



Human Space Exploration Update (Oct 20-24, 2014)

International Space Station

- **Italian Astronaut to ISS:** [Italy's first female astronaut prepares for launch to the ISS](#) European Space Agency astronaut Samantha Cristoforetti, an Italian Air Force officer and pilot, is scheduled to launch to the International Space Station from Russia on Nov. 23 with NASA astronaut Terry Virts and Russian cosmonaut Anton Shkaplerov.
- **Science on ISS:** [CASIS awards \\$800,000 in grants to boost ISS science](#) The Center for the Advancement of Science In Space, the NASA created nonprofit established to manage research aboard the U.S. National Laboratory portion of the International Space Station, provides grants to further development efforts for a wearable space computer, a vibration isolation technology for station experiments and a new small satellite platform. (See also: [NASA has more science bound for Space Station than crew can handle, official says](#))
- **Heart Research:** [First female ISS cosmonaut adjusts to life in space](#) In September, Elena Serova became Russia's first female resident of the International Space Station. Serova's activities include an experiment to determine how the human heart adjusts to weightlessness.

Orion and Space Launch System

- **Orion Mated to LAS:** [Assembly Complete for NASA's Maiden Orion Spacecraft Launching in December 2014](#) At NASA's Kennedy Space Center, workers have finished attaching the Launch Abort System to the Orion crew exploration capsule and enclosing the two within a protective fairing. The work prepares the assembly for a mid-November trip to a nearby Cape Canaveral Air Force Station launch pad, where the Orion assembly will be fitted atop a Delta 4 launch vehicle for an early December launching on Exploration Flight Test-1, an unpiloted two orbit test flight. EFT-1 is planned for a Dec. 4 lift off.
- **SLS Exploration Upper Stage:** [SLS headquarters developing exploration stage of rocket](#) NASA's Marshall Space Flight Center presses development of the Space Launch System heavy lift rocket, including a more powerful version with an Exploration Upper Stage and enough propulsion to start human explorers on missions of deep space exploration. NASA has turned to U.S. industry for upper stage propulsion proposals.
- **SLS Testing at Langley Research Center:** [Space Launch System Booster Separation Testing Brings Confidence to First Flight](#) Engineers at NASA's Langley Research Center test scaled down Space Launch System in wind tunnel to model aerodynamic forces.
- **SLS Core Stage Testing:** [SLS core stage test welds begin at NASA's welding wonder in Michoud](#) NASA's Michoud Assembly Facility produces "confidence welds" for assembly of the Space Launch System heavy lift rocket hardware in the site's giant weld tool. The SLS in under development to start humans of future missions of deep space exploration.

Commercial Space Transportation

- **CST-100 Milestone:** [Boeing completes Commercial Crew milestone](#) Boeing announced completion of its NASA Commercial Crew Integrated Capability contract obligations. Boeing is prepared to proceed with building and testing of its CST-100 crew capsule, which will launch from Cape Canaveral, Fla.
- **Court Rules in Favor of NASA:** [Court declines SNC's motion to overrule NASA on CCtCAP authorization to proceed](#) U.S. Court of Federal Appeals in Washington rules that Sierra Nevada cannot stop NASA's Commercial Crew Program from proceeding with development activities by Boeing and SpaceX. Sierra Nevada asked the court to stop development activities while the U.S. General Accountability Office considers the company's appeal. In September, NASA awarded a new round of development contracts to Boeing and SpaceX. Sierra Nevada's activities were not extended. (See also: [Court says space taxi work can go on as Sierra Nevada disputes contract](#))

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

- **Mars Mission:** [In a dome in Hawaii, a mission to Mars](#) High atop a Hawaiian volcano, six volunteers recently secluded themselves for eight months as part of a NASA funded study of the challenges of isolation for a human crew headed to Mars, a round trip estimated to require 860 days. Next year, a half dozen men and women will attempt to live and work in mountaintop isolation for a year. "Right now, the psychological risks are still not completely understood and not completely corrected for," said Kimberly Binsted, a professor of information and computer sciences at the University of Hawaii at Manoa and the principal investigator for the project. "NASA is not going to go until we solve this."
- **Asteroid Retrieval Mission:** [NASA Langley helps build robot to fetch an asteroid](#) NASA's Langley Research Center hosts members of Virginia's state government as well as its Congressional delegation to display the facility's role in the Asteroid Retrieval Mission. NASA plans the robotic capture of a small asteroid, or a piece of a larger asteroid. The captive asteroid would be steered into orbit around the moon, where it could be reached by U.S. astronauts launched aboard the Space Launch System and Orion crew exploration vehicle.
- **Russian and Space:** [Russia to spend around \\$50 billion on space program in 2016-2025](#) The \$50 billion identified by Roscosmos, the Russian federal space agency, does not include \$6 billion in anticipated contributions from commercial space enterprises and other sources. Altogether, the estimated expenditures represent a three-fold increase over the period from 2006 to 2015, according to Itar Tass. Most of the spending will go toward research and development. Increases at the top level include spending on human lunar activities.
- **One Way to Mars?:** [Buzz Aldrin says one-way trips to Mars could actually work](#) Apollo 11 moon walker Buzz Aldrin endorses efforts by Dutch nonprofit Mars One to settle Mars with humans in the mid-2020s. Aldrin was part of a panel at MIT on the topic. Not all of the participants agreed. "It [will] cost the world and the U.S. billions and billions of dollars to put these people there, and you're going to bring them back?" Aldrin asked.
- **China and Space:** [China's fourth spaceport completed in boost for space program](#) Construction is now complete on China's largest spaceport. Positioned in the south Hainan Province, the launch complex will be used to send a Chinese space station into orbit as well as launch future human missions to the moon and Mars, according to the report.
- **NASA Deputy Administrator:** [Obama nominates Dava Newman to be NASA Deputy Administrator](#) The MIT professor was formally nominated for the number two post at NASA on Thursday by the Obama Administration. The appointment requires U.S. Senate confirmation. The deputy's post at NASA has been vacant since the Sept. 2013 departure of Lori Garver, who left to become GM of the Air Line Pilots Association.

- **Canada and Space:** [Canadian space at a crossroads](#) Canada's space budget is modest and declining, as evidenced by an astronaut corps with only two active members. Nonetheless, at the recent 2014 International Aeronautical Conference in Toronto, Canadian Space Agency officials expressed optimism about the value of space in advancing economic opportunity and forging international relationships. However, Canada has yet to decide on a 2020-24 extension of its International Space Station participation and many with an interest are wondering why their homeland has not led a notable mission of its own.

Florida Highlights

- **KSC Countdown Clock:** [KSC countdown clock ticks down to final T-0](#) The iconic countdown clock at NASA's Kennedy Space Center will soon be replaced by a modern big screen version familiar to sports fans at major stadiums and visitors to New York's Times Square. The departing timer has graced the space center landscape since the Apollo era.
- **KSC's Role as Multi-User Spaceport:** [Report: KSC must do more to succeed as spaceport](#) NASA's inspector general outlines obstacles to the Kennedy Space Center's transition from a federal to a multi-user spaceport. Barriers to commercial use include clear criteria for the selection of commercial tenants, restricted access for personnel and difficulties obtaining services, including rocket propellants, the IG reports. (See also: [KSC to offer undeveloped center property for commercial users](#))
- **RD-180 Rocket Engine:** [Top U.S. defense official says Pentagon will wean itself from RD-180 engine](#) U.S. Department of Defense Deputy Secretary Bob Work tells California lawmakers the U.S. is ready to separate itself from Russia's RD-180 rocket engine. Imports of the RD-180 have powered the United Launch Alliance Atlas 5 with national security payloads. Questions of continued RD-180 imports arose after Russia's interference in Ukraine.
- **New Rocket for ULA:** [Exclusive: ULA plans new rocket, restructuring to cut launch costs in half](#) United Launch Alliance will downsize to meet the expectations of smaller U.S. military budgets. ULA plans a new rocket line based on the best of the Atlas 5 and the Delta 4, according to the company's new CEO, Tory Bruno.

Citizens for Space Exploration – a pro-space, grassroots advocacy group, supported by the Melbourne Regional Chamber of Commerce, travels to Washington, D.C. to meet face-to-face with Members/staff of Congress to discuss the value of America's investment in space exploration. To sustain that dialogue on a regular basis, Citizens distributes "Human Space Exploration Update" to Congressional offices on a weekly basis and makes it available to our Chamber members as a quick-and-easy way to stay informed on developments impacting NASA and Space Coast Florida.

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