



# The Marshall Star

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## Inside This Issue:

**Second Annual Racin' the Station to be Held Sept. 28** *page 3*



**Local Teachers Get Behind-the-Scenes Tour of Marshall Center** *page 5*



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## Mighty Eagle Gets Dirty

*By Shannon Ridinger*

The Mighty Eagle, a NASA robotic prototype lander managed out of NASA's Marshall Space Flight Center, will begin a new flight series at the end of August going through late September that will test a new hazard avoidance system designed and developed by engineers supporting the Resource Prospector Lander Project Office at the center. The test series will also help validate software from Moon Express, Inc. called Guidance, Navigation and Control (GNC) that is designed to tell the vehicle where to go

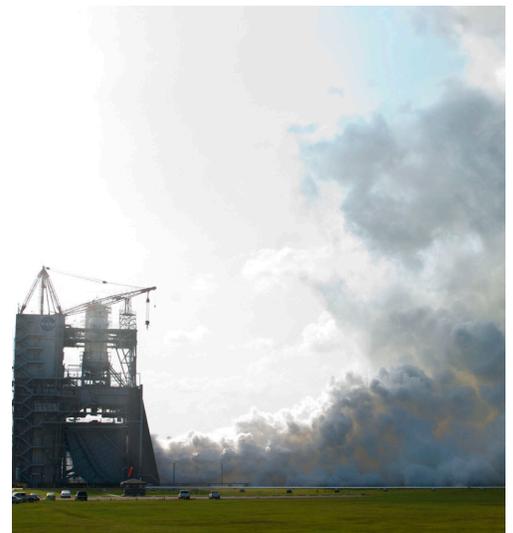


*Soil from the Merriam Crater in Arizona was brought to the test stand area to create a landing field to test new software on the Mighty Eagle. (NASA/MSFC/Fred Deaton)*

*See **Mighty Eagle** on **page 2***

## J-2X Test: 885 Seconds of Smoke and Fire

*On Aug. 15, NASA conducted a test of the next-generation J-2X rocket engine on the A-1 test stand at NASA's Stennis Space Center. During the test, the engine was gimbaled, or pivoted, the same way it must move during an actual flight to ensure proper trajectory. The test provided critical data on the performance of the engine. The 885-second test was the longest-duration hotfire of a full J-2X engine. Watch a video of the test [here](#). (NASA/Stennis)*



## Mighty Eagle *Continued from page 1*

and how to go there.

To prepare for the new flight series, 225 tons of volcanic cinder and ash from the Merriam Crater in Arizona was brought in for the creation of a simulated celestial body field. Why 200 tons of crater dirt? Dr. Doug Rickman, a planetary soil expert, says the soil found in the Merriam Crater is a pretty good match for the soil found on the moon.

“The software the Marshall team designed will be searching for obstacles or “hazards” so that it can steer the vehicle away from those places,” said Rickman. “Soil’ on the surface of a planetary object, like the moon for example, is completely different from what we have here. It’s darker, extremely fine and very uniform in color. It is hard to see slopes or rocks except by shadows. The new software is designed to look for shadows from large rocks or other obstacles and when it senses those, tell the vehicle to look for another landing site.”

To help make the field even more authentic, the team is utilizing faux rocks to create “hazards.” These rocks will be coated in regolith. As a consequence, they will blend into the surrounding terrain. The test series will also include in-flight video and images captured by both the Mighty Eagle and Quad-Copter. The Quad-Copter is the vehicle designed and built by the Aero-M team at the Marshall Center as part of the 2012 Unmanned Aerial Systems, or UAS, competition between various NASA centers.

“We are really excited about this test series,” said Jason Adam, flight manager for the Mighty Eagle. “Our



*Workers unload the soil for the simulated planetary body field to prepare for the Mighty Eagle test series. (NASA/MSFC/Fred Deaton)*

team worked hard on developing the hazard avoidance software we are testing, and it’s been a great experience for the entire team to embark on this new series and see what kind of data we can get and how we can use it to better NASA’s robotic lander program.”

The Mighty Eagle prototype lander was developed by the Marshall Center and Johns Hopkins University Applied Physics Laboratory in Laurel, Md., for NASA’s Planetary Sciences Division, Headquarters Science Mission Directorate. Key partners in this project include the Von Braun Center for Science and Innovation, which includes the Science Applications International Corporation, Dynetics Corp. and Teledyne Brown Engineering Inc., all of Huntsville.

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

## Redstone Arsenal Access Gate Expanded Operating Hours

Redstone Arsenal’s access control gates’ expanded operating hours beginning midnight, Aug. 17.

Gate operations are as follows:

**Gate 1 Martin Road (East)** - 5:30 a.m.-9 p.m., Monday-Friday

**Gate 3 Redstone Road** - 5:30 a.m.-6 p.m., Monday-Friday

**Gate 7 Martin Road (West)** - 5:30 a.m.-8 p.m., Monday-Friday

**Gate 8 Goss Road** - 5:30 a.m.-midnight, seven days a week

**Gate 9 Rideout Road** - Open 24/7

**Gate 10 Patton Road** - 5:30 a.m.-9 p.m., Monday-Friday

For more information, please visit [Redstone Arsenal’s website](#).

# Second Annual Racin' the Station Duathlon to be Held Sept. 28

By Jessica Eagan

Can you beat the speed of the International Space Station? Find out Sept. 28!

The second annual 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. 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 station's location at the race start time and those who "beat" the laboratory before it orbits the world will win a small prize.

"Last year's event was a huge success," said Kent Criswell, the Racin' the Station organizer. "We had nearly 200 sign up, which was almost double what we had originally envisioned for a first-time race. This year, it could potentially double again.

"Also, we've added a youth event," he said. "Kids between ages 6-13 will compete in a separate race -- a bike-run-bike. The hope is that they get inspired by some NASA hardware they may see or be motivated by the message from the astronauts aboard the space station."

The Expedition 36 crew will provide pre-recorded statements from the station to be played at the opening ceremony.

The duathlon is open to the public. Prices vary depending on which event you sign up for and the date of registration. Registration is available online until Sept. 26 and will be capped at 400 racers.

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. 24.

"There is certainly a buzz in the triathlon community this year about this race," said Criswell.



"The [Team Rocket Tri Club](#) knows what they are doing and are helping the Marshall Association put on a strong event."

All participants will receive a T-shirt. Bring family and friends, and they can cheer you on at Building 4316 while tracking the station as it orbits high above.

Criswell expressed "thanks to the center's Mission Operations Laboratory. Their support is crucial and much appreciated."

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](#). Learn about upcoming luncheons in the Marshall Star.

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

# Scale Model of SLS B-2 Test Stand Successfully Completes Wind Tunnel Testing

A 1:100 (31-inch) scale model of the NASA Space Launch System (SLS) core stage B-2 test stand successfully completed wind tunnel testing Aug. 8. The actual B-2 test stand, located at NASA's Stennis Space Center, was originally built to test Saturn rocket stages that propelled humans to the moon. It is being completely renovated to test the core stage of NASA's new heavy-lift launch vehicle, the SLS, in late 2016 and early 2017. "The scale model was exposed to varying wind speeds at different angles," said John Rector, SLS Stages Green Run test manager in the Stages Office at NASA's Marshall Space Flight Center. "Test stand designers used the test as a way to validate the structure meets current building codes. We want to maximize the capacity of the structure, while minimizing the amount of steel used -- which reduces costs." The wind tunnel testing was performed by NASA subcontractor CPP Wind Engineering & Air Quality Consultants at its facility in Fort Collins, Colo. The SLS core stage, with four RS-25 rocket engines, will be installed on the stand for propellant fill and drain testing and two hot fire tests. For more information about the B-2 stand being prepared for SLS core stage testing, click [here](#). (NASA/Stennis)



## 'Marshall Center Feeds Families' Summer Campaign Happening Now!

All NASA Marshall Space Flight Center team members -- both civil servants and contractors -- are encouraged to contribute non-perishable food items to the "2013 MSFC Feeds Families Campaign." This campaign is a great opportunity to show how much we care about and are committed to supporting our local community.

The "Feds Feeds Families Campaign" is a nationwide effort by federal agencies to collect 2 million pounds of non-perishable food items this year. The Marshall Office of Diversity and Equal Opportunity is working with the North Alabama Food Bank to feed families in our local communities.

Foods needed most at the North Alabama Food Bank are:

- Canned fruits in light syrup or its own juices
- Canned vegetables
- Canned proteins (tuna, salmon, chicken, peanut butter, beans)
- Multigrain cereals (cheerios, cornflakes, grape nuts, raisin brand)
- Grains (brown and white rice, oatmeal, bulgur, quinoa, couscous, macaroni and cheese)
- Soups (low sodium, beef stew, chili, chicken noodle, turkey and rice)
- 100 percent juice (all sizes, including juice

boxes)

- Condiments (tomato-based sauces, light soy sauce, ketchup, mustard, salad dressing, oils)
- Snacks (whole grain, low in added sugars, individually packed snacks, crackers, trail mix, dried fruit, granola/cereal bars, pretzels, sandwich crackers)
- Baking goods (flour, sugar, baking powder, baking soda, spices, boxed mixes)
- Dinner kits (hamburger helper, noodles)
- Hygiene items (diapers, deodorants for men and women, feminine products, toilet paper, tissues, soap, toothpaste, shampoo)

For your convenience, food donation bins are located at the ground floor of Building 4200 and the lobbies of Buildings 4203, 4487, 4600, 4601, 4610, 4708 and at the lobby of the National Space Science & Technology Center (NSSTC).

The 2013 MSFC Feeds Families Campaign runs through Aug. 30.

The Marshall Center goal is for each team member to donate 3 pounds of canned goods and other non-perishable food items. For more information, contact Elia S. Ordonez at [elia.s.ordonez@nasa.gov](mailto:elia.s.ordonez@nasa.gov) or (256) 544-6658.

# NASA Employees Required to Notify Center Counterintelligence Office of Off-Center Meetings with Foreign Nationals

A recent change to NASA Procedural Requirement (NPR) 1600.1A now requires NASA employees, including badged contractors, to notify their Center Counterintelligence Office in advance of any planned off-center meetings with foreign nationals from NASA-designated countries.

Brian Tindall and Ron Smith are the counterintelligence officials at NASA's Marshall Space Flight Center and will need the visitor's full name and passport number or resident alien number. Visitor information can be sent via fax or email.

The most current copy of the NASA-designated country listing can be found on the [NASA HQ Export Control Program](#) website.

Contact information for the Marshall Counterintelligence Office is:

Brian Tindall: [Brian.tindall@nasa.gov](mailto:Brian.tindall@nasa.gov); office - 256-544-4095; cell - 256-425-8003

Ron Smith: [Ronald.l.smith@nasa.gov](mailto:Ronald.l.smith@nasa.gov); office - 256-544-7808; cell - 256-701-0894

Fax: 256-544-0126

Bldg 4201, Room 131A

[NASA Counterintelligence on ExplorNet](#)

## Revised NPR

NPR1600.1A, NASA Protective Services Program Requirements

Chapter 2, Security Operations

2.16 Security Education, Training, and Awareness (SETA) Program

2.16.5 Foreign Travel Briefings. CI personnel shall conduct foreign travel briefings to NASA travelers to enhance their awareness of potential hostile intelligence, terrorist, and criminal threats in the countries to which they are traveling. These briefings must also provide defensive measures and other practical advice concerning safety measures.

a. NASA employees shall report to the Center or Agency CI Office any meetings with foreign nationals from designated countries that are held outside NASA-controlled facilities in advance of the meeting.

(1) NASA employees attending the meeting will make themselves available for intelligence threat awareness pre-briefings and debriefings in accordance with NPD 1660.1B. The Center International Visit Coordinator (IVC) can provide a list of designated countries.

## Local Teachers Get Behind-the-Scenes Tour of Marshall Center

Vincent Vidaurri, center, a technical specialist with Teledyne Brown Engineering supporting Mission Operations at the Marshall Space Flight Center, provides details about a mock-up of the International Space Station science lab to a group of area teachers as part of "Back-2-School Day." Team Redstone -- which includes the Marshall Space Flight Center and U.S. Army organizations on Redstone Arsenal -- invited 50 teachers to tour Redstone Arsenal Aug. 15, giving them an opportunity to learn of and see resources available to them and their students. The tour focused on sites available for field trips for students studying math, science, technology and engineering. Stops included Marshall's Payload Operations Integration Center and the High Schools United with NASA to Create Hardware lab, or HUNCH, both located in Building 4663. The program gives high school students the chance to work with NASA engineers to design and build hardware for use on the International Space Station. The teachers also visited the Army Aviation & Missile Research Development & Engineering Center and the Redstone Test Center. (NASA/MSFC/Fred Deaton)



## 2013 Team Pride Social and Dip Challenge Set for Aug. 29

Show your team pride Aug. 29 during the 2013 Team Pride Social to be held from 3:30-5 p.m. in Activities Building 4316.

This may be everyone's last chance to freely talk trash with fellow college football faithful before the season starts to separate the victors from the also-rans! So join us for good-natured camaraderie and refreshments, and wear your college team colors with pride -- any sport you prefer, any school you attended or root for -- for a chance to have your picture in an upcoming edition of The Marshall Star.

Tailgate-style food will be served: chili, hot dogs, cheese queso dip, restaurant-style chips, football chocolates and a variety of beverages, including alcoholic and nonalcoholic drinks.

Participants will assemble into teams representing various schools and their sports programs. The team with the most people wearing shared school/team colors will be photographed with Marshall Center Director Patrick Scheuermann for the Marshall Star. Photos will be taken of all participants, and made available via Imaging Services' online photo gallery.

### Dip Challenge

Think you make the best chip dip? Join the challenge! [The Dip Challenge](#) is open to all members of the Marshall workforce and will take place during the [Team Pride Social](#). To register, [sign-up here](#) by 4:30 p.m. Aug. 23.

- Competitors should bring enough dip for at least 30 people to test.
- Anyone can vote on the best dip if they bring cans of food for [Feds Feed Families](#). No double dipping. One vote per person. The most votes win. The voting box will be at the entryway. Voting will be from 3-4 p.m.
  - 1 can = 1 taste
  - 2 cans = 2 tastes
  - 3 or more cans = taste all entries (subject to availability).
- The Marshall Exchange will provide a standard 8-foot table and two chairs for a display place. Entrants may decorate the table as appropriate. Decorations can only be made of paper, plastic and or other disposable goods and must be removed at the end of the event. No profanity or offensive material allowed.
  - Each team will provide a list of all ingredients used to prepare the dip, along with the name of the team and the dip on a 3-by-5-inch card.
  - Access to an electrical outlet will be available upon request.
  - All preparation will be done in a sanitary manner.
  - Each team will submit one entry. At no time should they leave their entry unattended; this is grounds for disqualification.
  - Results will be announced at 4:15 p.m. by the Marshall Center director who will also present ribbons for the first three places.

## Obituaries

**Edward D. Medal**, 66, of Owens Cross Roads, died Aug. 5. He retired from the Marshall Center in 2002 as a media relations specialist. He is survived by his wife, Janice Medal.

**George Demetri Cassimus**, 78, of Decatur died Aug. 6. He retired from the Marshall Center in 1994 as an aerospace engineer. He is survived by his wife, Patsy Byars Cassimus.