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Spaceport News

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

Endeavour Soars

Space Shuttle Endeavour blazed into the night sky on mission STS-113, the 112th flight in the Shuttle program. On board were a crew of four: Commander James Wetherbee, Pilot Paul Lockhart and Mission Specialists Michael-Lopez Alegria and John Herrington; plus the Expedition 6 crew: Commander Ken Bowersox and flight engineers Nikolai

(See MISSION, Page 8)

Native Americans gather at KSC

Celebration and ceremony highlighted the STS-113 prelaunch events surrounding the historic mission assignment of John Herrington, a tribally enrolled Chickasaw who is the world's first Native American astronaut. Kennedy Space Center hosted more than 350 Native Americans and NASA and contractor employees at KSC Visitor Complex, Nov. 9 and 10. The events included the White House Initiative on Tribal Colleges and Universities Symposium, titled "Linking Education to Employment" that took place in Orlando.

Invited conference attendees included Chickasaw Gov. Bill Anoatubby, Lt. Gov. Jefferson Keel and other noted members of the Chickasaw Legislature. Chickasaw Elders and relatives, comprising nearly 200 tribal members, arrived by bus from Oklahoma to participate in the events. Other noted attendees included the American Indian Science and Engineering Society (AISES) Elders and officers, as well as presidents of Tribal Colleges and Universities, Native American educators, students and program leaders.

Guests were transported from the conference location to KSC for tours of the Center and Visitor Complex, orientations, a mission overview and an IMAX movie. They also received information about the U.S. Space Program and educational outreach efforts to increase employment among Native American peoples in those areas.

A welcoming ceremony was celebrated Nov. 9 at the Debus Conference Center in the Visitor Complex. Preceded by the Mandaree Singers of the Mandan/ Hidatsu tribe from North Dakota, the Seminole Color Guard of the Seminole Tribe of Florida presented Colors at the honorarium.

Seminole Native American Veterans serve as color guard during a prelaunch Native American ceremony.

"On behalf of everyone here at the John F. Kennedy Space Center, we welcome you, and on behalf of all the people who work on the space program, I thank you for taking the time to be here to support this launch," said Center Director Roy Bridges Jr.

Lee Frazier, a Chickasaw Tribal Elder, led the

(See NATIVE, Page 6)

Inside

NASA Administrator Sean O'Keefe shares Agency's 2003 budget to Centers

Sean O'Keefe (left) addressed NASA Centers Nov. 21 via NASA Television to discuss President George Bush's 2003 budget amendment regarding NASA.

Bush recently submitted the amendment to expedite NASA's new Integrated Space Transportation Plan — a new, coordinated shift in three of the agency's important space flight programs.

The new ISTP reflects important changes to NASA's five-year budget plan, but keeps costs within the original 2003 fiscal budget.

The new Integrated Space Transportation Plan (ISTP) dedicates more resources to the International Space Station program, provides additional funding to extend the life and enhance the safety and reliability of the agency's orbiter fleet, boosts funding for science-based payloads and research, and restructures NASA's Space Launch Initiative (SLI), which was originally designed to identify next-generation reusable launch vehicle technology.

"We've only used about 25 percent of the Shuttle fleet's service life, so it makes sense to invest in the maintaining and

(See BUDGET, Page 7)

Recognizing Our People

KSC welcomes new deputy center director

Kennedy Space Center's new Deputy Center Director, James Kennedy, officially arrived and was welcomed during an executive staff meeting Nov. 4. During the meeting, KSC Director Roy Bridges Jr. said, "It's a pleasure to have Mr. Jim Kennedy as the new deputy center director. He brings with him a wealth of knowledge and a unique perspective having most recently served as the deputy center director of the Marshall Space Flight Center."

Kennedy began his career with NASA at KSC in 1968 as a cooperative education student in design engineering. He transferred from KSC to Marshall Space Flight Center, Huntsville, Ala., in 1969. Throughout his career, he has held a variety of management positions including deputy director and acting director for the former science and engineering directorate and director of engineering at Marshall.

When asked how it feels to be back, Kennedy said, "It feels good to be home. I'm overwhelmed by the warmth of the reception I've already received here."

> *"I'm overwhelmed by the warmth of the reception I've already received here."*
>
> **JIM KENNEDY**

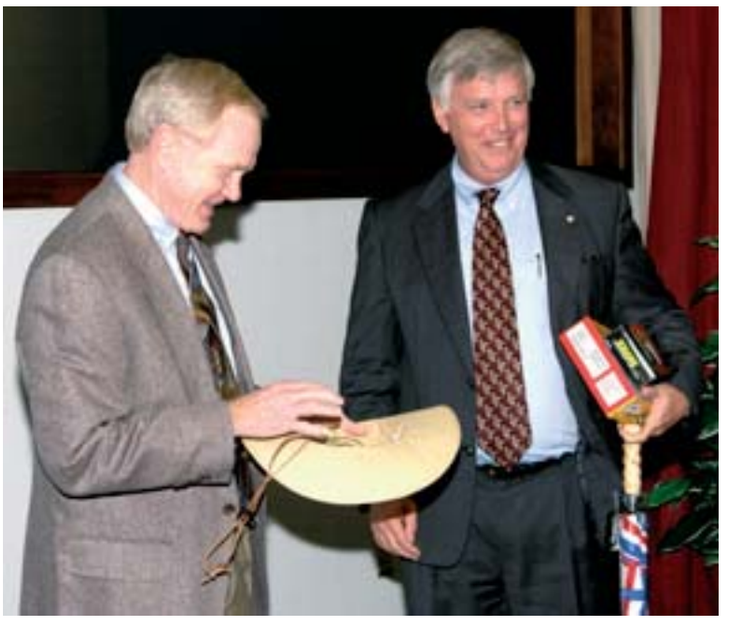
Commenting on the KSC mission, Kennedy said, "The professionalism of the KSC workforce really stands out. This is a tangible, beautiful mission here and is integral to the success of our NASA center-wide mission."

As the deputy center director, Kennedy will lead the "One NASA" initiative and believes strongly in promoting teamwork and diversity. He said there is a "beauty in diversity of gender, age and personality—like a quilt."

According to Bridges, Kennedy is known as a champion team builder and is leading the Agency's "One NASA Team."

"He has graciously agreed to help KSC by leading our Teamwork and Reliance action plan for 'One KSC' so we are better prepared to be team players with other NASA centers, suppliers and customers."

During his welcome, Bridges presented Kennedy with a sun protection hat and the ceremonial keys to his new office.



KSC Director Roy Bridges Jr. (left) presents a hat for sun protection to new Deputy Director Jim Kennedy as part of his "welcome on board."

Daniel LeBlanc named to top post at Delaware North/Visitor Complex

Daniel LeBlanc has been named Chief Operating Officer (COO) of Delaware North Parks Services of Spaceport Inc. (DNPSS), operator of the Kennedy Space Center Visitor Complex for NASA.

LeBlanc will be responsible for directing all aspects of the Visitor Complex operations, including development, finance, operations and marketing. He will lead a team of 650, including employees of DNPSS' subcontractor, Johnson Controls.

"I look forward to my new responsibilities, especially the opportunity to take our guest services, marketing and exhibit development areas to a new level – telling the NASA story better than it's ever been told before," LeBlanc said.

Daniel LeBlanc

LeBlanc has more than 20 years of extensive experience in the tourism industry. He joined Delaware North Park Services of Spaceport Inc. in 1996 as director of marketing and was promoted to vice president of operations and marketing in 2001. Prior to joining Delaware North, he served as director of marketing at the Miami Seaquarium; director of marketing for Florida Leisure, owners of Silver Springs and Weeki Wachee; director of public relations at Sea World California in San Diego; and public relations manager at the Bronx Zoo.

Originally from Purchase, N.Y., LeBlanc earned a bachelor's degree in recreation management from St. Thomas University and a graduate degree in communications from Fordham University. He serves as vice president of the Merritt Island Wildlife Association and is on the board of directors of the Space Coast Tourism Marketing Committee. He is a resident of Cape Canaveral.

Delaware North Park Services of Spaceport, Inc. is a subsidiary of Delaware North Companies, a privately held firm with seven independent operating companies offering worldwide capabilities in foodservice operations; hospitality and recreational services; sports and leisure facilities management; and retail operations.

National Space Club honors excellence in communicating about space

The National Space Club Florida Committee recognized three outstanding members of the communications community with Harry Kolcum awards at the club's monthly luncheon Nov. 12.

The honorees were Lisa Malone, Lt. Col. Michael Rein and Pat Duggins.

Each year the committee recognizes area representatives of the news media and communications professions for excellence in their ability to communicate the space story along Florida's Space Coast and throughout the world.

The award is named in honor of Harry Kolcum, the former managing editor of *Aviation Week & Space Technology*, who was Cape bureau chief from 1980 to 1993 prior to his death in 1994. Kolcum was a founding member of the National Space Club Florida Committee.

Lisa Malone (right) is the associate director of the External Relations and Busi-ness Development Directorate at the Kennedy Space Center. Originally from Mobile, Ala., Malone joined NASA in May 1984. She is being recognized for her dedication and enthusiasm in sharing the NASA story with the general public, not only as the first female "Voice of NASA," but also as a Shuttle role model within the space community.

Lt. Col. Michael Rein (right) is the public affairs chief for the 45th Space Wing head-quartered at Patrick Air Force Base.

Originally from San Antonio, Texas, he began service in the Air Force in May 1986 and was stationed at the Cape beginning in June 2001.

Rein is being recognized for his outstanding efforts following the Sept. 11, 2001, attack on America to keep an open line of communication between the Wing and the public.

Pat Duggins (right) is news director of Orlando public radio station WMFE-FM and is considered National Public Radio's resident "NASA expert."

Originally from Camp Springs, Md., Duggins began his broadcast career in April 1984. His nationally broadcast space reports reach an audience of three million listeners. He is being recognized for his commitment to presenting space news in a fair and balanced manner.

Quality and safety basis of QASAR awards

Five NASA and contractor employees of Kennedy Space Center were honored this quarter with the Quality And Safety Achievement Recognition (QASAR) Award. The QASAR recognizes individuals who have displayed exemplary performance in contributing products and services and a safe environment and processes for NASA.

The honorees are as follows:

Charles Davis – Boeing, selected for consistent dedication to Quality and Safety in the design and use of Orbiter Ground Support Equipment.

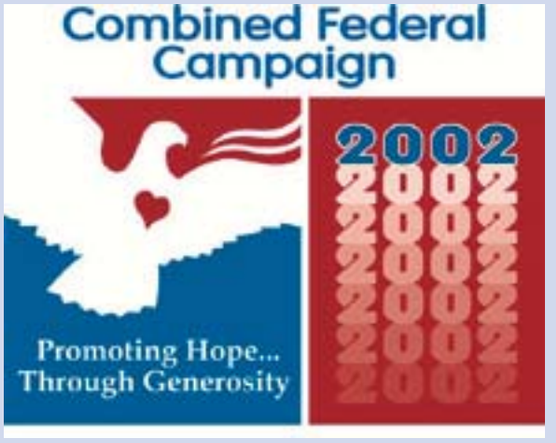
Alan Markham – Creative Management Technology Inc., selected for leadership of the employee-led Safety Committee for the SGS Facilities Management Services Directorate, which has sustained a record of excellence to include significantly reduced accident rates. His professionalism and dedication to safety reflect great credit on himself and the Kennedy Space Center.

Mark Page – NASA, selected for demonstrating exceptional performance in improving the quality of security for KSC Information Technology (IT) systems in support of NASA Headquarters' and Kennedy Space Center's Security Campaign.

Florence Patten – NASA, selected for exemplary performance, tireless efforts, and customer-focused contributions to the Kennedy Space Center's Safety and Mission Assurance Community, to help improve the Safety Program at KSC.

Keith Pierce – Boeing, selected for dedication to continuous process improvements and the safety of the Manned Space Flight Program.

The QASAR Award is sponsored by NASA Headquarters' Office of Safety and Mission Assurance. The director of KSC's Safety, Health and Independent Assessment Directorate makes the final selection of QASAR recipients at the space center.



Combined Federal Campaign Sets Another All-time Giving Record

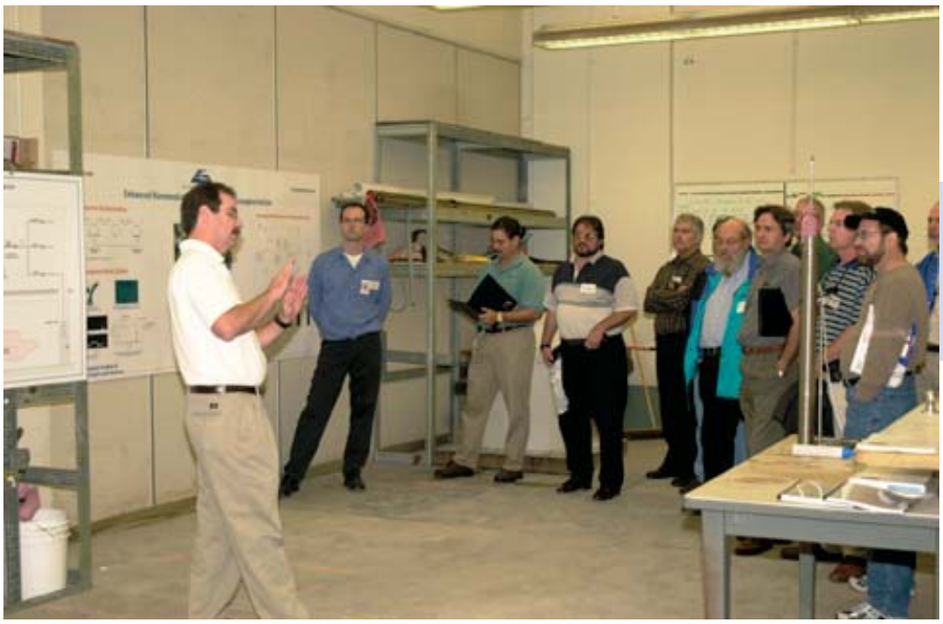
NASA employees at KSC set another all-time giving record during their recently concluded Combined Federal Campaign.

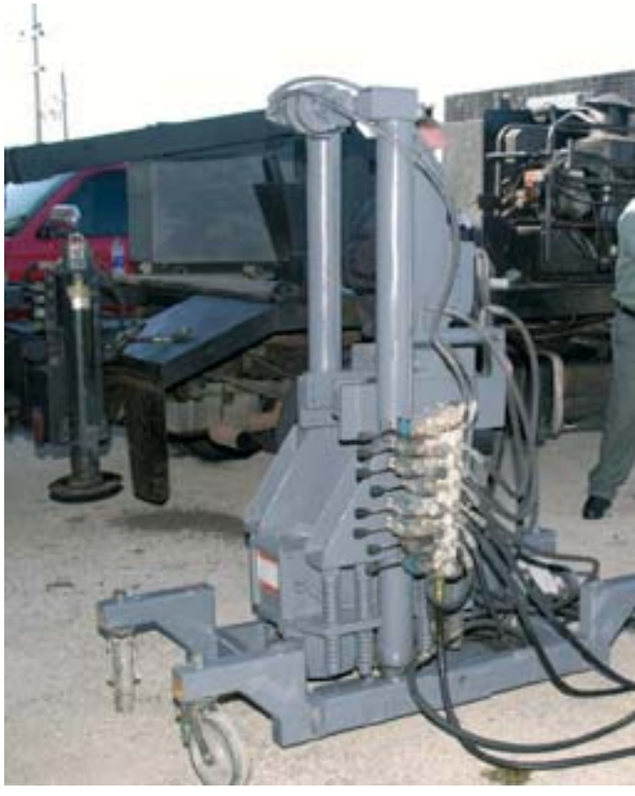
During this year's CFC, 79 percent of the Federal employees at KSC generously contributed more than $306,000, far exceeding the Campaign goal of $265,000. Of that amount, $115,000 will be distributed to local charities in Brevard County.

The Combined Federal Campaign is the annual solicitation of employees in the Federal workplace on behalf of local, national and international charitable organizations.

NASA employees will celebrate on Dec. 11 the highly successful Campaign as part of the KSC Holiday Celebration.

KSC decontamination technology int





About 200 government and business representatives, scientists and engineers interested in NASA Kennedy Space Center's new environmental clean-up technologies toured the Launch Complex-34 remediation site at the Cape Canaveral Spaceport Nov. 7.

Representatives of the U.S. Environmental Protection Agency also attended. The two technologies were demonstrated as part of the EPA's Superfund Innovative Technology Evaluation (SITE) Program.

NASA innovators in cooperation with KSC's Technology Commercialization Office planned and organized the Environmental Remediation Tour and Demo.

The event was aimed at familiarizing corporations and other organizations with NASA technologies developed to resolve a specific environmental problem; namely, how to remediate the toxic groundwater pollutants that resulted from launch activities of the 1960's and 70's.

Areas of LC-34 were polluted during the early history of the space program with solvents used to clean Apollo rocket parts. The solvents are classified as dense non-aqueous phase liquids (DNAPLs).

Left untreated in the ground, DNAPLs can contaminate fresh water sources.

The touring group of national and international participants viewed remediation demonstration zones at the L-34 site. They heard presentations on two of the remediation technologies being used. One of the technologies is now available for licensing.

"What makes these new technologies so attractive is that they are relatively affordable and easy to implement," said Dr. Jackie Quinn, the NASA environmental engineer who heads the project. "These spinoffs could help clean up polluted areas across the nation and the world."

The technologies are Emulsified Zero-Valent Iron (EZVI) and bioaugmentation using KB1, a naturally occurring microbial species. Quinn is a co-inventor of EZVI with three University of Central Florida (UCF) professors and a graduate student. KB1 was developed by GeoSyntec and the University of Toronto.

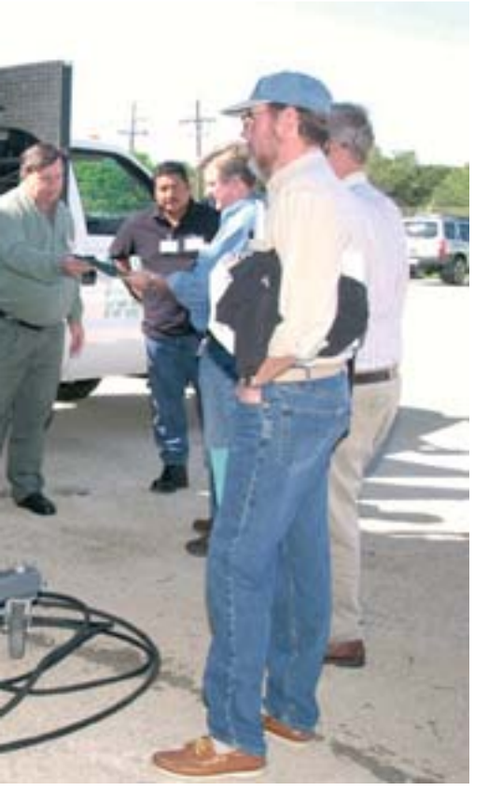
Simply put, the EZVI technology uses iron particles in an environmentally friendly oil and water base to neutralize DNAPLs. Through KB1 bioaugmentation, microorganisms are added to a DNAPL-contaminated site to create the right mix of microorganisms that will render contaminating chemicals harmless.

Quinn and the other innovators are hopeful that these technologies and others being developed could either be applied in similar remediation activities outside the space program or encourage further innovative thinking in fighting groundwater contamination.

One of the technologies, Zero-Valent Metal Emulsion for Reductive Dehalogenation of DNAPL's (Case Number KSC-12246), is currently available for licensing and commercialization through the Technology Commercialization Office.

"NASA is making an incredible contribution to environmental remediation by allowing various technologies to be tested and refined at this site," said UCF Environmental Chemistry professor Dr. Cherie Geiger. "Sites across the world will be able to benefit from this opportunity they've given researchers."

erests groups beyond space program



Thousands of sites across the world face problems with DNAPL contamination. The EPA has reported that DNAPLs are present at 60 to 70 percent of all sites on the Superfund National Priorities List.

DNAPL contamination sites may include those created by dye and paint manufacturers, dry cleaners, chemical manufacturers, metal cleaning and degreasing facilities, leather-tanning manufacturers, adhesive and aerosol manufacturers and government facilities.

Environmental Remediation Tour and Demo

(Clockwise from upper left, page 6) – New methods of environmental cleanup are explained to government and business representatives, scientists and engineers during a presentation at Launch Complex 34-A, Cape Canaveral Spaceport. Making the presentations are Mike Annable with the University of Florida; Megan Gaberell with Battelle Memorial Institute; UCF Environmental Chemistry professor Dr. Cherie Geiger; Dr. Jackie Quinn, the NASA environmental engineer who heads the project; and Laura Filipek, a University of Central Florida graduate chemistry student involved in the science. Lower left, a touring group of national and international participants look over some Precision Sampling's drilling rig, new equipment.

Florida Space Research Institute seeks KSC mentors

The Florida Space Research Institute (FSRI) continues to expand its Advanced Learning Environment (ALE) initiative with several new awards, including an innovative digital mentoring program funded by a grant from the Florida Space Grant Consortium (FSGC). The program is in response to the stated NASA mission to inspire today's young people to pursue careers in the aerospace industry.

Interaction

Using the various electronic communication capabilities built into the ALE, high school and college students across the state will have the opportunity to interact with aerospace experts currently working in the industry. FSRI is actively recruiting mentors interested in participating in the program. Each mentor will interact with a group of five students.

"It's a great opportunity to share your knowledge, experience, and passion with students who will eventually become the aerospace leaders of tomorrow," said Tom Cavanagh, FSRI's program manager for the ALE.

"With the communications tools embedded in the ALE, mentors will be able to interact with students who, due to geography or resources, might not normally have access to NASA expertise."

Internet Based

FSRI is designing the program to require a minimal amount of time from mentors, using technology to structure specific interaction touch-points that can be accomplished from any Internet-connected computer. FSRI would also like to include the mentors in the development of the program. A small monthly stipend will be available to mentors to cover expenses.

Initially funded by Workforce Florida and NASA, the ALE is an Internet-based learning portal for the aerospace industry. The initial implementation recently was completed with great success. Not only was FSRI able to deliver 10 percent more content than originally planned, but also it was able to award more than 1,400 ALE scholarships, far exceeding the 1,320 target, all within the original funding provided by

(See ALE, Next Page)

Native. . . (Continued from Page 1)

opening prayer before dinner. Jerry Elliott, of the Osage/Cherokee Nation, an aerospace technologist, from NASA's Johnson Space Center, dedicated a flute song to Herrington.

George Reese, assistant administrator, Office of Equal Opportunity Program, NASA Headquarters, Washington, D.C., and General Michael Kostelnick, associate editor of "Whispering Wind" magazine, also spoke to the visiting group.

"This is a celebration of the STS-113 launch. Our country is made up of diverse groups. We're honoring a Native American and it's great to include all of the diversity in our country in this Shuttle launch program," said Reese.

Kostelnick, speaking for Bill Readdy, space flight associate administrator, NASA Headquarters, said, "There are many rich customs in the world. It is important that we join and recognize this event."

Speaking to all Native Americans, he said, "You should take pride in the fact that not only will John be the first Native American in space, but he will also be the first Native American to walk in space."

Buffy Sainte-Marie, of the Cree Nation, sang her award-winning song, "Up Where We Belong," from the movie "An Officer and a Gentleman," and also dedicated her song "Star Walker" to Herrington and the STS-113 crew members.

Chickasaw Nation Gov. Anoatubby summarized the program, "Ours is a nation of explorers. We are humble as a nation, but we take great pride in calling John Herrington one of our own."

Anoatubby also thanked the KSC family. "Thank you for making us all feel at home, offering up your hospitality. This will live with us for the rest of our lives."

Chickasaw Nation Cultural Resources Director Haskell Alexander (left) presents a gift to Joyce and James Herrington, parents of John Herrington.

Chickasaw Dance Troupe performs in the Rocket Garden at the KSC Visitor Complex.

Under a clear, star-filled night on Nov. 10, the group gathered in the KSC Visitor Complex Rocket Garden for a special prelaunch Native American ceremony. Master of Ceremonies was Danny Key, a Chickasaw Nation administrator.

Once again, the drums called the people to gather and the Seminole Native American Veterans Color Guard presented the colors.

Radmilla Cody, 2001 Miss Navajo Nation, sang the National Anthem in her native language and Elliott returned to play a Native American flute song requested by Herrington and dedicated to the STS-113 crew.

The Chickasaw Dance Troop performed a ceremonial stomp dance to honor Herrington's parents who participated in the evening's events, followed by a blessing from Chickasaw Tribal Elder Frasier. The evening concluded with a song by Buffy Sainte-Marie followed by a reception at the Debus Conference Center.

Chickasaw Nation Supreme Court Justice Cheri Eldred said, "This is an awesome place. I had no idea the impact that John's space mission would have on our tribe and the Native American people worldwide. NASA has really treated us well and made us feel at home."

Phyllis Howard, a member of the Mandan/Hidatsu/Arickara Tribe and North Dakota Association of Tribal Colleges executive director said, "Today was a really busy and interesting day. I never imagined what KSC was all about until I came here to see for myself."

KSC collaborates with BCC on biology course

Many Kennedy Space Center employees have attended biology classes in their lifetime. Now the tables have turned and some of the Center's workforce are contributing to an introductory biology course's curriculum.

Brevard Community College captured KSC's biological world for the "Around and About Biology" course. KSC's episode is one of 14 supplemental presentations that also will be available on CD-ROM and DVD for distance learning. Series creators and BCC professors John Armstrong and Craig Weaver designed the lessons after years of purchasing a video series that didn't meet their instructional needs. According to Armstrong, the purpose of the episodes is to show real-world applications of biology, especially biology – and biologists — in the Central Florida area.

"We have tried to focus on applications of biology. Many students do not realize there is more to a biology degree than medical and/or forest rangers," Weaver explained. "Included in the videos are different types of jobs, working conditions and diversities that are available. We have included interviews with the biologists themselves, highlighting their backgrounds and interests."

Instead of students seeing exciting natural events and careers existing only in far away, exotic locales, the episodes clarify that their education can be easily utilized in Brevard County and surrounding areas. Florida Institute of Technology, a wildlife refuge and Marineland are just a few of the other areas portrayed for the series.

"At KSC, we covered plants in space, vegetation, the effects of carbon dioxide on greenhouses and near the launch area, and the effects of light on plants in space," said Armstrong.

The episodes will be aired on WBCC, starting Summer 2003, so anyone with access to the channel can benefit from the course. "Each place we visited, people talked about how they got involved in biology and their careers to spark interest in career possibilities," said Armstrong.

According to KSC Animal Spaceflight Programs Bioengineer Dennis Chamberland, who served as a liaison between BCC and KSC, the Center benefits from the project as well.

At left, a BCC crew films KSC scientist talking about a CO2 experiment and its effects on scrub oaks.

Below left are BCC professors John Armstrong and Craig Weaver.

"As we invite colleges like BCC to this fantastic enterprise, we ensure that there is a group of knowledgeable, interested future scientists and engineers to carry this work ahead," he said. "It has always been the Agency's mandate to share our discoveries with the American people. It is so exciting and satisfying to literally watch our work integrated into the teaching of our local colleges and universities. However, I guess one would naturally expect that, eventually, the most awesome scientific story of our generation would ultimately make it to the classroom."

As far as future collaborations are concerned, the professors are definitely interested in the possibility. "We would like to pursue a bit of physiology such as space suits, physical prep, and electron microscopy, etc.," said Weaver. "Topics totally dependent on NASA."

Budget. . . (Continued from Page 1)

upgrading the fleet to make use of its unique heavy lift capability for cargo for years to come," O'Keefe said.

NASA is making plans to be able to start flying a new crew return vehicle in the form of an orbital space plane "by the end of the decade," he said. The space plane will be designed to be highly maneuverable and for quick processing turnaround time.

The concept of an orbital space plane reflects NASA's need to ferry Space Station crewmembers and to ensure that a capability exists to get the crew home if there iss an emergency. The concept will be the immediate objective of SLI's new research efforts.

Administrator O'Keefe said the Orbital Space Plane is beneficial on several levels.

"It's based on existing technologies and therefore lowers risk and is more affordable. It will replace the Space Shuttle as the primary crew transport vehicle, freeing the orbiter fleet to focus on heavy cargo delivery."

SLI would continue to identify future reusable launch vehicle technology through a new Next Generation Launch Technology program, in coordination with national security agencies, investing money in propulsion, structures and other key areas.

Details of the President's budget amendment are available on the Internet at: http://www.whitehouse.gov/news/ .

ALE. . .

(Continued from Page 6)

Workforce Florida.

"Web-based technologies are expanding Florida's K-20 education and training services, including programs to support the state's vital aerospace workforce," said Lt. Gov. Frank Brogan. "FSRI's success with the Advanced Learning Environment demonstrates how Florida and NASA can work together to meet common workforce development needs."

Florida's relationship with NASA on ALE was established in 2000 when Brogan and Kennedy Space Center Director Roy Bridges signed a cooperative agreement to support aerospace workforce development.

Anyone interested in being a mentor and making a difference in a student's life can contact Tom Cavanagh at *tcavanagh@fsri.org* or 321-452-2653.

Remembering Our Heritage

Historic Mission Apollo 13 captured in IMAX film

You may have seen Apollo 13 in the theater or on video, but until you see "Apollo 13: The IMAX® Experience," you haven't experienced the in-your-face thrills the film has to offer in the larger format.

The new IMAX film premiered at Kennedy Space Center Visitor Complex Nov. 13 during a gala event with special guests Apollo 13 Commander Jim Lovell and Flight Director Gene Kranz.

A second special event featuring "Apollo 13" actor Tom Hanks, director Ron Howard and Commander Jim Lovell was held Nov. 14.

Guests at both events enjoyed a screening of the dramatic, true story of Apollo 13. They were amazed at how the huge screen captivated their imagination and made them feel a part of the thrilling story.

Lovell and Kranz shared their unique experiences during the nail-biting mission, and how they worked together – Lovell from the damaged spacecraft 205,000 miles away, and Kranz at Mission Control in Houston – to bring the astronauts back to Earth safely.

At the IMAX® premiere held at KSC, former astronaut Jim Lovell is joined by Tom Hanks, who starred in, and Ron Howard, who directed the film "Apollo 13." The film is the newest attraction at the KSC Visitor Complex.

"I never said 'Failure isn't an option.' That was a scriptwriter's invention," Kranz admitted.

The scriptwriter came up with the phrase based on the sentiments Kranz repeatedly expressed to his team during the Apollo 13 challenge.

Hanks, Howard and Lovell discussed the making of the movie and their thoughts about the space program. Howard admitted to being swayed to make the movie closely follow what really happened.

"My feelings about how the story should be told in the movie changed when we met with the astronauts and actually heard their story – the human interest/human emotion," Howard said. "It's amazing what people can do/accomplish through sheer will."

"Apollo 13: The IMAX® Experience" is the newest attraction at the Visitor Complex, airing daily at 3:30 p.m. and included in regular admission to the complex. The Visitor Complex is currently the only IMAX theater in Florida showing the film, which debuted nationwide in September.

"Apollo 13" is the first-ever 35mm live action film to be digitally re-mastered into IMAX®'s 15/70 format, which is 10 times larger than a conventional 35mm film and three times larger than a standard 70mm film.

Hanks, Bill Paxton and Kevin Bacon star as Apollo astronauts James Lovell, Fred Haise and Jack Swigert, who found themselves in a life-or-death race back to Earth in April 1970 after an oxygen tank ruptured on their Service Module three days into their lunar mission.

"The great thing about doing this movie in IMAX – it gives us a huge opportunity to let people see it years from now – whole new generations can know the story of Apollo 13," Hanks said. "The first IMAX movie, "To Fly," is still playing around the country today."

Mission. . . *(Continued from Page 1)*

Budarin and Donald Pettit. Payload on the mission includes the first port-side truss, P1, to be added to the Space Station.

The launch had been postponed from Nov. 11 when two technical issues surfaced, requiring extensive analysis and evaluation. First, a leaking oxygen flex hose was found during Endeavour's first launch attempt. Analysis of the leaking flex hose showed the cause to be fatigue from normal use coupled with a weak configuration that allowed excessive flexing of the lines. The oxygen line and a similar one that carries nitrogen were replaced.

Second, during the investigation of the oxygen flex hose, Endeavour's robotic arm was bumped by a work platform being installed in Endeavour's payload bay, resulting in about a two-inch-square "bruise" to its carbon composite structure. Tests in Toronto, Canada, along with other analysis, showed that damage to the arm would not affect its operations during STS-113.

Shuttle managers on Nov. 20 cleared Endeavour for launch on mission STS-113, resolving both issues.

Endeavour is scheduled to land at KSC after an 11-day mission, returning the Expedition 5 crew to Earth.

John F. Kennedy Space
Spaceport News

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Managing editor. . . . . Bruce Buckingham
Editor. . . . . Kathy Hagood
Production editor. . . . . .Anita Barrett

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