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Discovery, STS-116 complete 'powerful' mission

Discovery and the STS-116 crew were scheduled to land at the Kennedy Space Center on Thursday. The Space Shuttle Discovery and its seven-member crew lifted off Dec. 9 from KSC at 8:47 p.m. on one of the most complex missions to the International Space Station in history.

Shortly before launch, Discovery Commander Mark Polansky said he and his crew were excited to continue assembly of the station. Low clouds delayed the orbiters's launch on Dec. 7. During the 12-day mission, a new structural component was added to the station. Shuttle and station crews worked with ground teams to install the P5 truss.

This latest addition to the station's backbone weighs 4,000 pounds and extends the left side of the truss to allow future solar panels to rotate. The mission also included extensive work to reconfigure the station's electrical and cooling systems from temporary to permanent mode.

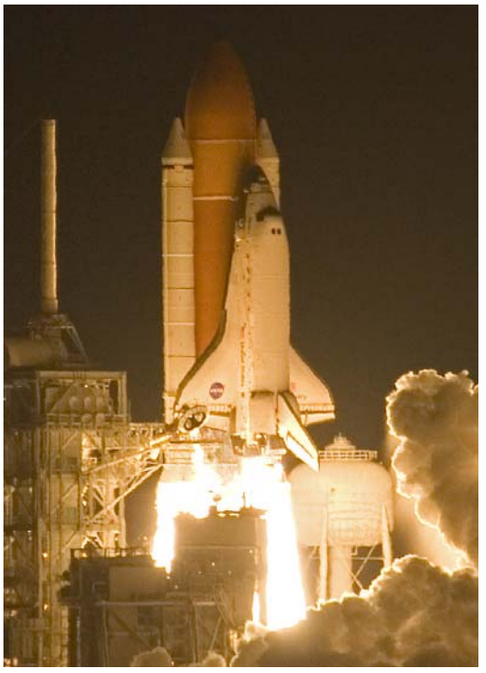
During the mission, ground control shut down and rerouted the station's power in stages so that the astronauts could reconfigure the power system and make the P4 solar arrays delivered during the last mission fully operational. This complex operation has never been done before.

Part of an existing solar panel was retracted to allow the P4 arrays to track the sun for a full 360 degrees and provide power to the rest of the station.

Discovery undocked from the space station on Dec. 19. The station's newest resident, astronaut Sunita Williams was also traveling aboard Discovery when she joined the Expedition 14 crew. Thomas Reiter, a European Space Agency astronaut who has been aboard the station since July, returned to Earth with the Discovery crew.

Williams will spend six months on the station. The STS-116 crew included Polansky, Pilot Bill Oefelein and Mission Specialists Bob Curbeam, Joan Higginbotham, Nicholas Patrick, Williams and Christer Fuglesang, a European Space Agency astronaut.

(See DISCOVERY, Page 3)



SPACE SHUTTLE Discovery launches on mission STS-116 on Dec. 9.

Kennedy ends illustrious 31-year NASA career

By Jeff Stuckey
Editor

Leading the Kennedy Space Center as director presented some of the most exciting moments Jim Kennedy experienced during his 31-year career at NASA. It has been an honor for him to participate with the leadership team that operates under a common set of core values.

"The truth of the matter is, this center is blessed with 15,000 great employees and several thousand great leaders from one level of the leadership chain to the next," said Kennedy. "Together, we operate toward a mission that is so exciting, and we are all focused on the successes of those missions assigned to the Kennedy Space Center. Leadership is a team effort of which I am a part."

He is retiring in January and will be succeeded by Bill Parsons, who currently serves as KSC's deputy director.

His dream of contributing to the space program began as a boy attending the Riverside Presbyterian Church in Cocoa Beach, when astronaut John Glenn also began going to the church as he prepared for the first historic orbital launch. Glenn signed Kennedy's Bible and made him feel important during conversations.

Kennedy's family lived at the Patrick Air Force Base in 1953 while building a home in nearby Cocoa Beach. His father worked at the Cape Canaveral Air Force Station and often shared the failures and successes of the space program.

"It was so exciting as a young

(See KENNEDY, Page 6)

IN THE firing room at the Launch Control Center, Kennedy Space Center Director Jim Kennedy (with microphone) congratulates the team for a successful second launch attempt of Space Shuttle Discovery on mission STS-116. Others in the room are (left to right) Deputy Director Bill Parsons, External Relations Director Lisa Malone, NASA Flow Director for Discovery Stephanie Stilson, Shuttle Launch Director Mike Leinbach, Associate Administrator for Space Operations William Gerstenmaier and NASA Administrator Mike Griffin.

Jim Kennedy
Center Director

The Kennedy Update

Greetings…one last time. As I sit at my desk and type this final Kennedy Update, the retirement countdown clock given to me by my prior intern, Neil Berger, reads T-14 days and counting. When the clock reaches T-zero on Jan. 3, I will turn the reins over to our friend Bill Parsons, who will lead this center on to an extremely bright future.

When I arrived at KSC over four years ago, I realized that this is indeed NASA's crown jewel. This is the place where space exploration begins. We have a heritage so rich it makes you swell with pride in our past accomplishments and those of our forefathers.

You, the 15,000 men and women badged to KSC and our many retirees, have accomplished the impossible and will continue to do so in the future. As U.S. Air Force Gen. Les Lyles said when he visited the center as a member of the President's Commission on Space Exploration, "I have been around the world many times, but never saw the gleam in people's eyes that I saw today at KSC."

I couldn't agree more. I want you to know that to me, the gleam in your eyes is a reflection of the passion in your hearts as you go about your work.

My pride in KSC hit an all-time high following the Feb. 1, 2003, tragic loss of Columbia and her brave crew of seven astronauts. Sean O'Keefe vowed that we would find the problem, fix the problem and fly again…and you did. From the fields of east Texas to the RLV Hangar at KSC, hundreds of our employees, both government and contractor, found and fixed the problem and on July 26, 2005, "we" safely returned to flight with Eileen Collins and her crew.

Often, out of tragedy comes triumph, and I know for a fact that the Vision for Space Exploration was born from the ashes of Columbia as the Columbia Accident Investigation Board challenged the nation to a bold new era of space exploration. The vision posed four major challenges and you have thus far succeeded at them all.

The first was returning the shuttle safely to flight. When STS-116 lands safely today or tomorrow, you will have accomplished four of 19 remaining shuttle flights. Congratulations! The second challenge involves completing the International Space Station assembly.

"I want you to know that to me, the gleam in your eyes is a reflection of the passion in your hearts as you go about your work."

As of STS-116, you have accomplished two assembly missions with 14 left to go. Bravo! The third is flying robotic missions. During my term as center director, our Launch Services team has flown 14 missions to Mercury, Pluto and points in-between. Outstanding!

Fourth and finally, the vision includes developing the next generation of launch/space vehicles. Under the leadership of Tip Talone, you have secured a bright future as we begin to transform the center to accommodate Ares, Orion and many more elements of Constellation.

Clearly the above accomplishments took all of your efforts, both direct and support roles, and I commend you all on a job well done!

Speaking of "support" roles, I will take liberty to mention the three women in my life who have given me the love and support to endure the challenges of the past 3½ years, specifically, my wife, Bernie, my mother, Bonnie (who will cry when she reads this) and, of course, my executive assistant, Beth Smith. Thanks, ladies.

Finally, as I bid you Godspeed and say thanks for the memories, I will remind you that your friendship, your hard work and your passion for what you do has left me "KSC…And Proud To Be."

Go get 'em . . .

2006 NASA employees of the year

The NASA employees of the year, from left, include Tracy Young, External Relations; Lisa Singleton, Safety and Mission Assurance; Joseph Roeder, Information Technology and Communications Services; Diane Bent, Center Operations; Mitch DeShong, Human Resources Office; Melody Jackson, Constellation Project Office; Patrick Smith, Office of the Chief Financial Officer; Charles Tatro, Launch Services Program; Lisa Huddleston, Shuttle Processing; John Branard, Office of the Chief Engineer; Janice Pirkle, Procurement Office; Penny Chambers, Office of the Chief Counsel; Glenn Butts, Engineering Development; and Vanessa Stroh, Payload Processing. Not pictured are Trent Smith, Applied Technology, and Ed Hefley, Cape Canaveral Spaceport Management Office.

Flight crew systems team packs shuttles for flight

By Elaine Marconi
Staff Writer

We all know what it's like to pack for a vacation, but how about packing for a trip to the International Space Station?

Now imagine packing the space shuttle with all the vital equipment and personal items the astronauts need for a successful mission. Troy Mann, lead technician for United Space Alliance's Flight Crew Systems, and his team have the daunting task of making sure the space shuttle crew members have everything from toothbrushes to spacesuits stowed in the orbiter by launch day.

Unlike a trip on Earth, there's no convenience store in space to pick up a few missing items.

"When people go on vacations, we all know we usually forget something," said Mann. "That has never happened stowing for the shuttle."

And Mann should know, since he's been packing the shuttle for more than seven years. The supplies and equipment are first transported to Kennedy Space Center by truck from the Johnson Space Center in Houston.

After arriving and being unloaded at Kennedy, the cargo is tagged and put into shipping containers until it has to be stowed for flight. Every item has a specific locker or space, and Mann's team follows a precise map for stowing the supplies in the mid-deck crew compartment on the shuttle.

"There is no room for error. Every square inch of space is used and planned for ahead of time," said Mann.

That includes food, clothing, mid-deck seats, flight tools, cameras, parachutes, safety equipment, sleep restraints and, most importantly, the astronaut spacesuits — known as extravehicular mobility units. Each spacesuit weighs more than 200 pounds and is received in four pieces.

It takes three technicians using a ground handling device and pulley system with a safety harness to maneuver the suits into the shuttle. More than 6,500 pounds of equipment is loaded on the shuttle for every mission. That's equal to two tractor trailers, and fills more than 40 lockers and spaces with bags and containers in the mid-deck stowage areas.

When the astronauts are practicing their flight plans during the terminal countdown demonstration test at Kennedy a few weeks before launch, Mann has to make sure the seats, communication equipment and cables are onboard for the mock launch countdown. After conclusion of the test, this all has to be destowed, repacked and readied for the actual launch.

TROY MANN, lead technician for United Space Alliance's Flight Crew Systems, checks cargo at the Space Station Processing Facility.

In the final weeks before liftoff, Mann and his crew check and wrap thousands of pieces of equipment. On any given day or night before a launch, rows upon rows of shelves in the Space Station Processing Facility Lab at Kennedy are filled with thousands of individually wrapped and tagged bundles.

In addition, the group is tasked with installing the three external tank cameras, as well as other cameras for on-orbit use. The most critical time is 11 hours before launch, when the last few items such as fresh food, personal items and science experiments must be stowed on the shuttle.

"The best part of my job," said Mann, "is after launch and during on-orbit operations, where we get to see the equipment that we've stowed on the vehicle being used by the crew."

On landing day, Mann's team is at the Shuttle Landing Facility to unpack time-critical items like the science experiments that need to be retrieved quickly from the orbiter. At the Orbiter Processing Facility, where the shuttle is taken after landing, Mann's group destows all the items, transports them back to the Space Station Processing Facility, then bags, tags and loads them all on trucks for a return trip to Houston.

DISCOVERY . . . *(Continued from Page 1)*

THE CREW members of mission STS-116 gather around the table for breakfast before a second launch attempt aboard Space Shuttle Discovery. From left are Mission Specialist Nicholas Patrick, Pilot William Oefelein, Mission Specialist Joan Higginbotham, Commander Mark Polansky, and Mission Specialists Sunita Williams, Robert Curbeam and Christer Fuglesang, who represents the European Space Agency.

THE STS-116 crew members exit the Operations and Checkout Building. Commander Mark Polansky (front at right) leads the way. Behind him are Pilot William Oefelein and Mission Specialist Christer Fuglesang. On the left side, front to back, are Mission Specialists Joan Higginbotham, Nicholas Patrick, Sunita Williams and Robert Curbeam.

Employees, retirees enjoy 2006 Holiday C

Whether you had a chance to enjoy the delicious food and great fellowship at the Headquarters Building or at the Operations and Support Building II, the Holiday Celebration held Dec. 14 was a festive event for everyone. Second- and third-shift employees also shared in the holiday spirit later that night.

NASA EMPLOYEE Beth Smith greets a retiree at the Holiday Celebration held in the Headquarters Building.

THE HEADQUARTERS Building lobby was the site of one of the three parties held

CENTER DIRECTOR Jim Kennedy (fourth fr
Bernadette, greet employees and retirees at
Support Building II during the Holiday Celeb

ASIDE FROM delicious food at the Operations and Support Building II, attendees at this year's Holiday Celebration were given an opportunity to take a photograph with the space man from the Visitor Complex.

elebration at the Kennedy Space Center

Dec. 14 as part of the Holiday Celebration.

CENTER DIRECTOR Jim Kennedy (left) shakes the hand of a NASA retiree during the Holiday Celebration held in the Headquarters Building. The event also took place at the Operations and Support Building II later that day.

om right) and his wife,
the Operations and
ration.

NASA RETIREES, from left, Charles Williams, Claude Stockton and Harold Waag enjoyed returning to the center for the Holiday Celebration. The three men worked in the engineering office.

SOME OF the organizing committee for this year's Holiday Celebration included, from left, Rachel McLean, Lisa Arnold, Maxine Johnson, Beth Smith, Peggy Parrish and Melinda Bouchez.

Kennedy spent most of career working on space shuttle

KENNEDY . . .*(Continued from Page 1)*

person in Cocoa Beach to see the city grow from literally nothing to be a thriving metropolis," Kennedy said. "There was a hustle and bustle about it, because you knew big things were going to happen with this space business, but nobody was quite sure how."

After graduating from the third class at Cocoa Beach High School, Kennedy chose to go to Auburn University as a co-op student with the Kennedy Space Center. He graduated with a degree in mechanical engineering, then later obtained a master's degree in business administration from Georgia Southern University while in the U.S. Air Force.

After his military service, Kennedy joined the Marshall Space Flight Center in Alabama as an engineer assigned to the Project Control Office of the Space Shuttle Projects Office. While at Marshall, he served as project manager for such projects as the Delta Clipper-Experimental Advanced and solid rocket boosters.

Those successes led to Kennedy being named deputy director of Marshall's Science and Engineering directorate in 1998, then director of the center's Engineering directorate in July 1999. In 2001, he became deputy director at Marshall.

"My wife asked me when I was about 32 years old, 'What is your vision for where you might end up?' " Kennedy said. "I said, 'Maybe I'd like to be the deputy center director.' I remember it like it was yesterday."

Even sweeter than being named Marshall's deputy director was being asked to come home to Cocoa Beach to first become the deputy director at KSC for Roy Bridges, then moving into the center director's office.

"It is a privilege of a lifetime and one that I shall never forget," Kennedy said. "The people at the Kennedy Space Center have become an integral part of my life and I hope to have them as my friends for life."

UNDER A worker's watchful eyes in the Orbiter Processing Facility, Center Director Jim Kennedy (right) takes a turn on a screw on Endeavour. Kennedy took an opportunity to learn first-hand what workers were doing to enable NASA's return to flight.

AFTER HIS presentation, students at Howard A. Doolin Middle School in Miami gather around Center Director Jim Kennedy as he signs a memento for a student. Kennedy visited the school to share America's new Vision for Space Exploration with the next generation of explorers.

AT AN Astronaut Hall of Fame Induction ceremony in the Kennedy Space Center Visitor Complex's Apollo/Saturn V Center, guests and audience members recite the Pledge of Allegiance. The inductees, from left, are Bruce McCandless, Joe Allen and Gordon Fullerton. Next to them are Jim Kennedy, director of Kennedy Space Center, and his wife, Bernadette.

Remembering Our Heritage

40 years ago: Flight Crew Training Building was where the 'simulated' action was

By Kay Grinter
Reference Librarian

Early concepts of the Operations and Checkout Building at Kennedy Space Center provided space for astronaut training equipment. A decision was made in early 1964, however, to house the simulators for specific Apollo mission tasks in a separate building across the street from the crew quarters, behind the current location of the Space Station Processing Facility.

This Flight Crew Training Building was ready for occupancy by January 1966.

Two mission simulators - one duplicating the Apollo command module and the other, the Lunar Excursion Module - were housed in the building's high bay.

NASA's Ron Woods is the government-furnished equipment representative for the Johnson Space Center at Kennedy Space Center today, but during the Apollo Program, he was a suit technician for the International Latex Corporation.

"I've never been fortunate enough to fly in space," Woods lamented, "but I've spent a lot of time on the lunar surface."

The lunar surface to which he is referring was the Lunar Surface Training Area, a large and sandy tract created outside, immediately south of the training building.

Man-made geological formations were strategically placed in the training area to provide the astronauts with realistic experiences similar to those they were expected to encounter on the moon.

Geologists from the U.S. Geological Survey aided in the selection and placement of the rocks. They were gleaned from around the country and included rocks from California representative of those expected in lunar upland areas; volcanic cinders and boulders from around Flagstaff, Ariz.; granite and basalt rocks from quarries in South Carolina and Georgia; and special breccia-type rocks from an area near Austin, Texas.

A 1.1-mile course, dubbed the "rover racetrack," was added for Lunar Rover Vehicle driving practice prior to the Apollo 15 mission in 1971. The route ran north to NASA Parkway; then east, parallel to the Parkway, to a simulated geology station; and back south to the Lunar Surface Training Area.

APOLLO 16 backup astronauts Edgar Mitchell and Fred Haise (above) maneuver a lunar rover training vehicle in a field behind the Operations and Checkout Building.

"During full dress rehearsals, we would run after the lunar rovers as the astronauts were practicing," Woods recalled. "We wanted to check the pressure in the spacesuits at every opportunity, to ensure the astronauts were safe."

At the end of the Apollo Program, visitors were allowed to pass through the upper level of the building to view the retired Apollo flight simulators.

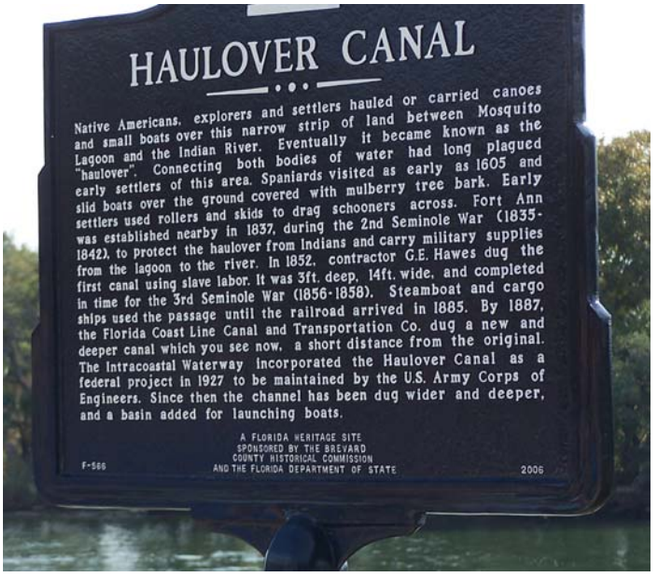
In 1973, NASA used the lower levels of the building in the development of the Launch Processing System - the command and control system needed to launch the next man-rated vehicle, the space shuttle.

Haulover Canal receives state historical marker

A state historical marker identifying the original Haulover Canal as a Florida Heritage Site was dedicated at the Haulover Canal manatee viewing area in Canaveral National Seashore on Dec. 6. This narrow strip of land between Mosquito Lagoon and the Indian River was used by Native Americans, Spanish explorers and early settlers as they carried canoes and small boats from one body of water to the other.

Fort Ann was established nearby during the Second Seminole War to protect the military supplies being carried from the lagoon to the river. The first canal, three feet deep and 14 feet wide, was dug at the site in 1852. Steamboat and cargo ships used the passage until the railroad arrived in 1885.

The Intracoastal Waterway incorporated the Haulover Canal as a federal project in 1927 to be maintained by the U.S. Army Corps of Engineers.



Federally Employed Women load up Salvation Army stockings

The Space Coast chapter of the Federally Employed Women would like to thank all the spaceport employees who donated to the annual Stuff a Stocking Project, part of the Salvation Army Christmas program. The gifts were given to young girls at the Hacienda Girls Ranch.

In many cases, these are the only gifts these children will receive during the holiday season. Popular donated items included baby rattles, stuffed toys, coloring books, wallets, nail polish and crossword puzzles.

AT LEFT, Federally Employed Women members Teresa Parham (left) and Ana Contreras load up holiday stockings for delivery to the Salvation Army. At right, Sandy Eliason (left) and Sandra Getter load stockings.

Astronaut Autograph Club includes John Glenn, Eileen Collins

The Astronaut Scholarship Foundation is offering membership in the Astronaut Autograph Club, which includes a monthly autographed photo and personalized letter from some of America's most famous astronauts.

The non-profit foundation is offering 350 memberships to the club as a way of raising money for its scholarship program. Now in its fourth year, the club features such legendary astronauts as Mercury and space shuttle astronaut John Glenn, first woman commander Eileen Collins, spacewalkers Tom Jones and Kathryn Thornton, and eight other American heroes.

Astronauts will share their heroic stories of traveling to space in a personalized letter that will accompany the hand-signed photo each month of 2007.

Club members will also receive a handsome photo box to store and display autographs, as well as two complimentary tickets to the Kennedy Space Center Visitor Complex, an $80 value. Subscriptions are available for a recurring charge of $34.95 per month or a one-time charge of $350. Orders can be placed online at **http://www.astronautscholarship.org/2007_aac.html** or by calling 321-269-6119.

IN THIS October 1998 photograph, STS-95 Payload Specialist John Glenn, also a former senator from Ohio, waves at family and well-wishers while at Launch Pad 39B. Glenn and other legendary NASA astronauts offer an autographed photograph, along with a personalized letter, as part of the Astronaut Autograph Club.

NASA Blue Marble honors environmental and energy leaders

The NASA Environment and Energy Awards Program recognizes civil service and contractor personnel who demonstrate environmental leadership while carrying out the agency's primary mission. The program's goal is to recognize employees who advance NASA's environmental and energy management goals.

Contractors must be part of a NASA group to be eligible. The award covers accomplishments for fiscal year 2006. Selection criteria which should be addressed in the nominations are the following: impact to mission; scope of impact; scalability and extensibility; ingenuity, creativity and leadership; and teamwork and collaboration.

The nomination form and instructions are available at **http://nets.grc.nasa.gov/bluemarble.htm**. Submit complete nominations to Maggie Forbes, TA-C3 (867-3305).

John F. Kennedy Space Center

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