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Spaceport News

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INSIDE . . .

Mission targets uncharted 'water'

By Steven Siceloff
Spaceport News

A pair of spacecraft is heading to the moon to gather information about potential landing sites and to find out whether water exists on or near the lunar surface. The missions are NASA's first to the moon in 10 years, and come 40 years after astronauts first walked there.

The Lunar Reconnaissance Orbiter, LRO, and Lunar Crater Observation and Sensing Satellite, or LCROSS, lifted off together atop an Atlas V rocket from Cape Canaveral Air Force Station on June 18 at 5:32 p.m.

Although both spacecraft are headed to the moon, their missions are using far different methods to study Earth's closest neighbor.

LRO entered lunar orbit Tuesday morning, four days after launch. Each of its instruments will survey the surface on their own, producing a complete map of the moon's temperature scales, radiation levels and precise elevations. Together, the information should give mission planners on Earth what they need to pick out the best place for a lunar outpost in the future.

The LCROSS mission calls for the satellite to steer the empty 5,000-pound Centaur upper stage from the Atlas V into the moon to blast up a plume of material. LCROSS will fly through the plume with its own instruments to try to find proof of ice or water vapor before it too slams into the lunar surface to kick up a second plume.

"You see there's this strong interplay between science and exploration," said Mike Wargo, chief lunar scientist for NASA's Exploration Science Mission Directorate. "We're going to have a really comprehensive set of data sets that NASA needs to return to the moon."

The missions build on past research of the moon, including signs of ice picked up by the Lunar Prospector spacecraft in 1999. LCROSS managers intend to crash the spacecraft into the moon at one of the points where the Prospector saw the best chance for water.

The places thought to have water are at the moon's poles, not the middle regions where the Apollo astronauts landed. Those areas get a lot of sunlight that would boil any water away. But there are large craters at the poles where sun either doesn't shine much, or the crater walls create a large shadow over the floor that could protect water.

Some of the craters do not climb above -200 degrees Celsius, said LCROSS Project Scientist Tony Colaprete.

LCROSS has nine instruments on board, including spectrometers and several specialized cameras.

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NASA/Sandra Joseph -Tony Gray

An Atlas V rocket carrying the Lunar Reconnaissance Orbiter and Lunar Crater Observation and Sensing Satellite launches from Launch Complex 41 at Cape Canaveral Air Force Station on June 18 at 5:32 p.m. LRO and LCROSS are the first missions in NASA's plan to return humans to the moon and begin establishing a lunar outpost by 2020.

Propellants North Facility to break ground

By Linda Herridge
Spaceport News

NASA image

An artist's rendition shows the proposed Propellants North Facility in Kennedy Space Center's Launch Complex 39 area, which will qualify for the U.S. Green Building Council's Leadership in Energy and Environmental Design, or LEED, Platinum designation.

Kennedy Space Center soon will break ground on a new Propellants North Facility in the Launch Complex 39 area that will qualify for the U.S. Green Building Council's Leadership in Energy and Environmental Design, or LEED, Platinum designation. It is the highest designation a LEED facility can achieve, and will be the first for the center.

According to Center Operations LEED Specialist Frank Kline, the new facility will feature a high-efficiency roof and walls, air conditioning with energy recovery technology; efficient variable frequency motors, variable air volume boxes; high-efficiency lighting fixtures; smart lighting controls with step dimming and occupancy sensors; Energy Star appliances; water-conserving bathroom fixtures; and high-velocity hand dryers.

The facility also will have natural daylight using high windows and correct solar orientation; high-efficiency windows; and sustainable flooring using polished concrete and laminated bamboo.

"Center Operations continually strives for excellence as we develop first-rate facilities to support our mission programs and customers," Kline said. "The construction of this new facility reflects our dedication to the environment and the tax payer."

Kline said currently there are only 145 Platinum-rated facilities in the U.S. and only one other in Florida.

"NASA is next," Kline said.

The 10,730-square-foot facility will replace old facilities built in the 1960s. Jones Edmunds and Associates, Inc. of Titusville, Fla., and Green Building Services of Orlando, Fla., completed the design in 2008.

The construction contract was awarded to HW Davis Construction Inc. of Orlando. That company's most recent local project was the Shuttle Launch Experience at the Kennedy Space Center Visitor Complex.

The company will reuse deconstructed Launch Control Center firing room glazing and frames, and reclaimed and processed waste concrete from Kennedy's demolition projects for facility foundation and paving subbase materials.

The roof will be constructed of recycled metal covered with a rainwater harvesting system that will supply restroom fixtures.

Xeriscape landscaping will use native species and recycled crushed crawlerway rock for mulch.

"The building will be 52 percent more efficient than current ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) standards," Kline said.

The green facility will house up to 64 managers, mechanics and technicians who fuel spacecraft at Kennedy. An 1,800-square-foot, single-story shop will be set aside for cryogenic transfer equipment storage.

The new facility is scheduled to be complete in late 2010.

From **WATER,** Page 1

All will look at the flash and plume from the Centaur's impact and relay the information quickly before the spacecraft impacts as well.

The LRO spacecraft, NASA's Hubble Space Telescope and Earth-based observatories will watch debris clouds erupt and search them for signs of chemicals and water.

It's an important study because if astronauts can count on water already waiting at the moon, then they may be able to use it to fuel their engines for the return trip to Earth instead of having to take all their propellants with them at the start. The water also could be broken down and used as air for the astronauts.

LRO's work using seven instruments also is crucial to future missions by astronauts. The Constellation Program has identified 50 potential landing sites that will be intensively surveyed by LRO, said Rich Vondrak, project scientist for the mission.

LRO also will be able to tell which parts of the moon see near-continuous sunlight, another element crucial for astronauts hoping to deploy solar arrays to power their lunar systems.

It will take a month for LRO to map the moon completely. The readings will be compared throughout at least a year of observations to see how radiation, temperature and sunlight change.

With all the new information at hand, mission managers and astronauts expect to go much more safely to the moon than previous space crews and go to different places that have never been studied by astronauts before.

Confident crews work to repair GUCP hydrogen leak

By Linda Herridge
Spaceport News

For the second time in less than a week, launch teams scrubbed space shuttle Endeavour's STS-127 mission because of a hydrogen gas leak at the Ground Umbilical Carrier Plate, or GUCP, during tanking at Kennedy Space Center.

Fueling of Endeavour's external fuel tank with more than 500,000 gallons of super cold liquid hydrogen and liquid oxygen stopped at 1:02 a.m. June 17, while the launch team evaluated the situation. A vent valve was opened and closed several times and a fast flow of liquid hydrogen was restarted.

"It was a very challenging day," said LeRoy Cain, deputy Space Shuttle Program manager, during a post-scrub briefing. "This is a team that will be relentless. We recover from these things and it makes us stronger."

Vent valve troubleshooting took place for about an hour before it became clear the problem could not be solved.

NASA/Tim Jacobs

Workers check out and remove the Ground Umbilical Carrier Plate, or GUCP on Launch Pad 39A at Kennedy Space Center. A hydrogen leak during tanking June 12 and again on June 17, pushed the STS-127 mission launch to no earlier than July 11.

Endeavour's launch was officially scrubbed at 1:55 a.m. by STS-127 Shuttle Launch Director Pete Nickolenko.

"The leak is about the size of the head of a pin around the 7-inch quick disconnect," Nickolenko said. "It's a small area, but we're dealing with hydrogen."

Gaseous hydrogen, or GH2, flow control valves are part of the main propulsion system on the space shuttle. There are three valves within the system, one dedicated to each of the shuttle's main engines. The valves regulate the main engines to the external fuel tank so the tank maintains structural integrity and delivers liquid hydrogen to the engines at the correct pressure.

The leak was is in a location where similar leaks resulted in a scrub on June 13 and another during Discovery's STS-119 tanking in May.

The leaks will be evaluated in order to determine the cause. Cain said data collected during fueling is expected to help the troubleshooting effort.

"Once we get it fixed and we're confident we have a solution that's going to work and allow us to go fly safely, then we'll proceed forward," Cain said.

While teams at Kennedy work tirelessly to find the solution, the STS-127 astronauts are back in Houston continuing to train for their 16-day mission to the International Space Station.

The crew is set to deliver the final two segments of the Japan Aerospace Exploration Agency's Kibo laboratory. During five spacewalks, astronauts will use the shuttle, station and Kibo robotic arms to attach platforms to the Japanese module that will allow experiments to be exposed to space.

STS-127 Commander Mark Polansky, also known as Astro_127 on the social-networking site Twitter, posted this about the scrub: "I'm sure you all know that we postponed again. It's a reminder that spaceflight is NOT routine."

Endeavour's next launch attempt is targeted for July 11 at 7:39 p.m.

Music, military memorabilia ready for trip to space

By Steven Siceloff
Spaceport News

From medallions and patches to a NASCAR team hat, the varied paths of the seven astronauts of STS-127 are reflected in the commemorative items they are bringing along.

Each crew member is allowed to pack a few things into the shuttle for the trip, although there are some limits, including size and weight.

Three of the astronauts have flown before, but that didn't diminish their desire to celebrate their latest flight into orbit.

Commander Mark Polansky flew on STS-98 and STS-116. This time up, his commemorative choices include a banner from East Central High School in San Antonio, his wife's hometown.

Dave Wolf first flew in 1993 and served on the Russian space station Mir for 128 days. His hometown of Indianapolis is represented by numerous articles, including an airplane paperweight.

A piece of sheet music is making the trip into space to commemorate Julie Payette's work with the Montreal Symphony Orchestra. The Canadian astronaut is an accomplished singer and pianist.

Christopher Cassidy, making his first flight into space, reflects his previous career with a host of commemoratives from the U.S. Navy's elite SEAL teams. He's carrying a medallion from the National Navy Underwater Demolition Team – SEAL Museum in Fort Pierce, Fla., plus medallions and patches representing SEAL units across the nation.

Fellow first-time flier Doug Hurley is taking a hat from the NASCAR team Joe Gibbs Racing, along with a T-shirt from his alma mater Owego Free Academy in Owego, N.Y.

Tom Marshburn is bringing a pin from Statesville, N.C., his hometown, along with a pewter coaster from the University of Virginia's engineering department. That's the school he graduated from.

Tim Kopra piloted helicopters in the U.S. Army before joining NASA. He is taking with him a copper medallion from his high school, McCallum High School in Austin, Texas.

Endeavour also is packed with hundreds of items commemorating something not intended to make the trip back – the Exposed Facility of Japan's Kibo laboratory for the International Space Station.

The exposed facility is a platform that attaches to one end of the Kibo section on the space station. The platform will hold experiments designed to study the vacuum of space outside the station's protective confines.

The Japan Aerospace Exploration Agency, or JAXA, will celebrate the achievement of the lab and the mission in part with the patches, pins and flags flying on Endeavour.

Scenes Around Kennedy Space Center

NASA/Jim Grossmann

Col. Jeffrey Macrander, commander with the 920th Rescue Wing, signs copies of his book June 19 at the Kennedy Space Center Training Auditorium. Macrander shared his experiences in support of special-operations forces and rescue-recovery operations from coast to coast, as well as overseas.

NASA/Jim Grossmann

Space Florida Academy alumni gather at the countdown clock during a recent visit to Kennedy Space Center. Back row, from left, are, Kevin LaMott of Science Applications International Corp., Denisse Aranda of SAIC, Emma Rader of Space Florida, Michelle Gilmore of United Space Alliance, Tony Gannon of Space Florida, Charles Payne of Lockheed Martin, Michael Green of Kennedy, James Humphries of Reynolds, Smith and Hills Inc., Aaron Liebold of Kennedy, and Gerard Newsham of Dynamac. Front row, from left, are, Adam Copley of USA, Lukas Lance of Kennedy, and Zach Lance of Kennedy.

NASA/Jim Grossmann

From left, Rep. Steve Crisafulli, Kennedy Space Center Director Bob Cabana and Sen. Mike Haridopolos share a conversation at the National Space Club's June luncheon on June 9 in Cocoa Beach, Fla. The topic of the luncheon was "Space in the 2010 Legislative Session."

NASA/ Tom Farrar

The Kennedy Space Center Education Office, along with the University of Central Florida, hosted 18 education majors in the Pre-Service Teacher Institute Program from June 1-12. Pre-service teachers, along with Lisa Valencia of Kennedy's Education Office, far left, and Linda Scauzillo of UCF, far right, took a photo in front of the Vehicle Assembly Building during a recent tour of Kennedy. The two-week residential workshop increases students' skills in teaching mathematics and science, while incorporating technology in their curriculum. The students prepared and presented lesson plans to Gardendale Elementary students on Merritt Island, Fla.

Eighth annual Kennedy Space Center BEST BBQ a finger-lickin' good time

Above, hundreds of Kennedy Space Center workers, interns and friends attended the eighth annual Kennedy Space Center BEST BBQ on June 12 at Kars Park 1.

At right, interns took part in a scavenger hunt.

Below, judges look over the many entries in the Homemade Dessert Contest. Carolyn Burnham of United Space Alliance took home the top prize with her delicious carrot cake.

Along with the dessert contest, attendees also were able to enter a spades tournament and interns took on employees in tug-of-war.

Photos by NASA/Ben Cooper

Ares I-X rocket heating up for summer launch

By Elaine M. Marconi
Spaceport News

It was an exhilarating time at Kennedy Space Center and throughout NASA as a procession of Ares I-X launch vehicle hardware rolled into the Vehicle Assembly Building, or VAB, on June 11.

Members of the media, program managers and more than 300 Kennedy employees gathered to watch as new sections of the Constellation Program's Ares I-X traveled from the center's Assembly and Refurbishment Facility to the VAB for processing and assembly.

"We are going to build this rocket, we're going to fly it this year and people are going to see that we at Kennedy Space Center can pull things together and get the job done," center director Bob Cabana said. "Thanks to all of you for your hard work and dedication."

The Ares I-X rocket will combine existing and simulated hardware to resemble the Ares I crew launch vehicle in size, shape and weight. With this combination, engineers expect to generate valuable flight data to determine the final design of Ares I -- the vehicle that will launch the Orion crew exploration vehicle.

The forward assembly, which consists of the forward skirt, forward skirt extension and the frustum, connects the 12-foot diameter first-stage motor to the 18-foot diameter upper-stage simulator.

Weighing more than 40,000 pounds, the assembly also houses three newly designed descent parachutes for first-stage recovery.

Interestingly, several parts of the new Ares launch vehicle have their origins in the Space Shuttle Program. The aft skirt, which is still used at the bottom of shuttle's solid rocket boosters, went through a modification process for Ares I-X.

Technicians soon will begin stacking the hardware sections to prepare for the first Ares flight test scheduled for late summer right here at Kennedy.

"The commitment, dedication of everybody here -- I'm proud to be a part of this team and now we can start putting our rocket together," said NASA Ares I-X mission manager Bob Ess. "We've been looking forward to this day for two years now and the fact that we finally got to this milestone is a testament to you all working so hard."

Once stacking operations begin, it will be the first time a new vehicle has been stacked on NASA's Mobile Launcher Platform-1 in more than 25 years.

The launcher was turned over from the Space Shuttle Program to the Constellation Program in March, and holds a rich history from both shuttle and Apollo launches.

"Ares I-X is a key part of the Ares program," said Joe Oliva, first stage program manager for the Ares I-X at ATK Space Systems in Salt Lake City. "This test flight will be a key proof of concept that allows us to have lots of confidence that this vehicle will work as designed."

The flight test of Ares I-X will bring NASA one step closer to its exploration goals of returning humans to the moon for long-duration exploration of the lunar surface and beyond.

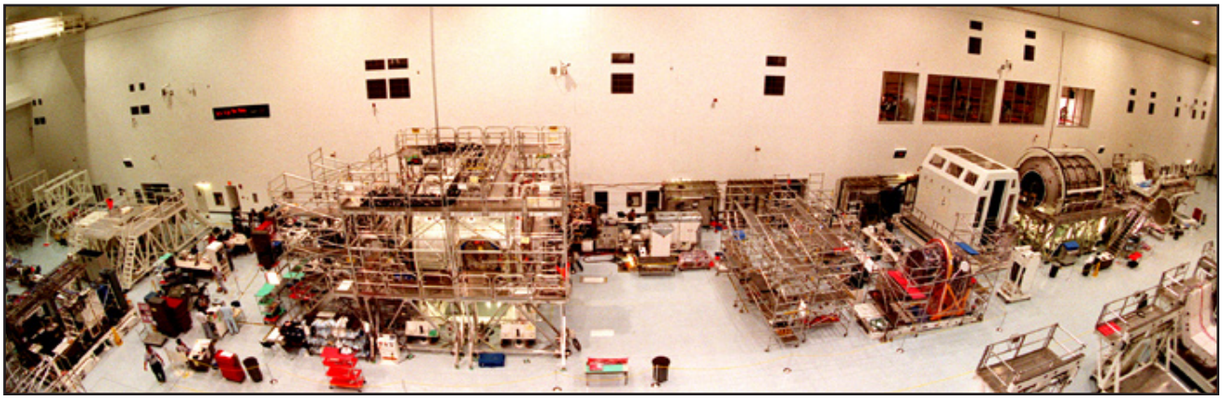
NASA/Kim Shiflett

The Ares I-X fifth segment simulator assembly joins other segments in High Bay 4 of the Vehicle Assembly Building, or VAB, at Kennedy Space Center. The hardware rolled into the VAB on June 11 for processing and assembly. The Ares I-X flight test will allow NASA to gather critical data during ascent of the integrated Orion spacecraft and the Ares I rocket. The data will ensure the entire vehicle system is safe and fully operational before astronauts begin traveling to orbit. Ares I-X is targeted to liftoff from Launch Pad 39B in late August.

Remembering Our Heritage

Space Station Processing Facility dedicated 15 years ago

By Kay Grinter
Reference Librarian



NASA file/1998

The Space Station Processing Facility, which serves as the central preflight checkout and processing point for elements of the International Space Station, was dedicated June 23, 1994 . Construction of the 457,000-square-foot facility began in April 1991. It includes clean rooms for processing station elements with supporting control rooms and laboratories, logistics staging areas, operational control rooms, a cafeteria for employees and office space to accommodate more than 1,000 workers.

Fifteen years have passed since the dedication of the Space Station Processing Facility, or SSPF, the largest processing facility built at Kennedy Space Center since the Apollo era. The ceremonial ribbon was cut June 23, 1994.

Groundbreaking for the crucial facility -- in Kennedy's Industrial Area, next to the Operations and Checkout Building -- was in March 1991. The facility was destined to accomplish a big job: to serve as the central preflight checkout and processing point for elements of the Space Station Freedom, as the International Space Station was called then.

The 456,000-square-foot, three-story building encompasses communications and electrical control areas, laboratories, logistics staging areas, operational control rooms, office areas and a cafeteria. A high bay and an intermediate bay provide 63,000 square feet for space station hardware processing. Adjacent to the primary processing area is a 5,000-square foot airlock. Both the airlock and processing area are 100,000-parts-per-million-rated clean rooms. Glass windows overlooking the high bay provide a public viewing area for the ongoing work on the floor below.

Jacobs Engineering Group Inc. of Lakeland, Fla., designed the facility, and Metric Constructors Inc. of Tampa, Fla., built it. The cost of the SSPF was $72 million.

Jose Perez-Morales was NASA's lead design engineer for the building and its ground support equipment, or GSE, and later was the project manager for the construction and the development of the GSE.

"Building that facility was a kind of funny situation," Perez-Morales said. "The station program went through many redesigns during the design of the building, but there was a big push to have the facility ready by a certain date."

Tommy Mack, NASA's construction manager for the SSPF, agreed.

"We had to mitigate an impact to the scrub jay habitat before we could begin," Mack said. "As construction progressed, we negotiated many contract changes with the prime contractor and their subcontractors. The contract changes were driven by design changes, customer requirements and the construction schedule."

Perez-Morales recalled one particular example, "The Test Control and Monitoring System, or TCMS, software team needed to have access to their space on the second floor long before the facility would be finished. We scheduled the work so TCMS could have early occupancy. With all the station's funding issues and redesigns, the facility was done a couple of years before it was needed."

The first flight hardware was processed through the SSPF in the fall of 1994. The honors went to the Russian-built spacecraft docking module that enabled space shuttle Atlantis to join up with the orbiting Russian space station Mir on the STS-74 mission. Then, the facility lay idle, awaiting the arrival of the first hardware slated for the International Space Station.

Today, Perez-Morales is the senior project manager for the redesign of the launch pads on Launch Complex 39 in support of the Constellation Program. Mack is division chief for Planning, Operations and Partnerships in the Applied Technology Directorate.

During construction of the SSPF, NASA's Ruth Gardner became the operations and maintenance lead representing the Payloads Processing Directorate soon after the groundbreaking. She worked closely with the Design Engineering organization to ensure the facility would meet the station program's needs once it was operational.

"The SSPF is a very well-thought-out facility," Gardner said. "Lessons learned from other processing facilities were incorporated into the design."

The station has lots of different types of flight hardware -- trusses, logistics modules, solar arrays and pressurized modules. Unlike a shuttle bay, which is designed to support one vehicle, the SSPF high bay can be reconfigured. The high bay floor was kept free of fixed structures, and typical utilities and services that run in tunnels underneath the bay, such as power, high-pressure gas lines and communication lines. All of the work stands can be moved with air-bearing pallets. Through the years, the configuration of the high bay has changed hundreds of times.

"We've had so many payloads stuffed in there at times that every square foot was covered with flight hardware," Gardner said.

Gardner was appointed the first facility manager for the SSPF after it was operational in 1994.

Today, she is NASA's Ground Systems Development Project Office manager for the Constellation Ground Operations Project at Kennedy. Gardner is responsible for the development of all ground systems for handling, processing and launching the Constellation launch vehicles and spacecraft, as well as oversight of a very experienced team.

"Many of us who worked on the development of the SSPF are working together again on the development of the new ground systems for Constellation -- an enormous task that eventually will transform the Kennedy Space Center back to the moonport," Gardner said.

Russell Romanella, Kennedy's director of Space Station Processing, welcomed the latest station element -- the Node 3 named Tranquility -- to the SSPF.

"In June 1997, I was here when the first U.S. element arrived -- Node 1, Unity," he said. "Since then, I have seen wave after wave of space station elements come through this facility.

Construction of the station now is 81 percent complete and is the length of the high bay from its far west to its far east ends.

"Over the next year, we are going to fill up this high bay once again -- and for the last time -- as we complete the International Space Station," Romanella said. "It means we are approaching the end of this amazing journey we've been on --building one of the most ambitious structures ever constructed by humankind."

Celebrate Independence Day and the 40th anniversary of the Apollo 11 moon landing

The Kennedy Space Center Visitor Complex has teamed with several businesses and sponsors to put on a firework show July 4. Hosted by the communities of Cocoa Beach and Cape Canaveral, Fla, the event will take place offshore from Shepard Park in Cocoa Beach at 9 p.m. on Independence Day.

Get help on your next 'tech eval'

NASA is offering an automated tool to help evaluate change proposals. TurboTech is a Web-based process for composing technical evaluations of contractor proposals, task orders and delivery orders. To find out more and get a user ID and password, go to: **https://turbotech.gsfc.nasa.gov.**

A Web-based demo will be offered at 1 p.m. June 24 at **https://nasa.webex.com**. For more information, e-mail Zachery Dolch at **Zachary.M.Dolch@nasa.gov**.

Looking up and ahead . . .

June 26	Launch/CCAFS: Delta IV, GOES-O; 6:14 p.m. EDT
No earlier than July 11	Launch/KSC: Endeavour, STS-127; 7:39 p.m. EDT
Planned for July 27	Landing/KSC Shuttle Landing Facility: 12:16 p.m. EDT
Aug. 12	Launch/CCAFS: Atlas V, PAN; 4:55 p.m. EDT
Aug. 17	Launch/CCAFS: Delta II, GPS IIR-21; 6:35 a.m. EDT
Targeted for Aug. 18	Launch/KSC: Discovery, STS-128; 4:25 a.m. EDT
Planned for Sept. 3	Landing/KSC Shuttle Landing Facility: TBD
No earlier than Aug. 30	Launch/KSC: Ares I-X flight test; 7 a.m. EDT
September TBD	Launch/CCAFS: Atlas V, Commercial Payload; TBD
Sept. 15	Launch/CCAFS: Delta II, STSS Demo; TBD
Sept. 30	Launch/CCAFS: Delta IV, WGS SV-3; 7:38 p.m. EDT
No earlier than Nov. 1	Launch/CCAFS: WISE; TBD
Targeted for Nov. 12	Launch/KSC: Atlantis, STS-129; 4:22 p.m. EST
Planned for Nov. 23	Landing/KSC Shuttle Landing Facility: TBD
No earlier than Nov. 12	Launch/CCAFS: Delta IV, GOES-P; TBD
No earlier than Nov. 24	Launch/CCAFS: Atlas V, SDO; TBD
Late November/Early December	Launch/CCAFS: Delta IV, GPS IIF-1; TBD
No earlier than Jan. 23, 2010	Launch/VAFB: Taurus, Glory; TBD
Target Feb. 4, 2010	Launch/KSC: Endeavour, STS-130; 6:20 a.m. EST
Target March 18, 2010	Launch/KSC: Discovery, STS-131; 1:08 p.m. EDT
Target May 14, 2010	Launch/KSC: Atlantis, STS-132; 3:05 p.m. EDT
Target May 23, 2010	Launch/VAFB: Delta II, Aquarius / SAC-D Satellite; TBD
Target July 29, 2010	Launch/KSC: Endeavour, STS-133; 8:45 a.m. EDT
Target Sept. 16, 2010	Launch/KSC: Discovery, STS-134; 1 p.m. EDT
Targeted for Fall 2011	Launch/CCAFS: Atlas V, Mars Science Laboratory; TBD

WORD ON THE STREET

With all the green initiatives taking place at Kennedy Space Center, what are you doing to help our planet?

"Recycle bottles and cans at home . . . and unplug my cell phone charger when not in use."

Omar Izquierdo, with United Space Alliance

"Recycle plastic and paper. If I see trash lying around, I pick it up."

Kelvin Johnson, with Launch Coast Services Inc.

"Replace lights in my house with compact fluorescents . . . they're great in the morning."

Michael Smutek, with NASA

"Besides aluminum, paper and plastic . . . I tell the kids to not stand in front the fridge too long."

Tom Goodnow, with Pratt & Whitney Rocketdyne Inc.

"I recycle bottles and such at home . . . I'm really into the most basic recycling."

Jeff Meach, with United Space Alliance

John F. Kennedy Space Center

Spaceport News

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