NASA Facts

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STS-113/Endeavour

P1 Integrated Truss Segment and Expedition Six crew to ISS

Mission STS-113 is the 16th International Space Station assembly mission. This is Endeavour's 19th flight and the 113th shuttle mission.

The primary objectives of the eleven-day mission are to deliver the Expedition Six crew and Port 1 (P1) Integrated Truss Segment (ITS) to the Station. Mission specialists will use the Station's robotic arm to remove the P1 Truss, the Station's first left-side truss segment, from Endeavour's payload bay and attach it to the Station port side of the S0 Truss. The truss' primary function is to provide the heat transport and heat rejection capability required for the Station's active thermal control system.

The primary cargo element delivered on Mission 11A, P1, is the third truss segment of the main Station ITS. The P1 is a 46-by-15 foot structure weighing about 27,500 pounds. The ITS will eventually be used to support the four power-generating Photo-Voltaic Modules of the Station, the permanent External Active Thermal Control Subsystem (EATCS), and will also provide a translation path for the Mobile Servicing System along specially-designed truss rails. The truss rails allow the Space Station Remote Manipulator System to be positioned at various locations along the truss for performing maintenance tasks, element installations and providing spacewalk assistance.

The middeck of Endeavour will be filled with various Station assembly-related hardware, logistics and payloads on Mission 11A. This includes spacewalk tools and equipment, Portable Computer System items, Crew Health Care System items, photo/TV equipment, water transfer equipment, and Station utilization payloads.

The secondary STS-113 payload is the Microelectromechanical System Based Pico-Satellite Inspector (MEPSI).

MEPSI comprises a launcher, or garage, which houses a set of two small deployable satellites, referred to as PICOSATs. Each PICOSAT weighs approximately 2.2 pounds. The two miniature satellites will be attached to each other with a 50-foot tether. After release, the PICOSATs operate on battery power for several days to complete mission objectives.

The purpose of the deployed PICOSATs is to demonstrate the integration of Microelectromechanical Systems (MEMS)- based subsystems for enabling new technology, low-power, autonomous on-board systems in support of critical satellite operations.

The Crew

A veteran of five previous space flights, **James Wetherbee** will serve as commander. He received a bachelor of science degree in aerospace engineering from the University of Notre Dame in 1974. Wetherbee became an astronaut in June 1985 and recently served as Director of the Flight Crew Operations Directorate. Wetherbee has over 1,262 hours in space. He was the pilot on STS-32 in 1990, and mission commander on STS-52 in 1992, STS-63 in 1995, STS-86 in 1997 and STS-102 in 2001.

Paul Lockhart will serve as pilot. He received a bachelor of arts degree in mathematics from Texas Tech University in 1978, and a master of science degree in aerospace engineering from the University of Texas in 1981. Lockhart studied at the Austrian schools University of Innsbruck and the University of Vienna Summer School from 1978-79. He also completed aerospace courses at Syracuse University (N.Y.) and the University of Florida. After NASA selected him in April 1996, Lockhart was assigned to the Astronaut Office Spacecraft Systems/Operations Branch where he worked various technical issues including the Space Shuttle Main Engine (SSME) and redesign of the orbiter's flight display. He served as pilot on STS-111 in 2002 and has over 332 hours in space.

Mission Specialist **Michael Lopez-Alegria** received a bachelor of science degree in systems engineering from the U.S. Naval Academy in 1980 and a master of science degree in aeronautical engineering from the U.S. Naval Postgraduate School in 1988. He also graduated from Harvard University's Kennedy School of Government Program for Senior Executives in National and International Security. In March 1992 he was assigned to KSC to provide crew representation on orbiter processing issues and provide direct crew support during launches and landings. Following his first space flight, STS-73 in 1995, he served as NASA Director of Operations at the Yuri Gagarin Cosmonaut Training Center, Star City, Russia. After his second mission, STS-92 in 2000, he led the newly formed ISS Crew Operations branch of the Astronaut Office.

John Herrington will serve as a mission specialist on his first space flight. He received a bachelor of science degree in applied mathematics from the University of Colorado at Colorado Springs in 1983, and a master of science degree in aeronautical engineering from the U.S. Naval Postgraduate School in 1995. Herringtion was selected by NASA in April 1996. He was initially assigned to the Flight Support Branch of the Astronaut Office where he served as a member of the Astronaut Support Personnel team.

The Expedition Six crew will replace the Expedition Five crew and remain on the Station for approximately four months. Expedition Five crew members returning to Earth are Valery Korzun, Peggy Whitson and Sergei Treschev.

Ken Bowersox is an Expedition Six crew member. He received a bachelor of science degree in aerospace engineering from the United States Naval Academy in 1978, and a master of science degree in mechanical engineering from Columbia University in 1979. Selected by NASA in June 1987, he has since held a variety of assignments including serving as a spacecraft communicator (CAPCOM) in the Houston Mission Control Center during several Shuttle missions. The four flight veteran has logged over 50 days in space. He flew as pilot on STS-50 in 1992 and STS-61 in 1993, and was the spacecraft commander on STS-73 in 1995 and STS-82 in 1997.

Expedition Six crew member **Donald Pettit** will make his first space flight during mission STS-113. He received a bachelor of science degree in chemical engineering from Oregon State University in 1978 and a doctorate in chemical engineering from the University of Arizona in 1983. Selected by NASA in April 1996, he was initially assigned technical duties in the Astronaut Office Computer Support Branch.

Cosmonaut **Nikolai Budarin** will serve as a member of the Expedition Six crew on his third space mission. He graduated from the S. Ordzhonikidze Moscow Aviation Institute in 1979 with a mechanical engineering diploma. From September 1989 to January 1991, Budarin completed basic space training courses at the Gagarin Cosmonaut Training that made him a qualified Test Cosmonaut. In 1995 and 1998, he served as a board engineer for long-term space missions.