Sept. 22, 2000 Vol. 39, No. 19

Spaceport News

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http://www-pao.ksc.nasa.gov/kscpao/snews/snewstoc.htm John F. Kennedy Space Center

100th Shuttle mission launch set

Space Shuttle Discovery is poised on Launch Pad 39A to undertake the 100th Shuttle mission launch from Kennedy Space Center on Oct. 5 at 9:38 p.m. EDT.

Discovery's mission, STS-92, will play a pivotal role in the continued construction of the International Space Station because of its critical payloads, the Zenith (Z1) Integrated Truss and the third Pressurized Mating Adapter (PMA-3).

The Z-1 Truss will carry components of the Station's attitude, communications, thermal and power control systems, including four control moment gyroscopes as well as high and low gain antenna systems. The Z-1 Truss and the PMA-3 will be the first U.S.-built cargo elements to be flown to the International Space Station since the successful launch of the Unity element in late 1998.

The STS-92 mission signals the beginning of work on the major elements of the Space Station that will make it more than just a vision but a long-awaited reality and marks a dramatic turn in the assembly process. The mission kicks off a series of assembly flights that will include such Station elements as a scientific research laboratory, solar arrays and additional truss structures.

Eight Space Shuttle missions spread out over a four-year period will be required to deliver and assemble the structure's 10 pre-integrated truss segments.

Once completed, the combination of trusses will be the length of a football field. Labs, living quarters, payloads and systems equipment will be directly or indirectly attached to it.

The U.S. solar arrays, which will be delivered to the structure in late November, will supply the International Space Station with enough power to light up a town.

The STS-92 crew poses for a group photo at Launch Pad 39A. Standing, left to right are Mission Specialists Koichi Wakata of Japan, Michael Lopez-Alegria, Jeff Wisoff, Bill McArthur and Leroy Chiao; Pilot Pam Melroy; and Commander Brian Duffy.

Inside

Campaign begins with kickoff

This year, Kennedy Space Center's (KSC) Combined Federal Campaign (CFC) will officially open with a kickoff rally in the Training Auditorium at 9 a.m. on Oct. 2.

The campaign will run through Oct. 31 and the theme is "Caring For Our Community."

This campaign is an opportunity for NASA employees to reach out and support less fortunate people, to preserve the environment and to protect threatened and endangered species in our community and throughout the world.

Last year, KSC federal employees generously contributed more than $245,000 — exceeding the campaign's goal of $216,000. This year's goal is $220,000.

All CFC contributors will be eligible to win prizes. Drawings will be held at the end of each full week of the campaign and a grand prize drawing will be held at the conclusion of the campaign.

Names of CFC contributors will be updated prior to each drawing.

Combined Federal Campaign 2000

The earlier one contributes, the more opportunities there are to win. All winners are eligible for subsequent drawings.

The prizes are as follows: $25 gift certificate to the NASA Exchange (week one); four passes for a KSC Visitor Center Bus Tour and IMAX Movie (week two); $50 gift certificate to the NASA Exchange (week three) ; four passes for a KSC Visitor Center Bus Tour and

(See CAMPAIGN, Page 8)

KSC women offer inspiration via Web site

Women of NASA Project provides guidance for girls

Engineer Berta Alfonso, center, discusses her Women of NASA video interview with camera operator Barbara Beck, left, and Young Women of NASA Advisory Council member Brianna Miller.

Design engineer Berta Alfonso didn't have a female mentor to guide her when she was first considering a career in engineering in the early 1980s.

Engineering was still a relatively unusual career choice for a woman at that time.

"I was lucky in that my parents encouraged my interest and then later that my male coworkers were supportive, but I missed not having a woman engineer to mentor me. That's a big reason why I try to volunteer in various educational programs," said Alfonso, who currently is designing a circuit board to be used in the flight box of the X-34.

Alfonso was one of four women engineers and scientists at Kennedy Space Center who were recently interviewed by high school students — members of the Young Women of NASA Advisory Council — for a Web site hosted by the NASA Quests Women of NASA Project.

The video interviews will be featured on the Women of NASA site, which seeks to encourage girls to pursue math, science, engineering and technology careers.

In addition to Alfonso, KSC women interviewed by the high school students were engineer Kim Jenkins, chemist Dionne Jackson and biologist Patty Currier.

"I always encourage young women to get as much work experience as they can in the field they are interested in, so I was glad to get the chance to talk about that during the video interview," said Jenkins, a process management engineer who took the first steps toward her career at KSC as a NASA summer intern in 1982.

KSC representatives will also participate in webcasts, chats and other special events for the Women of NASA Project in association with the 100th Shuttle mission launch, scheduled for Oct. 5.

The Women of NASA Project is designed as a Web-based interactive tool to educate young woman about science and technology careers. The project showcases outstanding women who are enjoying successful careers and demonstrates how these women balance personal and professional responsibilities.

This educational outreach initiative features profiles, archives and events based on NASA missions, national initiatives and unique educational events.

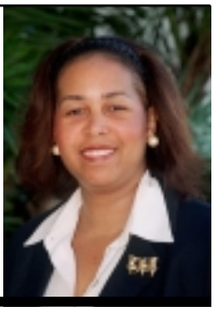
Tish Krieg is project manager of Women of NASA, which is based at Ames Research Center. The project is supported at NASA Headquarters by Terri Hudkins, Public Affairs.

"One of the most exciting new aspects of the project is the work being done by the young women on the council," Krieg said. "They are sharing their own perspectives with their peers. We want to do everything we can to appeal to that group's interests."

The Young Women of NASA Advisory Council (YWAC) was formed to bring the ideas, enthusiasm, and experiences of young women, enriching Women of NASA with a more student-driven focus. The young women's work includes interviewing NASA women and adding their profiles, working on the Web pages, contributing ideas for shaping the direction of the project, and joining unique NASA events to share their experiences with other girls through their adventure journals.

"I always encourage young women to get as much work experience as they can in the field they are interested in ... "

KIM JENKINS
NASA ENGINEER



Four members of the council recently traveled to KSC to participate in the STS-106 Women's Conference sponsored by NASA Headquarters and to conduct the interviews with the KSC women.

Jean Rhodes, NASA Federal Women's Program Manager at KSC, believes the effort will do much to encourage young woman to seek employment here and at other NASA centers.

"I was particularly impressed with the program the Women of NASA had for young women during the STS-106 launch," Rhodes said. "They are doing a wonderful job of reaching out to young women and encouraging their interest in math, science, technology and engineering. Everyone should visit their Web site to see how far-reaching the program really is. I am pleased that some of our KSC women were chosen to participate in the chats."

Coinciding with the 100th Shuttle launch, the council will produce a daylong series of interactive events showcasing diverse NASA careers. This Women of NASA Back to School special will feature select NASA women in interactive webchats, forums and webcasts.

The YWAC members from the STS-106 launch trip will be featured in a live interactive webcast sharing their experiences from the launch. The day will culminate in a live interactive launch webcast at KSC.

The Women of NASA Web site address is **http://quest.nasa.gov/women**.

Those taking part in the Checkout and Launch Control System ribbon cutting ceremony at the Hypergolic Maintenance Facility were, from left, Joseph Rothenberg, NASA associate administrator for Space Flight; Pam Gillespie, from Rep. Dave Weldon's office; Roy Bridges, Kennedy Space Center director; Dave King, director of Shuttle Processing; Retha Hart, deputy associate director, Spaceport Technology Management Office; and Ron Dittemore, manager, Space Shuttle Program.

First CLCS control room opens at HMF

Kennedy Space Center's new Checkout and Launch Control System (CLCS) at the Hypergolic Maintenance Facility (HMF) was declared operational in a ribbon cutting ceremony Sept. 6.

It was the first of several new CLCS control rooms scheduled to come on line.

KSC Director Roy Bridges welcomed and addressed the ceremony's attendees, followed by remarks from other distinguished representatives from the NASA/ Industry development team.

"This delivery marks a major milestone in the development of the Checkout and Launch Control System," said Bridges. "I am immensely pleased with the performance and hard work of the entire team in completing this major facility. This new capability improves safety and productivity of our Shuttle processing. It also shows our ability as a Spaceport Technology Center to deliver a complex system that was eagerly accepted by the user."

CLCS is a multi-year project to replace the outdated control rooms at KSC with state-of-the-art computer systems and software.

These control rooms are used to test and launch Space Shuttles and perform maintenance and checkout of Space Shuttle hardware.

Future facilities include three control rooms in the Launch Control Center, which will eventually monitor and control the Shuttle during countdown, and other remote facilities like the HMF.

Construction of the new HMF control room began in late 1997.

In 1999 the computer hardware and test consoles were installed.

Testing of the new computer software was recently completed, paving the way for the control room to become operational.

All these CLCS efforts culminated with a successful Operational Readiness Review with high-level managers from both Kennedy Space Center and Johnson Space Center.

Designed by a joint government/ industry team, CLCS uses commercially available computer systems wherever possible, integrated into system architecture that is unique to NASA.

The software used to monitor and control the Shuttle hardware is being written by on-site software engineers within NASA, United Space Alliance, Lockheed Martin Space Operations and Dynacs Engineering Co. Inc.

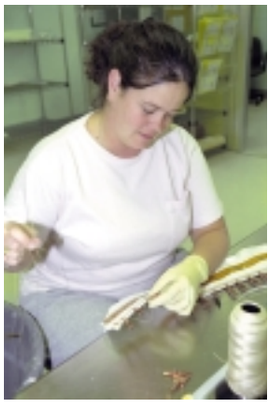
The new control room at the HMF will be used to process the Orbital Maneuvering System pods and Forward Reaction Control System modules at the HMF.

The hardware is removed from the orbiter and taken to the HMF for checkout.

The Shuttle's Orbital Maneuvering System and Reaction Control System contain the smaller rocket engines used in space for changing orbit, docking and attitude control.

They are also used to control the Shuttle's trajectory as it returns from space, until it gets to a low enough altitude to be flown like a plane, using aerodynamic controls.

The first Forward Reaction Control System to be processed using CLCS will fly on Columbia next year on STS-107.



United Space Alliance technician Debbie Mitchell works on a window gap filler in the soft goods manufacturing area of the "Tile Shop." The Tile Shop is the informal name for the Thermal Protection System Facility.

Technician Sandy Taggart constructs a gap filler in soft goods area of the Tile Shop.

Soft goods manufacturing area in the Thermal Prote

Without special insulation, the Space Shuttle would turn into a fireball upon re-entry into Earth's atmosphere.

And without that protection, temperature extremes and solar radiation the Shuttle experiences on orbit would ruin its mechanisms and payloads. The astronauts wouldn't survive.

The people who produce new pieces for the Shuttle's insulation system – blankets, thermal barriers, gap fillers and tiles – work here at Kennedy Space Center in the Tile Shop. The shop is officially known as the Thermal Protection System Facility (TPSF).

The TPSF group is kept busy replacing and repairing parts of the insulation system that wear out over time or are damaged during an orbiter's launch or re-entry.

Amounts vary slightly, but each orbiter has about 24,000 tiles, 2,300 Flexible Insulation Blankets, 5,500 Thermal Control System Blankets, 800 thermal barriers and thousands of gap fillers.

"Most people don't realize how much handwork is involved in the manufacture of these elements."

JEFF ANDRESS
TPSF MANAGER

Each piece is custom fit and is used either externally for an orbiter's Thermal Protection System or internally for its Thermal Control System.

Tiles, thermal barriers, gap fillers and ceramic insulation blankets are the primary external insulation products. These components cover the entire exterior of a vehicle and are used to protect the aluminum and graphite epoxy skin of an orbiter from extreme cold (-200 degrees F, -129 degrees C) of space to extreme heat (+2,900 degrees F, 1593 degrees C) of reentry.

The Thermal Control System Blankets line the payload bay and protect the orbiter midbody mechanical and fluid systems from solar radiation when a vehicle is on orbit.

Within the TPSF is a group of about 20 workers in the "soft goods manufacturing" area who produce the protective blankets, thermal barriers and gap fillers.

"Most people don't realize how much handwork is involved in the manufacture of these elements," said TPSF manager Jeff

e Tile Shop

United Space Alliance technician Rayetta Osborne assembles a ceramic gap filler used to seal tile to tile gaps around the forward facing windows on an orbiter.

Thermal Protection System Facility Manager Jeff Andress reviews thermal seal fabrication paperwork with technician Sarah Clark in the soft goods manufacturing area of the Tile Shop. A variety of thermal protection products for the orbiter from blankets to tiles are manufactured there.

ction System Facility produces blankets, gap fillers

ess of United Space Alliance. "Our
icians must make specific pieces for
fic needs. None of this is off the shelf."
nkets range widely in size, dimension and
re, depending on their use. One day a TPSF
ician may be called upon to make a blanket
6 inches, another day 3 by 6 feet. Blankets
be made of 3-inch-thick fibrous batting or a
heet of metal and polymer films.
chnicians work from engineering drawings
eate the specific parts ordered. While some
g required can be done on industrial-grade
ines, much must be hand stitched.
st of the TPSF technicians previously had
ience in the commercial textile industry.
typically worked either with upholstery for
ure or canvas for sails.
hough the group is small, it has a loyal
bership, Andress said. Not counting two
ers who were just hired, the least senior
oyee has worked in the group for 10 years.

Andress has been in the TPS area for 20 years.

"It's a great group and there's a lot of job satisfaction," Andress said. "The people who work here feel they are an important part of the program."

Most of the items produced in the Tile Shop previously were manufactured in Palmdale, Calif. Over time more of those items began to be produced here at KSC, which has increased the efficiency of the replacement process. Orders are typically filled within one to five days, Andress said.

The TPSF began phasing in manufacture of all elements of the thermal protection system after it opened in May 1988. Complete manufacturing of tiles from base raw material began in 1994. United Space Alliance now manages the facility and employs its workers.

The two-story, 40,088-square facility is located across Towway road from Orbiter Processing Facility Bays 1 and 2.

Editor's Note

This is the first in a periodic series of *Spaceport News* features on various work areas of Kennedy Space Center. The series is intended to help members of the KSC team better understand the jobs coworkers at KSC perform and how their contributions fit into the overall success of the nation's space program.

This series is motivated in part by response to the special "Day in the Life of KSC" *Spaceport News* edition. Because only a selection of areas at KSC could be touched on, *Spaceport News* plans to revisit those areas and visit new ones in order to shed more light on the exciting and good work accomplished at KSC.

Super Safety Day set for Oct. 18

The winning Super Safety and Health Day logo poster was submitted by Dave Earhart of United Space Alliance.

Kennedy Space Center will devote an entire day to safety and health on Oct. 18.

This event is held annually to increase awareness for safety and health among the government and contractor workforce.

A full day of activities will focus on safety and health. The entire Center will stand down to participate in the planned events. Technical paper sessions will follow the next day.

"Safety and Health ... a Working Relationship" will be this year's theme. A Centerwide contest was held to select the winning slogan and logo/poster.

David Koval, Space Gateway Support, submitted the winning slogan. Boeing's Steve Lewis was the second place winner.

Dave Earhart of United Space Alliance won the logo/poster contest. Boeing's Amy Zofko contributed the second place entry.

Like last year's Super Safety and Health Day, all normal work activities with the exception of mandatory services such as fire, security, cafeterias and buses will be suspended to allow personnel to participate in the event.

Along with KSC, Cape Canaveral Air Force Station and Patrick Air Force Base will participate in a number of related safety and health activities.

Displays, vendors, panel discussions and a special keynote speaker are all part of the day's activities. Watch for more details and check out the Super Safety and Health Day Web site at **http://n1517311/supersafetyY2K/supersafetyY2K/**.

'Troubadour of Inclusion' to foster disability awareness

October is National Disability Employment Awareness Month, designated to highlight the abilities and skills of those with disabilities.

This year's theme is "Ability You Can Bank On," which emphasizes persons with disabilities as a part of the non-traditional, skilled labor pool who can meet the needs of today's employers for a competent and creative workforce.

The Kennedy Space Center Disability Awareness and Action Working Group invites you to share in this year's recognition by participating in an informative and entertaining presentation by Jeff Moyer, "The Troubadour of Inclusion." Moyer has performed and presented in 45 states and internationally. He will share with the KSC family his message of dignity of all people and the promotion of the inclusion movement through the celebration of diversity by placing disability in the healthy context of human difference.

This year's theme is "Ability You Can Bank On," which emphasizes persons with disabilities as a part of the skilled labor pool.

Attend his presentation on Oct. 3 at 9 a.m. in the Universe Theater at the KSC Visitor Complex and be prepared for an exceptional experience of education, information and entertainment.

Student Sarah Stout demonstrated her abilities while working part of the summer with the KSC flight crew support group, including Lauren Lunde.

Open House information line offers details on event

On Nov. 4, Kennedy Space Center and Cape Canaveral Air Force Station will open their doors from 9 a.m. to 3 p.m. to a select number of car pass holders from the surrounding community for the 2000 KSC/CCAFS Community Appreciation Day.

As planning continues, the committee is striving to find new ways to communicate to employees all the details and information needed to enjoy this special day with family and friends.

OPEN HOUSE

An Open House Information Line has been created to keep workers informed with details about directions, car pass pickup locations and facilities that will be open to visit.

The information line is 867-5522. Please call to receive information prior to planning the day.

Employees will need to pick up a car pass at either a KSC Exchange store or any Brevard County library location. Car passes will be given out on a first-come, first-served basis and will be available mid-October.

For other information and library locations, please visit the Open House Web site at **http://kscinfo.ksc.nasa.gov/openhouse/default.html.**

Joint Airlock Module arrives

NASA's Super Guppy aircraft lands at the KSC Shuttle Landing Facility with its cargo, the Joint Airlock Module. The module is the gateway from which crew members aboard the International Space Station will enter and exit. The airlock was transported from NASA's Marshall Space Flight Center in Huntsville, Ala. After its arrival at KSC, the airlock was delivered to the Operations and Checkout Building for vacuum chamber testing. After testing, it will be moved to the Space Station Processing Facility for further prelaunch preparation and checkout. Manufactured by The Boeing Co., the massive, spindle-shaped airlock is 20 feet long, has a diameter of 13 feet and weighs six and a half tons. Atlantis will carry the airlock to orbit on mission STS-104, currently targeted for liftoff in May 2001.

Lifelong learning

Center Director Roy Bridges, left, and Florida's Lieutenant Governor Frank Brogan sign a Memorandum of Understanding at the Kennedy Space Center Visitor Complex. The agreement documents the intent of NASA KSC and the State of Florida to form partnerships with academic institutions in Florida for development of aerospace-related advanced training and academic/educational programs. The three-year project anticipates that the partnership and educational programs fostered will improve the lifelong learning environment for the aerospace and engineering workforce.

Hurricane worthy

The first of three Steelmaster storage buildings is taking shape just north of USA Logistics on Contractor Road. This view of the structure shows the Vehicle Assembly Building in the distance. United Space Alliance is building the structures to replace storage units that were damaged by Hurricane Floyd last year. The new buildings, to be used for ground support equipment storage, are designed to meet the latest KSC hurricane standards, withstanding 130 mph winds. The other two units will be located at the Hypergolic Maintenance Facility and the Mobile Launcher Platform park site.

CAMPAIGN ...

(Continued from Page 1)

IMAX Movie (week four); and a $100 gift certificate to the NASA Exchange, plus two passes on the Center Director's bus for a future Shuttle launch, plus a photograph with Center Director Roy Bridges (grand prize).

Information concerning the campaign can be found on the Kennedy Space Center Combined Federal Campaign Web site at **http://cfc.ksc.nasa.gov/,** which will be activated for contributions on Oct. 1. The Web site will include an online contribution form and brochure, which will make participation in the campaign easier.

Training for Unit Coordinators and Key Solicitors will be conducted immediately following the kickoff program. Unit Coordinators and Key Solicitors will personally share the message of the campaign with all employees.

Launa Maier, Shuttle Processing Directorate, is Kennedy Space Center's 2000 Combined Federal Campaign chairperson. Maier believes CFC makes a difference and is rallying the KSC community to once again exceed the CFC goal.

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 the Public Affairs Office 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, XAE-1. E-mail submissions can be sent to Katharine.Hagood-1@ksc.nasa.gov

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Editorial support provided by InDyne Inc. Writers Group.
NASA at KSC is located on the Internet at *http://www.ksc.nasa.gov*

USGPO: 533-128/00041

NatIonal Aeronautics and
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