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Spaceport News

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The Kennedy Update

Jim Kennedy
Center Director

Post STS-114 launch and pre-landing greetings, everyone. I will be honest, a couple of hours after launch and for the next 24 hours when I learned about the foam issue, like everyone, I felt some disappointment.

But as I heard quoted by John Shannon, manager of flight operations and integration in the Shuttle Program Office, "The Shuttle Program has gone from disappointment to determination." Words so beautifully chosen and so very true, and I am confident that our collective determination will enable us to fix this ET foam issue and fly again as soon as possible.

As for the STS-114 mission regarding Discovery and its crew, as our Administrator Mike Griffin said, "They have all performed better than perfect."

STS-114 has achieved all of its objectives and goals. We've inspected Discovery many times and the orbiter systems have performed in an excellent fashion. The mission has gone so well, in fact, the crew will spend an extra day in space and now land early Monday morning.

Focusing back on launch day for a moment, I wanted to tell everyone here how proud I am of the spectacular job the launch team did on July 26. The launch was beautiful and the tanking and countdown leading up to it were among the cleanest in Space Shuttle Program history.

The team said it was going to launch at 10:39 a.m. and that is exactly when it happened. America's First Lady, Laura Bush, and our Governor, Jeb Bush, were on hand and had nothing but praise for NASA and our team.

In the end, we have plenty to be proud of and it's now time to concentrate on landing. We have seven astronauts that need us at our very best this weekend to not only bring Discovery back home, but bring the astronauts back to their loving families.

Fortunately, we have the best space team in the world and I know you will perform like the champions you are and have demonstrated for decades.

"Your efforts are now legendary and will now forever be part of NASA legacy and lore. You should be proud of yourselves."

The landing will be an exciting moment, but not the only one next week. Two days later on Wednesday, our Launch Services Program team will launch the Mars Reconnaissance Orbiter. Coming on the heels of the amazing success of Spirit and Opportunity, this launch will also grab worldwide attention and it will continue our journey of exploration to the red planet.

Finally, I know people, whether contractor or government employees, have worked tremendously hard and logged some extremely long hours this past month. Nobody, whether financially or with time off, could ever really repay you for the great things you did during July or the past two and a half years to get Discovery off the ground.

But your efforts are now legendary and will now forever be part of NASA legacy and lore. You should be proud of yourselves. I am proud of you, and I know Mike Griffin, Bill Readdy and Bill Parsons are too!

Have a great week, everyone, and Godspeed STS-114 and DISCOVERY!

July Employees of the Month

THE NASA employees of the month for July are (standing in the back row, from left): Tim Adams, Independent Technical Authority and Systems Management; Karen Voorwinden, Procurement Office; Michael Fuchs, Spaceport Engineering and Technology. In the front row, from left, are: Florence Smith, Safety and Mission Assurance; Joy Pickett, Information Technology and Communications Services; Anne Jamison, Human Resources Office; and Diane Stees, Shuttle Processing.

Space Shuttle launch sets record for webcast streams

NASA's Space Shuttle Return to Flight STS-114 launch was one of the biggest events in Internet history. Internet users watched approximately 433,000 simultaneous webcast streams of NASA TV during the launch.

The webcast nearly quadrupled the Agency record set barely three weeks ago during Deep Impact's encounter with Comet Tempel 1. Preliminary data shows Yahoo! and Akamai Technologies, which are streaming NASA TV during the STS-114 mission, peaked at nearly 433,000 around launch time. In comparison, NASA sent out 118,000 webcast streams for the Deep Impact mission on July 4 and just under 50,000 for the Mars Exploration Rover landings in January 2004.

Yahoo! sent out about 335,000 Windows Media streams, with Akamai sending the remainder in RealMedia format.

Under separate Space Act Agreements, Yahoo! and Akamai are making NASA's Web content available to Internet users for this mission and STS-121, NASA's second Return to Flight mission.

NASA's agreement with Yahoo! is one of the Agency's first online media partnerships. Under the terms of the agreement, Yahoo! is providing a co-branded Windows Media Player streaming the mission's official online video on the Web sites of both NASA and Yahoo!

Akamai's agreement with NASA builds on its existing role as the content-delivery provider for the Agency's Web portal.

The world applauds NASA's historic Return to Flight

NASA's Space Shuttle Return to Flight mission is under way after Discovery lifted off July 26 from Kennedy Space Center at 10:39 a.m. into a warm Florida sky.

"We know the folks on planet Earth are just feeling great right now," said Discovery Commander Eileen Collins from orbit shortly after launch.

During their 12-day mission to the International Space Station, Collins and her six fellow astronauts have been testing new techniques and equipment designed to make Shuttles safer. They are also delivering supplies and making repairs to the Space Station after Discovery docked on July 28.

NASA Administrator Michael Griffin praised employees at Kennedy Space Center and other centers during a post-launch press conference in the KSC TV Auditorium.

"I want you to think about what it takes to get millions of different parts from thousands of vendors across the country to work together to produce what you saw here today, and to realize how chancy it is, how difficult it is, and what a primitive state of technology it still is," Griffin said. "This team managed to do it, and I think a large debt of appreciation is due to them. They have worked as hard as any team in NASA history."

After launch, NASA engineers evaluated the loss of a piece of insulation foam from the Space Shuttle's external fuel tank during launch. Based on initial assessments, the foam was seen by high-resolution camera equipment added to the Shuttle system after the loss of Columbia in 2003.

There was no indication the piece of foam sighted caused any damage to Discovery.

"As with any unexpected occurrence, we will closely and thoroughly evaluate this event and make any needed modifications to the Shuttle before we launch again," Griffin said. "This is a test flight. Among the things we are testing are the integrity of the foam insulation and the performance of new camera equipment installed to detect problems. The cameras worked well. The foam did not."

Discovery's first launch attempt July 13 was postponed

(See DISCOVERY, Page 4)

THE RETURN to Flight STS-114 crew members exit the Operations and Checkout Building, heading for the bus that will transport them to Launch Pad 39B. On the left, front to back, are Pilot James Kelly and Mission Specialists Wendy Lawrence, Charles Camarda and Andrew Thomas. On the right, front to back, are Mission Commander Eileen Collins and Mission Specialists Soichi Noguchi and Stephen Robinson.

FRAMED BY Florida greenery, Space Shuttle Discovery lifts off Launch Pad 39B at 10:39 a.m. July 26.

IN THE stands at the Banana Creek viewing site, First Lady Laura Bush and other guests follow the path of Space Shuttle Discovery as it successfully launches. At her right is Florida Gov. Jeb Bush. KSC Deputy Director Woodrow Whitlow Jr. is in front of the governor.

Return to Flight mission underway; next m

DISCOVERY . . .

(Continued from Page 3)

because of problems related to a liquid hydrogen low-level fuel sensor inside the external fuel tank. Hundreds of engineers across the country worked to analyze and understand the issue.

The sensor system was repeatedly tested during the July 26 launch countdown, and performed without a problem.

The STS-114 Return to Flight mission is the first step in realizing America's Vision for Space Exploration, which calls for a stepping-stone strategy of human and robotic missions to achieve new exploration goals.

For the latest information about the STS-114 mission on the Web, visit: **http://www.nasa.gov/returntoflight**.

NASA began the countdown for the second Return to Flight launch attempt of Space Shuttle Discovery at noon July 23, which was 70 hours before the targeted liftoff.

The KSC launch team conducted the countdown from Firing Room 3 of the Launch Control Center. The countdown included nearly 28 hours of built-in hold time.

After completing leak checks, the STS-114 crew entered the International Space Station at 8:50 a.m. on July 28. The seven astronauts ended their two-day chase of the Station when Space Shuttle Discovery docked with the orbital outpost at 7:18 a.m. that morning.

STS-114 is the first Shuttle mission to visit the Station since STS-113 left in December 2002.

The two crews conducted a Station safety briefing and began joint operations after they greeted each other.

One of the first tasks involved preparing for possible additional Shuttle heat shield inspections with cameras and a special boom on the orbiter's robot arm. STS-114 and Expedition 11 crew members used the Station's arm to attach the sensor boom to the Shuttle arm.

Before docking, STS-114 Commander Eileen Collins and Pilot Jim Kelly guided Discovery through a back-flip, enabling the Station crew to photograph Discovery's heat shield.

Unprecedented imagery of the Shuttle from a variety of sources provided NASA with valuable data for the safety of this flight and future flights.

This mission is the 114th Shuttle flight and 17th U.S. flight to the Station. Discovery and its crew is expected to safely land at KSC at approximately 4:47 a.m. Monday.

IN THE Launch Control Center, NASA Administrator Mike Director Mike Leinbach and Center Director Jim Kennedy the historic launch of Space Shuttle Discovery on Return

Flight Day 1 message from STS-114 Commander Eileen Collins

STS-114 Commander Eileen Collins and Center Director Jim Kennedy.

"On the evening of our first day in space aboard the Space Shuttle Discovery, the STS-114 crew would like to send our thanks to the teams who've worked so hard over the past two and a half years to return the fleet to orbit. Our thanks go out to all the managers, the engineers, the technicians and everyone. Give yourselves a pat on the back. This is work well done.

"As our crew looks back at our beautiful planet and then outwards toward the unknown of space, we feel the importance, today more than any time, of space exploration to all those who are living on Earth. Our flight is the next flight of many in the human exploration of the universe."

"And finally," she concluded, "we reflect on the last Shuttle mission, the great ship Columbia and her crew — Rick, Willie, Mike, K.C., Dave, Laurel and Ilan. We miss them, and we are continuing their mission. God bless them tonight, and God bless their families. Good night."

LOOKING LIKE discarded piles of cotton, billows of smoke surround Launch Pad 39B as Space Shuttle Discovery roars toward space July 26 at 10:39 a.m.

FLORIDA GOV. Jeb B by Jim Hattaway (left) Woodrow Whitlow Jr.

ext mission waits on External Tank study

SA Administrator Mike Griffin, First Lady Laura Bush, Shuttle Launch Director Jim Kennedy pose for a photograph. The First Lady witnessed Discovery on Return to Flight mission STS-114.

FLORIDA GOV. Jeb Bush (right) and his wife, Columba, are welcomed by Jim Hattaway (left), associate director at Kennedy Space Center, and Woodrow Whitlow Jr., KSC's deputy director.

THE EYES of the world are on Space Shuttle Discovery as it lifts off from Launch Pad 39B.

KENNEDY SPACE Center employees (above) stand in the shadow of the Vehicle Assembly Building to watch the Space Shuttle Discovery liftoff at 10:39 a.m. July 26. This photograph was taken by United Space Alliance's Larry Tanner, a Thermal Protection System technician.

THE STS-114 crew gathers for the traditional cake before suiting up for launch. Seated from left are Mission Specialist Wendy Lawrence, Pilot Jim Kelly, Mission Specialist Soichi Noguchi, Mission Commander Eileen Collins and Mission Specialists Andy Thomas, Steve Robinson and Charles Camarda.

For the latest STS-114 information, visit: http://www.nasa.gov/returntoflight

Leinbach creates family atmosphere for launch team

Space Shuttle Launch Director Mike Leinbach has many reasons to love his job, but it's the family atmosphere at Kennedy Space Center he enjoys most.

"It's the 16,000 people who pull together every day to make sure what we do is safe and the best that we can do for the nation," he said.

He traces that feeling back to May 5, 1961, when his family was on a trip to Gettysburg National Park. Leinbach's dad pulled off to the side of the road and said, "OK, kids, we're about to hear history made here."

That day, Alan Shepard was the first American to fly into space.

"We pulled the Mercury off to the side of the road, dad turned on the radio and we all listened to that 15-minute mission together on the side of the road somewhere in Pennsylvania," Leinbach said.

"We hadn't even made it to the park yet. And I think it was from that point on that I just got hooked on space and space travel."

In his role as the launch director, Leinbach spends launch day with his team in the control room, where he is responsible for giving the final "go/no-go" for liftoff of the Space Shuttle.

Leading up to launch day, Leinbach is the chief of operations for all of NASA at KSC, making sure the orbiters, ground-support system, Solid Rocket Boosters and External Tank are prepared properly and safely to meet their major milestones for the next launch date.

"I also serve as a safety conscience for the work force," he said. "I get out, walk around and talk to folks to make sure we're not overworking them. My role for Return to Flight was to make sure that when we got to launch day, that vehicle was the best it could possibly be."

One of Leinbach's inspirational figures is former President Jimmy Carter, who he met three years ago during a tour of the Center.

"I'd been admiring President Carter since he took office, because he's such a natural person and he came from such humble upbringings. He is a true American with the highest degree of integrity and honesty. I never thought I'd even get the chance to meet him."

The launch director also has advice for students who would like to work at NASA. "The most visible part of NASA is the astronauts and the Expendable Launch Vehicles," Leinbach said. "There's a lot in NASA that most people don't see. NASA is an organization of 23,000 people nationwide who really look forward to the future, look to the past and look at the present to try to improve life on Earth. And so there are many disciplines within NASA that most people don't see."

Highly important to mission success are accountants, engineers, technicians and scientists. "(Astronauts) may be the most visible and, to the outside, the most fun-looking jobs, but there are a lot of jobs within NASA which are really, really rewarding."

AT THE Shuttle Landing Facility (above), STS-114 Pilot James Kelly (left) is greeted by Shuttle Launch Director Mike Leinbach.

Space Shuttle launch director Mike Leinbach (left) supports a tanking test from the Launch Control Center.

Stees, liquid hydrogen loading team proud of milestone

By Linda Herridge
Staff Writer

Diane Stees, a NASA External Tank cryogenics systems senior loading specialist in the Shuttle Processing Fluids Systems Division, humorously says her group's motto is, "We live to load."

Her primary job since joining NASA in 1986 is overseeing the hardware and software related to the External Tank (ET) liquid hydrogen system, and more recently, the ET liquid oxygen system.

She is the NASA application software team lead responsible for liquid hydrogen and liquid oxygen software changes for ET loading during tanking tests and Space Shuttle launches. The NASA and United Space Alliance cryogenics team recently marked the 200th ET liquid hydrogen loading.

Stees earned her directorate's Employee of the Month award in July for helping to evaluate a pre-pressurization cycle count anomaly during the STS-114 tanking tests. "I was surprised and honored to be recognized in this manner," said Stees. "There are so many deserving people who work hard every day."

She was instrumental in evaluating the causes of the tanking test anomalies, according to her supervisor at the time, Henry Bursian of the Cryogenics Propulsion Branch. "Her coordination with Shuttle project engineers and her review and contribution to the development of the tanking test plans ensured the safe and successful execution of both tests," said Bursian.

The fluids division also handles issues related to Shuttle processing operations, maintenance, requirements and procedures. "For Return to Flight, this included changes to requirements, hardware and software

(See STEES, Page 8)

DIANE STEES reviews securing operations with engineers Mark Stewart (facing Stees) and Rick Baz.

Atlantis team completes major modifications

The Space Shuttle Atlantis received updated safety modifications during its preparation for STS-121, also designated as a Return to Flight mission to the International Space Station.

Before its move to the Vehicle Assembly Building, orbiter modal testing was completed. This test involved using devices referred to as shakers, which send vibrations throughout the orbiter. Measuring instruments called accelerometers are positioned throughout the vehicle to read the effects of the vibrations in order to check the structural health of the vehicle.

Atlantis, NASA's fourth orbiter, went into service with its first launch on Oct. 3, 1985, and has flown 26 previous missions. The launch of STS-121 is still under review.

THE SPACE Shuttle Atlantis processing team (below) gathered in front of the orbiter for a photo after Atlantis exited the Orbiter Processing Facility. In the transfer aisle of the Vehicle Assembly Building (right), workers inspect the hull of Atlantis as it hangs suspended in a vertical position.

International landing sites clear the way for greater safety

By Jeff Neely
Student Intern

Sometimes even the best plans change suddenly. Believing it's always good to have options, NASA recently announced a new Transoceanic Abort Landing (TAL) site at Istres Air Base in France, giving NASA three places across the Atlantic Ocean to land in case of an emergency during launch.

The new site is the result of an agreement signed June 7 between the U.S. and French governments that applies to all future Space Shuttle missions supporting the International Space Station.

The primary TAL site for Space Station missions is in Zaragoza, Spain. If weather is bad in Zaragoza on launch day, the Istres site and a site in Moron, Spain, provide alternate landing options.

TEAMS PROCESS the Space Shuttle shortly after landing.

Denny Gagen, NASA landing recovery manager at Kennedy Space Center, said the three current TAL sites were chosen mostly because of their location near the high inclination launch path. "These are really the better sites as far as being close to the trajectory of the launch," Gagen said.

Shuttle missions for the Station use a high inclination launch, which means they reach higher maximum latitude in their orbit around the Earth as they climb into space. Other factors like runway length and local climate were also considered in choosing the TAL sites.

While an orbiter has never had to land at a TAL site and the chances of this are very low, it is an important safety measure to have. A TAL would be used if an emergency occurred roughly between two and a half minutes and seven and a half minutes after liftoff.

A lot of preparation goes into making a TAL site ready for launch day. A TAL Support Team arrives at each site a week before the launch.

These teams are made up of approximately 100 people from NASA and the U.S. Department of Defense and perform a number of tasks, such as simulating landing the day before launch, and setting up visual and microwave landing aids, weather equipment and emergency equipment.

Harrington increases safety of upcoming MRO launch

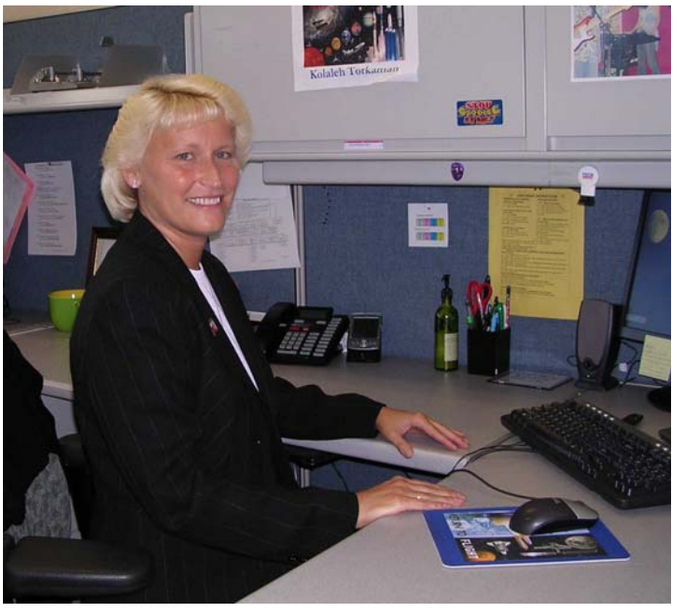
Mars Reconnaissance Orbiter scheduled for Aug. 10 launch from Cape Canaveral Air Force Station

By Jennifer Wolfinger
Staff Writer

Tammy Harrington has a key role in NASA's upcoming Mars Reconnaissance Orbiter mission, which will meticulously examine the Red Planet from low orbit and provide more data than all previous missions combined.

As a Mission Integration Manager (MIM) for Kennedy Space Center's Launch Services Program, she is the primary interface between the spacecraft and the launch vehicle. Harrington also leads the Mission Integration Team, comprising more than two dozen engineers and analysts.

The MIM manages all integration and vehicle engineering aspects of the mission.



TAMMY HARRINGTON is the Mission Integration Manager for the upcoming Mars Reconnaissance Orbiter mission scheduled to launch Aug. 10.

"The role of the Launch Services Program starts at the inception of the mission, when planning is required to develop the overall launch vehicle budget, schedule and engineering requirements to procure and manage the launch. A unique characteristic of the MRO is that it will be the first U.S. government or NASA use of the Atlas V launch vehicle," she explained.

Her MRO responsibilities, which began in 2001, include managing the process of joining the MRO spacecraft and the Atlas V launch vehicle. She determined what Atlas V launch vehicle modifications were required to accommodate the MRO spacecraft, and how the MRO needed to be designed in order to successfully fly on the Atlas V launch vehicle.

All of this work will culminate with the MRO's launch, scheduled to occur between Aug. 10 and Sept. 5. The mission's findings will characterize Mars' surface, subsurface and atmosphere, and identify potential landing sites for future missions.

As a weather satellite, the MRO will help to understand the Martian climate. As a geological explorer, the spacecraft will identify water-related landforms. As a site finder, it will observe hundreds of locations to assist in future exploration, and as a communications satellite the MRO will relay data from future Mars missions.

"My inspiration comes into play when I think of the monumental effort dozens of Launch Services Program engineers dedicated themselves to in order to accomplish this task," said Harrington. "I am impressed and inspired by their dedication to success."

Harrington, who joined NASA's Goddard Space Flight Center in 1985 as a co-op student, enjoys challenges. She took on the rigorous certification process that was required because this mission will be the first government payload to launch on the Lockheed Martin Atlas V launch vehicle.

Harrington spends her free time at the beach, exercising and playing fantasy football. She and her husband, Jim, are parents of Brian, 22.

EVENT . . .

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modifications, and hazard report reviews. Basically, we fix things that break," Stees said.

Her role as a loading specialist requires Stees to work and exchange information with NASA and contractor organizations here, as well as at Johnson Space Center in Houston and Marshall Space Flight Center in Huntsville, Ala.

"The application software for the liquid hydrogen and liquid oxygen systems is very dynamic and highly automated," said Stees. "What sets the systems apart is the sequencers that are working right through launch countdown and liftoff, when other systems have switched to the Ground Launch Sequencer."

Stees said the fluids division is in a unique position to work with the Spaceport Engineering and Technology directorate on new technology. A study of a replacement for the perlite insulation in the cryogenic storage tanks at Launch Complex 39 is ongoing. Stees said the expertise and knowledge of the cryogenics team will be needed for future space exploration projects, but for now the focus is on Return to Flight.

Stees has been married to her husband, Rick, for 12 years and they have two children: Dana, 6, and Evan, 3. She likes to sail and enjoys nature. Her extensive amount of volunteer involvement includes membership in the Florida Native Plant Society, and she is a past president of the Indian River Audubon Society. As a charter board member of the Merritt Island Wildlife Association, Stees designed the group's logo and served as editor of its newsletter.

She earned a Bachelor of Science degree in aerospace engineering from the University of Florida in Gainesville in 1985.

Stees said the sight of the Space Shuttle lit up at night on a launch pad still gives her goosebumps. "This is the best place in the world to work. We're all part of a very special family here."

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