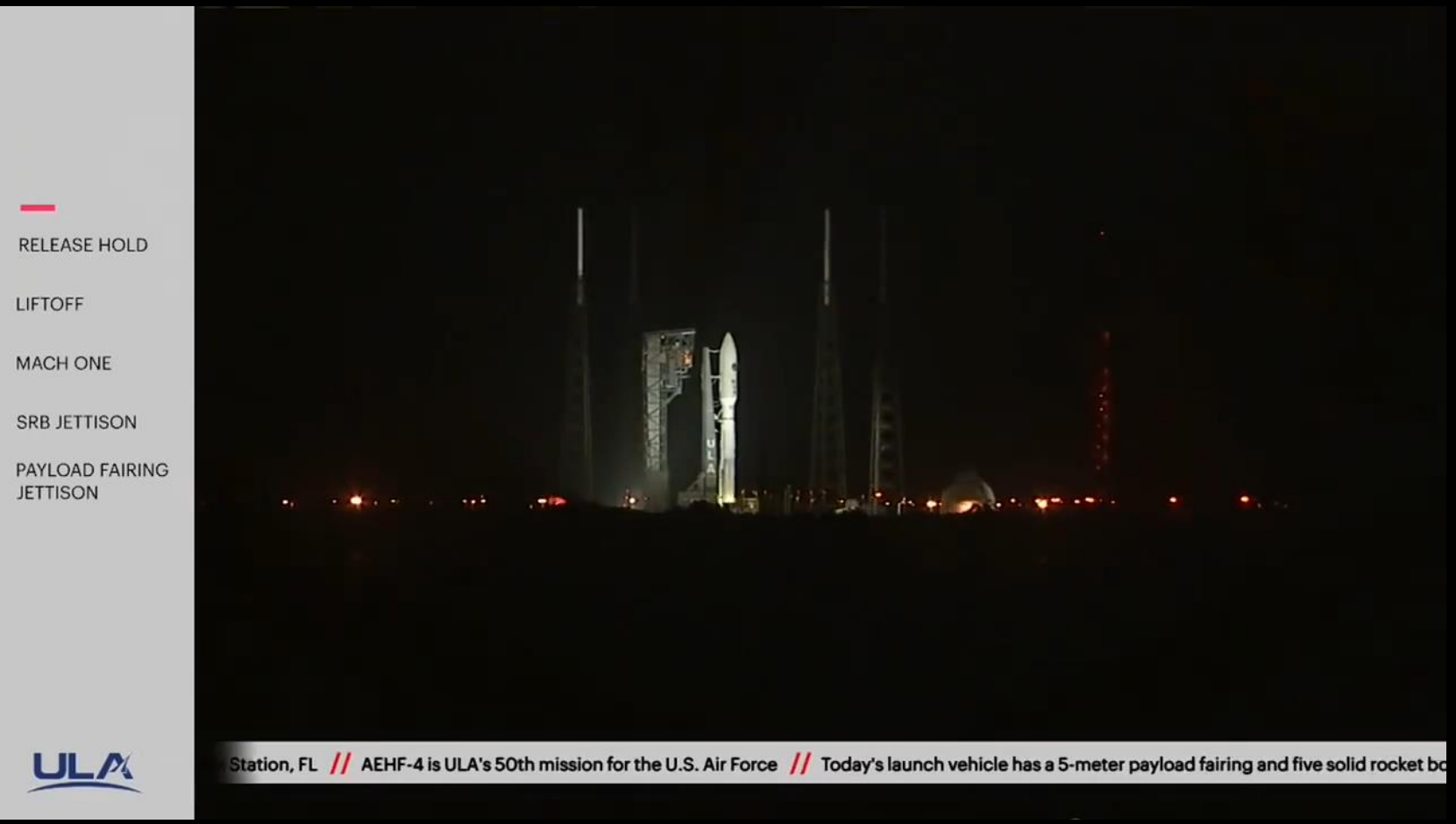
The Aerospace Update

Atlas 5 Launches AEHF Satellite

Oct. 18, 2018

Image Credit: ULA

ATLAS 5 Launches Fourth AEHF Communications Satellite

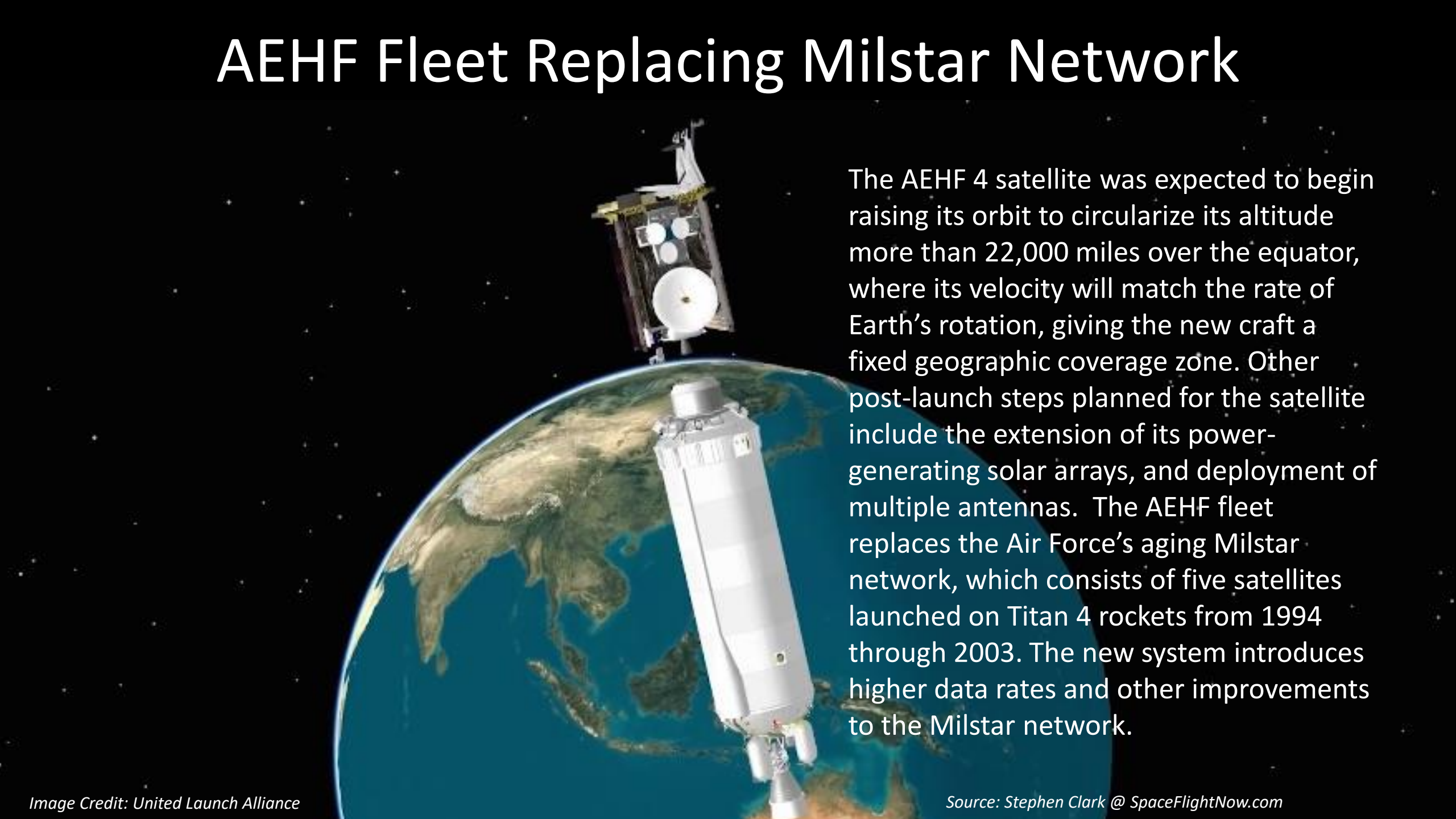


Video Credit: United Launch Alliance

A $1.8 billion U.S. Air Force communications satellite rode a United Launch Alliance Atlas 5 rocket into orbit Wednesday, Oct 17th from Cape Canaveral, joining three similar craft perched more than 22,000 miles above Earth to ensure government leaders can remain in contact with military commanders in the worst-case scenario of nuclear war. The Air Force relay satellite, built by Lockheed Martin with payload contributions by Northrop Grumman, will join three other Advanced Extremely High Frequency satellites to form a global network military officials say will be resilient to jamming, cyber attacks, and even nuclear war.

Source: Stephen Clark @ SpaceFlightNow.com

AEHF Fleet Replacing Milstar Network



The AEHF 4 satellite was expected to begin raising its orbit to circularize its altitude more than 22,000 miles over the equator, where its velocity will match the rate of Earth's rotation, giving the new craft a fixed geographic coverage zone. Other post-launch steps planned for the satellite include the extension of its power-generating solar arrays, and deployment of multiple antennas. The AEHF fleet replaces the Air Force's aging Milstar network, which consists of five satellites launched on Titan 4 rockets from 1994 through 2003. The new system introduces higher data rates and other improvements to the Milstar network.

Image Credit: United Launch Alliance

Source: Stephen Clark @ SpaceFlightNow.com

Collision of Rocket Components Blamed for Soyuz MS-10 Abort

Photo Credit: ROSCOSMOS

Roscosmos has announced the initial results of its investigation into the Soyuz MS-10 launch failure. According to the agency, the emergency abort was caused by a collision of elements during the separation of Soyuz-FG rocket's first stage. New information suggests that one of the four strap-on boosters failed to separate properly and that it might have even struck the rocket's core stage. A collision occurred during the separation of the first and second stages," said Sergei Krikalyov, Roscosmos Executive Director for Manned Flights via a report that appeared on TASS. Krikalyov added that the collision caused a disintegration of the lower part of the core stage. This accident most likely stopped the rocket's normal flight sequence. The root cause of why this collision occurred is still under investigation.

Source: Tomasz Nowakowksi @ SpaceFlightInsider.com

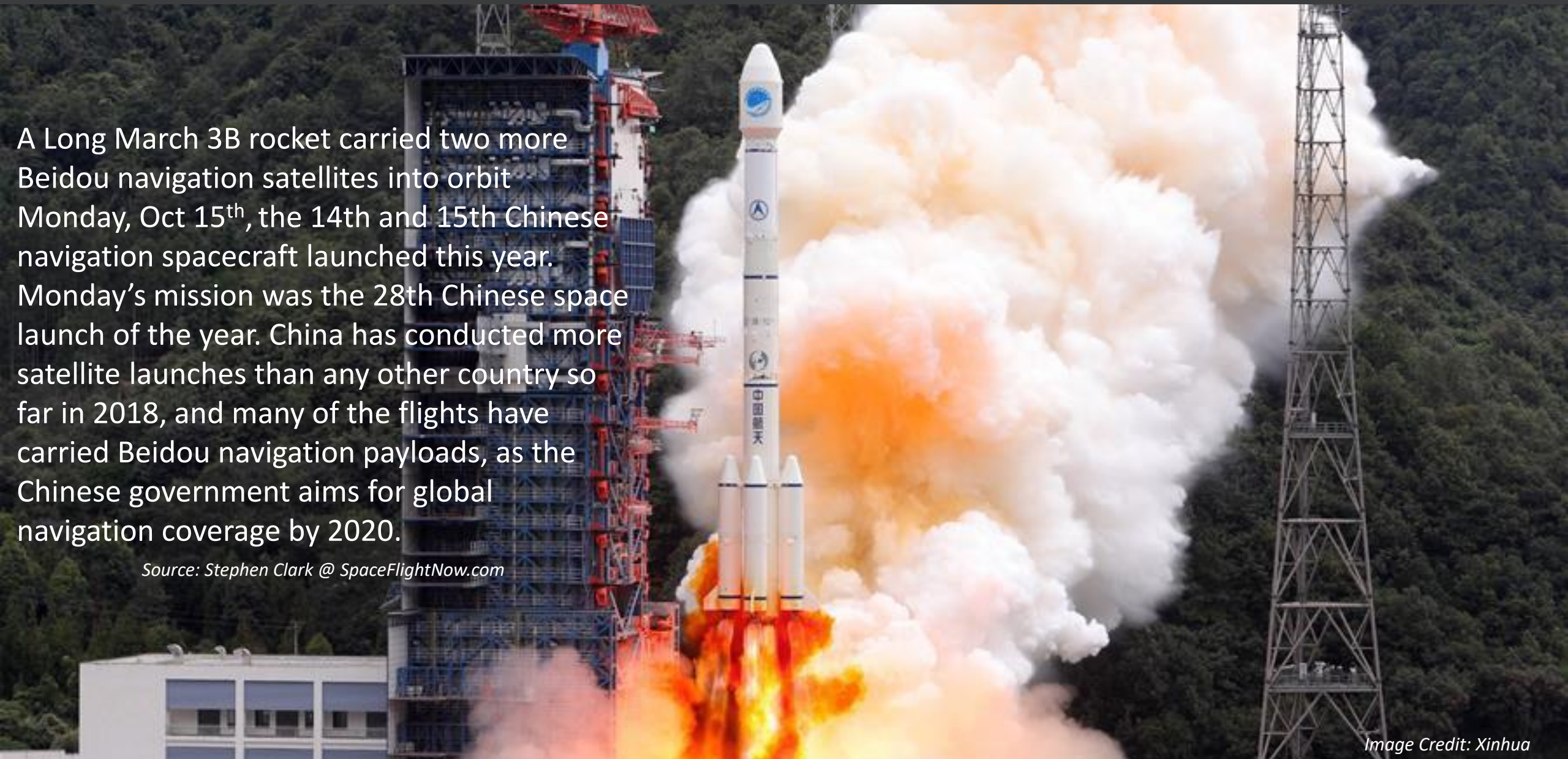
Safety Panel Says Much Work Left to do Before Commercial Crew Ships Fly

NASA safety advisors on Thursday lauded hardware milestones on Boeing and SpaceX commercial crew capsules, but said multiple technical issues, including problems with parachutes, must be resolved before the human-rated ships are ready to carry astronauts, adding that both companies continue to pursue schedules that appear to be unachievable. SpaceX plans to launch its first Crew Dragon spacecraft on an unpiloted mission to the International Space Station as soon as January. Boeing plans a similar orbital test flight, without astronauts, no earlier than March. Assuming the flights go well, those fully autonomous demo missions will be followed by crew flight tests — in June for SpaceX's Crew Dragon and in August for Boeing's CST-100 Starliner — according to a schedule update published by NASA last week. The failure of a Soyuz rocket Thursday during the launch of a two-man crew bound for the space station raised questions about whether crews can remain on the space station if Russia's investigation into the accident keeps future astronaut launches grounded.

Source: Stephen Clark @ SpaceFlightNow.com

Image Credit: NASA/SpaceX

China Launches Two More Beidou Navigation Satellites



A Long March 3B rocket carried two more Beidou navigation satellites into orbit Monday, Oct 15th, the 14th and 15th Chinese navigation spacecraft launched this year. Monday's mission was the 28th Chinese space launch of the year. China has conducted more satellite launches than any other country so far in 2018, and many of the flights have carried Beidou navigation payloads, as the Chinese government aims for global navigation coverage by 2020.

Source: Stephen Clark @ SpaceFlightNow.com

Image Credit: Xinhua

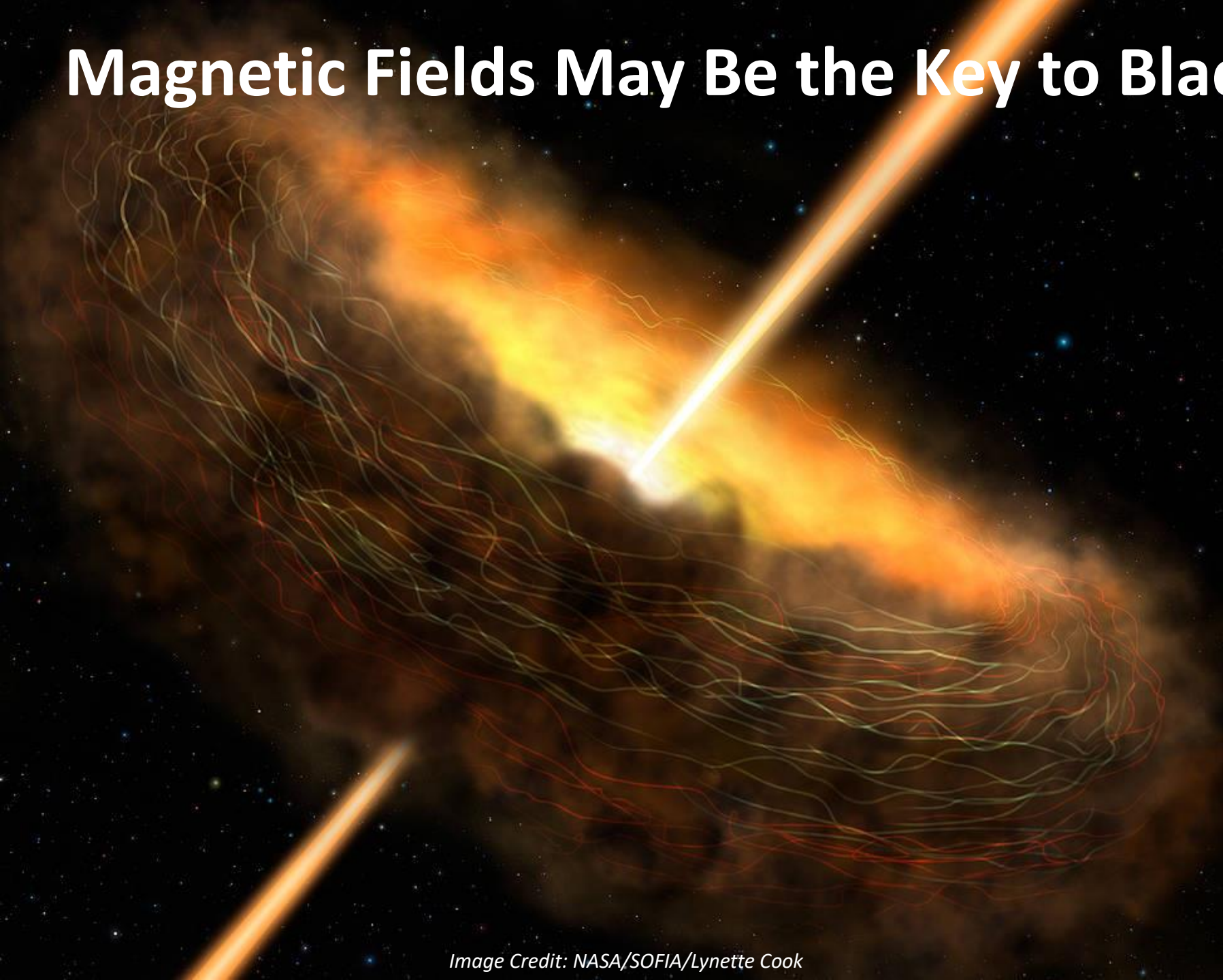
Chandra Operations Resume After Cause of Safe Mode Identified

Image Credit: NASA/CXC/SAO

The cause of Chandra's safe mode on October 10 has now been understood and the Operations team has successfully returned the spacecraft to its normal pointing mode. The safe mode was caused by a glitch in one of Chandra's gyroscopes resulting in a 3-second period of bad data that in turn led the on-board computer to calculate an incorrect value for the spacecraft momentum. The erroneous momentum indication then triggered the safe mode. The team has completed plans to switch gyroscopes and place the gyroscope that experienced the glitch in reserve. Once configured with a series of pre-tested flight software patches, the team will return Chandra to science operations which are expected to commence by the end of this week.

Source: Brian Dunbar @ NASA.gov

Magnetic Fields May Be the Key to Black Hole Activity



Parallel jets provide astronomers with some of the most powerful evidence that a supermassive black hole lurks in the heart of most galaxies. Some of these black holes appear to be active, gobbling up material from their surroundings and launching jets at ultra-high speeds, while others are quiescent, even dormant. Recent observations from SOFIA, the Stratospheric Observatory for Infrared Astronomy, are shedding light on this question. SOFIA data indicate that magnetic fields are trapping and confining dust near the center of the active galaxy, Cygnus A, and feeding material onto the supermassive black hole at its center. This artist's conception of the core of Cygnus A shows the dusty donut-shaped surroundings, called a torus, and jets launching from its center. Magnetic fields are illustrated trapping the dust in the torus.

Image Credit: NASA/SOFIA/Lynette Cook

Source: NASA.gov

Huge Alien Planets Detected Around Baby Star for First Time Ever

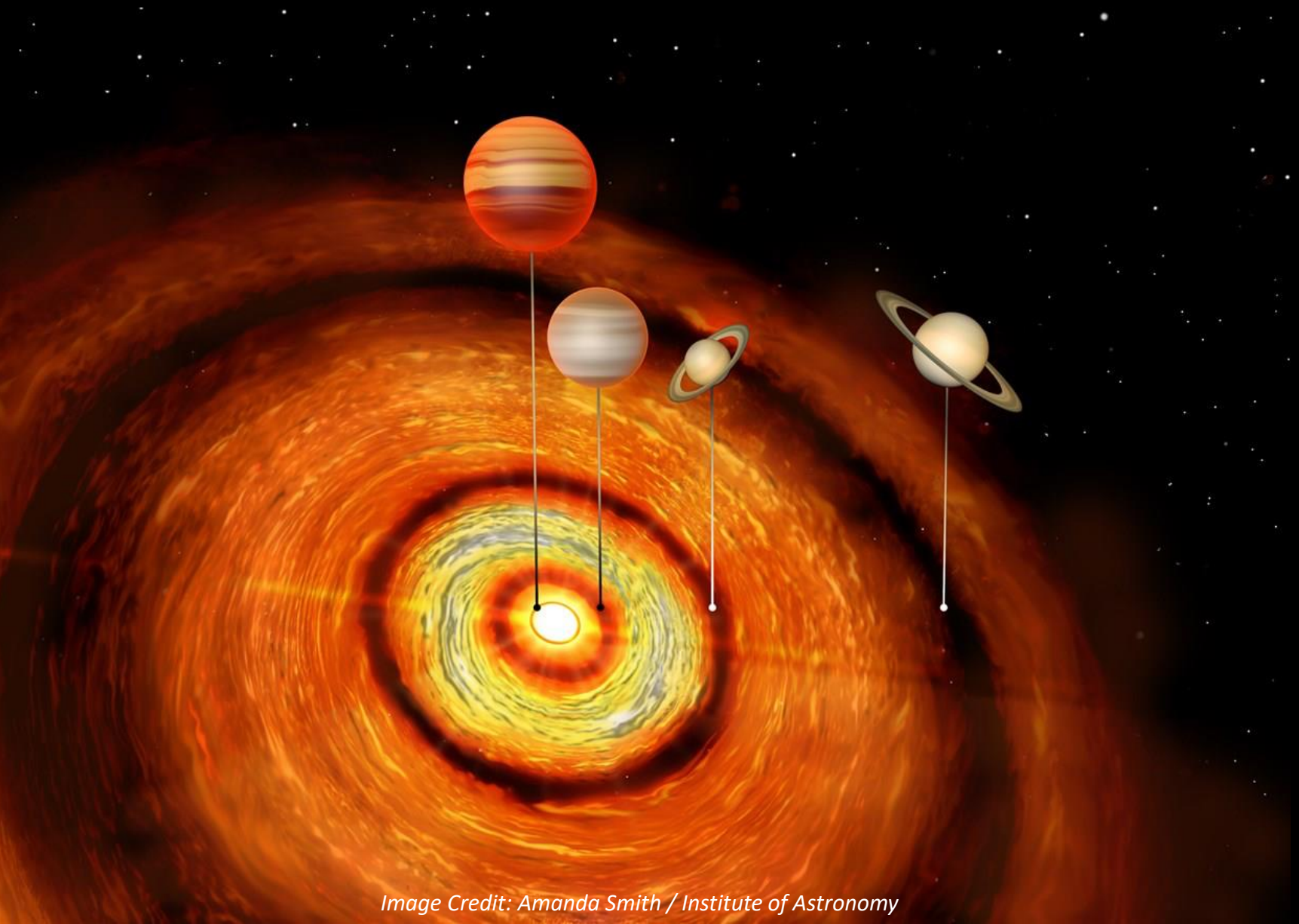


Image Credit: Amanda Smith / Institute of Astronomy

In a discovery that raises questions about long-held ideas about how planets form, astronomers have detected several enormous planets in orbit around a young star — in this case CI Tau, a 2-million-year-old star about 500 light-years away in the constellation Taurus. This is the first time multiple gas giant planets have been observed orbiting a "toddler" star. Our Milky Way galaxy is filled with stars that have been around for billions of years; our sun is about 4.5 billion years old. It's also the first time such extreme variation has been observed in the orbits of planets within a star system. The astronomers found that the outermost of CI Tau's known planets orbits at a distance 1,000 times greater than the orbit of its innermost planet, which is designated a "hot Jupiter" because of its size and its tight orbit around its host star.

Source: David Freeman @ nbcnews.com

Boeing Business Jets Delivers First BBJ MAX Airplane

Boeing Business Jets (BBJ) has delivered the first BBJ MAX airplane to a customer, the company announced today at the National Business Aviation Conference and Exhibition (NBAA-BACE). The aircraft is scheduled to fly to an interior finishing center.

Source: Staff Writers @ bizjournal.com
Image Credit: Boeing

Emirates Airbus A380 Order is in Trouble

Image Credit: Emirates

Emirates agreed to order 20 Airbus A380 airliners along with an option for 16 additional superjumbos in January. Now, the $16 billion deal is reportedly in trouble, according to Bloomberg. Negotiations between Emirates and engine supplier Rolls-Royce have hit a snag. The two parties can't agree on a price and fuel burn standards for the engines which has caused Emirates to miss an engine selection deadline.

Source: Benjamin Zhang @ businessinsider.com

Unmanned Biplane Freighter Takes Flight in China

A Chinese research institute has conducted a test flight of what it claims Is the world's largest unmanned transport aircraft. The aircraft used for the test was a modified Shifei Y-5B biplane, according to official news portal *China Daily.* Designated the Feihong-98 (FH-98), the aircraft modified by the China Academy of Aerospace Electronics Technology, an institute under the China Aerospace Science and Technology Corporation (CASC). The Y-5B is based on the widely produced Antonov AN-2, which first flew in 1947. The report quotes an institute official as saying that the aircraft is easy to operate, and has a maximum takeoff weight of 5.25t, with a maximum capacity of 1.5t. It can take off in 150m, making it suitable for logistics support in areas with challenging terrain. The aircraft's range is 1,200km

Source: Greg Waldron @ FlightGlobal.com

Photo Source: haydzayn.am

Launching the Galileo Mission

Oct. 18, 1989

Space Shuttle Atlantis deployed the Galileo spacecraft six hours, 30 minutes into the flight on Oct. 18, 1989. In this image, Galileo, mounted atop the inertial upper stage, is tilted to a 58-degree deployment position in Atlantis's payload bay with the Earth's limb appearing in the background. While its aim was to study Jupiter and its mysterious moons, which it did with much success, the Galileo mission also became notable for discoveries during its journey to the gas giant. It was the first spacecraft to visit an asteroid -- two in fact, Gaspra and Ida. Galileo provided the only direct observations of a comet colliding with a planet. And its flight past Venus in 1990 yielded fascinating infrared images of the planet's clouds. After discoveries, including evidence for the existence of a saltwater ocean beneath the Jovian moon Europa's icy surface, extensive volcanic processes on the moon Io and a magnetic field generated by the moon Ganymede, Galileo plunged into Jupiter's atmosphere on September 21, 2003, to prevent an unwanted impact with Europa.

Source & Image Credits: NASA.gov

Paul G. Allen: 1953 – 2018

Paul Allen, the billionaire co-founder of Microsoft who backed the winning entry in a suborbital spaceflight competition and later funded development of a massive air-launch system, passed away Oct. 15th. Among his many pursuits was an interest in spaceflight which led to his partnership with famed aircraft designer Burt Rutan, who was pursuing ideas for suborbital vehicles to compete for the $10 million X Prize. The two reached an agreement in 2000 to develop what became known as SpaceShipOne. Allen ultimately spent $28 million to fund SpaceShipOne, which won the renamed Ansari X Prize in October 2004 after performing two suborbital spaceflights less than a week apart. Allen returned to the space business in 2011 when he announced he was funding development of a new venture, Stratolaunch Systems, that would develop an air-launch system on a scale never before attempted. That concept involved the development of an aircraft with a wingspan longer than any other in the world that would be used as a platform for launching rockets. The plane is just now approaching its first flight, having performed its latest taxi test last week, reaching speeds of about 130 kilometers

In The News

Rocket Lab Selects Wallops for U.S. Launch Site. Small launch vehicle company Rocket Lab announced Oct. 17 that it will build its second launch pad, and first in the United States, at Wallops Island in Virginia. The company, headquartered in the United States but with much of its operations in New Zealand, said it will build Launch Complex (LC) 2 at the Mid Atlantic Regional Spaceport, located at NASA's Wallops Flight Facility here. Construction of the pad is set to start almost immediately, with the company planning a first launch from the site in the third quarter of 2019. *(Jeff Foust @ SpaceNews.com)*

Hurricane-Damaged Fighter Jets Look 'Fixable'. U.S. Defense Secretary Jim Mattis says early reports indicate the U.S. F-22 fighter jets left behind at Tyndall AFB, Florida, during the category four Hurricane Michael are "fixable." The Air Force will not confirm the number of F-22s that were left at Tyndall during the storm. The reason they were not evacuated to Wright-Patterson AFB, Ohio, is because of spare parts or maintenance issues. *(Lee Hudson @ Aerospace Daily & Defense Report)*

Harris and L3 Agree Merger to Become Sixth Largest U.S. Defense Contractor. Harris Corp. and L3 Technologies expect their $34 billion merger, announced Sunday, will create the sixth largest defense contractor in the United States while saving $500 million in corporate costs by three years of closing. The combined company, to be called L3 Harris Technologies, Inc., will employ roughly 48,000 people, including some 22,500 scientists and engineers, and will be headquartered in Melbourne, Florida. *(Caleb Henry @ SpaceNews.com)*

Boeing Will Miss October Delivery Target for KC-46 Pegasus Tanker. Boeing will not deliver its first KC-46 Pegasus aerial refueling tanker by its October target, U.S. Air Force Secretary Heather Wilson said on Wednesday. Wilson said the Air Force and Boeing continue to work through unresolved deficiencies as the militarized 767 jet progresses toward its Military Type Certificate. *(Daniel McCoy @ Wichita Business Journal)*

Final Iridium Next Launch Scheduled for Dec. 30 Falcon 9 Mission. The last mission needed to complete Iridium Communications' second-generation satellite constellation is scheduled for Dec. 30, Iridium CEO Matt Desch said today. Desch said the launch is set for 8:38 a.m. Pacific Standard Time from Vandenberg Air Force Base in California. The launch will also use a previously flown first-stage booster, marking the third time Iridium switched from a new rocket. (*Caleb Hnery @ SpaceNews.com)*

International Observe the Moon Night is a worldwide celebration of lunar science and exploration held annually since 2010. One day each year, everyone on Earth is invited to observe and learn about the Moon together, and to celebrate the cultural and personal connections we all have with our nearest neighbor.

Source & Image Credits: NASA/gov