



Human Space Exploration Update (October 4-21, 2016)

Election/Candidates for President

- **Trump on Space:** [Op-ed | Trump's space policy reaches for Mars and the stars](#) NASA's core mission must be distant exploration and science, writes Robert Walker, the former U.S. congressman, and Peter Navarro, a University of California, Irvine professor.. The two men serve as policy advisers to Donald Trump. (See also: [Trump would reinstate White House Space Council](#))
- **Clinton/Trump on Space:** [Exclusive | Hillary Clinton and Donald Trump weigh in on U.S. space policy](#) The U.S. presidential contenders address questions about NASA as well as military space funding and future goals. "After taking office, we will have a comprehensive review of our plans for space, and will work with Congress to set both priorities and mission," said Donald Trump."Mars is a consensus horizon goal, though to send humans safely, we still need to advance the technologies required to mitigate the effects of long-duration, deep-space flight," said Hillary Clinton.
- **Clinton and Lunar Exploration:** [Here's why a Clinton administration might pivot NASA back to the Moon](#) A U.S.-led, international return to the lunar surface with astronauts could be considered, if the next U.S. president is Hillary Clinton. Neal Lane, former president Bill Clinton's White House science advisor, is offering informal science policy information to Clinton. During a Monday night forum at Rice University, in Houston, where Lane is a professor, he championed the moon as a good next step for humans on an eventual Journey to Mars, the destination championed by President Obama.
- **Obama on Space:** [Barack Obama: America will take the giant leap to Mars](#) The president hails the strides NASA has made in space exploration, planetary science, astronomy and more. He predicts NASA will reach Mars with human explorers in the 2030s.
- **Advice for a New President/Administration:** [Why the next President must invest in NASA](#) NASA has a legacy of introducing new technologies and inspiring the nation's and the world's youth, writes U.S. Rep. Donna Edwards, Maryland congresswoman and ranking member of the House Committee on Science, Space, and Technology's Space Subcommittee. "We can't forget that space is hard, and achieving ambitious goals takes talent and money," writes Edwards. "Funding NASA and leveraging the resources of commercial interests and our international partners is an investment that has and will continue to generate long-lasting dividends." (See also: [The Mars generation: Kicking the can down the road](#))
- **Future of Space:** [The Importance of Space Through the Transition](#) Why is the space community concerned about the upcoming change in presidential administrations? Many hope for a transition that supports current initiatives important to the nation's economy and U.S. leadership in space, writes Elliot Holokauahi Pulham, CEO of the Space Foundation.

International Space Station

- **ISS and Exploration:** [Interview: Space Station as base for exploring new frontier, says renowned U.S. scientist](#) Space stations are a crucial stepping stone in the exploration of space, Edward Stone, a former director of NASA's Jet Propulsion Laboratory.
- **ISS Robots:** [Meet the growing family of space station robots](#) A growing number of robots aboard the International Space Station are as multi-national and varied in their skills as the orbiting lab's rotating crew of astronauts and cosmonauts.
- **Commercial Modules:** [Companies pitch plans for commercial space station modules](#) Two companies, Axiom Space and Bigelow Aerospace, will develop modules that could be launched and berthed to the International Space Station for commercial activities as soon as 2020. (See also: [NASA to move ahead with plans to offer ISS docking port for private modules](#))

Orion and Space Launch System

- **Orion Testing at Plum:** [Orion service module passes major shake test at NASA's Plum Brook Station](#) The European Space Agency's service module contribution to NASA's Orion capsule has been undergoing ground testing at NASA's Glenn Research Center Plum Brook Station since spring. This testing was the first to replicate the acoustic launch environment and vibrations of the lift off. Orion and ESA service module flight hardware will come together at Glenn late next year for more testing ahead of Exploration Mission-1, a late 2018 uncrewed test flight of the Space Launch System, Orion and the service module.
- **Orion Update/September:**
http://www.nasa.gov/sites/default/files/atoms/files/orion_monthly_newsletter_9-2016.pdf
- **SLS Update/September:**
http://www.nasa.gov/sites/default/files/atoms/files/sls_highlights_sept_2016_web.pdf
- **SLS/Orion Testing:** [NASA completes 'summer of testing' for SLS and Orion](#) A summer of testing for NASA's Space Launch System (SLS) and Orion crew capsule is coming to a productive close. Components undergoing tests included the SLS solid rocket motors and main engines, as well as Orion's parachute systems.
- **SLS EM-1 Hardware:** [NASA's First SLS Mars Rocket Fuel Tank Completes Welding](#) The enormous Space Launch System liquid hydrogen propellant tank was fabricated at NASA's Michoud Assembly Facility. It will join the rocket components assigned to the first test launch of the SLS with an uncrewed Orion spacecraft in late 2018.
- **SLS EM-2 Payloads:** [NASA seeks payload concepts for second SLS flight](#) NASA's Human Exploration and Operations Directorate is seeking proposals for secondary payloads to launch aboard Exploration Mission-2, the first crewed test flight of the Space Launch System and Orion exploration rocket and spacecraft. The opportunity is open to NASA centers, industry, academia and NASA's international partners. The proposed payloads must further U.S. deep space exploration goals. EM-2 is being prepared to launch as soon as August 2021.

Commercial Space Transportation

- **Orbital ATK Resupply:** [Orbital ATK resumes flight from Wallops Island, Va., in a stunning launch visible for miles](#) Orbital ATK's modified Antares launch vehicle lifted off successfully from NASA's Wallops Island Flight Facility on a NASA contracted resupply mission to the International Space Station. The mission marks the first for Orbital ATK from Wallops Island since the Oct. 28, 2014 Antares launch vehicle explosion moments after liftoff. The latest flight, Orbital's sixth under the NASA contract, is to deliver 5,100 pounds of crew supplies, science experiments and

technology demonstration hardware to the ISS. Antares returns to flight powered by Russian RD-181 rocket engines. (See also: [Fire in space and other experiments launch to space station Sunday](#))

- **SpaceX:** [Shotwell says SpaceX "homing in" on cause of Falcon 9 pad explosion](#) SpaceX president Gwynne Shotwell said the cause of the Sept. 1, Falcon 9 launch pad blast at Cape Canaveral Air Force Station, Florida, was due more likely to a "business process issue" than a fundamental launch vehicle or engineering design issue.
- **No Plans for More Soyuz:** [NASA has no plans to buy more Soyuz seats, and it may be too late anyway](#) NASA is holding off on the purchase of additional Russian transportation to the International Space Station aboard Soyuz spacecraft in 2019. Agency executives believe Boeing's CST-100 Starliner and the SpaceX crewed Dragon will be ready to launch NASA astronauts by late 2018 despite technical and budget challenges. Both companies are developing their spacecraft under NASA's Commercial Crew Program.
- **Blue Origin Abort Testing:** [Blue Origin successfully tests New Shepard abort system](#) As designed, the crew capsule separated and landed safely on the plains of West Texas, following the launch of Blue Origin's New Shepard reusable launch vehicle. The capsule parachuted to the ground, while the launch vehicle stabilized and landed tail first to end its fifth non-crewed test launch.

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

- **China:** [Will NASA ever work with China?](#) The U.S. is congressionally banned from partnering with China in space. If they are to cooperate, there will be a lot of history to overcome.
- **China to Compete with Commercial Space Launch:** [China's private space industry prepares to compete with SpaceX and Blue Origin](#) A commercial launch industry is emerging in China to compete with U.S. entrepreneurs Elon Musk of SpaceX and Jeff Bezos of Blue Origin.
- **Mars:** [Is there a business case for Mars?](#) Will the private sector play a significant role in the human exploration of Mars? Essayists Chris Carberry and Rick Zucker conclude the commercial sector will through the innovation and development of new technologies also relevant to Earth. Carberry is CEO of Explore Mars, Inc., and Zucker is the organization's VP for policy.

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