



KENNEDY SPACE CENTER'S  
SPACEPORT  
m a g a z i n e

SpaceX CRS-18  
Delivers Docking  
Adapter, Supplies  
to the Space  
Station



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A SpaceX Falcon 9 rocket lifts off from Space Launch Complex 40 at Cape Canaveral Air Force Station in Florida at 6:01 p.m. EDT on July 25, 2019, carrying the Dragon spacecraft on the company's 18th Commercial Resupply Services (CRS-18) mission to the International Space Station. The uncrewed Dragon spacecraft delivered about 5,000 pounds of science and research, crew supplies and vehicle hardware to the orbiting laboratory. Photo credit: NASA/Tony Gray and Kenny Allen

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Kennedy Space Center has its own monthly podcast. Welcome to the "Rocket Ranch." **Listen to Episode 12: From Apollo to Artemis.** In this episode, NASA looks back at the Apollo era and ahead at the Artemis missions to come. Check out Episode 12, read the full transcript and catch up on missed episodes at <https://www.nasa.gov/kennedy/rocketranch>.



**KENNEDY**  
SPACE CENTER

**TIM BASS**



My name is Tim Bass. I am the assistant chief counsel in the Office of the Chief Counsel at NASA's Kennedy Space Center. I have worked in this office since May 2008.

To ensure mission success, it is imperative that we understand our NASA clients' goals and look to laws, regulations and policies to achieve those objectives. To do this effectively, a lawyer must constantly maintain a results-oriented mindset and interpret legal guidance accordingly. We learn our NASA clients' destinations and provide advice on the journey to reach them.

Although I am at Kennedy, my roles have consistently been in support of NASA-wide programs and operations. My most recent assignment has been to serve as the embedded counsel to Exploration Ground Systems. I have served about a year in support of the agency's Space Launch System and other programs.

As far back as I can remember, space has imbued an insatiable passion in my soul, particularly the unmanned missions that reveal so much about our planet and the universe around us. I studied international logistics and space law in school. My desire to make valuable contributions to the most inspiring agency in the world drove my career path. It is rewarding to serve all of NASA, not just Kennedy.

The biggest challenge in this job is leading the agency through change. But it also is the greatest triumph. Being a good lawyer, leader and mentor contributes to that transition and mission success, and compels greater NASA-wide understanding, effectiveness and efficiency.

My favorite memory, so far, is working with various centers and programs across NASA. One specific memory is while I was detailed to NASA Headquarters supporting the International Law Practice Group. I led a cross-directorate, interorganizational working group that focused on small-satellite utilization, opportunities and agreements across all centers. The coordination opportunity was invaluable, enlightening and rewarding.

# Cargo Delivery

## SpaceX Falcon 9 successfully launches CRS-18 to International Space Station

BY DANIELLE SEMPSROTT

A SpaceX Falcon 9 rocket successfully launched from Cape Canaveral Air Force Station's Space Launch Complex 40 in Florida on July 25, 2019, at 6:01 p.m. EDT, carrying the company's Dragon spacecraft to the **International Space Station** on its **18th Commercial Resupply Services (CRS-18)** mission.

"It was a great launch, we were really happy to see the weather clear out the way it did," said Bill Spetch, deputy manager of the International Space Station Transportation Integration Office at NASA.

Weather was one thing the launch team closely monitored. Originally scheduled to launch July 24, unfavorable weather conditions caused a last-minute scrub. The morning of July 25, the weather looked much the same but cleared up just in time.

After a picture-perfect launch and spacecraft separation, Dragon arrived to the orbiting laboratory two days later, July 27. NASA astronauts **Nick Hague** and **Christina Koch** captured the spacecraft at 9:11 a.m. using the space station's Canadarm2 robotic arm. Dragon was then installed on the Earth-facing side of the station's Harmony module at 12:01 p.m.

This was the first time a Dragon spacecraft had journeyed to the space station for a third time. To mark this accomplishment, it is outfitted with three noteworthy stickers: two station badges representing the previous resupply missions it has flown (CRS-6 and CRS-13) and the Apollo 50th anniversary logo.

"We are still inspired by all of the Apollo missions and are excited to continue to work with NASA as they continue to explore the universe," SpaceX Director of Dragon Mission Management Jessica Jensen said in a prelaunch news conference July 24.

CRS-18 delivered around 5,000 pounds of science investigations, supplies and equipment, including the **International Docking Adapter-3 (IDA-3)** – a new docking adapter that will enable future spacecraft built under NASA's **Commercial Crew Program** to autonomously attach to the station. Installation of IDA-3 is scheduled for later this summer and will provide a second port for visiting vehicles to attach to, including those designed to carry humans.

Dragon will remain at the space station for about a month before returning to Earth with research and return cargo.



A SpaceX Falcon 9 rocket soars upward after lifting off from Space Launch Complex 40 at Cape Canaveral Air Force Station in Florida at 6:01 p.m. EDT on July 25, 2019, carrying the Dragon spacecraft on the company's 18th Commercial Resupply Services (CRS-18) mission to the International Space Station. Photo credit: NASA/Tony Gray and Kenny Allen

## Completion of Orion's crew module brings NASA one step closer to launch

By Danielle Sempsrott

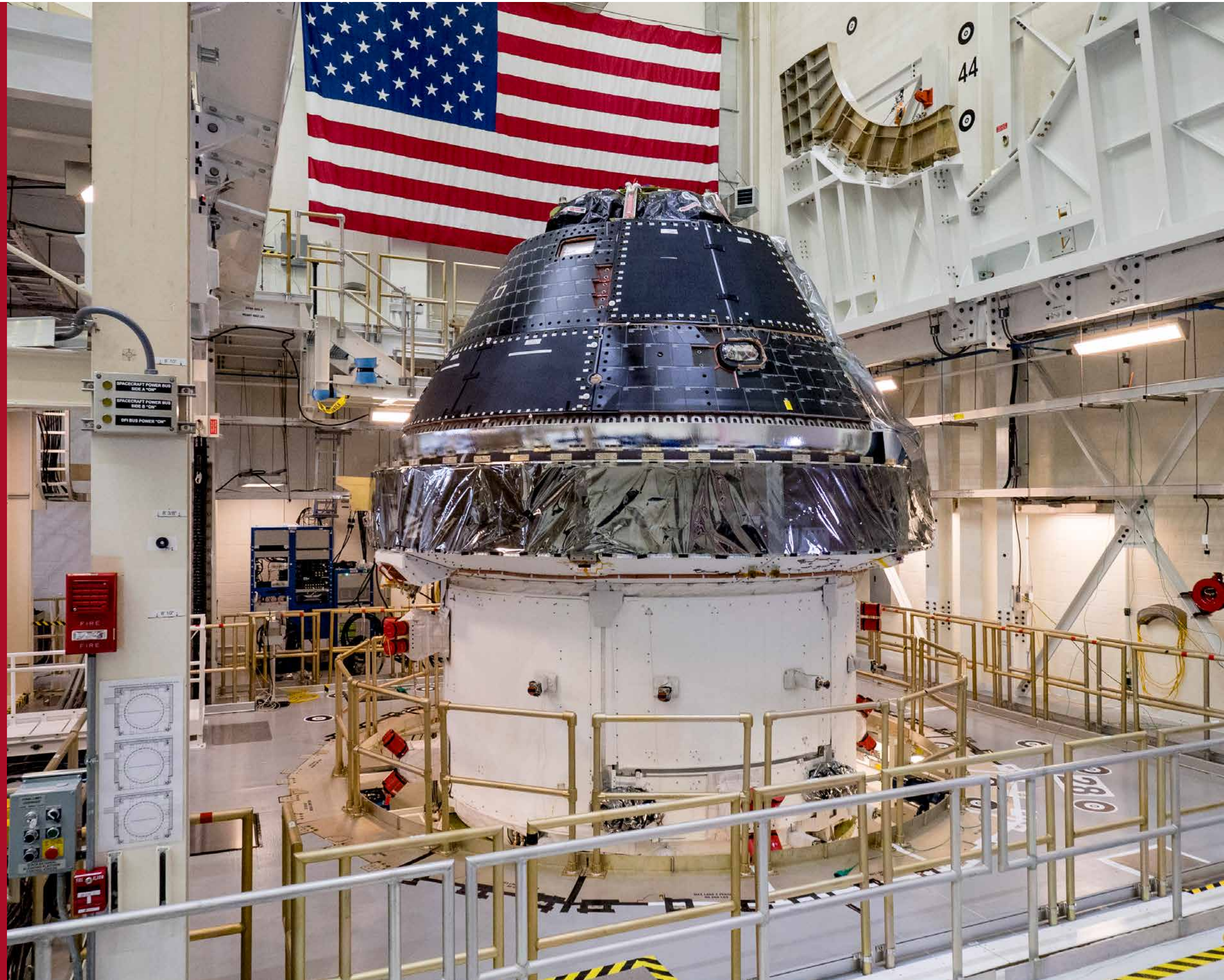
NASA has reached a huge milestone on its path to land the first woman and the next man on the Moon by 2024. The team completed the Orion crew module design and build for Artemis 1 – an accomplishment leading Orion to become the first spacecraft outfitted to take humans farther than ever before.

Consisting of components from about 4,000 different companies spread out across 48 states, the crew module has been worked on by hundreds of enthusiastic Kennedy employees, resulting in more than 1 million hours dedicated to its development. Technicians and engineers have been hard at work outfitting it with the necessary electrical and avionics systems, pre-fitting tile blocks around the heat shield, conducting pressure checks, pre-fitting the back shell panels, routing the plumbing lines, adding the parachutes and installing the heat shield.

“Just knowing that we’re making history and advancing forward to achieve NASA’s exploration goals, this is the motivational driver that brings me to work and makes we want to be a part of this dream that we’re living right now,” said Glenn Chin, NASA’s deputy manager for Orion production operations at Kennedy, who has been part of the team since Orion’s inception.

The first in a series of missions, Artemis 1 will ultimately lead to the capability to expand human exploration beyond the Moon to Mars. During Artemis 1, the Space Launch System (SLS) rocket will send the uncrewed Orion spacecraft – consisting of the crew and service module – thousands of miles beyond the Moon in a test that will evaluate Orion’s functionality far from Earth and its integration with SLS. The flight test will help pave the way for Artemis 2, the first crewed mission to the Moon.

Photo credit: NASA/Radislav Sinyak



# Gateway Logistics Element

John F. Kennedy Space Center

Gateway will be a small spaceship in orbit around the Moon that helps enable us to land the first woman and next man on the lunar surface by 2024.

Kennedy Space Center is the home for the Gateway Logistics Element, leading NASA's commercial supply chain for deep space.



The name was chosen as NASA's lunar exploration program to return humans to the Moon that will prepare and propel us on to Mars.

**Fly | Supply | Explore**

## NASA, Boeing and ULA Practice Emergency Escape and Triage Exercise

An emergency medical technician cares for an astronaut with simulated injuries during a joint emergency escape and triage exercise led by NASA, along with Boeing and United Launch Alliance, at Space Launch Complex 41 at Cape Canaveral Air Force Station in Florida on July 24, 2019.

The simulation is part of a series in preparation for upcoming crew flights to the International Space Station as part of NASA's Commercial Crew Program.

NASA astronauts Josh Cassada, currently in training for the second flight with crew aboard Boeing's CST-100 Starliner spacecraft, and Eric Boe, along with astronaut candidate Jasmin Moghbeli, served as the flight crew. The astronauts practiced emergency egress from the nearly 200-foot-tall crew access tower at the launch pad. They also rehearsed escape from the launch complex in an armored vehicle, and decontamination and triage at a nearby helipad.

Photo credit: NASA/Ben Smegelsky



NASA astronauts Doug Hurley, left, and Bob Behnken work with teams from NASA and SpaceX to rehearse crew extraction from SpaceX's Crew Dragon, which will be used to carry humans to the International Space Station, on August 13, 2019 at the Trident Basin in Cape Canaveral, Florida. Using the Go Searcher ship SpaceX uses to recover their spacecraft after splashdown and a mock-up of the Crew Dragon, the teams worked through the steps necessary to get astronauts Hurley and Behnken out of the Dragon and back to dry land. Both astronauts will fly to the space station aboard the Crew Dragon for the SpaceX Demo-2 mission. Photo Credit: NASA/Bill Ingalls



# NASA Update

## Kennedy partners with US industry to advance Moon, Mars technology

As NASA prepares to land humans on the Moon by 2024 with the Artemis program, commercial companies are developing new technologies, working toward space ventures of their own and looking to NASA for assistance. NASA has selected 13 U.S. companies for 19 partnerships to mature industry-developed space technologies and help maintain American leadership in space. NASA's Kennedy Space Center in Florida is working with two of them. The public-private partnerships will advance the commercial space sector and help bring new capabilities to market that could benefit future NASA missions.

Kennedy's **Swamp Works** will partner with SpaceX to advance their technology to vertically land large rockets on the Moon. This includes advancing models to assess engine plume interaction with lunar regolith.

"We are dedicated to developing technologies that will take us forward to the Moon and to Mars, and working with commercial partners such as SpaceX will make these missions possible," said Rob Mueller, senior technologist for advanced projects development in Kennedy's Exploration Research and Technology Programs. "Missions to the lunar surface present challenges from rocket engine plume effects as they interact with the regolith surface to eject high-velocity dust particles and rocks. To mitigate risk of damage to equipment during landings and takeoff, we'll work on technologies such as launch and landing pads, and blast protection berms or walls to make operations on the Moon sustainable and safe for NASA and all of our partners. These types of risk mitigations become exponentially more important as landers increase in size, and Kennedy's Swamp Works is at the forefront of developing new technological solutions for this based on related computer modeling tools and testing."

The spaceport's botanists will work with Lockheed Martin to test technologies and operations for autonomous in-space **plant growth systems**. Integrating robotics with plant systems could help NASA harvest plants on future platforms in deep space.

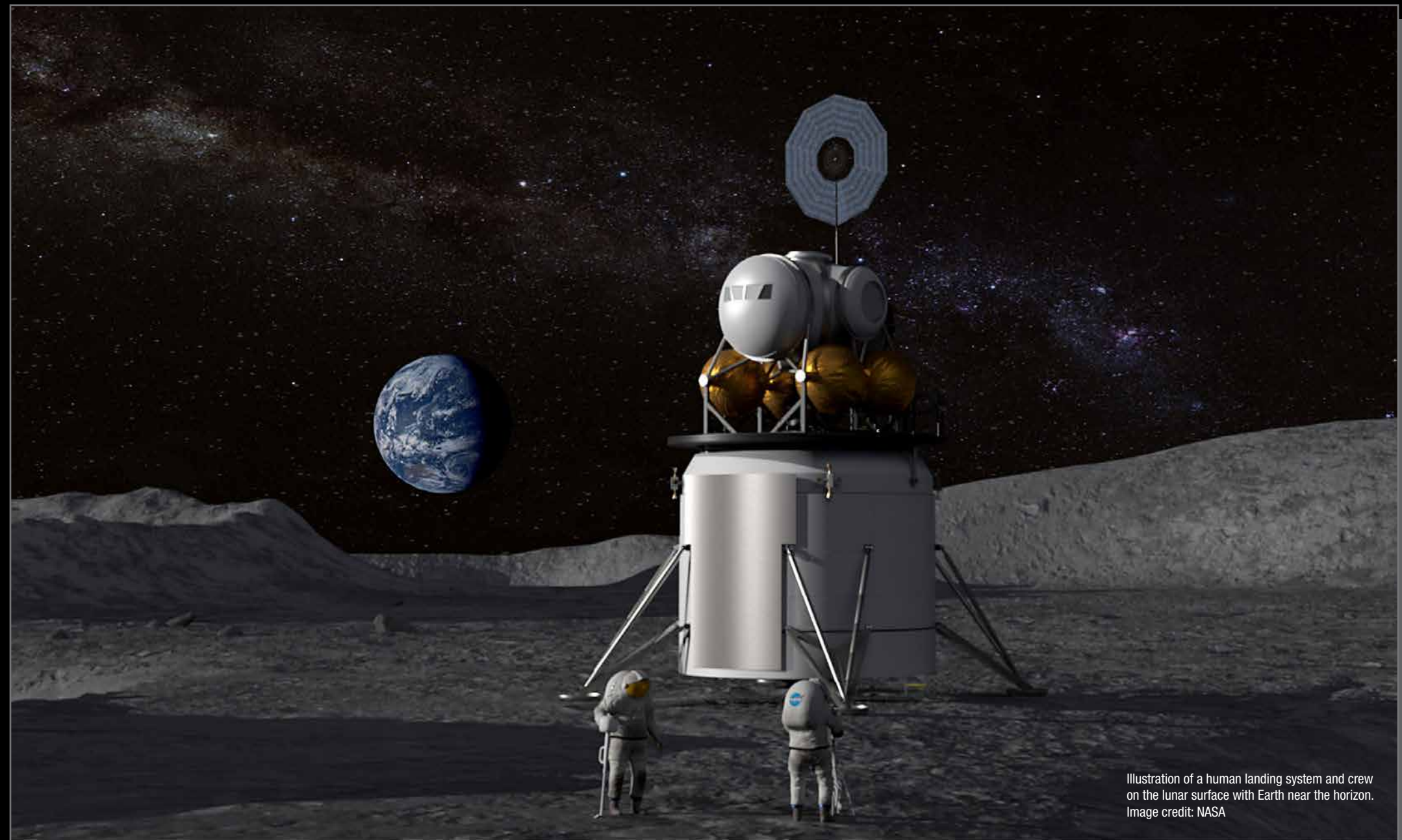


Illustration of a human landing system and crew on the lunar surface with Earth near the horizon. Image credit: NASA

"My office has many examples of NASA engineers, scientists, interns and support contractors working with industry, such as earlier this year when we supported Lockheed Martin with Gateway evaluation testing," said Bryan Onate, chief of the Life Sciences and Utilization Office at Kennedy. "Exploring beyond low-Earth orbit will require long-duration stays on the Moon and eventually Mars, meaning we are focused on providing plant growth systems that will supplement and sustain the crews' nutrition and implement autonomous operations as required. So,

we are excited to be taking part in this collaborative opportunity, which will develop new technology to enable future missions."

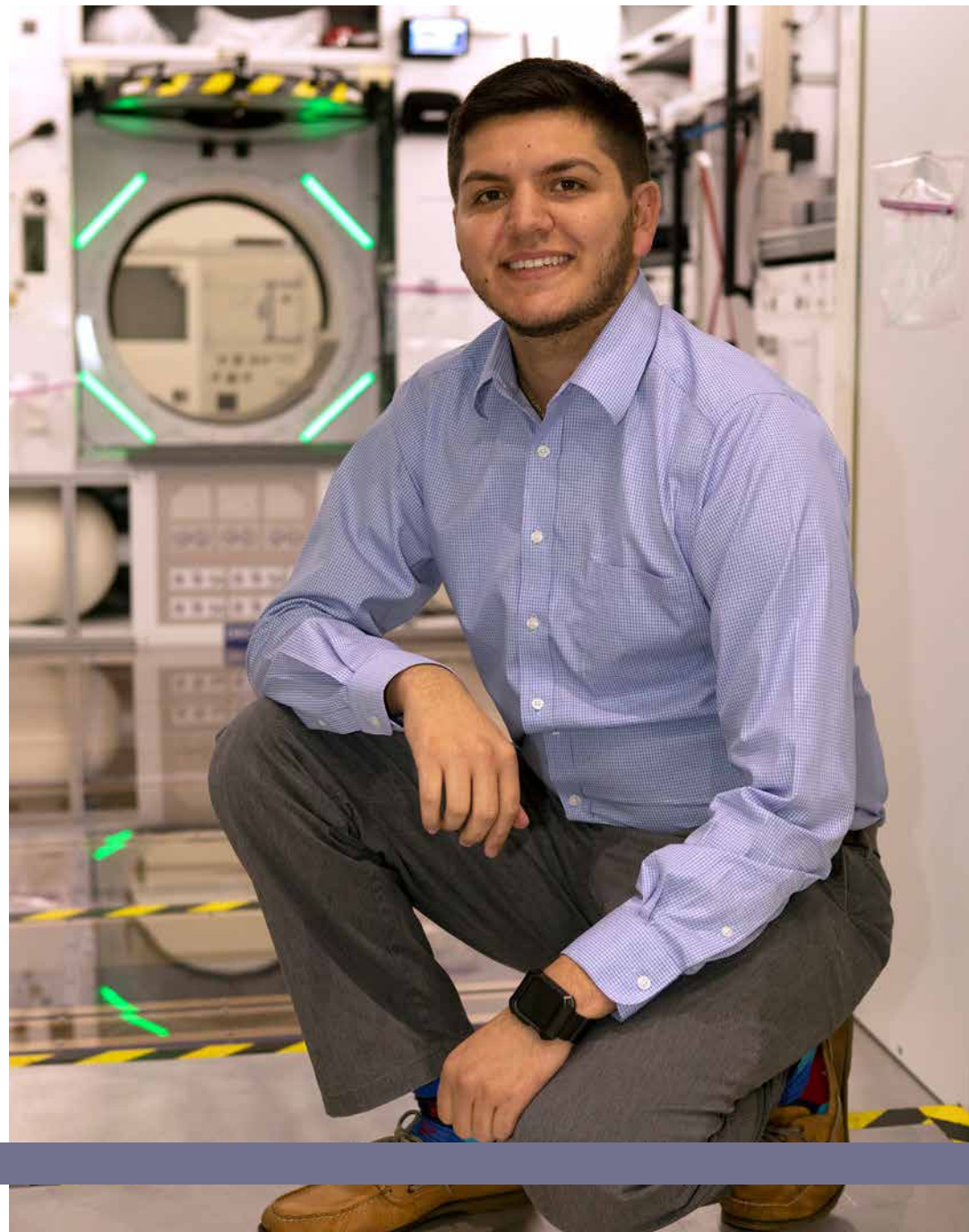
The selections were made through NASA's **Announcement of Collaboration Opportunity** (ACO) released in October 2018 by the Space Technology Mission Directorate. They will result in non-reimbursable Space Act Agreements between the companies and NASA. Through ACO, NASA helps reduce the development cost of technologies and accelerate the infusion of emerging commercial capabilities into space missions.

For more information about the full ACO selection, visit: <https://go.nasa.gov/2OvxFUH>.

For more information about NASA's investments in space technology, visit: <http://www.nasa.gov/spacetech>



# NASA's Kennedy Space Center Innovators' Launchpad: *Jaime Gomez*



Kennedy Space Center engineer Jaime Gomez works on space hardware that allows astronauts to discover and study innovative technologies. Photo credit: NASA

## *Please explain your job in a single sentence.*

I am an operations engineer for processing and servicing Orbital Replacement Units (ORUs), the spare parts and hardware for the **International Space Station**, which keeps the orbiting laboratory functional and allows **astronauts** to live and work in low-Earth orbit.

## *What do you find most exciting about your job?*

The most exciting thing about my job is helping change humanity. I get to work on space hardware that allows astronauts to discover and study innovative technologies. I also help plan for future operations of hardware that will help land humans on the **Moon** again in five years, such as **Gateway** — a small spaceship in orbit around the Moon that will provide access to more of the lunar surface than ever before with living quarters for astronauts, a lab for science and research, ports for visiting spacecraft, and more.

## *What is a typical day like for you?*

A typical day consists of ensuring ORU processing milestones are being met and will make a launch date. ORUs get distributed to many launch providers around the world and I have to work with these launch providers to plan for ORU delivery and spacecraft integration. Working with **commercial partners** is another part of my job, which consists of supporting their operations and helping them meet deadlines.

## *Was the work you did your first month at NASA anything like your current work?*

The work I did my first month at NASA is similar to what I do now, but it grows every day. As I gain more knowledge in my role, I strive to help in more areas in my current position and in other areas. The exciting news of **returning humans to the Moon** has driven more roles and responsibilities for me, from planning Gateway integration to looking at possible lunar lander operations.

## *What is your educational background and why did you choose to study those areas?*

I have a Bachelor of Science in mechanical engineering from the University of South Florida. I chose to study mechanical engineering because I always had a passion for mechanical systems. Growing up I would race remote-controlled cars, fly remote-controlled planes and launch homemade rockets. I have always been interested in how mechanical systems work and try to think of innovative ways to better mechanical systems.

## *How do the era and place in which you grew up shape how you approach your work?*

My brother, sister and I grew up working with my parents in the late '90s and early 2000s. My parents owned rental properties and an auto mechanic shop on the west coast of Florida. My family would spend most days working on the apartments or helping at the shop to make sure we had food on the table. Growing up working on apartments and watching tenants struggle to pay rent taught me to always work hard in school and at my job.

## *What motivated you to want to work for NASA?*

My motivation came from a parent teaching day at my elementary school. An engineer from NASA visited us and spoke about the innovations he was working on and how he really enjoyed working for NASA. After he spoke we went to the playground and launched homemade rockets he helped us create. From that day I knew my dream was to **work for NASA**.

## *Why does conducting research and developing new technology matter to you?*

Conducting research and developing new technology matters because it advances humanity. Cures for diseases and illnesses are discovered every day through research. New technology may change everyday life and connects humanity worldwide. For example, with the creation of the internet, people are able to view what is happening around the world and gather information instantly. Research and technology allow people to create new ideas that will help lead to new discoveries that will benefit humanity such as going back to the Moon and on to Mars.

## *How do you think your NASA research or the agency as a whole benefits people on Earth?*

NASA as a whole benefits people on Earth from new research discoveries to new innovations in technology. NASA helped invent technology that **people use every day**, such as cordless power tools and lighter, stronger artificial limbs. NASA also studies Earth to understand climate change and predict weather forecasts. My NASA research helps benefit people because I am helping plan the return to the Moon.

## *Do you have any advice for people trying to foster innovation in the workplace?*

Never give up on innovation, especially in the workplace. An idea can become an invention, and an invention can help change the world.

# Kennedy Space Center Hosts Experts for Workshop on Robotics and Automation in Space Crop Production



The Exploration Research and Technology Programs at NASA's Kennedy Space Center hosted a two-day workshop, Aug. 6 and 7, 2019, focusing on robotics and automation in space crop production. Participants from around the world and members of NASA, industry, academia and other government agencies met to share their knowledge to enable a common goal of sustaining human operations on the Moon, in deep space and eventually on Mars.

Keynote speakers and representatives from different organizations presented data gleaned from their research.

Murat Kacira, left, a professor in the Department of Agricultural and Biosystems Engineering and director of the Controlled Environment Agriculture Program at the University of Arizona, and Barry Pryor, a professor with the School of Plant Sciences, also at the University of Arizona, present to workshop attendees on Aug. 6.

Photo credit: NASA/Kim Shiflett

## NASA scientist honored with Presidential Early Career Award

BY ERIN ANTHONY  
NASA's Johnson Space Center

**G**ioia Massa Ph.D. is among 18 NASA engineers and researchers named by President Donald Trump to receive the Presidential Early Career Award for Scientists and Engineers (PECASE). Massa, along with 296 other federal researchers, received her award during a ceremony July 25, 2019, in Washington, D.C.

The PECASE Award is the highest honor given by the U.S. government to scientists and engineers who are beginning their research careers. The award recognizes recipients' potential to advance the frontiers of scientific knowledge and their commitment to community service, as demonstrated through professional leadership, education or community outreach.

Massa grew up in Florida about an hour away from Kennedy Space Center. After her middle school agriculture teacher was invited out to Kennedy to learn about plant production for astronauts, he shared what he learned with Massa. "He brought back hours and hours of video. I was just completely captivated," says Massa. "I think I watched all of it."

From that springboard she chose to learn about hydroponics in high school, interned at Kennedy in the space life sciences training program, and eventually earned her Ph.D. in plant biology from Penn State University. And when a role for a NASA scientist opened up in 2013, Massa jumped at the opportunity.

Her work at NASA has built on her middle-school passion of growing plants in space, looking at numerous aspects of agriculture in microgravity, **specifically on the International Space Station**. She is **studying** the perfect conditions for growth in space and what species grow most effectively. She even is getting feedback from the astronauts currently on board about which crops taste best.

"Plants are very adaptable. They can really respond to the

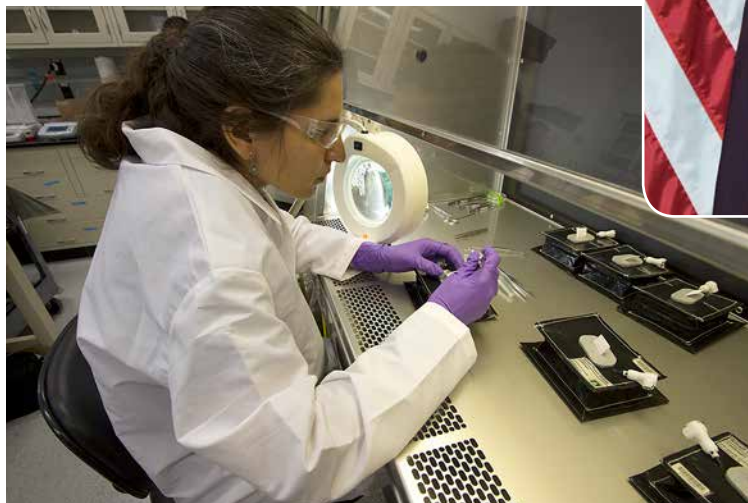
environment," says Massa. "But getting that environment right is truly our hardest challenge. The biology is not as challenging as the physics to overcome."

Right now, Massa and her team are focused on perfecting the cultivation of lettuce plants and a few other basic crops which they've learned to grow effectively. They hope to continue with their experiments on the space station and build on this knowledge to learn to grow more fruiting crops, such as tomatoes and peppers.

"To have an orbiting laboratory up there with astronauts continuously being available to do science gives you a lot of power that you would otherwise not have. If you just do things one time, it leaves so many open questions," says Massa. "Being able to do repeated evolutionary work on a platform like the space station is really the only way to advance these exploration systems."



Above: Dr. Gioia Massa, left, NASA Veggie project lead, receives the Presidential Early Career Award for Scientists and Engineers from Kelvin Droegemeier, director of the Office of Science and Technology Policy, on July 25, 2019, in Washington, D.C. Photo credit: U.S. Department of Energy



Left: Dr. Gioia Massa, NASA Veggie project lead, prepares the seeds for plant pillows for an experiment inside a laboratory in the Space Station Processing Facility at the agency's Kennedy Space Center in Florida. Photo credit: NASA/Ben Smegelsky



While on a tour of Kennedy Space Center, NFL quarterback Joshua Dobbs visited a recent engineering staff meeting. Dobbs is a University of Tennessee graduate who studied aerospace engineering and is a current NFL quarterback for the Pittsburgh Steelers. He was excited to tour the multi-user spaceport and learn how Kennedy is supporting NASA's plans to return to the Moon.

Photo credit: NASA/Derrick Matthews

## NASA, SpaceX Earn Emmy Nomination for Demo-1 Mission Coverage

NASA and SpaceX were nominated for an Emmy! Teams from the agency's Commercial Crew Program are among six finalists in the Outstanding Interactive Program category for their coverage of SpaceX's Demo-1 mission in March 2019.

The nomination recognizes the teams' tremendous efforts in sharing with the world Crew Dragon's historic journey to the International Space Station. The mission marked the first time a commercially operated spacecraft docked with the space station, and brought the United States a critical step closer to launching astronauts in American spacecraft on American rockets from American soil.

NASA and SpaceX spent years preparing a collaborative approach to mission coverage, which featured multiple live broadcasts from agency and company facilities across the country during each phase of the mission, continuing through Crew Dragon's stunning return to Earth. Throughout NASA's coverage, the agency engaged social media users around the world and at local social media influencer gatherings at the agency's Kennedy Space Center in Florida.

The Creative Arts Emmy Awards ceremony will be held Saturday, Sept. 14 2019, and the show will be broadcast Saturday, Sept. 21, 2019, at 8 p.m. ET on FXX.

Watch a video of the SpaceX Demo-1 mission coverage at:

<https://youtu.be/haXoWZTu6GE>



The uncrewed SpaceX Crew Dragon spacecraft is pictured with its nose cone open revealing its docking mechanism while approaching the International Space Station's Harmony module on March 3, 2019. Image credit: NASA

# TEST OF TIME

## Iconic Kennedy structures, designers receive architectural recognition

BY JIM CAWLEY

Home to the largest American flag and known for its pivotal role in the U.S. spaceflight program for more than five decades, Kennedy Space Center's **Vehicle Assembly Building**, or VAB, recently received more notable recognition. The Florida Association of The American Institute of Architects (AIA Florida) honored the facility and its adjacent **Launch Control Center** (LCC) with a "Test of Time" design award, recognizing

the exceptional contributions of the unique building's architects and engineers.

"It's a celebration of the VAB and the LCC — two magnificent structures," said Kennedy Associate Director, Technical **Kelvin Manning**, who accepted the award, along with the project designers, during a ceremony in Orlando on July 27. "It was an honor to be a part of that award."

Richard Bergmann, who worked with project architect Max Urbahn to design the VAB and LCC, attended the ceremony, along with former VAB project manager Philip Moyer and two of Urbahn's sons. Bergmann was a 25-year-old architect when he sketched the first design of the VAB in 1962.

Manning spent the evening with these men, reveling in the retelling of stories that accompanied the construction of the world famous landmark. He contributed to a standing ovation when the men were called onstage, unaware at the time of the significance of the extended applause.

"I thought it was very appropriate," Manning said. "But somebody told me afterward for a group of architects to give a standing ovation to another group of architects, that's like walking on the Moon."

One of the largest buildings in the world by area, the VAB truly has stood the test of time. It was constructed for the assembly of the **Apollo/Saturn V Moon rocket**, served as the final assembly point for space shuttles for 30 years, and has been upgraded to support NASA's 21st century launch complex.

"As architects, we are especially proud during this 50th anniversary of the Moon landing that visionary design played an important role in the success of the Apollo program," said Nati Soto, president of AIA Florida. "It is a great honor to present these gentlemen with our Test of Time design award for the Vehicle Assembly Building, a structure that is revered around the world."

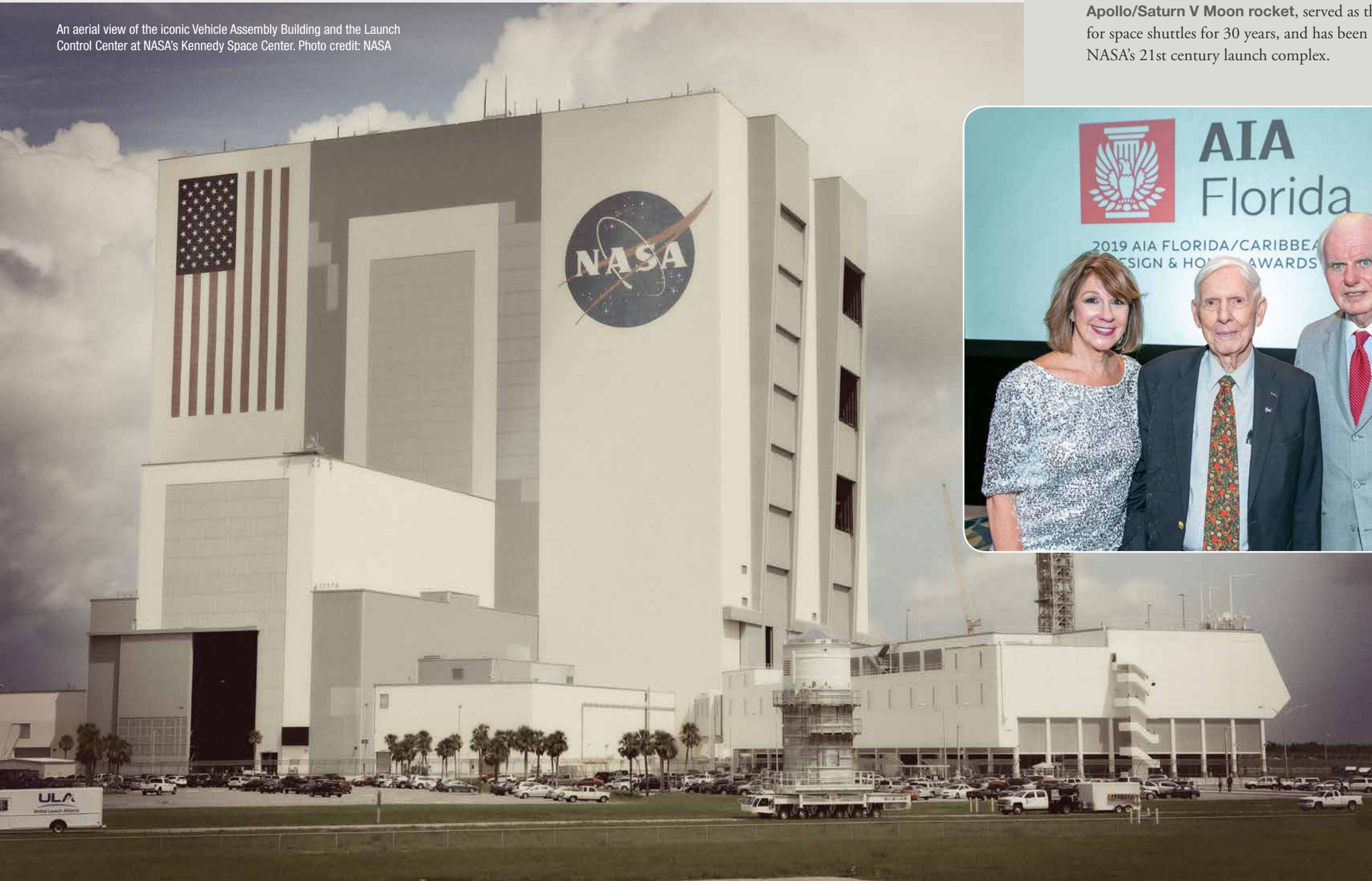
Covering eight acres, the VAB is 525 feet tall and 518 feet wide. At 456 feet high, the high bay doors are the largest in the world and take about 45 minutes to open. The American flag is 209 feet tall and 110 feet wide.

Constructed at the southeast corner of the VAB, the LCC has been in operation since 1965 and remains as the heart of launch operations at Kennedy. Firing Room 1, which was used for the Apollo Program, Space Shuttle Program and Ares I-X test flight as part of the Constellation Program, has been completely upgraded.

The VAB will house the **SLS rocket**, which will launch humans aboard the **Orion spacecraft** back to the Moon and on to Mars. NASA's **Artemis** program will return astronauts to the lunar surface by 2024, including the first woman and the next man.

"Like the past, as well as the future, the VAB is where everything comes together," Manning said. "It's symbolic of what we can do."

An aerial view of the iconic Vehicle Assembly Building and the Launch Control Center at NASA's Kennedy Space Center. Photo credit: NASA



Left: Former Vehicle Assembly Building (VAB) project manager Philip Moyer, center, poses with Executive Vice President of AIA Florida Vicki Long, left, and VAB and Launch Control Center designer Richard Bergmann during a ceremony in Orlando honoring the award-winning structures. Photo credit: Hassil Photography, courtesy of AIA Florida



Kennedy Space Center Associate Director, Technical Kelvin Manning accepts the "Test of Time" design award for the Florida spaceport's Vehicle Assembly Building and Launch Control Center during a ceremony in Orlando on July 27, 2019. At left is Nati Soto, president of AIA Florida, and at right is Kim Headland, AIA's immediate past president. Photo credit: Hassil Photography, courtesy of AIA Florida

## New Finds for Mars Rover, Seven Years After Landing

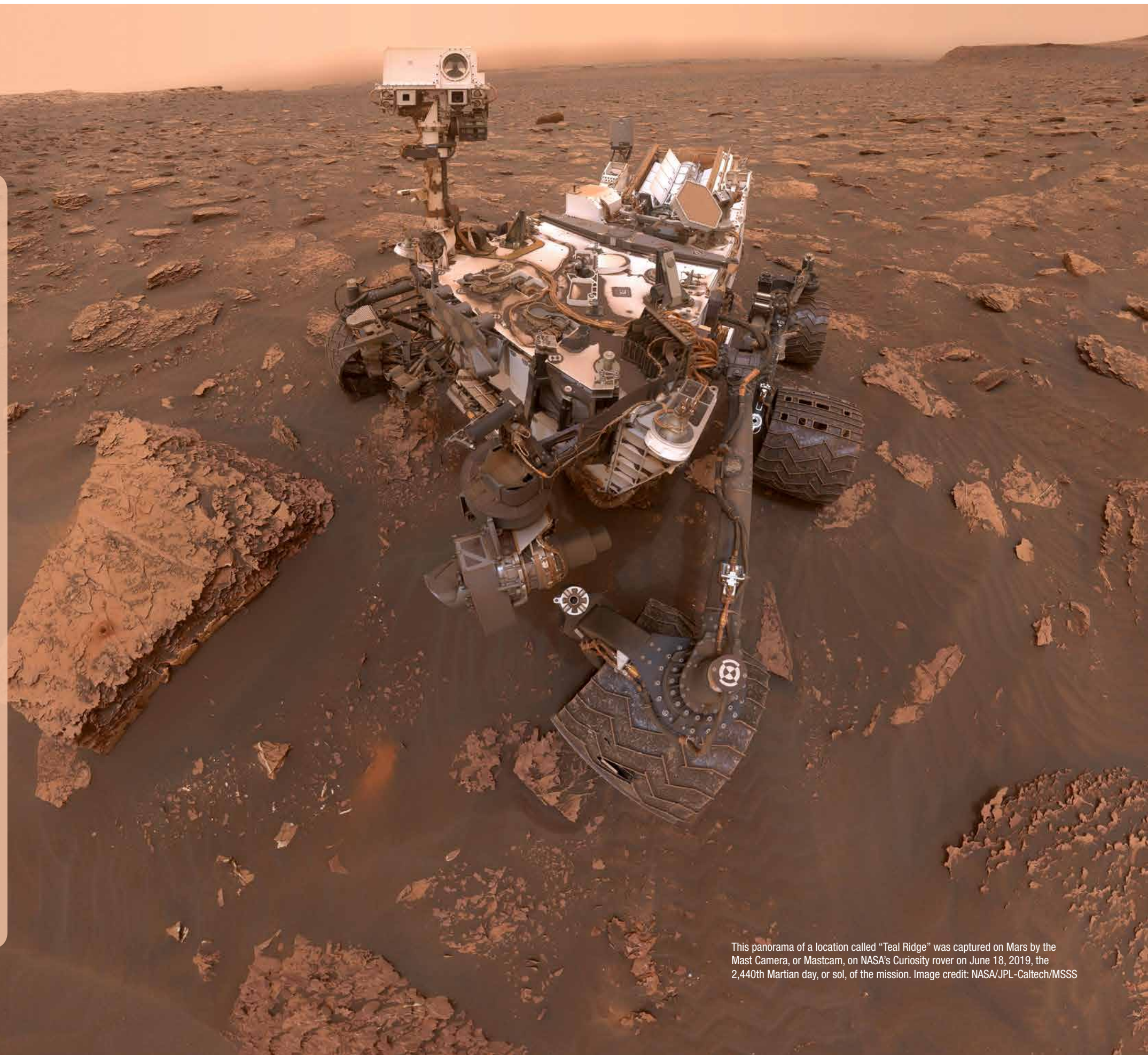
The Mars Science Laboratory (MSL) Curiosity rover launched on an Atlas V rocket on Nov. 26, 2011 at 10:02 a.m. EST from Space Launch Complex 41 at Cape Canaveral Air Force Station in Florida. MSL arrived at Mars and Curiosity landed on the Red Planet on Aug. 6, 2012 at 5:32 UTC. Its destination was the Gale Crater.

Curiosity has come a long way since touching down on Mars seven years ago. It has traveled a total of 13 miles (21 kilometers) and ascended 1,207 feet (368 meters) to its current location. Along the way, Curiosity discovered Mars had **the conditions to support microbial life** in the ancient past, among other things.

And the rover is far from done, having just drilled its 22nd sample from the Martian surface. It has a few more years before its nuclear power system degrades enough to significantly limit operations. After that, careful budgeting of its power will allow the rover to keep studying the Red Planet.

Curiosity is now halfway through a region scientists call **the "clay-bearing unit"** on the side of Mount Sharp, inside of **Gale Crater**. Billions of years ago, there were streams and lakes within the crater. Water altered the sediment deposited within the lakes, leaving behind lots of clay minerals in the region. That clay signal was first detected from space by NASA's Mars Reconnaissance Orbiter (MRO), a few years before Curiosity launched.

NASA's Jet Propulsion Laboratory in Pasadena, California, leads the Mars Science Laboratory that includes Curiosity. For more information, visit <https://mars.nasa.gov/msl>.





Commemorating D-Day 75<sup>e</sup> Anniversaire  
Carentan, France 1944-2019  
Parachutiste: Mike Galluzzi USA  
Avion: "Placid Lassie"

To mark the 75th anniversary of D-Day, June 6, 2019, NASA employee Michael Galluzzi traveled to France and participated in a parachute jump from a C-47 aircraft over the city of Carentan, France, on June 5. He jumped with more than 100 retired and active special forces personnel. Carentan was the original drop zone of the U.S Army's 101st Airborne Division. Galluzzi, who is a pilot, is a principal investigator and project manager in the Exploration Research and Technology Programs at Kennedy Space Center in Florida. He has worked for NASA for 15 years, and previously for five years with a contractor at Kennedy. "This experience was emotional, life-changing, and it was an honor to pay tribute to the defenders of freedom and the greatest generation that ever lived," Galluzzi said.

Photo courtesy of Phil Roberson, Round Canopy Parachute Team, USA

National Aeronautics and Space Administration

**John F. Kennedy Space Center**  
Kennedy Space Center, FL 32899

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