

Lyndon B. Johnson Space Center

roundup



NASA/Blair ISS014E10058

JSCdirector

On the cover

Astronaut Robert L. Curbeam Jr., STS-116 mission specialist, works with the port overhead solar array wing on the International Space Station's P6 truss during the mission's fourth session of extravehicular activity (EVA). Curbeam set an EVA record during STS-116 by conducting four spacewalks during a shuttle mission, bringing him to a career total of seven spacewalks equalling 45 hours, 34 minutes.

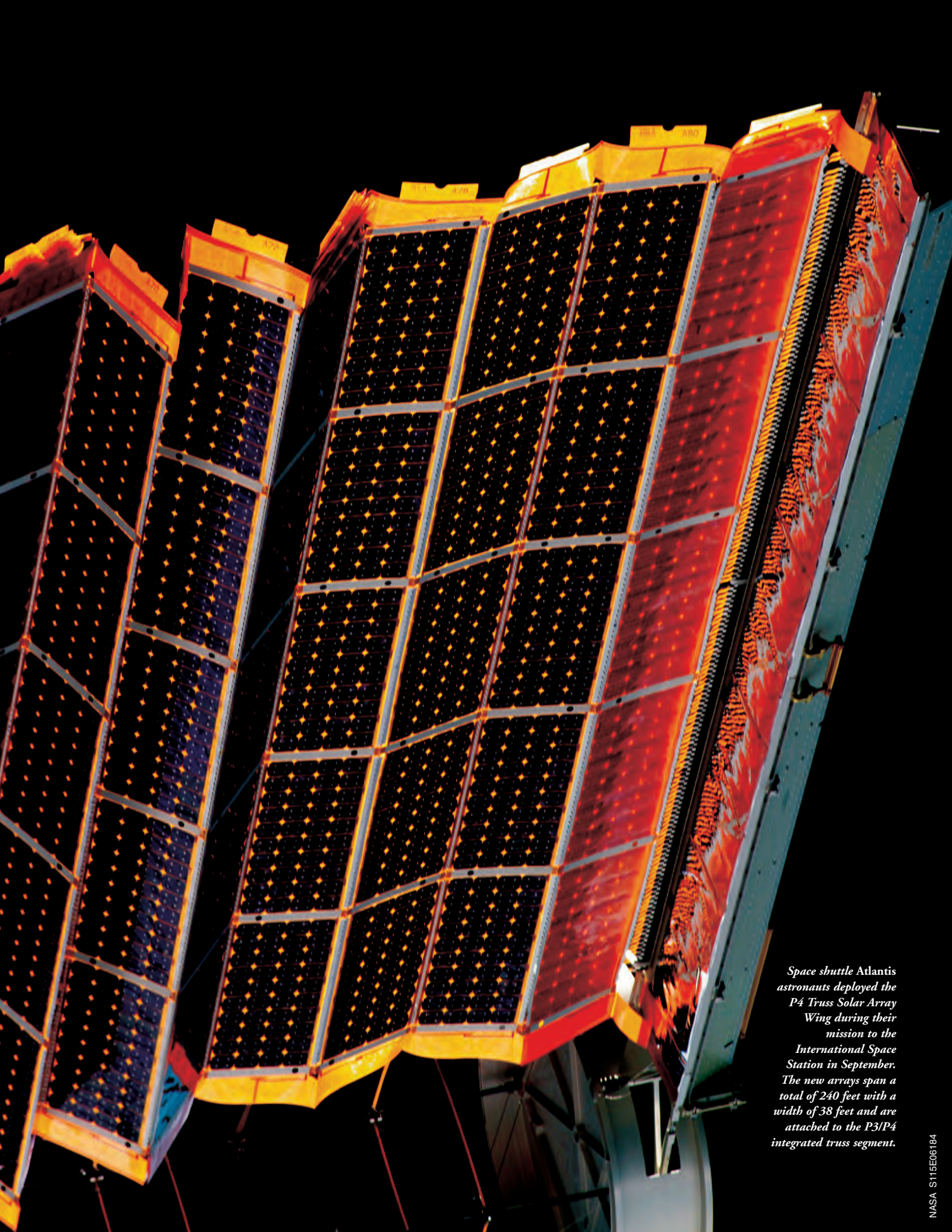


I HEARD a commentator the other day say that “Diversity is a politically correct word for affirmative action, which is merely a pseudonym for quotas.” I’m certainly not a social scientist or a political scientist, but I have some strong opinions about the value of diversity. My experience is that our differences make us more creative and innovative, and that in turn makes us strong and secure. After 230 years of being the world’s “melting pot,” we are the only superpower and enjoy by far the most dynamic and robust economy in history. While there are many reasons for that, I firmly believe our differences are our greatest strength. We usually think of gender and skin color when we hear “diversity,” but just as important are differences in backgrounds, experiences, perspectives and ways of thinking.

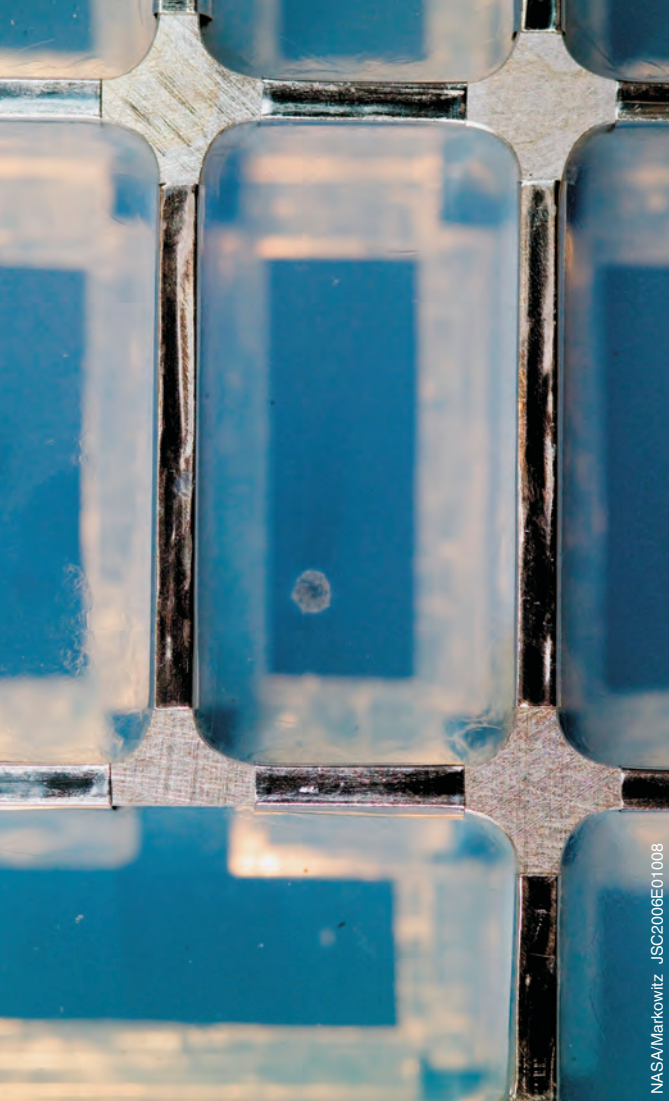
As a member of the astronaut class of 1978, with the first female and minority astronauts, I was surprised and amazed to realize that we could come up with some wonderfully creative answers and innovative solutions to early shuttle crew issues. But the creativity was driven by our very differences of opinion. We had military pilots, scientists, engineers, medical doctors and folks just a few months out of the world of academia. The pilots, regardless of skin color, tended to think along similar lines, while the other groups had been trained with different thought processes and frequently asked questions and proposed answers the pilots never would have considered. We quickly learned to respect all opinions and the interaction and brainstorming was enjoyable and productive.

I’ve learned to appreciate and celebrate our differences. Diversity is our greatest strength.

A handwritten signature in blue ink that reads "Mike". The signature is fluid and cursive, with a long horizontal stroke at the end.



Space shuttle Atlantis astronauts deployed the P4 Truss Solar Array Wing during their mission to the International Space Station in September. The new arrays span a total of 240 feet with a width of 38 feet and are attached to the P3/P4 integrated truss segment.



NASA/Markowitz JSC2006E01008

Stardust sample canister arrives in Houston

After a seven-year, 3-billion-mile journey in space and a return to Earth in the Utah desert, the Stardust spacecraft's Sample Return Canister arrived at Johnson Space Center in January. Stardust passed within 149 miles of comet Wild 2 in 2004, trapping particles from the comet in an exposed gel. Scientists studying the samples have found minerals that formed near the sun or other stars, a fact that is surprising given that these high-temperature minerals are existing in the coldest place in the solar system. These findings suggest that materials from the center of the solar system could have traveled to the outer reaches where comets formed. This may alter the way scientists view the formation and composition of comets.

Close-up view of cometary impact (center) into aerogel, which was inspected by scientists at JSC hours after the Stardust Sample Return Canister was delivered.

Donald Brownlee, principal investigator with the University of Washington, flashes a victory sign for the successful arrival of Stardust material.



NASA/Markowitz JSC2006E01005

MathTrax

MathTrax, Johnson Space Center's nominee for the agency Software of the Year Award, was selected as a 2006 NASA Software of the Year runner-up.

The idea for MathTrax came from Robert Shelton, a JSC engineer who is blind. Over the years, Shelton developed computer tools to make the information he was using more accessible to him. MathTrax takes a few of those tools and makes them available to the public.

The program helps users of all backgrounds and ages better understand math through their other senses. For users who are vision- or hearing-impaired, this tool has enabled them to explore, discover and understand math in a whole new light. The text description and the "audio graph" allow them ways to "see" and "hear" mathematical equations, providing them ways of accessing information that might otherwise have been unavailable to them.

MathTrax is available for Windows and Macintosh platforms and can be downloaded for free from the project's Web site. Go to <http://prime.jsc.nasa.gov/mathtrax/index.html> for more information.

technology

JSC plans for shuttle retirement

The Vision for Space Exploration outlines a series of challenges that, over the next few decades, will push the agency and the country to the very limits of human ingenuity.

As the Shuttle Program focuses on completing the most complicated on-orbit assembly ever attempted and the station begins to realize a greatly expanded operational capability, the Exploration Systems Mission Directorate, through the Constellation Program, is bringing forth a new exploration architecture and the vehicles that will carry the United States back to the moon and on to Mars.

NASA's current human spaceflight activities are geared toward ensuring the success of this future architecture. The complexity of upcoming assembly missions will provide valuable technical lessons. Equally, they will provide unparalleled training for new engineers.

One of NASA management's greatest priorities is maintaining the capability to complete the assembly of the station while striving to transition the workforce seamlessly, effectively and deliberately to new programs and projects. This priority is shared between the Exploration Systems and the Space Operations Mission Directorates (Shuttle, Station and Constellation), as well as all NASA field centers and the agency as a whole.

As a result of this effort, the Johnson Space Center Transition Integration Panel (JTIP) was established as a forum for the planning, coordination and integration of transition-related activities among the Shuttle, Station and Constellation Programs and JSC.

The JTIP includes equal representation from Shuttle, Station and Constellation Programs, as well as from the Center Operations Directorate. Representatives from all affected JSC directorates and organizations are included to ensure a comprehensive planning effort.



NASA's Constellation Program celebrated its first anniversary in October. Constellation is directing efforts throughout the agency to develop a robust, affordable and sustainable transportation infrastructure to maintain America's leadership in space exploration.

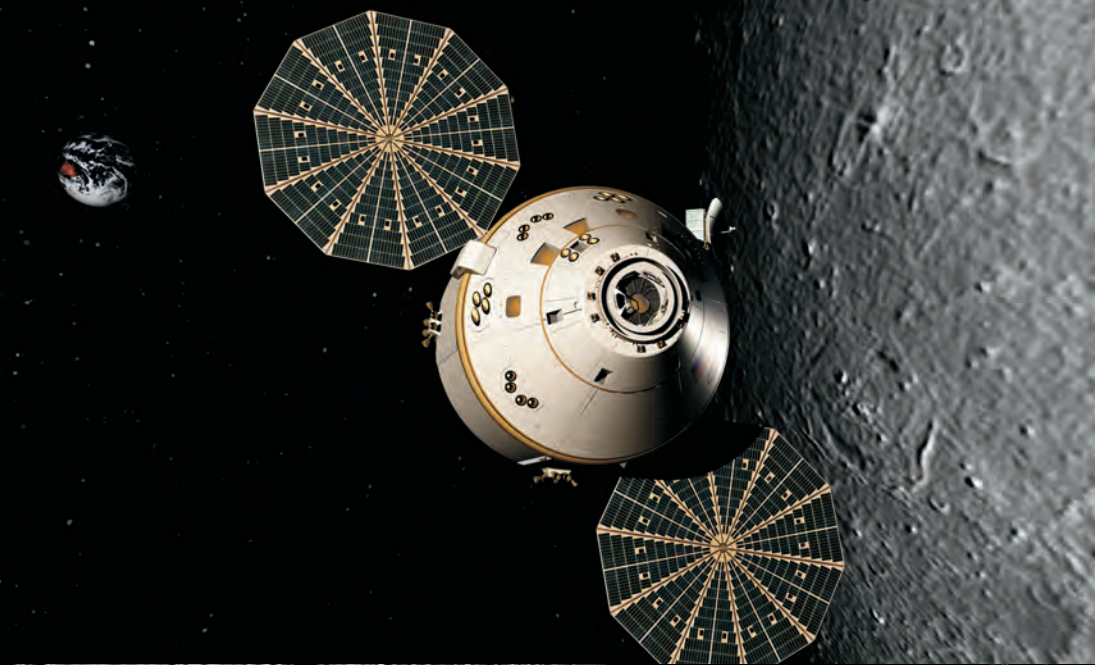
Veteran flight director Jeff Hanley is leading the agency-wide team that is meeting the challenges of developing spacecraft for a new generation of explorers.

Orion approaches the International Space Station.

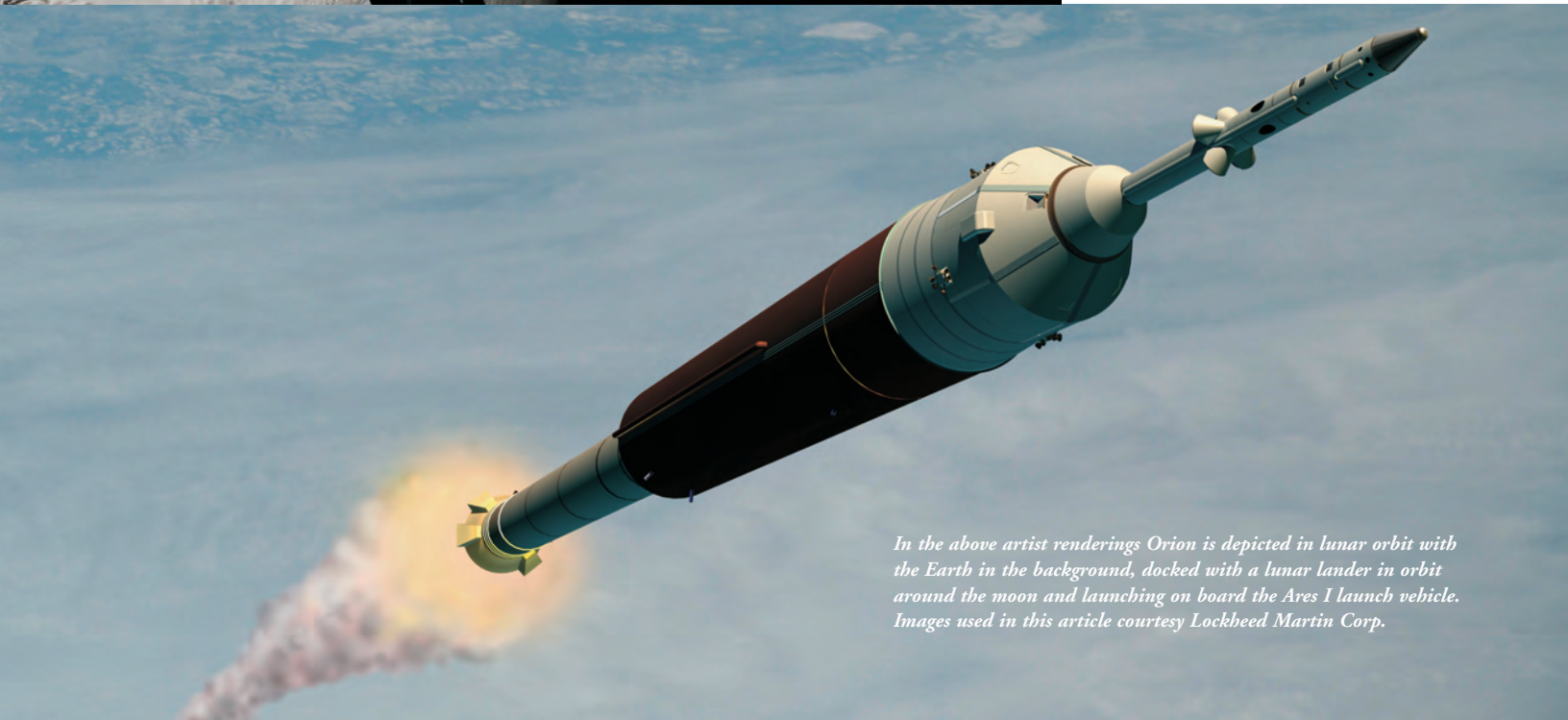
by Kelly Humphries

Major Constellation Program highlights for 2006

- Establishment of the basic requirements for the Constellation Program, and completion of the formal Systems Requirements Review for the program.
- Assignment of Constellation work assignments at NASA centers.
- Incorporation of the Crew Exploration Vehicle Project into the Constellation Program.
- Establishment of Exploration Launch Systems Project at Marshall Space Flight Center to lead development of launch vehicles.
- Establishment of the Ground Operations Project at Kennedy Space Center to lead development of launch and vehicle processing systems.
- Establishment of Mission Operations Project at JSC to lead design of mission activities and facilities.
- Establishment of Advanced Projects Office at JSC to lead development of lunar landing craft and lunar support systems.
- Establishment of the Extravehicular Activity Project at JSC to coordinate development of spacesuits and associated space and surface mobility systems.
- Completion of the preliminary design cycles, and selection of the propulsion systems to be used by Constellation Program launch vehicles.
- Selection of the names Ares I for the crew launch vehicle and Ares V for the cargo launch vehicle.



- Selection of the name Orion for the crew exploration vehicle, NASA's spacecraft for a new generation of explorers, and its project.
- Selection of Lockheed Martin as the prime contractor for design, development, test, evaluation and production for Orion.
- Completion of Phase I design cycles for Orion, and reconciliation of differences between preliminary NASA and Lockheed Martin designs.
- Completion of preliminary parachute testing for Orion and the Ares I and Ares V solid rocket boosters.
- Completion of initial evaluation of candidate heat shield materials for Orion.
- Completion of preliminary wind tunnel tests for analysis of aerodynamic performance of the Ares I launch vehicle, the Orion spacecraft and the Orion Launch Abort System.
- Establishment of a preliminary flight test plan and flight manifest for missions to the International Space Station and the moon. The test plan includes a first flight of an Ares I rocket configuration in April 2009.
- Announcement of NASA's decision to build a lunar outpost architecture capable of supporting rotating crews for up to six months soon after lunar flights begin in 2014.
- Completion of initial studies evaluating different approaches and options for the lunar landing system architecture.



In the above artist renderings Orion is depicted in lunar orbit with the Earth in the background, docked with a lunar lander in orbit around the moon and launching on board the Ares I launch vehicle. Images used in this article courtesy Lockheed Martin Corp.



NASA/Blair JSC2006E14041

Prairie chicken facility dedicated

Johnson Space Center and the Houston Zoo dedicated a new breeding facility for the endangered Attwater's prairie chicken in August. Located on about two acres of land near Building 423, the breeding area stemmed from a 2005 agreement between the zoo and NASA. As part of JSC's educational outreach program, the facility serves as an example of the importance of habitat conservation and provides a quiet, secure and safe environment for the birds.

New amenities at Gilruth Center

In January, the Gilruth Center celebrated its "grand reopening" and welcomed JSC employees to its new 7,000-square-foot state-of-the-art fitness facility, new group exercise rooms and renovated men's and women's locker rooms. Another addition was the Starport Gift Shop located in the lobby. The shop, which is accessible to offsite contractors and the general public, offers ready-made healthy lunches, NASA merchandise and fitness supplies such as towels and water bottles.



NASA SB1-30462

Center celebrates 25th anniversary of STS-1

On April 12, 1981, the space shuttle era was launched when *Columbia* roared into orbit from Kennedy Space Center. After circling Earth 36 times and testing the orbiter's systems, astronauts John Young and Robert Crippen landed the craft like an airplane at Edwards Air Force Base in California.

More than 100 shuttle missions later, JSC commemorated the 25th anniversary of STS-1 in April. Employees shared anecdotes and memories online, celebrated at Space Center Houston and settled into the Teague Auditorium to hear shuttle experts reminisce about that first mission.

Before the group got started, the audience was treated to a compilation video of memories from shuttle design team members, engineers, astronauts and flight controllers/directors, including Norm Chaffee, Chris Kraft, Wayne Hale and others. After the presentation, the storytelling began. In between the laughter and the "I remember whens," a consistent theme emerged: that the current era of spaceflight echoes the beginning of the shuttle program.

"STS-1 was a new beginning. Twenty-five years later, this is also a new beginning," said Milt Heflin, deputy director of Mission Operations. "The Vision for Space Exploration starts with using this workhorse of ours (to continue) the assembly of the International Space Station."



NASA/Blair JSC2006E14041

25th Anniversary of STS-1 in the Teague Auditorium in Building 2. From left to right: Michael Coats, Center Director (at lectern); Milt Heflin, Mission Operations Directorate; Robert Thompson, Former Shuttle Manager; Robert L. Crippen, Former Astronaut; Astronaut John W. Young; Aaron Cohen, Former Center Director; and Neil B. Hutchinson, Former Flight Director.

The Space Shuttle Columbia lifts off Pad 39A a few seconds past 7 a.m. (EST) on April 12, 1981.

Building 110 redesigned

Johnson Space Center's security office, located in Building 110, has been renovated to improve efficiency. Previously, employees and visitors were directed to separate sides of the building and clerks were only trained to perform certain tasks. Now, visitors and employees alike may approach any of the six badge stations for assistance. Each clerk has been trained to supply every available service.



Interior photo of Building 110, Customer Service area after recent renovation. Technical Support Specialist Linda Dreisbach takes a photo for an ID.

Services provided include issuance of badges for visitors, employees, spouses, retirees and foreign nationals. The new facility includes a handicap-accessible station, a conference room and new operational hours.

New home for space station flight controllers

International Space Station flight controllers now have some new digs. Actually, their new workspace is old -- it's one of JSC's original flight control rooms (FCRs), commissioned in 1965, now updated and customized for station operations. After nine months of remodeling work, the station team moved into "FCR-1" on Oct. 6.

One of the main challenges with the previous station control room, commonly referred to as the Blue FCR, was that several flight control disciplines had to share consoles, with some flight controllers getting "kicked out" depending on current station activities. For example, during robotic arm operations, the ROBO officer would take precedence over the trajectory officer who used the same workstation. The room suffered from limited desk space, console shortage and awkward equipment configuration.

By contrast, FCR-1 has plenty of consoles and more room in general for the safety and comfort of the team. The room's existing consoles, most recently used to monitor space station science, were updated for station vehicle operations.

Bookshelves were built into each row of workstations, printer stands were added, flat-screen monitors saved desk

space and the overall console height was lowered to improve visibility among team members. Making updates such as these, rather than completely replacing equipment, kept project costs low.

The room also has three giant screens on the front wall to display information, rather than the two in the old room, and high-definition cameras with video feeds converted for NASA Television broadcast. FCR-1 will make use of the original observation room behind it for tours and other guests.

FCR-1 was one of two rooms developed for Apollo spacecraft operations. It also supported Skylab and then 55 shuttle missions. Chief Flight Director Phil Engelauf said he was pleased that station flight control will now be based out of such a historical space.

"I like to hearken back to the Apollo operations and think that the ghosts from that time are still in the room," said Engelauf. "The symbolism is not lost on the new generation of flight controllers working there now."



View of Molly Meyer-Allyn at the Attitude Determination and Control Officer console during the first simulation in the new flight control room.



A small dog peeks out of a saddle bag belonging to the Texas Independence Trail Ride as the trail riders leave JSC.

NASA/Blair JSC2006E05050

Supporting our community

Whether it is about infusing space into pop culture classics, helping community schools get a taste of space, supporting local events or helping our neighbors in need, Johnson Space Center's employees take community seriously. After all, we are "Space City," so it is only fitting that we give back in a way that not only reflects the generous spirit of our team members, but also NASA's commitment its own neighborhood—the nation.

Do not pass go... Go directly to Johnson Space Center

Thanks in part to the manic voting of many JSC devotees, JSC landed a space in the ever-popular property trading game Monopoly. During a modern makeover of the game, Hasbro—the parent company of Monopoly—offered the public a chance to vote on the current iconic locations to be represented in its "Here and Now" edition. America voted, and JSC was granted a \$1.8 million-valued slot on the game board. The center triumphed over two other Houston-area locations, winning 79 percent of the vote ahead of Houston's museum district and the Kemah Boardwalk. Move on over, Tennessee Avenue—JSC is leading the way!



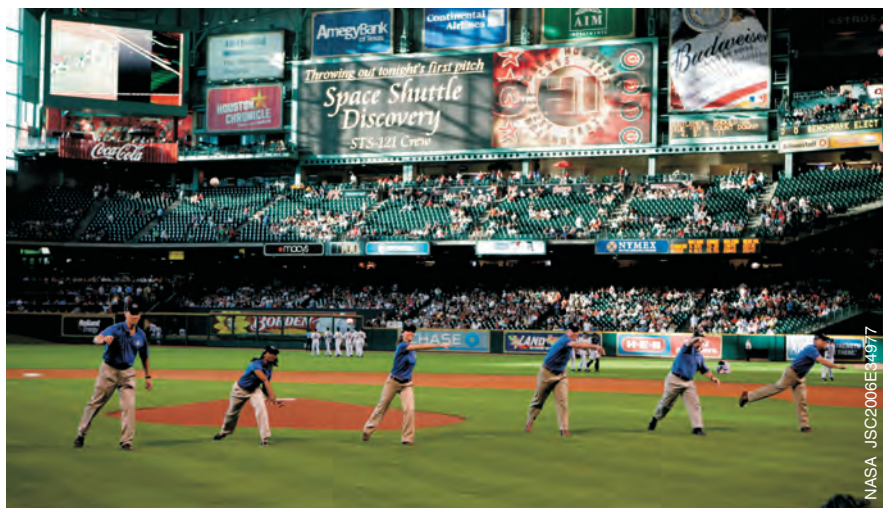
Space Center Houston President Richard Allen at an awards ceremony in New York after JSC was voted into a new version of Monopoly.

Freeze-dried books

Giving back is also what makes JSC shine. In June, a water pipe burst in the University of Houston-Clear Lake's Neumann Library, which houses half of JSC's reference book collection. Approximately 1,800 books were drenched by the water. Because of the quick



Workers move plastic milk cartons donated by a local grocery store in front of Chamber B, bldg 32 prior to insertion into the Vacuum Chamber. The cartons are filled with wet books from the University of Houston Clear Lake.



NASA was the guest of honor of the Houston Astros last August during a home game at Minute Maid Park. The crew of STS-121 threw out the ceremonial first pitch during the opening ceremonies against the Chicago Cubs.

thinking of folks at the center, a high-tech solution was devised for the flood damage: freeze-dry the books in a vacuum chamber. A few hours in Building 32's Chamber B would allow the water to vaporize off the books. What followed was a race against the clock to transport and save the soaked books. Within less than 48 hours after the pipe burst in the library, the books were in the vacuum chamber drying out. The materials ended up being saved, thanks to the huge team effort put forth and the rapid-fire decision-making.



NASA Explorer School West Ward Elementary Physical Education teacher Eric Miller floats on the C-9 as he tests the student-built Robotic Winch.

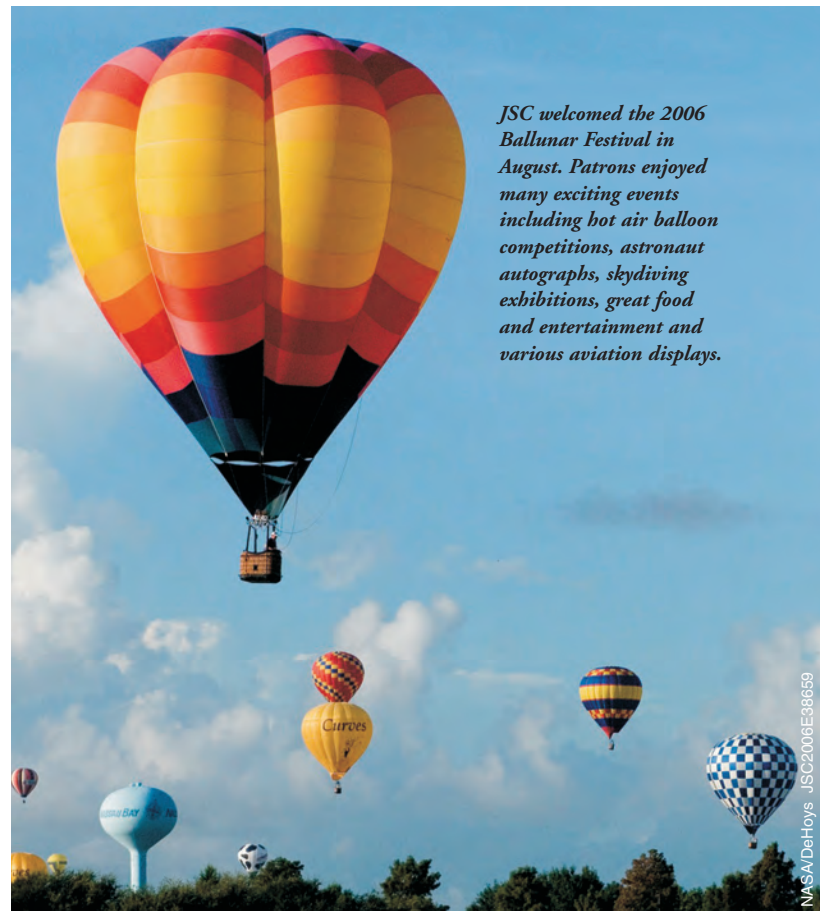
Reduced Gravity Flight Program

Fifth-grade students at West Ward Elementary in Killeen, Texas, recently crafted an experiment that was flown in a zero-gravity environment, all because of the NASA Explorer Schools Reduced Gravity Flight Program. In February, teams composed of two classroom teachers, a NASA education specialist and a NASA mentor were able to fly their school's experiment aboard the C-9 aircraft. The teams, along with C-9 staff members, conducted the students' microgravity experiment, collected data and videotaped the event.

Reaching out

JSC also did much to spread the word about upcoming exploration goals and center achievements through community outreach events. Last year alone, JSC sent stimulating and interactive exhibits to events such as the NBA All-Star Jam session, Rodeo Houston, Houston International Festival, Ballunar Fest and Wings Over Houston. Many of the events even included astronaut autograph signing sessions, which allowed the public to mingle with the country's best and brightest

space stars. In August, the Houston Astros paid tribute to our center with a day honoring the NASA family. And last but not least, our own JSC Picnic brought employees together for a day of fun in the sun at the new Schlitterbahn water park in Galveston, Texas.



JSC welcomed the 2006 Ballunar Festival in August. Patrons enjoyed many exciting events including hot air balloon competitions, astronaut autographs, skydiving exhibitions, great food and entertainment and various aviation displays.

Expedition 13

The Expedition 13 crew, Russian Commander Pavel Vinogradov and U.S. Flight Engineer Jeffrey Williams accompanied by Marcos Pontes, the first Brazilian astronaut to go into space, launched from the Baikonur Cosmodrome in Kazakhstan on March 29 to start their six-month journey in space. Pontes returned to Earth with the Expedition 12 crew, Commander Bill McArthur and Flight Engineer Valery Tokarev, on April 8.

Thomas Reiter, a European Space Agency astronaut from Germany, joined the Expedition 13 crew on *Discovery's* STS-121 mission. Reiter was the first non-Russian, non-U.S. long-duration crew member on station. His arrival brought the station crew back to three for the first time since May 2003, in the wake of the *Columbia* accident.

STS-121

The Space Shuttle *Discovery* made its way to the International Space Station after lifting off on July 4 at 2:37:55 p.m. EDT from NASA's Kennedy Space Center, Fla. This was the first space shuttle launched on Independence Day.

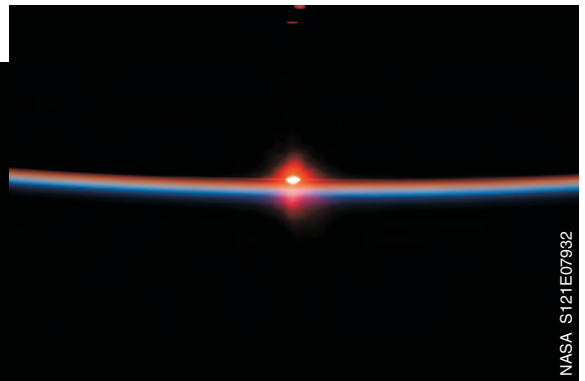
The 13-day mission of *Discovery*, STS-121, was the second in NASA's Return to Flight sequence. For 12 days, *Discovery's* crew members, Commander Steve Lindsey, Pilot Mark Kelly, and Mission Specialists Mike Fossum, Lisa Nowak, Stephanie Wilson, and Piers Sellers, succeeded in testing shuttle safety improvements,



This view of the International Space Station was taken shortly after the Space Shuttle Atlantis undocked from the orbital outpost. The unlinking completed six days, two hours and two minutes of joint operations with the station crew. Atlantis left the station with a new, second pair of 240-foot solar wings, attached to a new 17.5-ton section of truss with batteries, electronics and a giant rotating joint.

repairing a rail car on the International Space Station and producing never-before-seen, high-resolution images of the shuttle during and after its July 4 launch.

STS-121 was the most photographed shuttle mission ever, with more than 100 high-definition, digital, video and film cameras documenting the launch and climb to orbit. *Discovery* delivered more than 28,000 pounds of equipment and supplies to the station, as well as a third crew member, European Space Agency astronaut Thomas Reiter.



Space Shuttle Discovery's aft cargo bay, its vertical stabilizer and orbital maneuvering system pods are seen in this image photographed by an STS-121 crew member onboard the shuttle.

This image taken during STS-121 depicts the sunrise visible along the edge of a dark Earth limb.

NASA S121E07992

NASA S121E07904



Astronauts Steven G. MacLean representing the Canadian Space Agency, and Daniel C. Burbank, both STS-115 mission specialists, participated in the second of three spacewalks for the Space Shuttle Atlantis and International Space Station crew members as construction resumed on the orbital outpost. The two STS-115 mission specialists are translating along the side of one of the station's trusses.



Attired in their Russian Sokol launch and entry suits, prime crew members of Expedition 14 wave goodbye to the cameras at the launch pad on their way to the International Space Station. From bottom to top are cosmonaut Mikhail Tyurin, Expedition 14 Soyuz commander and flight engineer representing Russia's Federal Space Agency; astronaut Michael E. Lopez-Alegria, commander and NASA space station science officer; and spaceflight participant Anousheh Ansari.

STS-115

The Space Shuttle *Atlantis* and its six-member crew began their 12-day, 4.9-million-mile mission after lifting off from NASA's Kennedy Space Center, Fla., at 11:14:55 a.m. EDT, September 9. The fuel cut-off sensor system, which malfunctioned and delayed *Atlantis*' originally scheduled launch, performed normally.

Atlantis' crew, Commander Brent Jett, Pilot Chris Ferguson and Mission Specialists Dan Burbank, Heide Stefanyshyn-Piper, Joe Tanner and Steve MacLean, a Canadian Space Agency astronaut, delivered and installed the massive P3/P4 truss, an integral part of the station's backbone, and two sets of solar arrays that will eventually provide one quarter of the station's power.

Atlantis delivered the first major new component to the station since 2002 and laid the groundwork for upcoming station assembly missions. The flight was the first in a series of missions that will be among the most complex in space history.

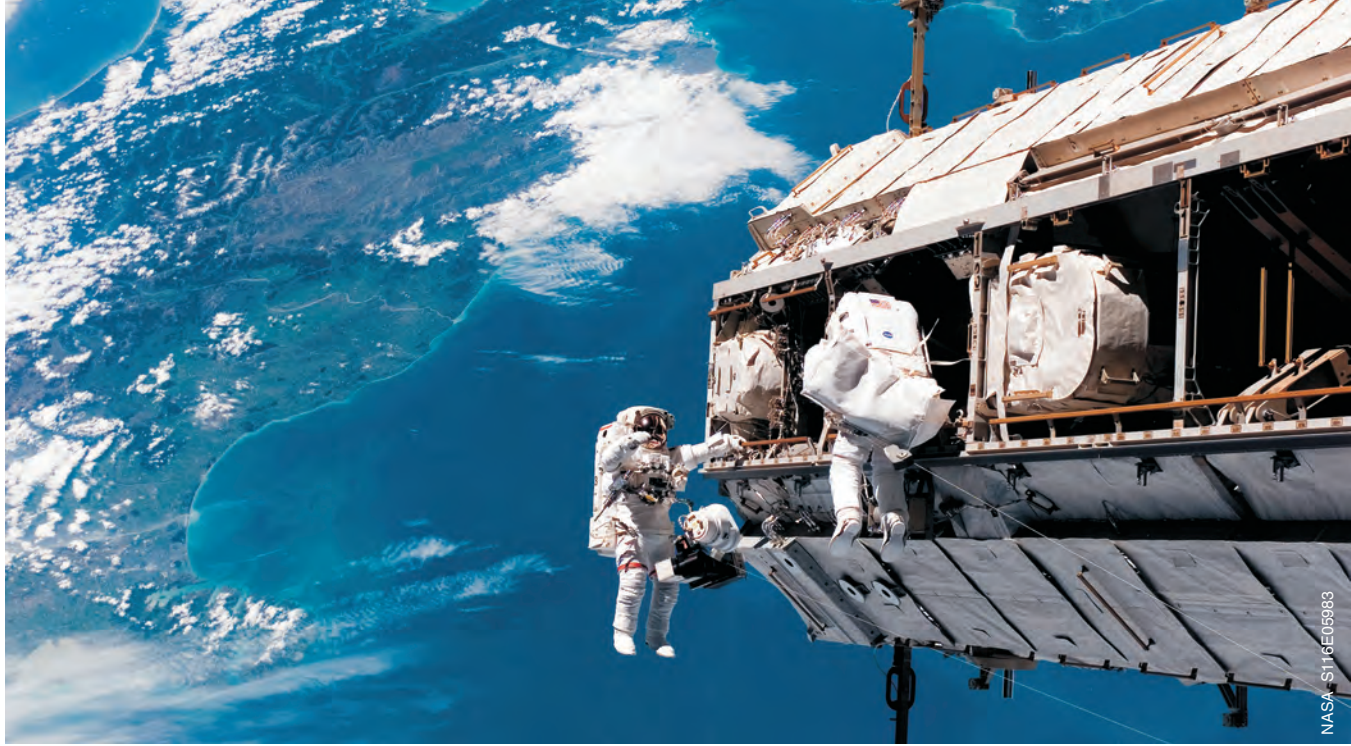
Expedition 14

Commander Michael Lopez-Alegria and Cosmonaut Mikhail Tyurin of the 14th International Space Station crew docked at the International Space Station at 1:21 a.m. EDT on September 20 to begin their six-month stay on the orbiting laboratory.

With Tyurin at the controls, their Soyuz TMA-9 spacecraft docked smoothly at the aft port of the Zvezda service module. With them was American Anousheh Ansari, who was flying under contract with the Russian Federal Space Agency. She was the first female spaceflight participant to visit the station.

The new crew members were greeted by the Expedition 13 crew, Commander Pavel Vinogradov and NASA Science Officer Jeff Williams, and by the third Expedition 14 crew member, European Space Agency astronaut Thomas Reiter of Germany. Reiter arrived at the station aboard *Discovery* on the STS-121 mission in July.

continued on next page



NASA-S116E0983

Backdropped by New Zealand and Cook Strait in the Pacific Ocean, astronaut Robert L. Curbeam Jr. (left) and European Space Agency astronaut Christer Fuglesang, both STS-116 mission specialists, participate in the mission's first of four sessions of extravehicular activity as construction continues on the International Space Station.



NASA STS116-S-102

Expedition 14 (continued)

An out-of-this-world golf shot was part of the mission following a 5-hour, 38-minute spacewalk. Lopez-Alegria and Tyurin performed the spacewalk from the Pirs docking compartment airlock on November 23 and finished up with a golf shot that merited a high-flying birdie rating.

The golf shot was sponsored by a Canadian golf company through a contract with the Russian Federal Space Agency. The ball left the station toward the right side instead of the rear, a substantial slice.

STS-116

In the first night launch in more than four years, *Discovery* and crew—Commander Mark Polansky, Pilot Bill Oefelein, and Mission Specialists Nicholas Patrick, Joan Higginbotham, Bob Curbeam, Sunita Williams and Christer Fuglesang—rocketed into a dark Florida sky on Dec. 9.

Throughout their eight-day stay at the International Space Station, the crew continued the on-orbit construction of the orbital outpost. The P5 spacer truss segment was added during the first of four spacewalks. The next two spacewalks were devoted to the rewiring of the station's power system, leaving it in a permanent setup. A fourth spacewalk was added to allow the crew to retract solar arrays that had folded improperly.

Discovery also delivered a new crew member and more than two tons of equipment and supplies to the station. Almost two tons of items no longer needed on the station will return to Earth with STS-116, currently scheduled to return on Dec. 22.

NASA Johnson Space Center Economic Impact in Texas Fiscal Year 2006

While NASA Johnson Space Center has earned a global reputation for achievements in space exploration, less evident are the economic benefits the institution brings locally and to the State of Texas. JSC's role is a vital part of the regional and state economies. Here are some highlights:

Program	Obligations (\$B)	Obligations %
Space Shuttle	2.1	43%
International Space Station	1.3	26%
Exploration	1.0	21%
Institutional Overhead	0.4	8%
Other	0.1	2%
Total	4.9	100%

- In Fiscal Year (FY) 2006, JSC obligated a total of \$4.9 billion or about 1/3 of the agency total.
- About \$4.35 billion of the total obligation (4.9 B) was for contracts and grants.
- 88 large businesses performed portions of contracts totaling slightly more than \$3 billion in Texas.
- \$173 million went to 261 small businesses working in Texas.
- JSC obligated almost \$41 million on grants, contracts and agreements with Texas universities and education institutions in FY06.
- JSC did over \$30 million in business with woman-owned businesses in Texas.
- Nearly \$28 million was spent on contracts performed in Texas by veteran-owned businesses.
- About \$4.8 million of JSC funding in FY06 was obligated on grants, contracts, and agreements with non-profit organizations.

Johnson Space Center Economic Impact of Civil Service Workforce in fiscal year 2006

Communities	Total Number of Employees	Estimated Income of Employees (Dollars in Millions)
Webster	92	8.0
League City	565	55.5
Seabrook/El Lago/Taylor Lake	283	29.6
Kemah/Bacliff	42	4.2
Nassau Bay	258	24.5
Clear Lake City	776	85.7
Friendswood	379	41.6
Dickinson	69	5.8
Alvin	45	4.2
Pearland	158	15.8
LaPorte/Shoreacres/Baytown	42	3.6
Pasadena/Deer Park	55	4.6
Other Houston Areas	306	27.2
Other Galveston County	59	5.4
Other Areas of Texas	132	11.4
Out of State*	210	14.2
TOTAL	3,471	341.4

NOTE: The number of civil servants is a headcount value as of November 30, 2006 and the salary shown reflects the adjusted basic pay within the Federal Personnel and Payroll System (FPPS) database for calendar year 2006. The adjusted basic pay is defined as an employee's basic pay plus the locality differential.

* The "Out of State" value includes the White Sands Test Facility.

Shown in the background photo is the Earth's limb and the shuttle bay area as seen through the aft flight deck window on STS-115 Space Shuttle Atlantis.

statistics



A CAREER OF SPACE FIRSTS

Eileen Collins

astronaut Eileen Collins announced her retirement from NASA in May. Collins was the first woman to command a space shuttle and the leader of *Discovery's* Return to Flight mission last year. She plans to pursue private interests and spend more time with family.

"Eileen Collins is a living, breathing example of the best that our nation has to offer," said NASA Administrator Michael Griffin. "She is, of course, a brave, superb pilot and a magnificent crew commander. Beyond those qualities, she is both very bright and possessed of a quiet determination to attain the very highest levels of accomplishment. I am proud to know her and will greatly miss her at NASA."

A veteran of four spaceflights, Collins' career at NASA has been punctuated by firsts. She was the first woman selected as a pilot astronaut, the first woman to serve as a shuttle pilot and the first woman to command a U.S. spacecraft.

"Eileen is a true pioneer in space and on Earth," said Mike Coats, director of Johnson Space Center. "Her service and dedication to her country, to NASA and to space exploration are an inspiration. She meets every challenge with confidence and an ever-present smile."

Her final spaceflight was as commander of 2005's STS-114 mission, the first shuttle flight since the *Columbia* accident in 2003. During the 14-day mission, Collins and her six-member crew tested new shuttle safety enhancements and resupplied the International Space Station.

Space Center Roundup

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