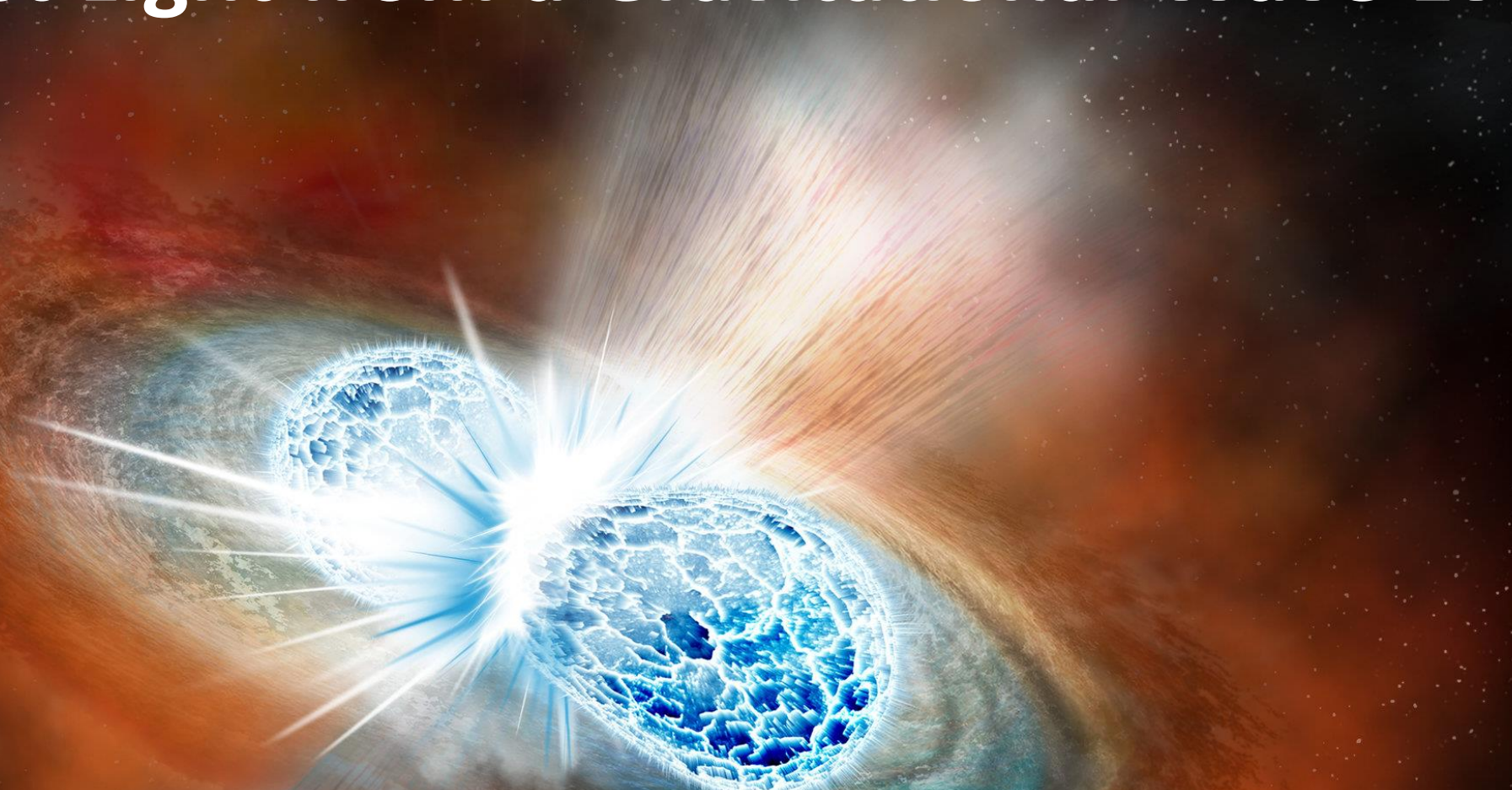


The Aerospace Update



First Light from a Gravitational-Wave Event

First Light from a Gravitational-Wave Event



For the first time ever, scientists have spotted both gravitational waves and light coming from the same cosmic event — in this case, the cataclysmic merger of two super dense stellar corpses known as neutron stars. The landmark discovery initiates the field of "multi-messenger astrophysics," which promises to reveal exciting new insights about the cosmos, researchers said. The find also provides the first solid evidence that neutron-star smashups are the source of much of the universe's gold, platinum and other heavy elements.

ATLAS 5 Launches Classified NROL 52 Satellite

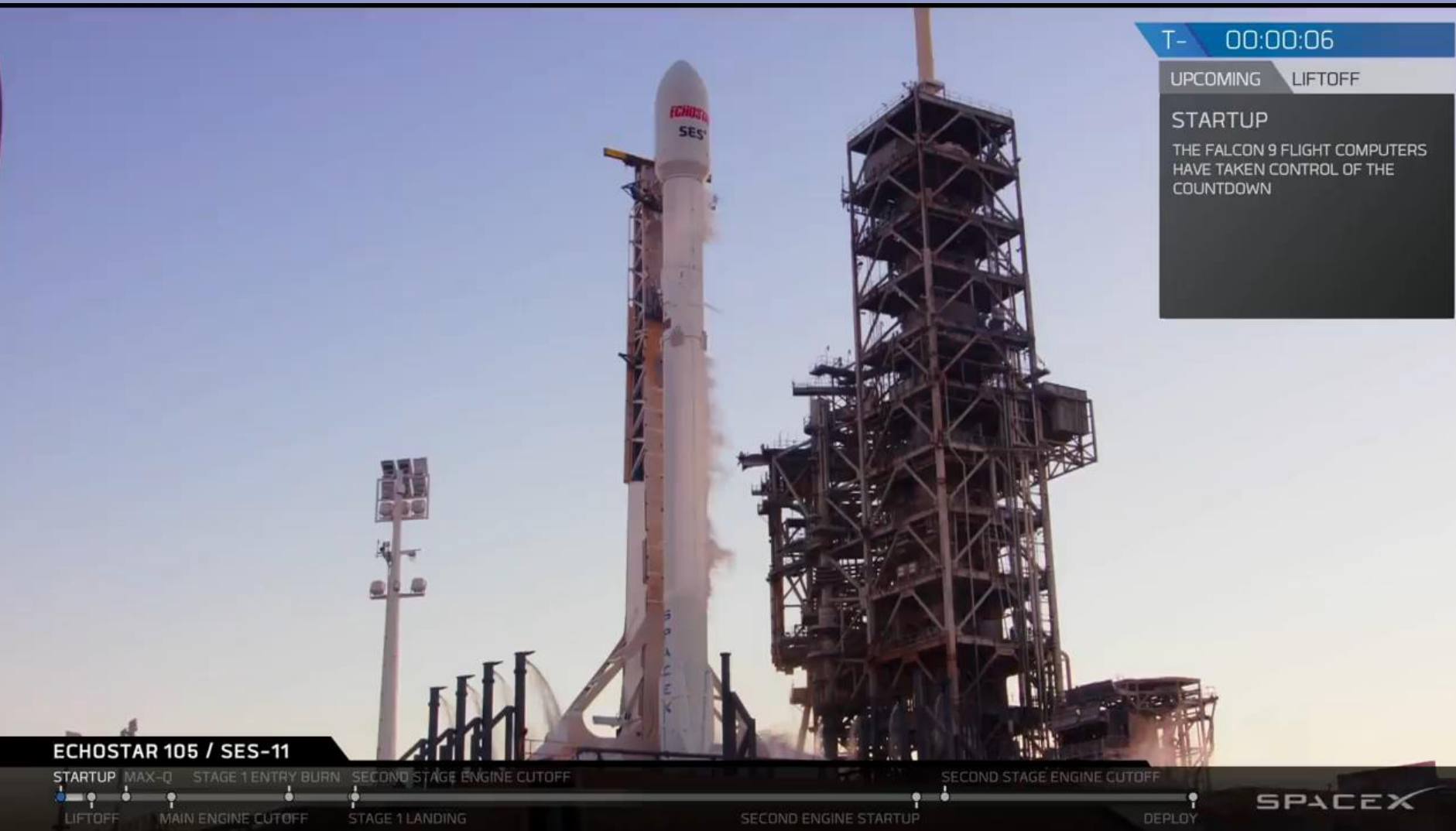


A covert communications relay station to route spy satellite data directly to users was successfully launched by a million-pound Atlas 5 rocket overnight. The United Launch Alliance rocket left Cape Canaveral under the cover of darkness on Sunday, Oct. 15th, dodging rain showers while speeding through decks of clouds, for a trek to geosynchronous transfer orbit to deploy the NROL-52 spacecraft. The fifth launch attempt proved to be the charm for NROL-52 after four thwarted tries over the past week, mainly due to bad weather.

Video courtesy of United Launch Alliance

Source: Justin Ray @ SpaceFlightNow.com

SpaceX Launches Third Pre-Flown Rocket with EchoStar-SES Satellite, Lands Booster



Maintaining a brisk flight rate three days after its last launch, SpaceX sent a Falcon 9 booster powered by a reused first stage into orbit on Wednesday evening, Oct 11th from Florida with an Airbus-built communications satellite for SES and EchoStar. The successful launch placed the 5.7-ton (5.2-metric ton) satellite in a “supersynchronous” orbit arcing thousands of miles above Earth, and the Falcon 9’s first stage returned to landing on a football field-sized barge holding position around 200 miles (300 kilometers) east of Cape Canaveral. Wednesday’s mission was the 15th Falcon 9 flight of the year, and the second in three days, coming on the heels of a launch Monday from California’s Central Coast.

Source: Stephen Clark @ SpaceFlightNow.com

EchoStar-105/SES-11 Will Provide Television Broadcast Services



EchoStar-105/SES-11 is a 5,200-kilogram telecommunications satellite from European manufacturer Airbus Defence and Space with 24 C-band and 24 Ku-band transponders. Englewood, Colorado-based EchoStar is leasing the Ku-band payload for 10 years, branded as EchoStar-105, while SES uses the C-band payload as SES-11. EchoStar's half of the satellite is designed for television broadcast, government and enterprise communications. The company has the option to renew annually after the the 10-year lease has elapsed. SES-11 is a broadcast-focused payload that replaces the 13-year old AMC-18, and is designed to support high definition and Ultra-HD television.

ECHOSTAR 105 / SES-11

STARTUP MAX-Q STAGE 1 ENTRY BURN SECOND STAGE ENGINE CUTOFF
LIFTOFF MAIN ENGINE CUTOFF STAGE 1 LANDING

SECOND ENGINE STARTUP SECOND STAGE ENGINE CUTOFF DEPLOY

SPACEX

PROGRESS MS-07 LAUNCHES TOWARD THE ISS

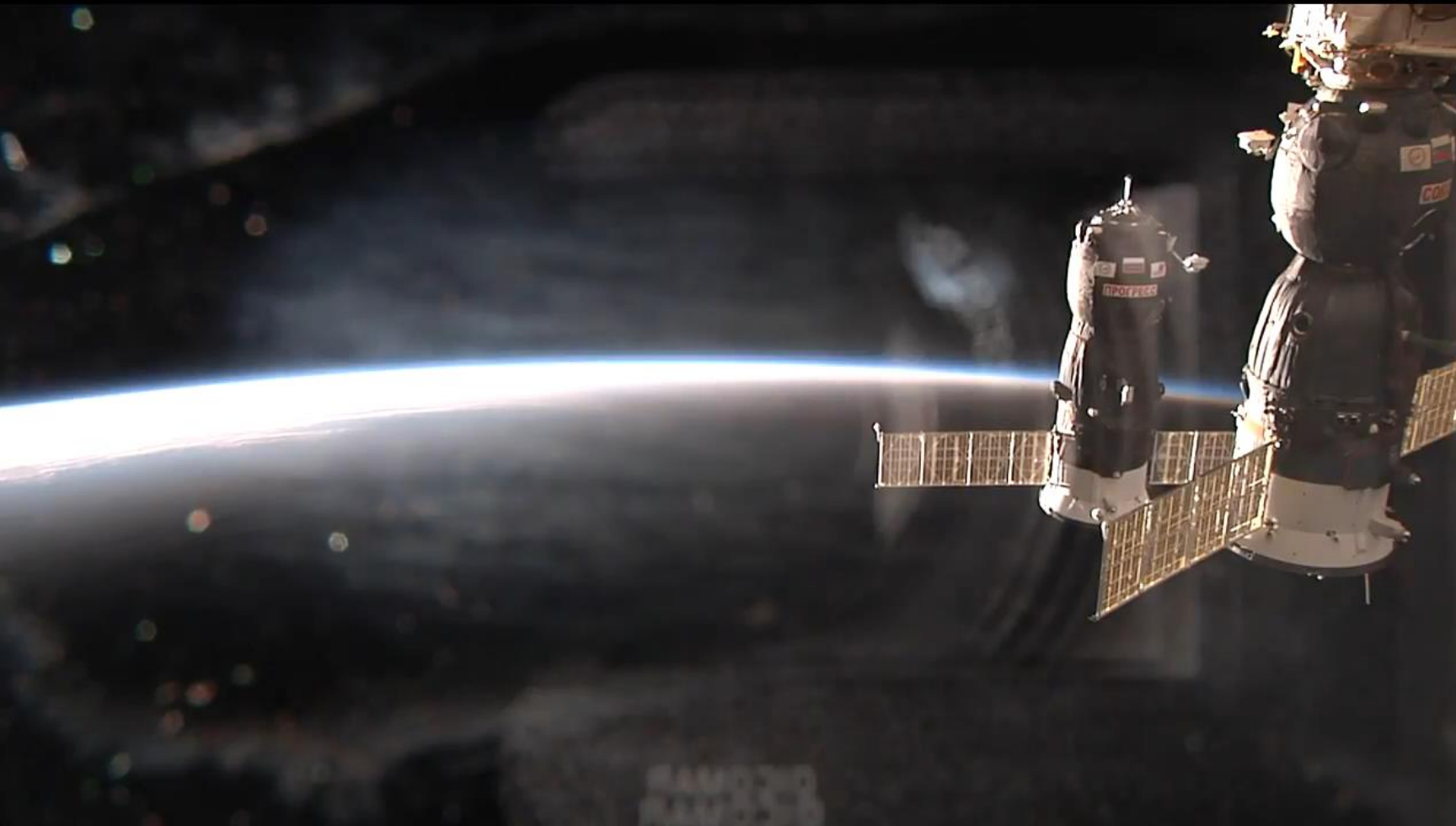


Russia's Progress MS-07 cargo craft launched toward the International Space Station (ISS) at 4:46 a.m. EDT (08:46 GMT) Oct. 14th from the Baikonur Cosmodrome located in Kazakhstan. The cargo vessel was sent aloft atop a Soyuz 2.1a rocket with liftoff taking place two days later than originally planned as the first attempt was scrubbed because of an undisclosed issue within the final minute of the countdown. Because of the delay, Russian officials abandoned plans to test out a new two-orbit rendezvous flight profile that is hoped will shorten Progress, and eventually Soyuz, flights to the space station to just 3.5 hours.

Video Courtesy of Roscosmos/NASA

*Source: Tomasz Nowakowski @
SpaceFlightInsider.com*

Progress Arrives at ISS



Video Courtesy of Roscosmos/NASA

The Progress resupply freighter docked with the International Space Station on Monday, Oct 16th delivering fuel, food and supplies to the orbiting research lab's six-person crew. The Russian cargo freighter carried 1,940 pounds (880 kilograms) of propellant, 51 pounds (23 kilograms) of oxygen and 53 pounds (24 kilograms) of air to replenish the station's atmosphere, 926 pounds (420 kilograms) of water, and 2,976 pounds (1,350 kilograms) of dry cargo, food, spare parts and other equipment for the station's six-person crew. Cosmonauts will unload the cargo stowed inside the Progress's pressurized compartment, and propellant will be pumped from the supply ship's tanks into reservoirs inside the station. The Progress MS-07 spacecraft is scheduled to remain attached to the space station until March, when it will undock and burn up in Earth's atmosphere with trash and other unneeded items packed inside by the lab's crew.

Source: Stephen Clark @ SpaceFlightNow.com

Russia's Rockot Delivers Europe's Sentinel-5P Satellite to Orbit



A decommissioned missile originally built in Russia to deliver nuclear weapons to intercontinental targets in the United States vaulted out of a vertical canister Friday, Oct 13th and fired into space the Sentinel-5P, a European satellite to monitor global air pollution. The 95-foot-tall (29-meter) Rockot booster took off from the Plesetsk Cosmodrome in northern Russia Friday, Oct. 13th with a torrent of 420,000 pounds of thrust from its four liquid-fueled main engines.

Source: Stephen Clark @ SpaceFlightNow.com

Photo Credit: Roscosmos

Sentinel-5P Dedicated to Monitoring Earth's Atmosphere



The Sentinel-5P spacecraft is dedicated to monitoring the earth's atmosphere. The primary onboard instrument is called Tropomi. It will allow ESA scientists to identify and map a variety of trace gases such as nitrogen dioxide, ozone, formaldehyde, sulfur dioxide, methane, and carbon monoxide. All of these all of which affect the air we breathe and our climate. The 1,807-pound (820-kilogram) spacecraft has enough fuel and supplies for 10 years and is slated for a mission of at least 7 years. Sentinel-5P will orbit 512 miles (824 kilometers) above the Earth in a Sun-synchronous orbit. This orbit puts it in a loose formation with the NASA–NOAA Suomi-NPP weather satellite, orbiting just three-and-a-half minutes behind.

Source: Lloyd Campbell @ SpaceFlightInsider.com

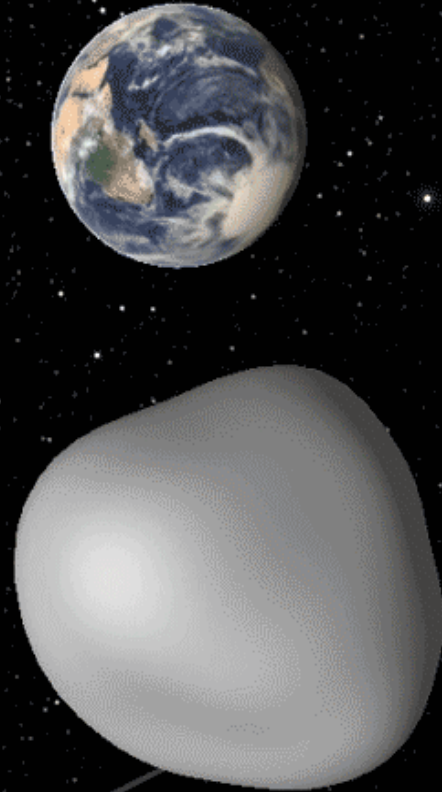
Photo Credit: ESA

Two Separate Teams of Astronomers Find Evidence of Missing Baryonic Matter



Two teams working independently have found evidence of the existence of Baryonic matter—particles that link galaxies together. One team was made of members from the Institute of Space Astrophysics and the other was based out of the University of Edinburgh. Both teams have uploaded a paper describing their work to the arXiv preprint server and both are claiming their findings solve the mystery of where so much of the normal matter—protons, neutrons and electrons—have been hiding.

Asteroid Grazes Past Earth in 'Critical' Rehearsal



A house-sized asteroid grazed past Earth Thursday, Oct. 12th passing harmlessly inside the Moon's orbit, as predicted, to give experts a rare opportunity to rehearse for a real strike threat in future. Dubbed 2012 TC4, the object's passing allowed scientists to practice spotting incoming objects, predicting their size and trajectory, and tracking their passage with a global network of telescopes and radars. "We pretended that this was a critical object and exercised our communication," said Detlef Koschny of the European Space Agency's Near-Earth Object program. The trial run was "a big success," he said, despite some instruments not working as planned.

NASA Satellites See Wildfires from Space



October 8

As wildfires burn across California, NASA satellites help gather data about where the fires are and how smoke travels across the state. The smoke from the fires is even visible a million miles away from Earth, captured by NASA's Earth Polychromatic Imaging Camera (EPIC) onboard NOAA's Deep Space Climate Observatory (DSCOVR). The Terra spacecraft can see fires in both daylight and at night, helping aid firefighters in tracking and stopping the blazes.

Airbus, Bombardier Join Forces on C-Series Jet



Boeing's aggressive attempt to stop sales of the Bombardier C-Series jet in the U.S. by government intervention seemed to backfire Monday when European giant Airbus stepped in to say it will acquire a majority stake in the Canadian aircraft and set up an assembly line to build the planes in the U.S. By 2023, Airbus foresees that it will completely buy out the Bombardier and Canadian government stakes in the C-Series. Astonishingly, Airbus is acquiring its initial half share of the C-Series with no money down. Instead, Airbus will provide Bombardier with expertise and personnel for its supply-chain procurement, sales and marketing, and customer support.

Source: Dominic Gates @ SeattleTimes.com

Photo Credit: Bombardier

NASA Gives Aurora Another Year for D8 X-Plane Development



Aurora Flight Services (now being acquired by Boeing) is set to continue developing the subsonic D8 X-Plane (XD8). NASA has awarded the firm with a 12-month contract. The XD8 program aims to demonstrate key technologies of the D8 commercial aircraft concept. The aircraft could improve fuel, noise and operational efficiencies within the next decade, according to Aurora.

Source: www.aviationtoday.com

Image Credit: Aurora Flight Services

In The News



General Atomics Ramping Cubesat Production, Muses Railgun Smallsat Launcher. General Atomics is better known for building Predator combat drones and mining uranium than building spacecraft, but that could change as the company develops an interest in building defense-focused cubesats. Also in the realm of possibility: using expertise from building railguns to design a large, electromagnetic cannon as a means to orbit small satellites.. (*Caleb Henry @ SpaceNews.com*)



Virgin Galactic Hopes To Test SpaceShipTwo In Space In 2017. Virgin Galactic aims to fly SpaceShipTwo beyond the atmosphere for the first time before year's end, kicking off what is expected to be a final round of test flights before beginning commercial suborbital space tourism and research flights. (*Irene Klotz @ Aerospace Daily & Defense Report*)



Regulatory filings suggest SpaceX plans November launch with mystery payload. Information found in federal regulatory filings suggests SpaceX plans to conduct a Falcon 9 rocket launch as soon as mid-November with an unidentified payload that has so far escaped public disclosure. It is unusual for such a mission to remain secret so close to launch, and there has been no public claim of ownership for the payload — codenamed Zuma — from any government or commercial institution. (*Stephen Clark @ SpaceFlightNow.com*)



Tiangong-1 Chinese Space Station Will Crash to Earth Within Months. When China launched its first space station in 2011, it had great ambitions of using the craft to set up a larger space complex. But, the Chinese space agency lost control of Tiangong-1 in September 2016, and now experts predict the 8.5 ton craft will come crashing down to Earth within months. Much of the spacecraft is expected to burn up in the atmosphere on re-entry. But, Dr. McDowell says that some parts might still weigh 100kg when they crash into the Earth's surface—a size that could cause some serious damage. (*www.dailymail.com*)



Spike Aerospace Unmanned SX-1.2 Demonstrator Makes Maiden Flight. Spike Aerospace took to the skies for the first time on Saturday as it tested a subsonic, subscale version of its planned S-512 supersonic passenger plane. The unmanned SX-1.2 prototype demonstrator took off from a private airfield in New England with KrishnaKumar Malu and Mike Ridlon piloting it remotely on the first of a series of seven short flights throughout the day, to prove the validity of the aircraft's aerodynamics. During the tests, telemetry of the flight characteristics and other performance data were recorded and aircraft's center of mass, balance, and control surfaces were adjusted between flights.

(*David Szondy @ NewAtlas.com*)