

MISSION UPDATE

STS-87



Columbia

Nov. 19, 2:46 p.m. EST
 Mission facts: The multinational crew includes Leonid Kadenyuk of the Ukraine (above left), Takao Doi of Japan (second from left) and Kalpana Chawla (right), born in India but a U.S. citizen. Completing the crew are Winston Scott (third from left), Kevin Kregel (third from right) and Steven Lindsey (second from right).

Shuttle-Mir



Final U.S. crew member named: Mir 24 Astronaut/Cosmonaut Researcher David Wolf is conducting an array of scientific experiments on the Russian Space Station Mir. On Oct. 8, a Progress resupply vehicle carrying 1.7 tons of supplies docked with the station. Wolf is scheduled to return to Earth in January, while crewmates Anatoly Solovyev and Pavel Vinogradov — who arrived at the station in August — won't return until February. Back on Earth, astronaut Andrew Thomas has been named the final U.S. crew member to live and work aboard Mir and will replace Wolf during the STS-89 mission in January. He began training in Russia in January this year for the four-month tour of duty.

Lunar Prospector



Launch date: No earlier than Nov. 23.
 Mission: To complete the first complete compositional and gravity maps of the moon. More than 75 percent of the lunar surface has not yet been mapped in detail.

Spaceport News

America's gateway to the universe. Leading the world in preparing and launching missions to Earth and beyond.

John F. Kennedy Space Center

Cassini on its way to Saturn



CASSINI spacecraft with the attached Huygens probe is speeding on its way to the ringed planet Saturn, a journey that will take seven years to complete. A first launch attempt aboard a Titan IVB/Centaur Oct. 13 was scrubbed primarily due to concerns about high winds. This spectacular shot was taken Oct. 15 from Hangar AF, with a solid rocket booster retrieval ship in the foreground. Liftoff from Launch Complex 40 on Cape Canaveral Air Station occurred at 4:43 a.m. EDT.

Workers get top billing at this year's Open House

By Susan Maurer

What's it like to work at America's gateway to the universe, the launch capital of the world? Ever hear comments about how cool it must be to work at KSC, or field questions on our astronomical missions?



Now is the chance to share KSC with your family and friends. Plans are in full swing for this year's Employee Open House, scheduled for Saturday, Nov. 8, for NASA and contractor employees and their guests. The theme this year is *Interplanetary Exploration*. Gates will be open from 8 a.m.

(See OPEN, Page 8)

Second CLCS "shipment" on deck in LCC

Named after the rocket that carried the first American aloft more than 25 years ago, the second Checkout and Launch Control System (CLCS) "shipment" is up and running on schedule in the Launch Control Center (LCC).

Called Redstone, the hardware delivery is actually four prototype consoles set up in the bubble area of Firing Room 2. Each console is configured differently to allow members of the user community to determine which features they like best.

"In the next six months we'll determine what the final

(See REDSTONE, Page 2)



CLCS Deputy Project Manager Ric Hurt and Project Manager Retha Hart stand inside the prototype console showroom, located in the bubble area of Firing Room 2 in the Launch Control Center, where the Redstone hardware is now being tested by the user community. Redstone marks the second CLCS delivery this year.

Redstone ...

(Continued from Page 1)

console configuration is going to be," explained NASA Lead Engineer Greg Clements.

Three of the four console arrangements were designed by offsite vendors, while the fourth was conceived and built by CLCS team member Elisa Artusa of NASA.

Besides offering different physical features, each setup also showcases a different software feature of CLCS, the next generation processing and launch system.

Named after planets, all four consoles have two workstations, one for command and control functions and the second for business/information data, the latter being a function that doesn't exist on the current Launch Control Center firing room consoles.

The CLCS console configurations are similar to the ones in the new Mission Control Center at Johnson Space Center, although the footprint is slightly smaller, 6 feet wide by 4 feet deep for the KSC version compared to 9 feet wide by 5 feet deep for the JSC layout.

Clements noted that the JSC console designers did not have to conform to the constraints of an existing facility as is the case at KSC, where CLCS will be housed in firing

rooms that date back to the Apollo era in the '60s.

The prototype consoles offer variations on placement of telephone, Operational Television (OTV) monitors, keyboard placement and computer monitor height.

The preferred color scheme, based on feedback from the user community, has already been determined: teal and gray.

Members of the user community — estimated to be about 1,600 people ranging from test directors to system engineers — are encouraged to visit the consoles and provide feedback about which features they like best.

In all likelihood, the final console design will incorporate a combination of features from the four prototypes.

Notable differences are clearly evident between the prototypes and the current Launch Processing System (LPS) consoles. LPS display data is character-based.

Fewer data fields are available than with CLCS, and the display is more crowded. LPS can show only one display at a time on the monitor, while CLCS can present multiple programs.

CLCS presents information in a highly graphical format. For example, United Space Alliance OMS/RCS Test Engineer Frank Norris demon-

strated a program for pressurizing the Forward Reaction Control System (FRCS) helium tank.

Opening and closing valves as part of the process is accomplished automatically rather than manually. A graphic of the hardware layout sequentially records the pressurization; graphs provide easy-to-read data such as pressure.

Filling of the Shuttle's external tank with liquid propellant also is being converted to a graphic display that will track the filling process in increments, unlike the LPS which can only show 5 percent and 98 percent full. A color bar chart shows temperature changes on the tank. This innovation already is being used by the ice team that monitors the tank for ice buildup prior to a Shuttle launch.

"CLCS offers capabilities that the current Launch

Processing System doesn't have," explained Vincent Mandese, NASA technical assistant to CLCS Project Manager Retha Hart.

CLCS team members are writing tens of thousands of lines of software code to create these user-friendly programs, Clements noted.

The process begins in the Processing Control Center, then the software is tested in the Integrated Development Environment in the LCC before being showcased on the prototype consoles.

CLCS will field its first real operational use next year in the Hypergol Maintenance Facility (HMF), where the hypergol-fueled modules in the orbiter's Reaction Control System (RCS) and Orbital Maneuvering System (OMS) are prepared for flight. For further information concerning CLCS, please visit the web site at <http://lpweb.ksc.nasa.gov/CLCS>



NEW VIEW - Wyck Hebert of NASA shows off "Cosmo," featuring a software program of a three-dimensional Shuttle at the pad. Eventually the program will be used to graphically display strain measurements on the Super Lightweight Tank due to arrive at KSC next year.

NASA names preferred launch and landing sites for X-33

NASA has released the Final Environmental Impact Statement on the development and flight testing of the X-33 Advanced Technology Demonstrator. The study considered issues such as public safety, noise, impacts on general aviation and effects on biological and natural resources. In the document NASA named three preferred landing sites and one preferred launch site for the X-33. Seven sites were evaluated for potential use during the 14-month study.

The preferred launch site is located near Haystack Butte

on the eastern portion of Edwards Air Force Base, Calif. The preferred landing sites identified are Silurian Lake, a dry lake bed near Baker, Calif.; Michael Army Air Field, Dugway Proving Ground, Utah; and Malmstrom Air Force Base near Great Falls, Mont.

After 30 days NASA will issue a Record of Decision announcing if it intends to proceed with the X-33 flight

test program as described in the Environmental Impact Statement. That final decision will be based on technical, cost and schedule considerations in addition to environmental factors.

"The study determined that the overall predicted environmental impacts of X-33 were minimal at all sites considered," said Dr. Rebecca McCaleb, who headed the study. McCaleb is director of

environmental engineering and management at NASA's Marshall Space Flight Center in Huntsville, Ala.

The study was prepared by a team of dozens of experts from NASA's Marshall and Kennedy Space Centers who studied the issues surrounding the X-33 program.

NASA conducted 23 public meetings in 13 communities in five states near the proposed sites and met many more times with federal and state agencies, local authorities, elected officials, Chambers of Commerce and many interested citizen groups.



X-33

Teamwork a key to quality success stories at KSC

Editor's Note: October is Quality Month, and this is the second of a two-part series highlighting quality success stories at KSC.

United Space Alliance Ground Operations

Solid Rocket Booster (SRB) Retrieval Ship Upgrade Team

Mission: To determine the feasibility and financial benefit of modifying the SRB Retrieval Ships to tow the External Tank (ET) on its barge from New Orleans.

Method: Developed an implementation plan to upgrade the SRB retrieval vessels to deliver external tanks to KSC. Also developed a cash flow analysis to show the cost savings.

Results: Achieved cost savings of \$1.3 million over six years and better control of ET deliveries. ET transporting personnel certified to work on flight hardware became more knowledgeable of their cargo, and a more cost-effective utilization of NASA assets was achieved.

Launch Complex 39 Fiber Optic Replacement Cable Team

Mission: To replace more than 18 miles of failed, mission-essential fiber optic cables between the Launch Control Center (LCC), the Production Control Center, and the launch pads.

Method: Improved the disposal process of the removed abandoned cable, eliminated redundant activities in the inner duct installation and improved transmission reliability by monitoring pulling pressure and reducing friction.

Results: Cable installation was done within schedule with less splices, reducing manhours by 55 percent. There was also an equipment and materials cost savings of over \$30,000.

NASA

Personal Computer Acquisition Contracts (PCAC) Team

Mission: Resolve complaints about the Personal Computer Acquisition Contracts (PCAC).

Method: Established a continual improvement team with members from across the Center to identify both equipment and software problems, thus



enabling the PCAC team to re-engineer entire process for needed improvements.

Results: Customer complaints were virtually eliminated as PCAC started providing reliable, state-of-the-art equipment and software at significantly lower prices. Problem report (PR) processing was streamlined, hardware and software selections were greatly expanded, delivery times were shortened, and the failure rate was reduced from more than 20 percent to 1 percent.

Hurricane Preparation Task Reduction Team

Mission: Provide effective mitigation of, preparedness for, response to, and recovery from a myriad of different emergency and disaster situations.

Method: Conducted an analysis of over 300 facilities to determine and redefine which facilities had no-value-added reason for preparation actions.

Results: The requirement was reduced from 300 to 50 priority facilities. All preparatory measures can now be accomplished in a timely manner, reducing costs that had mounted to more than one million dollars by 30 percent or greater.

External Tank Replacement Foam Implementation Team

Mission: To provide a method for the effective transition of external tank foam insulation applications using replacement foam materials in lieu of foams containing environmentally harmful freons.

Method: Test and develop an application process for flight foam insulation closeouts using replacement foams which contain an environmentally-friendly blowing agent.

Results: New replacement foam procedures were implemented with no impacts to the External Tank processing schedule, thus allowing future foam applications to comply with national policy requiring the total phaseout of ozone-depleting freons.

The Boeing Company

Environmental Services and Commodities Management Team

Mission: Reduce overall waste generation from support of Payload Ground Operations Contract (PGOC) operations.

Method: Reductions accomplished by various initiatives including reduction of hazardous material stock inventories, matching stock requirements to usage, eliminating stock number duplications, reduced packaging, identifying possible product substitutions and internal recycling of non-usable items.

Results: Significant improvements have resulted in reductions that exceeded established targeted goals in hazardous wastes by 43 percent, non-hazardous wastes by 70 percent, and industrial wastewaters for off-site disposal by 81 percent.

Fabrication Cycle Time Reduction Tiger Team

Mission: Reduce cycle time for typical sheet metal fabrication job requiring alodining, painting, and silk screening.

Method: Charted existing process, brainstormed improvements, then selected and implemented improvements expected to yield the best results.

Results: Cycle time was reduced from 17.4 to 12 weeks. Additional improvements are in development which are expected to reduce the cycle time to less than the seven-week target.

Maintenance Scheduling System Development Team

Mission: Provide a low-cost, effective solution for automated scheduling of facility operations and maintenance activities in PGOC facilities.

Method: Documented use requirements and operational parameters, then created databases and input screens. Another system also was linked to provide remaining data required. Graphic representation of the schedule data was also created.

Results: Resulting 30-day schedule is now used daily to plan and coordinate facility systems. Significant cost savings achieved by eliminating manual production of schedules and duplicate data entry.

QASAR awards go to nine space center employees

Nine NASA and contractor employees of Kennedy Space Center were honored this year with the Quality Assurance Special Achievement (QASAR) award for exemplary performance in contributing quality products and/or services to the space program.

The QASAR is sponsored by NASA Headquarters' Office of Safety and Mission Assurance. The director of KSC's Safety and Mission Assurance Directorate makes the final selection of QASAR recipients at the space center. The honorees were:

Richard Carlson, Rocketdyne: For expert systems knowledge of Space Shuttle Main Engine (SSME) hardware/software as it related to flight safety. Carlson noticed several SSME main fuel valve actuators had less closing bias than the rest of the fleet. He was instrumental in getting a special software change approved to increase the closing bias.

Clark Creery, Boeing: For outstanding guidance in the planning and implementation of the International Organization of Standards (ISO) 9000

for McDonnell Douglas Space and Defense Systems at KSC. Creery played a vital role in developing the framework to implement ISO at KSC.

Patrice Henson, USA: For expertly leading a proactive ISO 9000 Assessment Team at the TPSF, demonstrating exceptional performance in leadership, challenging her peers to achieve high levels of performance, and most of all, assuring success in achieving ISO 9000 certification.

James Keller, I-NET: For expertise in identifying several operational hazards in the form of non-compliance at KSC and OSHA Fall Protection Regulations on the 600-Ton Proof Load Test Fixture in the LETF. Keller provided outstanding leadership in resolving the problems through consultation and agreements with a member of the National Safety Council, a Florida Division of Safety engineer, KSC safety engineers and NASA design engineers.

James Davis, NASA: For demonstrating excellence and

commitment to the safety of the vehicle and flight crew. During surveillance activities on the right-hand Orbiter Maneuvering System (OMS) Pod carrier panels, Davis discovered two Felt Reusable Surface Insulation (FRSI) plugs were missing. He initiated corrective action, avoiding possible severe damage to the vehicle.

David Law, USA: For keen observation techniques and technical expertise as a technician assigned to operations at the Pad. During closeout activities for STS-82/OV-103, and prior to flight crew's arrival, Law noticed that the orbiter cabin pressure probe was misconfigured. He identified the problem, documented it and reconfigured the probe per print. If not found prior to crew arrival, this could have resulted in a launch delay.

Timothy Wright, USA: For demonstrating exceptional performance during critical inspection and rework of STS-80 hatch latch actuators. After several attempts to rework the

rotors and stators of one of the actuators that failed the no-back acceptance test associated with the clutch assembly, Wright traveled to the equipment manufacturer in lieu of Christmas vacation. Corrective action reinstated the quality, integrity, and reliability of the actuators for every orbiter in the fleet and one intended for Space Station.

J. Mica Parenti, NASA, and Gary Hendrickson, Boeing: For outstanding demonstration of teamwork in the development and implementation of improvements and implementation of improvements to the MRB and WAD processes. Jointly, they developed a WAD and MRB metric database that allows one to review, track, verify, and report technical and documentation errors in the WAD and MRB processes. The metrics will be used by the contractor to improve these processes and by NASA to monitor conformance to procedures.

These QASAR honorees are also eligible for an agency-wide recognition later this month.



October employees of the month



HONORED in October were (from left): Thomas Hoffman, Shuttle Processing; Rita DalSanto, Space Station Hardware Integration; Ivory Webb, Chief Financial Officer's Office; Donald McMahon, Safety and Mission Assurance; Anita Nesbit, Procurement Office; Chau Le, Checkout and Launch Control System; Janice Everett, Biomedical Operations; and Robert Dorian, Payload Carriers Program Office. Not shown are Marion Thompson, Payload Processing; Paul Schwindt, Engineering Development; Saul Barton, Administration Office; and William Franklin, Logistics Operations.

Making waves



FIFTY years ago on Oct. 14, 1947, Chuck Yeager broke the sound barrier in the Bell Aircraft Corp. X-1-1 aircraft. This photo from the Dryden Flight Research Center archives shows that historic flight. Yeager flew the aircraft to a speed of about 670 miles per hour, or Mach 1.015, at an altitude of 42,000 feet. The shock waves show in the exhaust plume. The X-1 was just 31 feet long and 10 feet high, with a wing span of 29 feet. It weighed less than 5,000 pounds and did not have an ejection seat. Yeager ignited the aircraft's XLR-11 rocket engines after being air-launched from under the bomb bay of a B-29 at 21,000 feet. Yeager also was the pilot when the X-1 reached its maximum speed of about 950 miles per hour. Another U.S. Air Force pilot, Frank Everest Jr., was credited with taking the X-1 to its maximum altitude of 71,900 feet. The X-1 was part of the Research Airplane Program, a joint civilian-military effort conceived near the end of World War II.



USA team earns FOD prevention award

HYPERGOLIC SYSTEMS Payload Reactants and Storage Distribution (PRSD) Team outside Launch Pad 39B with Deputy Director for Business Operations Jim Jennings (sixth from right) after receiving the KSC Foreign Object Debris (FOD) Prevention Board Team Award for the 1997 third quarter. Headed by Don Wellman of United Space Alliance, the contractor team was praised for their continued efforts to prevent FOD and FOD-related incidents. Also recognized were their hurricane preparedness activities and preparation for SCAPE operations. The team was presented with a \$150 check, a plaque and individual certificates of achievement.

Aggressive measures yield results and SFA honor for six-member team

The six-member United Space Alliance Environmental Programs and Hazardous Waste Team has achieved impressive results over the past four years to reduce hazardous waste production at KSC.

The aggressive and innovative measures which they have developed have led to substantial cost-savings while also preserving a clean and pollution-free environment at the space center.

Among the team's achievements are:

Hydraulic oil reuse: The in-place cleaning of hydraulic oil has increased the life of components since the cleaned oil is actually cleaner than new oil. Cost avoidance: \$3,000 per year.

Antifreeze reuse: Antifreeze, used as a coolant, is now being reused for all rolling stock. Cost avoidance: \$4,000 per year.

Chlorofluorocarbon (CFC) reduction: CFC used for refrigeration has been reduced by 88 per cent over the last three years, primarily due to replacements with approved alternates. Solvent-use reduction has been achieved through aqueous cleaning and today saves about \$8,000 per year, with

more savings to be provided as systems receive more use.

Waste segregation: The contamination of nonhazardous solid waste with hazardous waste accounts for the majority of hazardous waste. For example, 4,000 pounds of hazardous waste ended up as 400,000 pounds of material because of contamination.

By limiting contamination, an 80 percent reduction in some processes and an overall reduction of 12 percent in the amount of waste generated were achieved. Cost avoidance: \$400,000 per year.

Solvent wiper reuse: In 1991, Shuttle processing operations produced 94,025 gallons of manifested hazardous waste, of which contaminated wiper material accounted for about 21 percent. A reuse program was implemented which has reduced the waste stream by 99 percent. Cost avoidance: \$315,000 per year.

Aerosol can recycling: A 100 percent reduction of this waste stream has been achieved. This waste stream accounted for 1.5 percent of hazardous waste in 1992. Under a program developed by the team, material remaining in aerosol cans is used and the empty cans recycled. Cost avoidance: \$15,000 per year.



SPACE FLIGHT AWARENESS (SFA) AWARD goes to the Environmental Programs and Hazardous Waste Management Team, shown here with Shuttle Processing Director Bob Sieck and Acting Chief of the Environmental Program Office Burt Summerfield (standing, second from right and right, respectively).

Two from KSC in 1996-97 PDP class

Two KSC NASA employees, Jose Nuñez and Walt Feitshans, are members of the graduating 1996-97 Professional Development Program (PDP) class.

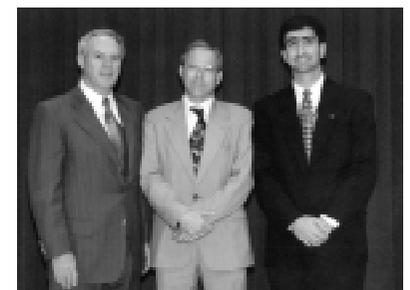
This program provides competitively-selected NASA professionals with assignments of about four to 12 months duration at a different center or organization. The goal of the program is to provide a broader perspective of the agency and the impact of NASA programs upon developing technology.

In his remarks to the 15-member class, NASA Administrator Dan Goldin challenged them to have a vision, take risks and push the envelope.

"This approach will ensure that the agency continues to

lead the world in space exploration," Goldin told the students.

Class spokesperson Nuñez, from KSC, echoed Goldin's challenge, calling his classmates the "explorers, pioneers and innovators who will make a positive difference in every American's life."



NASA Administrator Dan Goldin (left) poses with PDP graduates Walt Feitshans and Jose Nuñez from KSC.

Special brand of courage drives KSC worker

Nicole Fromberg knows what it's like to be an outsider.

You would never think it by looking at her. Poised and attractive, she looks every inch the successful professional at work in her second floor office in the Headquarters Building.

You might wonder from her accent if she is hearing-impaired, but she is so fluent that the thought is easily dismissed.

This ease is the result of a hard-worn battle that began when she was born deaf.

Fromberg, now 31 years old, was taught by her mother to speak when she was just a little girl. She practiced every day and instead of being sent to special schools attended public schools with non-hearing impaired kids.

"Mainstreamed," she calls it.

Using a hearing aid, she always sat near the front of the class so she could pick up the lessons being taught.

Shy by nature, the result was disastrous. "I had no friends," she recalls, and spent the years from kindergarten through high school in a prison of solitude.

Liberation from this lonely world of isolation came in the college years, when she attended two different colleges for the deaf, including Gallaudet University in Washington, D.C. She learned signing for the first time in her life and discovered a new way

to communicate. More important, she found a peer group that understood the world in which she lived.

Fromberg recalls fondly being at Gallaudet when students protested the appointment of a non-deaf president, unrelenting in their objections until the decision was finally overturned. She participated in the demonstrations and called the non-violent protests a wonderful experience.

Today, Fromberg is an accountant in the NASA KSC Chief Financial Officer's Office. She worked at Goddard Space Flight Center in Greenbelt, Md., before moving to Florida three years ago.

She notes that at Goddard there was a group of six to seven deaf workers with whom she was friends; there is only about half that number here. While Fromberg's ability to discern speech and her own voice is so accomplished that she easily blends into the world of the hearing, she speaks wistfully of those kindred spirits in Maryland. Some life-altering experiences can only be understood by those who have undergone the same thing.

For Fromberg, the early years of loneliness forged a strength in her that she would not exchange for anything. She does not regard being deaf as a disability, but as a source of



TRUE GRIT — The challenge of growing up deaf in a hearing world instilled inspired Nicole Fromberg rather than defeated her. Today she is a financial accountant for NASA.

inner strength and commitment. About to marry a person who is non-deaf but communicates easily in sign language, she hopes to have a family.

Gallaudet paid tribute to Fromberg's accomplishments recently when it asked her to return to the school in Febru-

ary to speak to the students about professional development and succeeding in a hearing world. For Fromberg, this chance to give something back to the institution which gave her so much means everything. "I can't wait," she says.

Cockrell named chief astronaut

Three-time Shuttle veteran Kenneth D. Cockrell has assumed the role of Chief of the Astronaut Office, replacing Robert D. Cabana (Col., USMC).

Cabana, who served as Chief Astronaut since mid-1994, is training for Shuttle mission STS-88, the first United States assembly flight to build the International Space Station. STS-88 is



COCKRELL most recently flew as commander of STS-80 in 1996.

scheduled for a July 1998 launch. Cockrell has flown in space three times, on STS-56 in 1993, STS-69 in 1995 and STS-80 in 1996.

Hubble unveils brightest star



STAR LIGHT — One of the intrinsically brightest stars in our galaxy appears as the bright white dot in the center of this image taken with NASA's Hubble Space Telescope. Hubble's Near Infrared Camera and Multi-Object Spectrometer (NICMOS) was needed to take the picture because the star is hidden at the galactic center behind obscuring dust. NICMOS' infrared vision penetrated the dust to reveal the star, which is glowing with the radiance of 10 million suns. The image also shows one of the most massive stellar eruptions ever seen in space. The radiant star has enough raw power to blow off two expanding shells (magenta) of gas equal to the mass of several of our suns. The largest shell is so big (4 light-years) it would stretch nearly all the way from our Sun to the next nearest star. Despite such a tremendous mass loss, astronomers estimate this extraordinary star may presently be 100 times more massive than our Sun, and may have started with as much as 200 solar masses of material. The star is 25,000 light-years away.

CFC halfway toward '97 dollar goal

At press time, the KSC '97 Combined Federal Campaign had achieved half its dollar goal in pledges.



As of Oct. 17, a little more than \$109,000 had been pledged toward a \$200,000 goal.

Directorate participation was varied, with some organizations reporting 100 percent participation and at least one yet to report any pledges. In

the letter included with the CFC booklet, Center Director Roy Bridges Jr. makes an important point to bear in mind when considering whether to pledge to CFC. "As government employees," he writes, "our mission is to serve others, and this campaign allows us to fulfill that mission. In today's environment of government cutbacks, taking care of each other and the community is even more important and challenging."

NASA honors KSC employees

KSC NASA and contractor employees recently received Space Flight Awareness program recognition.

Ten employees were presented with Silver Snoopy awards: Loraine Schafer, Tony Killiri, Tom Draus and John Stealey, NASA; Cheri McLean, Boeing; Hank Ramirez, Sherikon; Debra Thornton, EG&G; and Joe Barretta, Brad Lawrence and Terry Mayfield, United Space Alliance.

Forty-eight KSC workers were treated to a round of special events in their honor as SFA award recipients.

The Honoree Award is the highest form of recognition bestowed upon an employee by the NASA Space Flight Awareness Program.

Nine civil service employees were honored: Peter Chitko, Calleen Coiner, Valarie Franklin, Roberta Gnan, William Larson, Penny Myers, Timothy O'Brien, Rayelle Thomas and Robyn Wesley.

Contractor employees honored were Lisa Leger and Kelly Norwood, The Bionetics

Corp.; Timothy Lorenz, Boeing Space Systems, Rocketdyne; Albert Fazio and Robert Van Sickle, Boeing Space Systems; and Patricia Bennett, Jon Gleman, Harris Graeber II, Kilby Holt and Connie McFadden, Boeing KSC.

Also, Caroline Zaffery, I-NET Inc.; Anthony Corak, Joel Dyson and Joel Thilburg, United Technologies, USBI Co.; Anne Ball, Advanced Aerospace Materials Corp.; Robert Palka, Furon Co.; and Donald Ackerman Jr., Maxine Daniels, James Johnson, David Kolb, James Lesky, William Nichols, Dawn Patton and Diane Smith, EG&G Florida.

United Space Alliance employees receiving honors were: Ashleigh Beatrice, Jimmie Creagle, Daniel Dowling, Audrey Grayson, James Hardman, Jeannette Harrell, Stephen Hunter, Paul Krause, Laura Ledford, Richard Morgan, Donald Pataky, Norman Peters, Jonathan Phillips, Keith Ray and David Zwick.

Native American Heritage Month



TO COMMEMORATE Native American Heritage month in November, the KSC Native American Intertribal Council (NAIC) is sponsoring a non-competitive Pow Wow on Monday, Nov. 3, from 11 a.m. to 3 p.m. in the Rocket Garden at the KSC Visitor Center Complex. The Pow Wow Opening Ceremony will be at 11 a.m., followed by non-competitive dancing, storytelling, and exhibitions of Native American crafts. Featured will be Master of Ceremony Thomas Chibitty and Eagle Claw Southern Drum. Visitors are encouraged to bring folding chairs or blankets, and to participate in the activities — as this photo from last year's event shows, children will enjoy the Pow Wow. KSC employees may attend, with supervisory approval. Native American food will be available for those who purchase meal tickets. There is no charge to attend. For additional information, please contact Martha Passaro, 867-7580 or Jean Rhodes, 867-2307.

Good food, good company



HISPANIC Heritage Month luncheon (from left) — KSC Director Roy Bridges Jr., NASA Associate Administrator for Equal Opportunity Programs George Reese and Deputy Director for Business Operations Jim Jennings were among the many attendees of the Oct. 7 luncheon held at the KSC Visitor Complex. Bridges was the keynote speaker. Plaques were presented to KSC NASA employees Ken Aguilar and Eduardo Lopez del Castillo for their contributions over the past two years to the KSC Hispanic Employment Working Group.

Nov. 5 is Bone Marrow Registration Drive day at KSC. Sign up at any of the following locations: KSC Training Auditorium, 8 a.m. – 5 p.m.; Cape Canaveral Area Clinic, 8 a.m. – 5 p.m.; Launch Complex 39 Clinic, 8 a.m. – 8 p.m.; NASA Shuttle Logistics Depot Health and Wellness Center, 8 a.m. – 6 p.m.



KSC NASA honorees enjoyed their visit to Mission Control at Johnson Space Center. From left are Calleen Coiner, Peter Chitko, Rayelle Thomas, Timothy O'Brien, Bobbi Gnan, Bill Larson and Valarie Franklin. Not shown: Penny Myers and Robyn Wesley.

Open ...

(Continued from Page 1)

to 2:30 p.m., with facilities closing at 3 p.m. Among the scheduled highlights is a drive-by of Launch Pad 39B, where the Space Shuttle Columbia will be awaiting liftoff on Nov. 19 for STS-87.

Other Open House highlights include:

Launch Complex 39

In addition to the Pad 39B drive-by, attendees may visit the Shuttle Landing Facility and walk inside a Shuttle Carrier Aircraft. At the Launch Control Center, guests may visit two Space Shuttle firing rooms and interact with a variety of exhibits. The Thermal Protection System Facility will be open, and guests may also peek inside the Vehicle Assembly Building. Visit a display of firefighting and rescue equipment at Fire Station 2, and then take a look at various transporters, including a Crawler-Transporter.

At the Solid Rocket Booster Assembly and Refurbishment Facility (ARF) and the Logistics Facility, self-guided tours can be conducted. At Orbiter Processing Facility (OPF) Bay 2, Discovery will be available for viewing from the ground floor. Exhibits of Shuttle flight hardware and materials will be located between OPF Bays 1 and 2. Also look for displays of the Thermal Protection System (TPS) tile and orbiter processing.

Industrial Area

The Engineering Development (DE) Model Room in the Headquarters Building will be open, and at the Space Station Processing Facility and Operations and Checkout Building, various payloads will be on view. Briefings by astronauts and NASA officials will be given at 10 and 11 a.m. and noon and 1 p.m. in the Training Auditorium.

In the Operations and Checkout Building, scheduled to be on view in the high bay are processing of the Neurolab

Module and disassembly of the Astro-2 and the Tethered Satellite System payloads. The Payload Communications Center and Payload Control rooms will offer live television and panoramic views of the high bay. The first U.S. element of the International Space Station, Node-1, will be on display in the high bay of the Space Station Processing Facility, along with two Pressurized Mating Adapters. An exhibit of currently used test and development equipment will be on view in the Launch Equipment Test Facility. Several automation and robotics projects being developed to improve Shuttle ground processing operations will be exhibited in the Advanced Systems Laboratory; and in the Intelligent Systems Lab, several advanced software projects that make Shuttle processing more efficient will be demonstrated.

Visitors may view videos and displays in the Parachute Refurbishment Facility, and assorted exhibits on ground support equipment and advanced technology will be displayed and demonstrated in the Engineering Development Laboratory.

Cape Canaveral Air Station (CCAS)

Areas to be open include the Bioastronautics Operation and Support Unit (in the Cape Dispensary Building), featuring the Geographic Information System/Remote Sensing Laboratory and state-of-the-art chemistry and microbiology laboratories used to support the KSC ecological and life sciences activities. Exhibits at Hangar L, the Life Sciences Support Facility, include Shuttle middeck flight hardware and elements of a bioregenerative life support system. The disassembly and refurbishment operations on the east side of the Solid Rocket Booster Disassembly Facility and the south side of the hangar's first and second floors will be open. Visitors can view displays and videos in the



VISITORS lined up to see the displays inside Orbiter Processing Facility Bay 1 during the 1996 Community Appreciation Day which was open to the general public.

open bay area of the hangar, then walk toward the dock, where a retrieval ship will be open for a walk-through tour.

The KSC Visitor Complex will offer a free IMAX show, *Mission to Mir*, at 3:20 and 4:10 p.m. for badged employees and their guests. Employees who show their badge on Open House day will receive a 25 percent discount on souvenirs purchased in the Space Shop, too. In addition, the Merritt Island Launch Area (MILA) Spaceflight Tracking and Data Network Station, the Center for Space Education, the Air Force Space Museum, and the Merritt Island National Wildlife Refuge will be open during Open House.

As part of KSC's Open House activities, the NASA Exchange will offer a free Open House '97 commemora-

tive medallion and Space Shuttle information card. Visit any of the NASA Exchange locations to receive your medallion and card; no purchase is necessary. The medallions and cards are limited, so one medallion and one card will be given per person, while quantities last.

Every employee will receive a special Open House brochure/map about a week before the event. The booklet provides an overview of the space center, details the tour highlights, and features maps showing routes around KSC and CCAS.

And you can check it all out in advance on the Web at <http://www.ksc.nasa.gov/events/1997/openhouse/> Other sources of information will be updates in *KSC Countdown*, the *KSC Bulletin*, and an update flyer, if needed



John F. Kennedy Space Center

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