



International Space Station

[MISSION SUMMARY]

EXPEDITION 32 began July 1 and ends Sept. 17. The next expedition aboard the International Space Station will be action-packed with two spacewalks, a traffic pattern that includes both international and commercial resupply missions and a variety of scientific research that will include an innovative small satellite ejection system, a new aquatic habitat and an international disaster monitoring system.

THE CREW:

Soyuz TMA-04M • Launch: May 15, 2012 • Landing: Sept. 17, 2012



Gennady Padalka - Commander (Roscosmos)
(Guh-NADDEE Puh-DAHL-Ka)

- **Born:** Krasnodar, Russia
- **Interests:** Theater, parachute sport and diving
- **Spaceflights:** MIR in 1998, Exps. 9,19, 31/32

Soyuz TMA-05M • Launch: July 14, 2012 • Landing: Nov. 12, 2012



Sunita Williams – Flight Engineer (NASA)
(Suh-NEE-tuh Williams)

- **Born:** Euclid, Ohio, considers Needham, Mass., home
- **Interests:** Running, snowboarding, swimming, biking and windsurfing
- **Spaceflights:** Exps. 14, 32/33
- **Twitter:** @Astro_Suni



Joe Acaba – Flight Engineer (NASA)
(Joe Ah-KA-buh)

- **Born:** Inglewood, Calif., considers Anaheim, Calif., home
- **Interests:** Camping, hiking, biking, kayaking and scuba diving
- **Spaceflights:** STS-119, Exp. 31/32
- **Twitter:** @AstroAcaba



Akihiko Hoshide – Flight Engineer (JAXA)
(Ah-kee-hee-ko HO-shee-day)

- **Born:** Tokyo, Japan
- **Interests:** Flying, rugby, football, swimming, snow skiing and traveling
- **Spaceflights:** STS-124, Exp. 32/33
- **Twitter:** @Aki_Hoshide



Sergei Revin – Flight Engineer (Roscosmos)
(SUR-gay REV-in)

- **Born:** Moscow, Russia
- **Interests:** Travel, snow skiing, water skiing, balloon flights and photography
- **Spaceflights:** Exp. 31/32



Yuri Malenchenko – Flight Engineer (Roscosmos)
(YU-ree Muh-LEN-chen-ko)

- **Born:** Svetlovodsk, Ukraine
- **Spaceflights:** MIR in 1994, STS-106, Exps. 7, 16, 32/33

THE SCIENCE:

A Beehive of Activity

Expedition 32 expands the scope of research aboard the space station, with the delivery of new research facilities and the testing of a new micro-satellite deployment system. The station's predominately six-person crew allows more crew time for science activities. During this expedition, more than 240 experiments will be performed on the station, involving more than 80 new experiments, technology demonstrations and facilities. More than 400 investigators from around the world are involved in this research. The investigations cover human research, biological and physical sciences, technology development, Earth observations and education.

EXPEDITION 31/32 Science FAST FACTS:

- 201 investigations
- 123 new investigations
- 82 NASA led investigations
- 119 internationally led investigations
- More than 400 investigators represented

■ **Blood Cell Testing** (Canadian Space Agency)
Microflow1 is a new investigation that uses flow cytometers to analyze individual cells for cell counting and sorting. This technique is used routinely to diagnose health issues and is useful in basic research. This type of blood testing is quite common on Earth and is often one of the first activities performed by physicians to determine illness specifics.

■ **24 Hour Light/Dark Cycles in Humans** (European Space Agency)
This experiment examines the correlation between synchronized circadian rhythms (the human body's 24-hour light-dark cycle) and possible maintenance of crew members' health and well-being. Understanding how light/dark cycles and sleep pattern changes affect circadian rhythms and overall health is beneficial and could help address the health concerns of shift workers on Earth.

■ **Biomedical Analyses of Human Hair Exposed to a Long-term Space Flight** (Japan Aerospace Exploration Agency)

This experiment will study hair follicles to record the metabolic conditions of the environment on the station. It will analyze human hair to understand the effect of long duration space flight on gene expression and trace element metabolism in human body.

■ **Aquatic Habitat** (Japan Aerospace Exploration Agency)
This experiment will support multi-generations of small freshwater fish, such as medaka and zebrafish. Studies will investigate how microgravity and the space radiation environment affect living things including human beings, particularly over the long term.

■ **Extreme Weather Observation** (NASA, U.S. Agency for International Development)
ISS SERVIR Environmental Research and Visualization System (ISERV) is an investigation designed to gain knowledge that will lead to the development of new technology, capable of providing useful images to monitor and assess extreme weather. ISERV is a joint venture between NASA and the U.S. Agency for International Development (USAID) and will be installed in the Window Observational Research Facility.



The ISERV camera, once on the space station, will be positioned to look through Destiny's Earth-facing window.

THE MISSION PATCH:

The crew's patch represents the 32nd expedition to the International Space Station. The arch shape of the patch symbolizes the doorway to future space exploration possibilities. The flame highlights the importance of education as the key to future human spaceflight. The astronaut symbol circles the Earth. The names of each crew member located on the border of the patch are written to honor the various cultures and languages on the mission. The three flags also depict the home countries of the Expedition 32 crew members and signify the collaborative international partnership of 15 countries working as one.



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