# The Aerospace Update

Kaunakakai  on the Island of Moloka'i

July 25, 2017

Image Credit: Jack Fischer/NASA

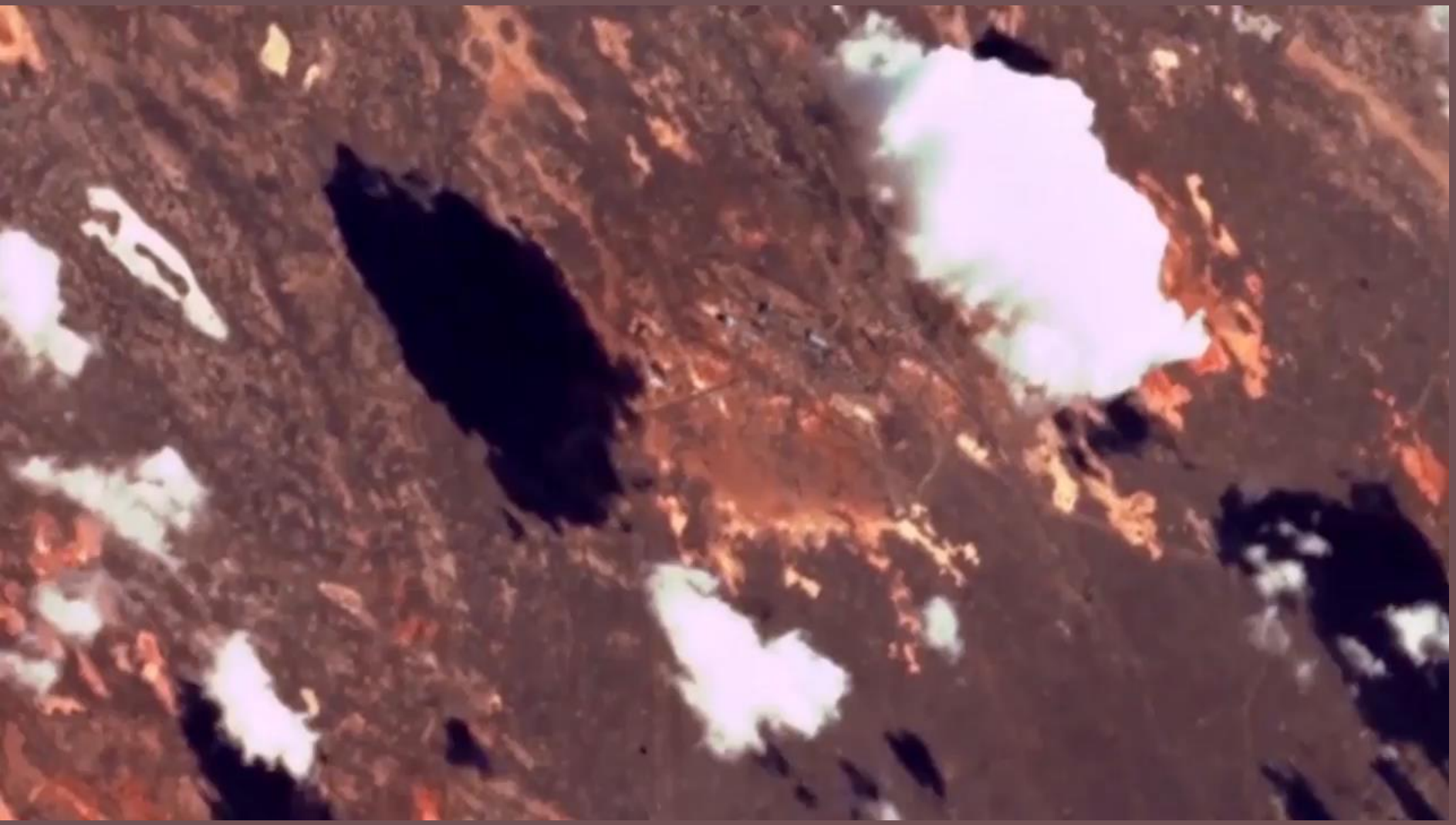
# SpaceX Drops Plans for Powered Dragon Landings


SpaceX no longer plans to have the next version of its Dragon spacecraft be capable of powered landings, a move that has implications for the company's long-term Mars plans. SpaceX planned to transition from splashdowns, which is how the current cargo version of the Dragon returns to Earth, to "propulsive" landings at a pad at some point after the vehicle's introduction. According to Elon Musk, certification issues for propulsive landings led SpaceX to cancel those plans. Another reason for the change, he said, is that SpaceX had reconsidered what is the best way to land large spacecraft on the surface of Mars in support of the company's long-term goals to establish a human presence there. He didn't describe that alternative approach, but said that "the next generation of SpaceX rockets and spacecraft" will use that different landing technique.

*Source: Jeff Foust @ SpaceNews.com*

*Image Credit: SpaceX*

# Soyuz Liftoff Glimpsed by Orbiting Observer



One of Planet's Dove cubesat satellites happened to be flying over Kazakhstan at the time of the launch of a Russian Soyuz Rocket with 73 satellites including 48 new Dove Satellites. Planet's ground controllers pointed the telescopic camera on the spacecraft toward the launch pad at Baikonur. "To create this animation, we pointed a Dove approximately 50 degrees off-nadir towards the pad, capturing one still image per second of the fixed target as the Dove traveled overhead at an approximate speed of seven kilometers per second (or 15,658 mph)," a Planet employee wrote in a post on the company's website. "Then our imaging team cropped and stitched the stills together. All in all, this short clip covers about two and a half minutes in real-time including liftoff and flight."

*Source: Stephen Clark @ SpaceFlightNow.com*

*Video Animation Credit: Planet*

# ULA will launch first two Dream Chaser cargo missions

America's Ride to Space

Sierra Nevada and United Launch Alliance have announced the most powerful version of the Atlas 5 rocket, with five strap-on boosters and a twin-engine upper stage, will send the first two Dream Chaser cargo missions to the International Space Station from Cape Canaveral in 2020 and 2021, a schedule that still must be confirmed by NASA.

*Source: Stephen Clark @ SpaceFlightNow.com*

*Image Credit: ULA*

# Drone Ball Tours Space Station

Space watchers have seen footballs, mini-soccer balls and water balls float through the International Space Station—but, never a drone ball. Now, new footage of a spherical Japanese robot shows it hovering and skittering around the Destiny module. The JEM Internal Ball Camera, called the Int-Ball, can record video in space while remote controlled from the ground. The hope is that the robot will not only save the crewmembers time today, but could improve the robotic-human cooperation in future space expeditions, according to a statement from the Japanese Aerospace Exploration Agency (JAXA). "In-Ball," as the drone is called, would add to a growing legacy of robot "helpers" in space, including NASA's Robonaut 2 and the talking Japanese Kirobo.

*Source: www.space.com*


*Video Credit: JAXA*

# A Final Farewell to LISA Pathfinder

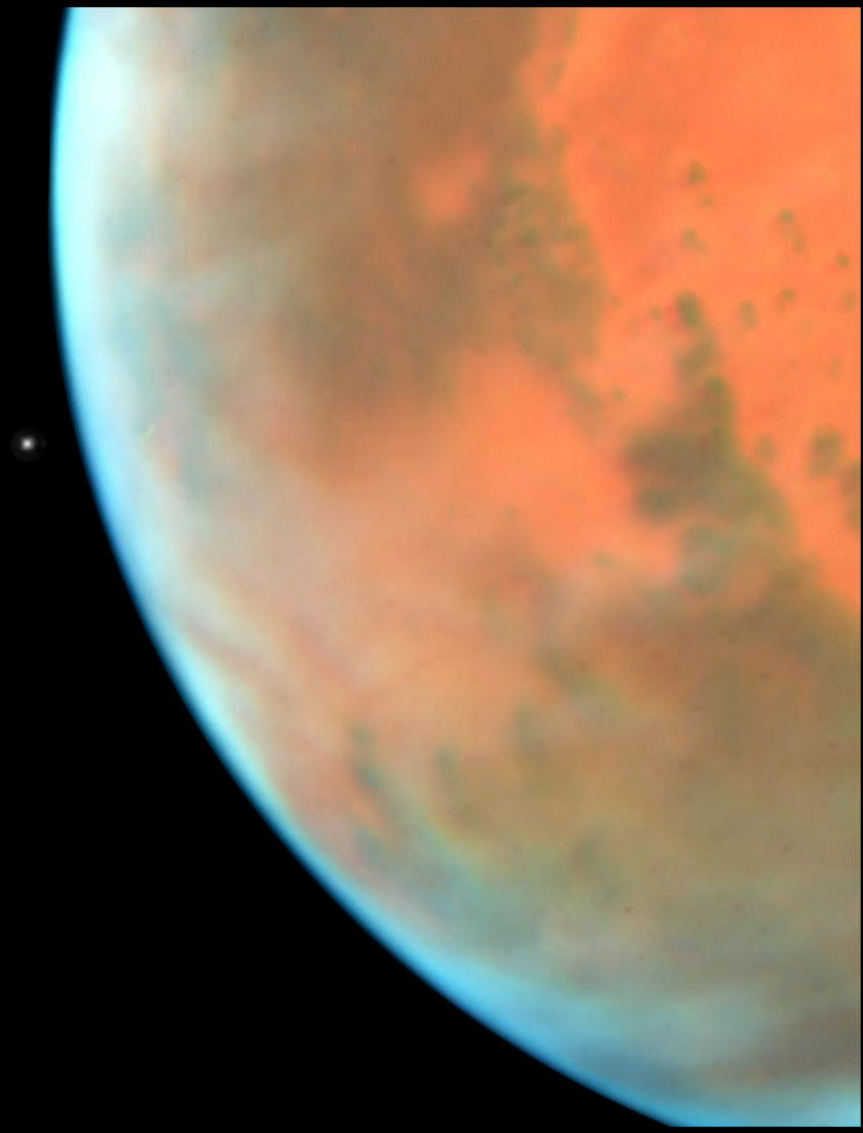
The European Space Agency's LISA Pathfinder spacecraft, now sailing around the sun on a trajectory away from Earth, was deactivated Tuesday after a nearly 18-month mission testing previously-untried lasers, vacuum enclosures, exotic gold-platinum cubes and micro-thrusters needed for a trio of gravitational wave observatories set for launch in the 2030s. The crux of the mission was to prove the test cubes could be kept in a constant state of nearly perfect free fall during LISA Pathfinder's mission. Two sets of low-impulse thrusters essentially steered the spacecraft around the free-floating test masses suspended inside two vacuum enclosures placed 15 inches (38 centimeters) apart on the satellite.

*Source: Stephen Clark @ SpaceFlightNow.com*

*Image Credit: ESA*

# Hubble Sees Moon Orbiting Mars

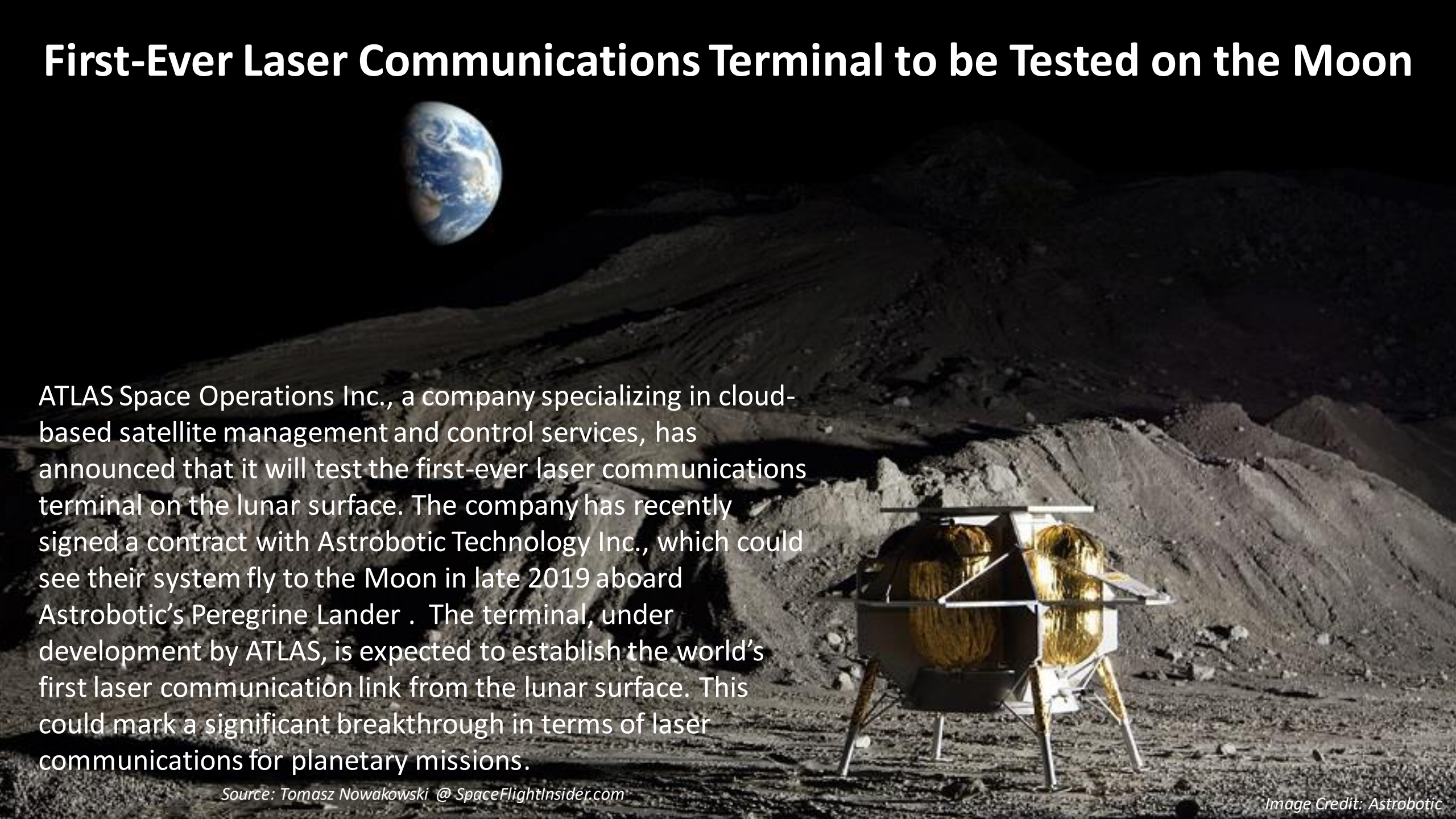
The sharp eye of NASA's Hubble Space Telescope has captured the tiny moon Phobos during its orbital trek around Mars. Because the moon is so small, it appears star-like in the Hubble pictures. Over the course of 22 minutes, Hubble took 13 separate exposures, allowing astronomers to create a time-lapse video showing the diminutive moon's orbital path. The Hubble observations were intended to photograph Mars, and the moon's cameo appearance was a bonus.




*Source: Nasa.gov*

*Animation Credit: NASA, ESA, and Z. Levay (STScI)*

# First-Ever Laser Communications Terminal to be Tested on the Moon



ATLAS Space Operations Inc., a company specializing in cloud-based satellite management and control services, has announced that it will test the first-ever laser communications terminal on the lunar surface. The company has recently signed a contract with Astrobotic Technology Inc., which could see their system fly to the Moon in late 2019 aboard Astrobotic's Peregrine Lander . The terminal, under development by ATLAS, is expected to establish the world's first laser communication link from the lunar surface. This could mark a significant breakthrough in terms of laser communications for planetary missions.

*Source: Tomasz Nowakowski @ SpaceFlightInsider.com*

*Image Credit: Astrobotic*


The B-29 known as “Doc” flew from Cedar Rapids, Iowa, to Oshkosh, Wisconsin on July 22, crowning a 16-year restoration effort after being rescued from years of abandonment at the U.S. Navy’s China Lake desert weapons testing range (same place where the Museum of Flight’s B-29 was rescued). It will be on display at Oshkosh AirVenture all week, and is slated to fly in formation with the world’s only other flying B-29, ‘Fifi.’

*Video Source: airailimages*

*Source: John Morris @ ShowNews & Aviation Week @ Space Technology*

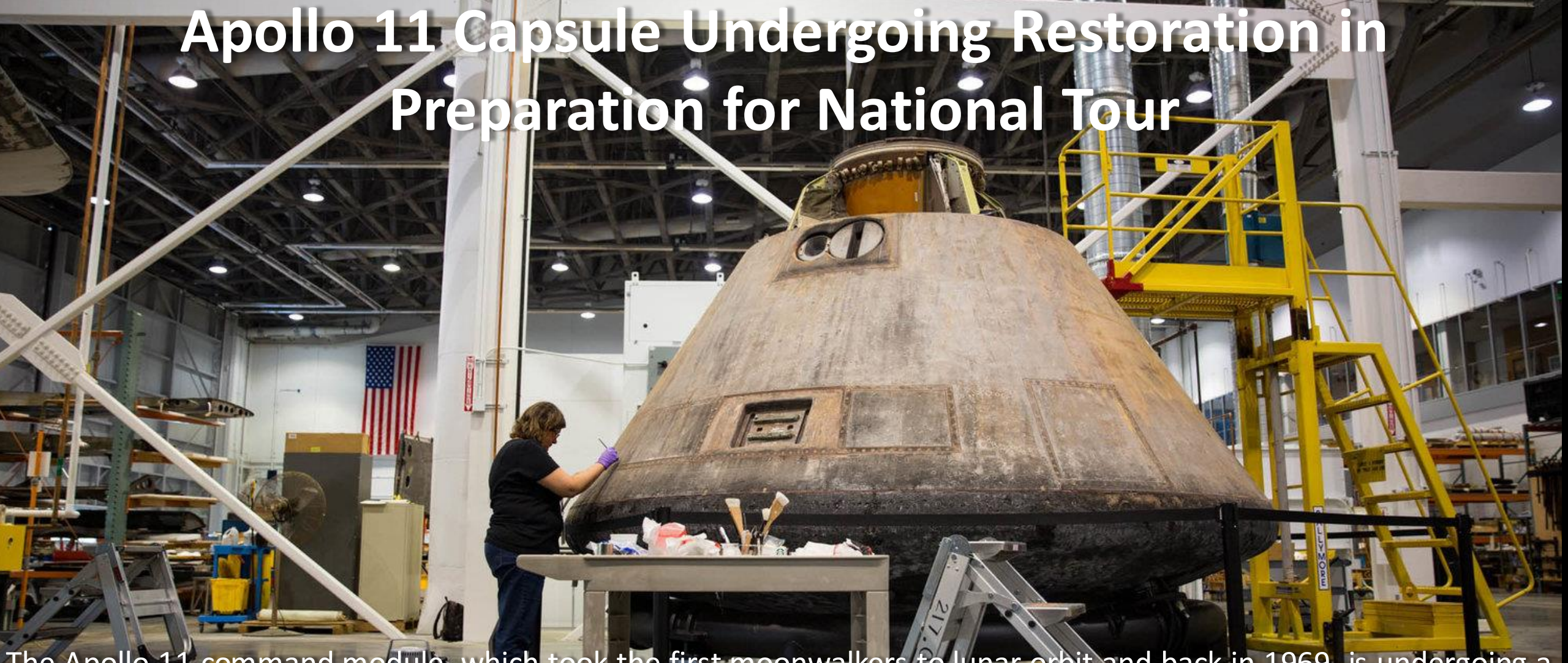
# Stratos 714 Makes Flying Debut at Oshkosh

A survivor from the very light jet (VLJ) boom-and-bust cycle of the last decade, the Stratos 714 made an unlikely debut at the Experimental Aircraft Association's AirVenture fly-in in Oshkosh, Wisconsin on July 24th. Redmond, Washington-based Stratos Aircraft had produced only a mock-up when the global financial crisis in 2009 wiped out most of at least 11 VLJ competitors by the end of the decade. But the company managed to survive with incremental rounds of financing, so that eight years on the Stratos 714 exists as a flying prototype, with a second prototype funded and a fully-equipped production facility.

*Source: Stephen Trimble @ FlightGlobal.com*

*Photo Credit: Stratos Aircraft*

# Apollo 11 Capsule Undergoing Restoration in Preparation for National Tour



The Apollo 11 command module, which took the first moonwalkers to lunar orbit and back in 1969, is undergoing a painstaking restoration, in preparation for an unusual national tour which will begin later this year. Until recently, the capsule sat in the main lobby of the National Air and Space Museum, where it had been since the museum opened in 1976. The point of all this cleaning and repair is preservation — not to make it look shiny and new. The capsule will be on display at the Museum of Flight in the summer of 2019.

*Source: Nell Greenfieldboyce @ NPR.org*

*Photo Credit: Shelby Knowles/NPR*

# July 24, 1950: First Launch from Cape Canaveral

**On July 24, 1950, the very first rocket to ever launch from Cape Canaveral, Florida blasted off into space. The Bumper 2 was an experimental, two-stage rocket that could fly as high as 250 miles (400 kilometers) above the Earth. It was a V-2 missile base topped with a WAC Corporal rocket launched under the direction of the General Electric Company. The mission's purpose was to test new rocket technologies and collect data about Earth's upper atmosphere.**

*Source: Weitering Hanneke @ Space.com*

*Image Source: NASA*

# July 25, 1909: Louis Blériot Make 1st Flight Across English Channel

**Louis Blériot, a French inventor and engineer, made the first flight across the English Channel in the Bleriot XI, an aircraft of his own design. Bleriot crossed the English Channel at an altitude of about 250 feet (76 meters), traveling 22 miles (36 kilometers) in 37 minutes. It was not highest, furthest, or fastest flight to date, but it was the most politically significant.**

*Text and Image Source: www.wright-brothers.org*

# In The News

**NASA Might Privatize the Spitzer Space Telescope**. Management of NASA's Spitzer Space Telescope could be turned over to an academic institution or private operator in 2019 once the space agency's funding for the observatory runs out, a senior NASA manager said this week. Launched in August 2003 on a planned five-year mission, the infrared observatory is getting farther from Earth as it circles the sun, complicating communications with the telescope. While Spitzer operations will be more challenging as the telescope flies greater distances from Earth, the spacecraft and instruments could remain functional after NASA's mission-end date in 2019. *(Stephen Clark @ SpaceFlightNow.com)*

**NASA, Boeing & SpaceX Express Growing Confidence in Commercial Crew Schedules**. Both NASA and the two companies developing commercial crew vehicles, Boeing & SpaceX, say those efforts remain on schedule for test flights that are in some cases less than a year away. The latest SpaceX schedule calls for an uncrewed test flight in February 2018, followed by a crewed test flight in June 2018. Boeing's schedule anticipates an uncrewed test flight in June 2018 and a crewed test flight in August 2018. *(Jeff Foust @ SpaceNews.com)*

**Elon Musk Says Successful Maiden flight for Falcon Heavy Unlikely.** SpaceX CEO and founder Elon Musk has downplayed the chances of a successful inaugural flight for his Falcon Heavy space launch vehicle, admitting there is a "good chance it would not make it to orbit in its first launch. "Development of the booster rocket, which is powered by 27 engines, has proven to be "way harder than the team initially thought." Falcon Heavy will be the most powerful rocket booster in the world, capable of delivering a 54 ton payload into orbit. *(SpaceDaily.com)*

**DLR to fly experiments on Blue Origin's New Shepard**. The German Aerospace Center, Germany's space agency, will fly two experiments on a suborbital flight by Blue Origin's New Shepard vehicle later this year as part of an effort to diversify its microgravity research efforts. One of the experiments will test a phenomenon known as photophoresis, the movement of particles suspended in a gas triggered by light. In astrophysics, photophoresis plays a role in the formation of planets in protoplanetary disks. The other experiment will test granular matter dynamics in microgravity. *(Jeff Foust @ SpaceNews.com)*