

NASA Facts

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STS-102/Discovery

Dream of Orbiting Research Facility Becomes Reality

The exotic experiments of countless scientists will rocket to the International Space Station (ISS) and back in modules built by the Italian Space Agency. The primary objective of mission STS-102, the eighth flight to the ISS, is to berth the 4.5-ton Multi-Purpose Logistics Module (MPLM) to the Station.

The MPLM, also known as Leonardo, is the first of three such pressurized modules that will serve as "moving vans," carrying laboratory racks filled with equipment, experiments and supplies to and from the Station.

The 21-ft. long, 15-ft. diameter unit will carry 16 racks and provide enough life support, fire detection and suppression, power and computer functionality to support two astronauts. Leonardo will deliver up to 10 tons of laboratory racks filled with equipment, experiments and supplies for outfitting the newly arrived U.S. Laboratory launched aboard STS-98.

The incoming racks will be replaced with outgoing racks or other equipment, and when its Station module duties are done, Leonardo will revert to being a cargo carrier and the Shuttle will take it home.

During the docked portion of the STS-102 mission, two Extravehicular Activities (EVA) or spacewalks are planned to prepare Leonardo for transfer, to install hardware needed for mission STS-100, targeted to launch in April, and to deliver spare parts to the International Space Station.

Mounted in the Space Shuttle's cargo bay for launch and landing, the reusable logistics module functions as both a cargo carrier and a Space Station module. While in the cargo bay, the module is inaccessible to the crew.

The seven-member crew of STS-102, utilizing the Shuttle's robotic arm to attach the module to the Station, will unload racks of equipment and reload old racks of equipment to be taken back to Earth.



Space Shuttle Discovery will also provide transportation back to Earth for the first permanent ISS crew, Expedition One, and the ride up to the Station for the Expedition Two crew.

The Expedition Two crew, composed of James Voss, Susan Helms and Yury Usachev, will remain on the Station for a four-month stay. They will return to Earth aboard Space Shuttle Discovery on mission STS-105, currently scheduled for July 2001.

With Expedition crews now permanently residing at the Station, this uninterrupted, long-term access to space will allow researchers to review large sets of information necessary to validate new concepts and acquire results more rapidly. In addition to its six dedicated laboratory modules, the ISS will provide exposed facility sites to accommodate a broad range of attached payloads for technology, Earth and space science experiments.

Whether it is improving industrial processes, increasing fundamental knowledge, looking after our health, enabling exploration or researching tomorrow's products today, ISS research will generate tangible returns as it improves our lives on Earth and in space.

The Crew

Commander James D. Wetherbee, a veteran of four previous space flights, who has logged more than 955 hours in space, will lead the seven-member crew of STS-102. He served as pilot on STS-32 in 1990 and mission commander aboard STS-52 in 1992, STS-63 in 1995 and STS-86 in 1997. Before beginning his training for this mission, Wetherbee was the director of the Flight Crew Operations Directorate at Johnson Space Center in Houston, Texas.

Wetherbee was born in Flushing, N.Y., but considers Huntington Station, N.Y., to be his hometown. He received a bachelor of science degree in aerospace engineering from the University of Notre Dame. NASA selected Wetherbee as an astronaut in May 1984.

James M. Kelly will serve as pilot aboard Discovery on his first space flight. Since becoming an astronaut in April 1996, he has served as a member of the Astronaut Support Personnel Team at Johnson Space Center. Prior to joining NASA, Kelly was assigned to the Air Force Flight Test Center in Las Vegas, Nev., where he was a project test pilot. He logged more than 1,500 flight hours in 35 different aircraft.

Kelly was born in Burlington, Iowa. His educational background includes a bachelor of science degree in aeronautical engineering from the U.S. Air Force Academy and a master of science degree in aerospace engineering from the University of Alabama.

Mission Specialist Andrew S.W. Thomas (Ph.D.) will be making his third space flight aboard STS-102. After NASA selected him as an astronaut in March 1992, Thomas was assigned as an Astronaut Support Person (ASP) at Kennedy Space Center. Thomas' space flight experience includes mission specialist for STS-77 and STS-89. He served aboard Mir as a flight engineer and returned to Earth with the crew of STS-91 after completing 141 days in space in 1998.

Born in Adelaide, South Australia, he received both a bachelor's degree and a doctorate in mechanical engineering from the University of Adelaide.

Mission Specialist Paul William Richards' initial space flight will be aboard STS-102. Before beginning his training for this mission, Richards served in the Astronaut Office Shuttle Operations Branch at Johnson Space Center. Prior to being selected as an astronaut in 1996, Richards focused his energy in the Engineering Directorate at Goddard Space Flight Center, Md. There he worked in the Verification Office, Electromechanical Branch, Robotics Branch and served as senior spacewalk tool development engineer on projects such as the Hubble Space Telescope

servicing mission.

He was born in Scranton, Pa., but considers his hometown to be Dunmore, Pa. Richards received a bachelor of science degree in mechanical engineering from Drexel University and a master of science degree from the University of Maryland.

Expedition Two crew member James S. Voss is a veteran of three space flights. Voss has previously served as a mission specialist on STS-44 in 1991 and STS-53 in 1992 and payload commander on STS-69 in 1995. Voss has logged more than 600 hours in space. While assigned as a backup crew member for two missions to the Russian Space Station Mir, he lived and trained at the Gagarin Cosmonaut Training Center in Star City, Russia.

Born in Cordova, Ala., Voss considers Opelika, Ala., to be his hometown. His educational background includes a bachelor of science degree in aerospace engineering from Auburn University and a master of science degree in aerospace engineering sciences from the University of Colorado.

Expedition Two crew member Susan Helms, a veteran mission specialist, has flown previously aboard STS-54, STS-64, STS-78 and most recently on STS-101. Prior to joining NASA, Helms was managing the development of a CF-18 Flight Control System Simulation for the Canadian Forces and has flown in 30 different types of U.S. and Canadian military aircraft.

Born in Charlotte, N.C., Helms considers Portland, Ore., to be her hometown. She received a bachelor of science degree in aeronautical engineering from the U.S. Air Force Academy and a master of science degree in aeronautics/astronautics from Stanford University. NASA selected her as an astronaut in January 1990.

Expedition Two crew member Yury Usachev, a Russian cosmonaut, has served twice as an engineer on Russia's Mir Space Station. Usachev was selected as a cosmonaut candidate in 1989, and has logged 376 days in space and performed six spacewalks.

Prior to his stay on Mir, Usachev worked at Energia and participated in groups working with EVA training, future construction in space, public relations and ergonomics. Born in Donetsk, Rostov, on Don Region, Russia, he graduated from the Moscow Aviation Institute with an engineering diploma.

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/

