



## **Human Space Exploration Update (Oct 12-16, 2015)**

### **Presidential Candidates**

- **Jeb Bush Comments on Exploration:** [Jeb Bush: Newt Gingrich's moon colony idea was 'cool'](#) While campaigning in New Hampshire, Republican presidential hopeful Jeb Bush offers praise for the human lunar base plan outlined by Newt Gingrich, a former Georgia congressman who ran for president in 2012. "Really, I think it's pretty cool," Bush remarked.

### **International Space Station**

- **Scott Kelly Most Experienced U.S. Astronaut:** [Record breaker: Scott Kelly becomes most experienced U.S. astronaut tomorrow](#) Scott Kelly, in the midst of a near yearlong stay aboard the International Space Station with Russian colleague Mikhail Kornienko, will log the most time in space by an American over a career. Kelly surges past fellow NASA astronaut Mike Fincke, who accumulated 381 days, 15 hours, 11 minutes in space over two Space Station expeditions and a shuttle flight. Kelly currently serves as commander of the Space Station. He is not due back on Earth until March. Kelly and Kornienko are serving as subjects in experiments focused on the psychological and physical effects of long duration spaceflight. The studies are intended to help pave the way for future human deep space exploration.
- **ISS Research Supports Human Mars Missions:** [What NASA's doing to help Mars astronauts fight stress](#) The stresses of isolation and confinement for future astronauts selected for Mars exploration missions include depression, fatigue, lack of motivation, irritability and loss of sleep. NASA scientists and astronauts assigned to the International Space Station are identifying and assessing the risks.

### **Orion and Space Launch System**

- **Orion and SLS Management Updates:** [NASA's heavy-lift rocket and deep space capsule under new management](#) NASA has named new managers for its Orion capsule and Space Launch System exploration rocket. Both Orion and the SLS represent cornerstones in NASA's plans to resume missions of human deep space exploration. At the Johnson Space Center in Houston, Mark Kirasich will manage Orion. At the Marshall Space Flight Center in Huntsville, Ala., John Honeycutt will manage Space Launch System development. It's a critical time for the projects, which are to fly together for the first time in a test mission that will send an uncrewed Orion spacecraft around the moon in late 2018.
- **Orion Launch Abort System:** [Astronauts practice Orion crew recovery as Aerojet completes major subsystems review for EM-1 spacecraft](#) Aerojet Rocketdyne reaches a key Critical Design Review milestone in the development of the Launch Abort System and Reaction Control System for NASA's Orion crew exploration vehicle. Both systems are important Orion crew safety features. At the same time, NASA's astronauts are evaluating procedures for leaving the capsule after an ocean splashdown.

- **Orion and SLS Progress Reports:**  
[http://www.nasa.gov/exploration/systems/mpcv/orion\\_reports\\_archive.html](http://www.nasa.gov/exploration/systems/mpcv/orion_reports_archive.html) and  
[http://www.nasa.gov/exploration/systems/sls/sls\\_highlights.html](http://www.nasa.gov/exploration/systems/sls/sls_highlights.html)

### Commercial Space Transportation

- **December Launch of Cygnus Planned:** [Orbital ATK readies Cygnus cargo ship for return to flight, reveals mission patch](#) Orbital ATK stages orbital hardware for the planned Dec. 3 launch of its advanced Cygnus cargo capsule, a resupply vessel developed to deliver supplies to the International Space Station. The end of the year space station delivery mission would be the first for Orbital ATK since an Oct. 28, 2014 launch mishap at NASA's Wallops Island, Va., Flight Facility. The next launching will unfold from Cape Canaveral Air Force Station, Fla., using a United Launch Alliance Atlas 5 launch vehicle in place of Orbital's own Antares.
- **NASA Administrator Addresses Budget for Commercial Crew:** [Q&A with NASA Administrator Charles Bolden](#) Bolden addresses critical funding needs for NASA's Commercial Crew Program in the just started 2016 fiscal year. Sufficient budget resources are crucial if the agency is to meet its objective of initiating crewed Boeing and SpaceX missions to the International Space Station by 2017.

### Space Budgets, Policy, Missions, Benefits, International ...

- **Congress Aims at NASA for Mars Plan:** [NASA finally talks Mars budget, and it's not enough](#) NASA presented a three step plan for reaching Mars with human explorers on the eve of a congressional hearing on the topic. Absent were cost estimates, though one top official states the agency can accomplish its goal in the mid-2030s at current budget levels adjusted for inflation and future U.S. economic growth, an assumption a recent National Research Council report disputes. The Science panel's chair, U.S. Rep. Lamar Smith, expressed his displeasure at the lack of budget or schedule details in the new report. (See also: [GOP: NASA on 'journey to nowhere'](#))
- **Humans to Mars Mission:** [Humans orbiting Mars](#) A NASA Jet Propulsion Laboratory strategy that would take human explorers to Mars orbit in 2033 and a return to the moon in 2035 ahead of a Mars landing in 2039 could be the best means of addressing the technical, human and cost issues of extending human exploration into deep space, write Scott Hubbard, Stanford University aeronautics professor, and John Logsdon, founder of the George Washington University Space Policy Institute, in an op-ed.
- **China's Space Program:** [China exclusive: China aims to go deeper into space](#) After its lunar explorations, perhaps on the moon's far side, Chinese space officials are considering missions to deep space destinations. The far-away missions would involve astronauts as well as robots. (See also: [NASA chief says ban on Chinese partnerships is temporary](#))
- **Israeli Astronaut:** [An Israeli astronaut by 2020? New deal with NASA makes it feasible](#) A new pact between NASA and the Israeli space agency could lead the way to a second Israeli in space. Ilan Ramon, who perished aboard the shuttle Columbia in 2003, paved the way. The two space agencies signed a sweeping new cooperative space agreement at the 66th Annual International Astronautical Congress in Jerusalem.
- **South Korea Space Plans:** [Park visits NASA space flight center](#) South Korean President Park Geun-hye visited NASA's Goddard Space Flight Center in Maryland signaling a desire to strengthen ties with the U.S. in space.

- **Canadian Politics and Space:** [Canada's space policy enters orbit of election campaign](#) Space policy is taking a place in Canadian federal elections as a job generating research and development issue.

## **Florida**

- **Ground Systems Test Review:** [NASA's ground systems program begins Critical Design Review for SLS/Orion launch](#) At NASA's Kennedy Space Center, managers and experts from across the space agency gathered to begin the important Critical Design Review for the ground systems involved in the launches of the Space Launch System exploration rocket. The SLS is designed to start the Orion crew capsule on future missions of human deep space exploration. "Seeing the Space Launch System and Orion roll out from the Vehicle Assembly Building is going to be quite a sight, and I'm really looking forward to it," said Mike Bolger, NASA's Ground Systems Development and Operations program manager. The SLS and Orion are working towards their first joint space test flight in late 2018.
- **George Mueller Passes:** [George Mueller, NASA Apollo-era manager and 'father of space shuttle,' dies at 97](#) George Mueller, a key figure in NASA's Apollo program, died Oct. 12 after a brief illness. Mueller, who helped to guide the space agency in Washington as the head of human spaceflight from 1963 to 1969, was 97. Mueller helped to accelerate the testing of the Saturn V rocket and Apollo systems making it possible to land Apollo astronauts on the moon in 1969.
- **Cubesat Launches:** [NASA awards contracts for dedicated Cubesat launches](#) NASA announced contracts with three companies for dedicated launches of small satellites. The three companies, Firefly Space Systems, Rocket Labs and Virgin Galactic, must launch between 45 and 90 CubeSat equivalents by April 2018 to earn a combined \$17.1 million. Their primary customer will be the Earth Sciences Division of NASA's Science Mission Directorate. Firefly and Rocket Labs plan launches from the Kennedy Space Center. (See also: [KSC helps launch small satellites](#))
- **ULA's Vulcan Rocket Launches:** [ULA selects launch pads for new Vulcan rocket](#) United Launch Alliance's current Atlas 5 launch pads at Cape Canaveral Air Force Station, Fla., and Vandenberg Air Force Base, Calif., will transition for use by ULA's planned Vulcan launch vehicle replacement. Moderate modifications will be necessary. The initial Vulcan launch is planned for 2019.
- **SpaceX Falcon 9 Launch:** [SpaceX changes its Falcon 9 return-to-flight plans](#) SpaceX's Falcon 9 rocket, grounded since a June 28 launch explosion with cargo bound for the International Space Station, will attempt to return to flight in December with a payload of 11 Orbcom communications satellites rather than a heavier telecommunications satellite for Luxembourg based SES. Both launches could occur in December. The schedule will permit SpaceX to test the re-start performance of the Falcon 9's second stage ahead of the SES launch.

**Citizens for Space Exploration** – a pro-space, taxpayer, grassroots advocacy group ([http://www.bayareahouston.com/content/c\\_s\\_e/c\\_s\\_e](http://www.bayareahouston.com/content/c_s_e/c_s_e)) – has travelled to Washington, D.C. the past 24 years to meet face-to-face with Members/staff of Congress to discuss the value of America's investment in space exploration. In order to sustain that dialogue on a regular basis, Citizens distributes "Space Exploration Update" to Congressional offices on a weekly basis. The intent is to provide an easy, quick way to stay abreast of key human space exploration program and policy developments.