

Spaceport News



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

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

VAB flag, NASA logo receive new paint job

By Cheryl Mansfield
Staff Writer

The star-spangled banner will shine a little brighter in the rocket's glare — at least at Kennedy Space Center. On the massive 52-story Vehicle Assembly Building, the American flag and the NASA logo that adorn the south face of the building are receiving a badly needed paint job.

The 209-foot-tall, 110-foot-wide flag was first painted on the building in 1976 in celebration of the American Revolution bicentennial. To make sure NASA planners got it right, the agency consulted the U.S. Department of the Army's Institute of Heraldry at the Pentagon in Washington.

The result was the largest American flag ever depicted, with its stripes 9 feet wide and stars measuring 6 feet in diameter. In addition to the flag, a 110-foot

symbol of the bicentennial was also added to the building at that time and remained there for the next 22 years.

In 1998, to commemorate NASA's 40th anniversary, the fading flag was repainted and the 12,300-square-foot NASA logo — affectionately known as the "meatball" — replaced the bicentennial emblem. Since then, time and weather (especially the 2004 hurricane season) took their toll on the flag and the meatball.

During back-to-back hurricanes, the building lost nearly 850 of its panels that each measure 14 by 6 feet, and not even the flag was spared. The strong storm winds took a "bite" out of Old Glory's stripes until repairs were completed.

But things are looking brighter for the building that has served human spaceflight for more than 40 years. Painters' elevated

(See PAINT, Page 3)



PAINTERS' SCAFFOLDING is seen hanging on the side of Kennedy Space Center's 525-foot-high Vehicle Assembly Building to repaint the American flag and the NASA logo.

KSC-developed technology helps U.S. military overseas

By Linda Herridge
Staff Writer

New technologies developed at Kennedy Space Center for the space program eventually end up in use by mainstream America or even other countries. One technology in particular has made it into the hands of U.S. troops in Afghanistan and Iraq.

The Standing Wave Reflectometer is a prototype of an instrument used to test for failures in wires. The technology was developed by Pedro Medelius, associate program manager and chief scientist with ASRC Aerospace Corp. at KSC.

Medelius developed the hand-

held meter in response to a space shuttle ground processing request in 1996 for cable wiring fault detectors.

The technology enables the user to rapidly connect to wiring assemblies and detect and locate hard faults. Medelius said the unit performs the test in four seconds, displays the fault location in readable alpha-numeric characters and has computer-based training that requires only 45 minutes to complete.

Eclipse Marketing Director Chris Teal said the meters are included in more than 250 battle damage assessment and repair kits for the U.S. Army and the U.S. Marine Corps. Fort Eustis in

(See TECHNOLOGY, Page 2)



TWO U.S. Army servicemen inspect wiring on an Apache Longbow helicopter at Ft. Eustis, Virginia, during training using the ESP Hand-held Standing Wave Reflectometer developed at Kennedy Space Center.

Center Director's Communication

CD COMM #2007-01

TO: All Kennedy Space Center civil service and contractor employees

SUBJECT: Fall Protection Can Save Your Life

As we begin a new year, I would like to take the opportunity to reflect on two very serious incidents that occurred in 2006. Both incidents involved falls, and one resulted in a tragic death. Due to the nature of the work that we do at Kennedy Space Center, many of you are required to work at heights. This includes not only construction but work such as utility maintenance, work on towers, shuttle and payload processing activities involving platforms and scaffolds, and many other routine activities regularly performed by workers at KSC.

The first incident occurred on March 17, 2006, when a worker fell headfirst from the roof of Supply Warehouse No. 1 in the KSC Industrial Area. He fell approximately 17 feet onto a concrete loading dock. Rescue personnel arrived at the mishap scene minutes later, and the worker was subsequently airlifted to the Orlando Regional Medical Center. Tragically, he died that evening as a result of his injuries. What is most disconcerting about this incident is that the fall was not very far, approximately the equivalent of falling off the roof of a one-story house, and yet it resulted in a death.

On Oct. 23, a second incident, with equally severe potential consequences, occurred when an ironworker fell approximately 12 feet from a fixed ladder to a small platform below Level 41 in High Bay 4 of the Vehicle Assembly Building. In the process of falling, the individual struck another ironworker, knocking him from the lower platform

into open space. This worker fell approximately 12 feet but was saved from a fatal fall to the High Bay floor, approximately 450-plus feet below, by the fall protection harness and lanyard he was wearing.

Formal, rigorous NASA mishap investigations were conducted of both mishaps. The fatality investigation has been completed, and the final report can be viewed in its entirety by going to <http://kscsafety/noticepage.htm> and clicking on the M7-794 Mishap Report link. The assembly building fall is still under investigation, so no report is available. However, the worker who fell off the platform has given a testimonial about the event and the importance of using fall protection. This can be viewed by going to <http://kscsafety/noticepage.htm> and clicking on the "Am I Hooked Up" link.

As a result of the fatality, KSC has established a centerwide Fall Protection Working Group to improve the center's fall protection program. This group has developed a new set of fall protection requirements that are currently in the final review process. These requirements significantly exceed Occupational Safety and Health Administration requirements and, if properly implemented, should preclude any similar mishaps. There have also been significant increases in both the quantity and quality of required fall protection training, and a large amount of new fall protection equipment has been purchased for use throughout the center.

In the upcoming year, I urge everybody at KSC to be especially careful when working at heights, both at work and at home, and to comply with all fall protection requirements. Should you have questions concerning these incidents or the KSC fall protection program, please call David Facemire, NASA-KSC Institutional Safety Branch, SA-E2, at 867-7232. W. W. Parsons
Center Director

TECHNOLOGY . . .

(Continued from Page 1)

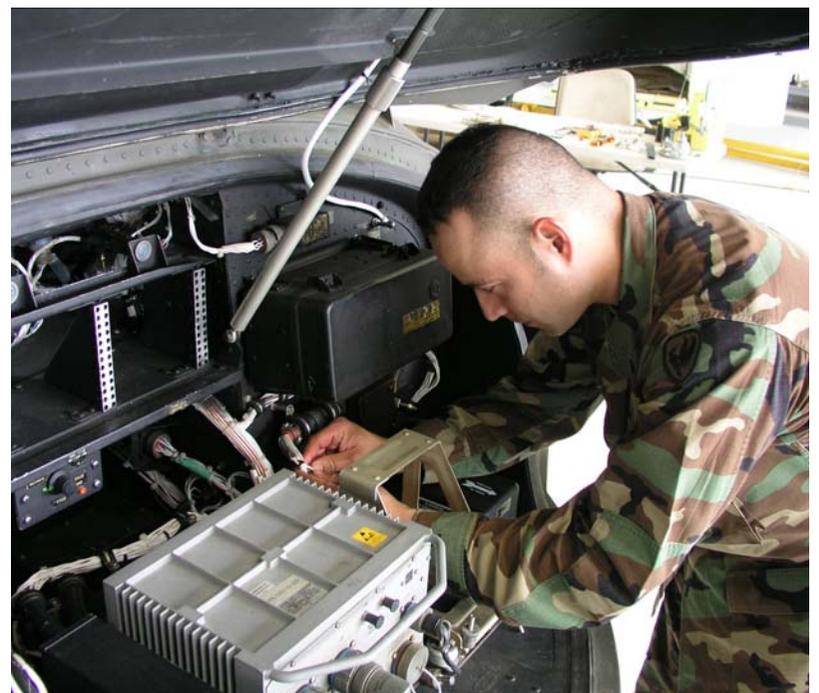
Virginia has integrated 100 units into the Army Aviation Logistics School's training curriculum. Plans are to train 1,000 troops a year in locating and repairing battle damage on aviation assets. These meters were provided to the Army at no cost from the U.S. Navy in a joint-effort program.

According to Teal, major airlines around the world including Continental, Qantas, United Airlines, Delta, Swiss Defense Aerospace Groups and all of the major aircraft manufacturers have purchased the units to test for failures and reduce the need to disassemble sections of the aircraft to make repairs. Smaller business jet companies have also purchased the units.

"It is such an important

technology," Medelius said. "And it's very satisfying to know that this technology developed for NASA has applications in our military and our commercial aviation industry."

After developing and testing the prototype, NASA filed for a U.S. patent in 1997 and it was granted two years later. KSC's Technology Transfer Office offered the product for licensing to applicable companies. The exclusive license was granted to Eclipse International in Corona, Calif. The company developed and is marketing the meter as the ESP-Hand-held Standing Wave Reflectometer. Medelius said he is impressed with the proactive way the Technology Transfer Office is marketing KSC-developed technologies to the commercial world.



DURING TRAINING at Ft. Eustis in Virginia, a U.S. Army serviceman checks wiring on a Blackhawk helicopter for visual evidence of damage after the ESP Hand-held Standing Wave Reflectometer detected a failure.

THEMIS integration team eager to hear ‘spacecraft separation’

By Linda Herridge
Staff Writer

When NASA’s THEMIS mission lifts off aboard a Delta II launch vehicle from Cape Canaveral Air Force Station on Feb. 15, mission managers and workers at Kennedy Space Center will see more than three years of hard work come to fruition.

Garrett Skrobot, a Launch Services Program mission manager, said there are 32 people on the mission integration team for THEMIS, which stands for Time History of Events and Macroscale Interactions during Substorms.

“However, there is an expanded team that supports the mission integration team during processing of THEMIS,” Skrobot said. “In all, there are more than 100 KSC workers involved in processing for this mission.”

Skrobot and the integration team are responsible for processing the spacecraft, including cleaning and fueling it and overseeing the spin-balance tests at the Astrotech processing facility in Titusville, as well as transporting THEMIS to the launch pad, and mating and encapsulating the spacecraft on the Delta II launch vehicle.

Skrobot said every mission has challenges, and THEMIS is no different. The KSC integration team had to meet a requirement to deploy the five spacecraft using launch vehicle ordnance systems.

The team also overcame the

logistical difficulties of having members at multiple locations.

The spacecraft bus was built at Swales in Greenbelt, Md., while the instruments were built and integrated at the University of California at Berkeley. KSC procured the launch services from United Launch Alliance in Huntington Beach, Calif., and the project is managed by Goddard Space Flight Center in Maryland.

THEMIS is the first NASA mission to be flown by United Launch Alliance and the agency’s first mission to deliver five science payloads into orbit.

“The closer you get to launch, the more you can feel the energy of the team continuing to build until you get to T-0 and the launch vehicle lifts off the pad,” Skrobot said. “This excitement continues until you hear the phrase ‘spacecraft separation.’

“At that point in time, you know that all the hard work that everyone contributed has led to the success of the launch phase of the mission,” Skrobot said.

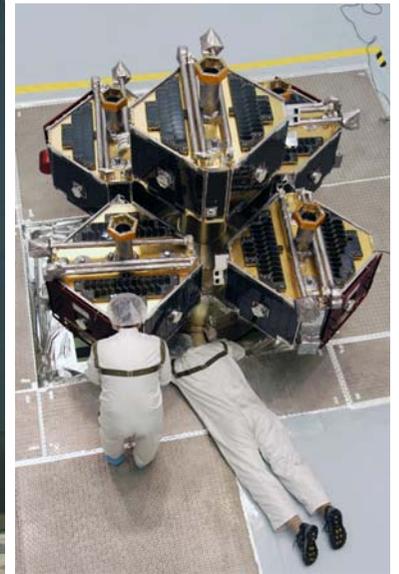
According to Vassilis Angelopoulos, principal investigator at the University of California at Berkeley, the mission is part of the Explorer Program, NASA’s oldest program and the agency’s only one to receive a Nobel Prize.

Other explorer missions included HETE-II, which launched on Oct. 9, 2000, and GALEX, which launched on April 28, 2003, both from Pegasus expendable launch vehicles.



SOLID ROCKET boosters (left) are clustered around the base of the United Space Alliance Delta II rocket. A total of nine boosters will assist in the launch of the THEMIS integrated spacecraft.

EMPLOYEES PREPARE the integrated THEMIS spacecraft (below) for spin-balance testing at Astrotech Space Operations.



THEMIS will help to resolve the mystery of what triggers geomagnetic substorms, provide clues about the role of substorms in severe space weather and identify when substorms begin.

During the two-year mission, the five identical probes will identify and track the magnetic field reconfigurations and ener-

gized particles that accompany the release of energy that occurs during substorms.

Each of the probes will carry identical sets of five low- and high-frequency magnetic field and electric field instruments, as well as thermal and super-thermal ion and electron detectors, for a total of 25 instruments.

Hale praises shuttle processing of 2006 and future

Space Shuttle Program Manager Wayne Hale (pictured by podium) held an all hands meeting Jan. 19 in the Kennedy Space Center training auditorium. Hale reflected on the successes of last year, including the complicated STS-116 mission,

and discussed the challenging space shuttle missions ahead of the Kennedy work force in 2007, beginning with STS-117 scheduled to launch in mid-March. For the latest information about the shuttle program, visit <http://www.nasa.gov>.



SPACE SHUTTLE Program Manager Wayne Hale talks to Kennedy employees Jan. 19 during an all hands meeting in the training auditorium.

PAINT . . . (Continued from Page 1)

platforms once again dangle high on the side of the 525-foot-high structure while workers use rollers and brushes to spruce up the flag and meatball — not a task for the faint of heart. In the end, the results will be seen for miles, and one of the most visible symbols of the launch complex will shine once more.

Kennedy, always a member of NASA family, sa

By Jeff Stuckey, Editor

More than 500 of Jim Kennedy's friends attended the former Kennedy Space Center director's retirement event Jan. 12 at the Radisson Resort at the Port in Cape Canaveral. Among a long list of speakers were NASA Administrator Mike Griffin, KSC Director Bill Parsons and KSC Associate Director Jim Hattaway.

After thanking the special people who helped him so much during his 35-year NASA career — including Administrative Assistant Beth Smith and Protocol Officer Pam Adams, his wife, Bernie, and his mother, Bonnie — Kennedy shared why he greatly enjoyed his job.

"Thank you to my family for the love you have shown, and to our friends, from one end of this room to the other. I'm blessed in many ways," Kennedy said. "I have a total undying respect and support for our administrator, Dr. Michael Griffin," Kennedy said. "He does not like to be called 'Dr.' or 'sir,' but tonight I'm going to salute you, sir, and tell you we appreciate what you have done for this agency."

Kennedy said as he fades off into the sunset, he will remember at least 10 things about his friends and experiences from the last 35 years.

The first was the space shuttle's return to flight. "What a joyous celebration we have enjoyed because of the hard work from the men and women of NASA to make that shuttle fly safely again. After three losses of people during spaceflight, including Apollo I, Challenger and Columbia, we, as an agency, were reminded that we would find the problem, fix the problem and fly again. I say to all of you who made that happen: thanks for the memories. To see you fly so successfully is a tribute and testimony to your ability to get things done."

Other favorite memories for Kennedy include resuming construction of the International Space Station, the robotic exploration of the universe, real accomplishments toward the Vision for Space Exploration, a visit by retired four-star U.S. Air Force Gen. Les Lyles and his comments about the gleam in the KSC work force's eyes, and the government and educational stakeholders. He also will never forget the response from the NASA family following the hurricanes of 2004 and Hurricane Katrina, the diversity and equality at KSC, and the men and women who are

fighting in Iraq.

Kennedy's best memories during his NASA tenure are not only the men and women of KSC, but everyone throughout NASA who served in the pursuit of space exploration. "It has been an honor for me to serve with you and I promise you I will never forget you, individually and collectively. You are serving your country with a noble cause of exploring the bounds of space so that our children can one day fly more routinely, more safely to our moon and other planets. It is an honor to be a member of the NASA family. Thanks for the memories and God bless you all."

Griffin said the singular property that stands out in Kennedy is that he fits in wherever he goes. "He finds a way to move into a new environment, a new place and a new job and he finds a way to fit in," Griffin said. "The traits Jim exemplifies are exactly the ones I like to see in people. It's about other people; it's about making sure they have what they need to do their work. It's about healing instead of scarring. You don't have to know Jim (much) time at all before you see that, and that makes him one of the people I consider to be a friend and a colleague. He can leave NASA, but he can't leave the NASA family."

In his 30 years of service at KSC, Hattaway said he has never seen anyone endear themselves to the work force the way Kennedy did.

"Jim is a most honorable, decent and compassionate person," Hattaway said. "When you stop and ask yourself why people feel the way they do about Jim, the answer is simple. Everything he does is genuinely about you and your welfare and not about himself."

Hattaway then read a letter addressed to Kennedy:

"Dear Jim,
Congratulations on your retirement from the National Aeronautics and Space Administration after 35 years of federal service. Our nation is deeply indebted to the men and women who devote their lives to public service. I know how proud your family, friends and colleagues must be of your accomplishments. Laura and I send our best wishes for many years of happiness.
Sincerely,
George W. Bush, President"



JIM AND Bernie Kennedy (center) enjoy the music of Saturn V toward the end of the former center director's retirement event held Jan. 12 at the Radisson at the Port in Cape Canaveral.



KENNEDY SPACE Center Associate Director Jim Hattaway (right) presents Jim and Bernie Kennedy a letter from President George W. Bush.

ays final farewell to more than 500 friends



NASA ADMINISTRATOR Mike Griffin (right) presents Jim and Bernie Kennedy a memento featuring the pins from every NASA space shuttle and expedition mission to date.



KENNEDY'S CHILDREN, Jamie and Jeff, thanked the crowd for so much support at the event. They also read a personal poem about their dad.



THE RETIREMENT event for former Center Director Jim Kennedy was held at the convention center in the Radisson Resort at the Port.



SOLD-OUT crowd of more than 500 guests attended Kennedy's retirement event.



JIM AND Bernie Kennedy cut the huge cake celebrating the former center director's new life.



BERNIE KENNEDY receives a pendant from Kennedy Space Center Director Bill Parsons featuring a polished stone from the center's crawlerway.

NASA employees retired at the end of 2006

- | | | |
|--------------------|------------------|------------------------|
| Armstrong, Dennis | Johnson, Maxine | Rafferty, Donna |
| Brady, Sandra | Kennedy, James | Riffe, Retha |
| Boger, Mary | Loomis, Robert | Satterthwaite, Marlene |
| Burke, Paul | Marsh, Gloria | Schuiling, Roelof |
| Cowras, John | Matus, Learnette | Spears, Jalaine |
| Deane, Edgar | McKinney, Mack | Sweet, Richard |
| Dobrin, Connie | Mease, Mary | Tucci, Larry |
| Dreier, Loretta | Norton, Gloria | Tucker, Charles |
| Ellis, Michael | Parker, Yvonne | Tymms, David |
| Fasulo, Rebecca | Peete, Herbert | Walek, Michael |
| Godfrey, Elizabeth | Piotrowski, Lon | Wall, Donald |
| Goodin, James | Powell, Barbara | Wallace, David |
| Huang, Po Tien | Purer, Karroll | Warren, Kathleen |
| Hyde, Kenneth | Purer, Tommy | Yencso, Thomas |

A look back at 2006 at the Kennedy Space Center

As Kennedy Space Center prepares for a busy 2007, our successes of the past year are recounted as we set the stage for our future activities.

Three successful space shuttle launches, five expendable launch vehicle missions, award-winning technology and processing several large payloads and components for delivery to the International Space Station were just some of KSC's 2006 achievements. To prepare for the transition from the Space Shuttle Program to NASA's Constellation Program and future space exploration missions, KSC aligned with other NASA centers by combining the engineering work force into one new engineering group.

On Feb. 8, the Virgin Atlantic Airways GlobalFlyer aircraft took off from KSC's Shuttle Landing Facility in an attempt to set a new world record for the longest flight made by any aircraft. Piloted by Steve Fossett, the aircraft used more than 13,000 feet of the 15,000-ft. runway.

In March, the center held a ribbon-cutting ceremony to officially open the newly constructed Operations Support Building II. The five-story, 189,000-square-ft. facility comprises more than 900 office spaces, a 300-person mission conference

center with an observation deck, training rooms, computer rooms, multimedia conference rooms and technical libraries. The building replaces trailers in the Launch Complex 39 area.

In April, during the 25th anniversary of the first space shuttle flight, KSC renamed and dedicated the Launch Control Center's Firing Room 1 as the "Young-Crippen Firing Room" to honor STS-1 Commander John Young and Pilot Robert Crippen.

In June, KSC selected the Atlas V, now part of the United Launch Alliance rocket family, for the Mars Science Laboratory. This is a mission to carry a large rover to the red planet in fall 2009. The six-wheeled rover will explore Mars for two years, examining sites to identify where the building blocks for life may exist.

Space Shuttle Discovery lifted off on mission STS-121 on July 4 (the first mission to launch on Independence Day) from Launch Pad 39B, carrying critical hardware to the station for future assembly missions. The mission restored the station to a three-person crew for the first time since May 2003. STS-121 also marked the first use of the Launch Control Center's newly renovated Firing Room 4. Space Shuttle Atlantis launched on mission STS-115 on Sept. 9, also

from Launch Pad 39B, carrying the P3/P4 integrated truss segment for installation on the station. The mission resumed assembly of the station after a hiatus of four years.

The final launch of the year was made by Discovery on mission STS-116 on Dec. 9. It was the last currently planned shuttle launch from Launch Pad 39B. The challenging mission included installing the P5 short space truss segment to the station's P3/P4 truss segment and completely rewiring and activating the

station's electrical and thermal control systems.

Launch Pad 39B is being transitioned to NASA's Constellation Program and readied for the Ares 1-I test flight, scheduled for no earlier than 2009.

KSC's Launch Services Program managed five expendable launch vehicle liftoffs from Cape Canaveral Air Force Station and Vandenberg Air Force Base, Calif.

NASA's New Horizons mission, the first in the New Frontiers Program, launched using Lockheed Martin's massive Atlas V launch vehicle on Jan. 19 from Cape Canaveral. The piano-sized spacecraft will travel to Pluto and conduct the first close-up, in-depth study of the dwarf planet and its moons in summer 2015.

NASA's Space Technology 5 spacecraft, also known as ST5, launched aboard the Orbital Sciences Pegasus XL vehicle from Vandenberg on March 22. ST5 consists of three miniature orbiting satellites which were flight tested in the harsh environment of space, and their ability to make research-quality scientific measurements was evaluated over 90 days.

The Geostationary Operational Environmental Satellite-N, also called GOES-N, launched into orbit for NASA aboard a Boeing Delta IV on May 24 from Cape Canaveral. Upon entering Earth's orbit, it became GOES-13. The satellite is rotating around the planet to view developing weather systems across the world.

Expendable launch vehicle missions aboard Boeing Delta II vehicles included CloudSat/CALIPSO on April 28 from Vandenberg, and the twin Solar



SPACE SHUTTLE Discovery launches on mission STS-121 to kick off the fireworks for the U.S. holiday and make history as the first time a shuttle has launched on Independence Day.

Terrestrial Relations Observatories (STEREO) on Oct. 25 from Cape Canaveral.

CloudSat and CALIPSO are orbiting the Earth as part of the "A-train," a constellation of Earth-observing satellites. CALIPSO provides climate observations, including the advanced study of clouds and aerosols, to help improve the ability to predict climate change and study the air we breathe. CloudSat's trio of experimental satellites uses radar to perform the first study of clouds and precipitation on a global basis from space. STEREO is NASA's first 3-D solar imaging mission to help researchers understand how the sun creates space weather.

KSC's work force looks forward to an aggressive launch schedule in 2007, with five space shuttle missions and eight expendable launch vehicle missions, along with continuing transition work for the new Constellation Program and future space launches.



TECHNICIANS INSTALL strips of the New Horizons mission decal on the spacecraft fairing in the Payload Hazardous Servicing Facility.

Remembering Our Heritage

40 years ago: Fire, regret at America's moonport

By Kay Grinter
Reference Librarian

The simulated countdown for AS-204, the first manned mission in the Apollo Program, was under way at Launch Pad 34 on Jan. 27, 1967. The crew was in position for the full dress rehearsal in the command module atop a Saturn IB rocket.

NASA astronauts Gus Grissom, Edward White and Roger Chaffee made up that crew.

Grissom was one of the seven original NASA astronauts selected in 1959, and he flew on the second manned Mercury flight in 1961 and on Gemini 3 in 1965.

White was selected as an astronaut in 1962. On Gemini 4 in 1965, he became NASA's first spacewalker. The rookie on the crew, Chaffee was selected as an astronaut in 1963. AS-204 was his first flight assignment.

At 6:31 p.m. on this otherwise ordinary Friday evening, the unthinkable happened. The vehicle rocked twice as the alarm "Fire!" was received from inside the capsule.

Pad personnel scrambled to reach the White Room, but just six

minutes later, when the inner hatch was opened, it was already too late. All three astronauts had died from inhaling carbon monoxide and other toxic gases generated by the flash fire.

In the accident's aftermath, the NASA family was distraught. Flight Director Gene Kranz lectured his team at the Manned Spacecraft Center in Houston: "From this day forward, Flight Control will be known by two words: 'Tough and Competent.' *Tough* means we are forever accountable for what we do or what we fail to do. *Competent* means we will never take anything for granted."

The Apollo 204 Review Board determined the probable initiator of the fire was an electrical arc in an equipment bay where instrumentation power wiring led between the environmental control unit and the oxygen panel.

In April that year, AS-204 was officially designated Apollo 1, a mission number that had been used by the astronauts publicly and included on their insignia. Today, a small group of family and friends gather at Pad 34 at sunset on the anniversary of the accident to



APOLLO 1 astronauts (from left) Gus Grissom, Ed White and Roger Chaffee pose in front of Launch Complex 34 which housed the Saturn 1 launch vehicle. The vehicle unexpectedly caught fire Jan. 27, 1967.

remember the three dedicated astronauts.

Chaffee's daughter, Sheryl, works as the administrative officer for Center Operations at Kennedy Space Center. "It has sometimes been hard for me to work here at

KSC, but I am proud to follow in my father's footsteps as a NASA employee," she said, "He was proud of what he did for his country, and I know he would support NASA's mission to return men to the moon and on to Mars."

NASA will use metric system for lunar missions

Only the United States, Liberia and Burma still primarily use English units — the rest of the world is metric. And now the moon will be metric too.

NASA has decided to use metric units for all operations on the lunar surface when its astronauts return to the moon. The Vision for Space Exploration calls for returning astronauts to the moon by 2020 and eventually setting up a manned lunar outpost.

The decision is a victory not only for the metric system itself, which by this decision increases its land area in the solar system by 27 percent, but also for the spirit of international cooperation in exploring the moon. The decision arose from a series of meetings that brought together representatives from NASA and 13 other space agencies to discuss ways to cooperate and coordinate their lunar exploration programs.

Standardizing on the metric system was an obvious step in the right direction.

The meetings, which began in April 2006, included representatives from the Australian, Canadian, Chinese, European, French, German, British, Indian, Italian, Japanese, Russian, South Korean and Ukrainian space agencies, all of which are either planning or considering some form of lunar exploration.

Agreeing to use a single measurement system will make the human habitats and vehicles placed on the moon by different space agencies more compatible with each other. That could come in handy if, say, one agency's moonbase needs emergency spare parts from another agency's base.

No need to worry about trying to fit a 15-millimeter nut onto a 5/8-inch bolt. A metric standard will make it easier for countries to form new partnerships and collaborations after their lunar operations are already in place. All data will be in compatible units, whether it's scientific data or operational data — such as how far a rover must travel to reach the edge of a crater. A single measurement system will make sharing this data and merging operations more seamless.

Although NASA has ostensibly used the metric system since about 1990, English units linger on in much of the U.S. aerospace industry. In practice, this has meant that many missions continue to use English units, and some missions end up using both English and metric units.

The confusion that can arise from using mixed units was highlighted by the loss of the Mars Climate Orbiter robotic probe in 1999, which occurred because a contractor provided thruster firing data in English units while NASA was using metric.

KARS Flyers group enjoys remote control aircraft

By Jennifer Wolfinger
Staff Writer

Kennedy Space Center may be home to massive, cutting-edge spacecraft, but it's also the base for the KARS (Kennedy Athletic, Recreation and Social organization) Flyers group which remotely pilots model airplanes and promotes the hobby of remote-control aircraft construction and flying.

Approximately 50 people make up the group, which flies aircraft with wingspans ranging from two to 12 feet. All members belong to the Academy of Model Aeronautics (AMA), a national organization which coordinates model aircraft activities in the U.S. and provides liability insurance and contest and safety regulations.

For example, during flight activities, they're required to form a safety line to separate spectators and aircraft.

"Ever since we formed the club, we've never had an accident of any kind," said founding member and President Ernie Reyes. "We offer instruction at no charge and even provide the models and gasoline. A KARS pass and badge is all that's needed.

"It's a great way for older and younger people to enjoy an

activity. Somebody showed me, so I feel like it's my obligation to show somebody else. Children can learn a valuable lesson on teamwork and reading instructions," Reyes said.

The group has also helped with NASA projects such as identifying requirements, testing sensors and avionics packages, and developing in-house expertise in remote control aircraft. Over the last 10 years, members have also supported community educators, the KSC Visitor Complex, Space Camp and mentor programs.

"One thing I always think of is the close history of NASA and the AMA," said Secretary/Treasurer Bill Woodward of Space Gateway Support. "The two engineers that proved the space shuttle glide test would work did it by building and flying models of the 747 and shuttle, and using them as a test bed. Those two aircraft are on display in our national museum and those engineers are AMA members.

"In 2003, I flew technology aboard my 86-inch wingspan hand-built model airplane. The flight was to prove that models and the project they are working on were compatible," said Woodward.

Vice President Doug Thomas of United Space Alliance looks



KARS FLYERS group members enjoy use of the Shuttle Landing Facility during a recent fly-in. The primary flying field is located at KARS Park 1.

forward to the club's growth opportunities.

"With our primary flying field moving to KARS Park 1, special badging is not required for access, so members will then be able to bring guests to the flying field. The KARS Flyers hope to have more involvement with community educators in getting area youth exposed to remote-control aircraft," Thomas said.

According to club member Jack Pfaller, people join for many reasons including for sport, relaxation and the joy of building.

He has constructed and flown model airplanes since the early 1970s.

"I'm involved in the hobby out of a love of aviation," said Pfaller of InDyne, Inc. "It's such a thrill to fly at Kennedy Space Center, especially when we get invited to the Shuttle Landing Facility.

"It's a thrill to fly where the shuttle lands. Membership also gives people an opportunity to visit places at KSC that they wouldn't get to see through their jobs."

Graduate, undergraduate programs accepting civil service applications

The Kennedy Space Center Human Resources Development Office is accepting nominations of full-time permanent NASA civil service employees of KSC to participate in full- and part-time doctoral and full-time master's programs under the Kennedy Graduate Fellowship Program.

The purpose of the program is to provide employees with the opportunity to complete residency requirements for graduate or postgraduate education to develop the expertise required to accomplish the center's strategic objectives. Sponsorship provides funding for tuition, fees and textbooks, and permits eligible employees to attend approved programs on a full-time basis for

up to one academic year.

The Human Resources Development Office is also accepting nominations of full-time permanent NASA civil service employees of KSC to participate in degree-granting programs at accredited colleges and universities under the Kennedy Undergraduate Studies Program. Applicants must have completed a minimum of 12 semester/credit hours and currently have a 3.0 GPA (on a 4.0 scale) to be eligible to apply.

The deadline for applications for each of these programs is Feb. 14. Employees must submit applications to Karen Milford/CNI-3, Kennedy Learning Institute, Room 1002. Visit the Kennedy Graduate Fellowship

Program Web site at [www.http://ba.ksc.nasa.gov/kgfp.htm](http://www.ba.ksc.nasa.gov/kgfp.htm) or the Kennedy Undergraduate Studies

Program Web site at [www.http://ba.ksc.nasa.gov/kusp.htm](http://www.ba.ksc.nasa.gov/kusp.htm).



John F. Kennedy Space Center

Spaceport News

Spaceport News is an official publication of the Kennedy Space Center and is published on alternate Fridays by External Relations in the interest of KSC civil service and contractor employees.

Contributions are welcome and should be submitted two weeks before publication to the Media Services Branch, IDI-011. E-mail submissions can be sent to Jeffery.Stuckey-1@ksc.nasa.gov.

Managing editor William Johnson
 Editor Jeff Stuckey
 Copy editor Corey Schubert

Editorial support provided by InDyne, Inc. Writers Group.
 NASA at KSC is located on the Internet at <http://www.nasa.gov/centers/kennedy>
 USGPO: 733-049/600125