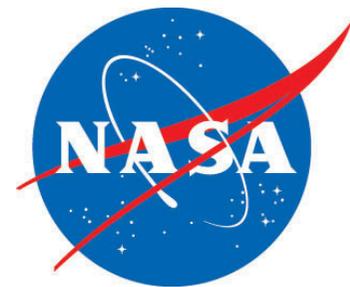


Spaceport News

John F. Kennedy Space Center - America's gateway to the universe

www.nasa.gov/centers/kennedy/news/snews/spnews_toc.html



'Ice Team' cool under pressure

Instant photos give launch leaders an edge

By Cheryl L. Mansfield
Staff Writer

As the countdown clock clicked toward the launch of space shuttle Discovery on mission STS-120, the team in the Launch Control Center had to decide if it was OK to launch. But before making the call, they had to examine a small ice buildup on the external tank's liquid hydrogen umbilical to make sure ice wasn't a threat.

For the first time, launch managers at Kennedy Space Center had instant access to the Final Inspection Team's digital images, transmitted from the launch pad via fiber-optic cable.

Not that sending images from a laptop computer is a revolutionary idea, but wireless transmission wasn't possible with a fully fueled shuttle feet away.

The photo transmission capability is a requirement for NASA's next generation of spacecraft under the Constellation Program. As the inspection team was looking for ways to safely transmit pictures from the launch pad, their plans got a jump-start when shuttle managers were concerned a newly shortened hold in the countdown would reduce the time to analyze the photos delivered by hand.

"We looked into sending images back wirelessly, but our safety requirements wouldn't allow that," said Tom Ford, who heads the inspection team. "So we said OK, we have to have this. Let's think of a bare-bones system that will work while meeting the safety requirements, and we came up with the (fiber-optic) drop."

The solution came between

For more about the space shuttle and Kennedy Space Center, go to www.nasa.gov

the STS-118 mission in August and the October launch of STS-120. Within about a two-week period, fiber-optic cable was installed from Launch Pad 39A's 195-foot level to the base. The setup provided two points the photos could be transmitted from, one at the 195-foot level and the other at the 95-foot level. Existing "Toughbook" laptops already used by the team were called into service and, as launch day for mission STS-120 dawned, the team was ready.

The timing was excellent. The group, also called the "Ice Team," traveled to the pad to do its top-to-bottom detailed inspection of the vehicle and launch pad.

The team members used the new capability to send back the photos, including some showing the ice buildup on the umbilical.

In a rare move, the launch managers asked the inspection team to go back for a second look and send back updated photos of the dissipating ice.

With the analysis done, the launch team made the call: Discovery was "go" for launch, and the shuttle and crew embarked on a dramatic and highly successful 15-day mission to the International Space Station.

From the inspection team's standpoint, Ford said the analysis "was a 100 percent success" and will continue to be a vital part of the inspection process for the remainder of the shuttle program.

The importance of this new capability was echoed from the launch team.



Final Inspection Team member Ivan Bush sends pictures via laptop to the Launch Control Center as technicians check the fiber-optic connections for space shuttle Atlantis' mission STS-122.

"This new capability represented a tremendous improvement in our ability to analyze ice buildup in near-real time," said NASA Test Director Steve Payne after the mission. "Taken together with the Final Inspection Team's visual inspection and recommendation, it allowed us to reach a quick decision on acceptability of the ice we saw. It was perhaps the one thing that made the difference between launching or remaining on the ground that day."

NASA targets shuttle Atlantis launch Jan. 2

The NASA launch team is looking to kick off the new year with the launch of space shuttle Atlantis on mission STS-122, targeting liftoff no earlier than Jan. 2.

The launch window for the flight to the International Space Station will depend on when the agency can resolve a problem in the fuel sensor system of Atlantis' external fuel tank that prevented launch on Dec. 6 and 8.

During the course of two different countdowns, three gauges that help measure the fuel level in the tank gave false readings. Launch managers postponed the launch to evaluate the problem.

The main objective of Atlantis' 11-day mission is to install and activate the European Space Agency's Columbus laboratory, which will provide scientists around the world the ability to conduct a variety of life, physical and materials science experiments.

"We want to thank everyone who worked so hard to get us into space this launch window," according to a statement from the crew. "We hope everyone gets some well-deserved rest, and we will be back to try again when the vehicle is ready to fly."

Spaceport News gears up for new look

Spaceport News will launch Jan. 11 with a new objective, offering you a biweekly publication designed to better suit your needs.

Each issue will strive to offer more news that directly impacts the Kennedy Space Center work force, while highlighting people and places that make up America's gateway to the universe.

You are encouraged to send unique story ideas and exciting photos of workers in action for possible publication. Photos should include a short caption with the names and job titles, from left to right. Make sure the photos are at least 300 dpi. Send e-mail to KSC-Internal-Comm@mail.nasa.gov.

2007 gives us many reasons to be proud

As this year comes to a close, I want to take a few moments to salute each and every member of the Kennedy Space Center team for a job well done. In Kennedy's 45th year as NASA's launch operations center, we have added to the center's rich history with several highlights. We stayed focused on all of our diverse missions, including launching the space shuttle and expendable launch vehicles, gearing up for the Constellation Program and working toward completing the International Space Station.

Even though a hailstorm caused us to have a late start, Kennedy launched three space shuttle missions in 2007. This included sending the space station a new set of solar power arrays and a connecting module.

We also can be proud of the support we provided to the four expendable launch vehicle missions that lifted off this year. One is heading to Mars, another



Director's Update

By Bill Parsons
Kennedy Space Center Director

“As I look back on my first year as director, I’m proud of the Kennedy work force for its integrity and dedication.”

to the solar system's asteroid belt and two are focused on studying Earth.

It's also important to note that we accomplished all of this while keeping an emphasis on safety. That was exemplified when the center was certified as a "StormReady" facility in June, becoming the first government site in Florida and only the eighth in the nation to earn this designation because of our hazardous weather action plans.

Another first-time highlight for our center was the World

Space Expo in November that brought together thousands of people to celebrate the past, present and future of space exploration on a global scale.

This year, work for the Constellation Program here at Kennedy really started moving from concept to construction. For example, in November we started digging deep in the ground around Launch Pad 39B to install the new lightning protection system for the Ares rocket and Orion spacecraft. That construction work reminds some

long-time Kennedy employees of how our landmark Vehicle Assembly Building first looked as it was taking shape.

As I look back on my first year as director, I'm proud of the Kennedy work force for its integrity and dedication.

Here's looking forward to another year with the finest launch and landing folks in the business.



Kennedy Space Center launched three space shuttle missions in 2007.



The Phoenix Mars Lander is expected to arrive on Mars' icy soils in May 2008.



Digging began in November to install the lightning protection system on Pad 39B.



The Air Force Thunderbirds Demonstration Squadron was among the many performers at the inaugural World Space Expo in November.



Kennedy Center Director Bill Parsons handed over a \$431,661.98 check to United Way's Rob Rains representing the center's work force contribution in the Combined Federal Campaign during a luncheon Dec. 11.



Among the panel participants at the All Hands meeting Nov. 26 were Kennedy Space Center Director Bill Parsons, left, Johnson Space Center Director Michael Coats, center, and Space Shuttle Program Manager Wayne Hale.

Confidence high at All Hands

Future efforts at top of center director's update

By Linda Herridge
Staff Writer

NASA leaders expressed their confidence in the ability of the Kennedy Space Center work force to make the Constellation Program a success during the center's All Hands meeting Nov. 26.

Kennedy Center Director Bill Parsons said the agency's top priority is to fly the space shuttle safely and complete construction of the International Space Station.

"We have an obligation to do the next program as well, if not better, and more efficiently. We have to remain focused," Parsons said.

Panel participants also included Johnson Space Center Director Michael Coats, Constellation Program Manager Jeff Hanley, Space Shuttle Program Manager Wayne Hale, Kennedy International Space Station and Spacecraft Processing Director Russell Romanella, and Launch Services Program Deputy Manager Amanda Mitskevich.

Coats said he is impressed with the teamwork at NASA. "I think we're working better as a team than we ever have."

He said he is very optimistic with where the agency is going and that it's everyone's responsi-

bility to make NASA successful.

"We're not going to grow a lot, but we're not going to shrink," Coats said. "In the big picture, we're going to have the budget. We're going to have close to the same number of workers."

Hale remarked that there are more shuttle flights ahead than there were manned Apollo flights in the whole program.

The agency has five to six shuttle flights scheduled for next year, including a Hubble Space Telescope servicing mission. "I don't think you realize how much this agency counts on you," Hale said.

Romanella said the Harmony node on-orbit activation recently was completed and the space station is now at its largest size ever, with a 330-foot wingspan and 240-foot length, weighing half a million pounds and encompassing 18,000 cubic feet or about the size of a three-bedroom home.

Two Japanese Experiment Module segments are being prepared inside the Space Station Processing Facility. The Experi-

What they said

"In the big picture, we're going to have the budget. We're going to have close to the same number of workers."

*Michael Coats, Director,
Johnson Space Center*

"We have an obligation to do the next program as well, if not better, and more efficiently."

*Bill Parsons, Director,
Kennedy Space Center*

ment Logistics Module - Pressurized Segment is targeted for launch on mission STS-123 in February, while the largest station module, the Pressurized Module, is targeted for launch on mission STS-124 in late April.

Romanella said it's a great time to be working on the station. Workers are preparing for the arrival of the JEM Exposed Facility and the Experiment Logistics Module Exposed Section in late June 2008, and four Express Logistics Carriers, the Node 3 module and the Russian Docking Module in 2009.

The coming year will be a busy one for the Launch Services Program. There are 10 missions on the manifest across three sites: Cape Canaveral Air Force Station, Vandenberg Air Force Base in California and the Kwajalein Atoll.

On average, Mitskevich said there are five to eight missions a year with ongoing work for 25 future scientific missions. The program celebrated the 50th mission since Kennedy became the lead

center in 1998.

The Lunar Reconnaissance Orbiter mission to the moon will be the first robotic mission for the Constellation Program.

It is targeted to launch aboard an Atlas V/Centaur in October 2008.

Hanley said next year will bring a focus on the preliminary designs for the Orion spacecraft and the Ares 1 crew launch vehicle.

"The lunar program is the key to making as smooth a transition as possible from shuttle to the new program," Hanley said. He added that the key is to get the concepts and plans in place so that when 2010 arrives, the work force will be ready.

"We're going to work together to find the best possible answers for this agency," Parsons said.

To view the entire Nov. 26 All Hands meeting, go to:

http://internal.ksc.nasa.gov/kscimages/ksc112607_allhands.ram



Pilot Gregory Johnson inspects the window in space shuttle Endeavour.



Members of space shuttle Endeavour's STS-123 crew, dressed in protective suits, get ready to inspect part of the payload for the mission, the Special Purpose Dexterous Manipulator known as Dextre, in the Space Station Processing Facility. At left is Commander Dominic Gorie and at center is Mission Special-



STS-123 Pilot Gregory Johnson tries on gloves he will wear on the mission.

Testing as easy

The astronauts of upcoming mission STS-123 visited Kennedy Space Center on Nov. 30 for their crew equipment interface test. The process helped them gain first-hand knowledge of the flight hardware they'll use on space shuttle Endeavour during their mission, targeted for launch Feb. 14. It will be the 122nd space shuttle mission and the 25th assembly flight of the International Space Station. The astronauts will deliver the Japanese Kibo Logistics Module and the Canadian Dextre



STS-123 crew members Mission Specialists Michael Foreman, left, Robert Behnken, Garrett Reisman and Richard Linnehan examine one of the cameras that will be used on the mission during the crew's equipment interface test, a process of familiarization with payloads, hardware and the space shuttle.



Pilot Gregory Johnson and Mission Specialist Takao Doi share a lighter moment as they get ready to inspect the Special Purpose Dexterous Manipulator, known as Dextre.



Commander Dominic Gorie inspects a window in space shuttle Endeavour.

ist Michael Foreman. At right are Pilot Gregory Johnson and Mission Specialist Richard Linnehan. Dextre will work with the mobile base and Canadarm2 on the International Space Station to perform critical construction and maintenance tasks.

as STS-123

robotics system. The crew includes Commander Dominic Gorie, Pilot Gregory Johnson and Mission Specialists Richard Linnehan, Robert Behnken, Michael Foreman and Japan Aerospace Exploration Agency astronaut Takao Doi. Endeavour also will deliver NASA astronaut Garrett Reisman to the station and return European Space Agency astronaut Léopold Eyharts to Earth.



Members of the STS-123 crew get hands-on experience with some of the equipment related to the mission.



Pilot Gregory Johnson, left, and Commander Dominic Gorie look over tools that will be carried on the mission.



STS-123 Mission Specialists Garrett Reisman, left, Richard Linnehan and Michael Foreman examine one of the cameras that will be used on the mission. Reisman will join the Expedition 16 crew on the International Space Station, replacing Flight Engineer Leopold Eyharts. The STS-123 mission will be the 25th assembly flight of the space station.

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System to divert lightning from Pad 39B

By Anna Heiney
Staff Writer

Thunder rumbles in the distance as darkening clouds hover over Kennedy Space Center's Launch Pad 39B, where a sleek Ares I launch vehicle awaits an upcoming flight. A blinding lightning flash suddenly strikes one of the pad's tall steel masts. The surge of electrical current quickly is diverted away from the rocket and carried safely into the ground.

This scenario hasn't happened yet since the Ares I rocket is in development, and NASA is just beginning to transition Launch Pad 39B from a space shuttle facility into the launch site for the Constellation Program's Ares I crew launcher.

But lightning is a well-known danger in Central Florida, and a team of NASA and contractor personnel already is building a new lightning protection system larger than any the spaceport has ever seen.

The new system features large cables strung



Launch Pad 39B will be home to three 594-foot towers with wire cables strung between them to protect NASA's Ares 1 rockets, Orion spacecraft and astronauts bound for the moon.

between three 594-foot-tall steel and fiberglass towers. Called a catenary wire system, it will dominate the launch area's skyline.

The new system under development for the Constellation Program's next-generation vehicles will provide better protection from lightning strikes

by increasing the shielding level and further separating the electrical current from vital hardware.

Additionally, launch managers will have more accurate information to help keep the vehicle safe and prevent days of delays.

Modern lightning detection is simpler and

more accurate than ever, and an array of sensors on the ground and on the mobile launcher will help determine the vehicle's condition after a nearby strike.

Ivey's Construction Inc., the contractor in charge of building the lightning protection

system, received NASA's go-ahead to proceed in September. Construction began in November with the arrival of large cranes and concrete pilings.

The system's foundation will include 216 of these pilings extending up to 55 feet below ground.

The massive steel towers will be partially assembled horizontally on the ground, then lifted into the vertical position by a 60-story-tall crane.

Construction is expected to be complete in 2010.

According to NASA Construction Manager Jason Ritter, along with the standard challenges associated with this construction effort, nature will provide a few of its own.

"Most of the work isn't technically difficult, but it's big and time-consuming," Ritter said. "When you're working on a launch pad that has lightning and high winds and sea breezes, and it's an operational pad, those are the things we consider difficult to work through."



Orion spacecraft heat shield arrives at KSC

A heat shield for the Constellation crew exploration vehicle, or CEV, is being prepared for a demonstration at NASA's Kennedy Space Center. The developmental heat shield for the Orion spacecraft arrived Nov. 20 and was removed from its shipping container Nov. 27. The thermal protection system manufacturing demonstration unit is designed to protect astronauts from extreme heat during re-entry to Earth's atmosphere from low Earth orbit and lunar missions. The shield was designed and assembled by the Boeing Company in Huntington Beach, Calif. Orion will go to the International Space Station, travel to the moon by 2020 and play a crucial role in exploring Mars.

Quick fix sent Apollo 17 on its 'merry way'

35 years ago, workaround did the trick

Remembering Our Heritage

By Kay Grinter
Reference Librarian

The countdown to launch of a Saturn V rocket was under way at Launch Pad 39A at NASA's Kennedy Space Center on the evening of Dec. 6, 1972. The Apollo 17 crew members awaited the start of their journey to the moon for the final lunar landing in the program. Launch was planned for 9:53 p.m.

However, a relay failure in the automatic sequencer, the electronic timer that controlled the countdown, forced a hold at T minus 30 seconds.

NASA's launch teams at Kennedy and Marshall Space Flight Center had practiced for any contingency and were prepared. The "fix" was to outsmart the computer in the firing room.

Commander Eugene Cernan, Command Module Pilot Ron Evans and astronaut Jack Schmitt, a geologist, were delayed only 2 hours, 40 minutes on their trip to the moon's Taurus-Littrow region. The only nighttime liftoff of a Saturn V in the Apollo Program came at 12:33 a.m. Dec. 7, dazzling more than 50,000 viewers at the space center.

Walter Kapryan, now retired, was the Apollo 17 launch director. He explained the workaround in a post-launch news conference.

The countdown sequencer did not send the command for the liquid oxygen tank to be pressurized on the Saturn V's third stage. This stage would

place the astronauts into Earth orbit and then reignite, hurtling them into a translunar trajectory to the moon.

"It didn't take us very long to determine that we should bypass this command failure and go through the pressurization manually," Kapryan said. A procedure was in place to jump any point in the circuitry necessary, using banana plugs as jumpers.

"Once we were satisfied that we had no problem," Kapryan said, "we picked up the count and went on our merry way."

An adjustment to the translunar injection burn allowed the astronauts to arrive at the moon as scheduled despite the delay.

As Evans circled the moon in the command module "America," Cernan and Schmitt collected 258 pounds of lunar rocks and soil to bring back to Earth.

During the mission, Cernan set a lunar speed record, driving the lunar rover a breathless 11.1 miles per hour.

Splashdown in the Pacific Ocean came at 2:25 p.m. Dec. 19, after more than 12 days, 13 hours.

"I believe history will record that America's challenge of today has forged man's destiny of tomorrow. And, as we leave the moon at Taurus-Littrow, we leave as we came and, God willing, as we shall return, with peace and hope for all mankind. Godspeed the crew of Apollo 17."

Commander Eugene Cernan



Apollo 17 was the 11th manned space mission in NASA's Apollo program. It was the first night launch in history and the sixth and final lunar landing mission of the program.

Cernan is the last person to stand on the lunar surface, following Schmitt into the lunar module "Challenger" on Dec. 14. He will hold this distinction until astronauts return to the moon in the coming decade.



Apollo 17 lunar module 12 and command module 114 docking test. The successful mission allowed the crew to perform a selenological inspection; survey and sample the Taurus-Littrow region with a special emphasis on geological tasks; deploy an Apollo lunar surface experiments package; conduct in-flight experiments; and take some photographs.

NASA Employees of the Year: 2007



Employees of the Year are, from left, Marian Poulin, International Space Station and Spacecraft Processing Directorate; Geoffrey Swanson, Chief Counsel; Michael Vinje, Constellation Project Office; Paul Schwindt, Engineering Directorate; Timothy Widrick, Launch Services Program; Michael Paraway, Chief Financial Office; James S. Bolton, Launch Services Program; Phil Gvozdz, Information Technology and Communications Service; Lynn Barnette, Safety and Mission Assurance Directorate; Kenneth Hosterman, Engineering Directorate; Layla Higgins, External Relations; and Janine Captain, Applied Technology. Not pictured are Xaivian Raymond, Human Resources Office; Mary Kiss, Procurement Office; Kim Myrick, Center Operations; and Tim Adams.

NASA Employees of the Month: December



Employees of the Month for December are (from left) Tamiko Fletcher, Information Technology & Communications Services; Rose Bartl, Chief Financial Office; David R. Slaiman, Engineering Directorate; Robert A. Stute, Launch Vehicle Processing Directorate; Jennifer Tharpe, External Relations; Harry J. Batey, Chief Counsel; William Koenig, ISS and Spacecraft Processing Directorate; Gene Pichardo, Launch Services Program; and Jim Medina, Constellation Project Office.

Don't forget! *Spaceport News* wants your photos, feedback

Do you have an exciting photo taken at Kennedy Space Center or a great idea for a story? *Spaceport News* wants you to share it. We'll be launching a new look in the Jan. 11 issue, highlighting the people and places that make up the spaceport. You're encouraged to send pictures that include employees in action or Kennedy wildlife. Photos should include a short caption with the names and job titles of those pictured, from left to right, and be at least 300 dpi. Send e-mail to KSC-Internal-Comm@mail.nasa.gov.



From left: Kennedy Deputy Director Janet Petro, Medical Director Charles Smallwood, American Heart Association Brevard Regional Director Sonia Rivera, Kennedy Chief Medical Officer Irene Long and Kennedy Health Education Administrator Kris Calderon.

AHA honors Kennedy wellness group

Comprehensive Health Services of Kennedy Space Center received a commemorative plaque Nov. 28 for recognition by the American Heart Association as a Start! Fit-Friendly Company.

The award is given to employers that demonstrate progressive leadership by making health and wellness a priority for their employees.

The company, which handles work force health management for Kennedy, was recognized at the "gold" level. This means it offers

physical activity support at the worksite, has an increased number of healthy eating options available to employees and promotes a culture of wellness.

Comprehensive Health Services, also known as CHS, embraces at least nine criteria at Kennedy as outlined by the American Heart Association in the areas of physical activity, nutrition and culture.

CHS was listed in the Sept. 25 edition of the *Wall Street Journal* along with all 2007 Start! Fit-Friendly companies nationwide.

Looking ahead

NET Jan. 2	Launch from KSC: Atlantis, STS-122; at 5:41 a.m.
NET Feb. 14	Launch from KSC: Endeavour STS-123; at 11:57 a.m.
NET April 1	Launch from CCAFS: Delta II - Mission: STSS Demo
NET April 24	Launch from KSC: Discovery STS-124; at 8:26 a.m.
March 29	KSC All-American Picnic
NET May 29	Launch from CCAFS: Delta II - Mission: GLAST
NET June 12	Launch from CCAFS: Delta IV - Mission: GOES-0
NET Aug. 7	Launch from KSC: Atlantis STS-125; at 8:24 a.m.
NET Sept. 18	Launch from KSC: Endeavour STS-126 at 8:08 p.m.
Oct. 31	Launch from CCAFS: Atlas V - Mission: LRO/LCROSS
NET Dec. 1	Launch from CCAFS: Atlas V - Mission: SDO



John F. Kennedy Space Center

Spaceport News

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