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

Inside this issue . . .

Kennedy celebrates NASA's 50 years in 2008, eyes next 50

While employees at Kennedy Space Center celebrated the first 50 years of NASA in 2008, they also were working on missions and projects that will carry the space agency into the next five decades and beyond.

NASA commemorated its 50th anniversary Oct. 1, and the Kennedy Space Center Visitor Complex helped the public mark the golden milestone by hosting three weeks of live concerts with music from America's space eras. The 2008 Fall Concert Series featured music from the 1960s, '70s and '80s, spanning the time of the Mercury, Gemini, Apollo and Space Shuttle Programs. The series culminated with Kennedy's second Space & Air Show in November, which was highlighted by the precision flying of U.S. Navy Blue Angels.

About the same time NASA was celebrating the anniversary, Kennedy was welcoming a new center director. Bob Cabana assumed the role as the center's tenth director Oct. 26. Cabana, who is a former space shuttle astronaut, came to Kennedy from Stennis Space Center in Mississippi where he was director for the past year.

He also was inducted

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NASA file photos/2008

2008 was a pretty busy year a Kennedy Space Center. A few missions, clockwise, from bottom left: STS-122 mission kicked off the year taking the European Space Agency's Columbus laboratory to the International Space Station in February; the Japanese Exploration Agency's Kibo laboratory was carried by the STS-124 mission in May; a Delta II rocket took off from Cape Canaveral Air Force Station, on June 11 with GLAST, a powerful space observatory; and Discovery returned to Kennedy in December on a ferry flight from Edwards Air Force Base in California.

From **KENNEDY**, Page 1

into the U.S. Astronaut Hall of Fame in May. Cabana succeeds Bill Parsons who left the agency Oct. 11 to pursue opportunities in the private sector.

Kennedy teams were involved in launching seven different missions into space in 2008, four on space shuttles and three on expendable launch vehicles.

Atlantis' STS-122 mission started the year's shuttle flights with a February trip to the International Space Station. Atlantis' seven astronauts attached the European Space Agency's Columbus science laboratory.

The following month, Endeavour's STS-123 mission took to the space station the first section of the Japan Aerospace Exploration Agency's Kibo laboratory and the Canadian Space Agency's two-armed robotic system, known as Dextre.

In May, Discovery's STS-124 mission delivered and installed the Kibo pressurized module and the Japanese Remote Manipulator System to the station.

Finally in November, shuttle Endeavour's STS-126 mission took up supplies and equipment that will allow the space station to expand from its current three-person crew to a six-person crew in May 2009.

The shuttle program's emphasis on NASA's and America's international partners in 2008 was exemplified early in the year at Kennedy. NASA and the U.S. Department of State welcomed ambassadors from more than 45 countries to the center.

The visit, one of the largest tours undertaken by the diplomatic corps, provided dignitaries an overview of the United States' space exploration programs and showed them various facilities at the center.

NASA image

The first major flight hardware pieces, the upper stage simulator and the forward skirt of the Ares I-X rocket, began arriving at Kennedy Space Center in November for the inaugural test flight targeted for July 11.

More online

For more information on Kennedy Space Center, visit: **www.nasa.gov/kennedy**

For information about NASA and agency programs, visit: **www.nasa.gov**

Two of the three NASA science missions sent into space aboard expendable launch vehicles this year took place in June. NASA's Gamma-ray Large Area Space Telescope, or GLAST, launched from Cape Canaveral Air Force Station on June 11. GLAST is exploring the universe's ultimate frontier and studying gamma-ray bursts.

On June 20, the Ocean Surface Topography Mission/Jason-2 launched from Vandenberg Air Force Base, Calif. The satellite is on a globe-circling voyage to continue charting sea levels, a vital indicator of global climate change.

Then on Oct. 19, NASA's Interstellar Boundary Explorer mission, or IBEX, successfully launched from the Kwajalein Atoll in the Pacific Ocean. IBEX will be the first spacecraft to image and map dynamic interactions occurring in the outer solar system.

Solar interactions with Earth were the focus of a new partnership between NASA and Florida Power & Light, or FPL, signed in June. Kennedy and the state's largest electric utility teamed up to provide Florida residents and America's space program with new sources of "green power."

The agreement will permit FPL to lease 60 acres of Kennedy's approximately 140,000 acres for a solar photovoltaic power generation system. The facility will produce an estimated 10 megawatts of electrical power, which is enough energy to serve roughly 3,000 homes. As part of the agreement, FPL will build a separate one megawatt solar power facility at Kennedy that will support the electrical needs of the center. Groundbreaking for the one megawatt facility will be early this year.

The first major flight hardware pieces of the Ares I-X rocket began arriving in Florida in November for the inaugural test flight of the agency's next-generation launch system.

The Ares I-X upper stage simulator and the forward skirt are being prepared for the targeted July 11 test flight. During the next few months, all of the additional hardware needed to complete the test vehicle will be delivered to Kennedy, beginning with a piece that simulates a fifth segment for the four-segment solid rocket booster and concluding with delivery of the complete motor set this month.

The Ares I-X rocket is a combination of existing and simulator hardware that will resemble the Ares I crew launch vehicle in size, shape and weight. It will provide valuable data to guide the final design of the Ares I, which will launch astronauts in the Orion crew exploration vehicle. The test flight also will bring NASA one step closer to its exploration goals of returning humans to the moon for sustained exploration of the lunar surface and missions to destinations beyond.

In May, Kennedy awarded a contract for the construction of the Ares I mobile launcher platform for NASA's Constellation Program. The new platform will be used in the assembly, testing and servicing of Ares I at existing Kennedy facilities. The space shuttle mobile launcher platform that will be used for Discovery's targeted February mission to the International Space Station will be turned over to the Constellation Program and modified for the Ares I-X test flight.

After more than four decades of use, Kennedy's Launch Pad 39A sustained significant damage during the launch of space shuttle Discovery on May 31.

It occurred to an area of the pad known as the flame trench. The damage was analyzed and repaired by August. The fix is expected to last through the remainder of the shuttle program.

Shortly after the repairs were complete, Tropical Storm Fay slowly made its way across the state. Although Kennedy was closed Aug. 19-21 because of heavy rain and wind, the center sustained minimal damage.

NASA entered into two agreements in May to help the work force and regional economy with the transition from the Space Shuttle Program to the Constellation Program. Kennedy management signed a Space Act Agreement and renewed its partnership with the Economic Development Commission of Florida's Space Coast to strengthen, retain and expand Brevard County as the prime location for the aerospace industry.

Then Kennedy management signed the center's first Space Act Agreement with the Brevard Workforce Development Board to help support existing and future missions at the space center.

The Space Gateway Support 10-year Joint Base Operations Services Contract ended Sept. 30. New contractors officially began the transition Oct. 1, resuming operations and services to the center.

S6 truss segment, solar arrays bring balance to ISS

By Linda Herridge
Spaceport News

Space shuttle Discovery's STS-119 mission will bring a long-awaited balance to the International Space Station.

The mission's payload, the starboard, or S6, truss segment and solar arrays were the highlight of a special presentation and viewing for media representatives inside Kennedy Space Center's Space Station Processing Facility, or SSPF, in December.

The S6 truss is the fourth and final truss segment and solar arrays for delivery to the orbiting laboratory and will complete the station's 11-segment integrated truss structure. The truss will provide the additional power needed to support six crew members on the station and the additional research activity they will perform.

Robert Ashley is the S6 mission manager and deputy of the Project Integration Division in the International Space Station and Spacecraft Processing Directorate. He said the S6 truss represents one-fourth of the total power generation capability for the U.S. segment.

"S6 also carries the distinction of being the final major U.S.-built component of the space station core assembly," Ashley said.

For the approximately 200 Boeing and NASA workers at Kennedy who performed final assembly, integrated systems testing and closeouts on the truss segment since its arrival in 2002, its departure is viewed with a mixture of emotions.

"Many of the workers have mixed feelings," said David Cormack, the Boeing S6 flow manager. "They're sad to see it go, but excited to see the results of their efforts, which will expand the capabilities of the space station."

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>
> David Cormack,
> Boeing Corp.
> S6 flow manager

The truss weighs about 31,000 pounds. It is 45 feet long and 16 feet wide. When fully expanded, the solar array wings will have a span of 240 feet. With 32,800 solar cells per wing, they will generate 66 kilowatt hours of power, or enough power to support 30 homes.

The truss segment also will carry two battery charge and discharge units. The segment was modified to carry the additional payload, attached to its long spacer truss structure.

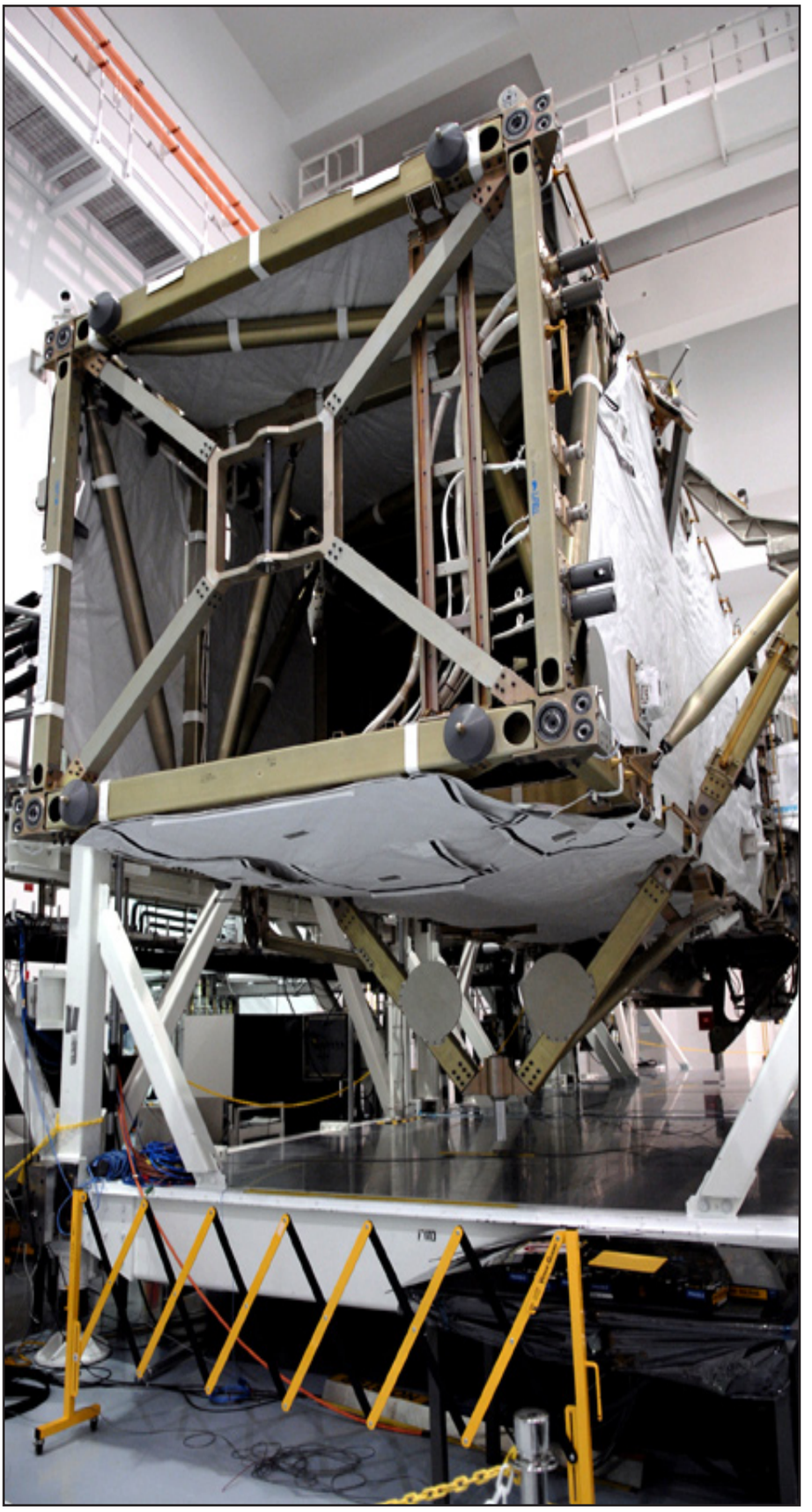
During the STS-119 mission, crew members will use Discovery's and station robotic arms to attach the S6 truss to the S5 truss segment already on the station. Mission specialists will perform a spacewalk to complete final attachments and deploy the solar arrays.

The new addition will be noticeable to people on the ground.

"The station will be brighter when S6 is mated with the rest of the station and the solar array wings are deployed," Cormack said.

Inside the SSPF, the S6 truss went through final testing and closeout before being installed into the payload canister. The truss is scheduled to move to Launch Pad 39A on Jan. 11, for installation into Discovery's payload bay Jan. 17.

Discovery's STS-119 mission is targeted for launch on Feb. 12.



NASA/Kim Shiflett

The S6 truss segment, with its set of large U.S. solar arrays, will be attached to the starboard, or right, side of the station during space shuttle Discovery's STS-119 mission. The S6 truss, currently at Kennedy Space Center's Space Station Processing Facility, will complete the backbone of the station. The two solar wings will provide one-fourth of the total power needed to support a crew of six.

Scenes Around Kennedy Space Center

NASA/Dimitri Gerondidakis

Mission Specialists Tom Marshburn and Christopher Cassidy perform a glove fit-check on pump module assembly caps at SPACEHAB Inc. in Titusville, Fla. The STS-127 crew members were at Kennedy on Dec. 15 for a preliminary crew equipment interface test, or CEIT, which provides experience handling mission tools, equipment and hardware. The crew is targeted to launch to the International Space Station aboard space shuttle Endeavour on May 15.

Reader-submitted photo

Renee Debing, left, Lisa Zuber, Jennifer Abernathy and Sue Waterman were among the volunteers who gathered goodies for the Salvation Army stockings. Donations were distributed to Brevard County children and families for the holidays.

Spaceport News wants your photos

Send photos of yourself and/or your co-workers in action for possible publication. Photos should include a short caption describing what's going on, with names and job titles, from left to right. Send your photos to:

KSC-Spaceport-News@mail.nasa.gov

NASA/Kim Shiflett

An overhead crane lowers the Multi-Purpose Logistics Module Leonardo toward its work stand in the Space Station Processing Facility at Kennedy Space Center. Leonardo carried 32,000 pounds of supplies to the International Space Station on the STS-126 mission.

NASA/Kim Shiflett

Local sixth-graders learned about NASA's plans for returning to the moon and traveling to Mars during Space Week in December. The students arrived at the Kennedy Space Center Visitor Complex and toured the Apollo/Saturn V Center, met astronaut Story Musgrave, enjoyed a Lunar Theater Show and watched a NASA demonstration at the IMAX Theater.

NASA/Jim Grossman

Space shuttle Endeavour is being lifted away from the Shuttle Carrier Aircraft, or SCA, at Kennedy Space Center's Shuttle Landing Facility on Dec. 13. The SCA gave the shuttle a piggyback ride from California, where Endeavour landed Nov. 30, ending the STS-126 mission.

NASA/Jim Grossman

Workers guide the second stage of the Delta II rocket for mating with the first stage on Complex 17B at Cape Canaveral Air Force Station. The Delta II is the launch vehicle for NASA's Kepler spacecraft. The planet-hunting mission is scheduled to launch no earlier than March 5.

Expert helps bats get out, stay out of O&C Building

We all have a nose for something; Christmas morning, mom's apple pie, grandpa's cologne. Patricia Lynn has a nose for bats. While walking down the hall of Kennedy Space Center's Operations and Checkout Building, the environmental protection specialist with NASA's Environmental Program Office sniffed out a roost of about 1,000 Mexican free-tailed bats.

With the elevator only going up to the fourth floor, Lynn takes a flight of stairs to her fifth-floor office. It was in front of the elevator where an odor triggered thoughts of her yard in north Brevard.

"When I walked by the transformer room I stopped in the middle of my walk," Lynn said. "I stopped and recognized the bat odor . . . sure enough, it was coming from the transformer room."

There's a reason Lynn knows the smell so well.

"I wanted a bat house in my backyard after making a trip to Carlsbad Caverns in New Mexico," Lynn said. "I now have an established colony of bats . . . I know the smell."

NASA/Tim Jacobs

Fly By Night Inc.'s Tom Finn holds a Mexican free-tailed bat he recently helped get out of the Operations and Checkout Building. Experts think there are about 1,000 or so in a roost near the fourth floor. The company, along with NASA environmental specialists, are helping the bats get out to prevent them from flying around the hallways and work areas inside.

Fly By Night Inc., a bat specialist company that has a contract with NASA, was called in to help relocate the nocturnal creatures.

"Once you recognize the smell . . . you never forget it," Laura Finn, executive director of Fly By Night said. "They have a scent that is very distinct."

According to John Shaffer of the NASA Environmental Planning Office, bats that find their way into structures at Kennedy have the potential to impact construction remodeling and roof replacement projects.

"As we move to each phase during construction, we sometimes have to deal with bats that have not found their way out," Shaffer said. "Their impact is minimal but we must be prepared."

Bats at the Operations and Checkout Building had to be relocated because NASA will be replacing the fourth floor roof.

Workers wondered how the bats were getting into work areas. Many thought it was the construction going on at the building.

Becky Bolt, a wildlife ecologist with Dynamac Corp., said during the past couple of years there have been about 35 incidences of bats flying around in the work space.

"I started getting calls as far back as 2006," Bolt said. "So we started investigating where the bats were coming from."

EG&G brought in a High Reach aerial lift to get Fly By Night's Tom Finn, Laura's husband, to the spot where the bats were getting in.

Bushes wouldn't allow the lift to extend enough to reach the fourth floor for an exclusion of the bat colony. So they needed a plan and Tom Finn knew exactly what was necessary.

"I'll just lean over the edge and take care of it," he said.

Tom Finn installed an exclusion device that allows bats to leave the building but not re-enter.

"They need something to hold onto when they return to the roost," he said. "The device makes it too slippery to get back in."

Our hopes are they will establish with another colony along State Road 3 or the NASA Causeway bridge."

On Dec. 17, Fly By Night captured 97 bats and transferred them into the bat houses behind the USA Logistics Facility on Kennedy.

"They can bite," Lynn said. "But the bats we were catching didn't feel threatened, so they wouldn't bite."

Laura Finn has visited the largest colony of Mexican free-tailed bats, found in Bracken Cave, north of San Antonio, Texas. There are an estimated 20 million bats in that cave.

"It's hard to describe the feeling you get watching them come out of the cave," Laura Finn said. "It's breathtaking to see that many bats in one place."

NASA/Tim Jacobs

Fly By Night Inc.'s Tom Finn installs a hallow tube to allow the bats in the Operations and Checkout Building to get out, but not in. The slippery inside prohibits bats from climbing up. Finn says an empty tube of caulk does the job.

NASA/Tim Jacobs

According to Laura Finn of Fly By Night Inc., the largest colony of bats at Kennedy Space Center is underneath the bridge at State Road 3 and NASA Parkway.

More information

If you think you see a bat roost at Kennedy Space Center, contact Becky Bolt at 867-7330 or e-mail **Mary.R.Bolt@nasa.gov**.

If your want more information on bats or to view a live bat house cam feed, go to: **www.flybynightinc.org.**

Remembering Our Heritage

747 took on jumbo task 35 years ago

By Kay Grinter
Reference Librarian

NASA file/1995

The NASA logo on a hangar at Dryden Flight Research Center is framed by NASA's two modified 747 Shuttle Carrier Aircraft. The one on the left is the 747-100 model, designated 911, and the other is the 747-100SR (short range), designated 905. The two aircraft are identical in appearance and performance as shuttle ferrys.

The space shuttle has wings and lands on a runway like an airplane, but that's where the similarities stop. Once it reenters Earth's atmosphere, the shuttle is a glider and unable to fly anywhere without assistance.

NASA envisioned securing the shuttle to another aircraft for transport between ground locations.

Modification of an existing jumbo jet into a Shuttle Carrier Aircraft, or SCA, was the most practical approach. The larger plane could provide the shuttle with a ferry or piggyback ride to any destination. A gantry-like structure for lifting and mating or demating the shuttle to the SCA could be created for the specialized task.

Consideration was given to adapting the Lockheed C-5A Galaxy carrier and the Boeing 747 passenger aircraft. The availability of low-cost, used 747s swayed NASA's decision, and Boeing was awarded the contract to make the modifications.

NASA purchased a Boeing 747-123 from American Airlines for $15 million in July 1974. The jet had logged about 9,000 flight hours primarily between New York and Los Angeles. It was redesignated NASA 905.

The plane was first used in a flight research program conducted by NASA's Dryden Flight Research Center in California to investigate the problems associated with wake vortex flow from side body jet transports.

Following the research program, the 747 was returned to Boeing in April 1976 for modifications to support NASA's Space Shuttle Program.

First, its main structure was reinforced to support the 200,000-pound weight of the shuttle. Then, forward and aft supports and adapters were positioned atop the fuselage to carry the shuttle, and tip fins were added to the plane's horizontal stabilizer to provide additional aerodynamic stability during mated flight.

Modifications also were made within the cockpit. Instruments were installed to monitor shuttle electrical loads. About 7,000 pounds of pea rock were placed in the forward cargo bay for ballast. Approximately 1,400 pounds of pig iron were added to the main forward section for weight and balance.

The interior was stripped of its seats and galleys. By adjusting the amount of fuel loaded aboard when carrying the shuttle, the takeoff weight of the combination can be kept to less than 713,000 pounds.

Before launch, the shuttle had to pass a series of Approach and Landing Tests. The increased weight and aerodynamic drag of the SCA mated to the shuttle and the need to reach as high an altitude as possible required that the four Pratt and Whitney engines be converted, increasing the takeoff thrust from 43,500 to 46,950 pounds per engine.

During its interesting history, NASA 905 has carried Enterprise, the test model for shuttles, during the crewed and uncrewed flights, while attached to the 747.

Space shuttle Columbia also was returned from Northrup Strip in White Sands, N.M., to Kennedy Space Center atop NASA 905 in April 1982. Wet conditions on Edwards Air Force Base's dry lake bed caused the landing to be diverted.

In the ferry configuration, the SCA cruises low and slow -- typically 288 mph between 13,000 and 15,000 feet -- providing sky watchers with a good view as it flies by.

A pilot, co-pilot and two flight engineers make up the SCA crew. The shuttle is carried without a crew.

Japan Airlines sold a second 747 to NASA in 1989. NASA took delivery of NASA 911 at the Boeing facilities in Wichita, Kan., in November 1990.

NASA 911 is used for most ferry flights today, most recently the return of Endeavour from California following mission STS-126 in December.

NASA Employees of the Month: January

NASA/Sandy Joseph

Employees of the Month for January are, from left: Linda Foster, Launch Services Program; Weiping Yu, Engineering Directorate; Daniel Hull, Center Operations; Al Jenkins, Information Technology & Communications Services; Rommel Rubio, Launch Vehicle Processing Directorate; Ellen Lamp, Procurement Office; and Lisa Huddleston, Engineering Directorate. Not pictured are: Daniel Schultz, Applied Technology Directorate; Jennifer Lindsey, Constellation Project Office; Ronald Long, Safety & Mission Assurance Directorate; and Douglas Younger, Center Operations.

NASA Employees of the Month: November

NASA

Employees of the Month for November, are, from left: Charles Barry Broughton, Launch Integration Office; Mark Woloshin, Constellation Project Office; James Lichtenthal, Center Operations; Gary Beatovich, Launch Services Program; Jeannette Lockman, Safety & Admission Assurance Directorate; Wyck Hebert, Information Technology & Communication Services; Kevin Vega, Engineering Directorate; and Clifford Hausmann, Launch Vehicle Processing Directorate. Not pictured are: Victoria Salazar, Engineering Directorate and Gladys Escobar, Procurement Office.

Looking up and ahead

No earlier than Jan. 13	Launch/CCAFS: Delta IV, NROL-26; TBD
Feb. 4	Launch/VAFB: Delta II, NOAA-N Prime; 5:22 a.m. EST
Target Feb. 12	Launch/KSC: Discovery, STS-119; 7:36 a.m.
March 7	KSC All-American Picnic, KARS Park I
No earlier than May 5	Launch/VAFB: Delta II, STSS-ATRR; TBD
No earlier than April 6	Launch/CCAFS: Delta IV, GOES-O; TBD
Scheduled for March 5	Launch/CCAFS: Delta II, Kepler; 10:48 p.m. EST
April 24	Launch/CCAFS: Atlas V, LRO/LCROSS; TBD
Target May 12	Launch/KSC: Atlantis, STS-125; 1:11 p.m.
Target May 15	Launch/KSC: Endeavour, STS-127; 4:52 p.m.
Target July 11	Launch/KSC: Ares I-X test flight/Launch Pad 39B; TBD
Target Aug. 6	Launch/KSC: Atlantis, STS-128; TBD
No earlier than Oct. 8	Launch/CCAFS: Atlas V, SDO; TBD
Target Nov. 12	Launch/KSC: Discovery, STS-129; TBD
Target Dec. 10	Launch/KSC: Endeavour, STS-130; TBD
Target Feb. 11, 2010	Launch/KSC: Atlantis, STS-131; TBD
Target April 8, 2010	Launch/KSC: Discovery, STS-132; TBD
Target May 31, 2010	Launch/KSC: Endeavour, STS-133; TBD

WORD ON THE STREET

Did you make any New Year's resolutions?

"No, because I'm still working on all the stuff I didn't finish last year."
Gena Henderson, with NASA

"No. I don't do that anymore. I just ask God to help me and give me strength."
Ernest Campbell, with Abacus Technology Corp.

"Yes, to make sure I'm a very good mom to my 2-year-old son, Riley."
Kristina Bumgarner, with NASA Exchange

"I didn't make one this year. But I am trying to help others and keep trying to do a better job."
Chris Hopkins, with Halo Safety Inc.

"No. I made my resolutions in 2008 and I'm still trying to finish them."
Betty Lee, with NASA

John F. Kennedy Space Center

Spaceport News

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