has transferred its cutting-edge aerospace technologies to the private sector, helping create new commercial products, improve existing products and boost the competitiveness of the U.S. economy.

Now NASA has joined forces with the product development startup [Marblar](#) for a pilot program allowing the public to crowdsource product ideas for 40 of NASA's patents. This initiative will allow Marblar's online community to use a portion of NASA's diverse portfolio of patented technologies as the basis of new product ideas.

Starting Oct. 23, 14 NASA technologies will be available on Marblar. Over the next four weeks, 26 additional patents will be posted on the website. Anyone can submit ideas and contribute to other submitted ideas over the next year. Commercial partners will study the ideas for potential new products and services, with contributors to successful ideas sharing in their ownership.

NASA's Marshall Space Flight Center Technology Transfer Office will lead the pilot program. "We are excited about partnering with Marblar to reach new audiences. By using crowdsourcing as a way to generate new assessments of NASA technologies, we hope to work with the global community to identify transformative commercial products," said Terry Taylor, manager of the Technology Transfer Office.

"Crowdsourcing has allowed NASA to tap into more than the usual suspects to get ideas and solutions that address an assortment of NASA needs," said Jenn Gustetic, NASA's Prizes and Challenges Program executive. "Reaching out to innovators in a variety of fields through online crowdsourcing



This image demonstrates how image stabilization technology developed to study solar flares might be used to clarify images in a variety of applications like license plate recognition from traffic cameras or clarifying security footage for anti-terrorism efforts. (Marblar)

may provide a 21st century way for NASA to expand the reach of its technology portfolio for commercialization and use right here on Earth."

Marblar is a platform that curates patented science from the world's top research labs, and allows anyone to submit new product ideas based upon these technologies. The technologies NASA will be making available to the platform range from advanced satellite optics, to micro-sensors, to materials, devices and manufacturing techniques developed for the shuttle program. These technologies represent a handful of more than 1,000 patented technologies and 400 software codes and analysis tools NASA has available for transfer to the public.

"By engaging a global community toward re-imagining NASA's patents, along with the half-billion-dollars worth of patents from other institutions world-wide available on Marblar, we're aiming to create a pivot point and redefine product development for the 21st century," said Daniel Perez, Marblar CEO.

NASA's Technology Transfer Program, managed by the Office of the Chief Technologist at NASA Headquarters, ensures that technologies developed for missions in exploration and discovery are broadly available to the public. To view the entire NASA patent portfolio, visit: technology.nasa.gov.

Contribute your ideas at: www.marblar.com/nasa.

NASA Spacecraft Hardware Delivered for Pressure Testing in Preparation for 2014 Orion Test Launch

The Orion's stage adapter diaphragm leaves a manufacturing facility at Janicki Industries in Hamilton, Wash., to be trucked to NASA's Marshall Space Flight Center. The diaphragm will be used to keep launch vehicle gases away from the Orion spacecraft on its first test mission, Exploration Flight Test-1 (EFT-1) -- scheduled to launch in 2014. It is an integral part of the stage adapter that will connect Orion to a Delta IV heavy rocket during EFT-1, as well as on the first launch of NASA's Space Launch System in 2017. SLS, NASA's new heavy-lift rocket, is managed and in development at the Marshall Center. It will provide an entirely new capability for human exploration beyond low-Earth orbit. For the full story on the delivery and what's next for the diaphragm, click [here](#). (Janicki Industries)



Engineers at the Marshall Center unwrap the adapter diaphragm Sept. 27. The diaphragm was designed by a team of engineers at NASA's Langley Research Center, in close collaboration with Marshall. It will undergo pressurized testing at Marshall before being integrated with the spacecraft's Multi-Purpose Crew Vehicle Stage Adapter -- certifying it for flight conditions. The adapter will attach the Orion spacecraft to a Delta IV rocket for EFT-1 and provide early flight experience for the first flight of the SLS in 2017. (NASA/MSFC/Fred Deaton)

Marshall Center Recognizes National Energy Awareness Month

By Bill Hubscher

Small steps can add up to a long journey of cost and energy savings.

October is National Energy Awareness Month and the Marshall Space Flight Center is encouraging team members to reduce energy use and prevent the waste of electricity.

"Minor changes to daily routines can add up to huge energy savings over time," said Rhonda Truitt, an energy engineer with Parsons Engineering supporting the Marshall Center Facilities Management Office. "For example, if each employee helped save only one kilowatt hour every day, our costs would be reduced by \$180,000."

Since energy and water conservation plans were enacted, NASA has saved more than \$20 million annually. Here are some ways employees can help conserve energy:

- Make sure lights are off when your office is unoccupied and especially when you leave for the day. Lighting accounts for more than 10 percent of total energy usage.
- Opening window blinds can help illuminate a room and heat it, too. Let natural light in to help keep occupants warm on sunny winter days.

See *National Energy Awareness Month* on [page 6](#)

A Glimpse of the Violent Past of Milky Way's Giant Black Hole

From news release

Researchers using NASA's Chandra X-ray Observatory have found evidence that the normally dim region very close to the supermassive black hole at the center of the Milky Way Galaxy flared up with at least two luminous outbursts in the past few hundred years.

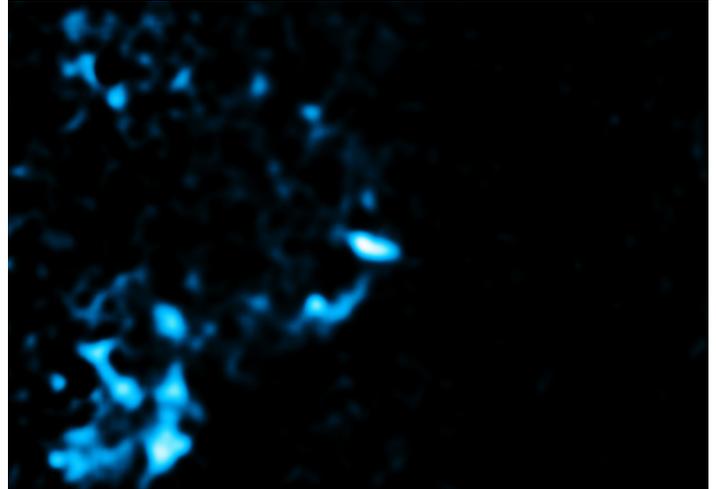
This discovery comes from a new study of rapid variations in the X-ray emission from gas clouds surrounding the supermassive black hole, aka, Sagittarius A*, or Sgr A* for short. The scientists show that the most probable interpretation of these variations is that they are caused by light echoes.

The echoes from Sgr A* were likely produced when large clumps of material, possibly from a disrupted star or planet, fell into the black hole. Some of the X-rays produced by these episodes then bounced off gas clouds about 30 to 100 light years away from the black hole, similar to how the sound from a person's voice can bounce off canyon walls. Just as echoes of sound reverberate long after the original noise was created, so too do light echoes in space replay the original event.

While light echoes from Sgr A* have been seen before in X-rays by Chandra and other observatories, this is the first time that evidence for two distinct outbursts has been seen within a single set of data.

More than just a cosmic parlor trick, light echoes provide astronomers an opportunity to piece together what objects like Sgr A* were doing long before there were X-ray telescopes to observe them. The X-ray echoes suggest that the area very close to Sgr A* was at least a million times brighter within the past few hundred years. X-rays from the outbursts (as viewed in Earth's time frame) that followed a straight path would have arrived at Earth at that time. However, the reflected X-rays in the light echoes took a longer path as they bounced off the gas clouds and only reached Chandra in the last few years.

A new animation shows Chandra images that have been combined from data taken between 1999 and 2011. This sequence of images, where the position of Sgr A* is marked with a cross, shows how the light echoes behave. As the sequence plays, the X-ray emission appears to be moving away from the black hole in some regions. In other regions it gets dimmer



Researchers have found evidence that the normally dim region very close to the supermassive black hole at the center of the Milky Way galaxy flared up with at least two bright outbursts in the past few hundred years. These images are from a study of Chandra observations taken over 12 years that show rapid variations in the X-ray emission from gas clouds surrounding the supermassive black hole. The phenomenon, known as a "light echo," provides astronomers an opportunity to piece together what objects like Sgr A were doing long before there were X-ray telescopes to observe them. (X-ray: NASA/CXC/APC/Universite de Paris Diderot/M.Clavel et al.)*

or brighter, as the X-rays pass into or away from reflecting material.

This is the first time that astronomers have seen both increasing and decreasing X-ray emission in the same structures. Because the change in X-rays lasts for only two years in one region and over 10 years in others, this new study indicates that at least two separate outbursts were responsible for the light echoes observed from Sgr A*.

A paper describing these results has been published in the October 2013 issue of the journal *Astronomy and Astrophysics* and is available online.

NASA's 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.

To see a time-lapse video of the Supermassive Black Hole Sagittarius A*, click [here](#).

Cyber Security Expo Hosted at Marshall Center Oct. 23



To recognize October as national cyber security awareness month, NASA's Marshall Space Flight Center hosted a Cyber Security Awareness Expo on Oct. 23, in the Activities Building 4316. Employees Stayce Hoult, second from left, and Kim Narmore, left, both of the Office of the Chief Information Officer, gathered information from FireEye, a company which provides technologies to protect against cyber attacks in real-time. Employees who attended the event were granted credit for the FY14 IT Security Awareness Training. More than 15 vendors were present and lunch was provided. (NASA/MSFC/Emmett Given)

Centennial Challenges Exhibits with Challenge Winners at NYC Maker Faire

Centennial Challenges Program Manager Sam Ortega, left, speaks with a family about a sample-collecting robot at the NASA exhibit at the MAKE Magazine Maker Faire held in Queens, N.Y., Sept. 21-22. The Centennial Challenges Program presented one of 650 booths for the 70,000 people who attended. The annual event showcases the work and projects of makers, hackers, do-it-yourselfers and artists in the areas of science and technology. The Centennial Challenges Program, managed at the Marshall Space Flight Center, also displayed a spacesuit and a pressurized space glovebox created by previous challenge winners. Other NASA exhibits, including 3D-printed asteroid models, were featured in a shared space with other agency personnel. The Centennial Challenges Program is NASA's prize competition program for citizen inventors, awarding monetary prizes for technology innovations that benefit NASA and the nation. (MSFC/Janet Sudnik)



National Energy Awareness Month *Continued from page 4*

- When possible, use break room refrigerators and use desk fans only when necessary. Small office appliances, including mini-refrigerators, desk fans and computer speakers, account for 30 percent of energy use in individual offices.
- Turn computers off at night, on weekends, vacations and holidays.
- Electronics plugged in use energy, even when they are not operating or charging. This includes cell phones and coffee pots. Turn off individual printers at

your desk when not in use.

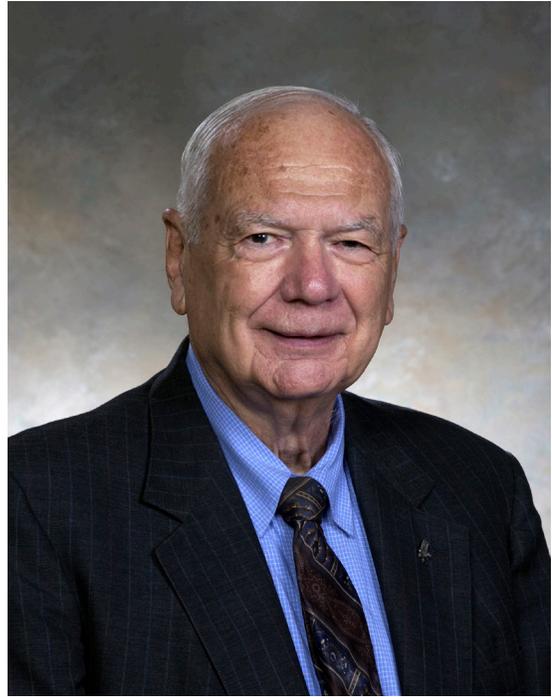
In fiscal year 2013, the Marshall Center surpassed its goals for reducing energy usage. Improvements to air conditioning systems in existing buildings, upgraded lighting, and the construction of new "green" buildings all contributed to meet the goal. Employees are urged to help continue this positive trend by using the energy savings suggestions listed.

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

Influential NASA Engineer George Hopson Passes Away

George David Hopson, 86, of Birmingham, passed away peacefully at his home in Madison on Oct. 23. After serving in the U.S. Marine Corps for one year, he attended the University of Alabama in Tuscaloosa, where he earned a Bachelor of Science degree in mechanical engineering in 1950. He served as an officer in the U.S. Army from 1951-1953, earning the Bronze Star in Korea. He then returned to the University of Alabama and earned a master's degree in mechanical engineering in 1954.

Hopson began his engineering career at General Dynamics in Fort Worth, Texas, from 1954-1962, and then returned home to Alabama to begin a distinguished 45-year career at NASA's Marshall Space Flight Center. He held numerous positions at NASA including fluid dynamics branch chief, structures and thermal branch chief, Skylab Analysis Lab director, space systems chief engineer, space transportation systems chief engineer, Space Station Projects Office manager, deputy director for space systems, space shuttle main engine manager and NASA Technical Fellow for Propulsion. He received significant recognition throughout his career including the Exceptional Service Award, two Outstanding Leadership Awards, two Presidential Rank Awards, the Distinguished Service Award and induction into the State of Alabama Engineering Hall of Fame.



George David Hopson (NASA/MSFC/

Obituaries

Archie Danny Coleman, 74, of Huntsville, died Sept. 8. He retired from the Marshall Center in 1999 as an aerospace engineer. He is survived by his wife, Evelyn Coleman.

Elbert David Hughes, 68, of Huntsville, died Oct. 18. He retired from the Marshall Center in 1999 as an industrial property management specialist.

James "Jim" Poe, 72, of Madison, died Oct. 20. He retired from the Marshall Center in 2005 as an aerospace engineer. He is survived by his wife, Linda P. Poe.

Harvey Golden, 79, of Huntsville, died Oct. 28. He retired from the Marshall Center in 1999 as a mission operations lab director. He is survived by his wife, Dorothy Golden.