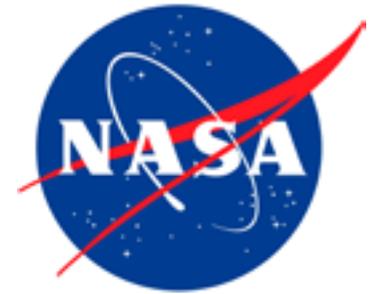


Spaceport News

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



Tranquility, cupola ready for place aboard ISS

By Linda Herridge
Spaceport News

NASA's Tranquility node soon will join the U.S. Destiny, Harmony and Unity modules on the International Space Station. But before its flight next month aboard space shuttle Endeavour on the STS-130 mission, NASA's last major piece of hardware, along with the seven-window cupola, overcame several challenges as they were tested and processed at Kennedy's International Space Station Processing Facility.

The European-built Tranquility was contracted to the European Space Agency, or ESA, and built by prime contractor Thales Alenia Space Agency in Turin, Italy. The node, which arrived at Kennedy in May 2009, was transferred to NASA during a signing ceremony on Nov. 20, 2009.

Kennedy's International Space Station and Spacecraft Processing Directorate worked with the Italian Space Agency to process, test and check out Tranquility and the cupola.

Tranquility Mission Manager Joe Delai, said the module contains about 1,068 pounds of crew and medical supplies, in crew transfer bags installed on three metal platforms, for delivery to the space



NASA/Jack Pfaller

A technician dressed in clean room gear, typically called a "bunny suit," stands by Tranquility, in the Space Station Processing Facility.

station.

"Tranquility contains miles of wiring and plumbing and weighs about 8,000 pounds more than a multi-purpose logistics module," Delai said. "There's space for additional racks, an exercise machine and crew sleeping quarters."

Deputy Director Bill Dowdell noted there was a problem with a heat exchanger in the node and the

processing team used a boom crane to replace it.

"There were a lot of wires to disconnect and reconnect," Dowdell said. "This was a good catch here on the ground. It's better to fix it here rather than having to do it on orbit."

Tranquility is very different from the logistics modules. This is the most complex module since the U.S. lab Destiny was prepared for the station."

Engineers also made significant progress solving a problem with high-pressure ammonia jumper hoses that failed during a prelaunch test. Four hoses will be used to connect Tranquility to the space station's cooling system after installation. NASA and Boeing, the station's prime contractor, will create a second set of hoses from ground spares.

The Boeing Company's processing team, on the Checkout and Assembly Payload Processing Contract, had to get creative when it came to attaching the cupola to Tranquility.

Bret McAfee, a senior engineer with Boeing, said the team located a translation table in storage. The table had been used in the past for processing pressurized mating adapters for the space station and had to be modified for the attachment.

"The design team did a great job refurbishing and getting the table ready," McAfee said.

Delai said NASA, ESA and the Italian Space Agency worked as one team to build and check out the node.

"It is sad to see our European friends leave, but together we have built a wonderful module that will expand the working and living volume of the space station," Delai said.

Commander George Zamka, a veteran of two previous spaceflights, will lead the six-member crew on STS-130. Terry Virts will serve as pilot on his first space shuttle flight. Mission specialists are Robert Behnken, Kathryn Hire, Nicholas Patrick and Stephen Robinson.

During the 13-day mission, crew members will perform three spacewalks and use the shuttle and station robotic arms to attach Tranquility to the Unity node on the station. The cupola will be relocated to a nadir port on Tranquility, facing Earth.

The cupola will allow a near-360-degree view of the station, Earth and space, and will be used as a control room for robotics and living section for crew members.

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Workers rescue thousands of sea turtles from cold

By Anna Heiney
Spaceport News

Law Enforcement Ranger Robert Romer was patrolling the Mosquito Lagoon on the night of Jan. 4 when some fishermen alerted him to a turtle on the shore.

A sudden, severe cold front had just descended across Central Florida, home to NASA's Kennedy Space Center and the Merritt Island National Wildlife Refuge. A "cold-stunned" turtle's metabolism slows dramatically, leaving the animal unable to eat or swim.

"When you find one turtle, you know to start looking," said Romer, who patrols the Canaveral National Seashore for the National Parks Service. "I started walking the lagoon the next morning, and found two more."

Romer picked them up and called the Florida Fish and Wildlife Conservation Commission, which handles rescues and strandings. By the end of the next day, a full-fledged rescue operation was under way.

On the north end of the spaceport, a few miles away from Launch Complex 39, "The Shop" at the Merritt Island National Wildlife Refuge has been transformed from a garage to a sea-turtle rescue facility. Inside, dozens of federally protected turtles -- mostly green sea turtles, along with the occasional loggerhead -- are warming up in plastic pools and on tarps spread across the floor. Wildlife officers, ecologists, biologists and a team of volunteers work quickly to examine newly arriving turtles and move them indoors.

By Jan. 16, more than 2,000 turtles had passed through the facility -- an incredibly rare occurrence



NASA/Amanda Diller

Florida Fish and Wildlife Conservation Commission workers move a green sea turtle into a storage facility at the Merritt Island National Wildlife Refuge on Kennedy. The turtle was one of more than a thousand "stunned" by a sudden and severe drop in temperature earlier this month. Most of the turtles were rescued from the Mosquito Lagoon, with others coming from the Indian River and Cocoa Beach.

for those who monitor the wildlife here.

"You want to keep track of which turtle is which, and where it's going, so it can come back," explained Environmental Projects Manager Jane Provancha, a wildlife ecologist and with Innovative Health Applications at Kennedy. "We're focusing on trying to get animals through here."

That's where Karrie Minch, a wildlife technician with the Fish and Wildlife Commission, comes in.

Several facilities are permitted for sea turtle rehabilitation, and Minch has the challenging task of lining up temporary homes for far more turtles than most of these groups are normally able to handle. Facilities as far away as the Florida Keys and Jekyll Island, Ga., offered a helping hand.

"They've really gone above and beyond," Minch said of the array of aquariums, marine rehab centers and other organizations that have taken in turtles. "They've created

extra pools with warm water. That's really what a lot of these turtles need -- a chance to warm up. Most don't need extra care or rehab for other injuries."

The animals in need are mostly juveniles. Adult sea turtles generally stay in the ocean.

Throughout the cold snap, turtles have been plucked from the water by wildlife workers, volunteers and even fishermen. John Hallberg and his five-year-old son stopped by the rescue facility Jan. 8 with five turtles they'd lifted into their boat. The pair had traveled to the Space Coast from Oviedo, Fla., north of Orlando, specifically to help with the rescue effort.

"We knew they were hurting," said Hallberg. "We collected these in 30 minutes and had to come in -- it was getting too cold."

Roz Grimm was one of several Fish and Wildlife Service volunteers who helped move and measure the animals when they were brought in.

"I was shocked when I got here and saw what this entails, the process of identifying each turtle," Grimm said as she surveyed a half-dozen turtles lounging on a nearby tarp. "But it feels wonderful to be able to help them. They've been so affected by these harsh conditions."

As of presstime, most of the turtles had been returned to the refuge and released back to the lagoon.



NASA/Amanda Diller

A few of the rescued green sea turtles warm up on tarps and cardboard inside a storage facility at the Merritt Island National Wildlife Refuge on Kennedy.

WORD ON THE STREET

"The cold snap that lingered in Brevard County earlier this month forced spaceport workers to focus on saving sea turtles. What did you do to brave the record chill?"

NASA supports Educate to Innovate campaign

NASA has launched an initiative to use its missions and technology programs to boost summer learning, particularly for underrepresented students across the nation.

NASA's Summer of Innovation supports President Obama's Educate to Innovate campaign for excellence in science, technology, engineering and mathematics, or STEM, education.

"We're working out how Kennedy will fit into NASA's Summer of Innovation program," said Dr. Lesley Garner, K-12 and Informal Education lead. "We already have many exciting programs that educate America's next generation of explorers in STEM fields. We're in a unique place to further the president's goal."

The pilot program will work with thousands of middle school teachers and students during multi-week programs in the summer of 2010.

NASA's goal is to increase the number of future scientists, mathematicians and engineers, with an emphasis on broadening participation of low-income, minority students.

"This is an incredible opportunity for our administration to come together to address our nation's critical science, technology, engineering and math education needs," said NASA Administrator Charlie Bolden. "Through Summer of Innovation, NASA is calling on our financial and human resources to align with federal, state, and local governments, nonprofit partners, universities and teachers to expand the

opportunity for more of our young people to aspire to and engage in the future prosperity of our nation."

Through competitive cooperative agreements to states, and partnerships with companies and nonprofits, NASA will use its substantial STEM assets -- including Kennedy's scientists and engineers -- to create multi-week summer learning programs.

"NASA's Summer of Innovation will increase the scope and scale of the agency's commitment to a robust program of STEM education opportunities," said Joyce Winterton, assistant administrator for education

at NASA Headquarters.

The program will infuse NASA content and products into existing, evidence-based summer learning programs at the state level coupled with design competitions and events open to students and teachers nationwide. The program will culminate in a national event, in partnership with other departments and agencies.

Contingent upon the availability of funding, NASA intends to competitively select district partnerships in up to seven states to pilot the program during 2010. Awards will have a period of performance of 36 months. Local programs will be

required to develop ways to keep students and teachers engaged during the school year and to track student participants' performance through 2012.

NASA will use the agency's National Space Grant College and Fellowship Program to implement the pilot program.

The Space Grant national network includes more than 850 affiliates from universities, colleges, industry, museums, science centers, and state and local agencies supporting and enhancing science and engineering education, research and public outreach efforts for NASA's aeronautics and space projects.

Space Grant applications will be selected based on alignment with Summer of Innovation goals and objectives. Accordingly, NASA has determined that submitters for this opportunity must be Space Grant Lead Institutions, and only one proposal per state will be accepted.

Inspire next generation, become a mentor/colleague

Throughout the year, Kennedy will have more than 100 students and faculty from diverse fields seeking internship opportunities in the areas of science, technology, engineering and mathematics, as well as accounting and business.

The External Relations Education Programs and University Research Division and the Human Resources Office need your expertise as mentors/colleagues for high school, undergraduate and graduate students, as well as postdoctoral scholars for the summer of 2010 through the spring of 2011. The experience will be rewarding for you, is essential to the success of the intern, and will help inspire America's next generation of explorers.

Mentor/Colleague and Projects Solicitation Forms will be available this month from your directorate administrative officer. For more information contact Benita Desuza at Benita.W.Desuza@nasa.gov or 321-867-3671.

To learn more about education programs at Kennedy, visit www.nasa.gov/offices/education/centers/kennedy/home/index.html.

Mars Experiment Design Competition focuses on teamwork

Before Neil Armstrong stepped foot on the moon, NASA wanted to learn more about Earth's closest celestial body. So, it sent probes and rovers to check out the conditions. The space agency has sent similar missions to the Red Planet, only now it is turning to future explorers to help learn how to live and work on Mars long before humans travel there.

Space Florida recently announced the names of three winning school teams in Florida for the Mars Experiment Design Competition, which will bring the nation one step closer to the Martian surface.

Lake Nona Middle/High School in Orange County: Team "Geeky Lions" will perform geology and biology field studies with

its experiment called "Can Water Plus Martian Soil Equal Life?"

Mulrennan Middle School in Hillsborough County: Team "TechPlayZone Red Voyagers" will study human factors with its experiment called "Emotional Dynamics"

Golden Gate High School in Collier County: Team "Big Red Mission Crew" will study mission operations with its experiment called "How to Produce Energy"

Space Florida received 32 completed entries in this scientific design competition, which invited Florida middle and high school students to design scientific experiments to send to the Mars Desert Research Station, or MDRS, in Utah in March.

The MDRS is one of four such

facilities throughout the world, and is operated by The Mars Society. Each facility can simulate the environmental and geological conditions encountered on the planet.

Three judges -- all recognized experts in their field of study -- closely examined the entries and agreed that scientific standards were very high.

"We are grateful to everyone who participated. It is obvious that teachers and students worked very closely together so as to come up with these innovative Mars experiments," said Tony Gannon, Space Florida director of education.

The winning teams will now focus on refining their experiments before they are shipped to the facility.

In the spring, and with cooperation from Kennedy and its Digital Learning Network, or DLN, NASA personnel will transmit scientific results obtained from the experiments to the three winning teams. During these transmissions, each team will have an opportunity to interact directly with NASA engineers.

They also will take a virtual tour of Kennedy.

Dr. George Yoakum, science teacher and "Geeky Lions" team leader at Lake Nona Middle/High School said, "Perhaps most importantly, students learned to recognize the strengths of their teammates, peers and mentors, and became comfortable organizing these resources to reach high-quality decisions."

Scenes Around Kennedy Space Center



NASA/Kim Shifflett

Space shuttle Discovery's STS-131 mission specialists, from left, Dorothy Metcalf-Lindenburger, Clay Anderson and Rick Mastracchio, participate in training activities during the Crew Equipment Interface Test, or CEIT, in Orbiter Processing Facility-3. CEIT gave crew members the opportunity to operate the tools contained in the tools stowage assembly that will fly on their mission to the International Space Station. Launch is targeted for March 18.



NASA/Jack Pfaller

External Tank-135 approaches the wide gaping door of the Vehicle Assembly Building on Jan. 5. The tank arrived Dec. 26 aboard the Pegasus barge, towed by a solid rocket booster retrieval ship from NASA's Michoud Assembly Facility near New Orleans. ET-135 will be used to launch space shuttle Discovery on the STS-131 mission to the International Space Station, targeted for March 18.



NASA/Amanda Diller

A sign points space shuttle Endeavour to Launch Pad 39A during rollout Jan. 6. First motion out of the Vehicle Assembly Building was at 4:13 a.m. EST, and the 3.4-mile trip took about six hours. Endeavour's STS-130 mission is targeted for launch at 4:39 a.m. Feb. 7.



NASA/Jack Pfaller

Preparations are under way at Launch Complex 37 on Cape Canaveral Air Force Station to lift the core stage of a Delta IV rocket into its launcher. This view from the mobile service tower shows the proximity of the Atlantic Ocean to the launch pad. The rocket is slated to launch GOES-P, the latest Geostationary Operational Environmental Satellite developed by NASA for the National Oceanic and Atmospheric Administration, or NOAA, on March 1.



NASA/Jack Pfaller

A Boeing spacecraft fueling technician from Kennedy takes a sample of the monomethylhydrazine propellant that will be loaded aboard the Solar Dynamics Observatory, or SDO, which is protectively covered at the Astrotech Space Operations facility in Titusville, Fla. The hydrazine fuel is being sampled for purity before it is loaded aboard the spacecraft. Liftoff aboard an Atlas V rocket is targeted for Feb. 9 from Launch Complex 41 on Cape Canaveral Air Force Station.



For NASA

Nick Wilson, a graduate student at the University of Maryland and a former Kennedy summer intern, received a NASA Gold Dollar award for saving three children from a strong rip current in the ocean. His research is in the area of developing an active vibration isolation system for electronic racks at the launch pads.



For NASA

Valarie Franklin shows off her Certificate of Retirement during her retirement coffee Dec. 11. Franklin has worked for the federal government for the past 33 years, including more than 18 years at Kennedy.



NASA/Jim Grossmann

The walls are propped up for the new Propellants North Facility in the Launch Complex 39 area. Once complete, the building will qualify for the U.S. Green Building Council's Leadership in Energy and Environmental Design, or LEED, Platinum designation, the highest designation a LEED facility can achieve and the first for the center.

MIT students get perspective of spaceflight during visit

Eight aerospace engineering students from the Massachusetts Institute of Technology, or MIT, currently are visiting Kennedy . . . and not just to enjoy the weather now that it has warmed up a bit. In fact, they prepped for months during the fall semester for their three-week visit to the Sunshine State.

Charlie De Vivero, Kwami Williams, Jillian James, Carla Perez-Martinez, Ezekiel Willett, Natasha Bosanac, Andrew Wang and Wendy Pino are being introduced to the operational aspects of spaceflight and learning about the relationship between design and operations.

Called the January Operational Internship Experience, the program allows the students to spend time at Kennedy, learning how design decisions made years ago influence maintenance requirements today. They also will understand how the relationship between



NASA/ Troy Cryder

Eight aerospace engineering students from the Massachusetts Institute of Technology peer into a Michelin tire used on a space shuttle flight during a recent tour of Kennedy's Logistics Facility.

design and operations is extremely difficult to learn in the classroom, but critical for the successful practice of engineering.

"Kennedy gives us a definite insight into our future . . . to what we can do. It's the best preparation we can receive," Vivero said.

Enabling students to gain an operational perspective in the exciting atmosphere of Kennedy could lead to summer employment and eventually new hires by NASA and Ken-

ned aerospace contractors, thus contributing to NASA's future work force needs.

This program also offers NASA the opportunity to make a unique experience available to students without burdening Kennedy resources during the summer, when the center already is hosting a number of student programs.

Sponsored in part by Kennedy's Education Office and the Massachusetts Space Grant Consortium, the program began as a

discussion with then-NASA Deputy Administrator Fred Gregory during his visit to MIT in mid-November 2002. In January 2003, 12 students made the inaugural visit. Since then, more than 50 students have been involved in the program.

Once in Florida, students receive introductory briefings and tours of Kennedy and Cape Canaveral Air Force Station, as well as contractor operations, to get an overview of space shuttle, International

Space Station, payload and expendable launch vehicle processing.

Then, the students divide into teams to gain a more intimate familiarity with the Constellation, Engineering and Launch Vehicle Processing directorates. Students will have the opportunity to interview senior engineers about the history of the programs they are working on and how daily activities are influenced by the initial design.

"Every day we see a different aspect of Kennedy Space Center and I'm just blown away from everything . . . the beauty of the center is its uniqueness," Williams said.

Formal papers describing their experience and what they learned will be required from all students at the end of their visit, Jan. 29. In the future, Kennedy and the Massachusetts Space Grant Consortium hope to expand this program to students across the United States.

Cold weather raises tornado threat; text alerts available

By William P. Roeder
45th Weather Squadron

February through April is the normal winter severe weather season for east Central Florida. But the 2009-10 severe weather season likely will start earlier and could be more severe due to an on-going El Nino -- warmer than normal water in the tropical Pacific Ocean.

El Nino strengthens the subtropical jet stream, steering more storms toward Florida and causing more severe thunderstorms.

Winter-spring tornadoes are caused by strong cold fronts moving into the area. The stronger the cold front, the higher the chance that tornadoes will occur and the stronger the tornadoes likely will

More info online

You can view the 45th Weather Squadron's daily, 24-hour and weekly planning forecasts at:
www.patrick.af.mil.

be. Strong cold fronts can cause tornadoes in Brevard County, beginning as early as December.

Rather than waiting for a tornado to strike, it is much better to be prepared. Tornado safety is an easy, two-step process.

Step 1, Have a Plan: Identify the safest room and ensure everyone knows where it is and how to get there. The safest rooms typically are on the lowest floor with inside walls between you and the outside wall. Small rooms away from windows

with solid construction, such as restrooms and closets, offer the best protection. A strong table and thick pads can protect you against falling debris, and motorcycle and sports helmets can protect your head. People in mobile homes or other weak portable buildings should seek proper shelter elsewhere. A common myth is to open windows to let the building breathe, but houses do not explode from decompression in a tornado -- opening a window actually increases the danger. Store any loose outside materials and close protective shutters if there is time before high winds start.

Step 2, Keep Informed: Obtain a NOAA All Hazards Radio, formerly known as NOAA Weather Radio, for immediate alerts.

NOAA radios even provide

alternatives for the hearing and visually impaired. Currently, radios don't cover 2 percent of the country, so it's important to test the reception of new radios.

It's also a good idea to receive backup severe weather alerts. Some county emergency management offices and all Orlando (Fla.) TV station Web sites send free text message and e-mail alerts to cell phones. You can even set different ring tones for those alerts, e.g. a loud alarm. Some of these services also allow targeting of messages to specific locations so that you are notified only of warnings that affect you.

The National Weather Service is expanding their text message and e-mail warnings to the general public during 2010-11.

Remembering Our Heritage

NASA celebrates decade of research, looks ahead

By *Rebecca Sprague*
Spaceport News

NASA is entering its 10th year of human presence aboard one of the greatest technological accomplishments in history -- the International Space Station. Kennedy reaches beyond station processing and launch operations, to health, energy conservation, the environment, and ultimately our quality of life.

"We have some awesome new technologies on board the station that were developed right here at Kennedy," said David Cox, project manager for International Space Station Research.

Cox and his team at Kennedy's Space Life Sciences Laboratory, or SLSL, sent the Advanced Biological Research System to the station in November 2009 aboard space shuttle Atlantis on the STS-129 mission.

The single locker system is being used to determine whether gravity has a direct effect on plant cells that cause stems and roots to grow.

Also developed in the SLSL is an experiment that uses real-time Portable Green Florescent Protein, or GFP, imagery so biologists can determine how plants react in space, particularly through droughts, inadequate lighting and uneven temperatures.

"The camera captures the green image and saves it to secure digital cards, and selected images can be downlinked to the ground daily for evaluation," said Howard Levine, a project scientist in the Surface Systems Office at the SLSL.

A foot-long tubular device has revolutionized tissue preservation aboard the station. The Kennedy Fixation Tube, or KFT, holds



Expedition 22 Commander Jeffrey Williams conducts a daily status check of a plant experiment in the Kibo laboratory of the International Space Station. Williams is holding a Kennedy Fixation Tube, or KFT, which revolutionized biological tissue preservation in space by providing hazardous chemical fixation in a triple contained device.

NASA

tissue samples during flight, as well as chemicals to fix and stain those samples. Several KFTs have been included in station payloads and used with a variety of plant specimens and fixatives, such as soybeans and formaldehyde.

In 2008, Kennedy's Engineering Directorate helped integrate a new Solid State Lighting Module, or SSLM, aboard the space station that the SLSL had developed. Station crews switched out fluorescent lighting fixtures with lights that use the same technology as the holiday string lights that recently adorned roofs and trees --

light-emitting diode, or LED.

"LEDs are uniquely suited to spacecraft since they are lightweight, low power and generate less heat than other light sources," said Dan Shultz, SSLM project manager. "By choosing a white LED with a strong blue peak, we help maintain circadian rhythm and thereby alertness in the crew."

Shultz says next-generation SSLMs will contain multiple banks of LEDs to provide an "engineered" spectrum, for example a visible white light with a red, green and blue peak.

The SLSL researchers have even looked at options

past shuttle retirement to get critical experiments to the station. The team developed FASTRACK, a platform designed to accommodate two single middeck lockers, or one double locker, and other compatible experiment accommodations. In September 2008, the platform took to the skies aboard Zero

Gravity Corp.'s reduced gravity aircraft for testing.

With plans from Congress to designate a portion of the station's U.S. operating segment into a full-time National Laboratory, the platform could enable Kennedy to keep sending research and education missions long after the shuttle retires.

"The National Laboratory concept's success is very dependent on the success of COTS vehicles from SpaceX and Orbital Science Corp. being able to deliver payloads to the ISS," said Shannon Skinn, Kennedy's National Lab project lead. "Once those vehicles show their abilities, we expect the Space Life Sciences Lab to become a key facility for processing experiments and payloads for launch."

As the capabilities of new launch vehicles mature, Skinn says the SLSL can expect a "gold rush" of microbial virulence, or infectious disease, research to come through, as well as research and technology from other National Lab partners, such as the U. S. Department of Agriculture.

Levine said, "During the next 10 years we expect research coming out of ISS will result in new vaccines, medicines and numerous commercial applications that are currently unanticipated, all of which will benefit both life on Earth and NASA's efforts to further our exploration of space."

Download 2010 ISS calendar

To celebrate the 10th anniversary of people continuously living aboard the International Space Station, NASA designed a special 2010 calendar with unique images and highlights of historic space exploration milestones aboard the orbiting laboratory. You can download a copy for free at: www.nasa.gov/station.

NASA Employees of the Month: January



NASA

Employees of the month for January are, from left: William Shockley, Procurement Office; Paul Jagdmann, Launch Services Program; Edsel Sanchez, Constellation Project Office; Robert Kline, Center Operations; Pamela Zeitler, Employee of the Quarter, Constellation Space Transportation Planning Office; Isolda Galiana-Liang, Information Technology and Communications Services; and Amy Simpson, Launch Vehicle Processing Directorate. Not pictured are, Peter Johnson, Engineering Directorate; James Broughton, Engineering Directorate; and Christopher Torres, Safety and Mission Assurance Directorate.

Looking up and ahead . . .

Targeted for Feb. 7	Launch/KSC: Endeavour, STS-130; 4:39 a.m. EST
No earlier than Feb. 9	Launch/CCAFS: Atlas V, SDO; 10:30 to 11:30 a.m. EST
No earlier than March 1	Launch/CCAFS: Delta IV, GOES-P; Window 6:19 to 7:19 p.m. EST
March 3	Launch/CCAFS: Falcon 9, Window 11 a.m. to 3 p.m. EST
Targeted for March 18	Launch/KSC: Discovery, STS-131; 1:34 p.m. EDT
Targeted for April 19	Launch/CCAFS: Atlas V, OTV; TBD
Targeted for May 13	Launch/CCAFS: Delta IV, GPS IIF-1; 3:19 to 3:37 a.m. EDT
Targeted for May 14	Launch/KSC: Atlantis, STS-132; 2:28 p.m. EDT
Targeted for July 29	Launch/KSC: Endeavour, STS-134; 7:51 a.m. EDT
Targeted for Sept. 16	Launch/KSC: Discovery, STS-133; 11:57 a.m. EDT
No earlier than Nov. 22	Launch/VAFB: Taurus, Glory; TBD
Targeted for December	Launch/CCAFS: Delta IV, GPS IIF-2; TBD
Aug. 5, 2011	Launch/CCAFS: Atlas V, Juno; TBD
Aug. 15, 2011	Launch/Reagan Test Site: Atlas V, NuSTAR; TBD
Sept. 8, 2011	Launch/CCAFS: Delta II Heavy, GRAIL; TBD
To Be Determined	Launch/VAFB: Delta II, Aquarius / SAC-D Satellite; TBD
To Be Determined	Launch/VAFS: Delta II, NPP; TBD
No Earlier Than October 2011	Launch/CCAFS: Atlas V, Mars Science Laboratory; TBD

WORD ON THE STREET

The cold snap that lingered in Brevard County forced spaceport workers to focus on saving sea turtles. What did you do to brave the record chill?



"I put on everything I could underneath. I'm from Puerto Rico and I've never experienced this cold before."

Emmanuel Navedo,
with ASRC Aerospace Corp.

"I couldn't ride my Harley . . . although my husband and I tried. I really didn't like the cold very much."

Christine Vanaman,
with Innovative Health Applications



"I had to wake up an hour earlier to defrost my car. I hate cold weather . . . that's why I moved to Florida."

Casey Booth,
with NASA Exchange

"I did cover up my plants. But I like the cold weather. It actually was quite refreshing."

Maggie Forbes,
with NASA



"I've just been down here from New Jersey for only two years. My blood hasn't thinned out yet."

Kevin Bivona,
with ASRC Aerospace Corp.



John F. Kennedy Space Center

Spaceport News

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