Marshall Star, April 10, 2013 Edition

MARSHALL STAR

In This Week's Star

NASA Administrator Bolden, Marshall Director Scheuermann Discuss FY 2014 Budget

NASA Administrator Charles Bolden and Marshall Space Flight Center Director Patrick Scheuermann briefed the workforce and reporters April 10 about the agency's fiscal year 2014 budget proposal in all-hands meetings and news conferences at NASA Headquarters and at the Marshall Center.

The proposed NASA budget and supporting information are available online at: http://www.nasa.gov/budget

For more about the all-hands, and some Marshall Center employees' perspectives on the proposed budget, please see the April 17 edition of the Marshall Star.

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3-2-1, LIFT OFF! NASA Student Launch Projects Activities Set for April 19-20

By Megan Davidson

More than 600 students, representing middle schools, high schools, colleges and universities in 26 states, will launch rockets of their own design -- with working science payloads -- into the skies at the 2012-13 NASA Student Launch Projects.

Image right: At the 2011-12 NASA Student Launch Projects challenge, a team from Florida A&M University in Tallahassee received the "Closest to Altitude" university-level award for coming closest to the specified 1-mile altitude goal. The rocket reached an altitude of 5,270 feet -- just 10 feet off the mark. A team from the school will return to this year's challenge to try to retain their title. (NASA/MSFC)

Activities for the annual engineering and science challenge will kick off April 19 with a Rocket Fair and poster presentation in Activities Building 4316. At the event, NASA Marshall Space Flight Center team members will have the opportunity to talk with some of the 57 student teams participating in the challenge, and get a first-hand look at their specially crafted rockets.

The "launchfest" will begin at 7:30 a.m. -- weather permitting -- April 20 at Bragg Farms in Toney. A rain date is scheduled for April 21. Teams will try to send their rockets to a goal altitude of 1 mile high.

The free event is open to the public. NASA will provide live coverage from the challenge on Ustream and real-time updates -- including the post-launch awards ceremony -- on Twitter.

NASA created the rocketry challenge to encourage young people to pursue careers in the science, technology, engineering and mathematics (STEM) fields.

The Academic Affairs Office, part of the Office of Human Capital at the Marshall Center, manages the rocketry challenge. ATK Aerospace Group of Magna, Utah, is providing corporate sponsorship. The National Association of Rocketry will provide launch readiness reviews and launch support. Bragg Farms has hosted the launch challenge since 2008.

More information about the 2012-13 NASA Student Launch Projects, including a full list of participating teams, is available here.

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

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Registration Opens for $1.5 Million Night Rover Energy Challenge

By Janet Sudnik

Registration is open for teams seeking to compete in the $1.5 million energy storage competition known as the Night Rover Challenge, sponsored by NASA and the Cleantech Open of Palo Alto, Calif.

To win, a team must demonstrate a stored energy system that can power a simulated solar-powered exploration vehicle and operate through multiple cycles of daylight and extended periods of darkness.

"Advancing the energy storage capacity for a rover will greatly increase the time it can spend exploring and performing tasks and experiments. This will be a valuable improvement that opens more doors to what we can accomplish in less time," said Sam Ortega, Centennial Challenge program manager at NASA's Marshall Space Flight Center.

"The goal of the Night Rover Challenge is to stimulate innovations in energy storage technologies of value in extreme space environments, such as the surface of the moon, or for electric vehicles and renewable energy systems here on Earth," said Michael Gazarik, NASA's associate administrator for Space Technology at NASA Headquarters. "NASA wants this challenge to generate new ideas that will allow planetary rovers the ability to take on a night shift, and possibly create new energy storage technologies for applications of benefit here on our home planet."

For this Centennial Challenge, NASA provides the prize purse for technological achievements by independent teams, and the Cleantech Open manages the competition as NASA's allied organization. The challenge is extended to individuals, groups and companies working outside the traditional aerospace industry. Unlike most contracts or grants, awards will be made only after solutions are demonstrated successfully.

During the Night Rover Challenge, energy storage systems will receive electrical energy from a simulated solar collector during daylight hours. During darkness, the stored energy will be used for simulated thermal management, scientific experimentation, communications and rover movement. A winning system must exceed the performance of an existing state-of-the-art system by a pre-determined margin. The winning system will have the highest energy storage density.

"The partnership NASA has with the Cleantech Open allows us to leverage taxpayer dollars in advancing technology development in this critical area," said Larry Cooper, Centennial Challenges program executive at NASA Headquarters. "Technology development is a priority for NASA; we push technology development effectively by partnering with industry and academia to advance our nation's space exploration and science goals while maintaining America's technology edge."

Since the program's inception in 2005, NASA's Centennial Challenges has awarded more than $6 million to 15 different competition-winning teams through 23 events. Competitors have included private companies, citizen inventors and academia working outside the traditional aerospace industry. The competitions are managed by nonprofit organizations that cover the cost of operations through commercial or private sponsorships.

The Cleantech Open bills itself as the world's largest accelerator for renewable, or clean, energy technology development. Its mission is to find, fund and foster entrepreneurs with big ideas that address today's most urgent energy, environmental and economic challenges. A not-for-profit organization, the Cleantech Open provides the infrastructure, expertise and strategic relationships that turn clever ideas into successful global clean-technology companies.

Sudnik, an Analytical Services Inc. employee and communications strategist for the Centennial Challenges Program, supports the Office of Strategic Analysis & Communications.

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Advanced Exploration Systems Holds Mid-Year Review at Marshall

The Advanced Exploration Systems, or AES, program held its mid-year review April 3-5 at NASA's Marshall Space Flight Center. Marshall Center Director Patrick Scheuermann kicked off the meeting by welcoming attendees and introducing the AES team members located at Marshall.

Image left: Marshall Center Director Patrick Scheuermann welcomes AES team members at the AES mid-year review held April 3-5 at Marshall. (NASA/MSFC/Emmett Given)

During the meeting, AES managers and employees from across the agency updated their colleagues on the status of their projects and discussed ways to drive progress forward regarding key capabilities that could be used in projects ranging from missions to deep space to vehicle development. AES projects are designed so that early integration and testing of prototype systems can reduce risk and improve affordability of exploration mission elements.

The AES program is managed by NASA Headquarters and consists of several projects at various NASA centers. These projects target high-priority capabilities needed for human exploration such as advanced life support, deep space habitation, crew mobility and extra-vehicular activity systems.

The Marshall Center manages several AES projects including Lunar Mapping and Modeling, Additive Manufacturing, Atmosphere Resource Recovery and Environmental Monitoring, and Nuclear Thermal Propulsion.

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Taken Under the 'Wing' of the Small Magellanic Cloud

The Small Magellanic Cloud, or SMC, is one of the Milky Way's closest galactic neighbors. Even though it is a small, or so-called dwarf galaxy, the SMC is so bright that it is visible to the unaided eye from the Southern Hemisphere and near the equator.

Image right: In this composite image of the Wing of the Small Magellanic Cloud the Chandra data is shown in purple, optical data from the Hubble Space Telescope is shown in red, and green, blue and infrared data from the Spitzer Space Telescope is shown in red. (X-ray: NASA/CXC/Univ.Potsdam/L.Oskinova et al; Optical: NASA/STScI; Infrared: NASA/JPL-Caltech)

Modern astronomers are also interested in studying the SMC and its cousin, the Large Magellanic Cloud, but for very different reasons. Because the SMC is so close and bright, it offers an opportunity to study phenomena that are difficult to examine in more distant galaxies.

Observations of the SMC have provided one such discovery: the first detection of X-ray emission from young stars with masses similar to our sun outside our Milky Way galaxy. New Chandra observations of these low-mass stars were made of the region known as the "Wing" of the SMC.

Most star formation near the tip of the Wing is occurring in a small region known as NGC 602, which contains a collection of at least three star clusters. One of them, NGC 602a, is similar in age, mass and size to the famous Orion Nebula Cluster. Researchers have studied NGC 602a to see if young stars -- that is, those only a few million years old -- have different properties when they have low levels of metals, like the ones found in NGC 602a.

Using Chandra, astronomers discovered extended X-ray emission, from the two most densely populated regions in NGC 602a. The extended X-ray cloud likely comes from the population of young, low-mass stars in the cluster, which have previously been picked out by infrared and optical surveys using Spitzer and Hubble respectively. This emission is not likely to be hot gas blown away by massive stars, because the low metal content of stars in NGC 602a implies that these stars should have weak winds. The failure to detect X-ray emission from the most massive star in NGC 602a supports this conclusion, because X-ray emission is an indicator of the strength of winds from massive stars. No individual low-mass stars are detected, but the overlapping emission from several thousand stars is bright enough to be observed.

The Chandra results imply that the young, metal-poor stars in NGC 602a produce X-rays in a manner similar to stars with much higher metal content found in the Orion cluster in our galaxy. The authors speculate that if the X-ray properties of young stars are similar in different environments, then other related properties -- including the formation and evolution of disks where planets form -- are also likely to be similar.

X-ray emission traces the magnetic activity of young stars and is related to how efficiently their magnetic dynamo operates. Magnetic dynamos generate magnetic fields in stars through a process involving the star's speed of rotation, convection and the rising and falling of hot gas in the star's interior.

The combined X-ray, optical and infrared data also revealed, for the first time outside our galaxy, objects representative of an even younger stage of evolution of a star. These so-called "young stellar objects" have ages of a few thousand years and are still embedded in the pillar of dust and gas from which stars form, as in the famous "Pillars of Creation" of the Eagle Nebula.

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NASA Student Launch Projects Hosts Tweet Chat April 16

On April 16 at noon, NASA's Marshall Space Flight Center and ATK will host a Tweet chat with Charlie Precourt, ATK vice president and a former NASA astronaut; Alex Priskos, Marshall Space Launch Systems Boosters Elements manager; and Julie Clift, Marshall Student Launch Projects lead. The chat will kick-off the Student Launch Project activities that begin April 19 and continue through April 20.

Do you want to know what it takes to become an astronaut? How will the solid rocket boosters on the SLS propel it to space? Don't miss this opportunity with Priskos and Precourt as they answer those questions and also share how they launched their own careers in the space industry. Clift will also be on hand to answer questions about how Student Launch Projects work and how those interested can get involved. Send your questions via Twitter to @SLI_1MILEHIGH, @ATK or use the hashtags #1milehigh and #SpaceChat.

NASA Student Launch Projects challenge middle school, high school and college students in designing, building and launching a reusable rocket to 1-mile above ground level. On April 20, more than 600 students, representing 56 middle schools, high schools, colleges and universities in 26 states, will launch sophisticated rockets of their own design -- complete with working science payloads -- into the skies over Bragg Farms in Toney, Ala.

Marshall's Academic Affairs Office, part of the Office of Human Capital, manages the rocketry challenge. ATK is providing corporate sponsorship. The National Association of Rocketry will provide technical review and launch support. Bragg Farms has hosted the launch challenge since 2008.

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Marshall Center to Conduct IT Asset Validation Continuing Through April 12

As part of an on-going effort to accurately report information technology equipment data, NASA's Marshall Space Flight Center is undergoing a center-wide IT asset validation exercise. The current validation process focuses on desktop and laptop computers only.

"In these challenging budget times, it is vital that we have a good understanding of our IT assets to ensure that we are accurate in meeting our fiscal obligations," said Steve Chapman, supervisor of the Application, CRM and Multimedia Office. "Additionally, this information enables strengthened security to protect against threats to the security of vital information stored on IT assets."

Currently, the Office of the Chief Information Officer relies on the Marshall Asset Management System, or MAMS, to track IT assets. MAMS provides necessary information to ensure compliance with various agency and local requirements. As part of the ongoing effort to ensure accurate billing and mitigate any cost risk, an end-user test is being conducted. Team member participation in this exercise is critical to ensure that Marshall maintains and reports the most accurate data possible.

In support of this exercise, Marshall team members are to verify their assigned IT asset and user information in MAMS by close of business on April 12. Unverified machines will be assessed on a seat-by-seat basis beginning April 15.

For detailed instructions on how to verify your assigned IT asset and user information, select the appropriate link below.
Windows User: https://explornet.msfc.nasa.gov/docs/DOC-11422
Mac User: https://explornet.msfc.nasa.gov/docs/DOC-11423
Linux User: https://explornet.msfc.nasa.gov/docs/DOC-11425

For more information or questions, please contact the IT Asset Validation Held Line at 256-961-3223 or 5-3223.

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Save the Date: May 1 SHE Day Combines Safety, Health, Environmental and Earth Day Observances
By Kenneth Kesner

On May 1, NASA Marshall Space Flight Center team members can learn "The Best Things in Life are SHE!"

That's the theme for the center's 2013 Safety, Health and Environmental, or SHE, Day. The event combines traditional Earth Day activities with Safety and Health Day demonstrations and exhibits.

This year's SHE Day activities will be from 8 a.m. to 2 p.m. in Buildings 4316 and 4315, the Marshall Activities Building and Wellness Center. SHE Day ends with optional safety meetings from 2:30-3:30 p.m. in employees' buildings.

Activities will include a tree planting ceremony, SHE "Jeopardy" tournament, food vendors offering "healthier choices" as well as ice cream, and many Safety, Health and Environmental booths and exhibits.

A 5K run will be sponsored by the MSFC Running Club. There also will be a 1.5 mile walk, and organizers hope it will inspire participants to form a MSFC Walking Club, said Sonya Dillard, an engineer in the Marshall Center's Industrial Safety Branch and coordinator of 2013 SHE Day. There also will be self-defense, Zumba, yoga and other SHE classes; Wellness Center tours; massages; blood pressure checks; and other activities. Used books, video games and commercial DVDs and CDs will be collected April 24 from 11 a.m. to 1 p.m. in the lobbies of Buildings 4203 and 4600 for a "Swap It" at SHE Day, but anyone can also bring items to swap May 1.

Employees are encouraged to wear comfortable clothing and shoes, Dillard said. Training credits are available and details listed in the SATERN catalog as "2013 SHE Day."

For more information, a schedule and to register for events, visit the Marshall Center Safety, Health and Environmental Web pages at: https://safety.msfc.nasa.gov/sheday

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

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Obituaries

Sallie Buford Adams, 81, of Big Cove died March 23. She retired from the Marshall Center in 1973 as an accounting technician.

Mike C. Williams, Jr., 88, of Huntsville died March 25. He is survived by his wife, Geneva W. Williams. He retired from the Marshall Center in 1990 as an aerospace engineer.

Rodolfo "Rudy" Barraza, 84, of Huntsville died March 26. He is survived by his wife, Wilma L. Barraza. He retired from the Marshall Center in 1984 as an aerospace engineer.

Steven McClard, 59, of Glen Ridge, N.J., died March 31. He is survived by his wife, Elizabeth McClard. He served as an aerospace engineer since May 1991.

Find this article at:

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