



Human Space Exploration Update (Feb 1-12, 2016)

Presidential Election

- **Candidate Positions:** [Election 2016](#) The Planetary Society's website is tracking what the presidential candidates are saying about space exploration as the primaries, party conventions and November elections approach.

FY2017 NASA Budget

- **Exploration Concerns:** [President Obama proposes \\$19bn budget for NASA in 2017](#) Human exploration advocates raise concerns over reductions in development activities for the Space Launch System exploration rocket and Orion crew capsule included in the proposed 2017 budget President Obama presented Congress this week. (See also: [White House proposes \\$19 billion NASA budget](#); [NASA FY2017 budget request sets up familiar battles with Congress](#); [Last Obama budget said 'strangling' NASA's Space Launch System](#); [NASA packs a big vision for space exploration into smaller \\$19 billion budget](#); [Budget proposal offers big increases for small space offices](#))

International Space Station

- **Space Marathon:** [Into the homestretch: Kelly and Kornienko to pass 300 days in space, heading for 2 March return to Earth](#) Closing in on the early March finale of a near yearlong stay aboard the International Space Station, NASA's Scott Kelly and Russia's Mikhail Kornienko passed the 300-day-mark on Thursday.
- **New Space Suits:** [New spacesuits to be delivered to ISS](#) Russia plans to deliver three new space suits to the cosmonauts aboard the International Space Station by the end of 2016.
- **Rebot Arm:** [Dextre demo paving the way for robotic EVA assistance](#) [NASAspaceflight.com](#) A Canadian built extension of the International Space Station's Remote Manipulator System, or robot arm, has achieved a milestone, demonstrating that it could take on a task once assigned to NASA space walkers, the change out of an external Main Buss Switching Unit.
- **ISS and Commercial Space:** [Gerstenmaier: LEO commercialization requires space industry to be innovative, nimble](#) As NASA looks increasingly toward deep space for its future investments, the low Earth orbit realm now anchored by the International Space Station will become the province of commercial space. Speaking before an FAA sponsored commercial space flight gathering last week, NASA human exploration Chief Bill Gerstenmaier counseled its pioneers to make wise, timely decisions. (See also: [NanoRacks project could be a giant leap for commercial space](#))

Orion and Space Launch System

- **Orion Pressure Vessel at KSC:** [NASA prepares Orion spacecraft for its first big mission](#) The NASA/Lockheed Martin weight reduced Orion crew exploration capsule assigned to Exploration Mission-1 is now at NASA's Kennedy Space Center where it will undergo testing and final assembly. The first uncrewed test launch of Orion paired with the Space Launch System exploration rocket is planned for late 2018. The three week test flight will send the heavily instrumented capsule around the moon and back to Earth. (See also: [KSC begins assembly of moon-bound Orion capsule](#); Lockheed says Orion still on schedule for 2018 mission)
- **Cube Sats for SLS:** [NASA picks tiny satellites to ride on giant rocket's 1st flight](#) NASA's looking to 2018 for the inaugural launch of its Space Launch System exploration rocket on a test flight around the moon with an uncrewed Orion crew capsule. The SLS is powerful enough to launch additional payloads, an assortment of 13 science mission CubeSats announced by NASA on Tuesday. Some will observe the moon. One powered by a solar sail will attempt to survey an asteroid.
- **SLS Program Update:** [NASA's Bill Hill talks SLS scheduling and Exploration Upper Stage](#) As early as next week, NASA plans to kick off development of the Exploration Upper Stage, a more powerful second stage for the Space Launch System exploration rocket, according to Hill, NASA deputy associate administrator for Exploration Systems Development. The powerful EUS would sit atop the core stage of the SLS to become part of Exploration Mission-2, the first crewed test flight of the powerful new exploration rocket, a mission that would send astronauts in an Orion capsule around the moon and back to Earth for an ocean splashdown and recovery. The space agency is aiming for an August 2021 lift off for EM-2. (See also: [Boeing builds the most powerful rocket ever made](#); [SLS engines prepare for Stennis tests AR affordability focus for new RS-25s](#))

Commercial Space Transportation

- **Commercial Cargo Contract:** [NASA offers more details on cargo contract decision](#) NASA offered new details on the selection criteria it used in January to award contracts for continued commercial resupply of the International Space Station between late 2019 and 2024. The contracts were awarded to incumbents Orbital ATK and SpaceX and newcomer Sierra Nevada.
- **Dream Chaser:** [Europe to invest in Sierra Nevada's Dream Chaser cargo vehicle](#) Sierra Nevada, the Colorado based developer of the Dream Chaser reusable lifting body spacecraft, can anticipate a \$36 million investment from the European Space Agency in the coming weeks. Sierra Nevada is one of three companies selected by NASA earlier this month to carry out resupply missions to the International Space Station between 2019 and 2024. The company also plans to develop a crewed version of the Dream Chaser.

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

- **Marshall Center Director:** [NASA names inside favorite new director of Marshall Space Flight Center](#) NASA Administrator Charles Bolden named Todd May as director of the Marshall Space Flight Center on Monday. May has been the acting director of the NASA installation that oversees development of the Space Launch System exploration rocket since mid-November, when his predecessor Patrick Scheuermann retired.
- **Mars Exploration:** [NASA could choose Mars human landing site during next presidential administration](#) NASA's maturing deep space exploration preparations could make it possible for the next presidential administration to select a landing site for the first human expedition to Mars. A NASA sponsored Mars landing site workshop last October identified 47 possible sites of scientific interest on Mars that also host potential resources like subsurface water ice.
- **Asteroid Mission:** [NASA's asteroid mission isn't dead yet](#) President Obama's 2017 NASA budget proposal seems to raise questions about the future of the Asteroid Retrieval Mission

fashioned by the space agency in response to a White House directive that U.S. astronauts travel to an asteroid by 2025. Unable to identify an asteroid destination it could reach with the Orion spacecraft, the space agency proposed a mission to collect a large boulder from an asteroid with a robot spacecraft and direct the large rock into orbit around the moon. Astronauts would rendezvous with the boulder using an Orion spacecraft launched atop a Space Launch System exploration rocket. However, Congress continues to question how the initiative advances plans to reach Mars with human explorers in the 2030s. (See also: [Congressional Republicans pan NASA asteroid mission](#); [NASA stays on course for Asteroid Redirect Mission](#))

- **Robots and Deep Space Exploration:** [NASA counting on humanoid robots for deep space exploration](#) Machines that resemble the human form could become valuable assistants to astronauts preparing to work in and actually exploring hostile environments on asteroids and Mars, according to NASA researchers. Two R5 humanoid prototypes assembled by NASA are undergoing evaluation for the work at MIT and Northeastern University. R5's successors could be an essential part of dangerous activities like setting up facilities on planetary surfaces and acting as caretakers.
- **Space Settlements:** [Settling space is the only sustainable reason for humans to be in space](#) Future human space exploration will bring new resources to a growing population on Earth, an expanding economic base and eventually new places for perhaps millions of humans to live and work, writes Dale Skran, Executive Vice President of the National Space Society and a member of the Board of Directors of the Alliance for Space Development. (See also: [Chris Hadfield: Moon colonization is 'obvious' next step](#))
- **Commercial Space Legislation Unlikely:** [New commercial space legislation unlikely this year](#) Enacted into law last year, the U.S. Commercial Space Launch Competitiveness Act and its implications will likely draw the focus of U.S. policy makers in 2016 rather than efforts to enact new legislation, according to George Nield, head of the FAA's commercial space office in remarks before the Commercial Space Transportation Conference in Washington on Wednesday. The latest legislation extended liability protection for commercial space activities and asserted rights of ownership to resources obtained from asteroids and other planetary bodies.
- **Don't Give Up the Dream:** [Retired Nebraska astronaut Clayton Anderson tells Kearney students: I applied to NASA 15 times, so don't give up](#) Retired NASA astronaut Clay Anderson urged students at Park Elementary School in Kearney, Neb., earlier this week to persevere as they pursue their life's ambitions. Anderson applied 15 times before his selection to serve as an astronaut between 1998 and 2013. Anderson made two trips to orbit.

Florida

- **NASA's FY2017 Budget Good for KSC:** [Cabana: Proposed NASA budget 'great' for KSC](#) Robert Cabana, director of NASA's Kennedy Space Center, sizes up the proposed NASA budget for 2017. The spending plan should permit the space agency to continue the development of exploration systems that will send humans on future missions of human deep space exploration and restore a U.S. capability to launch astronauts by 2017 on rockets developed by Boeing and SpaceX under NASA's Commercial Crew Program, says Cabana.
- **Busy Launch Year Ahead:** [30-plus rocket launches planned this year for Florida's Space Coast](#) More than 30 spacecraft launches are anticipated from Florida's space coast this year, according to Space Florida, the space development organization. Officials say the rise in post space shuttle era launch activity is due to commercial demands for communications satellites, Earth imaging spacecraft and re-supply missions to the six person International Space Station.
- **Blue Origin:** [Blue Origin's challenge: Be a start up in a traditional industry](#) Within months, launch services start up Blue Origin plans to break ground on a \$200 million factory and launch

site on Florida's Space Coast, bringing 300 new jobs. The company's challenge will be to merge into a long standing industry in the region, while sustaining a lean and agile persona, according to a top executive for the company in Florida. (See also: [Blue Origin to ramp up New Shepard tests](#))

- **Another Successful ULA Launch:** [Atlas V launch marks 'end of an era' for GPS](#) The last in the current generation of U.S. Air Force Global Positioning Satellites was placed in Earth orbit Friday atop a United Launch Alliance Atlas 5 rocket following a lift off from Cape Canaveral Air Force Station, Fla.
- **RD-180 Engine:** [White House requests \\$1.2 billion for new rocket in Air Force budget](#) The Air Force intends to invest \$1.2 billion in new domestic rocket systems intended to replace those that rely on controversial Russian imports of the RD-180 rocket engine, according to documents provided to lawmakers as part of President Obama's proposed 2017 spending plan. New launch services would place U.S. national security payloads into orbit. (See also: [McCain, McCarthy to introduce bill to reinstate RD-180 ban](#))
- **Astronaut Hall of Fame:** [Shuttle commander, space walker to enter Astronaut Hall of Fame](#) NASA astronaut Brian Duffy led the space agency's 100th space shuttle mission. Scott Parazynski, a medical doctor and spacewalking NASA astronaut, also found an opportunity to summit Mt. Everest. Both men will be inducted into the U.S. Astronaut Hall of Fame on May 14. All together, they launched on nine shuttle missions.

Citizens for Space Exploration – a pro-space, taxpayer, grassroots advocacy group (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.