



International Space Station

[MISSION SUMMARY]

EXPEDITION 55 began in February 2018 and ends in April 2018. This expedition includes Earth sciences, biology, technology demonstrations, materials science, and physics. At least two spacewalks are already planned during Expedition 55.

THE CREW:

Soyuz MS-07 Launch: December 2017 • Landing: April 2018



Anton Shkaplerov (Roscosmos) – Flight Engineer

Born: Sevastopol, Crimean Region, Ukraine
Interests: fishing, golf, sports, travel
Spaceflights: Exps. 29/30, 42/43
Bio: <https://go.nasa.gov/2z2bhZu>
Twitter: @Anton_Astrey

Soyuz MS-08 Launch: March 2018 • August 2018



A.J. (Drew) Feustel (NASA) – Flight Engineer

Born: Lake Orion, Michigan
Interests: auto restoration, automotive and motorcycle racing, guitar, water and snow skiing
Spaceflights: STS-125, STS-134
Bio: <https://go.nasa.gov/2BRKlxn>
Twitter: @Astro_Feustel



Scott Tingle (NASA) – Flight Engineer

Born: Attleboro, Massachusetts
Spaceflights: Exps. 54/55 is his first spaceflight
Bio: <https://go.nasa.gov/2z2tjKW>
Twitter: @Astro_Maker



Ricky Arnold (NASA) – Flight Engineer

Born: Cheverly, Maryland
Interests: running, fishing, reading, kayaking, bicycling, guitar
Spaceflights: STS-119
Bio: <https://go.nasa.gov/2BUf7FJ>
Twitter: @Astro_Ricky



Norishige Kanai (JAXA) – Flight Engineer

Born: Tokyo, Japan
Spaceflights: Exps. 54/55 is his first spaceflight
Bio: <https://go.nasa.gov/2z2hpkj>



Oleg Artemyev (Roscosmos) – Flight Engineer

Born: Riga, Latvia
Spaceflights: Exps. 39/40
Bio: <https://go.nasa.gov/2CtLpsm>
Twitter: @OlegMKS

THE SCIENCE:

What are some of the investigations the crew is operating?

During Expedition 55, researchers will study Earth atmospheric, the effects of microgravity on bone marrow, materials' responses to space environments, and biological samples' responses to simulated gravity.

■ Studying Our Atmosphere for Thunder and Lightning

The Atmosphere-Space Interactions Monitor (ASIM) will observe Earth from outside the International Space Station. It will look for severe thunderstorms, which track upper-atmospheric lightning suggested to result from run-away electron discharge. This form of lightning occurs well above normal lightning or storm clouds and observation will tell scientists more about the role of severe thunderstorms in Earth's atmosphere and climate.

■ Testing Microgravity's Impact on Bone Marrow

Scientists believe that microgravity may have a negative impact on bone marrow and the blood cells it produces. On Earth, long-duration bed rest can impact patients' bone marrow and something similar may happen in microgravity. The Bone Marrow Adipose Reaction: Red or White (MARROW) investigation will measure the extent microgravity's impact on bone marrow and its blood cells as well as study the recovery process. The results of this investigation will benefit both health and space research.

■ Studying Materials' Reactions to Space

The Materials ISS Experiment Flight Facility (MISSE-FF) will support testing of materials, coatings and components in the harsh environment of space. This Alpha Space developed platform will be accessible to the private sector and government organizations and leverage the low-Earth orbit (LEO) environment to support integrated testing materials' reaction to ultraviolet radiation (UV), atomic oxygen (AO), ionizing radiation, ultrahigh vacuum (UHV), charged particles, thermal cycles, electromagnetic radiation, and micro-meteoroids.

■ Simulating Gravity aboard the Space Station

Developed by Techshot, the Multi-use Variable-g Platform (MVP) can simulate up to 2 g of artificial gravity with two internal carousels that spin simultaneously. MVP will be used aboard the space station to research a wide variety of sample types, such as fruit flies, flatworms, plants, fish, cells, protein crystals, and many others.

THE MISSION PATCH:

The six crew members of Expedition 55 are patriots from three different countries – Japan, Russia, and the United States. The crew from these three countries will work together to ensure the success of Expedition 55.

The three rings symbolize the three countries of the six crew members. The rings join in a common intersection, symbolizing collaboration and a common focus for the crew aboard the space station. The colors of the rings represent the energy and power required to carry humans and equipment into space and to operate the ISS. The colors blue and green represent the magnificent beauty of Earth. The color black represents the darkness of space, and the immense challenge of exploring space. The six stars represent the crew, Norishige Kanai, Scott Tingle, Anton Shkaplerov, A.J. (Drew) Feustel, Oleg Artemyev, and Ricky Arnold. The three flags are the flags representing each crew member's country. The swoosh extending upward towards space represents the dedication of cosmonauts, astronauts and a multinational support team working together to explore space and discover new science that will benefit all humans.



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