National Aeronautics and Space Administration

OVERVIEW

SpaceX CRS-17 Mission

SpaceX's 17th contracted cargo resupply mission to the International Space Station for NASA will deliver about 5,500 pounds of science and research, crew supplies and vehicle hardware to the orbital laboratory and its crew.

Launch is targeted for no earlier than Friday, May 3, 2019 at 3:11 a.m. EDT.

Launch Vehicle
Falcon 9 Rocket

- Two-stage rocket minimizes the number of separation events
- New booster for the first stage

Launch Site:
Space Launch Complex 40,
Cape Canaveral Air Force Station in Florida

Robotic Arm Operators for Dragon Capture

David Saint-Jacques (prime)
CSA

Nick Hague
NASA

Dragon Spacecraft

- Hardware and supplies will support dozens of science and research investigations
- This Dragon previously flew on SpaceX CRS-12. It will be attached to station's Harmony module
- In May, it will re-enter Earth's atmosphere and splash down in the Pacific Ocean off the coast of Baja California

For more information, visit www.nasa.gov/spacex

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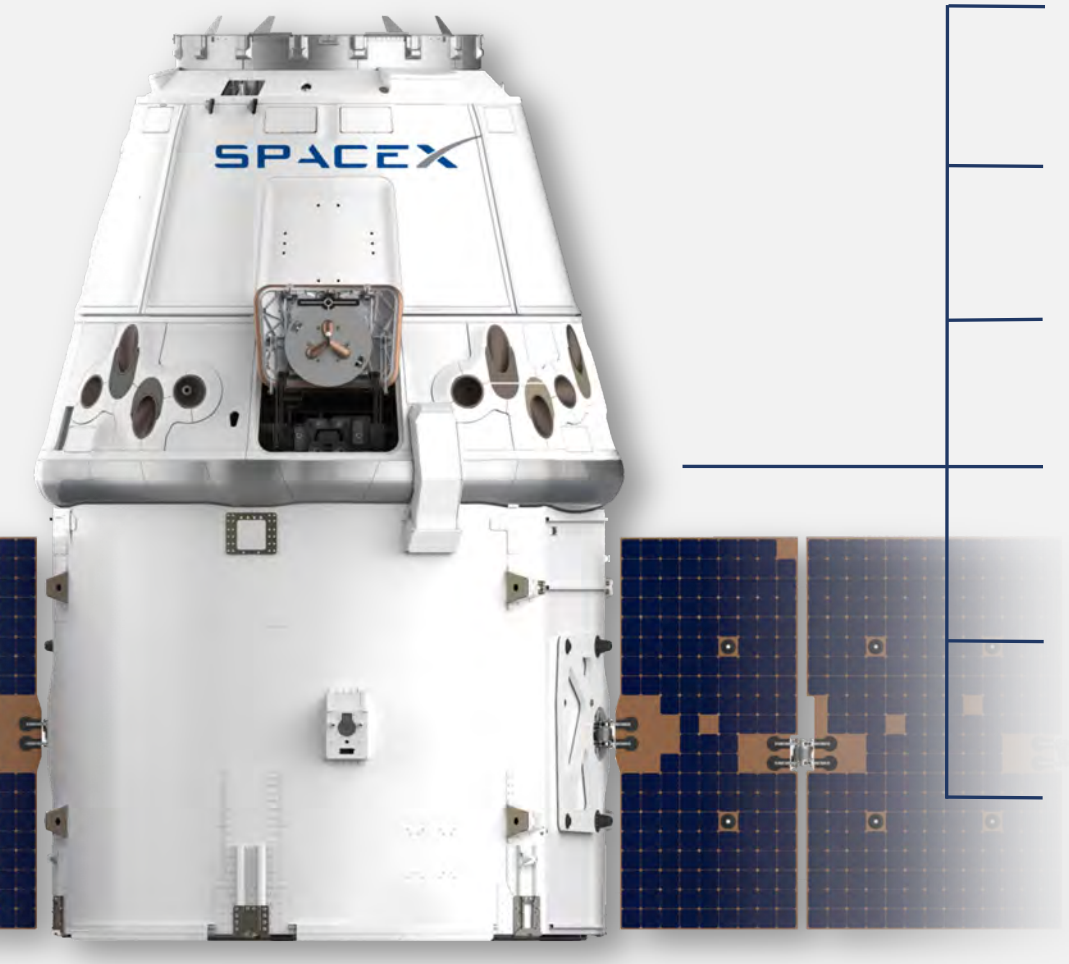
CARGO

SpaceX CRS-17 Mission



Crew Supplies
745 pounds / 338 kilograms

Science Investigations
1,601 pounds / 726 kilograms

Spacewalk Equipment
22 pounds / 10 kilograms

Vehicle Hardware
787 pounds / 357 kilograms

Computer Resources
165 pounds / 75 kilograms

Russian Hardware
24 pounds / 11 kilograms

Unpressurized Payloads
2,128 pounds / 965 kilograms

Total Cargo:	**5,472 pounds / 2,482 kilograms**
Total Pressurized Cargo with Packaging:	**3,344 pounds / 1,517 kilograms**
Unpressurized Payloads:	**2,128 pounds / 965 kilograms**

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HARDWARE

SpaceX CRS-17 Mission

Launch Hardware

Water Stowage System (WSS) Hardware: Flying over 70 components to finalize the installation of the new water stowage system aboard the space station.

Intermodular Ventilation (IMV) Inlet Filters: Hardware to support the upcoming Universal Waste Management System (UWMS), a next generation human waste system on the space station.

Commercial Crew Demo Support Equipment: Flying two Wire Harness Assemblies and a US Crew Vehicle (USCV) Hatch Depress Indicator to provide capability for the docking of future Commercial Crew Demo Flights.

POLARS: Flying hardware to support the transport of payload investigations while maintaining cold temperatures.

Return Hardware

Failed or expended hardware no longer needed on the space station.

- Battery Charge Discharge Unit (BCDU)
- Major Constituents Analyzer (MCA) ORU #2
- Pump Package Assembly (PPA)
- RPCM Type-V Internal
- Air Quality Monitor (two units)
- Sorbent Bed
- Pan Tilt Unit (PTU)
- Bracket Assembly, Multi-Use
- NORS O2 and N2

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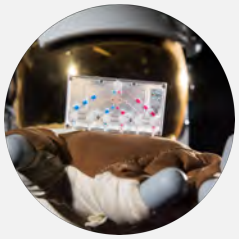
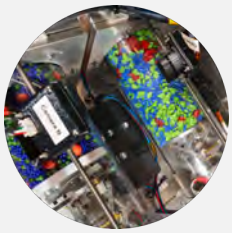
RESEARCH

SpaceX CRS-17 Mission

The SpaceX cargo spacecraft will deliver dozens of investigations to the International Space Station, including studies in human biology, microbiology, and the Earth's atmospheric carbon cycle.

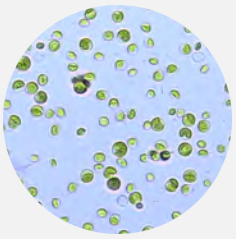


Researchers are using a new technology called tissue chips that could offer more insights into predicting the effectiveness of potential pharmaceuticals in humans. Tissue chips are bioengineered devices that mimic the function of human physiology. Fluid that mimics blood can be passed through the chip to simulate blood flow, and can include drugs or toxins. In microgravity, changes occur in human health and human cells that resemble accelerated aging and disease processes. This allows scientists to make observations over the course of a few weeks that might take months in a laboratory on Earth. This research may also help us advance tissue chip technologies for more efficient pharmaceutical testing on Earth, and could be used for understanding how diseases develop in healthy tissues.



Hermes is an experimental microgravity facility that enables science experiments, microgravity exposure testing, testing of engineering components, concept trials, and any payloads that fit within the Hermes design and operations constraints. It is open to any investigation that benefits from microgravity exposure. Hermes is a microgravity facility for regolith research. Future missions, crewed and robotic, that visit small bodies, such as comets and asteroids, should know how to interact with a loosely-aggregated surface.

The Orbiting Carbon Observatory-3 (OCO-3) is a space instrument designed to investigate important questions about the distribution of carbon dioxide on Earth as it relates to growing urban populations and changing patterns of fossil fuel combustion. It will also observe the complex dynamics of the Earth's atmospheric carbon cycle. In addition to global sampling, OCO-3 capabilities allow for targeted local mapping of emissions hotspots. Understanding carbon sources and sinks can help in forecasting and reducing the long term risks of increased atmospheric heat retention. OCO-3 also demonstrates how space platforms can be used to study the Earth's atmosphere and its effects on climate.



The Photobioreactor investigation aims at demonstrating that microalgae (i.e. biological processes) can be used together with existing systems to improve recycling of resources, creating a hybrid life support system. This hybrid approach could be helpful in future long-duration exploration missions, as it could reduce the amount of consumables required from Earth, and will first be tested in space on the space station.