



# The Marshall Star

Serving the Marshall Space Flight Center Community [www.nasa.gov/centers/marshall/about/star/index.html](http://www.nasa.gov/centers/marshall/about/star/index.html) January 21, 2015

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## Final Segment Ready for Space Launch System Booster Test

*The final segment of the full-scale version of a five-segment solid rocket motor for NASA's new rocket, the Space Launch System, completed test preparations Dec. 15 at ATK's facility in Promontory, Utah. After technicians installed instrumentation, the segment was transported to ATK's test area. There, it is being integrated with the other segments for the first booster qualification test firing, scheduled for March. SLS will be the most powerful rocket ever built for deep space missions, including to an asteroid and ultimately to Mars. ATK is the prime contractor for the boosters. (ATK)*



## Marshall's Intranet Is Getting Some Work Done

By Molly Porter

Break out the party hats -- NASA's Marshall Space Flight Center's Inside Marshall intranet turns 18 this month!

While turning 18 means Inside Marshall can now buy fireworks legally, play the lottery or get a tattoo, the internal website will celebrate its coming of age with a new look. After all, 18 is something like 180 in Web years.

A rejuvenated Inside Marshall website

launches Jan. 23, offering the Marshall community new ways to connect with core information, news and services they need to get work done.

"The updated website is part of a broader initiative to enhance employee communications at Marshall," said June Malone, manager of the Office of Strategic Analysis & Communications' Public & Employee Communications Office. "OSAC last redesigned Inside Marshall in 2006. A

*See [Marshall Intranet](#) on [page 2](#)*

## 'Ask Me Anything' Event with Administrator Charlie Bolden Jan. 22

Do you have a question you've always wanted to ask NASA Administrator Charlie Bolden? The agency's Office of Human Capital Management is hosting an "Ask Me Anything" virtual event featuring the administrator on Jan. 22 from 1-2 p.m. CST.

All NASA team members are invited to join the event via Adobe Connect at <https://ac.arc.nasa.gov/ama/>. Attendance is limited to the first 500

participants, so joining early is encouraged.

To log into the session, select "Enter as a Guest," complete the "Name" field and select "Enter Room." The conference line for audio capability is 1-844-467-6272, participant passcode: 464674. Participants may post questions live during the event or submit them ahead of time to [hq-ask-me-anything@mail.nasa.gov](mailto:hq-ask-me-anything@mail.nasa.gov).

## Marshall Intranet *Continued from page 1*

lot has changed in nine years."

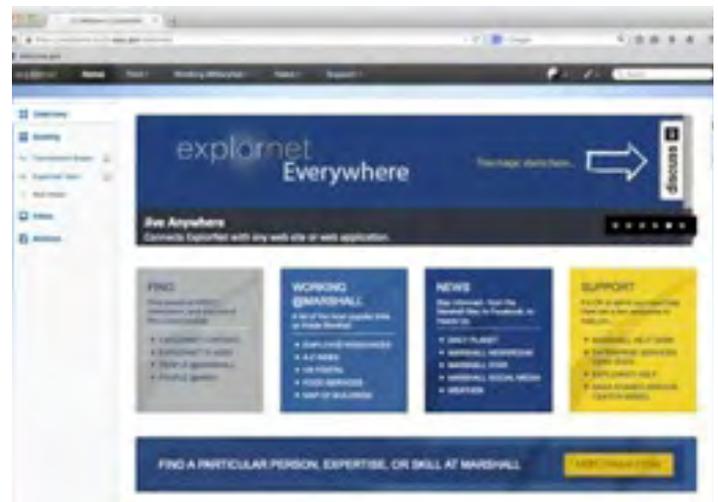
Inside Marshall content has been carefully examined, redeveloped and fully integrated with ExplorNet, the center's web-based platform for collaboration and productivity, to meet the Marshall community's evolving needs more effectively and efficiently.

Links to core information, news and services have been added to the site's header and footer, making information easy to find anywhere in ExplorNet.

On the homepage, a sliding top banner will be updated frequently with each day's events, major center announcements and links to additional information. Team members can scroll down to find more center announcements posted by Marshall team members. Step-by-step instructions for creating announcements and posting to the center's new homepage are available [here](#).

While daily Heads Up email messages will cease with the new Inside Marshall rollout, fans of Heads Up may opt to receive daily announcements about what's happening around the center by visiting Marshall's new events blog called [TODAY](#), clicking the "Follow" button and adjusting their email preferences in ExplorNet.

Announcements about emergencies, road closings and other Center Operations related events that impact Marshall's workforce will continue to be delivered by email with the subject line "This Just In." Likewise, "Special Heads Up" emails will still be sent occasionally for critical, time-sensitive messages to the Marshall team.



*The Inside Marshall homepage will have a new look on Jan. 23. (NASA/MSFC)*

For more information, read the "[New Center Announcements Frequently Asked Questions](#)" or visit the center's new homepage in ExplorNet starting Jan. 23.

Team members who are interested in learning more about changes to Inside Marshall and ExplorNet can schedule an information or training session by contacting [Justin Pociask](#).

To watch a video of Marshall team members Jamie Payne, Just Pociask and Molly Porter describing upcoming changes to Marshall's internal information portal, click [here](#).

*Porter is a public affairs officer with the Office of Strategic Analysis & Communications.*

# An Extended Stay: Payload Operations Integration Center to Support Yearlong Astronaut Study

By Bill Hubscher

A NASA astronaut and Russian cosmonaut will miss a year of birthdays, holidays and anniversaries in the name of science when they launch to the International Space Station for a 12-month expedition on the orbiting laboratory. The two will have a support group of an agency behind them, including flight controllers at the station's science command post -- the [Marshall Space Flight Center's Payload Operations Integration Center](#).

NASA's Scott Kelly and the Russian Federal Space Agency's Mikhail Kornienko will fly to the space station in March to begin a [yearlong mission](#) -- twice as long as typical missions to the station. They'll join a six-month crewmember, cosmonaut Gennady Padalka, on a Soyuz spacecraft to begin their mission March 27. Padalka will return to Earth in September, while Kelly and Kornienko will remain onboard until March 2016.

See *Station Extended Stay* on [page 4](#)



Mikhail Kornienko, at left, and Gennady Padalka, right, both of the Russian Federal Space Agency, and NASA astronaut Scott Kelly participate in emergency scenario training in a station mock-up at NASA's Johnson Space Center. (NASA/James Blair)

## NASA's New Horizons Spacecraft Begins First Stages of Pluto Encounter

NASA's New Horizons spacecraft recently began its long-awaited, historic encounter with Pluto. The spacecraft is entering the first of several approach phases that culminate July 14 with the first close-up flyby of the dwarf planet, 4.67 billion miles (7.5 billion kilometers) from Earth.

"NASA first mission to distant Pluto will also be humankind's first close up view of this cold, unexplored world in our solar system," said Jim Green, director of NASA's Planetary Science Division at the agency's headquarters. "The New Horizons team worked very hard to prepare for this first phase, and they did it flawlessly."

The fastest spacecraft when it was launched, New Horizons lifted off in January 2006. It awoke from its final hibernation period last month after a voyage of more than 3 billion miles, and will soon pass close to Pluto, inside the orbits of its five known moons. In preparation for the close encounter, the mission's science, engineering and

spacecraft operations teams configured the piano-sized probe for distant observations of the Pluto system that start Jan. 25 with a long-range photo shoot.

The images captured by New Horizons' telescopic Long-Range Reconnaissance Imager will give mission scientists a continually improving look at the dynamics of Pluto's moons. The images also will play a critical role in navigating the spacecraft as it covers the remaining 135 million miles (220 million kilometers) to Pluto.

"We've completed the longest journey any spacecraft has flown from Earth to reach its primary target, and we are ready to begin exploring," said Alan Stern, New Horizons principal investigator from Southwest Research Institute in Boulder, Colorado.

LORRI will take hundreds of pictures of Pluto over the next few months to refine current estimates of the distance between the spacecraft and the dwarf

See *New Horizons* on [page 5](#)

# NASA Associate Administrator Robert Lightfoot Holds All-Hands with Marshall Team Members

NASA Associate Administrator Robert Lightfoot held an all-hands meeting with team members at the Marshall Center on Jan. 14. Lightfoot, joined by NASA Deputy Associate Administrator Lesa Roe, discussed the year ahead for the agency and defined a capability leadership model which included results from the ongoing efforts of the agency's Technical Capability Assessment Team. (NASA/MSFC/Emmett Given)



## Inspiring Future Explorers



Kat Balch, left, and Miranda Martin of the Marshall Space Flight Center Education Office, talk with kids about space exploration and how they might be part of NASA's Journey to Mars during inauguration day activities Jan. 19 at the Cramton Bowl Multiplex in Montgomery, Alabama. Visitors enjoyed a number of Marshall Center exhibits and activities, including models of the Space Launch System and the Orion spacecraft. (NASA/MSFC/Ola Metcalfe)

## Station Extended Stay *Continued from page 3*

The Payload Operations Integration Center at Marshall allows researchers around the world to perform cutting-edge science in space by providing communications between investigators and the astronauts in orbit. The ground crew at Marshall has supported science investigations for 15 years, coordinating experiments and collaborating with orbiting astronauts around the clock.

Expedition 43 will be something new -- working with the same two crewmembers for a full year, gaining knowledge on the medical, psychological and biomedical challenges faced by astronauts during long-duration space flight. The valuable scientific data collected will support the next generation of space exploration beyond low-Earth orbit.

One of the reasons Kelly was approached about this study was his connection to veteran NASA astronaut and twin brother Mark Kelly. The series of human investigations

for the [Twins Study](#) will provide broader insight into the subtle effects and changes that may occur in spaceflight as compared to those on Earth by studying two individuals with the same genetics, but living in different environments for [one year](#).

Scott Kelly is sharing his mission preparation, journey to space and his observations while in orbit on Twitter. Follow along at <http://www.twitter.com/StationCDRKelly>.

To watch a video of the launch of the Soyuz TMA-16M that will officially usher in the first yearlong mission to the International Space Station, click [here](#).

*Hubscher, an ASRC Federal/Analytical Services employee, supports the Office of Strategic Analysis & Communications.*

## New Horizons *Continued from page 3*

planet. Though the Pluto system will resemble little more than bright dots in the camera's view until May, mission navigators will use the data to design course-correction maneuvers to aim the spacecraft toward its target point this summer. The first such maneuver could occur as early as March.

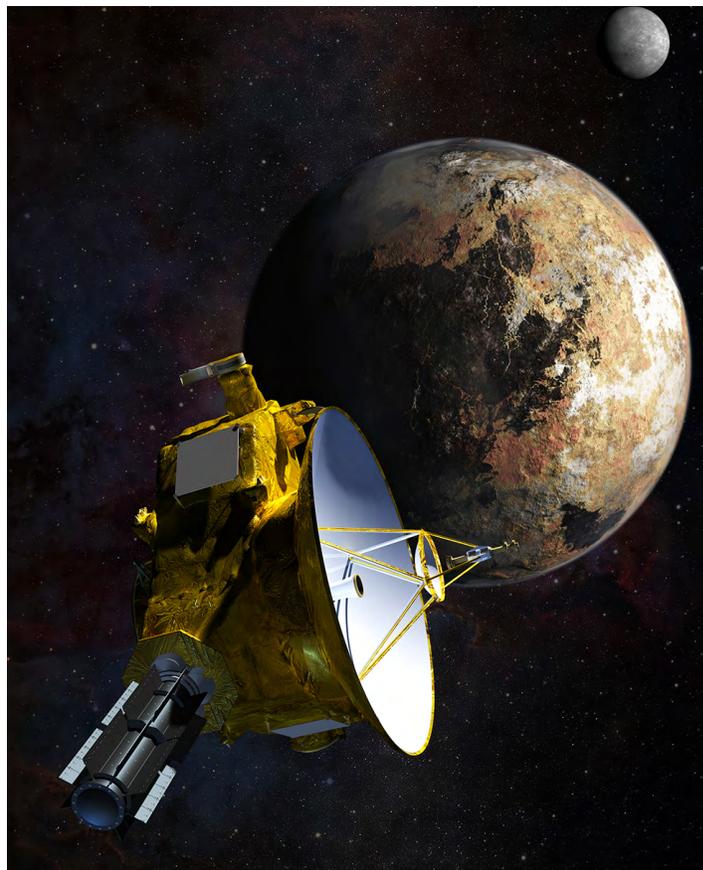
"We need to refine our knowledge of where Pluto will be when New Horizons flies past it," said Mark Holdridge, New Horizons encounter mission manager at Johns Hopkins University's Applied Physics Laboratory in Laurel, Maryland. "The flyby timing also has to be exact, because the computer commands that will orient the spacecraft and point the science instruments are based on precisely knowing the time we pass Pluto -- which these images will help us determine."

The "optical navigation" campaign that begins this month marks the first time pictures from New Horizons will be used to help pinpoint Pluto's location.

Throughout the first approach phase, which runs until spring, New Horizons will conduct a significant amount of additional science. Spacecraft instruments will gather continuous data on the interplanetary environment where the planetary system orbits, including measurements of the high-energy particles streaming from the sun and dust-particle concentrations in the inner reaches of the Kuiper Belt. In addition to Pluto, this area, the unexplored outer region of the solar system, potentially includes thousands of similar icy, rocky small planets.

More intensive studies of Pluto begin in the spring, when the cameras and spectrometers aboard New Horizons will be able to provide image resolutions higher than the most powerful telescopes on Earth. Eventually, the spacecraft will obtain images good enough to map Pluto and its moons more accurately than achieved by previous planetary reconnaissance missions.

APL manages the New Horizons mission for NASA's Science Mission Directorate in Washington. Alan Stern, of the Southwest Research Institute, headquartered in San Antonio, is the principal investigator and leads the mission. SwRI leads the science team, payload operations, and encounter



*Artist's concept of NASA's New Horizons spacecraft as it passes Pluto and Pluto's largest moon, Charon, in July 2015. (NASA/JHU APL/SwRI/Steve Gribben)*

science planning. New Horizons is part of the New Frontiers Program managed by NASA's Marshall Space Flight Center. APL designed, built and operates the spacecraft.

Click [here](#) to watch an animation that follows the New Horizons spacecraft as it leaves Earth after its January 2006 launch, through a gravity-assist flyby of Jupiter in February 2007, to the encounter with Pluto and its moons in summer 2015.

For more information about the New Horizons mission, visit [here](#) and [here](#).

## The Year in Science: Marshall-Hosted Video Highlights Space Station Research in 2014

2014 was another productive year on the [International Space Station](#) with astronauts working with ground control operators and scientists around the world to conduct hundreds of experiments resulting in scientific data that will improve life on Earth. A few of the more prominent investigations were recently highlighted on a special year-end edition of Space Station Live, a daily video program about living and working in orbit, broadcast nationwide on [NASA-TV](#) and posted online.

The 30-minute special is hosted by Lori Meggs, an ASRC Federal employee who supports the Public

and Employee Communications Office at the [Marshall Space Flight Center](#). Meggs interviewed international scientists and the research team at Marshall's [Payload Operations Integration Center](#) about their work, and also talked with NASA managers about the future of the orbiting laboratory.

The special episode of Space Station Live "ISS: Off the Earth, For the Earth 2014 Research Highlights" is available for viewing on [Marshall's YouTube channel](#).

## RS-25 Engine Testing and Centennial Challenges Featured on TW@N

The successful testing of an RS-25 engine and a look at the recent Centennial Challenges Cube Quest "summit" are both featured in the latest edition of "[This Week @NASA](#)," a weekly video program broadcast nationwide on NASA-TV and posted online.

An RS-25 engine like those that will be used in NASA's [Space Launch System](#) -- America's next great heavy-lift rocket -- recently completed its first successful test at the Stennis Space Center. The 500-second hot fire test was the first for the former space shuttle main engine since the end of shuttle engine testing in 2009. Four RS-25 engines will power the core stage of the SLS on future missions, including to an asteroid and Mars.

Also, a recent summit at Ames Research Center provided details for those interested in participating in the Cube Quest Challenge, managed by [NASA's Centennial Challenges](#). The opportunity offers a total of \$5 million for teams that design, build and



deliver flight-qualified small satellites capable of advanced operations near and beyond the moon. Winning designs could also fly on Exploration Mission-1, the first integrated flight of [NASA's Orion spacecraft](#) and the SLS rocket.

View this and previous episodes at "[This Week @NASA](#)" or at <https://www.youtube.com/user/NASATElevision>.