



Human Space Exploration Update (Nov 9-25, 2015)

Presidential Election

- **Space an Issue?:** [Space Florida hoping NASA becomes presidential issue](#) Space Florida, the state's space development arm, is working to make the nation's space exploration policy a topic in the 2016 presidential election. Space Florida intends to work with Ohio, Colorado and Virginia to provide a unified message about the importance of funding America's space program. Each has a stake in the space industry and each is a battleground state in the 2016 election.
- **Cruz on Space Exploration:** [Cruz: We must continue America's leadership in space](#) U.S. space leadership will grow with passage this month of the U.S. Commercial Space Launch Competitiveness Act, writes U.S. Sen. Ted Cruz, who chairs the Senate Commerce Subcommittee on Space, Science and Competitiveness, in an op-ed. The legislation extends regulatory protection to the commercial space industry and extends operations of the International Space Station from 2020 to 2024.
- **Trump Chooses Potholes over Space Exploration:** [Donald Trump tells 10-year-old that 'space is terrific' but potholes are more important](#) Presidential contender Donald Trump counseled a young NASA enthusiast on his space views at a campaign event early Wednesday. "You know, in the old days, it was great," Trump told the 10-year-old, along with an audience of more than 600. "Right now, we have bigger problems you understand that? We've got to fix our potholes. You know, we don't exactly have a lot of money."

Congress

- **Mikulski on NASA Funding:** [Mikulski vows to balance NASA science and exploration funding](#) Senator Barbara Mikulski, ranking member of the Senate appropriations panel with responsibility for NASA's budget, pledges to balance the agency's space exploration and science agendas. NASA, like the rest of the U.S. government, is working under a 2015 budget continuing resolution that runs through Dec. 11.

International Space Station

- **Operations Through 2024 (and Commercial Space):** [Obama is about to give private space companies a big break](#) President Obama is expected to sign commercial space legislation recently agreed to by the House and Senate that will ease federal regulation until 2023, provide ownership rights to U.S. citizens who discover valuable materials on asteroids and extend operations of the International Space Station through 2024.

Orion and Space Launch System

- **Orion Moves Toward EM-1:** [Orion's critical design review an important milestone toward Exploration Mission-1](#) Now that NASA's Orion crew exploration capsule has cleared the critical design review phase of its development, prime contractor Lockheed Martin can focus on

fabrication of components, assembly and testing to prepare for a 2018 test flight designated as Exploration Mission-1. The three week test flight will launch the uncrewed Orion capsule on a course around the moon atop an Space Launch System rocket. The final phase of the flight will bring the capsule back to Earth for re-entry, ocean splash down and recovery. (See also: [Road to EM-1: NASA outlines hardware milestones to SLS debut flight](#))

- **ESA and Orion Service Module:** [Europe dispatches Orion crewship component](#) The European Space Agency and the subcontractor Thales Alenia have shipped the service module that will accompany the NASA/Lockheed Martin Orion crew exploration capsule into space to NASA's Plum Brook Station in Ohio for testing. The European service module will provide propulsion and electrical power for Orion crews on future missions of deep space exploration. An unpiloted test flight of Orion, the European service module and NASA's Space Launch System exploration rocket is planned for late 2018.
- **New Look for Orion:** [NASA unveils shiny new coat for its Orion spacecraft](#) NASA's Orion crew exploration vehicle will sport a silvery metallic based finish for better thermal protection of the astronauts inside. NASA released images of the new look Thursday. The spacecraft, designed to start human explorers on new missions of deep space exploration, is working toward a late 2018 test flight that will also feature the first launch of NASA's Space Launch System exploration rocket.
- **SLS Contract for Aerojet Rocketdyne:** [Aerojet Rocketdyne gets \\$1.4 billion in contracts from NASA, Boeing](#) NASA and Boeing announced propulsion agreements with Aerojet Rocketdyne on Monday. The first agreement, valued at \$1.16 billion, is for the production of new RS-25 space shuttle main engines to serve as the propulsion source for the first stage of NASA's Space Launch System exploration rocket. A first test flight is planned for late 2018. A second agreement valued at nearly \$200 million with Boeing is for a propulsion system for the CST-100 Starliner, the spacecraft under development as part of NASA's Commercial Crew Program, for the transportation of astronauts to and from the International Space Station.
- **Science and SLS:** [SLS rocket could help scientists answer big questions](#) NASA ponders missions for the Space Launch System exploration rocket beyond human deep space exploration, including the uncrewed launches of powerful space telescopes that could analyze the atmospheres of exo-planets for bio-signatures and big picture planetary missions.

Commercial Space Transportation

- **SpaceX gets 2017 Contract to Fly Crew to ISS:** http://www.mynews13.com/content/news/cfnews13/news/article.html/content/news/articles/cfn/2015/11/20/nasa_awards_crew_con.html
- **Boeing Progress on CST-100 Starliner:** [Boeing and NASA progress through critical CST-100 Starliner milestones](#) Boeing is meeting development objectives for the CST-100 Starliner, the spacecraft the company is developing under NASA's Commercial Crew Program to begin launching astronauts to the International Space Station. Boeing is looking to the spring of 2017 for its inaugural launch of the new spacecraft.
- **Cygnus Ready for Launch:** [Upgraded Cygnus spacecraft stacked and ready to conduct OA-4 mission](#) Orbital ATK and NASA are looking to Dec. 3 for the next U.S. commercial re-supply mission launch to the International Space Station. The flight with 7,745 pounds of cargo will mark the first for Orbital since it lost its third contracted mission in a launch explosion Oct. on 28, 2014.

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

- **Mars the Right Human Mission:** [Walker: A mission worthy of NASA: a human landing on Mars](#) NASA, as a government agency, is best suited, to lead the early human exploration of Mars with developments of key technologies like the Space Launch System exploration rocket, writes Charles Walker, the nation's first commercial space shuttle astronaut, in an op-ed. "NASA believes SLS can get the food, water, fuel, landers and spacecraft needed for a trip to Mars off the ground in just seven flights - compared with 30 required using existing rockets. Fewer launches means lower costs, shorter timetables and most important of all - less risk to our astronauts," writes Walker.
- **Mars Worth the Risks:** [Space exploration worth risks](#) The early exploration of Mars will require significant technical strides, according to an editorial that concludes the many advances will not overcome all of the risks faced by the red planet's first human visitors. "Their bravery will hopefully lead to one of mankind's greatest achievements in exploration," according to the editorial.
- **Exploration Will be Led by Government:** [Neil deGrasse Tyson: 'The delusion is thinking that SpaceX is going to lead the space frontier'](#) The popular astrophysicist explains why the commercial space sector is unlikely to lead the human exploration of Mars: the great expense, the danger and the absence of an early return on investment. "A government has a much longer horizon over which it can make investments," says Tyson. "This is how it's always been. And the best example, I think, is Christopher Columbus. That was not a private mission."
- **Deep Space Habitat:** [NASA reviews progress of habitat development for deep-space exploration](#) NASA's Human Exploration and Operations Mission Directorate Advanced Exploration Systems division marks progress in the early development of a habitat for astronauts assigned to future deep space missions launched with the Space Launch System exploration rocket and Orion crew capsule. The envisioned habitat module would help to make it possible for a crew of four to reach Mars over 1,100 days.
- **Water Purification:** [NASA Glenn, CWRU team up to commercialize groundbreaking water purification technology](#) Scientists at NASA Glenn find new ways to purify water, perhaps one of the space agency's most far reaching contributions to human space travel as well as to the people of Earth.
- **Reusable Rocket:** [Blue Origin launches Bezos's space dreams and lands a rocket](#) Blue Origin founder Jeff Bezos heralds the successful vertical launch and landing of his company's New Shepard suborbital rocket this week as a game changer that will bring down the cost of space transportation. "The ultimate vision should be aircraft like operations," said Bezos in an interview.
- **Fighting Wild Fires:** [This NASA technology will help fight wildfires from space](#) A new NASA satellite technology, known as FireSat, will rely on infrared sensors to spot wildfires likely to spread quickly. The satellite sensors can provide a global image assessment every minute, according to a space agency announcement.

Florida

- **Commercial Space Legislation:** [Bill's passage could spur space business on Space Coast](#) Legislation agreed to by the House and Senate could spur new commercial space activity in Central Florida, home to NASA's Kennedy Space Center.
- **ULA No-Bids Launch Contract:** [ULA declines to bid on GPS 3 launch contract long sought by SpaceX](#) Congressional restrictions on the future import of Russian RD-180 rocket engines has prompted a surprise announcement from United Launch Alliance, the Boeing/Lockheed Martin joint venture provider of the Atlas 5 and Delta 4 launch vehicles, not to bid on a future U.S. Air Force sponsored defense mission. The decision leaves the field open to a single company,

SpaceX. ULA had sought a waiver to an RE-180 ban by 2019 that would have permitted it to import four of the Russian rocket engines.

- **RD-180:** [Key lawmaker aims to delay phase out of Russian rocket engine](#) Senator Richard Shelby, of Alabama, intends to add language to a U.S. spending bill that would grant a reprieve to United Launch Alliance for the purchase of Russian rocket engines for the Atlas 5 rocket. Lawmakers legislated a ban to protest Russia's activities in the Ukraine. (See also: [McCain urges appropriators to uphold RD-180 ban](#))
- **ULA Contract:** [USAF awards ULA \\$373M contract modification for rocket production services](#) The Air Force has contracted with United Launch Alliance for \$373.3 million to prepare a Delta 4 and Atlas 5 launch vehicles for future National Reconnaissance Office 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.