The Aerospace Update

Changes over the Decades

Seattle and Bellevue: 1984

July 18, 2017

Photo Credits: Google Earth

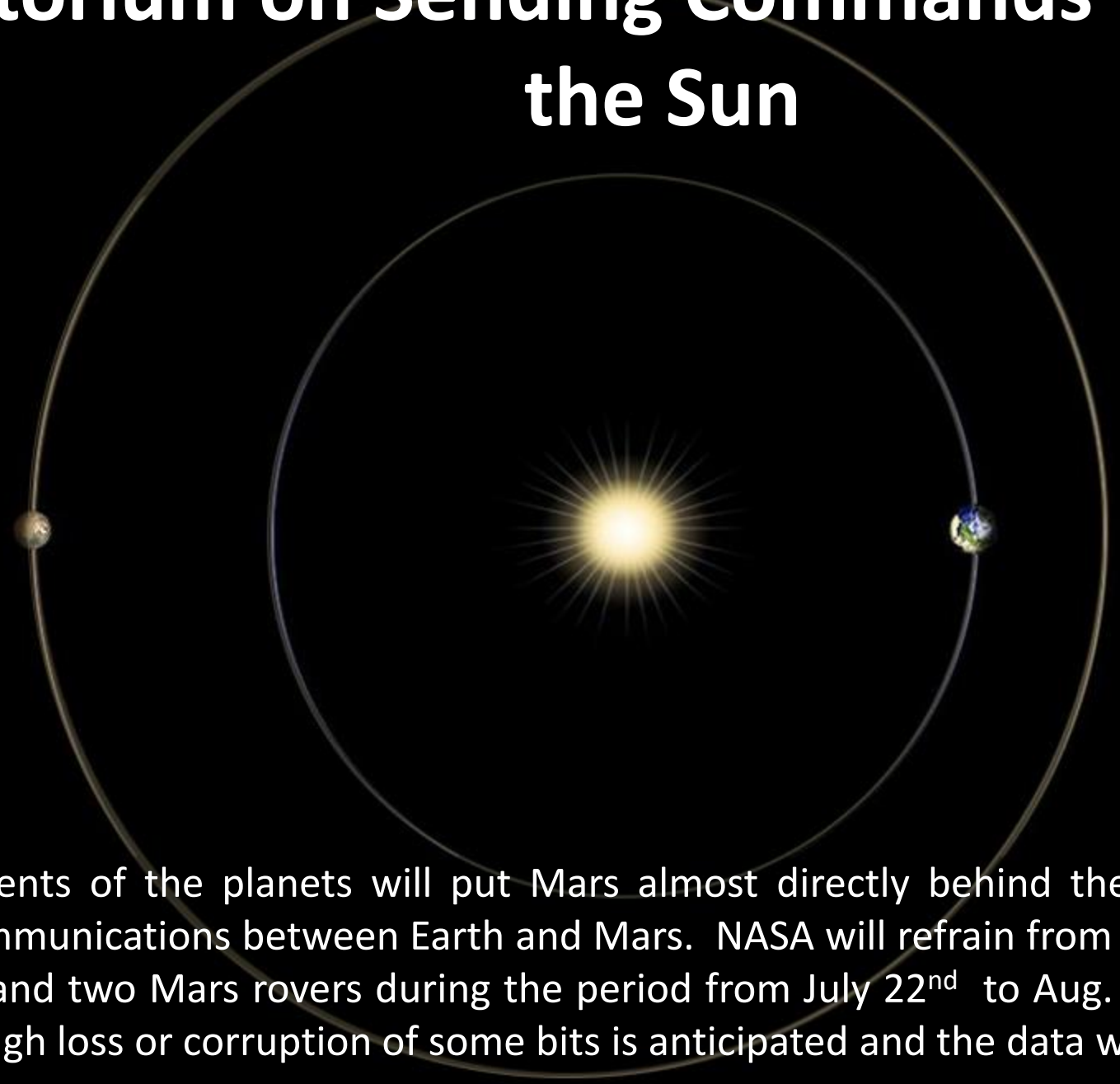
Soyuz Launches 73 Satellites into 3 Different Orbits

A Soyuz rocket successfully launched 73 satellites, including spacecraft for four companies' cubesat constellations, July 14th. The rocket deployed the primary payload, the Kanopus-V-IK remote sensing satellite, about an hour after launch, followed by 72 smallsat secondary payloads over the next seven hours. Among the secondary payloads were 48 Dove satellites from Planet, completing the company's initial constellation of remote sensing cubesats and eight Lemur satellites for Spire, a company deploying a constellation for collecting GPS radio occultation and ship tracking data.

Source: Jeff Foust @ SpaceNews.com

Video Credit: Roscosmos

For Moratorium on Sending Commands to Mars, Blame the Sun



This month, movements of the planets will put Mars almost directly behind the sun, from Earth's perspective, causing curtailed communications between Earth and Mars. NASA will refrain from sending commands to America's three Mars orbiters and two Mars rovers during the period from July 22nd to Aug. 1st. Data will keep coming from Mars to Earth, although loss or corruption of some bits is anticipated and the data will be retransmitted later.

Source: jpl.nasa.gov

Image Credit: NASA/JPL-Caltech

Juno Completes Flyby over Jupiter's Great Red Spot

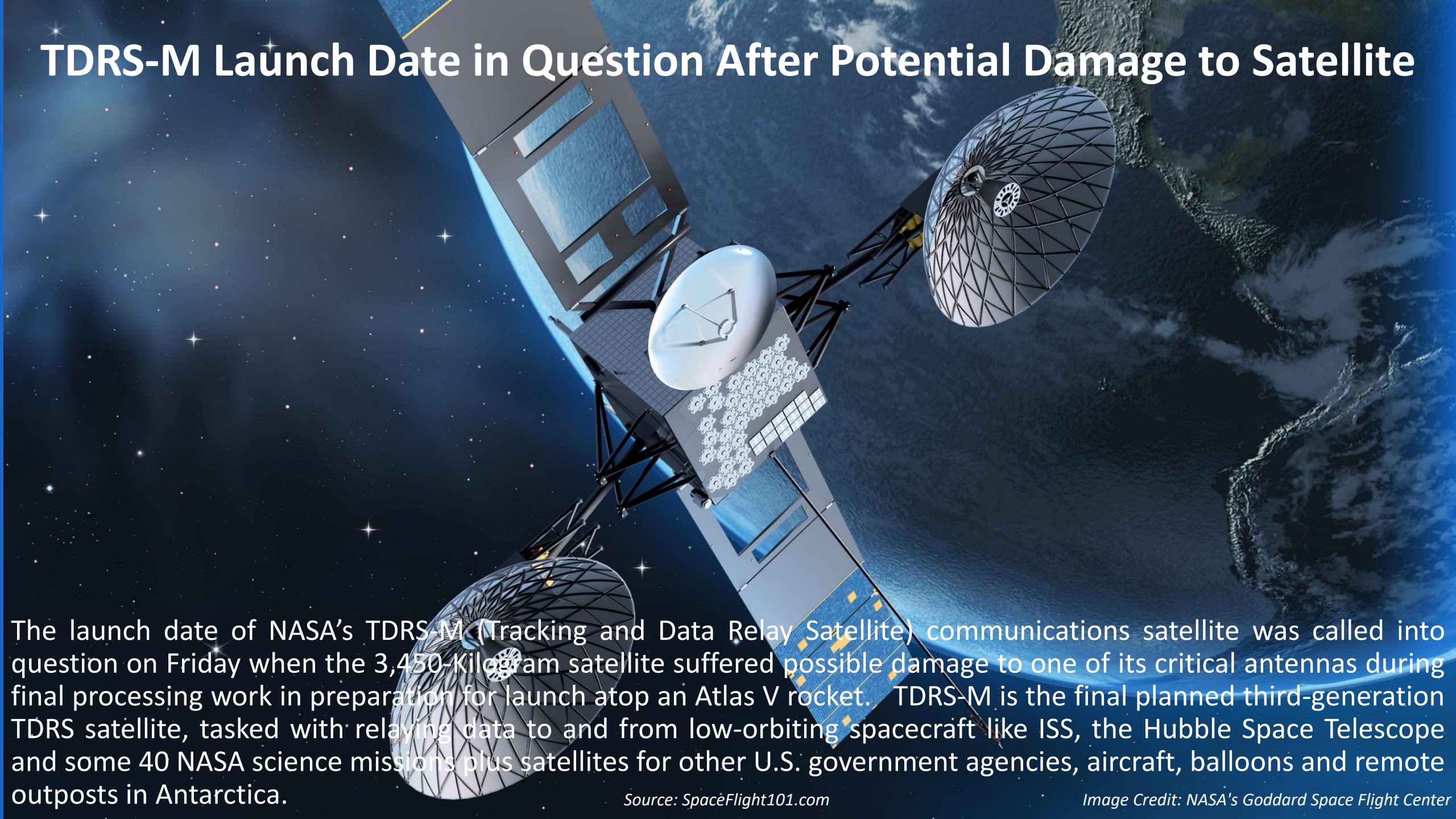
This enhanced-color image of Jupiter's Great Red Spot was created by citizen scientist Jason Major using data from the JunoCam imager on NASA's Juno spacecraft.

The image was taken on July 10, 2017 at 07:10 p.m. PDT (10:10 p.m. EDT), as the Juno spacecraft performed its 7th close flyby of Jupiter. At the time the image was taken, the spacecraft was about 8,648 miles (13,917 kilometers) from the tops of the clouds of the planet.

Source: jpl.nasa.gov

Image Credit: Credit: NASA/SwRI/MSSS/Jason Major

TDRS-M Launch Date in Question After Potential Damage to Satellite



The launch date of NASA's TDRS-M (Tracking and Data Relay Satellite) communications satellite was called into question on Friday when the 3,450-Kilogram satellite suffered possible damage to one of its critical antennas during final processing work in preparation for launch atop an Atlas V rocket. TDRS-M is the final planned third-generation TDRS satellite, tasked with relaying data to and from low-orbiting spacecraft like ISS, the Hubble Space Telescope and some 40 NASA science missions plus satellites for other U.S. government agencies, aircraft, balloons and remote outposts in Antarctica.

Source: SpaceFlight101.com

Image Credit: NASA's Goddard Space Flight Center

NASA Neutron Star Mission Begins Science Operations

NASA's new Neutron star Interior Composition Explorer (NICER) mission to study the densest observable objects in the universe has begun science operations. Launched June 3 on an 18-month baseline mission, NICER will help scientists understand the nature of the densest stable form of matter located deep in the cores of neutron stars using X-ray measurements. NICER operates around the clock on the International Space Station (ISS). In the two weeks following launch, NICER underwent extraction from the SpaceX Dragon spacecraft, robotic installation on ExPRESS Logistics Carrier 2 on board ISS and initial deployment. Commissioning efforts began June 14, as NICER deployed from its stowed launch configuration. All systems are functioning as expected.

Source: Clare Skelly @ Phys.org

Image Credit: NASA

AIDA Mission to Validate Asteroid Deflection Technology

The AIDA mission will consist of two spacecraft sent to the binary asteroid called 65803 Didymos. Built by ESA, the Asteroid Impact Mission (AIM) will be launched in October 2020 and is expected to be injected into the orbit of the larger asteroid. NASA's contribution to this endeavor, the Double Asteroid Redirection Test (DART), will be launched into space nearly one year later and slated to crash into the smaller asteroid in October 2022. AIM will be just in place to observe the impact and study its aftermath.

Source: Tomasz Nowakowski @ SpaceFlightInsider.com

Image Credit: ESA / ScienceOffice.org

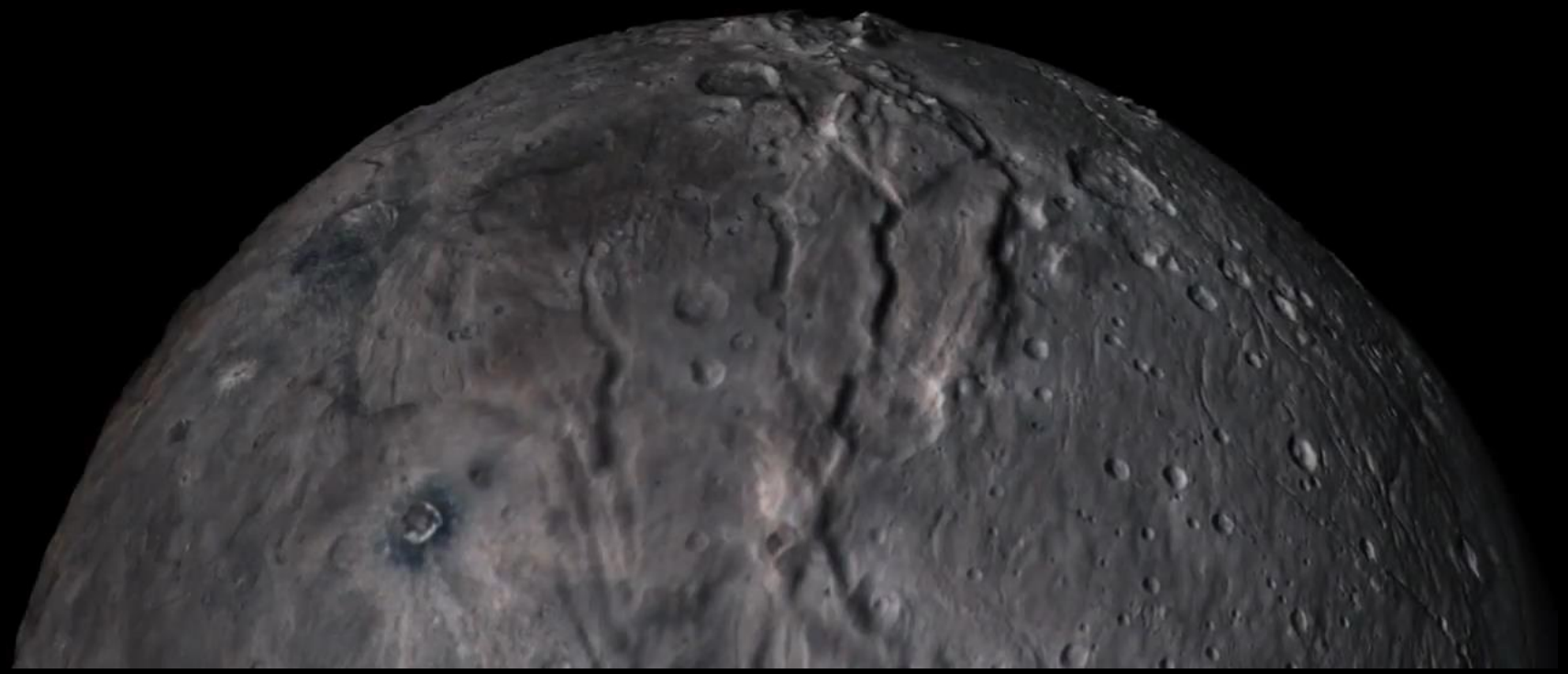
New Horizons Flyover of Pluto

Using actual data obtained two years ago during New Horizons closest approach to Pluto and digital elevation models of Pluto, this dramatic Pluto flyover begins over the highlands to the southwest of the great expanse of nitrogen ice plain informally named Sputnik Planitia. The viewer first passes over the western margin of Sputnik, where it borders the dark, cratered terrain of Cthulhu Macula, with the blocky mountain ranges located within the plains seen on the right. The tour moves north past the rugged and fractured highlands of Voyager Terra and then turns southward over Pioneer Terra -- which exhibits deep and wide pits -- before concluding over the bladed terrain of Tartarus Dorsa in the far east of the encounter hemisphere.

Source: Nasa.gov

Video Credit: NASA/JHUAPL/SwRI/Paul Schenk and John Blackwell, Lunar and Planetary Institute

New Horizons Flyover of Charon



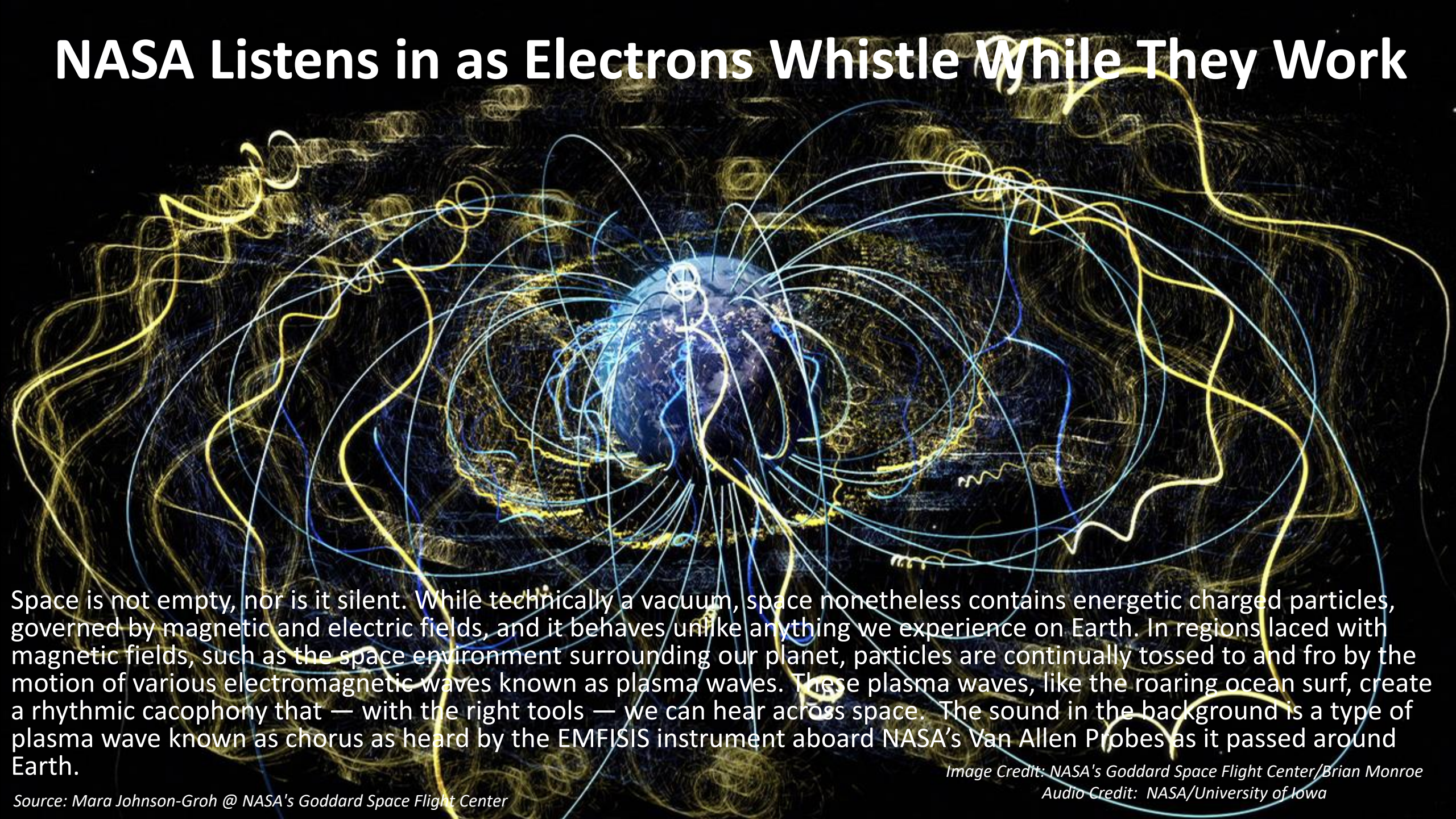
The equally exciting flight over Charon begins high over the hemisphere New Horizons saw on its closest approach, then descends over the deep, wide canyon of Serenity Chasma. The view moves north, passing over Dorothy Gale crater and the dark polar hood of Mordor Macula. The flight then turns south, covering the northern terrain of Oz Terra before ending over the relatively flat equatorial plains of Vulcan Planum and the “moated mountains” of Clarke Montes.

The topographic relief is exaggerated by a factor of two to three times in these movies to emphasize topography; the surface colors of Pluto and Charon also have been enhanced to bring out detail.

Video Credit: NASA/JHUAPL/SwRI/Paul Schenk and John Blackwell, Lunar and Planetary Institute

Source: Nasa.gov

NASA Listens in as Electrons Whistle While They Work



Space is not empty, nor is it silent. While technically a vacuum, space nonetheless contains energetic charged particles, governed by magnetic and electric fields, and it behaves unlike anything we experience on Earth. In regions laced with magnetic fields, such as the space environment surrounding our planet, particles are continually tossed to and fro by the motion of various electromagnetic waves known as plasma waves. These plasma waves, like the roaring ocean surf, create a rhythmic cacophony that — with the right tools — we can hear across space. The sound in the background is a type of plasma wave known as chorus as heard by the EMFISIS instrument aboard NASA's Van Allen Probes as it passed around Earth.

Image Credit: NASA's Goddard Space Flight Center/Brian Monroe
Audio Credit: NASA/University of Iowa

Source: Mara Johnson-Groh @ NASA's Goddard Space Flight Center

Dornier Seawings Readying New-Generation Seastar for August Roll-Out

Dornier Seawings is preparing its first new-generation, 12 passenger Seastar amphibious twin-engine turboprop for roll-out at the end of August, more than 26 years after the program was mothballed due to financing problems. The new-generation Seastar boasts a number of improvements over the original version. These include a redesigned and upgraded interior, a Honeywell Primus Epic 2.0 avionics suite, a stern hydro-thruster for improved water maneuvering, new landing gear, a hydraulic electrically steerable nose gear, and five-blade composite propellers. The program was acquired in 2013 by Chinese companies Wuxi Industrial Development and Wuxi Communications Industry, although the Dornier family still retains a minority stake in the firm.

Source: KATE SARSFIELD @ FLIGHTGLOBAL.COM

Image Credit: Dornier Seawings

July 20, 1969: Apollo 11 Lands on Moon

Video Credit: NASA

At 10:56 p.m. EDT, July 20, 1969. Armstrong is ready to plant the first human foot on another world. With more than half a billion people watching on television, he climbs down the ladder and proclaims: "That's one small step for a man, one giant leap for mankind."

Aldrin joins him shortly, and offers a simple but powerful description of the lunar surface: "magnificent desolation." They explore the surface for two and a half hours, collecting samples and taking photographs.

They leave behind an American flag, a patch honoring the fallen Apollo 1 crew, and a plaque on one of Eagle's legs. It read las, "Here men from the planet Earth first set foot upon the moon. July 1969 A.D. We came in peace for all mankind."

On July 20, 2019, the 50th anniversary of the landing, the Apollo 11 capsule will be on display here at the Museum of Flight.

Source: NASA

July 17, 1975: Apollo- Soyuz Dock

Video Source: ZeroScam

The Apollo-Soyuz mission began at Baikonur Cosmodrome in Kazakhstan. Soyuz 19 launched July 15, 1975, at 8:20 a.m. EDT, carrying cosmonauts Alexey Leonov and Valery Kubasov. Hours later, Apollo followed, lifting off from NASA's Kennedy Space Center at 3:50 p.m. On board were astronauts Thomas Stafford, Vance Brand and Donald Slayton. Both the Soyuz and Apollo vehicles made orbital adjustments during the following two days, bringing both into a circular, 229-kilometer orbit. Hard-dock was achieved July 17 at 12:12 p.m. as the two craft soared above the Atlantic Ocean. This was the first joint Soviet/American space flight and the last flight of Apollo.

Source: NASA

In The News

Analyst: Emirates' long-awaited Dreamliner order a 'done deal'. Emirates Airlines is getting closer to announcing a big order for Boeing Co.'s wide-body Dreamliner as the carrier teams up with low-cost partner FlyDubai to expand regional service, aerospace analyst Saj Ahmad said in a report Monday, July 17th. Emirates is believed to be in the market for between 50 and 100 mid-sized wide-body planes to fly medium- to long-range routes. Ahmad said the airline's order likely will be for a mix of 787-9 and 787-10 models. *(David Wren @ postandcourier.com)*

Moon Express Sets Its Sights on Deliveries to the Moon and Beyond. Moon Express, a private company based in Cape Canaveral, Fla., is working to put its MX-1E lander on the moon this year. Moon Express was founded in 2010 to win the Google Lunar X Prize, a competition offering a $20 million prize for the first private venture to get to the moon with a robotic lander by the end of 2017. A earlier doughnut-shaped design is now taller and thinner, about 3 feet wide and 4 ½ feet tall, more like a soda can with landing legs. *(NYTimes.com)*

Sierra Nevada's Dream Chaser on the Move in California. An atmospheric test model of Sierra Nevada's Dream Chaser spacecraft, a cargo carrier for the International Space Station that will take off on top of an Atlas 5 rocket and land on a runway, is undergoing braking and steering checks in California ahead of a flight test later this year, the company said. The full-scale Dream Chaser is pulled behind a tow vehicle for the ground tests now underway, reaching speeds fast enough to gauge the craft's braking performance and guidance, navigation and control systems. More tests are planned in the coming months, including additional tow tests and a "captive carry" flight with the Dream Chaser suspended under a helicopter. (*Stephen Clark @ SpaceFlightNow.com)*

Air Force Weighs Scrapping A-10 Replacement. The U.S. Air Force is looking closely at the future of close-in warfare, but the service's top general says that future may not include a direct replacement for the A-10 Warthog. The Air Force has for years contemplated building a follow-on, dedicated close-air support (CAS) platform to replace the Warthog when it reaches the end of its service life, but that effort now appears to have stalled. *(Lara Seligman @ Aerospace Daily & Defense Report)*