NASA Facts

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STS-108/Endeavour

First Space Station Utilization Flight and third Expedition crew rotation

Mission STS-108 is the 12th Space Shuttle flight to the International Space Station (ISS). This 11-day mission is the first Utilization Flight (UF1) of the Station program. The main objective of this mission is to transfer hardware into the ISS and perform the third ISS crew rotation.

Several payloads and the Expedition Four crew members will make the journey to the Station aboard Shuttle Endeavour. Expedition Four's three crew members will stay on the Station for approximately five months. After serving on the Station for nearly four months, Expedition Three crew members Frank Culbertson, Vladimir Dezhurov and Mikhail Tyurin, will return to Earth aboard Endeavour.

One spacewalk is planned for this mission to perform preventative maintenance on the Beta Gimbal Assembly of one of the Station's solar wings. These assemblies are used to adjust the angle of the wings as they track the sun. The Station's solar arrays, with a span of 240 feet, make the ISS the most electrically powerful spacecraft ever to orbit the Earth.

The Raffaello Multi-Purpose Logistics Module (MPLM), carried in the orbiter's payload bay, will deliver to the ISS experiments and hardware for use by the Expedition Four crew. One of three MPLMs built by the Italian Space Agency, Raffaello is named for the 16th century artist Raphaello Sanzio.

Several experiments will be performed during mission STS-108. One study is the Multiple Application Customized Hitchhiker-1, a collection of experiments mounted on a Get-Away Special Bridge Assembly in Endeavour's payload bay. The collection includes the Lightweight Multi-Purpose Experiment Support Structure Carrier and the deployable payload Starshine-2. Starshine-2's 800 aluminum mirrors were polished by more than 25,000 students from 26 countries.

The Commercial Biomedical Testing Module, a middeck experiment, will test pharmaceuticals, and develop and examine animal modules (mice) in microgravity for several pharmaceutical and biotechnology companies in hope of developing better treatment of osteoporosis in humans.

The Avian Development Facility (ADF) middeck experiment is designed to study the early development of Japanese quail eggs in microgravity. The UF1 flight will be used to validate the operational capabilities of the ADF.

The Bonner Ball Neutron Detector payload will return to Earth on STS-108. The Bonner Ball arrived on the Station during STS-102 in March 2001 and collected information on neutron radiation to develop safety measures to protect crew members during long-duration space flights.

Also, nearly 6,000 American flags will be carried into orbit aboard Endeavour. The “Flags for Heroes and Families” campaign honors victims, survivors, and relief workers associated with the Sept. 11, 2001, terrorist attacks on the U.S. The families of victims and survivors will receive these flags and a memorial certificate when the Endeavour crew returns.

The Crew

Dominic Gorie will serve as commander on his third flight. After being selected by NASA as an astronaut candidate in 1994, he was initially assigned to work safety issues for the Astronaut Office. Gorie next served as a spacecraft communicator (CAPCOM) in Mission Control. He served as pilot aboard STS-91 in 1998, the final Shuttle-Mir docking mission, and STS-99 in 2000, the Shuttle Radar Topography mission. He has logged more than 504 hours in space. Gorie holds a Bachelor of Science degree in ocean engineering from the U.S. Naval Academy and a Master of Science degree in aviation systems from the University of Tennessee.

Mark Kelly will serve as pilot on Mission STS-108. He has logged over 2,000 flight hours in more than 40 different aircraft. Kelly flew 39 combat missions in Operation Desert Storm. Selected by NASA in 1996, he was assigned to technical duties in the Astronaut Office Computer Support Branch. STS-108 will be Kelly's first Shuttle flight. He holds a Bachelor of Science degree in marine engineering and nautical science with highest honors from the U.S. Merchant Marine Academy and a Master of Science degree in aeronautical engineering from the U.S. Naval Postgraduate School. Along with his other duties, Kelly will operate the Shuttle's robotic arm during the flight's spacewalk.

Mission Specialist **Daniel Tani** will make his first flight into space aboard Endeavour. Tani joined NASA as an astronaut candidate in 1996. He has served as lead for development of procedures and constraints for the launching of the Pegasus unmanned rocket. He has also been responsible for leading the team of engineers who worked in the launch and control room. Tani holds Bachelor and Master of Science degrees in mechanical engineering from Massachusetts Institute of Technology. Tani will be one of two spacewalkers.

Linda Godwin, (Ph.D.), will serve as a mission specialist on her fourth flight aboard Endeavour on Mission STS-108. She joined NASA in 1980, in the Payload Operations Division, Mission Operations Directorate. Godwin was selected by NASA as an astronaut candidate in 1985. She served as mission specialist on STS-37 in 1991, Payload Commander on STS-59 in 1994 and crew member of STS-76 in 1996, a Mir docking mission. She has logged more than 633 hours in space. Dr. Godwin holds a Bachelor of Science degree in mathematics and physics from Southeast Missouri State, and Master of Science and Doctorate degrees in physics from the University of Missouri. Along with Tani, she will be one of two spacewalkers. She will serve as Shuttle loadmaster for equipment transfer. Dr. Godwin will also operate the Shuttle's robotic arm during berthing and unberthing of the MPLM.

Yuri Onufrienko will fly aboard Endeavour as commander of the Expedition Four crew. He graduated from the V.M. Komarov Eisk Higher Military Aviation School for Pilots with a pilot-engineer’s diploma and graduated from Moscow State University in 1994 with a degree in cartography. He was appointed to the position of cosmonaut candidate at the Cosmonaut Training Center in 1989. Onufriyenko and two other crew members will replace the current Expedition Three crew members aboard the Station. As a test cosmonaut he has logged more than 800 flight hours and 193 days in space. He served as Commander on Mir-21. During Mir-21 he performed numerous research experiments and participated in six spacewalks.

Daniel Bursch will fly aboard Endeavour as a member of the Expedition Four crew. He was selected by NASA as an astronaut candidate in 1990. Bursch has logged more than 746 hours in space. Mission STS-108 is his fourth space flight. He served as a mission specialist on STS-51 in 1993, STS-68 in 1994 and STS-77 in 1996. He received a Bachelor of Science degree in physics from the U.S. Naval Academy and a Master of Science degree in engineering science from the Naval Postgraduate School.

Expedition Four crew member **Carl Walz** will make his fourth space flight aboard Endeavour. Walz joined NASA as an astronaut candidate in 1990. He has logged more than 833 hours in space. He served as a mission specialist on STS-51 in 1993, was the Orbiter flight engineer on STS-65 in 1994, and was a mission specialist on STS-79 in 1996. Walz holds a Bachelor of Science degree in physics from Kent State University and a Master of Science degree in solid state physics from John Carroll University.

Related NASA Web sites

Mission and crew press kit:
www.shuttlepresskit.com/

Mission and crew:
spaceflight.nasa.gov/

Shuttle countdown
Kennedy Space Center:
www-pao.ksc.nasa.gov/kscpao/shuttle/countdown/

Multimedia prelaunch guest presentation:
www-pao.ksc.nasa.gov/kscpao/briefing/