ROCKET PARK

NASA/Stafford JSC2004E26268

Extreme makeover

JSC's landmark rocket is getting a face-lift. The Saturn V on display at JSC has had its share of problems: corroded structures, mold and plant growth, and small animals sheltering inside the irreplaceable landmark. This year, the Smithsonian's National Air and Space Museum began preservation efforts on the rocket, including cleaning all rocket stages, removing fluids from tanks and lines, repainting surfaces and repairing damage. A temporary humidity-controlled building is also being built to protect the rocket during the preservation work.

NASA/DeHoyos JSC2004E33624

INTEGRITY

integrity

History

EVEN THE MOST EVERYDAY TASKS *performed at Johnson Space Center are pieces of America's spaceflight history. JSC teams work to preserve that history as they press toward the future.*

The JSC Oral History Project

team works to ensure that the details of our personal journeys in space exploration are preserved for future generations. Historians have talked to hundreds of individuals in the Mercury, Gemini, Apollo, Skylab and Shuttle programs who shared their personal experiences – from historical contributions to unique memories and stories.

After a lifetime of ups and downs

– 34,700 ups and downs to be exact – NASA's last KC-135 aircraft, the "Weightless Wonder V," retired Oct. 29. The aircraft was part of JSC's Reduced Gravity Program, which provides a "weightless" environment for the development and verification of space hardware, research and crew training. The KC-135 will be replaced by the "Weightless Wonder VI," a C-9 aircraft acquired by NASA from the Navy.

JSC employees celebrated

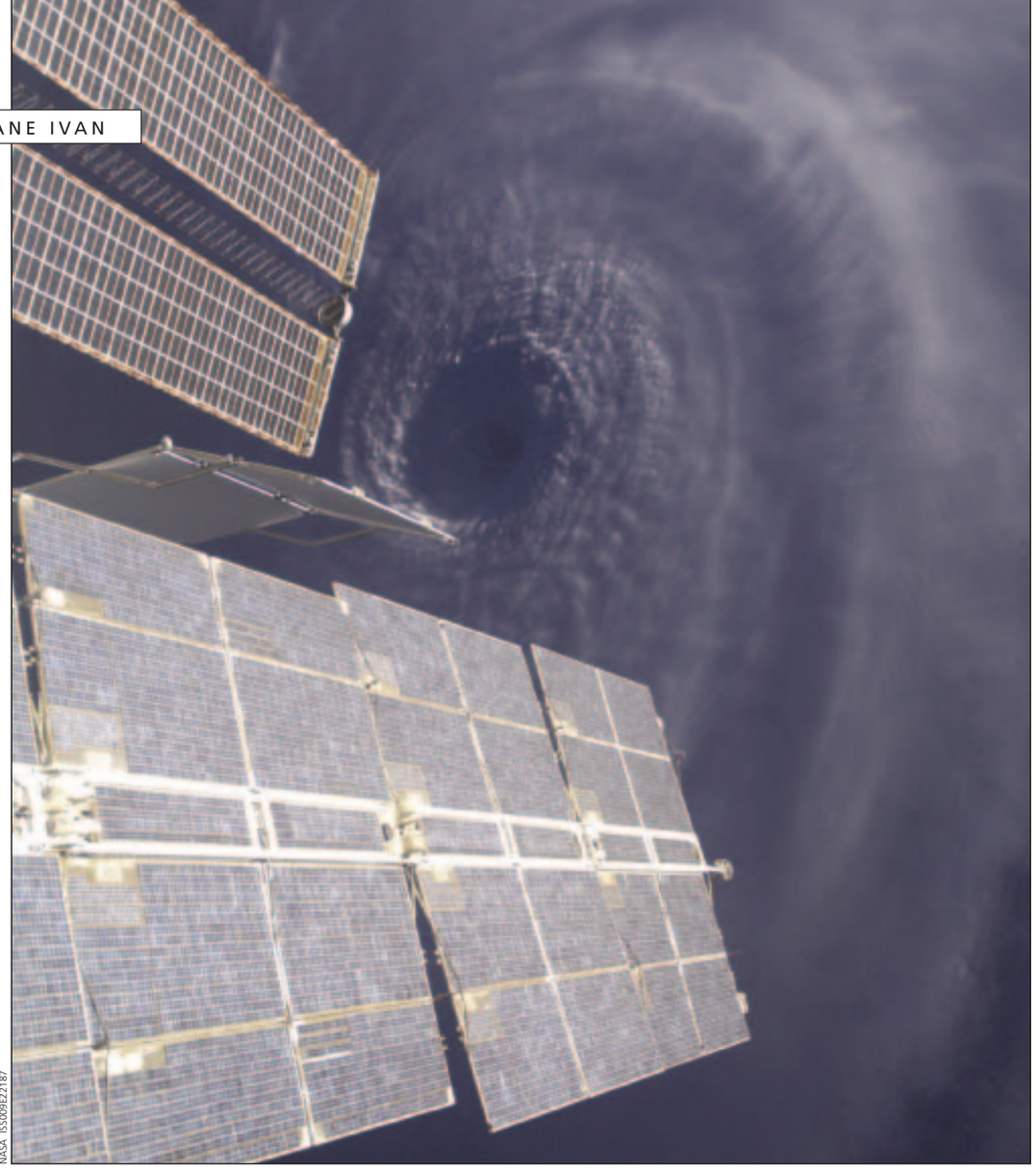
the 35th anniversary of the Apollo 11 Moon landing on July 20. Apollo-era employees shared stories that conveyed the tremendous energy and drive that it took to get to the Moon, and an amazing assortment of Apollo memorabilia was displayed in the Teague lobby. The items, all provided by JSC employees, ranged from lithographs to Apollo action figures. The highlight of the display was a lunar sample from Apollo 11, but even the more humble relics left an impression – large or small, they were treasured mementos of an exciting moment in American history.

NASA/Blair JSC2004E36237

NASA/Stafford JSC2004E30954

At top, John Yaniec, the lead test director for the Reduced Gravity Program, holds up a sign in celebration of his 30,000th parabola.

JSC employees gathered in the Teague auditorium to watch historical films about Apollo missions 8, 11 and 17 as part of the activities commemorating the 35th anniversary of the historic lunar landing that took place on July 20, 1969.



NASA ISS009E22187

Eye of a storm

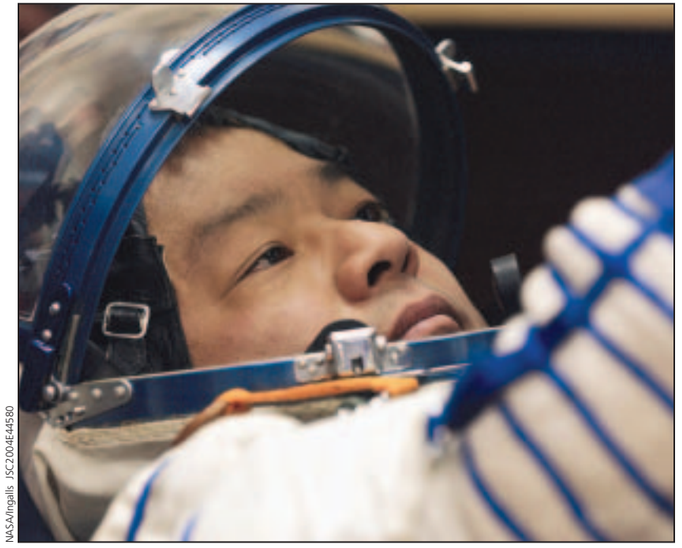
The number of photographs of Earth taken by International Space Station astronauts crossed the 100,000 mark in 2004. Space provides an unequalled vantage point for observing and tracking changes on Earth. Pictures of the planet from space can greatly increase the understanding of Earth's ongoing transformations – both natural and human-caused.

This image features the eye of Hurricane Ivan, partially framed by solar array panels on the Space Station. One of the strongest hurricanes on record, Ivan was photographed on September 11, from an altitude of about 230 miles by Astronaut Edward M. (Mike) Fincke, NASA International Space Station science officer and flight engineer, aboard the orbital outpost. At the time, Ivan was reported to have winds of 160 mph.

Space Station

NASA ISS008E19136

NASA ISS009E22046



NASA/Ingalls JSC2004E44580

Astronaut C. Michael Foale, top left, Expedition 8 commander and NASA International Space Station science officer, in the Unity node of the Space Station.

Astronaut Edward M. (Mike) Fincke, Expedition 9 NASA International Space Station science officer and flight engineer, uses a microphone during a ham radio contact with the Palmer Research Station in Antarctica.

Astronaut Leroy Chiao, Expedition 10 commander and NASA International Space Station science officer, voted in the 2004 presidential election, making him the first U.S. citizen to do so from space.

International Space Station enters its fifth year

Three crews lived on the Station during 2004 as the orbiting laboratory entered its fifth year as a staffed facility. Each two-person crew, working with ground teams, did its part to keep the Station safely operating. Crews made unprecedented repairs to an oxygen generator, a crucial piece of exercise equipment and a U.S. spacesuit. They also performed a spacewalk to restore power to a gyroscope.

Year of firsts for Space Station crewmembers

All three U.S. crewmembers had personal milestones. Expedition 8 Commander Mike Foale returned to Earth as the U.S. record-holder for time in space, logging 374 days, 11 hours and 19 minutes over several missions. Expedition 9 Flight Engineer Mike Fincke is the first U.S. astronaut to have a child born while he was in orbit. Expedition 10 Commander Leroy Chiao is the first U.S. citizen to vote from space in a presidential election.

Station research yields new health information

A NASA-funded study revealed how bone loss increases the risk of injuries, highlighting the need for additional measures to ensure the health of spacecraft crews. This research may aid people on Earth who suffer from similar conditions, including osteoporosis. Space Station astronauts, using ultrasound techniques developed by NASA, demonstrated the ability to quickly and remotely transmit medical data to the ground. These techniques are directly transferable for Earth use to improve patient care in remote locations.

STS-114 CREW

Lockheed Martin/NASA Michoud

Let the journey begin

The STS-114 crew is shown with the External Tank, which will carry the fuel for the next Space Shuttle flight.

SAFETY

Return to Flight

Lockheed Martin/NASA Michoud

NASA JSC2004E55650

Workers guide External Tank 120 (top) into the Vertical Assembly Building at Michoud Assembly Facility.

Wayne Smith prepares a Reinforced Carbon-Carbon test article in preparation for a critical Return to Flight arc jet test.

SHUTTLE PROCESSING ACTIVITIES *at NASA's Kennedy Space Center, Fla., assumed a pre-launch rhythm after almost two years of innovative and intensive Agencywide effort to make the fleet safer. The most significant Return to Flight work was on the Shuttle External Tank, which was redesigned to minimize the amount of debris shed on liftoff. NASA also focused on its ability to assess the condition of Shuttles in orbit. The first Shuttle mission since the* Columbia *accident, STS-114 has a launch window opening in mid-May.*

The STS-114 crewmembers will deliver supplies to the International Space Station, but the major focus of their mission will be testing and evaluating new Space Shuttle flight safety, which includes new inspection and repair techniques.

STS-114 is classified as Logistics Flight 1. Station-related activities include delivering new supplies and replacing one of the orbital outpost's Control Moment Gyroscopes (CMGs). STS-114 will also carry the Raffaello Multi-Purpose Logistics Module and the External Stowage Platform-2.

The crew is slated to conduct at least three spacewalks while at the Space Station. The first spacewalk will demonstrate repair techniques of the Shuttle's Thermal Protection System. During the second, the spacewalkers will replace the failed CMG with one delivered by the Shuttle. On the third, they will install the External Stowage Platform.