

The Aerospace Update

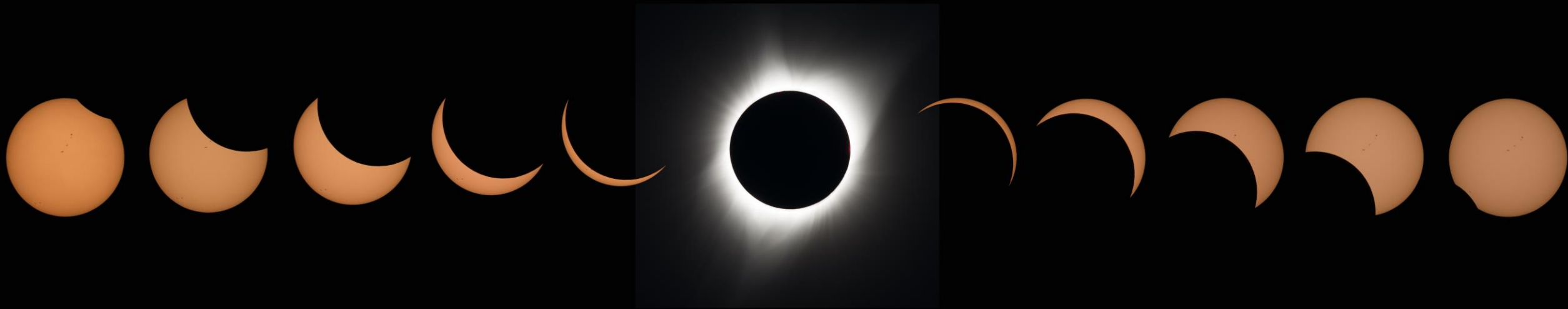


August 22, 2017

'EPIC' Solar Eclipse View Captured from 1 Million Miles Away

Image Credit: NASA

2017 Total Solar Eclipse from Madras, Oregon



This composite image of eleven pictures shows the progression of a total solar eclipse at Madras High School in Madras, Oregon on Monday, August 21, 2017. A total solar eclipse swept across a narrow portion of the contiguous United States from Lincoln Beach, Oregon to Charleston, South Carolina. A partial solar eclipse was visible across the entire North American continent along with parts of South America, Africa, and Europe.

2017 Total Solar Eclipse from NASA's Gulfstream III

A photograph taken from the cockpit of a NASA Gulfstream III aircraft during a total solar eclipse on August 21, 2017. The view is from a high altitude, looking out over the Earth's horizon. The sun is partially obscured by the moon, creating a bright ring of light (the corona) around the dark disk of the moon. The aircraft's wing and tail fin are visible in the lower right corner of the frame. The sky is a deep blue, and the horizon is a bright yellowish-white line.

A total solar eclipse is seen on Monday, August 21, 2017 from onboard a NASA Armstrong Flight Research Center's Gulfstream III 25,000 feet above the Oregon coast. The Gulfstream aircraft was based at the MOF for the eclipse.

Source: NASA.gov

Photo Credit: (NASA/Carla Thomas)

TDRS Launch Marks End of an Era



The successful launch of a NASA communications satellite on Friday, Aug. 18th is the final flight of the current generation of data relay spacecraft as well as for a venerable satellite bus. TDRS-M is the third and final satellite in the latest generation of TDRS satellites. Boeing won a contract from NASA for the satellites in 2007 that included two satellites and options for two more. NASA exercised the option for one satellite, but not the other, which would have been TDRS-N. TDRS-M also marks the end of the line for the Boeing 601 family of communications satellites. NASA's Tracking and Data Relay Satellite series, a program that revolutionized mission operations for U.S. human spaceflight and robotic craft, is now in its fourth decade, and this TDRS-M is the 12th satellite. These satellites provide continuous communications to satellites in low earth orbit such as the ISS and Hubble.

Video Credit: NASA

Source: Jeff Foust @ SpaceNews.com

Japan Launches Navigation Satellite After Week-Long Delay



A Japanese H-2A rocket soared away from a launch pad on a rocky overlook on the Pacific Ocean on Saturday, Aug. 19th hauling into orbit the country's third Michibiki satellite to join a constellation of navigation aids to improve positioning services across the country. Michibiki, which means "guiding" or "showing the way" in Japanese, joins two similar satellites launched on H-2A rockets in September 2010 and in June of this year. The network which augments GPS will help ensure drivers, hikers and other users can constantly locate themselves. Skyscrapers in cities, such as Tokyo, and mountainous terrain can block signals from GPS satellites, which are located in orbits closer to Earth than the Michibiki satellites.

Proton Launcher Takes Off With Dual-Use Russian Communications Satellite



A high-power Russian satellite designed to deliver broadband Internet connections and relay television and videoconferencing signals fired into orbit Wednesday, Aug. 16th from the Baikonur Cosmodrome in Kazakhstan. The relay spacecraft will serve Russian military and civilian users with a suite of C-band and Ka-band transponders. While ISS Reshetnev claimed the Blagovest communications payload was fully manufactured internally, information released by Thales Alenia Space indicates the French company supplied filters, power dividers and multiplexers for Blagovest's telecom instrumentation. Three more Blagovest communications satellites are planned for launch in the next couple of years.

Russian Cosmonauts Complete Long Spacewalk



Photo Credit: NASA TV

Two Russian cosmonauts floated outside the ISS Thursday, Aug. 17th, tossed five small science and technology satellites overboard and spent the rest of the excursion servicing external experiments and carrying out routine but time-consuming inspections and maintenance. The first satellite launched is an 11-pound satellite built with a 3D printer to help engineers determine how such materials respond to the space environment. It also carries amateur radio gear.

The work took longer than expected and Russian flight controllers extended the spacewalk beyond the planned six-hour mark to give the cosmonauts time to finish as many of their tasks as possible before calling it a day.

Source: William Harwood @ SpaceFlightNow.com

ISS Crew Captures Dragon Supply Ship

Two days after departing from a launch pad on Florida's Space Coast, a SpaceX Dragon cargo capsule arrived at the International Space Station on Wednesday, Aug 16th with more than 6,400 pounds of experiments and supplies after concluding an automated laser-guided approach. Astronaut Jack Fischer aboard the space station used the lab's Canadian-built robotic arm to snare the robotic cargo craft over the Pacific Ocean north of New Zealand. The station's six-person crew will unload the payloads inside, overseeing a multitude of biological experiments before the ship's departure and return to Earth next month. *Source: Stephen Clark @ SpaceFlightNow.com*

Photo Credit: NASA

Pioneering ESA Mission Aims to Create Artificial Solar Eclipses

As skywatchers and scientists converged on a transcontinental band of totality for Monday's solar eclipse in the United States, engineers in Europe are building a unique pair of satellites to create artificial eclipses lasting for hours — a feat that could be a boon for solar physicists but will escape the view of Earth-bound spectators. Due to launch together in 2020, the two satellites making up Proba-3 will fly in precise formation to form an external coronagraph in space, one satellite eclipsing the sun to allow the second to study the otherwise invisible solar corona.

Source: Stephen Clark @ SpaceFlightNow.com

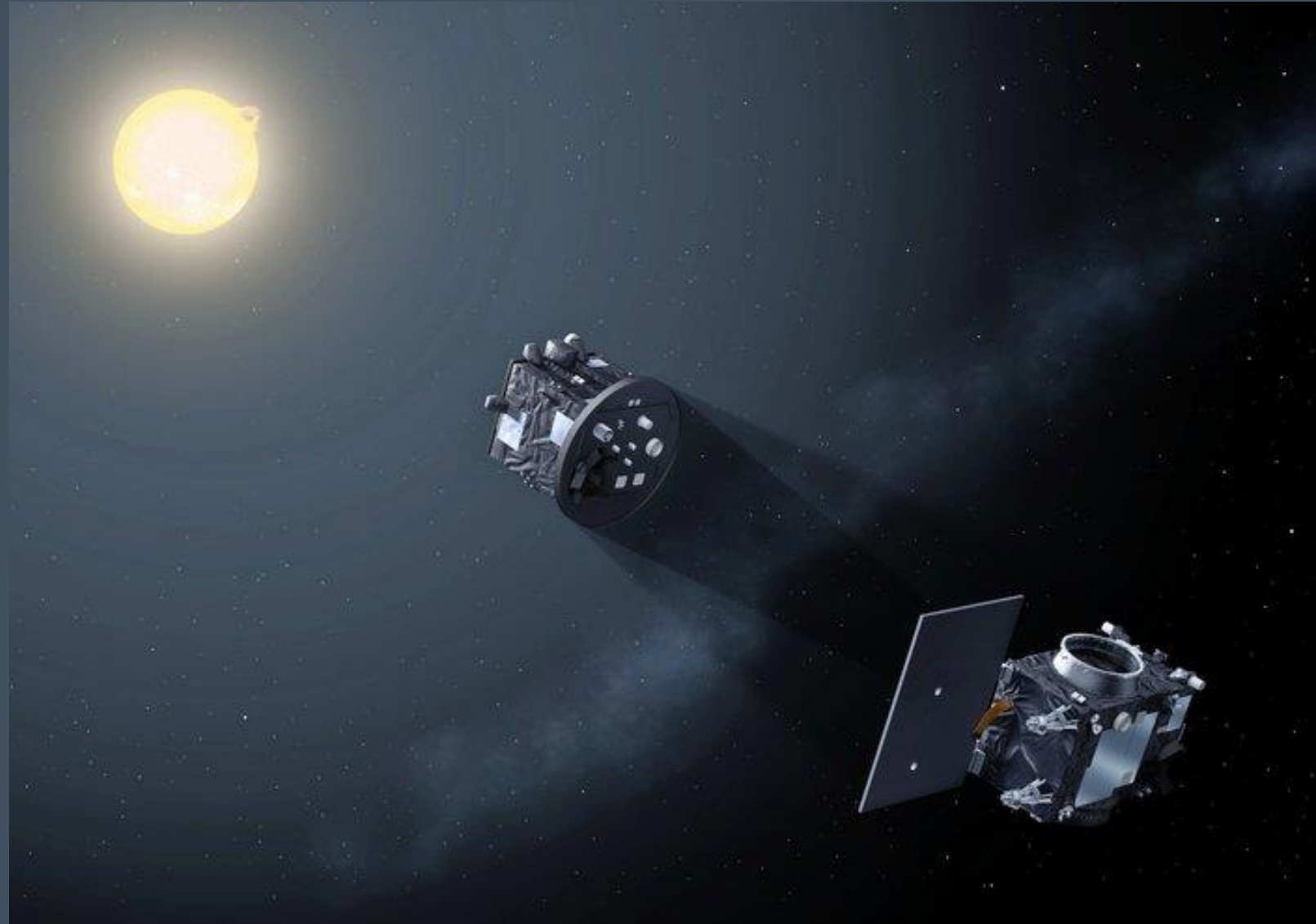


Image Credit: ESA

Microsoft Teaches Autonomous Gliders to Make Decisions on the Fly



Microsoft researchers tested two gliders designed to navigate the skies on their own. Guided by computer algorithms that learned from onboard sensors, predicted air patterns and planned a route forward, these gliders could seek out thermals — columns of rising hot air — and use them to stay aloft. The hope is that the autonomous aircraft can eventually ride the air for hours or even days at a time while consuming very little power, helping to, say, track weather patterns, monitor farm crops or even deliver the internet to places where it's otherwise unavailable.

NASA-led Mission Studies Storm Intensification




A group of NASA and National Oceanic and Atmospheric Administration (NOAA) scientists, including scientists from NASA's Jet Propulsion Laboratory, Pasadena, California, are teaming up this month for an airborne mission focused on studying severe storm processes and intensification. The Hands-On Project Experience (HOPE) Eastern Pacific Origins and Characteristics of Hurricanes (EPOCH) field campaign will use NASA's Global Hawk autonomous aircraft to study storms in the Northern Hemisphere to learn more about how storms intensify as they brew out over the ocean.

Source: Kate Squires @ NASA Armstrong Flight Research Center

Photo Credit: Lauren Hughes/NASA

Boeing Field Catches Up With Earth's Magnetic Field

An aerial photograph of Boeing Field in Seattle, Washington. The image shows a long, straight runway and taxiway stretching from the foreground towards the background. The runway is marked with white dashed lines and solid lines. To the right of the runway, there are several large hangars and other airport buildings. In the distance, there are hills and a city skyline. The sky is clear and blue.

Because the Earth's magnetic field has shifted over the decades, the runway numbers at Boeing Field have just been changed, requiring pilots to pay attention and change their charts. Starting Thursday, Aug. 17th, pilots communicating with the airport control tower will hear the new numbers during the instructions to land or take off. The airport issued a "Notice to Airmen" on Tuesday, advising of the change. The runway numbers changed from 13R/31L for the main runway to 14R/32L, while utility runway 13L/31R is changing to 14L/32R.

Frigate Ecojet Revised as Four-Engined Design



Russian developers of a 300-seat aircraft with a characteristic wide elliptical fuselage have opted to modify the proposal substantially, revising the design as a four-engined transport rather than a twinjet. The aircraft – developed by Frigate Ecojet, and rebranded as the 'Freejet' – will be powered by modern engines introduced for the single-aisle market. Frigate Ecojet says it has embarked on a study to examine the use of Aviadvigatel PD-14 engines on the proposed aircraft. The PD-14 is being developed for the Irkut MC-21.

In The News



Station managers push back next Cygnus cargo flight to November. NASA and Orbital ATK have agreed to schedule the launch of the next Cygnus supply ship for Nov. 10 from Wallops Island on Virginia's Eastern Shore, a delay of a month from the mission's earlier target launch date to allow the flight to carry more cargo to the International Space Station, officials said. *(Stephen Clark @ SpaceFlightNow.com)*



SpaceX Informed NASA of Slowdown in its Commercial Mars Program. Confirming rumors and suspicions that SpaceX is adjusting its plans to begin dispatching robotic landers to Mars, NASA officials said the commercial space company has informed the agency that it has put its Red Dragon program on the back burner. *(Stephen Clark @ SpaceFlightNow.com)*



All-Electric Satellites Halfway to Becoming Half of all Satellites. On March 1, 2015, Boeing inaugurated the all-electric satellite with the launch of the ABS-3A and Eutelsat 115 West B geostationary spacecraft on a single SpaceX Falcon 9. Eight days later, the French space agency CNES committed \$30 million to spark Europe's all-electric propulsion efforts. The CNES investment was influenced by industry forecasts predicting 50 percent of commercial telecommunications satellites will be all-electric by 2020. *(Caleb Henry @ SpaceNews.com)*



Large Asteroid to Safely Pass Earth on Sept. 1. Asteroid Florence, a large near-Earth asteroid, will pass safely by Earth on Sept. 1, 2017, at a distance of about 4.4 million miles, (7.0 million kilometers, or about 18 Earth-Moon distances). Florence is among the largest near-Earth asteroids that are several miles in size; measurements from NASA's Spitzer Space Telescope and NEOWISE mission indicate it's about 2.7 miles (4.4 kilometers) in size. *(NASA.gov)*



Power Up! System Tests Prepare Orion for Deep Space Exploration. The Orion spacecraft destined for Exploration Mission-1 was successfully powered up for the first time this week in Orion's spacecraft factory, the Neil Armstrong Operations and Checkout Facility at NASA's Kennedy Space Center in Florida. "The initial power-on procedure verified the health and status of Orion's core computers and power and data units and marks the beginning of critical spacecraft subsystem tests to get us ready for flight," said Mark Kirasich, NASA Orion program manager. *(NASA.GOV)*