NASA Facts

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STS-98/Atlantis

The International Space Station Goes to Work

In the same way that the 19th century saw humans control pressure and temperature to harness steam power, the 21st century will see us control gravity to make new discoveries.

STS-98, the 23rd flight of Space Shuttle Atlantis, launches the second of the U.S. pressurized modules, the Destiny Laboratory. The U.S. Lab will be attached to the Unity node using the Shuttle's robotic arm. Atlantis and her crew of five will spend six days docked to the Space Station while the attachment is undertaken. Three extravehicular activities (EVA) will be conducted to complete its assembly. The addition of the Destiny module will expand the Station's power, life support and attitude control capabilities.

At 28 feet in length, 14 feet in diameter and weighing more than 32,000 pounds, the U.S. Lab is about the size of a large business jet's fuselage. It will be equipped with five of its 11 system's racks when it is carried into orbit during the STS-98 mission. Six additional racks will follow on a subsequent Shuttle mission and will be delivered in one of three Multi-Purpose Logistics Modules supplied to NASA by the Italian Space Agency.

Thirteen of Destiny's racks are specifically designed to initially support experiments in microgravity and life sciences. Eleven will house the systems and resources required for supporting the Lab including power, cooling water, temperature and humidity control, communications and tracking equipment, and air revitilization for removal of carbon dioxide and replenishment of oxygen. One of the racks will be used specifically for health maintenance of the crew and the control racks will be used for Canada's mobile servicing system.

The U.S. Lab's first major science facilities will include the Human Research Facility - where scientists will assess crew health and how the human body responds and adapts to microgravity; the Fluids and Combustion Facility - where experiments will be conducted to study the uses of microgravity for improvements in production of semiconductor crystals, glass fiber and energy; the Biotechnology Facility - where research will be conducted for improved engineering and technology on protein crystal growth in microgravity for the development of more effective medications; the Materials Science Facility - where scientists will study the atomic and molecular structures of materials in microgravity; and the Optical Window Rack Facility - where crews will utilize the highest quality optical glass ever used for testing in space through the use of camera, sensors and other devices employed in the identification of pollution sources and monitoring of environmental conditions.

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The Crew

Commander Kenneth D. Cockrell is a veteran of three previous spaceflights and has logged more than 906 hours in space. Cockrell was born in Austin, Texas. He graduated from Rockdale High School in Rockdale, Texas and earned a bacheor of science degree in mechanical engineering from the University of Texas and a master of science degree in aeronautical systems from the University of West Florida.

Cockrell received his commission through the Naval Aviation Reserve Officer Candidate Program at Naval Air Station Pensacola, Fla., in 1972 and was designated a Naval Aviator in 1974. He resigned his commission in 1987 and accepted a position at the Aircraft Operations Division of the Johnson Space Center. NASA selected Cockrell in 1990 and he became an astronaut in 1991. He has served as assistant to the chief of the Astronaut Office for Shuttle Operations and Hardware as well as the chief of the Astronaut Office Operations Development Branch.

Mark L. Polansky will serve as pilot aboard the STS-98 flight. Born in Paterson, N.J., he considers Edison, N.J., as his hometown. Polansky graduated from John P. Stevens High School in Edison, N.J., in 1974. He received a bachelor of science degree in aeronautical and astronautical engineering and a master of science degree in aeronautics and astronautics from Purdue University, both in 1978.

Polansky was commissioned by the U.S. Air Force upon graduation from Purdue and earned his pilot wings in 1980 at Vance Air Force Base in Oklahoma. During his tenure with the Air Force, he logged more than 5,000 flight hours in 30 different aircraft. He joined NASA in 1992 as an aerospace engineer and research pilot with the Aircraft Operations Division at the Johnson Space Center where he was responsible for teaching the astronaut pilots Space Shuttle landing techniques in the Shuttle Trainer Aircraft as well as conducting flight testing of the NASA T-38 avionics upgrade aircraft. He was selected as an astronaut in 1996.

Mission Specialist Robert L. Curbeam Jr. (Com., USN) was born in Baltimore, Md. Curbeam graduated from Woodlawn High School in Baltimore, Md. He earned a bachelor of science degree in aerospace engineering from the United States Naval Academy in 1984 and a master of science degree in aeronautical engineering from the Naval Postgraduate School in 1990.

Upon graduation from the U.S. Naval Academy, Curbeam commenced Naval Flight Officer Training. In 1994, he became an instructor in the Weapons and Systems Engineering Department of the U.S. Naval Academy. He was selected by NASA in December of 1994 and has flown on one previous mission, STS-85. He most recently served as a spacecraft communicator (CAPCOM) responsible for relaying all voice communication between Mission Control and crews aboard the Space Shuttle.

Mission Specialist Thomas D. Jones, Ph.D., (Capt., USAF) was born in Baltimore, Md. This military history buff graduated from Kenwood Senior High School in Essex, Md., in 1973. He received a bachelor of science degree in basic sciences from the United States Air Force (USAF) Academy in 1977 and a doctorate in planetary science from the University of Arizona in Tucson in 1988.

Jones served on active duty as an Air Force officer for six years. As pilot and aircraft commander of a B-52 D Stratofortress, he led a combat crew of six, accumulating more than 2,000 hours of jet experience before resigning as a captain. He has served as mission specialist on three previous spaceflights - STS-59, STS-68 and STS-80. Jones has logged more than 40 days (963 hours) in space. He was selected as an astronaut in 1991.

Marsha S. Ivins will serve as a mission specialist aboard Space Shuttle Atlantis for STS-98. She is a veteran of four previous spaceflights - STS-32, STS-46, STS-62 and STS-81. She has logged more than 1,000 hours in space. Born in Baltimore, Md., Ivins graduated from Nether Providence High School in Wallingford, Pa. She earned a bachelor of science degree in aerospace engineering from the University of Colorado in 1973.

Since 1974, Ivins has been employed at the Lyndon B. Johnson Space Center as an engineer with the Crew Station Design Branch working on Orbiter Displays and Controls and Man Machine Engineering. She holds a multi-engine Airline Transport Pilot License and has logged more than 5,700 hours in civilian and NASA aircraft. She was selected in the NASA astronaut class of 1984 as a mission specialist. Ivins has also served as the lead of the Astronaut Support Personnel Team at the Kennedy Space Center, supporting Space Shuttle launches and landings.

Related NASA Web sites

Mission and crew press kit:

www.shuttlepresskit.com/

Mission and crew - Johnson Space Center:

www.spaceflight.nasa.gov/

Shuttle countdown - Kennedy Space Center:

www.ksc.nasa.gov/shuttle/countdown/

Multimedia prelaunch guest presentation:

www-pao.ksc.nasa.gov/kscpao/briefing/