

The Aerospace Update



Holly's Moving Day

Nov 22, 2017

Video Credit: Museum of Flight

Delta 2 Rocket Lofts Advanced Polar-Orbiting Weather Satellite

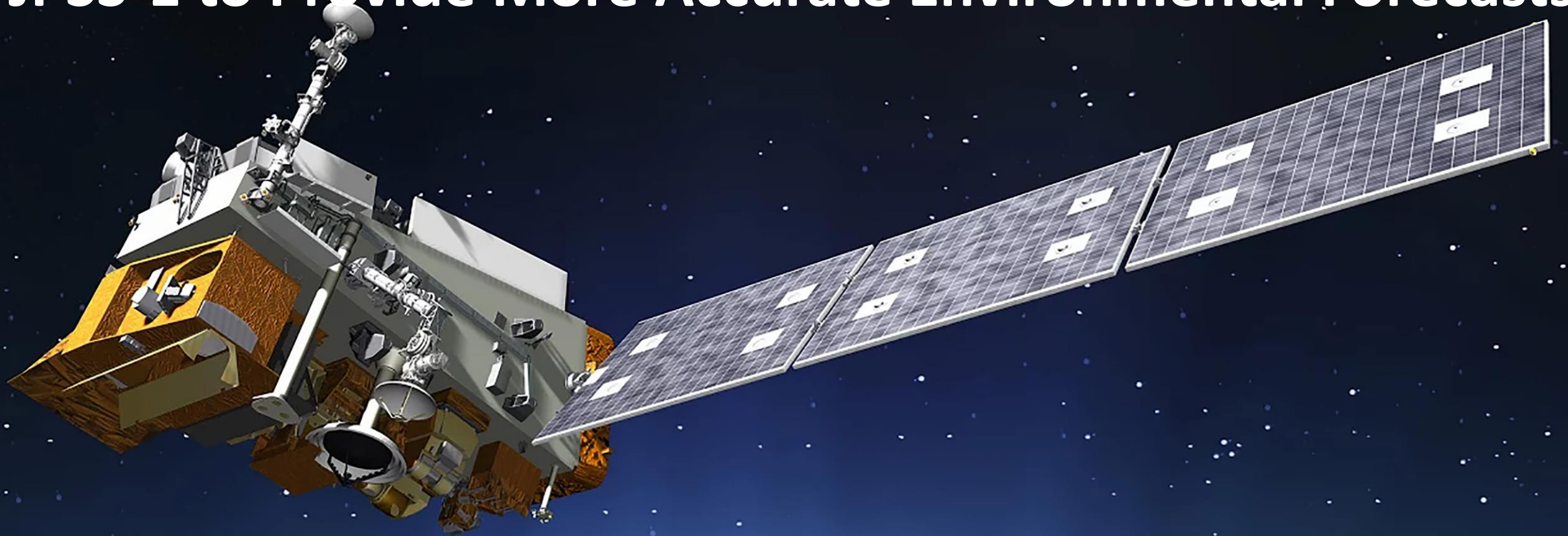


A United Launch Alliance Delta 2 rocket climbed into space Saturday Nov 18th from California with a \$1.6 billion polar-orbiting weather satellite for NOAA, the first of four upgraded observatories designed to keep vital meteorological data flowing to forecasters for the next two decades. The government-owned weather sentinel was deployed into orbit more than 500 miles (800 kilometers) above Earth by the Delta 2 rocket to begin a seven-year mission. The successful launch was the second-to-last flight of a Delta 2 rocket, but it also signaled a beginning for NOAA's Joint Polar Satellite System, a multi-spacecraft program established in 2010 under civilian leadership after the cancellation of an over-budget joint weather satellite initiative with the U.S. Air Force.

Video courtesy of United Launch Alliance

Source: Stephen Clark @ SpaceFlightNow.com

JPSS-1 to Provide More Accurate Environmental Forecasts



The Joint Polar Satellite System-1, or JPSS-1, satellite launched Tuesday on behalf of the National Oceanic and Atmospheric Administration (NOAA) will provide essential data for timely and accurate weather forecasts and for tracking environmental events such as forest fires and droughts. JPSS-1 is the first in NOAA's series of four, next-generation operational environmental satellites designed to circle the Earth in a polar orbit. JPSS-1 will gather measurements of atmospheric, terrestrial and oceanic conditions, including sea and land surface temperatures, vegetation, clouds, rainfall, snow and ice cover, fire locations, atmospheric temperature, water vapor and ozone.

CubeSat to Test Miniaturized Weather Satellite Technology



The NASA-funded CubeSat, called Microwave Radiometer Technology Acceleration (MiRaTA), was also launched into Earth's orbit from the rocket carrying JPSS-1 into space. MiRaTA is designed to demonstrate that a small satellite can carry instrument technology that's capable of reducing the cost and size of future weather satellites and has the potential to routinely collect reliable weather data. It houses a Microwave radiometer, one of the workhorse instruments aboard today's weather satellites. These sensitive instruments measure radio frequency signals related to the thermal radiation emitted by atmospheric gases, such as molecular oxygen and water vapor, and also detect particles such as cloud ice. These data are key inputs for models that track storms and other weather events.

Source: Samson Reiny @ NASA

Chinese Weather Satellite Launched into Polar Orbit



A Chinese Long March 4C rocket launched Tuesday with a new polar-orbiting weather observatory named Fengyun 3D, replacing an aging satellite for the China Meteorological Administration. The Fengyun 3D satellite lifted off Tuesday Nov. 14th from the Taiyuan space center in Shanxi province located in northeastern China. Fengyun 3D hosts 10 instruments to collect data on atmospheric conditions, cloud and storm movements, ozone health and greenhouse gases, the China Meteorological Administration said in a statement announcing the successful launch.

Video courtesy of CCTV+

Source: Stephen Clark @ SpaceFlightNow.com

First Interstellar Asteroid is Like Nothing Seen Before

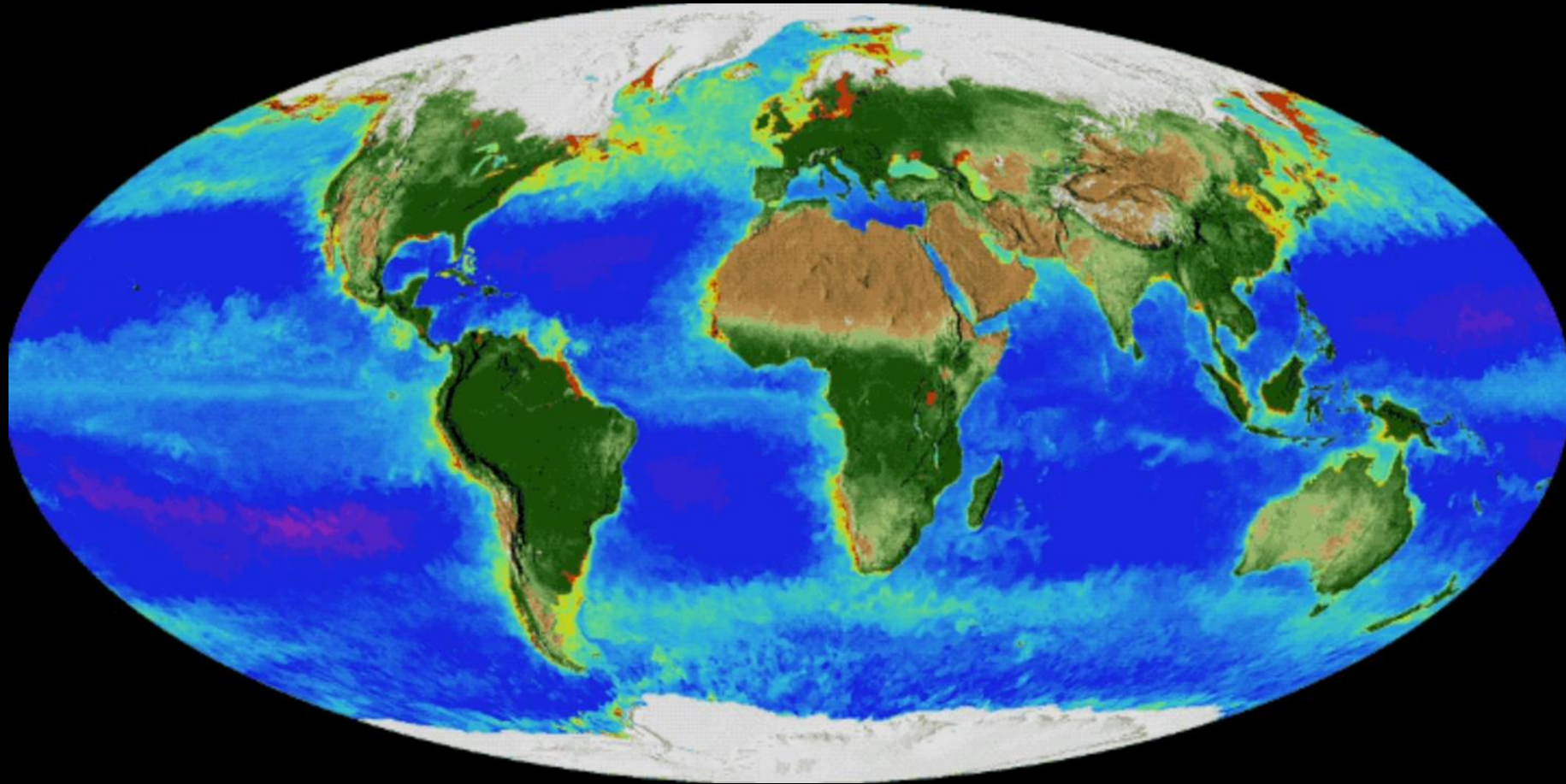


Scientists were surprised and delighted to detect --for the first time-- an interstellar asteroid passing through our solar system. Additional observations brought more surprises: the object is cigar-shaped with a somewhat reddish hue. The asteroid, named 'Oumuamua by its discoverers, is up to one-quarter mile (400 meters) long and highly-elongated—perhaps 10 times as long as it is wide. That is unlike any asteroid or comet observed in our solar system to date, and may provide new clues into how other solar systems formed. This image is an artist concept.

Source Credit: NASA JPL

Image Credits: ESO/M. Kornmesser

The Changing Colors of our Living Planet



A new NASA visualization shows 20 years of continuous observations of plant life on land and at the ocean's surface, from September 1997 to September 2017. On land, vegetation appears on a scale from brown (low vegetation) to dark green (lots of vegetation); at the ocean surface, phytoplankton are indicated on a scale from purple (low) to yellow (high). This visualization was created with data from satellites including SeaWiFS, and instruments including the NASA/NOAA Visible Infrared Imaging Radiometer Suite and the Moderate Resolution Imaging Spectroradiometer.

Text and Video Animation Credits: NASA

Recurring Martian Streaks: Flowing Sand, Not Water?

Dark features on Mars previously considered evidence for subsurface flowing of water are interpreted by new research as granular flows, where grains of sand and dust slip downhill to make dark streaks, rather than the ground being darkened by seeping water. Continuing examination of these still-perplexing seasonal dark streaks with a powerful camera on NASA's Mars Reconnaissance Orbiter (MRO) shows they exist only on slopes steep enough for dry grains to descend the way they do on faces of active dunes.

Source & Image Credits: NASA

Jovian Tempest

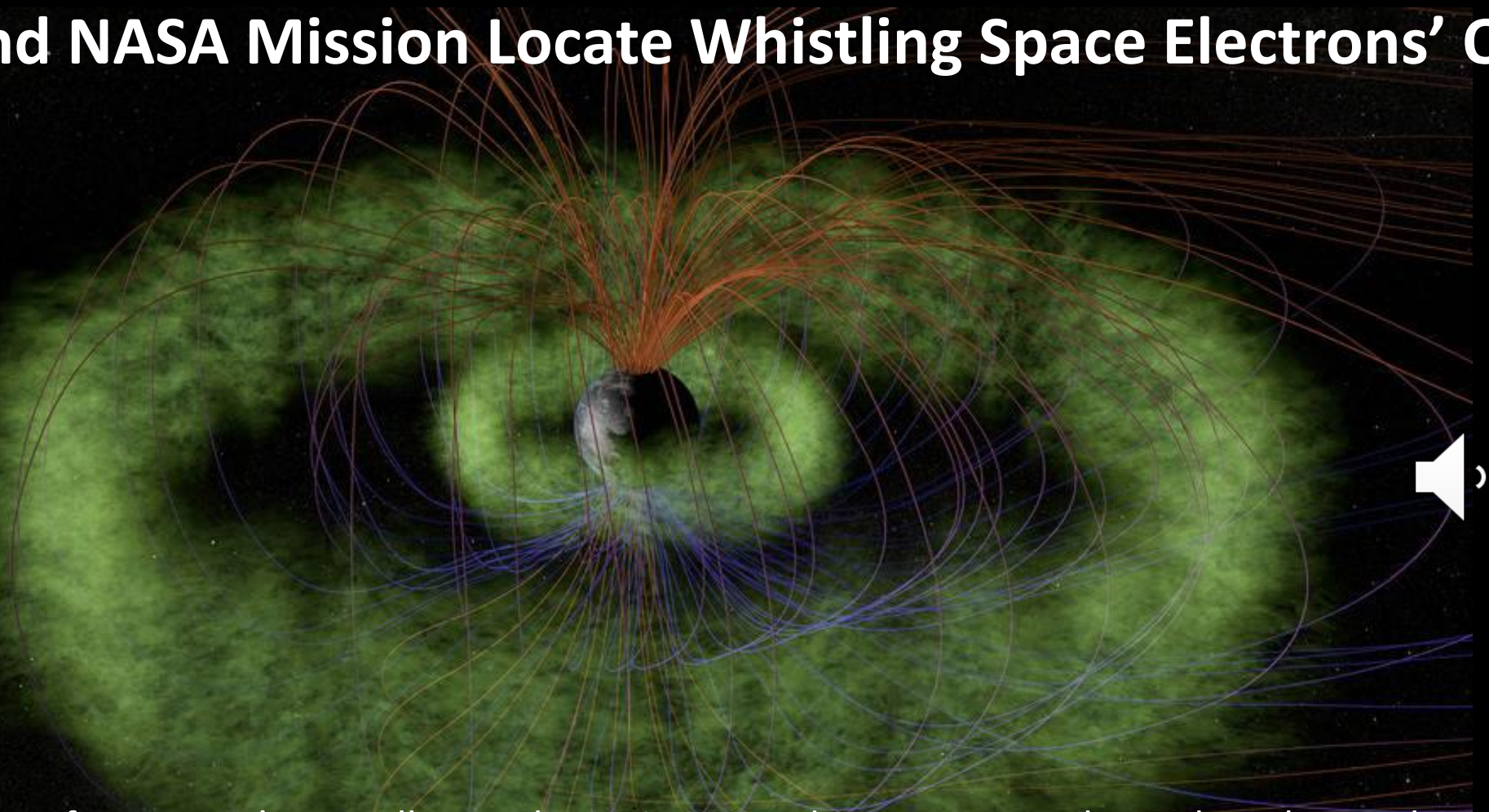


This color-enhanced image of a massive, raging storm in Jupiter's northern hemisphere was captured by NASA's Juno spacecraft during its ninth close flyby of the gas giant planet. At the time the image was taken, the spacecraft was about 6,281 miles (10,108 kilometers) from the tops of the clouds of Jupiter. The storm is rotating counter-clockwise with a wide range of cloud altitudes. The darker clouds are expected to be deeper in the atmosphere than the brightest clouds. Within some of the bright "arms" of this storm, smaller clouds and banks of clouds can be seen, some of which are casting shadows to the right side of this picture (sunlight is coming from the left). The bright clouds and their shadows range from approximately 4 to 8 miles (7 to 12 kilometers) in both widths and lengths.

Source Credit: NASA

Image Credit: NASA/JPL-Caltech/SwRI/MSSS/Gerald Eichstädt/Seán Doran

FIREBIRD II and NASA Mission Locate Whistling Space Electrons' Origins



New research using data from NASA's Van Allen Probes mission and FIREBIRD II CubeSat has shown that a common plasma wave in space is likely responsible for the impulsive loss of high-energy electrons into Earth's atmosphere. Known as whistler mode chorus, these waves are created by fluctuating electric and magnetic fields. The waves have characteristic rising tones — reminiscent of the sounds of chirping birds — and are able to efficiently accelerate electrons. The audio in the background is whistler waves as heard by the EMFISIS instrument aboard NASA's Van Allen Probes as it passed around Earth.

New Virgin Space Company Wins First Government Launch Deal



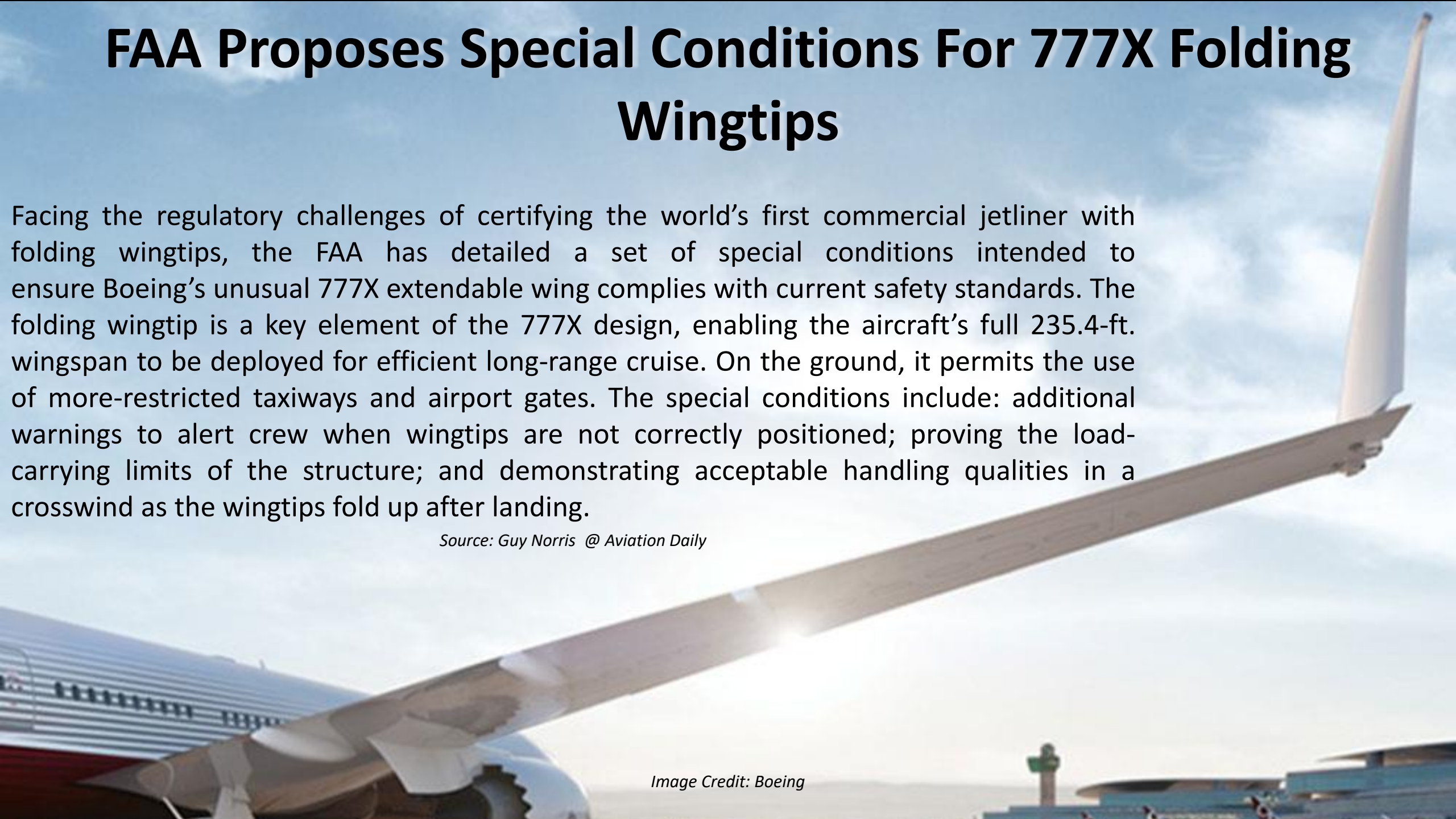
VOX Space, a newly created national security launch subsidiary of Virgin Orbit, has won its first contract from the U.S. Defense Department to deploy small technology demonstration satellites using the two-stage LauncherOne rocket. The contract, which calls for the STP launch as early as January 2019, comes as a welcome early boost for VOX. Although there are no details of the STP payload, Virgin Orbit says the mission will also “demonstrate the ability to leverage the rapid call-up and ultra-high flexibility that characterize the LauncherOne service. This launch allows the DOD to assess LauncherOne as a means to deliver Space Experiment Review Board payloads to orbit.” Carried aloft to launch altitude by a specially modified Boeing 747-400, the Launcher One vehicle will be capable of placing a 300-kg payload into a Sun-synchronous orbit and a 450-kg payload into an equatorial orbit—all for around \$10 million.

FAA Proposes Special Conditions For 777X Folding Wingtips

Facing the regulatory challenges of certifying the world's first commercial jetliner with folding wingtips, the FAA has detailed a set of special conditions intended to ensure Boeing's unusual 777X extendable wing complies with current safety standards. The folding wingtip is a key element of the 777X design, enabling the aircraft's full 235.4-ft. wingspan to be deployed for efficient long-range cruise. On the ground, it permits the use of more-restricted taxiways and airport gates. The special conditions include: additional warnings to alert crew when wingtips are not correctly positioned; proving the load-carrying limits of the structure; and demonstrating acceptable handling qualities in a crosswind as the wingtips fold up after landing.

Source: Guy Norris @ Aviation Daily

Image Credit: Boeing



British Hybrid Airship Suffers Second Serious Accident



The Hybrid Air Vehicles Airlander has suffered a second serious accident during its flight-test program, casting serious doubt over the company's ability to complete development of this revolutionary machine. The aircraft broke free from its mooring mast during wet and windy weather last Saturday morning, and drifted across its home base at Cardington airfield near Bedford. A safety system that rips open the hull and deflates the aircraft operated automatically, and the aircraft came to a halt on the edge of the airfield. The fuel and helium within the Airlander was made safe, but the aircraft appears to have sustained substantial damage.

In The News



NASA Expects First Space Launch System Flight to Slip into 2020 . The maiden uncrewed flight of NASA's Space Launch System, a heavy-lift human-rated rocket and one of the agency's core programs, will likely not be ready for takeoff until 2020. Officials now expect the Space Launch System, Orion capsule and ground systems to be ready for the maiden flight — named Exploration Mission-1 — by June 2020. There is still some hope EM-1 could be ready sooner. *(Stephen Clark @ SpaceFlightInsider.com)*



NASA Confirms Contribution to Japanese-Led Mars Mission. NASA announced Thursday it will fund development of a scientific instrument that will fly on Japan's Martian Moons Exploration mission, a robotic probe set for launch in 2024 to bring back the first samples from Mars' largest moon Phobos. A neutron and gamma-ray spectrograph developed by a team led by David Lawrence of the Johns Hopkins University Applied Physics Laboratory in Laurel, Maryland, will help officials decide where the Japanese spacecraft will pick up samples on Phobos. *(Stephen Clark @ SpaceFlightNow.com)*



Boeing, Airbus Sign Major Late Deals at Dubai. Boeing signed a \$27 billion agreement on the second to last day of the Dubai Airshow with UAE-based flydubai for 225 of the manufacturer's 737 Max narrowbody airliners. Airbus countered with the announcement of a memorandum of understanding (MoU) with private equity firm Indigo Partners for 430 A320neo narrowbodies, destined for four airlines. That deal, if ultimately completed, would come to close to \$50 billion at list prices. *(Mark Phelps @ AINonline.com)*



Airbus A350-1000 Gets EASA, FAA Approval. The Airbus A350-1000 has received type certification from the European Aviation Safety Agency (EASA) and the Federal Aviation Administration (FAA) following less than a year of flight testing, the manufacturer announced Tuesday. Powered by Rolls-Royce Trent XWB-97 engines, the first A350-1000 will go to launch customer Qatar Airways by the end of the year, according to Airbus schedules. *(Gregory Polek @ AINonline.com)*



SpaceX Delays Secretive "Zuma" Launch to Study Data From Recent Payload Fairing Test. SpaceX has postponed its next launch from the Kennedy Space Center indefinitely to examine data from a recent payload fairing test for another customer. A report from an unconfirmed source suggests that the reason for the delay could cause a premature close to most of the remainder of SpaceX's 2017 launch manifest. The exception would be the ISS Dragon cargo spacecraft mission which does not utilize a payload fairing. *(SpaceFlightInsider.com)*