



Human Space Exploration Update (Feb 15-19, 2016)

International Space Station

- **Space Farming:** [Space farmer Scott Kelly harvests first "space zinnia" grown aboard Space Station](#) After cultivating romaine lettuce and zinnia flowers aboard the International Space Station with the help of NASA's marathon astronaut Scott Kelly, NASA intends to grow tomatoes in the veggie greenhouse. Fresh fruit and vegetables could be an important part of the physical and mental health of astronauts assigned to future missions of deep space exploration. Kelly is due back on Earth on Mar. 1, after nearly a year in orbit, the longest single space flight by an American.
- **Fire Experiments on Station:** [NASA plans to light a fire in a spacecraft, then watch what happens](#) NASA astronaut Tim Kopra, a current resident of the International Space Station, is in charge of BASS-M, or the Burning and Suppression of Solids experiment, research that characterizes how fire behaves in weightlessness. The experiments, carefully constrained, could save lives.

Orion and Space Launch System

- **SLS Exploration Upper Stage:** [NASA moves to enforce early switch to EUS for SLS](#) Despite a reduction in spending for the Space Launch System in NASA's proposed 2017 budget, space agency engineers are looking at an upgrade of the exploration rocket's second stage for Exploration Mission-2, the first piloted test flight of the Orion crew vehicle and the SLS heavy lift launch vehicle. The envisioned Exploration Upper Stage could provide a range of new missions and higher flight rate for the rocket.

Commercial Space Transportation

- **Cygnus Resupply Mission Completed:** [Cygnus ending OA-4 mission at ISS with high praise and success](#) Launched Dec. 6, Orbital ATK's latest commercial resupply mission docked to the six-person International Space Station three days later, delivering more than 7,000 pounds of food, clothes and research equipment. The capsule departs the station early Friday, bringing an end to the company's first cargo delivery since an Oct. 28, 2014 resupply mission loss. The latest mission successfully debuted an upgraded Cygnus with more cargo volume than earlier versions.

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

- **China's Space Program:** [China's racing to space. Is it a military ploy?](#) China is investing \$2 billion to \$3 billion annually on space and intends to launch more than 20 missions in 2016. Some will advance efforts to establish a habitable space station by 2022 and reach the moon with astronauts in the mid-2020s. However, Beijing is also pursuing anti-satellite technologies that could pose a national security threat to the U.S.

- **Solar Electric Propulsion:** [NASA taps Aerojet Rocketdyne to develop Hall electric propulsion system](#) NASA awards Aerojet Rocketdyne a \$2.5-million-contract to pursue development of a high-powered Hall thruster system as part of a Solar Electric Propulsion technology that could evolve into a key part of reaching deep space destinations with human explorers.
- **Humans Explore:** [The 12 greatest challenges for space exploration](#) Humanity is compelled to explore no matter the risk. Space is cold, vast and deadly. Humans will explore it anyway because it's something human beings do.
- **Mars Exploration and Science:** [Why a Mars landing could be terrific for science](#) Essayists Chris Carberry and Rich Zucker, of Explore Mars, counter the views held by some that the human exploration of Mars might obscure evidence of indigenous life with terrestrial contamination. Most of Mars has so far been shown to be hostile to the potential replication of terrestrial microbes, according to Carberry and Zucker. "Indeed, we firmly believe that the human exploration of Mars will almost certainly be terrific, not terrible, for science."

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.