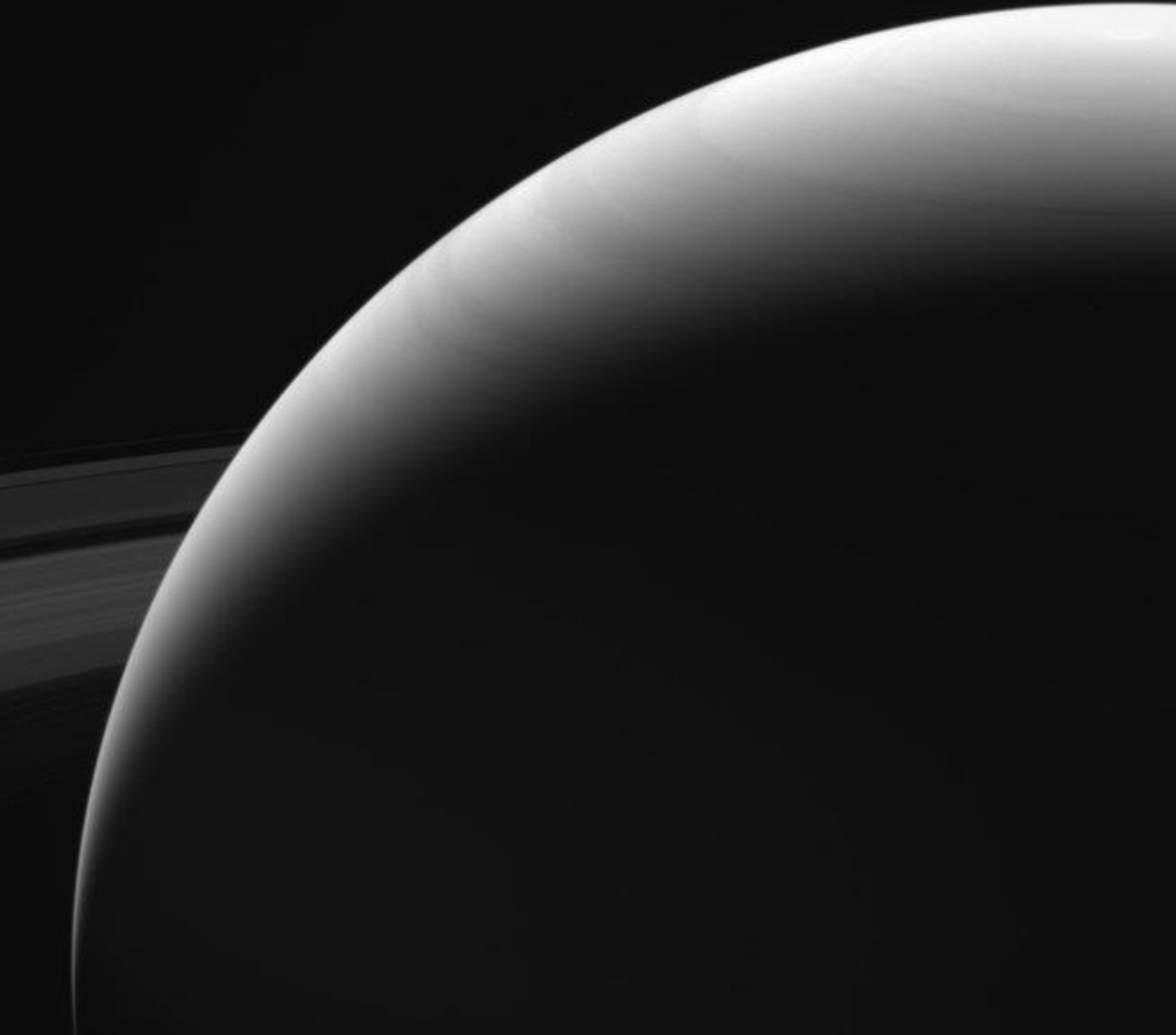


The Aerospace Update



'It Went Perfectly': Cassini Saturn Probe Was a Pro to the Very End



NASA's Cassini spacecraft died the way it lived — as a well-oiled, data-gathering machine. Cassini exceeded its handlers' expectations during its scripted death dive into Saturn's atmosphere Friday (Sept. 15), collecting high-quality data for 30 seconds longer than predicted, mission team members said. "It went perfectly," Cassini spacecraft operations manager Julie Webster said here at NASA's Jet Propulsion Laboratory (JPL) during a news conference after the crash.

This image of Saturn's northern hemisphere was taken by NASA's Cassini spacecraft on Sept. 13, 2017. It is among the last images Cassini sent back to Earth before its mission-ending plunge into Saturn's atmosphere on Sept. 15, 2017.

Source: Nola Taylor Redd, Space.com

Image Credit: NASA/JPL-Caltech/Space Science Institute

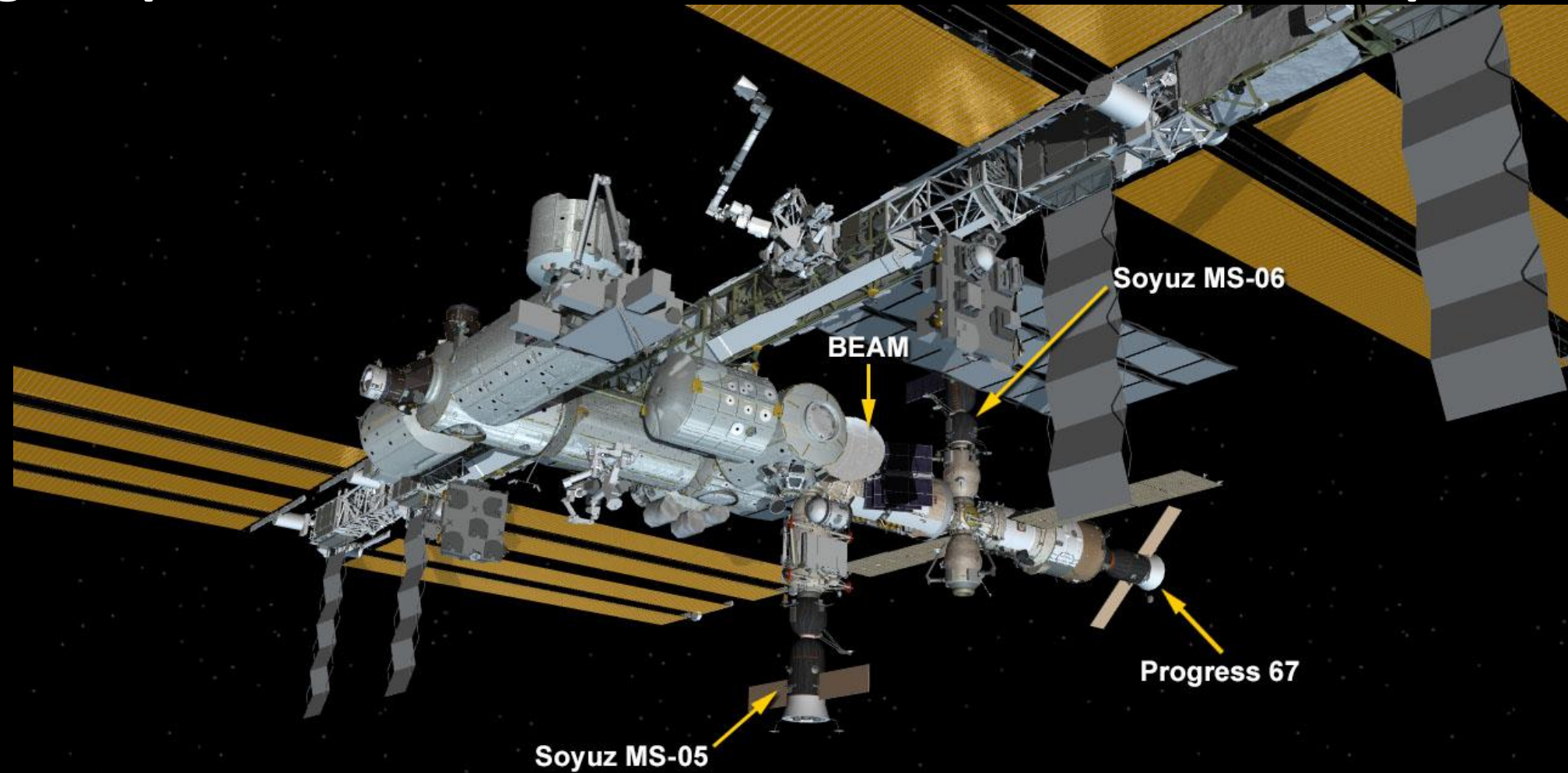
Cassini's Last Looks at Saturn

CASSINI'S LAST LOOKS AT SATURN



Jet Propulsion Laboratory
California Institute of Technology

Dragon Splashes Down in Pacific With NASA Science Experiments



SpaceX's Dragon cargo craft splashed down in the Pacific Ocean at approximately 10:14 a.m. EDT, southwest of Long Beach, California, and the recovery process is underway, marking the end of the company's twelfth contracted cargo resupply mission to the International Space Station for NASA. A variety of technological and biological studies are returning in Dragon. NASA and the Center for the Advancement of Science in Space (CASIS), the non-profit organization that manages research aboard the U.S. national laboratory portion of the space station, will receive time-sensitive samples and begin working with researchers to process and distribute them within 48 hours. The departure of the SpaceX Dragon Sunday morning leaves three spaceships parked at the space station including the Progress 67 resupply ship and the Soyuz MS-05 and MS-06 crew ships.

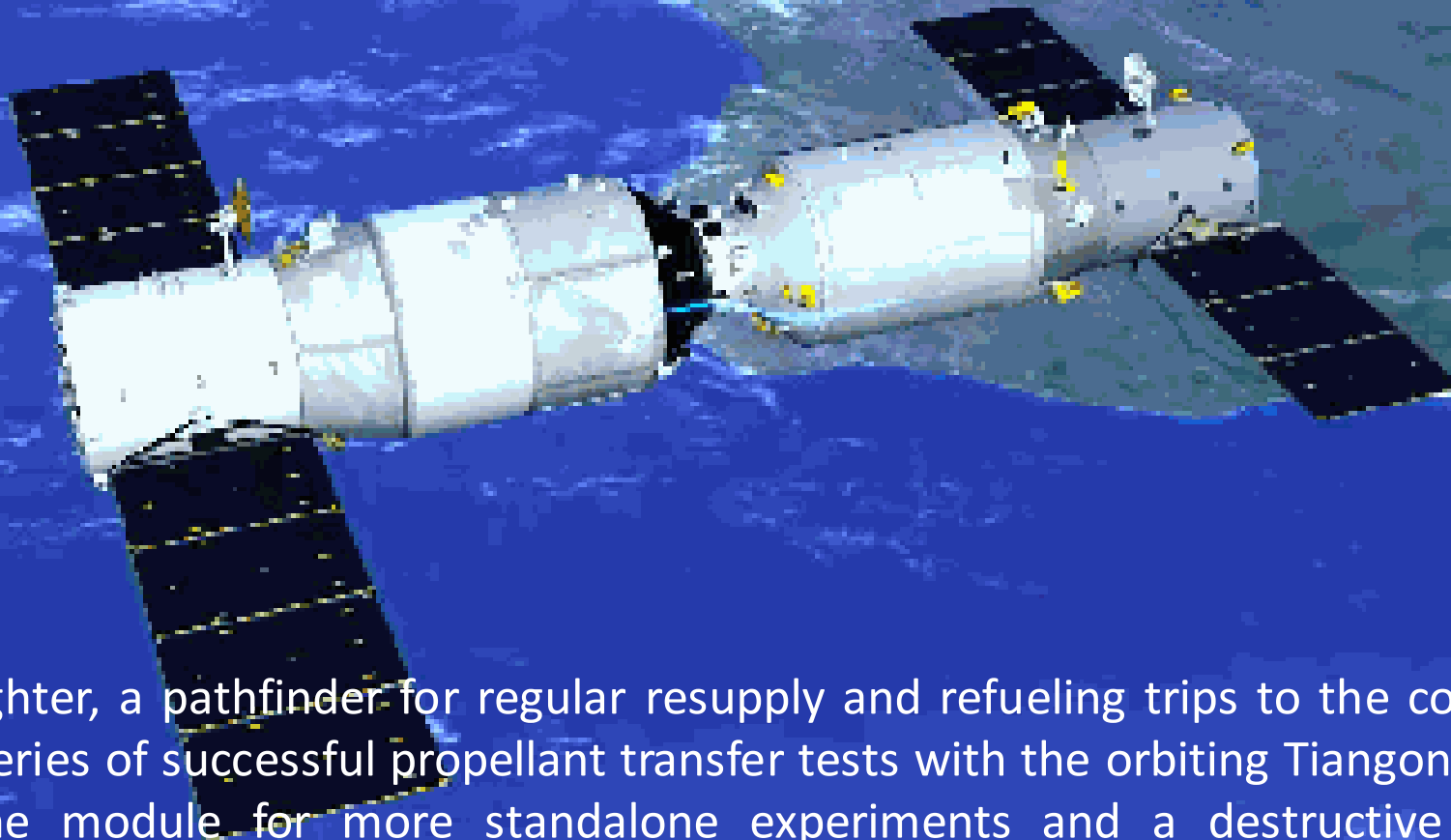
Source & Image Credit: NASA

NASA's Robotic 'Sniffer' Confirms Space Station Leak, Repair



In recent operations on the International Space Station, robotic operators were twice able to test and confirm the ability of the Robotic External Leak Locator (RELL) to “smell” in space. Using the RELL instruments, operators successfully located a small leak from the station’s ammonia coolant loop, and confirmed that it was not a safety concern. Later they were able to return and more precisely characterize the leak. This valuable data helped station operators vent and isolate the leaking line from the coolant loop and successfully stop the leak.

Chinese Space Station Freighter Concludes Refueling Demo Mission



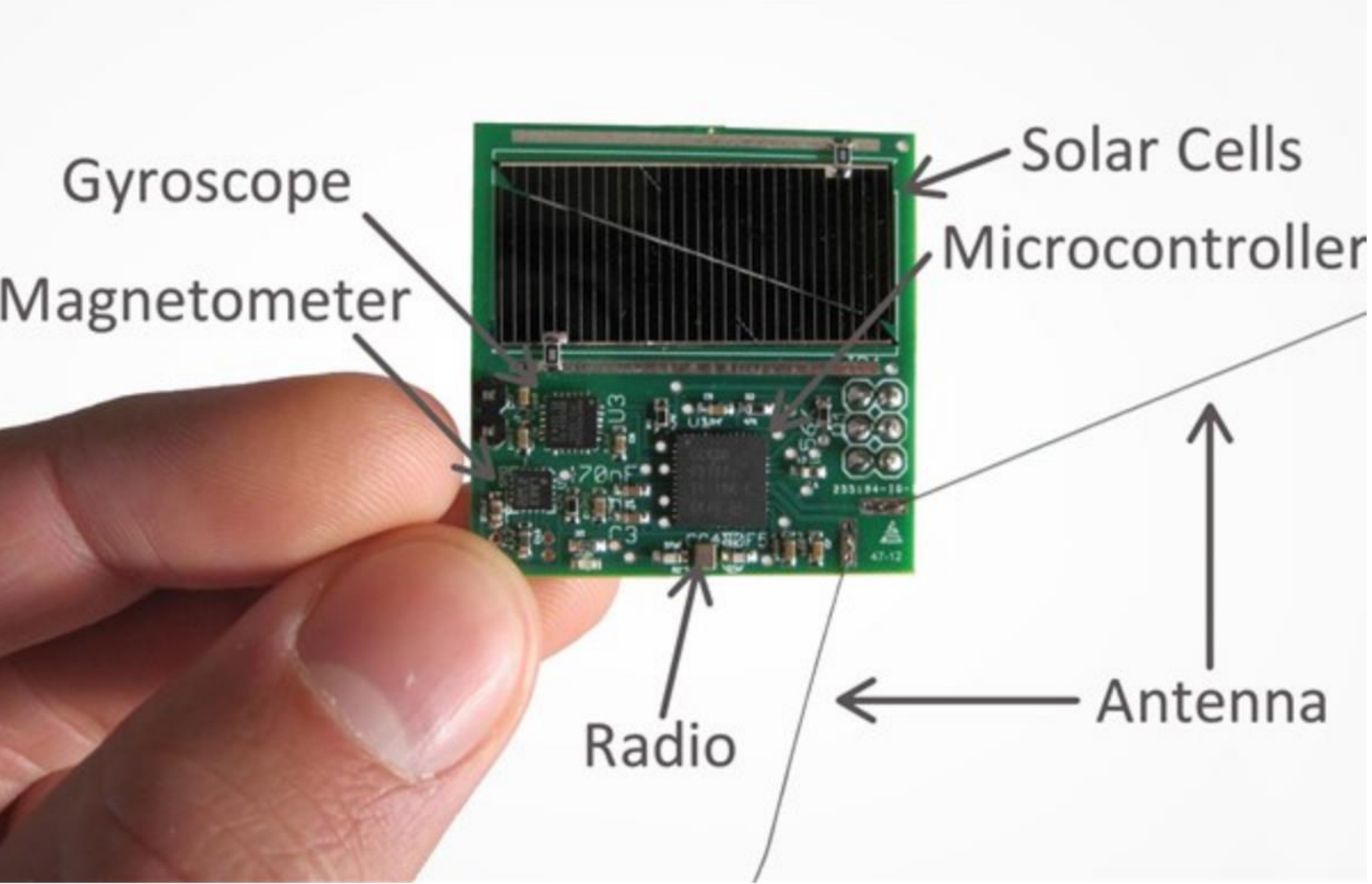
China's Tianzhou 1 freighter, a pathfinder for regular resupply and refueling trips to the country's planned space station, wrapped up a series of successful propellant transfer tests with the orbiting Tiangong 2 space lab Saturday and detached from the module for more standalone experiments and a destructive re-entry into Earth's atmosphere. Chinese officials have not said when Tianzhou 1 will re-enter the atmosphere.

Martian Ridge Looming Above Curiosity Prior to Ascent



NASA's Mars rover Curiosity has begun the steep ascent of an iron-oxide-bearing ridge that's grabbed scientists' attention since before the car-sized rover's 2012 landing. "Vera Rubin Ridge" stands prominently on the northwestern flank of Mount Sharp, resisting erosion better than the less-steep portions of the mountain below and above it. In orbital spectrometer observations, the iron-oxide mineral hematite shows up more strongly at the ridge top than elsewhere on lower Mount Sharp, including locations where Curiosity has already found hematite. Researchers seek to gain better understanding about why the ridge resists erosion, what concentrated its hematite, whether those factors are related, and what the rocks of the ridge can reveal about ancient Martian environmental conditions.

World's Smallest Spacecraft Is Prelude to Enormous Voyage



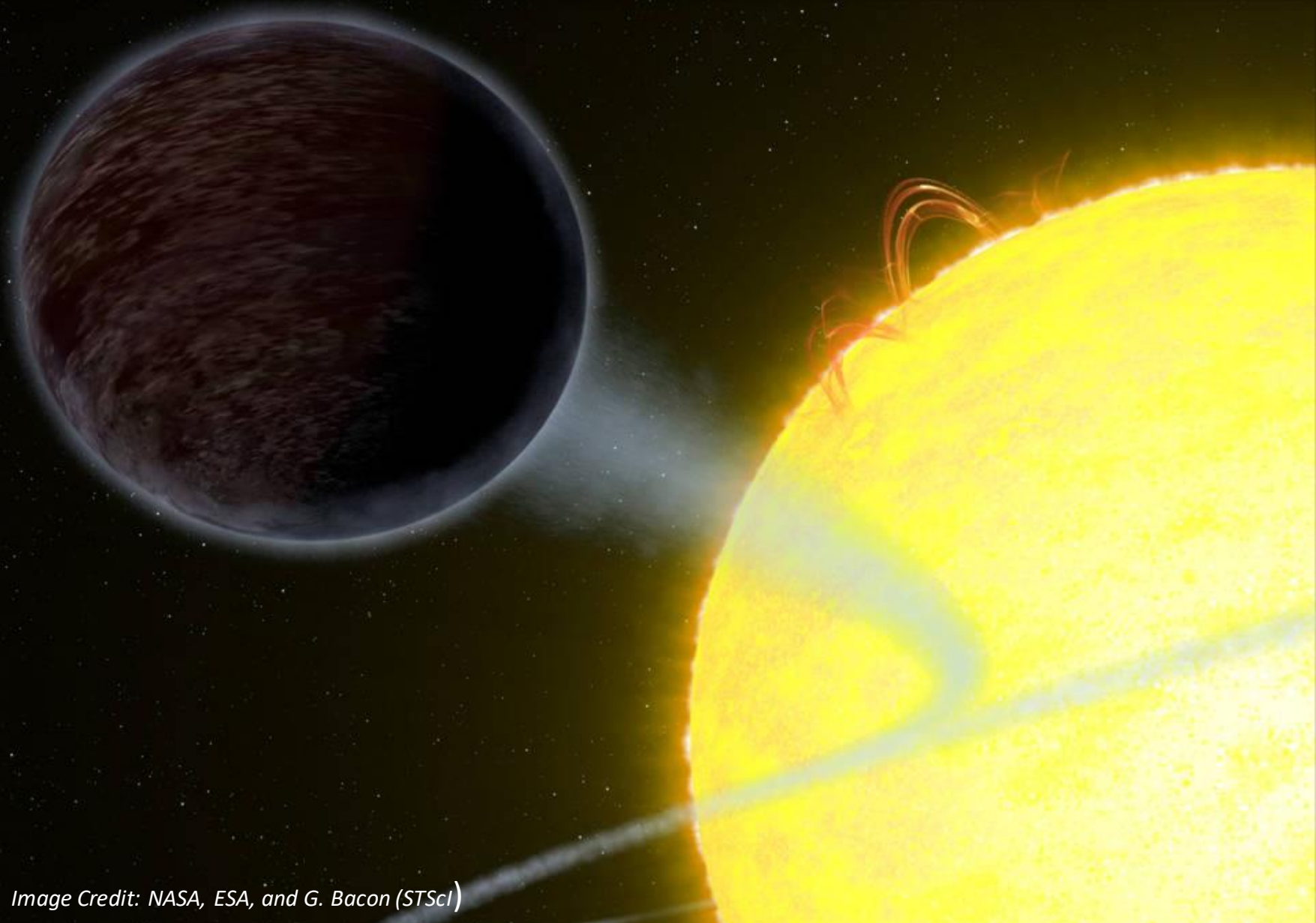
In pursuit of one of space exploration's biggest dreams — sending a spacecraft to a nearby star system to look for evidence of alien life — Breakthrough Starshot is putting its faith in the very small. The \$100-million R&D initiative recently launched into Earth orbit multiple copies of what it calls the world's smallest fully functional space probe. Breakthrough Starshot, which was announced in 2016 by physicist Stephen Hawking and billionaire entrepreneur Yuri Milner, sees the Sprites as the next step in the development of light-propelled "StarChip" probes that one day could visit three exoplanets in the Alpha Centauri system to search for signs of life.

NASA's Hubble Captures Blistering Pitch-Black Planet

NASA's Hubble Space Telescope has observed a planet outside our solar system that looks as black as fresh asphalt because it eats light rather than reflecting it back into space. This light-eating prowess is due to the planet's unique capability to trap at least 94 percent of the visible starlight falling into its atmosphere. The oddball exoplanet, called WASP-12b, is one of a class of so-called "hot Jupiters," gigantic, gaseous planets that orbit very close to their host star and are heated to extreme temperatures. The planet's atmosphere is so hot that most molecules are unable to survive on the blistering day side of the planet, where the temperature is 4,600 degrees Fahrenheit. Therefore, clouds probably cannot form to reflect light back into space. Instead, incoming light penetrates deep into the planet's atmosphere where it is absorbed by hydrogen atoms and converted to heat energy.

Source: NASA, ESA & STScI

Image Credit: NASA, ESA, and G. Bacon (STScI)



Northern Lights Over Canada



The spectacular aurora borealis, or the “northern lights,” over Canada is sighted from the International Space Station near the highest point of its orbital path. The station’s main solar arrays are seen in the left foreground. This photograph was taken by a member of the Expedition 53 crew aboard the station on Sept. 15, 2017.

Source & Image Credit: NASA

Second Comac C919 Flight Imminent, Five Months After First Flight



The Comac C919 will probably make its second test flight in October, five months after it first flew. The program has had many issues since the May 5 first flight, says Comac Chief Designer Wu Guanghui. None of these has been the result of some fault on Comac's part, Wu says, declining to give details. The C919, similar in size to the Airbus A320, is intended to seat 158 passengers in a standard two-class configuration. It is powered by the CFM Leap-1C engine. The five-month interval between the type's first two flights is extraordinary. The Mitsubishi Aircraft MRJ regional jet program, itself a troubled development effort, achieved its second test flight eight days after the first in 2015. For the Airbus A350 in 2013 the interval was five days.

Boeing Displays Missionized MH-139 At Air Show



Boeing has stepped up its campaign to capture the U.S. Air Force's 84-helicopter UH-1N Huey replacement program, displaying a missionized version of its MH-139 at the Andrews Air Show over the weekend. The company's proposal is based on the Leonardo AW139 built in Philadelphia. Boeing rebranded one of Leonardo's demonstration models as the multi-mission MH-139 as part of its Air Force-focused marketing campaign.

Sept. 18, 1977

Voyager 1 Takes the First Image of the Earth-Moon System in a Single Frame



On Sept. 18, 1977, Voyager 1 snapped this picture from a distance of 7.25 million miles. It was the first to include both the Earth and the Moon in a single frame taken by a spacecraft.

Source & Image Credit: NASA

In The News



Northrop Grumman to Acquire Orbital ATK. Northrop Grumman will acquire Orbital ATK in a \$9.2 billion deal announced Sept. 18th that will give the combined company complementary capabilities in space and defense systems. Orbital ATK will become a fourth division of Northrop Grumman bringing to the company complementary capabilities such as launch vehicles like the Minotaur 4 (above) and satellite manufacturing. *(Jeff Foust @ SpaceNews.com)*



ESA signs up as Ariane 6 inaugural customer with two Galileo missions. The European Space Agency stepped up to be Arianespace's first customer for the next-generation Ariane 6 rocket, while keeping Soyuz as a backup option. Signing the contract on behalf of the European Commission and the European Union, ESA agreed to launch four Galileo navigation satellites two at a time on Ariane 6 rockets. *(Caleb Henry @ SpaceNews.com)*



Boeing to Boost Dreamliner Production. Boeing Co. said Wednesday, Sept 13th that it will boost monthly output of its 787 Dreamliner passenger jet to 14 from 12 in 2019, in a sign of its confidence of a rebound in demand for wide-body planes. *(Doug Cameron @ WSJ.com)*



Virgin Orbit Confirms SpaceBelt Launch Deal. Satellite developer Cloud Constellation has formally selected Virgin Orbit's LauncherOne rocket to deploy the first 12 spacecraft forming its initial SpaceBelt constellation of space-based cloud storage data centers. The SpaceBelt constellation will consist of a secure space-based system of interconnected data centers that share protected information through laser communication links and send data to customer terminals on Earth. *(Guy Norris @ Aerospace Daily & Defense Report)*



KC-46A Testing Glitches Could Delay USAF Tanker Milestone. Despite earlier assurances that Boeing would deliver the US Air Force's first 767-based KC-46A tanker by the end of this year, boom scraping issues and a slew of uncompleted test points may delay delivery until 2018, the head of its Air Mobility Command has revealed. More than half way into testing, the USAF has discovered severe flaws on the tanker, known as "category 1 deficiencies". Among the most glaring, the tip of its boom has on occasion struck receiver aircraft outside their refuelling slipways. *(LEIGH GIANGRECO @ FlightGlobal.com)*