



## **Human Space Exploration Update (October 24 – Nov 11, 2016)**

### **President-elect Trump**

- **Trump Transition and Space:** [What does a Trump administration mean for space?](#) The president-elect's space focus could be human spaceflight, technology development and commercialization, according to remarks from Robert Walker, the former U.S. congressman who covered nine points in a pre-election day briefing before the Federal Aviation Administration's Commercial Space Transportation Advisory Committee. Walker, who acted as a space policy adviser to Donald Trump, however, cautioned his audience against counting on more funding. (See also: [Trump: "I will free NASA" from being just a LEO space logistics agency](#), [Pence promises to reinvigorate space program](#), [NASA's popular, but that only goes so far in Washington](#))
- **Rep. Bridenstine on Space:** [Bridenstine: This is our Sputnik moment & the Moon will ensure U.S. preeminence in space](#) Human cislunar and lunar activities, including the industrial extractions of ice from the Moon's poles to produce propellants to re-fuel satellites and valuable platinum metals for high tech applications, are essential to America's future pre-eminence in space, according to Rep. Jim Bridenstine. The Oklahoma congressman and member of the House Science, Space and Technology and Armed Services committees spoke before NASA's Lunar Exploration and Analysis Group in Maryland. (See also: <http://spacenews.com/nasa-administrator-bridenstine-his-names-in-the-mix-for-trumps-space-team/>)

### **International Space Station**

- **ISS and Gravity in Space:** [First artificial gravity to appear at ISS thanks to Russian scientists](#) The device will introduce varying levels of gravity to the weightless environment of the International Space Station with the introduction of a small centrifuge for a range of experiments.
- **Tour ISS:** [Space Zen: This Space Station fly-through is supremely serene](#) NASA offers a serene "fly through" tour of the International Space Station.
- **Astronaut Peggy Whitson:** [3rd trip to space: Peggy Whitson set to break more NASA records](#) Veteran NASA astronaut and Iowa native Peggy Whitson prepares to set new records as she launches to the International Space Station from Kazakhstan in mid-November with European and Russian crew mates.

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

- **Navy Supports Orion:** [Navy prepares for recovering NASA's Orion Capsule](#) Off San Diego, the Navy has joined with NASA in preparing for the future Pacific Ocean recovery of the space agency's Orion crew exploration capsule. The next test launch of Orion, Exploration Mission-1, will send an unmanned capsule lofted atop a Space Launch System rocket on a journey around the moon and back to Earth for re-entry and an ocean splashdown. EM-1 is planned for late 2018. Piloted Orion missions are to follow.

### **Commercial Space Transportation**

- **Starliner:** [Launch abort engines for Boeing's CST-100 Starliner undergo testing](#) Test firing of the Aerojet Rocketdyne engines in California's Mojave Desert are helping to prepare Boeing's CST-100 Starliner for NASA contracted missions that will transport astronauts to and from the International Space Station.
- **Orbital ATK Resupply:** [NASA said to opt for Atlas V rocket to ease short-term concerns over Space Station supplies](#) Orbital ATK's next NASA contracted re-supply mission to the International Space Station will lift off on a United Launch Alliance Atlas 5 rocket from Cape Canaveral Air Force Station, Fla., in February or March, according to the Journal report. The move comes after Orbital's recovery from an October 2014 launch failure of the company's Antares rocket. The Antares resumed Orbital Cygnus re-supply missions to the station in October using a new rocket engine. The Atlas, however, can boost more cargo. (See also: [Orbital ATK's OA-5 Cygnus spacecraft arrives at the ISS](#))
- **SpaceX:** [Musk predicts mid-December return to flight for Falcon 9](#) SpaceX founder Elon Musk pointed to a mid-December return to flight for the Falcon 9 launch vehicle, following an investigation into a Sept. 1 launch pad explosion of a Falcon 9 during preparations for a pre-launch engine firing. Musk pointed to the formation of helium ice within the Falcon 9's second stage liquid oxygen propellant tank as the cause of the blast.
- **Dream Chaser:** [Dream Chaser](#) Sierra Nevada announced its selection of the Midland International Air & Space Port to serve as the primary landing site for the NASA contracted re-supply missions it will launch to the International Space Station. Sierra Nevada, along with Orbital ATK and SpaceX, is to begin cargo deliveries by 2020 under a new NASA agreement. In Midland, city officials are hopeful the deal will lead to new economic development. Sierra's Dream Chaser is a reusable lifting body designed to make automated landings on runways stretching to 8,000 feet.

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

- **Lunar Outpost:** [An international outpost near the Moon gets closer to reality](#) NASA and its International Space Station partners in Russia, Europe, Japan and Canada have discussed possible cooperation in the development of a lunar orbiting outpost in the 2020s using the agency's Orion and Space Launch System hardware. The small space station like lunar outpost would demonstrate technologies for a future human expedition to Mars. (See also: [NASA wants Moon robots to pave the way for Mars missions](#))
- **China:** [China focus: President Xi talks with astronauts in space](#) Chinese President Xi Jinping spoke with two of his nation's astronauts currently in the midst of a 33-day stay aboard the orbiting Tiangong-2 space lab. The Chinese leader inquired about their science program, living conditions and health. Jing Haipeng and Chen Dong's October 17 launch marked the start of China's third manned mission. (See also: [China launches Long March 5, one of the world's most powerful rockets](#))
- **Mars:** [Project to help develop Mars protocols](#) Hawaii Volcanoes National Park will provide the setting as researchers develop protocols for collecting rock samples from Mars. The University of Hawaii at Hilo is directing the effort this month that will include time delays in communications of up to 20 minutes representing the lags that actual astronauts would encounter in their discussions with Earth. (See also: [NASA: We're not racing SpaceX to Mars, This 15-year-old is on a mission to visit Mars, and you'd be a fool to bet against her](#) and [Six contractors have begun work on NASA's gateway to deep space](#))

- **Bezos on Space:** [Jeff Bezos dismisses idea of a backup plan, says we must protect Earth](#) Blue Origin's founder Jeff Bezos believes humans will find innovation, prosperity and a refuge for heavy industry in space, not a second home.

**Citizens for Space Exploration** – a pro-space, taxpayer, grassroots advocacy group ([www.citizensforspace.org](http://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.