LAUNCH AMERICA

National Aeronautics and Space Administration

NASA

NASA'S COMMERCIAL CREW PROGRAM

MISSION OVERVIEW

NASA's SpaceX **Crew-2**

NASA's SpaceX Crew-2 mission is the second crew rotation flight with astronauts on the Crew Dragon spacecraft and the first launch with two international partners as part of the agency's Commercial Crew Program.

Crew-2 will carry astronauts Shane Kimbrough and Megan McArthur of NASA, Akihiko Hoshide of JAXA (Japan Aerospace Exploration Agency), and ESA (European Space Agency) astronaut Thomas Pesquet aboard a Crew Dragon spacecraft launching atop a Falcon 9 rocket on its way to the space station.

The crew is scheduled for a long-duration stay aboard the orbiting laboratory, spending several months conducting science and maintenance before the four astronauts return to Earth in fall 2021.

LAUNCH VEHICLE

SpaceX Falcon 9

HEIGHT: 229.6 ft

DIAMETER: 12 ft

PROPELLENT: LOX (liquid oxygen) and rocket grade kerosene (RP-1)

PROPULSION: 9 SpaceX Merlin engines – 190,000 lbf each

LAUNCH LOCATION: Launch Complex 39A at NASA's Kennedy Space Center in Florida

Falcon 9 will launch Dragon from historic Launch Complex 39A, accelerating to help Dragon reach 17,500 mph to reach an intercept course with the International Space Station. The Falcon 9 that will be used to launch this mission is the same booster that launched NASA's Crew-1, marking the first time a flight-proven booster will be used for a crewed launch.

SPACECRAFT

SpaceX Crew Dragon

HEIGHT: 26.7 ft

DIAMETER: 13 ft

VOLUME: 328 ft^3

CREW CAPACITY: Up to seven

RETURN: Splashdown-based water return

Once in orbit, the crew and SpaceX mission control will monitor a series of automatic maneuvers that will guide Dragon and the Crew-2 astronauts to the International Space Station. After a predetermined time in orbit driven by the launch date, Dragon will be in position to rendezvous and dock with the station. The spacecraft is designed to autonomously dock, with the ability for the Crew to take control and pilot manually if necessary.

The Dragon being used in this flight will remain docked to the station for approximately six months, the full-length of a long-duration International Space Station expedition. It is the same Dragon astronauts Douglas Hurley and Robert Behnken named Endeavour and flew to the station for their historic Demo-2 mission.

MEET THE **CREW-2** CREW

Shane Kimbrough
COMMANDER

Hometown: Killeen, TX

Previous Missions: STS-126, Expedition 49/50

Megan McArthur
PILOT

Hometown: Born in Honolulu, HI but considers California her home state

Previous Missions: STS-125

Thomas Pesquet
MISSION SPECIALIST

Hometown: Rouen, Normandy, France

Previous Missions: Expeditions 50 and 51

Akihiko Hoshide
MISSION SPECIALIST

Hometown: Setagaya, Tokyo, Japan

Previous Missions: STS-124, He stayed on board to be part of Expedition 32/33

MORE CREW = **MORE SCIENCE**

After successfully docking, the astronauts of Crew-2 will be welcomed aboard station by the Expedition 65 crew, including the Crew-1 astronauts still onboard. The space station's crew size will again expand to seven people, increasing the amount of crew time available for research. The Crew-2 astronauts will spend their time aboard the International Space v conducting new and exciting scientific research in areas such as medical technology, human health, and materials to benefit life on Earth.

Crew members will test the Butterfly IQ Ultrasound, a portable ultrasound device used in conjunction with a mobile computing device in the space environment. They also will conduct a variety of tissue engineering investigations, ranging from studies of bone, cardiovascular, muscle and liver health. An experiment from retail store Target will study cotton growth in microgravity to help identify more robust cotton varieties that require less water and pesticide use.

During their stay on the orbiting laboratory, astronauts of Crew-2 will see cargo spacecraft including the Northrop Grumman Cygnus and the SpaceX cargo Dragon. They will conduct a series of spacewalks to install new solar arrays, increasing the station's total available power from 160 kilowatts to up to 215 kilowatts.

BEHIND THE DESIGN

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The determined expression of the Dragon in the Crew Dragon Crew-2 mission patch reflects the strength of the team and their contribution to the exploration of space.

The five large stars represents the five partner space agencies cooperating in the International Space Station Program - the Canadian Space Agency, the European Space Agency, the Japan Aerospace Exploration Agency, the National Aeronautics and Space Administration and Roscosmos.