

NASA Facts

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STS-110/Atlantis

Delivery of S0 Truss Segment and Mobile Transporter to ISS

The S0 Truss Segment (ITS S0) and the Mobile Transporter will be delivered to the International Space Station by the Space Shuttle on Mission STS-110. During the 11-day flight, four spacewalks will be performed—all dedicated to truss installation.

The 43-foot long S0 Truss Segment will attach to the U.S. Lab and be the center section of the Station's truss assembly. As the center section, the S0 segment will be physically attached to the Station's U.S. lab module, Destiny. Other truss segments to be delivered on future flights will be attached to the S0 truss and support the main ISS Solar Arrays. The S0 segment will take the electrical power generated by the Solar Arrays and channel it to the rest of the Station modules.

The Mobile Transporter establishes a movable base for the Space Station Remote Manipulator System (the Station's robotic arm), allowing it to travel along the Station's trusses. When all the trusses are fully assembled, the Mobile Transporter will be capable of moving from one end of the truss structure to the other, a length over 300 feet.

The work performed during STS-110 begins construction of the power and cooling plant that will be needed by planned future laboratories.

Crew members will also perform the Single String Global Positioning System (GPS) experiment. This test will demonstrate the performance and operation of the GPS during orbiter ascent, entry, and landing phases utilizing a modified military GPS receiver processor and the existing orbiter GPS antennas.

Included with the payloads being carried back and forth to the orbiting research facility are protein crystal growth



studies that researchers hope will lead to the development of new drugs. Also on board this flight are cell-culture experiment samples and an experiment designed for the investigation of plant cultivation in orbit.

The Crew

Michael Bloomfield will serve as commander on his third space flight. After being selected by NASA in December 1994, Bloomfield completed a year of training, and is currently qualified for assignment as a shuttle pilot. He worked technical issues for the Operations Planning Astronaut Office. He has logged more than 494 hours in space. He served as a crew member on shuttle mission STS-86 in 1997 and STS-97 in 2000.

Mission STS-86 was the seventh mission to rendezvous and dock with the Russian Space Station Mir. Mission STS-97 was the fifth mission dedicated to International Space Station assembly including the installation of U.S. Solar Arrays.

Bloomfield considers Lake Fenton, Mich., to be his hometown. He holds a Bachelor of Science degree in engineering mechanics from the U.S. Air Force Academy and a Master of Science degree in engineering management from Old Dominion University.

Stephen Frick will serve as pilot on his first Shuttle mission. Born in Pittsburgh, Pa., he has logged more than 1,800 flight hours in 27 different aircraft and has over 370 carrier landings. Frick was assigned technical duties in the Operations Branch of Astronaut Office Spacecraft Systems, after being selected by NASA in April 1996. He holds a Bachelor of Science degree in aerospace engineering from the U.S. Naval Academy and a Master of Science degree in aeronautical engineering from the U.S. Naval Postgraduate School.

On her fourth Space Shuttle mission, **Dr. Ellen Ochoa, Ph.D.**, will serve as the flight engineer. Selected by NASA in January 1990, she was assigned to flight software verification and served as a crew representative in many technical areas, as Space Station assistant to the Chief of the Astronaut Office, and as a spacecraft communicator (CAPCOM) in Mission Control. Dr. Ochoa has logged more than 719 hours in space. She was a mission specialist on STS-56 in 1993, the payload commander on STS-66 in 1994, and a mission specialist and flight engineer on STS-96 in 1999. Dr. Ochoa considers La Mesa, Calif., to be her hometown. She holds a Bachelor of Science degree in physics from San Diego State University, a Master of Science degree and doctorate in electrical engineering from Stanford University.

Steven Smith will fly aboard Atlantis as a mission specialist on his fourth Space Shuttle mission. He served as a mission specialist of STS-68 in 1994 and STS-82 in 1997, and as payload commander of STS-103 in 1999. Selected by NASA in 1989, he has covered 12 million miles and five spacewalks totaling 35 hours. Smith, who considers San Jose, Calif., to be his

hometown, received Bachelor of Science and Master of Science degrees in electrical engineering, and a Master's degree in Business Administration—all from Stanford University.

A veteran of six space flights, **Jerry Ross** will be a mission specialist on STS-110. This mission sets the record for Ross as the astronaut who has flown the most times on the Space Shuttle. He will have also conducted more spacewalks than any other U.S. astronaut. Selected as an astronaut in May 1980, he has more than 1,133 hours in space, including 44 hours, nine minutes on seven spacewalks, and has logged more than 3,400 flying hours, the majority in military aircraft. Ross flew as a mission specialist on STS-61-B in 1985, STS-27 in 1988, STS-37 in 1991, STS-74 in 1995 and the first International Space Station assembly mission, STS-88 in 1998, and was the payload commander on STS-55 in 1993. Born in Crown Point, Ind., Ross holds Bachelor of Science and Master of Science degrees in Mechanical Engineering from Purdue University.

Lee Morin, M.D., Ph.D., will serve as a mission specialist. He was selected as an astronaut candidate by NASA in April 1996, and was initially assigned technical duties in the Astronaut Office Computer Support Branch, followed by the Astronaut Office Advanced Vehicles Branch. He was born in Manchester, N.H. He holds a Bachelor of Science degree in mathematical/electrical science from the University of New Hampshire, a Master of Science degree in biochemistry and Doctorate of Medicine and Microbiology degrees from New York University, and a Master of Public Health degree from the University of Alabama at Birmingham.

On his first Space Shuttle mission, **Rex Walheim** will also serve as an STS-110 mission specialist aboard Atlantis. He was selected by NASA in March 1996 and reported to the Johnson Space Center in August 1996. Walheim was initially assigned technical duties in the Astronaut Office Space Station Operations Branch. He considers San Carlos, Calif., his hometown. Walheim holds a Bachelor of Science degree in mechanical engineering from the University of California, Berkeley, and a Master of Science degree in industrial engineering from the University of Houston.