Human Space Exploration Update *(Dec 12-22, 2016) "Happy New Year – 2017"*

President-elect Trump -- Transition

- **Transition Team for NASA:** Trump adds six more to NASA transition team A half dozen experts have joined the Chris Shank-led transition team for President-elect Donald Trump at NASA. They include Steve Cook, who worked on Ares rocket development for the George W. Bush administration's now cancelled Constellation program, and Sandra Magnus, a former NASA astronaut and current executive director of the American Institute for Aerospace and Aeronautics. (See also: Peter Thiel now leading the fight for commercial space in Trump's NASA and Sen. Jeff Sessions exerts wide influence over Trump space plans)

Congress

- **Continuing Resolution:** Lightfoot: No negative impact for NASA from new CR NASA should be able to spend as needed to keep Exploration Mission-1 on track under the U.S. budget Continuing Resolution passed by the Senate late last week. Passed earlier by the U.S. House, the new CR remains in effect through April in lieu of a 2017 federal budget. The measure allows NASA to prepare for the launching of EM-1, the first unpiloted test flight of the Space Launch System and Orion capsule, by November 2018. The three week milestone mission is to send Orion around the moon and back to Earth for a splashdown. SLS and Orion are cornerstones of U.S. human deep space exploration plans in the 2020s and beyond.

- **NASA Authorization Bill:** Senate passes NASA Authorization at last minute, too late for House action this year The Senate passed the NASA Transition Authorization Act of 2016 that addresses a range of policy matters that may provide direction for a new Congress in 2017. Adopted by acclimation on December 9, though not addressed by the U.S. House, the authorization measure seeks more definition by NASA of its human Mars exploration plans and opens the door to intermediate destinations. The legislation seeks alternatives to the Asteroid Redirect Mission and urges a discussion of an International Space Station extension from 2024 to 2028. It also seeks an independent assessment of a Mars mission launched in 2033.

- **Senator Nelson on Space:** Senator Nelson discusses space travel future Senator Bill Nelson of Florida envisions the U.S. regaining a human space launch capability within 18 months. Astronauts will reach the Martian environs in the 2030s, Nelson predicts in a wide ranging interview.

International Space Station

- **Photos from ISS:** NASA releases top 16 photos from the International Space Station from 2016 The whole world stars in an all-star lineup of the 16 best photos snapped from the International Space Station in 2016. Auroras over Australia are pretty amazing.

Orion and Space Launch System

- **Orion Highlights 2016 and Nov 2016:** https://www.nasa.gov/sites/default/files/atoms/files/2016_orion_overview_full.pdf and https://www.nasa.gov/sites/default/files/atoms/files/orion_monthly_newsletter_11-2016.pdf

- **Orion Service Module:** Orion service module engine shipped to Europe The NASA-furnished rocket engine that will fit onto the Orion capsule slated for a crucial late 2018 unpiloted test launch of the Space Launch System exploration rocket has been shipped to Europe. There it will be mated to Orion's European furnished service module. The European service module provides power and propulsion for Orion. The rocket engine shipped to Europe has flown aboard multiple NASA space shuttle missions as part of the Orbital Maneuvering System. During Exploration Mission-1, planned for November 2018, the engine will provide propulsion for lunar orbit insertion and trans Earth injection. Orion is to loop around the moon and return to Earth for splashdown and recovery. (See also: Orion Program November Update:

- **SLS Highlights Nov 2016:** https://www.nasa.gov/sites/default/files/atoms/files/sls_highlights_nov_2016_web.pdf

- **SLS Assembly:** Boeing and NASA prepare for the assembly of the first SLS rocket Working with NASA at the Michoud Assembly Facility, prime contractor Boeing is bringing together the five major elements of the Space Launch System core, or first stage. The large rocket, cornerstone of plans to launch humans on missions of deep space exploration, is being prepared for its first unpiloted test flight in late 2018.

Commercial Space Transportation

- **Commercial Crew:** NASA has a new way to fly The U.S. has turned to Russia to transport astronauts to and from the International Space Station since NASA's space shuttle fleet was retired in 2011. But that's changing with some important milestones ahead for Boeing and SpaceX, the two U.S. companies developing low Earth orbit astronaut transportation services under NASA's Commercial Crew Program. Both companies hope to overcome development and funding issues to launch crewed test flights in 2018. (See also: SpaceX officially delays first crewed flight of its Dragon capsule for NASA)

Space Policy, Missions, Benefits, International …

- **Buzz Aldrin on Exploration and John Glenn:** Buzz Aldrin: John Glenn was a hero. We owe it to him to keep exploring space Apollo 11's Buzz Aldrin recalls his long-running association with John Glenn, the Mercury astronaut and first American to orbit the Earth, in an op-ed. Glenn died last week in his native Ohio at the age of 95. "I believe our country is ready for another great leap, another John Glenn moment in history and another presidential commitment to space worthy of our great nation," writes Aldrin, an advocate for human deep space exploration.

- **Why Mars?:** Why Mars? To discover how life originates Mars, with its rocky terrain and evidence for past bodies of surface water, shares more similarities with the Earth than the moon or neighboring Venus. The red planet offers the best opportunity for skilled human explorers to look for evidence of past or even present life, writes Ramses Ramirez, Cornell University planetary scientist and astrobiologist.

- **Europe and Lunar Exploration:** Europe's bold plan for a Moon base is coming together As a global community, we've reached Space 4.0, according to European Space Agency Director General Jan Woerner. In Europe, that means transitioning from the International Space Station to a global village on the moon for exploration, science and new commerce.

- **Russia and Lunar Exploration:** Russia's lunar rover will help stake a claim on the Moon Russia's space industry will resume development of a lunar rover, machinery to further a human moon landing and construction of a lunar base in the 2030s.

- **Japan and Lunar Exploration:** Japan is going to mine the moon The Japan Aerospace Exploration Agency has announced plans to work with a Tokyo based firm to develop a lunar mining strategy, joining a field already of interest in the U.S., Europe, Russia and China.

Citizens for Space Exploration *– a pro-space, taxpayer, grassroots advocacy group (www.citizensforspace.org) – has travelled to Washington, D.C. the past 25 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.*