The Aerospace Update

Releasing the Dragon

Sept. 6, 2018

Video Credit: ESA

Private Chinese Space Company Places Satellites in Orbit

A rocket developed by Chinese company iSpace blasted into space Wednesday, Sept. 5th carrying three miniature satellites in another milestone for the country's budding private spaceflight industry. Reports said the SQX-1Z rocket took off from the Jiuquan Satellite Launch Center in northwestern China and entered space at a suborbital level. Two of the satellites will be released into space for testing while the third will re-enter the atmosphere and parachute down to Earth. It was believed to be the first time a private Chinese company had carried satellites into space

Source: Associated Press
Photo Credit: Xinhua/Wang Jiangbo

Soyuz Leak Mystery Deepens

Image Credit: NASA/ESA/Alexander Gerst

The small hole in one of the Soyuz capsules parked at the International Space Station (ISS) has been patched, but the mystery about what caused it is deepening daily on Earth. Roscosmos chief Dmitry Rogozin on Sept. 4th confirmed that investigators were considering if the hole, which measured about 2 mm (0.08 in.) in diameter, was drilled, the Russian news agency RIA Novosti reported. The hole was patched with an epoxy sealant and gauze wipe and the station's air supply replenished with compressed air from a Progress supply ship already berthed at the station.

Source: Irene Klotz @ Aerospace Daily & Defense Report

NASA to Soon Start 45-day Campaign to Revive the Opportunity Mars Rover

In an Aug. 30 statement, NASA said it would begin a 45-day campaign of active efforts to restore communications with Opportunity once skies above the rover cleared to a sufficient level. The rover has been out of contact since early June, when a major dust storm deprived the rover of solar power. Once the skies above Opportunity clear to a sufficient degree, NASA will begin by sending commands to it. "Assuming that we hear back from Opportunity, we will begin the process of discerning its status and bringing it back online," John Callas, Opportunity project manager at the Jet Propulsion Laboratory, said in a statement.

Source: Jeff Foust @ SpaceNews.com

Image Credit: NASA/JPL

Hubble’s Lucky Observation of an Enigmatic Cloud

This little known nebula IRAS 05437+2502 billows out among the brightest stars and dark dust clouds that surround its striking image from the Hubble Space Telescope. Its located in the constellation of Taurus (the Bull), close to the central plane of the Milky Way. Unlike many of the Hubble’s targets, this object has not been studied in detail and its exact nature is unclear. At first glance it appears to be a small, rather isolated region of star formation and one might assume that the effects of fierce ultraviolet radiation from bright, young stars probably were the cause of the eye-catching shapes of gas. However, the bright, boomerang-shaped feature may tell a more dramatic tale. The interaction of a high velocity young star with the cloud of gas and dust may have created this unusually sharp-edged, bright arc. Such a reckless star would have been ejected from the distant young cluster where it was born and would travel 124,000 miles per hour or more through the nebula.

Source: NASA.gov

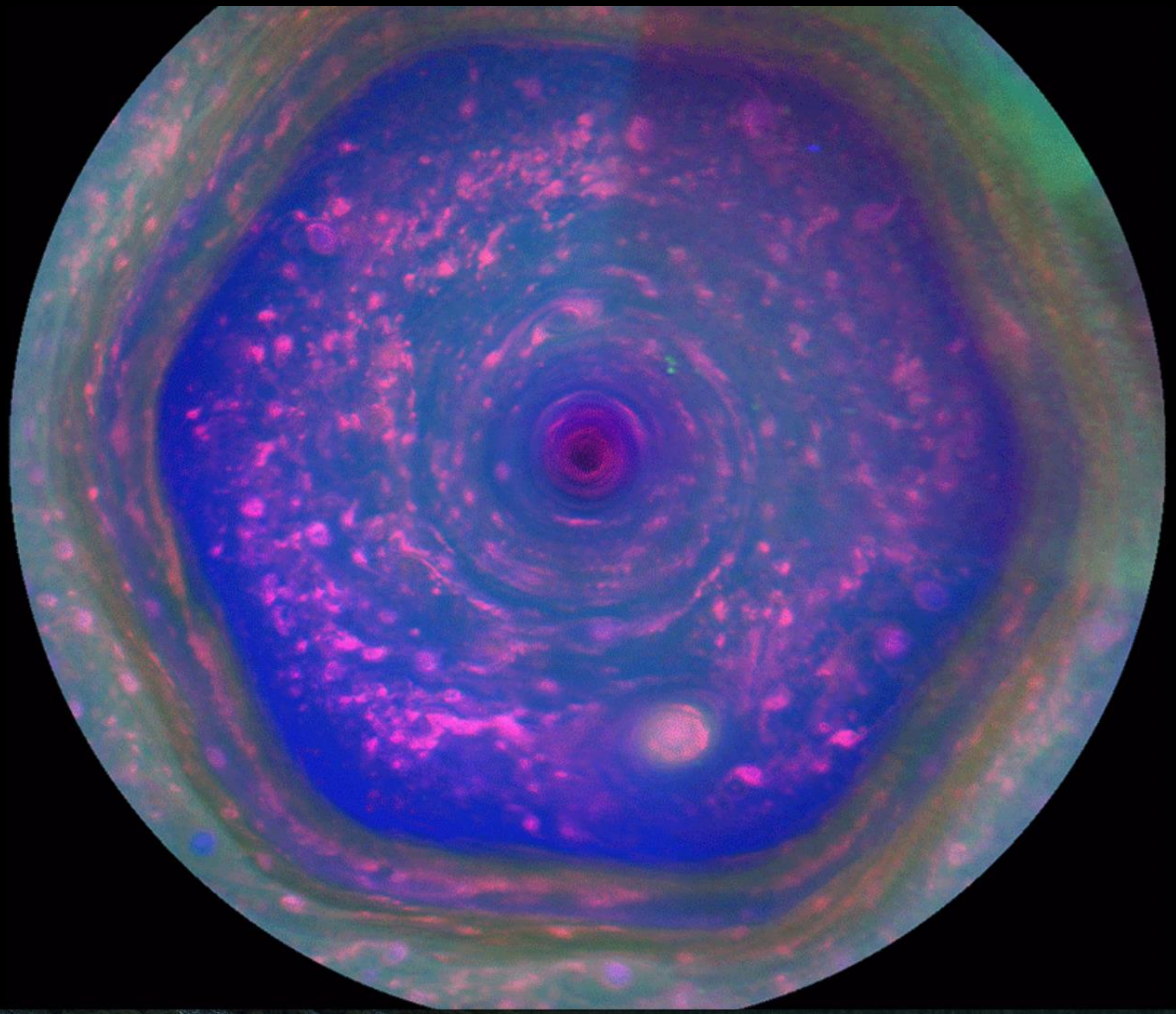
Photo Credit: ESA/Hubble & NASA/ R. Sahai

Hubble Observes Energetic Lightshow at Saturn’s North Pole

stronomers using the NASA/ESA Hubble Space telescope have taken a series of spectacular images featuring the uttering auroras at the north pole of Saturn. The observations were taken in ultraviolet light and the resulting mages provide astronomers with the most comprehensive picture so far of Saturn’s northern aurora.

Source & Image Credits: spacetelescope.org

Saturn's Famous Hexagon May Tower Above the Clouds



A new long-term study using data from NASA's Cassini spacecraft has revealed a surprising feature emerging at Saturn's northern pole as it nears summertime: a warming, high-altitude vortex with a hexagonal shape, akin to the famous hexagon seen deeper down in Saturn's clouds. The finding, published Sept. 3 in Nature Communications, is intriguing, because it suggests that the lower-altitude hexagon may influence what happens above, and that it could be a towering structure hundreds of miles in height. This colorful view from NASA's Cassini mission is the highest-resolution view of the unique six-sided jet stream at Saturn's north pole known as "the hexagon."

Source: NASA/JPL-Caltech

Image Credit: NASA/JPL-Caltech/SSI/Hampton University

NASA’s Football Stadium-sized Scientific Balloon Takes Flight

NASA successfully launched a football stadium-sized scientific balloon, dubbed the “Big 60,” on Friday, Aug. 17, from Fort Sumner, New Mexico, for the first time in more than 15 years. The 60-million-cubic-foot balloon floated to a record-breaking sustainable altitude of 159,000 feet, allowing the payload and three ride-along experiments to fly for about 8 hours. Because the Big 60 design is still in its testing phase, the gondola primarily contained support instrumentation, such as tracking, video and telemetry, with some tertiary experiments flying to round out the 1,650-pound suspended payload.

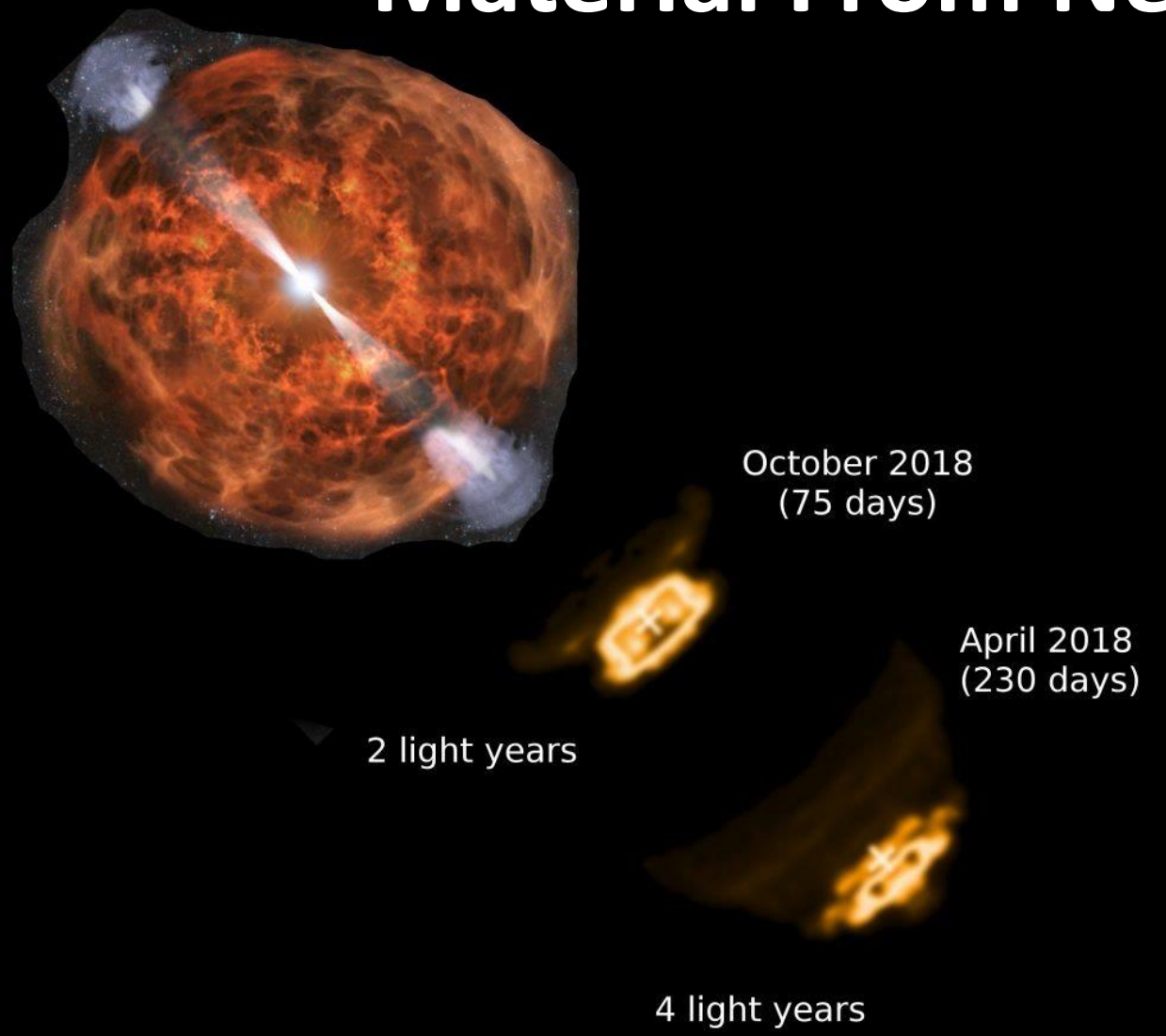
Source & Photo Credit: NASA

Space Elevators Getting First Test in Space

Researchers at Shizuoka University, working in conjunction with the Japan Aerospace Exploration Agency (JAXA), will begin trials on a miniature version of a space elevator next week. The test is very small and simple, the tiniest step towards an actual elevator to the stars. This space elevator will consist of a small box 6 centimeters (2.4 inches) long, 3 cm (1.18 inches) wide, and 3 cm high. This box will move along a 10-meter (32-foot) cable suspended in orbit between two small CubeSats. This movement will be monitored with cameras inside of the satellites.

Source: David Grossman @ PopularMechanics.com
Photo Credit: NASA

Radio Observations Confirm Superfast Jet of Material From Neutron Star Merger



Precise measurement using a continent-wide collection of National Science Foundation (NSF) radio telescopes has revealed that a narrow jet of particles moving at nearly the speed of light broke out into interstellar space after a pair of neutron stars merged in a galaxy 130 million light-years from Earth. The merger, which was detected on Earth in August of 2017, sent gravitational waves rippling through space. It was the first event ever to be detected both by gravitational waves and electromagnetic waves, including gamma rays, X-rays, visible light, and radio waves. As the jet from the neutron-star merger event emerged into space, simulated radio images in this artist's conception illustrate its extremely fast motion. In the 155 days between two observations, the jet appeared to move two light-years, a distance that would require it to travel four times faster than light. This "superluminal motion" is an illusion created as the jet is pointed nearly toward the Earth and it is actually moving more than 97 percent of light speed.

Source: National Radio Astronomy Observatory @ Phys.org

Image Credit: Credit: D. Berry, O. Gottlieb, K. Mooley, G. Hallinan, NRAO/AUI/NSF

Airbus Perlan 2 Glider Sets 76,000 ft. Altitude Record

The pressurized Airbus Perlan 2 sailplane reached an altitude of over 76,000 ft. on Sept. 2 over the Andes Mountains, eclipsing a previous record altitude of 73,737 ft. set by a jet-powered Lockheed Martin U-2C in 1989, and attaining what is believed to be the highest level-flight ever by a manned, winged, subsonic aircraft. The flight was the culmination of a week of record-setting sorties for the 84-ft.-span Perlan 2, with previous new altitudes set on Aug. 28 (65,000 ft.) and Aug. 26 (62,000 ft.). Although having previously attempted to reach much higher altitudes in previous campaigns in 2016 and 2017, the breakthrough this year appears to be linked to the use of a turboprop-powered G520 Egrett tow aircraft which has been able to quickly take the sailplane to altitudes of 40,000 ft. before release.

Source: Guy Norris @ Aerospace Daily & Defense Report

Photo Credit: Airbus/Perlan Project

Boeing Wins Contract to Build Tanker Drones for U.S. Navy

Boeing has been awarded a $805 million contract for design, delivery and support of four unmanned drones based on aircraft carriers that will be used to refuel aircraft for the U.S. Navy, the Pentagon said in a statement on Thursday. The Navy said it expected the contract to be completed in 2024 and that Boeing won the deal over two other bidders.

Source: Reuters.com

Photo Credit: Boeing

Sept. 4, 1957 – Lockheed C-140 Jet Star Makes 1st Flight

On September 4, 1957, the Lockheed C-140 Jet Star made it's first flight at Edwards Air Force Base in California. It was designed, built and flown in only 8 months to test new innovations in crash safety, noise suppression and aerodynamics. This test aircraft used 2 axial flow turbojets mounted on the aft fuselage. Production versions used 4 lightweight J60P-5 engines mounted in pairs on each side of the aft fuselage. This aircraft can be viewed at the Museum of Flight's Restoration Facility at Paine Field.

Source & Photo: Edwards History Office

In The News

Russia to Stop Transporting US Astronauts to ISS in April 2019. Russia's contractual obligations to the United States to transport US astronauts to the International Space Station (ISS) will expire in April 2019, Deputy Prime Minister Yury Borisov said. "The landing of the Soyuz-MS spacecraft in April will end our obligations under the contract with NASA related to the transportation of American astronauts to the ISS and return from the station," (*Staff Writers @Moscow (Sputnik))*

Boeing KC-46 attains FAA supplemental type certificate. The US Federal Aviation Administration has awarded the Boeing KC-46 Pegasus tanker a supplemental type certificate (STC), thus completing the type's FAA certification process. A US Air Force Military Type Certificate is expected "in the coming months," adds Boeing. The MTC covers systems that the FAA cannot certify, such as aerial refueling, defensive, and other military-specific systems. (*Greg Waldron @ FlightGlobal.com)*

Kepler Resumes Operations Despite Malfunctioning Thruster. NASA's Kepler spacecraft is back in operation despite a problem with one of its thrusters and low fuel levels that may soon bring the mission to an end. The spacecraft was set to begin what the project calls Campaign 19, the latest in a series of observations spanning nearly three months at a time, in early August, but the spacecraft went into a "sleep mode" after transmitting data collected during the previous campaign. Engineers found no evidence of "systemic problems" on the spacecraft other than an issue with one of the spacecraft's eight thrusters which can be disabled and still maintain acceptable system performance. It is not known if the thruster problem is a result low fuel or the low fuel indication is a result of the thruster problem. (*Jeff Foust @ SpaceNews.com)*

SpaceX Falcon 9 and Heavy Manifest Grows Lopsided as Launches Align for Q4. A significant number of SpaceX Falcon 9 and Falcon Heavy launches initially scheduled near the beginning or middle of the second half of 2018 are all slipping right into October, November and December. Although the multiple slips and slides of several payloads and much of SpaceX's H2 2018 launch manifest may be hard to parse alongside the year's milestone first half, at least two reliable launch manifest sources (Spaceflight Now and one other) more or less independently corroborate the apparent realignment. *(Eric Ralph @ teslarati.com)*