



# MARSHALL STAR

Serving the Marshall Space Flight Center Community

April 28, 2011

## *Crew prepares for shuttle Endeavour's last mission*



STS-134 crew members, from left, Commander Mark Kelly; Pilot Greg H. Johnson; Mission Specialists Michael Fincke and Andrew Feustel; European Space Agency astronaut Roberto Vittori; and Mission Specialist Greg Chamitof take a break from a simulated launch countdown and simulated pad emergency at Kennedy Space Center, Fla., earlier this month. The astronauts are on the 195-foot level of Launch Pad 39A. Space shuttle Endeavour's six crew members are scheduled to launch April 29 at 2:47 p.m. CDT on a 14-day mission to the International Space Station. The primary payload for delivery to the space station is the Alpha Magnetic Spectrometer-2, a particle physics detector designed to operate from the station and search for various types of unusual matter. STS-134 is the final flight of shuttle Endeavour.

## **NASA's NanoSail-D satellite continues to slowly de-orbit Earth's upper atmosphere**

*By Kim Newton*

NASA's nanosatellite NanoSail-D is slowly descending after successfully orbiting the Earth's upper atmosphere for 95 days since deploying its 100-square-foot sail on Jan. 20. The small satellite demonstration experiment continues its descent towards Earth, lending key sail data to the design of de-orbit mechanisms for future satellites.

One of NanoSail-D's main mission objectives is to demonstrate and test the de-orbiting capabilities of a solar sail for possible use in de-orbiting decommissioned satellites and space debris. The NanoSail-D engineering and science team at the Marshall Space flight Center have been monitoring the satellite's orbital characteristics since initial sail deployment. The team has learned that the satellite's attitude dynamics is causing it to orbit the Earth in a flat spin as opposed to a random tumble, or facing into the direction of flight. This flat spin attitude causes the spacecraft to encounter

*See NanoSail-D on page 5*

## *Marshall partners with UAHuntsville in bid for National Solar Observatory*

The National Solar Observatory announced last week that Huntsville has been selected as one of two finalists in a nationwide competition to host the Directorate Site of the National Solar Observatory Program or NSO.

UAHuntsville and NASA's Marshall

*See Partners on page 5*

# 38 team members honored with Space Flight Awareness awards

Thirty-eight Marshall Space Flight Center team members received Space Flight Awareness awards April 27 at Kennedy Space Center, Fla., for their outstanding contributions to the space program. They will participate in a number of events planned in their honor at Kennedy on April 28, including meeting with NASA's executive management and astronauts, and touring the center.

During their visit, the honorees will watch space shuttle Endeavour launch on its last scheduled mission, STS-134, on April 29 to the International Space Station. One more flight remains after this mission. Space shuttle Atlantis is targeted to launch in June on the STS-135 mission.

Jerry Collins of Colsa Corp. passed away before he could receive his award. His family will accept the award in his honor.



**Matthew H. Appleby**  
*Boeing*



**Lisa D. Blue**  
*Ares Projects*



**Joan M. Brewer**  
*Office of the Chief Information Officer*



**Stephen D. Burke**  
*Office of the Chief Financial Officer*



**Steven W. Burlingame**  
*Engineering Directorate*



**Gordon Carey**  
*Jacobs*



**Stephen A. Chubb**  
*Engineering Directorate*



**Barbara J. Clemons**  
*Gana-A'Yoo*



**Jerry Collins**  
*Colsa Corp.*



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*Office of Human Capital*



**Kenneth H. Crane**  
*Safety & Mission Assurance Directorate*



**Galen Dempster**  
*Jacobs*



**Calvin W. Drake**  
*East-SAIC*



**Terry B. Driver**  
*Wyle Labs*



**Norma Dugal-Whitehead**  
*Engineering Directorate*



**Robert J. Erickson**  
*Engineering Directorate*



**Robin H. Flachbart**  
*Shuttle Propulsion Office/Engineering Directorate*



**Kenneth Hagar**  
*Teledyne Brown Engineering*



**Ronald A. Hunt**  
*Jacobs*



**Esther A. Jefferson**  
*Engineering Directorate*

*See Space Flight Awareness on page 3*



**Young K. Kim**  
*Engineering Directorate*



**James J. Lomas**  
*Engineering Directorate*



**Debbie R. Matthews**  
*Office of Procurement*



**Nancy May**  
*Science & Mission  
Systems Office*



**Jeff E. McCracken**  
*Science & Mission  
Systems Office*



**Leslie M. McNutt**  
*Shuttle Propulsion Office*



**Daniel W. Mitchell**  
*Ares Projects*



**Michael L. Mitchell**  
*Shuttle Propulsion Office*



**Paula Peres**  
*Jacobs*



**Patrick W. Rasco**  
*Office of Center  
Operations*



**Robert W. Ring**  
*Bastion Technologies*



**Renea T. Rupp**  
*Michoud Assembly  
Facility*



**Robert L. Russell**  
*Colsa Corp.*



**Steven Siepel**  
*Jacobs*



**Steven P. Simpson**  
*Engineering Directorate*



**Gregory A. Tanner**  
*Office of Center  
Operations*



**Brian K. Widgren**  
*Teledyne Brown  
Engineering*



**Euba Gabrall Yeldell**  
*Office of Strategic  
Analysis &  
Communications*

## *Marshall Star goes online only beginning June 2; Daily Planet to cease publication*

Due to budget constraints, the Marshall Star will only be available online beginning June 2. The last printed issue will be May 26.

To continue reading the Star, simply visit <http://marshallstar.msfc.nasa.gov/>. A link will be sent to the Marshall Space Flight Center workforce every Wednesday

when the new issue is posted. Articles also will be available on ExplorNet, the center's new internal social media tool created to increase collaboration, communicate in real-time throughout the Marshall community and find expertise.

The Star will no longer be mailed to Marshall retirees or to other NASA centers. Classified advertisements also will cease in the Star. However, Marshall team members can post their ads on ExplorNet.

In addition, the Daily Planet will not be available after May 31. To view the latest NASA news, visit [www.nasa.gov](http://www.nasa.gov).

## **Systems and Software Engineering Forum set for May 10-11**

The Marshall Space Flight Center will host the third annual Systems and Software Engineering Forum from 8:30 a.m. to 5 p.m. May 10-11 at the University of Alabama in Huntsville's Shelby Center.

The forum – themed “Acquisition of System Integrations and Software

Products” – will feature local, national and international subject-matter experts from government, industry, research and academia. They will discuss such topics as the challenges in disciplines of systems and software engineering; real-world solutions and examples; and the opportunities for

networking and collaborations.

Registration is \$145. For more information – including how to register and a list of participating organizations – see the flyer on ExplorNet at <https://explornet.msfc.nasa.gov/docs/DOC-2718>.

For questions, contact Tim Crumbley, forum chairman, at 544-5978.

## *‘Resolving Issues’ website now available*

Marshall Space Flight Center civil service employees and contractors can go to a new website for information and guidance on resolving work-related issues at <https://resolvingissues.msfc.nasa.gov/>.

There are several links available on the site that team members can click on for more information and points of contact related to their concern including Anti-Harassment,

Employee Assistance Program, Human Resources, Labor Organizations, Legal, Protective Services, Procurement, Office of Diversity and Equal Opportunity, NASA Grievance and Ombudsman.

For more information, contact Susan Cloud, center ombudsman and special assistant to the director of the Office of Human Capital, at 544-5377.

## **Classified Ads**

To submit a classified ad to the Marshall Star, go to Inside Marshall, to “Employee Resources,” and click on “Marshall Star Ad Form.” Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue, May 5, is 4:30 p.m. Thursday, April 28.

### **Miscellaneous**

Ethan Allen all-leather, full-length couch. 256-539-3284

Utility dump cart for lawn mower, \$100; brown leather reclining sofa and loveseat, \$1,500. 256-653-1127

Swing set with slide, \$40. 256-466-4500

Extensive stamp collection, includes many first day covers, review and make offer. 256-351-1754

Car hauler, bumper pull, \$850. 256-859-6522

Intex 18' easy set above ground pool, accessories, additional larger pump, floats, \$450. 256-337-3500

Entertainment center, two piece, solid wood construction, \$200. 256-617-3334

Large entertainment center, cherry finish, will email picture upon request, \$500 obo. 256-682-5418 or 256-603-3558

### **Vehicles**

2010 Husqvarna riding lawnmower, 48-inch cut, 23hp, 23hrs, \$1,600 obo. 256-771-3154

2008 18-ft pontoon boat, \$13,800. 256-301-9592

2006 Pontiac G6 GT hardtop convertible, blue exterior, black/

tan heated leather, 68k miles, \$14,700 obo. 256-724-1208

2004 Chevrolet Aveo, five speed, 52k miles, \$4,900. 313-254-4246 or email [hahnvp@gmail.com](mailto:hahnvp@gmail.com)

2003 Toyota Sequoia Limited 2WD, 4.7L V8, white, leather, tilt/slide moonroof, 128k miles, \$12,500. 256-655-3065

1989 Honda Accord LXI, runs, but needs transmission work, \$600. 256-658-6785

1979 Honda 50 trail, starts on first kick, \$425. 256-655-0393

1964 Comet, six cylinder, \$800; Carter Thermo quad, 360, \$150; 1971 351 Windsor Block, \$600. 256-206-2912

### **Wanted**

Practice amp for beginning electric guitar student. 256-603-4891

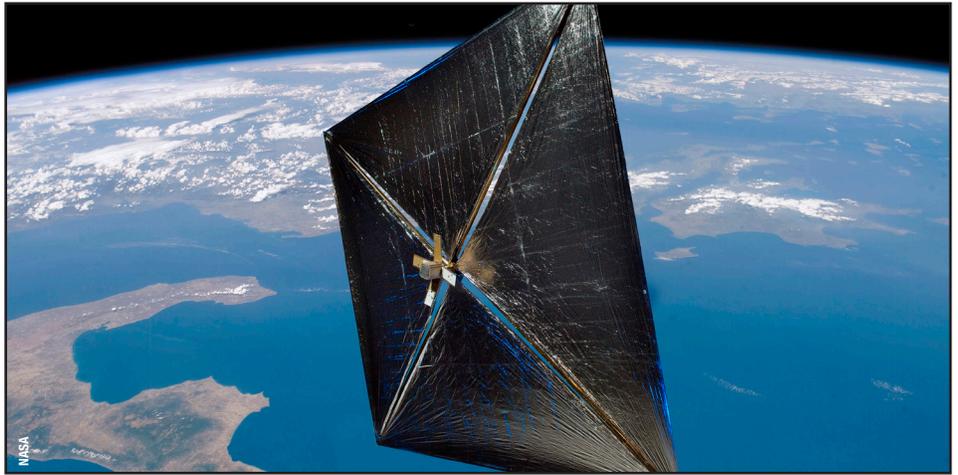
Students interested in obtaining beginner to advanced scuba diver certification. 256-651-9909

## NanoSail-D *Continued from page 1*

less atmospheric drag, or particles, keeping it in orbit longer than originally estimated.

"NanoSail-D has lowered its altitude above the Earth by approximately 28 miles from its original altitude of 400 miles, and continues to descend," said Dean Alhorn, principal investigator for the NanoSail-D mission at Marshall. "Prior to launch, our original de-orbit analysis was based on a maximum drag attitude, which meant NanoSail-D would de-orbit in 70-120 days. Based upon NASA's current analytical assessments of the NanoSail-D tracking data, the team predicts NanoSail-D will continue to descend and eventually re-enter Earth's atmosphere and disintegrate six months to one year from sail deployment."

"The NanoSail-D mission is NASA's first compact structure to deploy in low-Earth orbit and will be the first solar sail to de-orbit," said Joe Casas, FASTSAT project scientist at Marshall. "The NanoSail-D mission continues to provide a wealth of data that will be useful in understanding how these type of de-orbit devices react to the upper atmosphere. The data we've collected from this small satellite mission is being evaluated in conjunction with data from the Fast, Affordable, Science and Technology



NASA's solar sail experiment, NanoSail-D, has lowered its altitude above the Earth by approximately 28 miles from its original altitude of 400 miles.

Satellite, or FASTSAT, science experiments to better understand the Earth's upper atmospheric drag influences on satellite orbital re-entry."

As NanoSail-D continues to descend, the large tent size sail will become even more visible to novice and veteran sky watchers. North American viewing opportunities will begin again in the early evening of April 27 and continue for 10-14 days. Since the satellite's attitude is flat and the sail is highly reflective, the best conditions for viewing NanoSail-D are passes to the west of the viewer's location.

The NanoSail-D experiment was designed and built by engineers in Huntsville and managed at the Marshall

Center with design, testing, integration and execution of key nanosatellite activities by engineers at NASA's Ames Research Center in Moffett Field, Calif. This experiment is a collaborative partnership between the Department of Defense Space Test Program at Kirtland Air Force Base, N.M., and the Space and Missile Defense Command, the Von Braun Center for Science and Innovation, and Nexolve Corp., all in Huntsville.

The NanoSail-D imaging challenge will continue through January 2012. For contest rules, satellite tracking predictions and sighting times visit <http://www.nanosail.org>.

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

## Partners *Continued from page 1*

Space Flight Center were the primary developers in the community's proposal to relocate the NSO headquarters to Huntsville. Seven other university-led teams were vying for the project, however only two teams remain – Team Huntsville and the University of Colorado in Boulder.

"Marshall Space Flight Center enthusiastically supports expanded solar research collaborations with the University of Alabama in Huntsville," said Marshall Center Director Robert Lightfoot. "Locating the Directorate Site of the National Solar Observatory in Huntsville would draw upon Marshall's extensive capabilities in solar science and deepen our strong

collaborations with UAHuntsville in the areas of solar physics and optics."

The NSO is the nation's premier ground-based scientific research program to study solar physics and space weather, and is operated under the auspices of the Association of Universities for Research in Astronomy on behalf of the National Science Foundation.

If the NSO chooses Huntsville, the new facility would be located behind the National Space Science and Technology Center building on Sparkman Drive. The solar observatory program would have an annual budget of \$20 million and is expected to employ 70 scientists and engineers.

Existing Marshall-UAHuntsville collaborations have resulted in successes such as the award of the Solar Wind Electrons Alphas and Protons or SWEAP instrument for the Solar Probe Plus Mission.

Last week's announcement is the latest step in a competitive process established in 2010. Formal proposals were solicited at the end of December last year, and the NSO selection committee made a site visit to Huntsville in February.

Other members of Team Huntsville include the U.S. Space and Rocket Center, Sci-Quest, Alabama A&M, Oakwood University, as well as other southeast regional universities, private sector companies and government laboratories.

# Celebrating the ABCs of 'living green'



The Marshall Space Flight Center celebrated Earth Day on April 21 with a host of activities, including an opening ceremony, environmental expo and tree-planting. This year's theme was "Sustainability," with the slogan, "Living Green: Easy as ABC." Participating in the planting are, from left, Marc Byers of the City of Huntsville's Operation Green Team; Marshall Center Director Robert Lightfoot; Office of Center Operations Director Ann McNair; Joy McKee and Dee Hill, also of the City of Huntsville's Operation Green Team; and Allen Elliott, manager of the Environmental Engineering & Occupational Health Office. The City of Huntsville's Operation Green Team donated the tree for the ceremonial planting.

Lowe's employees hand out free flowers to environmental expo participants at Activities Building 4316. Lowe's was one of some 40 local vendors who talked with employees about new environmental practices, and provided complimentary, ecofriendly products at the event.



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