

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



**Crew Dragon  
Splashdown Completes  
SpaceX Demo-1 Mission**

# KENNEDY SPACE CENTER'S SPACEPORT MAGAZINE CONTENTS

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SpaceX's Crew Dragon is guided by four parachutes as it approaches splashdown in the Atlantic Ocean about 200 miles off Florida's east coast on March 8, 2019, after returning from the International Space Station on the Demo-1 mission. Photo credit: NASA/Cory Huston

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Kennedy Space Center has its own monthly podcast. Welcome to the "Rocket Ranch." Listen to **Episode 8: Space Flight's Next Chapter**. In this episode we catch up with several members of Commercial Crew to talk about the past, present and future of the program. We also explore their personal stories on their path to NASA and roles in helping to launch America into the future of human spaceflight. Read the full transcript and catch up on missed episodes at <https://www.nasa.gov/kennedy/rocketranch>.

National Aeronautics and Space Administration



# KENNEDY SPACE CENTER

## MARK WIESE

### Logistics Element Manager Gateway Program

I am the manager of the Logistics Element in the Gateway Program. Gateway is a new program based at the agency's Johnson Space Center in Houston. I am working to stand up our center's portion of this new organization.

The main focus of the Gateway Program is to establish a lunar outpost in orbit around the Moon. The Gateway will serve as a waypoint for humans to return to the surface of the Moon. Our role will be to establish a commercial supply chain for science and utilization missions to the Moon.

NASA's lunar exploration goals are moving fast and must be lean, requiring us to have strong communication within the Kennedy team. I'm focused on creating a healthy environment of collaboration across the center in order to leverage our expertise.

I've had a diverse career, working as a support contractor at Johnson Space Center in 2000, and then for NASA at Kennedy Space Center beginning in 2003. Over the years, I've had the opportunity to support the International Space Station, Space Shuttle and Launch Services programs.

I enjoy learning new things, embracing change, and overcoming challenges. Our senses are constantly engaged with sights and sounds here at our multi-user spaceport. Each and every launch, government and commercial, is another step toward learning and exploring. I look forward to each launch, knowing we're inspiring generations of explorers. And yes, the Moon sure looks a lot closer lately!



# Splashdown Marks Success

## SpaceX Crew Dragon completes first NASA commercial crew flight test

**N**ASA passed a major milestone on March 8, 2019, in its goal to restore America's human spaceflight capability when SpaceX's Crew Dragon returned to Earth after a five-day mission docked to the **International Space Station**.

About seven hours after departing the space station, Crew Dragon splashed down at 8:45 a.m. EST approximately 230 miles off the coast of Cape Canaveral, Florida. SpaceX retrieved the spacecraft from the Atlantic Ocean and transported it back to port on the company's recovery ship.

"Today's successful re-entry and recovery of the Crew Dragon capsule after its first mission to the International Space Station marked another important milestone in the future of human

spaceflight," said NASA Administrator Jim Bridenstine. "I want to once again congratulate the NASA and SpaceX teams on an incredible week. Our Commercial Crew Program is one step closer to launching American astronauts on American rockets from American soil. I am proud of the great work that has been done to get us to this point."

Known as Demo-1, the uncrewed flight test was designed to demonstrate the end-to-end capabilities of the new crew capable system developed under NASA's **Commercial Crew Program**. The mission began March 2, when the **Crew Dragon launched** on the company's Falcon 9 rocket from NASA's Kennedy Space Center in Florida, and racked up a number of "firsts" in just seven days.

- First commercially built and operated American crew spacecraft and rocket to launch from American soil on a mission to the space station.
- First commercially built and operated American crew spacecraft to dock with the space station.
- First autonomous docking of a U.S. spacecraft to the International Space Station.
- First use of the **international docking standard in the** station and Crew Dragon's adapters.

NASA and SpaceX teams gathered in the early morning hours at the company's headquarters in Hawthorne, California, to follow the spacecraft's return journey and ocean splashdown.

"We were all very excited to see re-entry, parachute and drogue deploy, main deploy, splashdown—everything happened just perfectly. It was right on time, the way that we expected it to be. It was beautiful," said Benji Reed, director of crew mission management at SpaceX.

A critical step in validating the performance of SpaceX's systems, Demo-1 brings the nation a significant step closer to the return of human launches to the space station from U.S. soil since 2011, when NASA flew its last space shuttle mission. However, NASA and SpaceX still have work to do to validate the spacecraft's performance and prepare it to fly astronauts.

"If you just think about the enormity of this flight and all of the prep that went into it—getting the pad refurbished, getting the flight control room set up, getting the vehicle built, getting the Falcon 9 ready, all of the analysis and mission support that went into it—it's just been a tremendous job. Our NASA and SpaceX teams worked seamlessly not only in the lead-up to the flight but in how we managed the flight," said Steve Stich, deputy manager of NASA's Commercial Crew Program.

After SpaceX processes data from this mission, teams will begin refurbishing Crew Dragon for its next mission, an in-flight abort test targeted to take place this summer. Demo-2, the first crewed test flight, will carry NASA astronauts **Bob Behnken** and **Doug Hurley** on the spacecraft's final flight to certify Crew Dragon for routine operational missions.

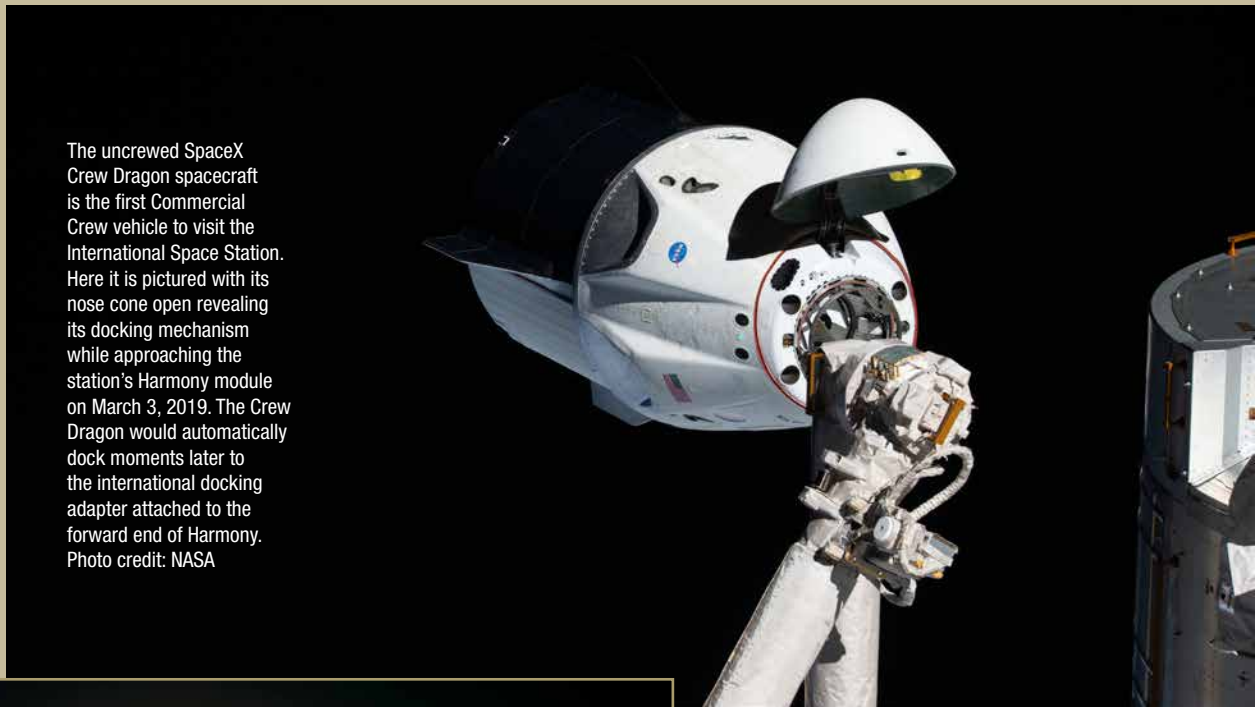
"For the first time we've gotten to see an end-to-end test, and so now we've brought together the people, the hardware and all the processes and procedures, and we've gotten to see how they all work together, and that's very important as we move toward putting people onboard," said NASA astronaut Mike Hopkins, who will crew SpaceX's first operational mission to the space station following Demo-2. "I'm personally very anxious to hear how Ripley is feeling after they pull her out of the capsule and get her onto the recovery vehicle."



### Full Mission Overview

SpaceX's Crew Dragon spacecraft lifted off at 2:49 a.m. EST March 2, 2019, on the company's Falcon 9 rocket from Launch Complex 39A at NASA's Kennedy Space Center in Florida. On board was an anthropomorphic test device named Ripley, outfitted with sensors to provide data about potential effects on humans traveling in Crew Dragon for critical phases like ascent, entry, and landing. The capsule also carried more than 400 pounds of crew supplies and equipment to the space station. For operational NASA missions, Crew Dragon will launch four crew members and carry more than 220 pounds of cargo, enabling more astronauts to crew the space station at one time. This expanded crew capacity will increase the time dedicated to performing research in the unique microgravity environment and result in returning more science back to Earth.

Background image: "The dawn of a new era in human spaceflight," NASA astronaut Anne McClain tweeted with this image on March 3, 2019. She captured this shot as the SpaceX Crew Dragon capsule approached the International Space Station to dock for the first time. Photo credit: NASA/Anne McClain



The uncrewed SpaceX Crew Dragon spacecraft is the first Commercial Crew vehicle to visit the International Space Station. Here it is pictured with its nose cone open revealing its docking mechanism while approaching the station's Harmony module on March 3, 2019. The Crew Dragon would automatically dock moments later to the international docking adapter attached to the forward end of Harmony. Photo credit: NASA



A two-stage SpaceX Falcon 9 rocket lifts off from Launch Complex 39A at NASA's Kennedy Space Center for Demo-1, the first uncrewed mission of the agency's Commercial Crew Program. Liftoff was at 2:49 a.m., March 2, 2019. The SpaceX Crew Dragon's trip to the International Space Station is designed to validate end-to-end systems and capabilities, leading to certification to fly crew. NASA has worked with SpaceX and Boeing in developing the Commercial Crew Program spacecraft to facilitate new human spaceflight systems launching from U.S. soil with the goal of safe, reliable and cost-effective access to low-Earth orbit destinations, such as the space station. Photo credit: NASA/Tony Gray

About 58 seconds after liftoff, the rocket reached peak aerodynamic pressure, known as Max Q. Main engine cutoff (MECO) followed at approximately two minutes, 35 seconds into the flight, and then the first stage separated from the second stage. The single Merlin vacuum engine on the second stage ignited about two minutes, 42 seconds after launch. Following stage separation, Falcon 9's first stage successfully landed on SpaceX's autonomous drone ship, "Of Course I Still Love You."

While approaching the space station, Crew Dragon carried out a series of phasing maneuvers. It demonstrated its automated control and maneuvering capabilities by arriving in place about 492 feet (150 meters) away from the orbital laboratory then reversing course and backing away from the station to 590 feet (180 meters) before the final docking sequence initiated from approximately 65 feet (20 meters) away.

On March 3, after making 18 orbits of Earth, Crew Dragon autonomously docked to the station's Harmony module forward port using the station's new international docking adapter for the first time. Previously, cargo Dragon spacecraft were attached to the station after capture by a robotic arm. Astronauts installed the new adaptor during a spacewalk in August 2016, following its delivery to the



The SpaceX Crew Dragon spacecraft is offloaded from the company's recovery ship, Go Searcher, in Florida's Port Canaveral on Saturday, March 9, 2019. Crew Dragon splashed down in the Atlantic Ocean, about 200 miles off Florida's east coast, at 8:45 a.m. EST on March 8, after undocking from the International Space Station at 2:32 a.m. Photo credit: NASA/Isaac Watson

station in the trunk of a SpaceX Dragon spacecraft on its ninth commercial resupply services mission.

Demo-1 marks the first autonomous docking of any U.S. spacecraft to the space station and the first time a commercially built and operated spacecraft designed for crew has attached to the orbital laboratory.

The Expedition 58 crew members aboard the space station who welcomed Crew Dragon on March 3 were NASA astronaut Anne McClain, the Canadian Space Agency's David Saint-Jacques, and Russian cosmonaut and Expedition 58 commander Oleg Kononenko. The crew opened the hatch between the spacecraft less than three hours after docking.

While docked, teams verified the spacecraft's ability to send and receive both power and data from the space station. Flight controllers also conducted a survey of Dragon's exterior using the station's Candarm2 robotic arm, looking for any impacts from micrometeoroids or orbital debris and performing a close inspection of the solar cells wrapped around Dragon's trunk. The crew focused on

transferring cargo to and from the vehicle and took images of the capsule's windows that will be compared to photos taken prior to launch and after splashdown.

Loaded with critical research samples to return to Earth, Crew Dragon undocked from the station on March 8 at 2:32 a.m. EST after being attached for five days. For future operational missions, the Crew Dragon is designed to stay docked to station for up to 210 days.

NASA's Commercial Crew Program is working with Boeing and SpaceX to design, build, test and operate safe, reliable and cost-effective human transportation systems to low-Earth orbit. Both companies are targeting to have flight tests with NASA astronauts in 2019, which will restore the nation's human launch capability to and from the station. The upcoming crewed flights will be the first time in history NASA has sent astronauts to space on systems owned, built, tested and operated by private companies.

Learn more about NASA's Commercial Crew program at <https://www.nasa.gov/commercialcrew>.



NASA Administrator Jim Bridenstine speaks to NASA workers across the nation and members of the news media, during a Moon to Mars event in the Neil Armstrong Operations and Checkout Building high bay on March 11, 2019. The event followed the delivery of President Trump's fiscal year 2020 budget proposal to U.S. Congress, which includes funding for the agency's Moon to Mars initiative and Gateway lunar outpost. Bridenstine presented a closer look at America's work to return astronauts to the Moon in a sustainable way and continue exploration to Mars. Photo credit: NASA/Kim Shiflett

## Mars 2020 Trailblazer

A crane is used to hoist a test version of the Multi-Mission Radioisotope Thermoelectric Generator (MMRTG) for NASA's Mars 2020 mission at the United Launch Alliance Vertical Integration Facility (VIF) at Space Launch Complex 41 on Cape Canaveral Air Force Station on Feb. 15, 2019. The MMRTG simulator is being used to practice operations and procedures for carefully lifting it up and into the VIF. The Mars 2020 rover mission is targeted to launch in July 2020 on a ULA Atlas V rocket from Pad 41. Mars 2020 is part of NASA's Mars Exploration Program, a long-term effort of robotic exploration of the Red Planet. The rover will search for habitable conditions in the ancient past and signs of past microbial life on Mars. Photo credit: NASA/Frank Michaux



# Kennedy Space Center Honors Women's History Month



## In Retrospect

In this Apollo 11 photo of the Launch Control Center on July 16, 1969, **JoAnn Morgan** is the only female in the firing room.

**In her own words:** *“Being part of the launch team sending the first humans to step on another celestial body was the greatest achievement of the millennium. I was totally thrilled to be the Instrumentation Controller. And at the same time, totally focused on my procedure and getting the job done — especially after launch as we had a demanding schedule with more Apollo missions ahead and needed everything on the ground ready and responsive if there were changes. I had no dull days!”*

—JoAnn Morgan



## In Anticipation

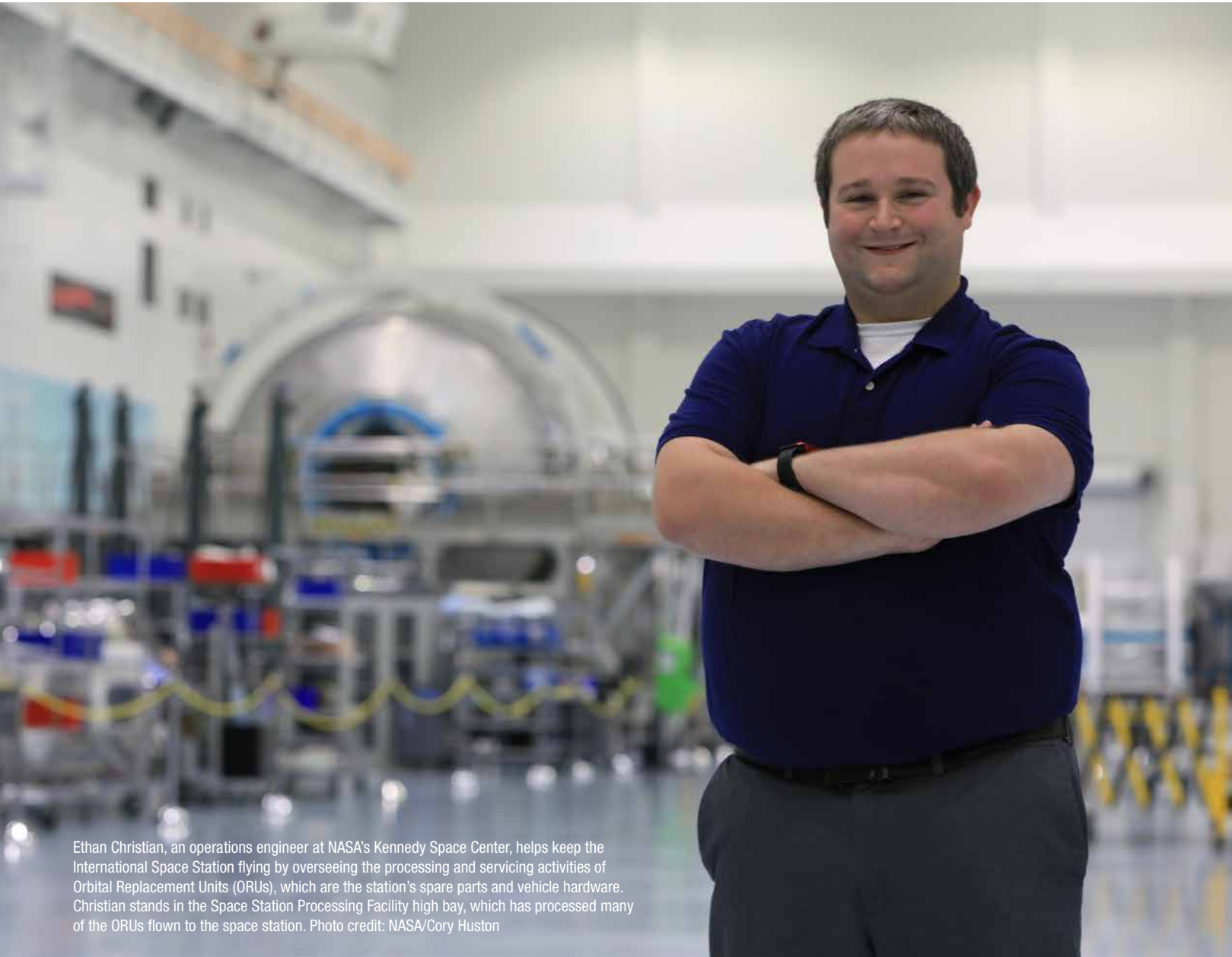
In this 2018 photo, Launch Director **Charlie Blackwell-Thompson** leads her launch team in the firing room in preparation for Exploration Mission-1.

**In her own words:** *“It is something truly special being in the Firing Room as the team works through those time critical launch countdown steps, as the final minutes and seconds tick off the countdown clock, as the engines and boosters light and the vehicle lifts off the pad. Our teams are working hard preparing for that day. I am honored to be a part of the EM-1 launch team as we bring new capability to America’s Space Program.”*

—Charlie Blackwell-Thompson

## NASA's Kennedy Space Center Innovators' Launchpad:

# Ethan Christian



Ethan Christian, an operations engineer at NASA's Kennedy Space Center, helps keep the International Space Station flying by overseeing the processing and servicing activities of Orbital Replacement Units (ORUs), which are the station's spare parts and vehicle hardware. Christian stands in the Space Station Processing Facility high bay, which has processed many of the ORUs flown to the space station. Photo credit: NASA/Cory Huston

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

I oversee the processing and servicing activities of a variety of Orbital Replacement Units (ORUs), these are the spare parts and vehicle hardware essential to keep the **International Space Station** running as the parts are manifested to fly.

### *What do you find most exciting about your job as an operations engineer supporting the International Space Station?*

Sending experiments and hardware to space is most exciting for me. Nothing beats watching something you spent an inordinate amount of time on **being launched to space**, then, getting to interact with the crew while they perform your experiment or install your hardware.

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

A typical day consists of tracking the progress of an ORU that has been manifested for flight. Depending on the specific unit, servicing activities could take over a few days or several months. As activities are completed day to day, I ensure we are meeting all of the flight requirements within the schedule to transport the payload to the launch provider.

### *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 very similar to my current work. I strive to take on more responsibilities and step up in a leadership role as opportunities become available.

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

My educational background is a degree in aerospace engineering from University of Central Florida (Go Knights!). I chose to study aerospace engineering due to a fascination with aircraft and how things fly at a young age. I grew up in close proximity to a Navy base, so it was normal to see fighter jets in the skies and wonder

what makes them work. As I grew up, my interest expanded to not only what flies inside the atmosphere, but to things that travel to space as well.

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

As I grew up on the East Coast of Florida, the **space shuttle** was flying and extremely fascinating to watch. Exposure to the Space Coast environment motivated me to want to be a part of a team that sends science and payloads into space while pushing the boundaries of exploration.

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

Conducting research and developing new technology means we are continuing to ask questions and discover new things. As a result, new innovative ideas emerge, allowing us to live longer and healthier lives.

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

New technologies are needed to extend our reach farther into the **solar system**. As NASA researches and develops new technologies for space travel, where resources are not readily available, those technologies can have a secondary use and improve life here on Earth. Some examples of that research and technology include improving energy efficiencies, turning trash/waste into fuel and creating many new materials for extreme environments.

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

Innovation in the workplace does not have to be a grand life-changing idea. There are plenty of opportunities, big or small, to be innovative and make a change that will better the workplace and lives for all. Find something that interests you and see if there is any room for improvements.



## Plant Experiment Veg-03 H Initiated on Space Station

Canadian astronaut **David Saint-Jacques** began growing two new crops aboard the **International Space Station** on Saturday, March 9, 2019. The two crops, Wasabi Mustard Greens and Extra Dwarf Pak Choi, are part of experiment Veg-03 H. Saint-Jacques placed six "plant pillows" into the veggie growth chamber. This experiment is part of ongoing research on the space station and on Earth to identify fresh vegetables capable of providing astronauts food and nutrition during long-duration spaceflight, including future missions to the Moon or Mars.

Each pillow serves as a pot designed for space with pre-packed seeds, a substance for the roots to grow into, controlled-release fertilizer, and a way for the in-orbit gardeners to water their plants in microgravity.

High school and middle school students participating in the Fairchild Tropical Botanic Garden's Growing beyond Earth Challenge **identified Extra Dwarf Pak Choi** as a potential candidate crop for space through classroom science experiments, along with Dagoon Lettuce, which NASA astronaut Serena Auñón-Chancellor grew on the station last fall. Using science stations designed to mimic conditions on the space station gave students a chance to grow plants and record data that NASA was able to use. Those experiments culminated in the plant species **which launched to the space station** aboard the 15th SpaceX cargo resupply mission on June 29, 2018, along with three other plant species.

The experiment should take 30 days to complete and will provide data on food safety for the new crops to compare to ground studies in order to establish a baseline.

"I think the astronauts will be surprised to learn that the Extra Dwarf Pak Choi that they grow and eat has the same amount of Vitamin C by weight as does a fresh Florida orange," said NASA scientist Matt Romeyn, "and the leaves don't taste much different than other fresh leafy greens."

Canadian astronaut David Saint-Jacques initiated plant experiment Veg-03 H aboard the International Space Station on March, 9, 2019. This required Saint-Jacques to add water to "plant pillows," which are space pots for plants that contain pre-packed seeds, granular media for the roots to grow into, controlled-release fertilizer, and a way for the on-orbit gardeners to water their plants in microgravity. The experiment should take 30 days to complete, and will provide data on food safety for the new crops to compare to ground studies in order to establish a baseline. Photo credit: NASA

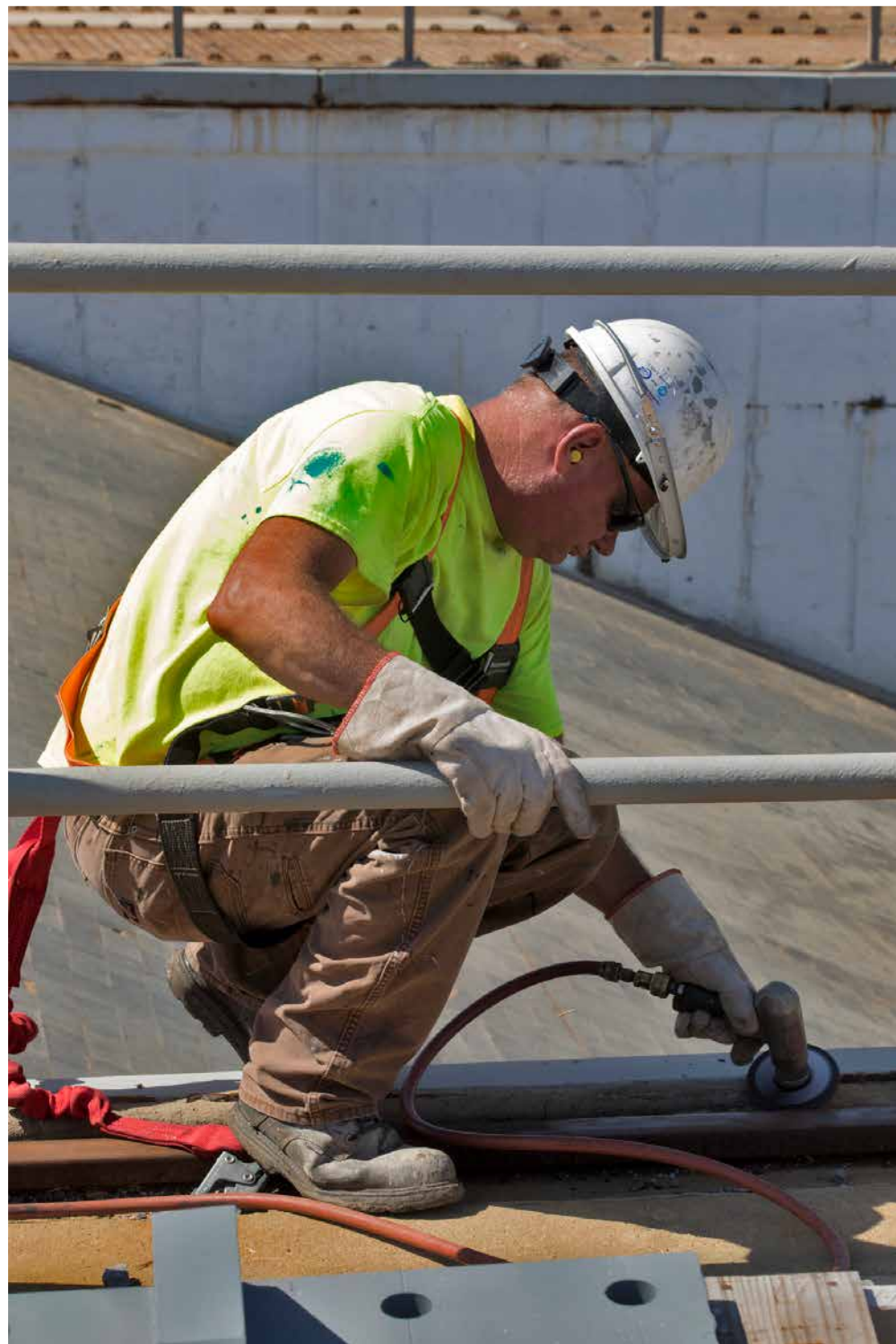




Jess Bunchek, a veggie plant scientist and pseudonaut, harvests mizuna mustard inside the Veggie harvest chamber in the Space Station Processing Facility at NASA's Kennedy Space Center in Florida on Feb. 19, 2019. The harvest is part of the Experiment Verification Test for the Veg-04B mission that will launch to the International Space Station later this year. Veg-04B examines the interactions between light and spaceflight by growing plants under two different LED lighting conditions. A similar harvest will be conducted on the space station after a grow-out duration of 56 days. Ultimately, fresh vegetables grown in space will be an essential supplement to the crew's pre-packaged diet, prepping them for long-duration space exploration. Photo credit: NASA/Kim Shiflett

Preparations are underway to perform a preliminary swing test of the Core Stage Inter-tank Umbilical (CSITU) on the mobile launcher in High Bay 3 of the Vehicle Assembly Building on Feb. 22, 2019, at NASA's Kennedy Space Center. The CSITU is a swing-arm umbilical that will connect to the Space Launch System core stage inter-tank. It will provide conditioned air, pressurized gases and power and data connection to the core stage. The Exploration Ground Systems is overseeing testing of the umbilicals. Photo credit: NASA/Frank Michaux





Above: A construction worker sands a section of a wood beam on the surface of Launch Pad 39B at NASA's Kennedy Space Center on Feb. 22, 2019. Photo credit: NASA/Kim Shiflett

Right: A construction worker welds a section of metal on the surface of Launch Pad 39B at NASA's Kennedy Space Center on Feb. 22, 2019. The launch pad has undergone upgrades and modifications to accommodate NASA's Space Launch System and Orion spacecraft for Exploration Mission-1 and subsequent missions. Upgrades include new heat-resistant bricks on the walls of the flame trench and installation of a new flame deflector. All of the upgrades have been managed by Exploration Ground Systems. Photo credit: NASA/Kim Shiflett



# RENDEZVOUS and DOCKING

Apollo 9 crew tests command, service and lunar modules in Earth orbit

BY LINDA HERRIDGE

Launching on March 3, 1969, atop a Saturn V rocket from Launch Pad 39A at NASA's Kennedy Space Center in Florida, the Apollo 9 command and service module (CSM), along with the lunar module (LM), were on a path to complete the very first lunar module rendezvous and docking in Earth's orbit. Apollo 9 was the third crewed Apollo flight and the first to include the LM.

Aboard the Apollo capsule, nicknamed "Gumdrop," were the crew: Commander James McDivitt, Lunar Module Pilot Russell Schweickart, and Command Module Pilot David R. Scott.

Two of the three crewmembers were not new to spaceflight. McDivitt flew on **Gemini IV**, in June 1965. The four-day mission included America's first spacewalk. McDivitt also served as the Apollo Space Program manager. Scott flew on **Gemini VIII** in March 1966, the first mission to link two spacecraft together in Earth orbit.

The previous mission, **Apollo 8**, which launched Dec. 21, 1968, was the first to launch atop the powerful Saturn V rocket and the first to enter lunar orbit. Now, the three crew members of Apollo 9 had important goals of their own to complete to help NASA on its path to achieve its first Moon landing.

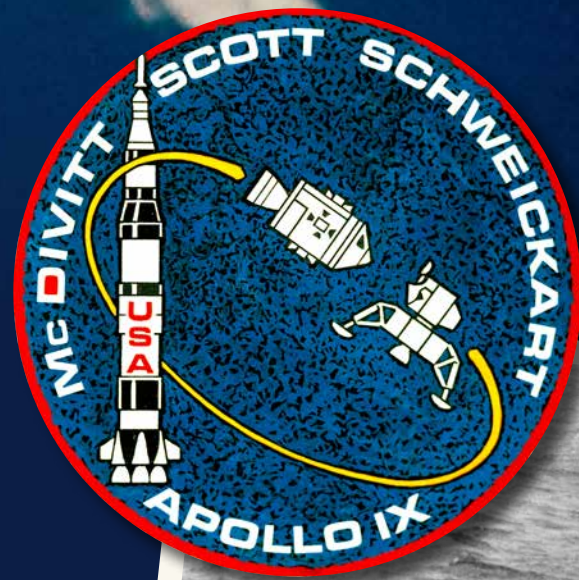
"We were that first crew that was going to get a chance to fly this vehicle and test this vehicle that was going to take human beings to the Moon," Schweickart said during an interview after the mission. "We were very aware of the time pressure and everything has to go right if we're for sure going to meet (President) Kennedy's goal of getting to the Moon in that decade and back."

After launch, Apollo 9 entered Earth orbit and the crew performed an engineering test of the first crewed lunar module,

The Apollo 9 capsule launches atop a Saturn V rocket from Launch Pad 39A at NASA's Kennedy Space Center on March 3, 1969. Photo credit: NASA



Wearing flight caps presented to them by the crew of the USS Guadalcanal, the Apollo 9 astronauts, from left, Russell Schweickart, David R. Scott and James McDivitt, wave to well-wishers aboard the recovery ship at the completion of their 10-day Earth orbital mission. The Apollo 9 spacecraft splashed down 780 nautical miles southeast of Cape Kennedy at 12:01 p.m. EST, March 13, 1969. Photo credit: NASA



In the Atlantic Ocean, a pararescueman helps Apollo 9 Command Module Pilot David R. Scott from the spacecraft on March 13, 1969, during recovery at completion of the 10-day Earth orbital flight, with James McDivitt and Russell Schweickart still in the spacecraft. Photo credit: NASA



nicknamed "Spider," from beginning to end. They simulated the maneuvers which would be performed during actual lunar missions.

During the mission, the astronauts performed a series of flight tasks with the CSM and the LM. The top priority was rendezvous and docking of the LM with the CSM.

On Flight Day 5, March 7, the LM was separated from the CSM and put into a circular orbit about 12.4 miles (20 kilometers) above the CSM. The LM descent stage was jettisoned and the ascent stage engine was fired for the first time in space. That lowered its orbit to about 9.9 miles (16 km) below and about 74 miles (120 km) behind the CSM. Other objectives included an overall checkout of launch vehicle and spacecraft systems, the crew and procedures.

The crew also configured the lunar module to support a two-hour EVA, or spacewalk, by McDivitt and Schweickart. It was delayed and then shortened to 37.5 minutes due to nausea experienced by Schweickart during the first two days of the mission.

"We tested every possible thing that could be tested. The mission was completely dedicated to testing the systems, the engines, and the guidance and navigation, all kinds of things that we could do in Earth orbit," Schweickart said.



A view of the Apollo 9 Lunar Module (LM) "Spider" in a lunar landing configuration, as photographed from the Command and Service Modules (CSM) on the fifth day of the Apollo 9 Earth-orbital mission. The landing gear on the "Spider" has been deployed. Lunar surface probes (sensors) extend out from the landing gear foot pads.

"Here we all are at this historic moment that we're all part of, not just the astronauts, but everybody who's alive today, and we're all on this small planet as representative of life," said Schweickart. "We're beginning to move out from this planet, which as far as we know, contains all of the life in our little corner of the universe."

On Flight Day 10, March 13, 1969, the Apollo 9 capsule re-entered Earth's atmosphere and splashed down in the Atlantic Ocean, within three miles and in full view of the recovery ship, the USS Guadalcanal, about 341 miles north of Puerto Rico. The lunar module descent stage decayed March 22.

"It was an amazing vehicle," Schweickart said.

"It was a hell of a ride," McDivitt said.

With the mission complete, Apollo 9 set the stage for the next step — Apollo 10 — a test mission that occurred about 70 miles above the Moon's surface. But that's a story for the May issue of Spaceport Magazine.



The Saturn V rocket with the Apollo 9 spacecraft lifts off from Launch Pad 39A at NASA's Kennedy Space Center at 11 a.m. EST, March 3, 1969. Photo credit: NASA



SpaceX's Crew Dragon is loaded onto the company's recovery ship, Go Searcher, in the Atlantic Ocean, about 200 miles off Florida's east coast, on March 8, after returning from the International Space Station on the Demo-1 mission. The uncrewed spacecraft docked to the orbiting laboratory on March 3, following a 2:49 a.m. EST liftoff aboard a SpaceX Falcon 9 rocket from Launch Complex 39A at NASA's Kennedy Space Center on March 2. The spacecraft undocked at 2:32 a.m., March 8, splashing down in the Atlantic Ocean, at 8:45 a.m. SpaceX's inaugural flight with NASA's Commercial Crew Program is the first flight test of a space system designed for humans built and operated by a commercial company through a public-private partnership. NASA and SpaceX will use data from Demo-1 to further prepare for Demo-2, the crewed flight test that will carry NASA astronauts Bob Behnken and Doug Hurley to the International Space Station later this year. Photo credit: SpaceX

National Aeronautics and Space Administration

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

**[www.nasa.gov](http://www.nasa.gov)**

NP-2019-03-327-KSC

SPACEPORT MAGAZINE