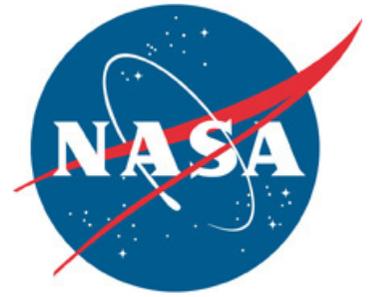


Spaceport News

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



Kennedy releases Gulf Coast sea turtle hatchlings

By *Steven Siceloff*
Spaceport News

Dozens of endangered baby sea turtles are having an unusual birthday at Kennedy Space Center with the help of dozens of officials and volunteers who rescued them from the oil spill-threatened northeastern shores of the Gulf of Mexico.

Two groups of Kemp's ridley sea turtle hatchlings have been released onto Atlantic Ocean beaches so far as the unprecedented operation to save sea turtle nests ramps up.

The Merritt Island National Wildlife Refuge was established in 1963 as an overlay of Kennedy, where it shares the land with space shuttle launch pads, rockets and research and development facilities. In addition, Canaveral National Seashore is partially in Kennedy also, and together these agencies provide more 24 miles of sea turtle nesting beach habitat.

"We are home to many species of protected wildlife and we hope to provide these sea turtles with a better chance of survival," Center Director Bob Cabana said.

The release and relocation work is part of the environmental endeavor by the U.S. Fish and Wild-



NASA/Kim Shifflett

The first group of hatchlings from endangered sea turtle eggs brought from beaches along the northern U.S. Gulf Coast are released July 10 into the Atlantic Ocean off Kennedy Space Center. Jane Provancha, right, is Kennedy's lead biologist at the hatchery and is heading-up the project. The photos were shot using a red filter to protect the hatchlings.

life Service, the Florida Fish and Wildlife Conservation Commission, the National Park Service, NOAA, FedEx and conservationists to help minimize the risk to this year's sea turtle hatchlings from impacts of the oil spill. During the next several months, this plan involves carefully moving an anticipated 700 nests to

Kennedy that have been laid on the Florida Panhandle and Alabama's beaches.

The hatchlings are part of the same populations of species that lay their eggs on the Atlantic and Gulf coasts. The endangered species include loggerhead turtles, but nests from leatherback and green turtles,

in addition to Kemp's ridley, may be brought to the Kennedy hatchery. In all, about 50,000 hatchlings normally start their lives on Gulf Coast beaches during hatching season.

From hand-picking each egg from beaches on the northern Gulf of Mexico, to trucking them in custom vehicles from FedEx to incubating them at Kennedy and finally releasing them to crawl into the surf, the work is about as delicate as it gets.

Left on their own, the turtles likely would have been helpless against the effects of the BP Deepwater Horizon oil spill, wildlife officials said.

"We understand that significant risks remain, but the option of allowing tens of thousands of turtle hatchlings to crawl into oiled waters of the northern Gulf of Mexico is not acceptable," said Rodney Barreto, chairman of the Florida Fish and Wildlife Conservation Commission.

Jane Provancha, the lead biologist and environmental project manager for Innovative Health Applications (IHA) at the Kennedy hatchery, said the first nest was received June 26, about 10 days

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Workshop addresses CRYOTE possibilities

By Linda Herridge
Spaceport News

NASA is investigating new and unique ways to launch small secondary payloads aboard future expendable launch vehicle missions. One of these ways is on a CRYogenic Orbital Testbed, or CRYOTE.

To help facilitate the means to accomplish a CRYOTE secondary payload mission, the Fluids Test and Technology Development Branch of Kennedy Space Center's Engineering Directorate hosted a Secondary Cryogenic Payload Testbed Workshop, July 14 and 15.

Fluid engineers and experts from industry, trade, academia, and four NASA centers gathered to share ideas and determine if and how they can participate.

"We need your help. We need your ideas," workshop facilitator Wesley Johnson said. "We want to be able to share data. Working together as a team is important."

CRYOTE is an orbiting laboratory designed to investigate cryogenic fluid management technolo-

gies in space. The CRYOTE Lite ground test article, assembled by Innovative Engineering Solutions in San Diego is a spherical titanium tank about 30 inches in diameter with a skirt that connects to the existing expendable launch vehicle structure.

Various parts of CRYOTE were donated by United Launch Alliance, Sierra Lobo and Kennedy. CRYOTE would launch as a secondary payload on the Atlas V or Delta IV, placed between the primary payload and upper stage.

The cryogenic fluids test engineer said the purpose of the workshop was to gather experts on cryogenic fluids together and get all the ideas put on the table so the agency has as much information as possible before moving forward to actual CRYOTE flights.

"It also allows NASA to ask industry what they see as the best way forward in a much more relaxed and conversational manner than a request for information," Johnson said.

After the primary payload is

deployed, the residual Centaur propellant would be transferred into CRYOTE Lite, which would remain attached to the Centaur or Delta IV upper stage.

Following CRYOTE missions would have their own avionics systems with which to deploy from the Centaur.

"We would love to get a flight off in 2012," Johnson said. "That seems to be a little bit ambitious but we'd like to get a start in 2012 and fly at least annually."

Johnson said the purpose is that it allows NASA to fly multiple options with different pieces of hardware which might fly on a flagship demonstration or any other upper stage demonstration.

"It allows us to test multiple pieces of hardware that do similar functions to see which one operates the best and how different pieces of hardware operate together," Johnson said.

Workshop topics included a CRYOTE project overview, current CRYOTE status, the technology demonstration mission program,

NASA technology-enabled exploration strategies, the agency's Innovative Partnerships Program, and CRYOTE demonstration flight requirements and desired results.

Johnson said part of the problem in the past with long-duration upper stage or lander stages was the relative poor performance of non-cryogenic propulsion.

He said the cryogenic fluid management community has been striving for a microgravity demonstration since the late 1960s.

"There has been a chicken-and-egg scenario going on for 40 years in which long-duration cryogenic storage can't be baselined into a proposed architecture because it has never been demonstrated," Johnson said. "Since it isn't baselined, it has been nearly impossible to get funding for a demonstration flight. As a secondary payload, CRYOTE could greatly reduce the cost of technology demonstration for many technologies that need the cryogenic microgravity environment."

STS-132 crew returns to share highlights with workers

By Linda Herridge
Spaceport News

During an STS-132 crew return presentation to Kennedy Space Center workers, July 16, Commander Ken Ham said it's an immense privilege to go into space and look back at the planet, but with that privilege comes responsibility.

"That responsibility is to share it with as many people as we can. Being in space does give you a bit of a different perspective on life and our planet," Ham said. "It is a privilege for us to come back to NASA centers. It's you guys that are part of the entire team that make the whole operation happen."

Ham said he and Pilot Tony Antonelli toured the



NASA/Cory Huston

Behind the STS-132 crew is a picture of them in their famous "blue jackets," which Commander Ken Ham says shows their true identity. Ham says Mission Specialist Garrett Reisman was the crew "mojo officer" and told the members when to wear the jackets to work.

main engine shop before joining crew mates Steve Bowen and Piers Sellers for a slideshow and video presentation, featuring music from Muse, at Kennedy's Training Auditorium. Mis-

sion Specialists Garrett Reisman and Michael Good were not able to attend.

Ham said the engine workers really liked the STS-132 mission patch because it features a great view

of the main engines.

Ham said the cupola, which was delivered and attached to the station on a previous mission, is like an observation deck from which the entire horizon of Earth can be viewed.

"It's an absolutely amazing place to be," Ham said. "It's all of our responsibility to take care of the Earth, keep it running and make sure we have something to pass on to the next generation."

Space shuttle Atlantis launched the STS-132 mission from Kennedy's Launch Pad 39A on May 14, and glided to a safe landing at the center's Shuttle Landing Facility on May 26, after a 12-day mission.

It was Atlantis' 32nd flight, the 132nd shuttle

mission and the 34th shuttle flight to the space station. It also was the 150th launch from Launch Complex 39.

Crew members took turns describing the launch, the activities and spacewalks involved in delivering and attaching the Russian-built Mini-Research Module-1 and an integrated cargo carrier to the International Space Station, their experiences on the station, as well as landing.

Sellers said the station is nearly complete and weighs about 500 tons.

"It's an unbelievable achievement. It's all for peaceful purposes, all for science. There's nothing but good here. You can all feel terribly proud of what you've done," Sellers said.

External tank for STS-134 mission arrives at Kennedy

By **Linda Herridge**
Spaceport News

NASA External Tank and Solid Rocket Booster Manager Alicia Mendoza and several tank technicians marveled as they watched External Tank-138, or ET-138, slowly emerge from the Pegasus barge and begin its trip to the Vehicle Assembly Building at Kennedy Space Center on July 14.

"It's an impressive sight. It's not our last tank, but it is our last flight tank," Mendoza said. "It's a bit-sweet moment. This one is special because right now it's planned to be the last mission."

ET-138 completed its six-day, 900-mile journey to Kennedy from NASA's Michoud Assembly Facility in Louisiana, arriving on July 13.

Engineers and technicians walked alongside the tank, inspecting for any minor flaws, as it moved slowly along. After reaching the transfer aisle in the Vehicle Assembly Building, the tank was lifted off its transporter and placed in a test cell July 15 so the ET closeout team workers could perform inspections and system tests.

Weighing in at 58,000 pounds unfueled and 1.6 million pounds when fu-



NASA/Jim Grossmann

External Tank-138 is offloaded from the Pegasus barge July 14 in the Launch Complex 39 area at Kennedy Space Center. The external fuel tank arrived in Florida on July 13 from NASA's Michoud Assembly Facility near New Orleans. ET-138, the last newly manufactured tank, is designated to fly on space shuttle Endeavour's STS-134 mission to the International Space Station. Launch is targeted for Feb. 26, 2011.

eled, the tank will be used to launch shuttle Endeavour on the STS-134 mission to the International Space Station, which is the last scheduled flight for the agency's Space Shuttle Program.

During final processing, technicians will fill plug pull test cylindrical holes with a special type of foam that is hand-poured for small or irregularly shaped repairs, and install and connect the Ground Umbilical Carrier Place, or GUCP to the Intertank.

"The GUCP's purpose is to provide the interface to

the launch pad for purging and venting hydrogen gas as well as provide for electrical pneumatic connections," Mendoza said.

Technicians also will close out specific areas on the tank using thermal protective foam and then trim these areas for a smooth surface.

"The ET work force is amazing. Throughout the years, they have met every technical and manifest challenge with such exuberance and determination for success," Mendoza said.

She said the quality of

the tanks has definitely improved throughout the years. For instance, the tanks are lighter and several process improvements were implemented at the Michoud plant.

"As far as our processing, we've also gotten better. We picked up additional work from the plant," Mendoza said. "Our processing is more efficient. Typically, we can process this tank in about 15 workdays."

Mendoza said although from an outside perspective the tank seems like a simple bright orange vessel that

transports fuel and oxidizer, it actually provides the structural background of the space shuttle system by absorbing the thrust loads produced at launch by the shuttle and the boosters.

The tank will be attached to the twin solid rocket boosters on the mobile launcher in early September.

Mendoza said there is another tank, ET-122, scheduled to arrive at the beginning of October, for shuttle Atlantis in the unlikely event it is needed for rescue mission.

During STS-134, Commander Mark Kelly, Pilot Gregory Johnson, and Mission Specialists Michael Fincke, Greg Chamitoff, Andrew Feustel and European Space Agency astronaut Roberto Vittori, will deliver an Express Logistics Carrier and the Alpha Magnetic Spectrometer to the station.

The crew also will deliver spare parts, including two S-band communications antennas, a high-pressure gas tank, micrometeoroid debris shields and spare parts for Dextre.

The mission is the 36th shuttle flight to the station and the 134th and final scheduled shuttle flight.

Launch of Endeavour on the STS-134 mission is targeted for Feb. 26, 2011, at 4:19 p.m. EST.

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after expert opinions concluded that the relocation was viable and necessary. Eight nests have been received so far, but more than 700 are expected to be relocated by the time the operation closes at the end of hatching season in October.

"We were asked by USFWS and NOAA and we recommitted to support this action through the whole nesting season," Provancha said. "The plan is to move them all because the Gulf is in extremely bad condition."

At this point, the incubation process is producing normal amounts of hatchlings from the nests, Provancha said. "The process of incubation is actually quite simple."

The hard part is any physical movement of the eggs. For instance, the nests cannot be dug up in one scoop by an excavator. Instead, each egg is handled by a trained and authorized official who keeps the egg oriented exactly as it was in its nest. A nest can hold 100 or more eggs.

The eggs and sand are placed

inside Styrofoam containers and brought in the FedEx truck to Kennedy, where they are housed in comfortable darkness and relative quiet in a climate-controlled building. The nests are monitored on a daily basis for temperature and for signs of hatching. Coordination with the Gulf Coast biologists on nest arrivals, tracking nest status and releases will be a continual challenge, they said.

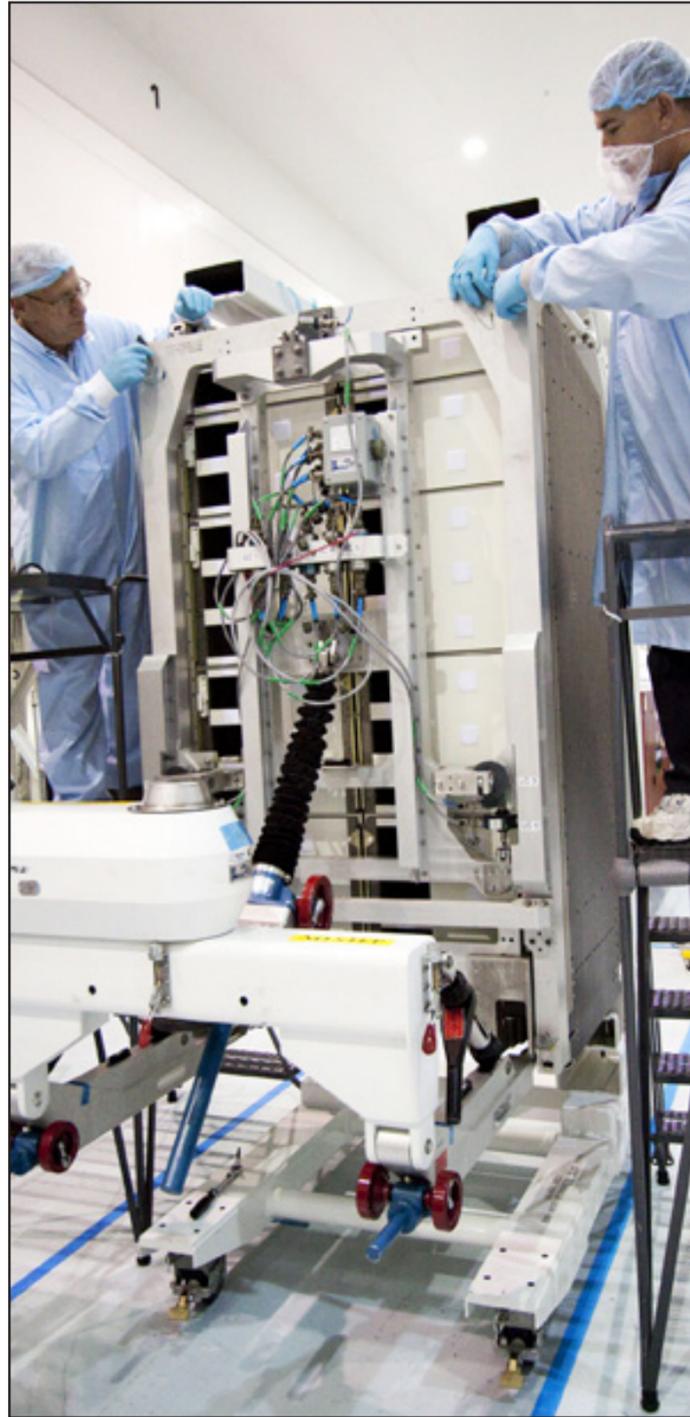
After they hatch, the tiny sea turtles, about half the size of an outstretched hand, are carried to different points along a 100-mile

stretch of the Atlantic shore and set free. Typically, sea turtles make their way offshore to a developmental habitat where they can eat and grow.

With the first round of releases behind them with positive results, workers are learning what works and what can change as they continue to relocate more nests.

Kennedy is helping other wildlife survive the effects of the oil spill, including the recent rescue and release of six brown pelicans, four laughing gulls and one common tern.

Scenes Around Kennedy Space Center



NASA/Jack Pfaller

Technicians prepare to install a resupply rack into the Permanent Multipurpose Module, or PMM, in the Space Station Processing Facility at Kennedy Space Center on July 8. The Leonardo multi-purpose logistics module, or MPLM, is being modified to become the PMM that will carry supplies and critical spare parts to the International Space Station aboard space shuttle Discovery's STS-133 mission. Discovery, targeted to launch Nov. 1, will leave the module behind so it can be used for microgravity experiments in fluid physics, materials science, biology and biotechnology.



NASA/Kim Shifflett

Space shuttle Discovery's STS-133 crew members listen to a technician as he describes the components of a shuttle main engine in the engine shop at Kennedy Space Center. From left, are Mission Specialist Alvin Drew, Commander Steve Lindsey, Pilot Eric Boe, Mission Specialists Tim Kopra, Nicole Stott, and Michael Barratt. The crew members were at Kennedy on July 8 and 9 for the Crew Equipment Interface Test, or CEIT, which provides them with hands-on training and observation of shuttle and flight hardware for their mission to the International Space Station. Launch is targeted for Nov. 1 at 4:33 p.m. EDT.



NASA/Jim Grossmann

George McGovern, a former U.S. representative, senator, ambassador and 1972 presidential nominee, talks with Kennedy Space Center Director Bob Cabana in Headquarters on July 19. In 1960, President John F. Kennedy, for whom the space center is named, appointed McGovern as the first director of the Food for Peace Program and Special Assistant to the President. McGovern and his family were visiting the Space Coast area for a skydiving opportunity.



NASA/Cory Huston

Space Florida hosts a "Best Ideas forum" for local and state leaders, aerospace representatives and economic stakeholders July 7 at the Hyatt Regency Hotel in the Orlando International Airport. The goal of the forum was to showcase projects and concepts that may help Florida's Space Coast region create new jobs and diversify its economy after the Space Shuttle Program's retirement. Forum topics will be presented to the Federal Task Force on Space Industry Workforce and Economic Development for consideration.



NASA/Kim Shifflett

Donor Services Specialist Alli McLellan draws blood from Andrew Nick with ASRC Aerospace Corp. during a blood drive July 7 at Kennedy Space Center's Operations and Checkout Building. The event was sponsored by Florida's Blood Centers.

Engineers: Ares I-X flight test performed beautifully

By *Steven Siceloff*
Spaceport News

The Ares I-X flight test in 2009 met all its primary goals and provided a solid foundation for future rockets, the engineers who designed the rocket and oversaw the launch said during a recent presentation at Kennedy Space Center.

"The rocket just performed beautifully," Deputy Mission Manager Jon Cowart told a group that included engineers who will be counted on to develop future launch vehicles. "Certainly one of the coolest things I have done," he said.

Although the Ares I-X comprised a four-segment solid rocket booster as a first stage and was topped with a dummy fifth segment and upper stage, the results showed the design is solid, Ares I-X officials said.

"It wasn't just good for designing an Ares rocket," Cowart said, "it was good for designing rockets in general."

The launch on Oct. 28, 2009, from Kennedy's Launch Pad 39B answered a great deal of fundamental questions about the rocket's performance and aerodynamic design. For example, Chris Calfee of NASA's Marshall Space Flight Center said the telemetry gave engineers a good look at the thrust oscillations the booster would experience during ascent. Calfee served as the first stage Integrated Product Team leader for the Ares I-X.

"We're confident that's not the problem we first thought it would be," Calfee said.

The rocket was lined with more than 700 sensors that gave engineers enough data to compare with predictions made by computer models.

Marshall Smith, chief of the systems integration office for Ares I-X at NASA's Langley Research Center, said most of the flight results lined up easily with the computer forecasts, including heating predictions that were within 3 degrees of the actual temperatures.

"It wasn't just good for designing an Ares rocket, it was good for designing rockets in general."

Jon Cowart,
Ares I-X flight test mission manager

The results give engineers and designers more confidence to use the models in future rockets and show them where to polish the models.

While the I-X team looked over the data from the flight test for weeks, Cowart admitted slight nervousness on launch day because of a maneuver planned to tip the 327-foot-long rocket slightly away from the fixed service structure at the launch pad.

"We all knew that it was going to do that fly-away maneuver, but when that thing comes off the deck and that thing started to tilt . . . I just didn't think it was ever going to stop tilting," Cowart told the group, laughing throughout. "As soon as it flew away, stopped tilting, no one was happier."

The flight's only flaw came after the first stage burned through its fuel and separated from the dummy upper stage. One of the three main parachutes collapsed entirely during the fall to the ocean and a second partially collapsed, most likely because the device that cuts the reefing lines activated earlier than planned.

With 3 1/2 years from concept to launch, Cowart held up the flight test as an example of quickly working through designs and building the rocket with a great deal of existing technology, such as the avionics of the Atlas V rocket.

With the I-X experience to draw on, the engineers said future rockets can incorporate a number of policies, techniques and models to move ahead quickly from a concept to an operational launcher.

"We helped rocket science in general," Smith said.



NASA/Sandra Joseph - Kevin O'Connell

The Ares I-X rocket roars off Launch Pad 39B at NASA's Kennedy Space Center in Florida on Oct. 28, 2009. The flight test gathered information from more than 700 sensors to give engineers enough data to compare with predictions made by computer models.

Remembering Our Heritage

60 years of spaceport launches started with Bumper 8

By Stan Starr
For Spaceport News

On 9:28 a.m. on July 24, 1950, a tall white Bumper vehicle, a V-2 topped by a WAC Corporal second stage, rumbled off the pad becoming the first rocket launch from Cape Canaveral.

But why was this launch conducted, what events led to this moment and what were the lasting effects of this historic moment?

The V-2 was developed in great secrecy by a large group of German engineers under the technical direction of Dr. Wernher von Braun. The 40-foot-long V-2, which carried a 1-ton payload some 200 miles, was arguably the most important rocket historically because it was the first example of a complete self-guided missile.

It provided the groundwork for all subsequent intercontinental ballistic missile, or ICBM, and space launch vehicles. More than 3,000 were launched during World War II and as Germany crumbled, the U.S. Army captured parts for roughly 100 V-2s. Von Braun and most of his team also decided to surrender to the Americans. More than 100 German engineers and the captured V-2 parts were sent to El Paso, Texas, and nearby White Sands Proving Ground to assist the Army in developing future missile systems.

When they arrived, Americans working for the Jet Propulsion Laboratory, or JPL, already were launching the WAC Corporal, an unguided prototype for the Corporal missile, which would become America's first operational missile system. The WAC was launched out of a 100-foot

tower by a Tiny Tim solid fuel rocket so it would be traveling fast enough for its fins to stabilize flight. The WAC was 12.5 feet long, 12 inches in diameter and carried a payload of roughly 30 pounds.

General Electric was given the job of building, testing and launching the V-2s. Because most of the technical details of the rocket had been published there was little need for secrecy. The Army decided to team up with scientists to use the V-2s as instruments and most available missions were allotted to studying air temperature, missile heating, astronomy and the effects of rocket flight on living organisms. The Bumper Program was conceived dur-

ing a meeting involving JPL, General Electric and the Army and would combine the WAC and V-2 and a "step" rocket to achieve very high velocities and altitudes. These achievements would be made public and help the Army compete for research and development, or R&D, funds during the austere post-war years. Eight V-2s were set aside for the Bumper Project.

The first six flights took place from White Sands and resulted in the flight of Bumper 5, which reached a stunning altitude of 244 miles.

The remaining two rockets were assigned to study aerodynamic heating, a major problem for re-entering missile warheads.

General Electric developed a Teflon nose cone for the WAC, the first ablative thermal protection system.

The trajectory required to achieve this high heating was horizontal flight at only 200,000 feet. This required use of the Long Range Proving Ground, or LRPG, a new range under construction in Cape Canaveral, the Banana River Naval Air Station and at remote down-range islands. The LRPG was just setting up and had no facilities when the Bumpers arrived. The LRPG only had time to build a launch pad, the rest of the facilities were temporary.

The Navy provided two ships to track the Bumper while most of the rest of the equipment was borrowed

from White Sands.

After a misfire on July 22, Bumper 7 was replaced by Bumper 8, which launched two days later. Recently discovered data indicated that the V-2 flew too low due to a gyroscope malfunction and high aerodynamic pressure caused the WAC to break up during staging. The WAC for Bumper 7 was strengthened with extra rivets and separated cleanly, but also flew too low. Neither flight produced the hoped-for data.

The main contribution of these two launches, aside from simply being the first, was the great publicity it provided to the missile program. The photo of the launch remains the most famous photograph of the era.



NASA file/1950

In 1949, the Joint Long Range Proving Ground was established at Cape Canaveral. Bumper 8, a V2, was the first missile launched from the Cape on July 24, 1950. Bumper 7, which launched five days later, was the final flight of the project.

Put your face in space

NASA's Face-in-Space program gives people the chance to put their picture on one of the remaining space shuttle missions and launch it into orbit.

Go to <http://faceinspace.nasa.gov/> and follow the instructions to upload a photo and to find out how to receive a flight certificate at the conclusion of the mission.

Upcoming events . . .

July 24 The KSC Education Office hosts NASA Family Education and Night; 6 to 10 p.m., Astronaut Hall of Fame
Aug. 28 POC: Beverly Davis, 867-3399, beverly.davis@nasa.gov

July 29 Kennedy's Engineering Academy host Dr. Martha Williams and Dr. Luke Roberson, who will talk about polymer chemistry; 10 to 11 a.m., KSC Training Auditorium
 POC: Gisele Altman, 867-4000

Aug. 30 The Innovative Partnerships Program hosts a lecture by Dr. Nannette Stangle-Castor on "Open Innovation"; 9 to 11:30 a.m. or 1 to 3:30 p.m., Kennedy Learning Institute
 POC: Carol Anne Dunn, 867-6381

Sept. 25 KSC Family Day/Take Your Children to Work Day
 POC: Layla Higgins, layla.m.higgins@nasa.gov

For more, go to the internal Kennedy Events and Schedules Calendar at www.nasa.gov/centers/kennedy/events/index.html

Looking up and ahead . . .

Targeted for Aug. 10	Launch/CCAFS: Atlas V, AEHF 1; 7:21 to 9:22 a.m. EDT
Targeted for September	Launch/CCAFS: Falcon 9, Dragon C1; TBD
Targeted for Oct. 19	Launch/CCAFS: Delta IV Heavy, NROL-32; TBD
Targeted for Nov. 1	Launch/KSC: Discovery, STS-133; 4:33 p.m. EDT
Targeted for Nov. 17	Launch/CCAFS: Atlas V, GPS IIF-2; TBD
Nov. 22	Launch/VAFB: Taurus, Glory; 5:09 a.m. EST
Targeted for Jan. 22, 2011	Launch/CCAFS: Atlas V, SBIRS GEO-1; TBD
Targeted for Feb. 26, 2011	Launch/KSC: Endeavour, STS-134; 4:19 p.m. EST
Aug. 5, 2011	Launch/CCAFS: Atlas V, Juno; TBD
Aug. 15, 2011	Launch/Reagan Test Site: Pegasus, NuSTAR; TBD
Sept. 8, 2011	Launch/CCAFS: Delta II Heavy, GRAIL; TBD
Sept. 23, 2011	Launch/VAFS: Delta II, NPP; TBD
To Be Determined	Launch/VAFB: Delta II, Aquarius / SAC-D Satellite; TBD
No Earlier Than Nov. 25, 2011	Launch/CCAFS: Atlas V, Mars Science Laboratory; TBD

WORD ON THE STREET

Sixty years ago, the U.S. launched the first rocket from Cape Canaveral. What was your first launch experience? And what do you remember most about it?



"The Pluto/New Horizons launch in January 2006 because I was able to watch my first launch from the OSB II."

David Wallace,
with NASA



"I was 10 and on a boat with my dad when we saw Apollo 11 make its way toward and eventually land on the moon ."

Elizabeth Halsema,
with Kennedy Space Center Credit Union



"It was Atlantis on STS-110 . . . the whole experience is something I'll never forget . . . it was unbelievable."

Neil Raver,
with Lackmann Culinary Services



"I remember STS-63 . . . it was a night launch. I'll never forget my house shaking and the glow from space shuttle Discovery."

Luke Smith,
with SE Jones



"I watched Columbia on STS-1 take off when I was in high school in Michigan and I knew right then what I wanted to do."

Chien Nguyen,
with NASA



John F. Kennedy Space Center

Spaceport News

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