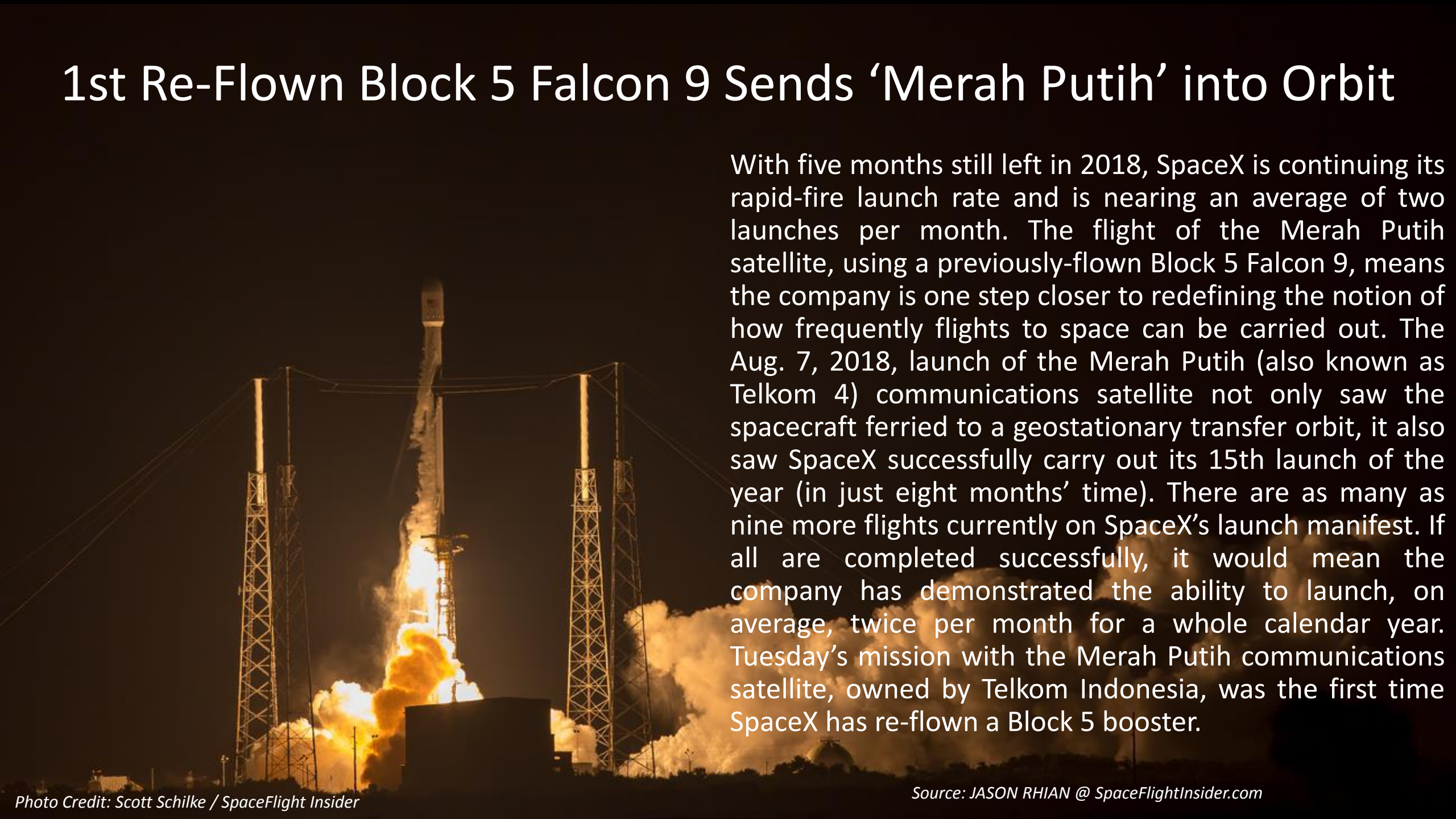
The Aerospace Update

View of Smoke from California Wildfires From ISS

August 9, 2018

Image Credit: Ricky Arnold/NASA

1st Re-Flown Block 5 Falcon 9 Sends ‘Merah Putih’ into Orbit

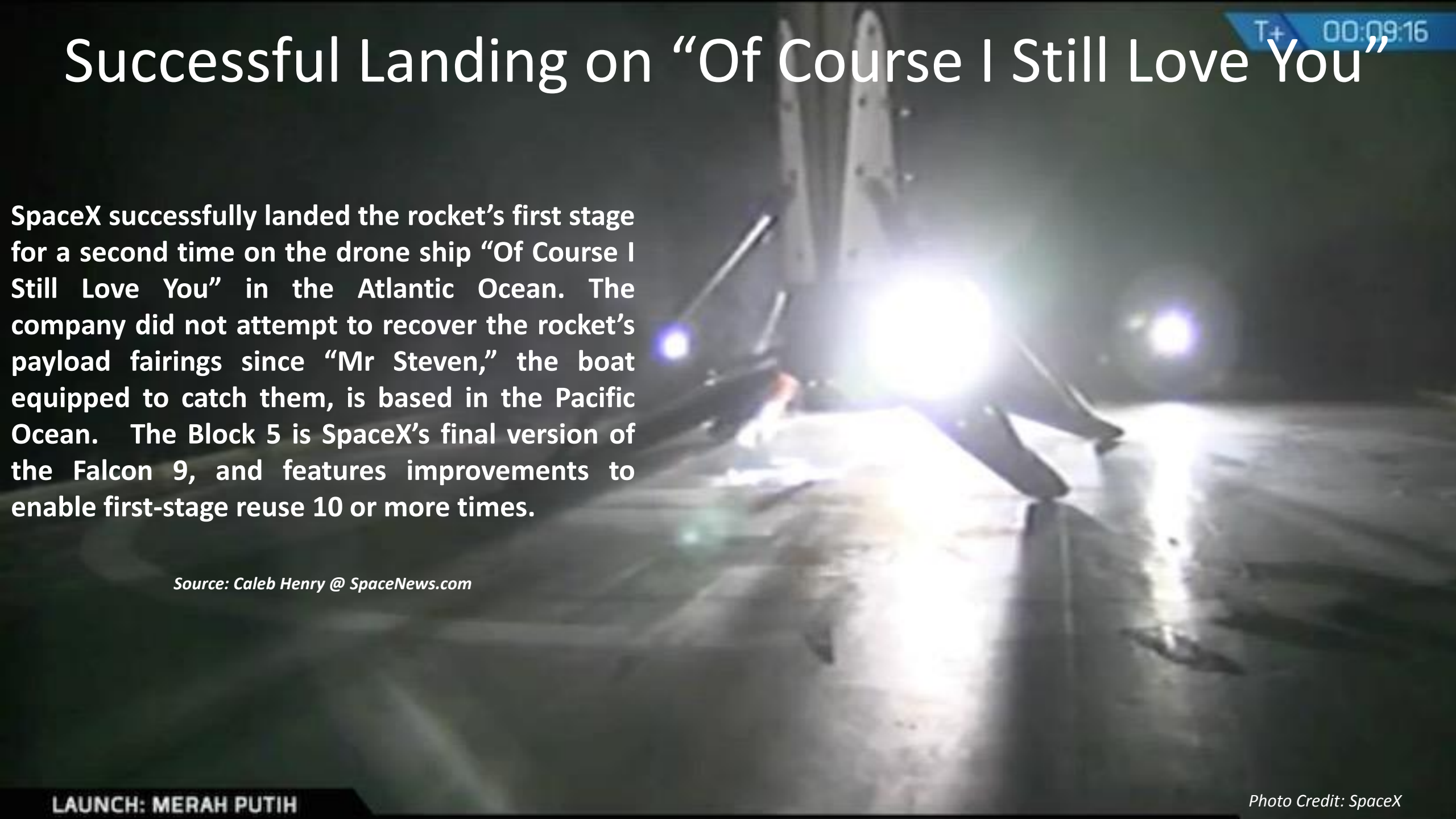


With five months still left in 2018, SpaceX is continuing its rapid-fire launch rate and is nearing an average of two launches per month. The flight of the Merah Putih satellite, using a previously-flown Block 5 Falcon 9, means the company is one step closer to redefining the notion of how frequently flights to space can be carried out. The Aug. 7, 2018, launch of the Merah Putih (also known as Telkom 4) communications satellite not only saw the spacecraft ferried to a geostationary transfer orbit, it also saw SpaceX successfully carry out its 15th launch of the year (in just eight months’ time). There are as many as nine more flights currently on SpaceX’s launch manifest. If all are completed successfully, it would mean the company has demonstrated the ability to launch, on average, twice per month for a whole calendar year. Tuesday’s mission with the Merah Putih communications satellite, owned by Telkom Indonesia, was the first time SpaceX has re-flown a Block 5 booster.

Photo Credit: Scott Schilke / SpaceFlight Insider

Source: JASON RHIAN @ SpaceFlightInsider.com

Successful Landing on “Of Course I Still Love You”



SpaceX successfully landed the rocket’s first stage for a second time on the drone ship “Of Course I Still Love You” in the Atlantic Ocean. The company did not attempt to recover the rocket’s payload fairings since “Mr Steven,” the boat equipped to catch them, is based in the Pacific Ocean. The Block 5 is SpaceX’s final version of the Falcon 9, and features improvements to enable first-stage reuse 10 or more times.

Source: Caleb Henry @ SpaceNews.com

Photo Credit: SpaceX

Merah Putih to Provide Comm Services to Indonesia & Asia

Merah Putih, formerly called Telkom-4, replaces Telkom-1, bringing C-band telecommunications services to Indonesia, India and other parts of Asia. Space Systems Loral of Palo Alto, California, built the satellite ahead of schedule, according to Telkom Indonesia. Merah Putih, designed for a 16 year service life, will be located at 108 degrees east longitude in geostationary orbit. For Telkom Indonesia, the launch restores the state-owned operator's fleet back to three satellites after one of its satellites exploded in orbit last August.

Source: Caleb Henry @ SpaceNews.com
Photo Credit: SSL

SpaceX Dragon Comes Back to Earth from ISS

Operating under commands from mission control, the station's Canadian-built robotic arm detached the Dragon capsule from a berthing port on the Harmony module, then released the automated supply ship at 12:38 p.m. EDT (1638 GMT) Friday. A series of thruster firings propelled the Dragon capsule away from the space station, and the ship's Draco thrusters ignited at 5:23 p.m. EDT (2123 GMT) for a de-orbit burn. After the braking maneuver, the Dragon's disposable trunk section jettisoned to burn up in Earth's atmosphere, while the craft's pressurized cabin plunged back to Earth for a searing-hot re-entry protected by an ablative carbon heat shield. NASA said the spacecraft returned to Earth with more than 3,800 pounds (more than 1,700 kilograms) of cargo, including specimens from biological experiments conducted on-board the space station.

Source: Stephen Clark @ SpaceFlightNow.com

Image Credit: NASA

NASA Reveals Crews for First Flights of Commercial Spaceships

NASA introduced to the world on Aug. 3, 2018, the first U.S. astronauts who will fly on American-made, commercial spacecraft to and from the International Space Station – an endeavor that will return astronaut launches to U.S. soil for the first time since the space shuttle's retirement in 2011. The agency assigned nine astronauts to crew the first test flight and mission of both Boeing's CST-100 Starliner and SpaceX's Crew Dragon. The astronauts are, from left to right: Sunita Williams, Josh Cassada, Eric Boe, Nicole Mann, Christopher Ferguson, Douglas Hurley, Robert Behnken, Michael Hopkins and Victor Glover.

Source & Photo Credits: NASA

Iconic Planet-Hunting Kepler Telescope Wakes Up, Phones Home

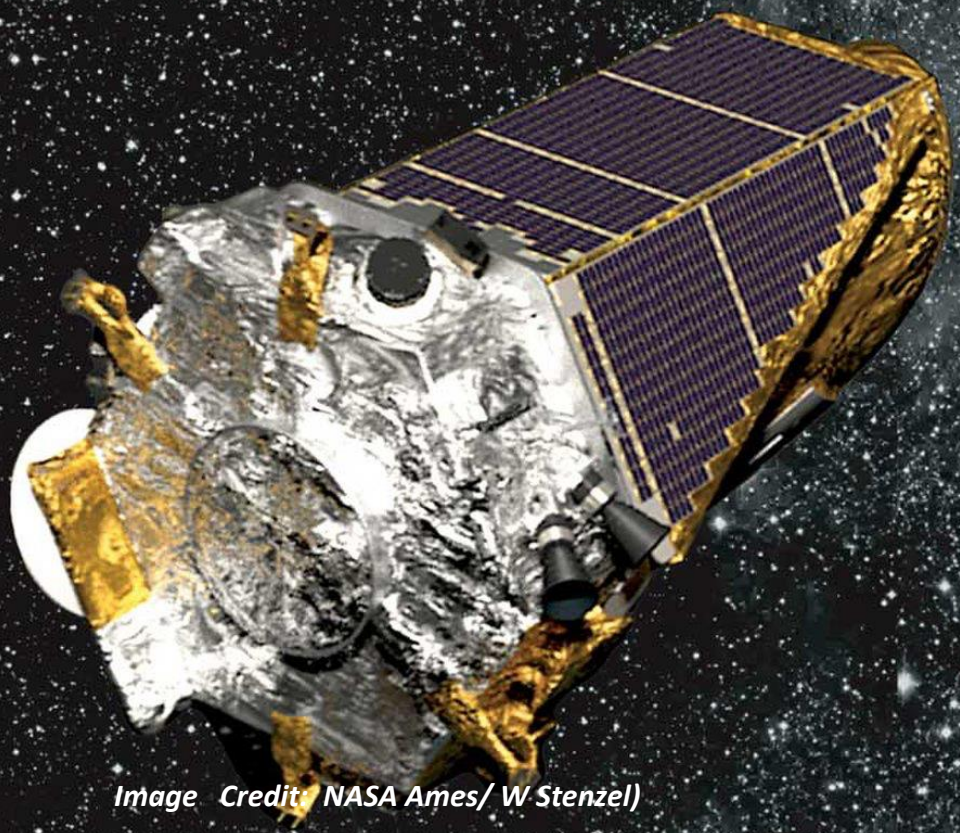
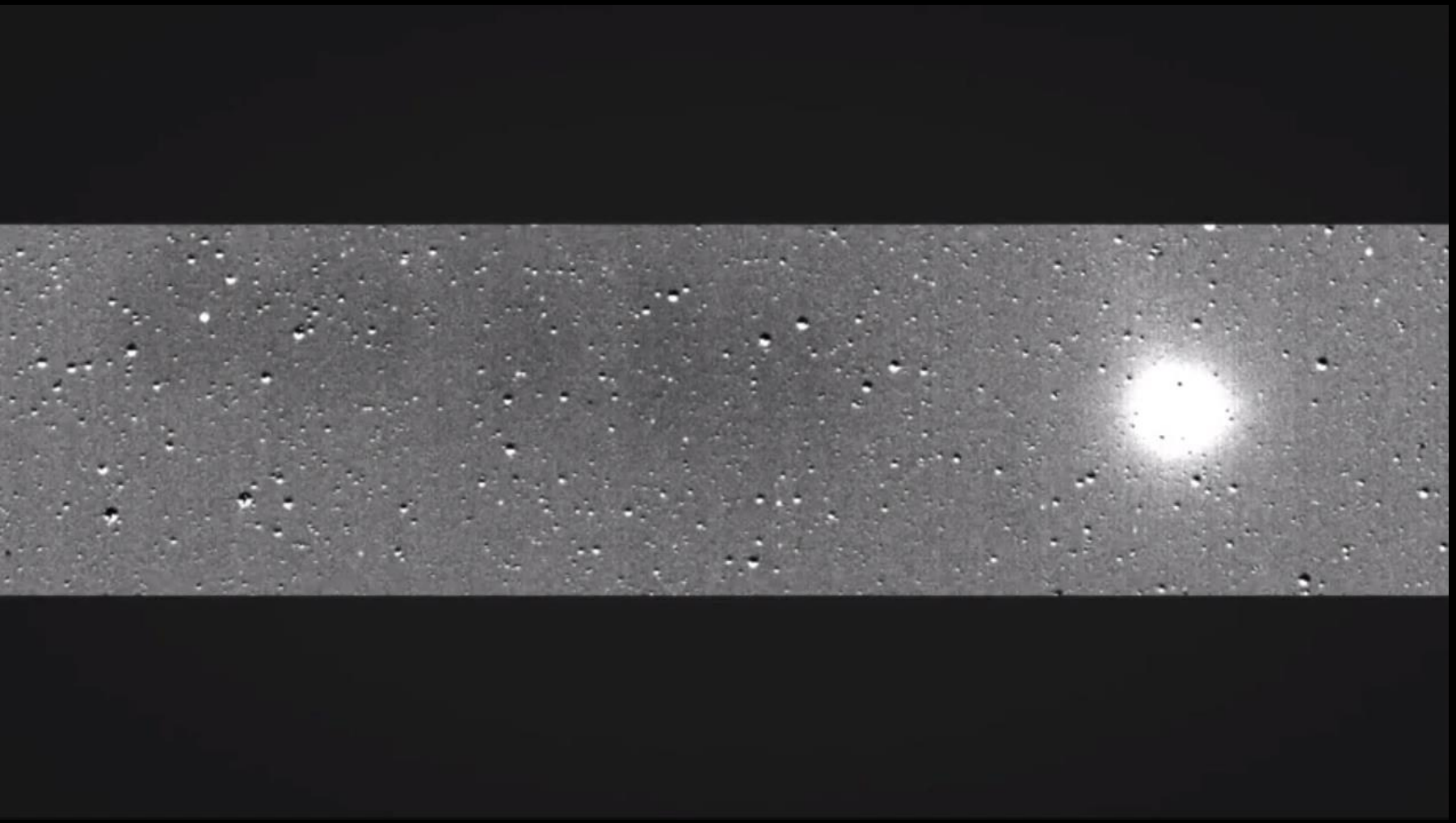


Image Credit: NASA Ames/ W Stenzel)

The Kepler space telescope isn't dead yet. Kepler, which discovered about 70% of the 3,800 known exoplanets to date, woke up from a four week hibernation on Aug. 2nd and has begun beaming data home, just as planned, NASA officials announced (Aug. 3). Kepler had been sleeping in an attempt to save thruster fuel, which is running very low. Mission team members wanted to make sure the spacecraft had enough propellant left to orient its antenna toward Earth for the data dump. Kepler has completed 18 campaigns to date during its K2 mission phase. Campaign 19 will start on Monday (Aug. 6) if enough fuel remains after the current data delivery work

Source: Mike Wall @ space.com

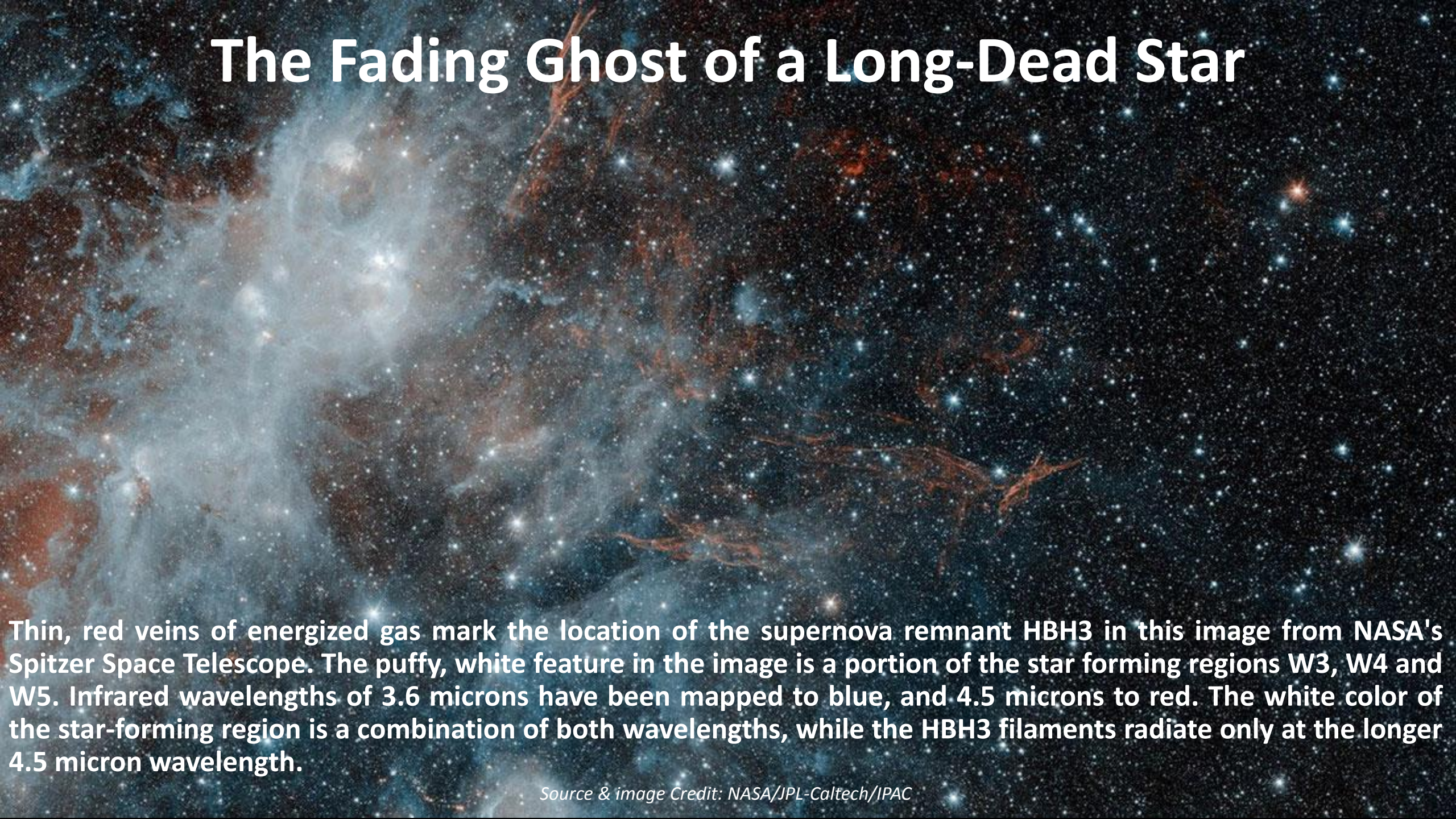
NASA’s Planet-Hunting TESS Catches a Comet Before Starting Science



Before NASA’s Transiting Exoplanet Survey Satellite (TESS) started science operations on July 25, 2018, the planet hunter sent back a stunning sequence of serendipitous images showing the motion of a comet. Taken over the course of 17 hours on July 25, these TESS images helped demonstrate the satellite’s ability to collect a prolonged set of stable periodic images covering a broad region of the sky — all critical factors in finding transiting planets orbiting nearby stars.

Source & Video Credits: Massachusetts Institute of Technology/NASA’s Goddard Space Flight Center

The Fading Ghost of a Long-Dead Star



Thin, red veins of energized gas mark the location of the supernova remnant HBH3 in this image from NASA's Spitzer Space Telescope. The puffy, white feature in the image is a portion of the star forming regions W3, W4 and W5. Infrared wavelengths of 3.6 microns have been mapped to blue, and 4.5 microns to red. The white color of the star-forming region is a combination of both wavelengths, while the HBH3 filaments radiate only at the longer 4.5 micron wavelength.

Source & image Credit: NASA/JPL-Caltech/IPAC

Japanese Probe Snaps Close-Up Images of Asteroid Ryugu

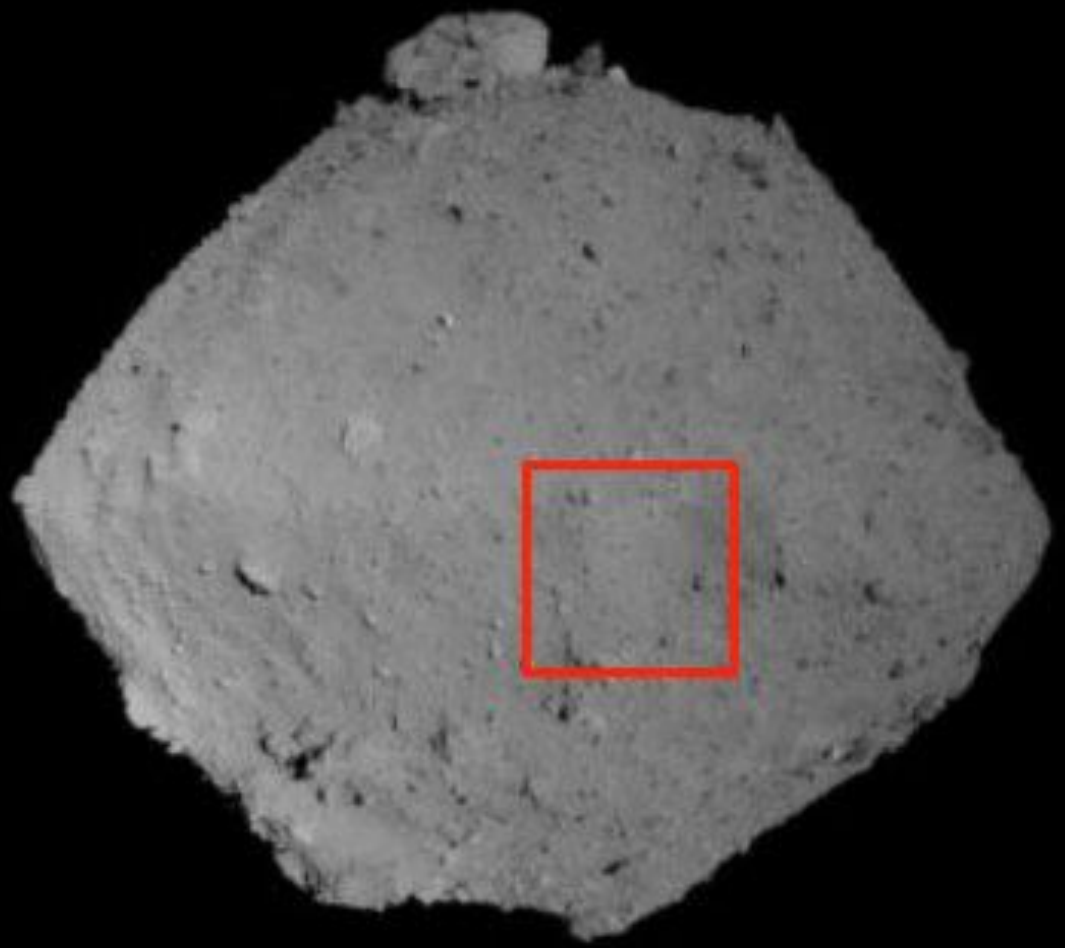
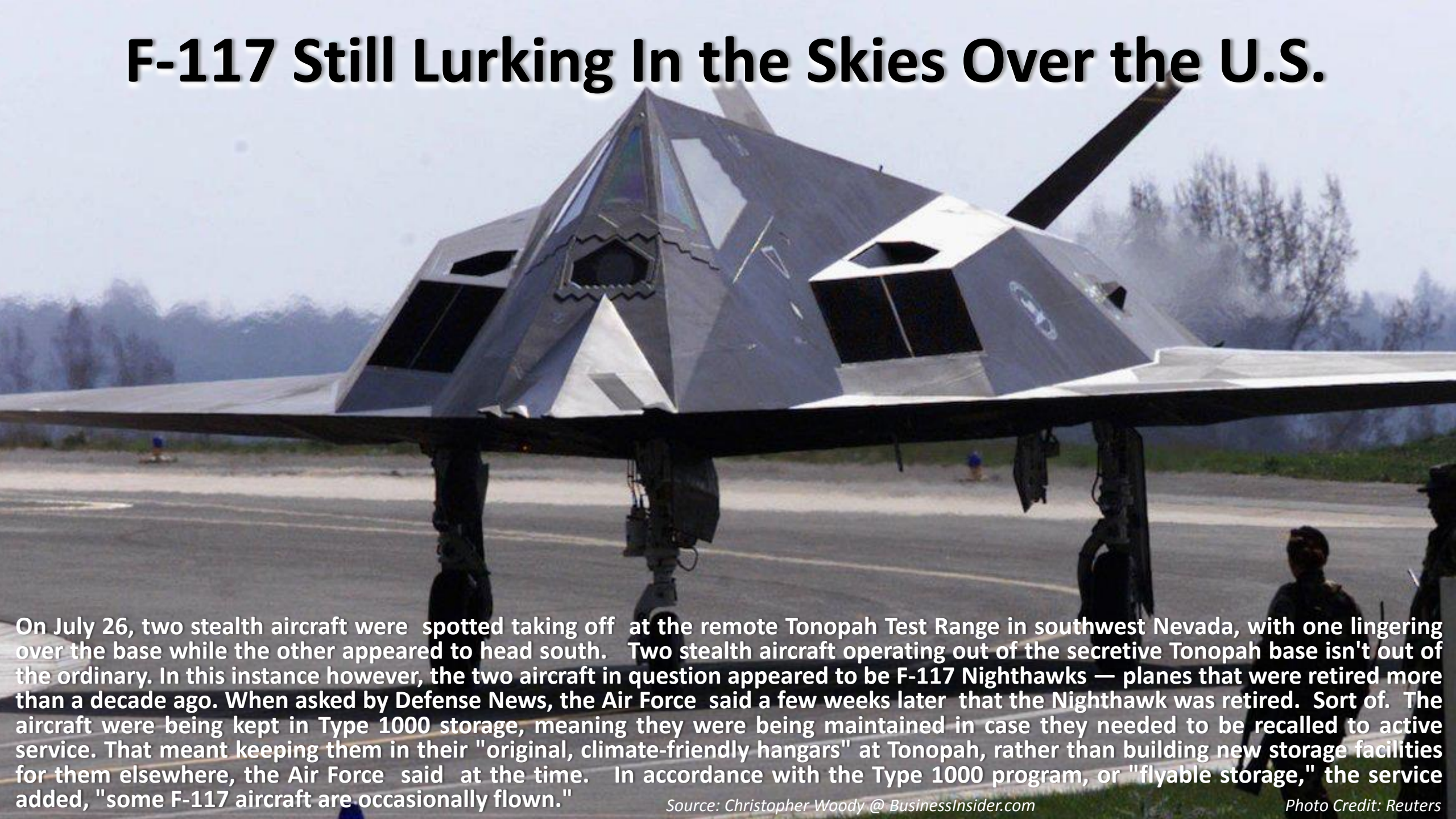


Image Credit: JAXA, University of Tokyo, Koichi University, Rikkyo University, Nagoya University, Chiba Institute of Technology, Meiji University, University of Aizu, AIST

A Japanese sample-return spacecraft just gave its destination asteroid a special close-up. As Hayabusa2 swept to only 1 kilometer (0.6 miles) above the surface of 162173 Ryugu, it spotted boulders, dust and surface features only a few meters or feet across. It's by far the best view of Ryugu since the spacecraft arrived there about six weeks ago. Japanese controllers were interested in better understanding the gravity of Ryugu. To do so, they put the spacecraft into a temporary free fall during which the controllers monitored monitoring the exact movement of the spacerraft to see how strong the gravitational attraction is from Ryugu. These maneuvers will also be valuable practice for spacecraft controllers as they prepare to bring Hayabusa2 down for a sample return. The spacecraft is expected to scoop up a bit of Ryugu's regolith (soil) before scooting back to Earth in 2020. In the coming months, Hayabusa2 will also drop off a lander and three rovers to explore Ryugu's surface.

Source: Elizabeth Howell @ Space.com

F-117 Still Lurking In the Skies Over the U.S.



On July 26, two stealth aircraft were spotted taking off at the remote Tonopah Test Range in southwest Nevada, with one lingering over the base while the other appeared to head south. Two stealth aircraft operating out of the secretive Tonopah base isn't out of the ordinary. In this instance however, the two aircraft in question appeared to be F-117 Nighthawks — planes that were retired more than a decade ago. When asked by Defense News, the Air Force said a few weeks later that the Nighthawk was retired. Sort of. The aircraft were being kept in Type 1000 storage, meaning they were being maintained in case they needed to be recalled to active service. That meant keeping them in their "original, climate-friendly hangars" at Tonopah, rather than building new storage facilities for them elsewhere, the Air Force said at the time. In accordance with the Type 1000 program, or "flyable storage," the service added, "some F-117 aircraft are occasionally flown."

Source: Christopher Woody @ BusinessInsider.com

Photo Credit: Reuters

Lockheed Martin Delivers Last Upgraded C-5

Lockheed Martin delivered its last C-5M Super Galaxy to the US Air Force on 2 August, ending the service's upgrade program for the Vietnam War-era heavy lift aircraft. Air Mobility Command began a program to modernize the C-5s in 1998 after a study concluded the decades-old aircraft had 80 percent of their service life remaining. Since, Lockheed Martin upgraded 52 C-5s for the USAF with new engines, avionics and diagnostics systems – upgrades which will extend the service life of the fleet out until the 2040s.

Source: Garrett Reim @ FlightGlobal.com

Photo Source: FlightGlobal.com

DARPA Selects Silent Falcon UAV to be Powered by a Laser 10km Away

DARPA's Stand-off Ubiquitous Power/Energy Replenishment-Power Beaning Demo (SUPER PBD) is scheduled to begin testing in January 2019 with the aim of charging the UAV via a laser at a distance of 10km, said the Silent Falcon's Chairman John Brown on 2 August. The Silent Falcon UAV comes with solar panels on its wings, which allows it to charge in flight and extend its mission to about 5 hours, but when receiving charges from a laser it theoretically could fly indefinitely, he said. The Silent Falcon has a 14 ft wing span and 7 ft length. It weighs about 35 lbs. and can carry a 3 kg payload, such as a camera for surveillance.

Source: Garret Reim @ flightglobal.com

Image Credit: Silent Falcon

Airbus sets flight endurance record with Zephyr UAV

Airbus Defence & Space looks to have earned a new world record for aerial endurance by keeping its Zephyr S solar-powered unmanned aircraft aloft for just minutes shy of 26 days. At 25 days 23h 57min, the maiden flight in Arizona lasted nearly twice as long as the previous record-breaking flight of more than 14 days, set by the aircraft's predecessor. The company has applied to have the achievement ratified as a world record.

Source: Dan Thisdell @ FlightGlobal.com

Photo Credit: Airbus

In The News

First Major Piece of NASA's Space Launch System Assembled. NASA's Space Launch System (SLS) has completed a major milestone with the first major piece of the rocket's core stage being fully assembled and ready for integration into other hardware in advance of the vehicle's first test flight—Exploration Mission-1. The forward skirt is just a small part of the 212-foot (65-meter) core stage, but it's an important SLS component. It serves a couple roles, one being to house many of the flight computers, and it also connects the upper part of the rocket to the core stage. *(Lloyd Campbell @ SpaceFlightinsider.com)*

New Horizons Scientists Successfully Observe Stellar Occultation by Ultima Thule. Astronomers have just completed another observation of New Horizons' next flyby target, Ultima Thule as it passed in front of a distant star. This is the third such occultation observed and the data gathered will help the mission team to prepare for the encounter, which is scheduled for Jan. 1, 2019. The data taken during the occultation will provide astronomers with more information about the size, shape and environment of Ultima Thule, which is a small Kuiper Belt Object (KBO) far beyond Pluto. *(Paul Scott Anderson @ AmericaSpace.com)*

USAF Reveals Intentions to Acquire Light Attack Fighter Fleet. After more than a year of flight demonstrations the US Air Force is formally moving the light attack aircraft experiment into the acquisitions phase, with the intention that it will award a production contract to Sierra Nevada Corporation or Textron Aviation in the fourth quarter of fiscal year 2019. "[Light attack aircraft] will provide an affordable, non-developmental aircraft intended to operate globally in the types of irregular warfare environments that have characterized combat operations over the past 25 years," the USAF wrote in its pre-solicitation notice. *(Garrett Reim @ FlightGlobal.com)*

Will The KC-46 Face Another Delay?. Just when it seemed certain that Boeing would deliver the first KC-46A aerial refueling tanker to the U.S. Air Force in October and had seen the last of charges on the program, an outstanding issue with refueling Navy aircraft could cause yet another delay. The Centerline Drogue System (CDS) that will be used to refuel Navy aircraft, which do not use the refueling boom as the method of transferring fuel, requires additional work, the general said. "Until you get that fixed," Everhart said, "that is not accepted."
(Jen DiMascio @ Aerospace Daily & Defense Report)