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SPACE CENTER Roundup

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International Space Station grows again with STS-92

Discovery flight marks 100th mission in shuttle program

Space Shuttle *Discovery* is poised to deliver the next in a series of major hardware components to the International Space Station during the STS-92 mission, scheduled to launch no earlier than 8:30 p.m. CDT Oct. 5. During the mission, which represents the 28th flight of the orbiter and the 100th mission in shuttle program history, the ISS receives its first truss segment, a framework structure to house communications and motion control equipment.

A seven-person crew will be commanded by Brian Duffy, (Col., USAF), who will be making his fourth flight into space. Duffy will be joined on the forward flight deck by Pilot Pam Melroy (Lt. Col., USAF), who will be making her first flight into space as the third female shuttle pilot in history, following in the footsteps of Eileen Collins and Susan Kilrain.

Two teams of space walkers and an experienced robot arm operator will collaborate to install the so-called Z1 (Z for zenith port) truss structure on top of the U.S. *Unity* connecting node on the growing station and to deliver the third Pressurized Mating Adapter (PMA 3) to the ISS for the future berthing of new station components and to accommodate shuttle dockings. The Z1 truss will be the first permanent lattice-work structure for the ISS, setting the stage for the future addition of the station's major trusses or backbones. The Z1 fixture will also serve as the platform on which the huge U.S. solar arrays will be mounted on the next shuttle assembly flight, STS-97.

The Z1 contains four large gyroscopic devices, called Control

Moment Gyros, which will be used to maneuver the ISS into the proper orientation on orbit once they are activated following the installation of the U.S. Laboratory *Destiny* on the STS-98 mission early next year. The Z1 is also home for the station's S-band and KU-band communications equipment, which

will permit enhanced air-to-ground voice capability and the first full bandwidth U.S. television capability from the ISS next year.

Dr. Leroy Chiao, who performed two space walks on one of his two previous shuttle flights, will join Bill McArthur (Col., USAF) in *Discovery's* cargo bay for a pair of space walks on the fifth and seventh days of the flight. Chiao and McArthur, who is

making his third space flight, will connect electrical cables between the Z1 structure and *Unity*, connect cables and hardware associated with the ISS' KU-band and S-band communications gear and install electrical converter units for the station.

Dr. Jeff Wisoff, who conducted a space walk on the first of his three previous flights, and Mike Lopez-Alegria (Cdr., USN), who is making his second flight into space, will perform two space walks on the sixth and eighth days of the flight, supervising the installation of the PMA 3 to one of the Common Berthing Mechanism docking ports on *Unity*, connect cables and electrical components from the new adapter to the ISS and set up a variety of equipment on the new Z1 structure itself.

Koichi Wakata of the Japanese Space Agency (NASDA) will play a crucial role throughout the flight, using *Discovery's* Canadian-built robot arm to install the Z1 truss onto *Unity*, then maneuvering the space walkers for four consecutive days as they perform their assembly tasks. This is Wakata's second flight into space.

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Ownership of *Destiny* research laboratory transitions to NASA

The U.S. research laboratory *Destiny*, which will become the centerpiece of the International Space Station when it is launched early next year, successfully achieved a major milestone last month and is now well on its way toward its final destination: space.

Jay Greene, NASA deputy ISS program manager, and Joe Mills, Boeing vice president and deputy ISS program manager, recently concluded a two-day Acceptance Review Board at Kennedy Space Center by signing the final documents turning over the Boeing-built research laboratory *Destiny* to NASA for pre-launch preparations. The board was held August 30 and 31.

Before turning over space station hardware to NASA, representatives from Boeing and the space agency review all the engineering and testing documents to ensure an element is ready for the next phase of pre-flight preparations.

"While there is much work ahead to prepare the Lab for its mission, the hardware and software has surpassed our expectations throughout its initial acceptance testing and, when launched, will be a magnificent tribute to the hundreds of

NASA and Boeing engineers who worked so hard to build and prepare this vehicle for its ultimate mission," said Greene. "It has been a pleasure to watch the NASA/Boeing team come together to accomplish this major milestone in the ISS program."

Boeing began construction of the 28-foot, 16-ton, state-of-the-art research

laboratory in 1995 at the Marshall Space Flight Center in Huntsville, Alabama. The Lab was shipped to KSC in 1998. Astronauts will work inside the pressurized facility to conduct research in numerous scientific fields. Scientists throughout the world will use the research results to enhance their studies in medicine,

engineering, biotechnology, physics, materials science, and Earth science.

Inside *Destiny* are five systems racks that will provide life-sustaining functions on board including electrical power, cooling water, air revitalization, and temperature and humidity control. Each rack weighs about 1,200 pounds. Six additional systems racks will be flown to *Destiny* in February 2001. Thirteen racks that

will provide platforms for a variety of scientific experiments will follow on subsequent missions.

Over the next few months, leading up to a January 18, 2001, launch date, *Destiny* will complete a series of tests and milestones including closing both hatches for the last time on Earth. Also several astronaut crews including the three members of the Expedition One team, who will become the station's first inhabitants when they arrive in November, will perform an equipment interface test. The Expedition One crew will integrate *Destiny* into the ISS architecture in January 2001.

Nearly 90 percent of the station's hardware has been manufactured and more than 280,000 pounds is at KSC undergoing final assembly and pre-flight testing. When the ISS is fully assembled in 2006, *Destiny* will be among a complement of six main research laboratories available to astronauts. The other labs are the U.S.-built Centrifuge Accommodation Module; the European Space Agency laboratory called Columbus; the Japanese experiment module called Kibo; and two Russian research modules. ■



Photo by Mary Welch courtesy of The Boeing Company

NASA Deputy International Space Station Program Manager Jay Greene, left, and Boeing Vice President and Deputy ISS Program Manager Joe Mills conclude a two-day Acceptance Review Board at Kennedy Space Center by signing the final documents turning over the Boeing-built research laboratory *Destiny* to NASA for pre-launch preparations.



Safety & Total Health Day nears.

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Open House 2000 rises to new heights.

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Appetizing news from JSC's cafeteria team.

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Taking JSC "Beyond the Star"

By Mary Peterson

As the theme "Beyond the Star" implies, this year's Safety & Total Health Day is the most ambitious event of its kind yet planned at Johnson Space Center. What better time than within the new millennium to extend our site ambitions beyond the revered VPP Star site status to "superstar," and Safety & Total Health Day seems the perfect catalyst to do just that.

Thanks to the dedicated and versatile Safety & Total Health planning committee, led by Perry Bennett and co-chairs Sylvia Stottlemeyer and Dr. Chuck Ross, this year's program will offer more educational, informational, and screening opportunities than ever before.

But, Bennett reminded, "The centerpiece of the day's activities has always been, and will remain, the individual programs within each group around the site. These are important because managers make a concerted effort to tailor this training to the specific needs associated with their own employees' jobs and location."

Beyond this, employees will have opportunities throughout the day to hear some outstanding speakers on a wide variety of subjects that include such topical items as treating and preventing viral infections, stress management, LASIK surgery, home burglary prevention, and elderly care management and planning,

among others. These seminars are scheduled variously at Teague Auditorium, the Bldg. 30 auditorium, two locations in Bldg. 8, and the Gilruth Center. Visit the Safety & Total Health Day Web site www.srq.nasa.gov/sth2000 for a schedule of times and topics.

"We'll have some really great new things this year," said Reta Warren, co-chair of the booth committee. "For one thing," she said, "we will have a series of informal presentations and

demonstrations both around the pond area and at Gilruth Center on sports that employees may want to consider adding to their activity list. For example, they will be able to take a look at the fun and art of fencing, see what is involved in learning Aikido or Tai Chi, or they can consider rock climbing."

Planned demonstrations will give people a chance to talk to the experts, as well as learn about equipment, safety and health benefits.



NASA JSC 2000-06074 Photo by Benny Benavides

Taking Safety & Total Health Day "Beyond the Star" in 2000 is the S&TH Planning Committee. Shown from left, front: Sharon Kemp, Rindy Carmichael, Jo Kines, Sylvia Stottlemeyer (co-chair), Joyce Abbey, Sheilla Goldberg, Greta Ayers, and Perry Bennett (chairman); back: Karon Woods, Gloria Stiner, Reta Warren, Jonathan Manning, Mary Peterson, Bob Gaffney.

Nearly 100 booths, many of which are making their first appearance at the JSC Safety & Total Health Day event, will be set up around the pond area and nearby buildings where a wealth of information will be available on a fascinating array of health and safety topics. Also, for the first time, the booths will be open until 4 p.m. to accommodate employees who cannot be there during the morning hours.

Among the attractions will be the St. Luke's mammography truck, Lone Star Canine Search and Rescue, Dr. Muscle & Co., motorcycle safety, M. D. Anderson Cancer Center, Harris County Pollution Control Department, Kelsey-Seybold cholesterol screening, child car seat check, Texans for Alternatives to Pesticides, Rape Aggression Defense, crisis hotline/crisis intervention, and, of course, the always popular Texas-New Mexico Power Company arc demonstration. Certainly, the event wouldn't be complete without the Max-Q Astronaut Band for our listening pleasure which will be outside the Bldg. 3 cafeteria.

Safety & Total Health Day is the employees' day and it will be teeming with opportunities to learn, to become better informed, and to improve lives through safer, more healthful living. Take full advantage of it. ■

Safety & Total Health Day 2000



Making the Star shine

It was an extraordinary event when JSC earned its OSHA VPP Star site status. But even more extraordinary are the efforts that are being applied to go "Beyond the Star." Safety & Total Health Day 2000, with its many dedicated volunteers, is a supreme example.

Although Safety & Total Health Day is a small part of the JSC safety and health program, it is, nonetheless, a very important part, and it serves to galvanize employees both on and off site toward the common goal of a safer, healthier work environment.

While the Safety & Total Health Planning Committee is the hub of the activity, many others volunteer untold hours to help with the child car seat check, staff booths, post notices, direct traffic, pass out literature, and do any number of other useful jobs. And they have a great time doing it.

"I can vouch for how much fun and how worthwhile it is to volunteer," said Jonathan Manning of Muñiz Engineering, Inc. who heads the booth

committee. "Probably the thing that I recognize the most, though," he said, "has been the dramatic change in safety and health awareness at JSC during the past five years."

If you haven't yet volunteered, consider it. It's a way to meet new friends and to be a part of what has become one of JSC's premier events. Even NASA Administrator Dan Goldin, recognizing the innovation and success of the idea, had all of the other centers model their own safety and health days after that of JSC. As a result, Safety & Total Health Day has now become a concerted effort, with all centers holding similar observances on the same day each year. And, as Manning further said, "Imagine being on a team that affects all of NASA on a given day!"

Whether you have one hour or several to spare, you can be a part of this dynamic team. Click on the S&TH Day Web page www.srq.nasa.gov/sth2000 to volunteer or call x45078. ■

Words you will want to hear

By Mary Peterson

For hundreds of years, our only means of communication was storytelling—dating back to the traveler who brought tales from afar to an eager and willing audience. Even now, with our overabundance of communications devices, the spoken word still holds sway with those eager to learn and to hear others' experiences firsthand. And so it will be with the several outstanding speakers who will take part in JSC's Safety & Total Health Day, October 18.

Returning this year to give the keynote address in Teague Auditorium at 9 a.m. will be Canadian Dr. Robert Conn, a pediatric-cardiologist who once engaged in salvaging hearts from accident victims and then found important work in trying to teach young people how to recognize and avoid the high-risk behaviors that could forever change, or end, their lives. His is a touching testimonial to the work done by the foundation he created, SMARTRISK. Conn is also bringing SMARTRISK's stunning, high-tech HEROES presentation to Gilruth Center for a three-day run, to which area students will be invited.

Conn says of his work, "We'd do anything we could if we thought it would keep you safe. But there isn't anything we can do. You're in control. It's your choice. It's your body. It's your responsibility. It is now and it always will be, as long as you live. All we can do is give you the facts and leave the choices up to you."

Following Conn will be Dr. Frank Booth with some eye-opening facts about how physical inactivity can result in some of our most deadly diseases. If that scares you, then you'll want to hear what he says about prevention as well.

Stress has become a common workplace problem, and Dr. Katherine Peek will be on hand to talk about managing what seems like the unmanageable at times. Then, in his talk, Dr. James Reese, an internationally known behavioral scientist/author, will, with wit and wisdom, take the point a step further to address what happens when stress induces violence.



Dr. Katherine Peek

The Bldg. 30 auditorium will host a seminar on LASIK surgery followed by Dr. Stephen Tyring, an expert on the treatment and prevention of viral infections, who is associated with numerous research projects, including the development of a vaccine for HIV and one for cervical cancer in women, which could have worldwide implications. In a later session, speakers from Wesley Wright & Associates will tell you what you need to know about elder care, including Medicare management, preserving assets, and estate planning.

For those concerned with personal and home safety who would like some useful, practical advice, the Houston Police Dept. will be offering several seminars during the day in Bldg. 8, Rms. 2100 and 248. ■

A Millennium Event



Safety and Total Health Day promises something for everyone. Photos, clockwise from top, left; more than 50 booths will be set up around JSC providing information on everything from worksite safety to home security to personal health; St. Luke's hosts a Blood Drive as part of S&TH Day. Donations can be accepted at Ellington Field on Oct. 17, from 12:30 p.m. to 5 p.m. and on site Oct. 18 and 19 from 7:30 a.m. to 4 p.m. in Bldg. 2 and near Bldg. 11. The JSC branch with the highest percentage of participants in the S&TH Day Run/Walk wins the George Award. Employees and their families are welcome to participate. Register online via the S&TH Web site at www.srqa.jsc.nasa.gov/sth2000.



SAFETY AND TOTAL HEALTH DAY EVENT SCHEDULE OCTOBER 18, 2000

TIME	BUILDING 2 TEAGUE AUDITORIUM	BUILDING 30 AUDITORIUM	BUILDING 8 ROOM 2100	BUILDING 8 ROOM 248	GILRUTH
8:00 AM	Messages from Center Directors 8 AM-8:30 AM	Dr. Manuel LASIK Surgery 8 AM-9 AM			
8:30 AM	Mr. George Abbey Col. John Casper Dr. Dave Williams				Sport Event TBA 8:30AM- 9:30 A
9:00 AM	Dr. Conn 9 AM-10 AM		Houston Police Seminars 9 AM-10 AM		
9:15 AM		Dr. Stephen Tyring 9:15 AM-10:15 AM			
10:00 AM			Houston Police Seminars		Sport Event TBA 10 AM-11 AM
10:15 AM	Dr. Frank Booth 10:15 AM-11:15 AM				
10:30 AM		Wesley Wright & Assoc. 10:30 AM-11:30 AM			
11:00 AM			Houston Police Seminars	Houston Police Seminars	
11:30 AM	Dr. Katherine Peek 11:30 AM-12:30 PM				Sport Event TBA 11:30 AM-12:30 PM
11:45 AM		Environmental 11:45 AM-12:45 PM			
12:00 PM			Houston Police Seminars	Houston Police Seminars	
12:45 PM	Dr. James Reese 12:45 PM-2:45 PM				
1:00 PM		Wesley Wright & Assoc. 1 PM-2 PM	Houston Police Seminars	Houston Police Seminars	Sport Event TBA 1 PM-2 PM
2:00 PM			Houston Police Seminars	Houston Police Seminars	
2:15 PM		Environmental 2:15 PM-3 :15 PM			
2:30 PM					Aerobics 2:30 PM-3:30 PM Health Walk /Run
3:00 PM	Closing Ceremonies				

Continued from Page 1

STS-92

In all, almost 30 hours of space-walking time will be devoted to the STS-92 mission, more than any International Space Station assembly flight to date, and more than any single ISS flight planned in the near future.

The STS-92 flight plan calls for Duffy and Melroy to rendezvous and dock with the 143-foot-long ISS two days after launch. The next day, Wakata will employ the robot arm to unberth the Z1 truss from *Discovery's* cargo bay and gently link it to *Unity's* uppermost port via a Common Berthing Mechanism. The next four days will concentrate on the space walks, setting the stage for the entrance of the astronauts into the ISS for the delivery of some supplies into the *Unity* and *Zarya*. There are no plans for the crew to enter the newly arrived *Zvezda* Service Module, which was recently prepared by the STS-106 crew for the arrival of the first permanent station residents, the Expedition One crew, later this year.

Discovery will undock on the tenth day of the flight and land back at the Kennedy Space Center in the late afternoon of October 16, having laid the groundwork for the delivery of the station's large photovoltaic solar arrays and the occupancy of the ISS by its first permanent inhabitants. ■

Open House 2000 marks largest crowd ever



NASA JSC 2000-05966 Photo by Benny Benavides

Community lines up to see nation's home for space flight

From astronauts singing *Sweet Home Alabama* to one of the shiny, gold 1969 'Astrovettes' presented to Apollo XII astronauts - these likely weren't the sights and sounds many visitors expected when they came to Open House last month, but JSC's annual community event went above and beyond when it came to illustrating the many facets of our nation's human space flight center.

The Brewer family was part of the estimated 130,000 people who toured on site August 26 to see the famed NASA center and were amazed by how much there was to see and do.

"Those are astronauts?" said Mark Brewer when informed about the Max Q Astronaut Band. "We didn't realize that - that's great!"

The Brewer family found out about Open House through a flyer distributed at their son Thorton's elementary school.

Although they had been at JSC since 6 a.m., they still didn't think they'd have time to see everything.

"I think [Mark] could spend all day here by himself just listening to all the lectures," said Laurie Thorton. "There's just so much to do."

Although there were many repeat visitors to Open House, there were many people from our local area visiting JSC for the first time.

"This is my first time being out here and I am really enjoying it," said Jeff Elimon, a local resident. "You know for someone who has never been out here - it is very different than what I was

expecting... I recommend everyone come out and see it. Once I got out here it was really enjoyable. There's a lot to see and lots to do."

The members of Girl Scout Troop 161 of Los Fresnos, Texas, saved their cookie money for three years and chose to spend it to travel to JSC's Open House. Lora Seavy, 9, and Alanna Caraveo, 10, liked everything they saw throughout the day. Amanda Daniels was impressed with the computerized orbiter landing simulator.

"The experience will be one that this group of 9-to 12-year-olds will be talking about for a long time to come!" said Susan Upton, the Los Fresnos troop leader.

"Though only in its fifth year, this Open House appears to be a tremendous success."

Nearly twenty JSC buildings and NASA facilities, some open to visitors on this day only, were open to the public as part of JSC's Open House to show the public how our human space flight programs are developed, supported and carried out.

“We were greeted with a 'typical Texas welcome' at every turn. All the employees and volunteers patiently answered the scouts' questions and donned a big smile when the girls asked for a snapshot!”

— Susan Upton
Girl Scout Leader

The numerous booths and special exhibits were designed to educate visitors on NASA's various projects and the many benefits and emerging technologies of the space program.

In addition to some of JSC's most famed attractions, such as the Neutral Buoyancy Laboratory's

6.2-million-gallon pool at the Sonny Carter Training Facility and the Mission Control centers, were opportunities to see some of JSC's newer endeavors. Visitors could see firsthand the X-38, try their hand at landing the shuttle via a desktop simulator or see tools that space walkers

use to help build the space station. Numerous astronauts also were on hand to talk about their activities and offer autographs.

But it was the hundreds of employee and contractor volunteers who brought the space program to life for the Open House guests.

Volunteers dedicated numerous hours preparing for the event and many spent their Saturday at JSC to explain their role in the nation's space program.

"The volunteers, exhibitors and support workers for JSC Open House 2000 did a phenomenal job of pulling everything together," said Kelly Humphries, Open House chairman. "Their dedication and enthusiasm for the important work we do was reflected in the smiles of the thousands of people who visited our center August 26."

Vickie L. Kloeris, manager, Shuttle and International Space Station Food Systems, has been a committed volunteer since Open House originated and shares her enthusiasm for her work with visitors to the Bldg. 17 Space Food Systems Laboratory.

"I have been volunteering at Open House since it started," said Kloeris. "We've had an exhibit of space food in the lobby of Bldg. 17 every year of Open House and I have helped each year to staff that exhibit."

Kloeris was a crewmember for the 91-day Lunar Mars Life Support Test Project, which took place in the fall of 1997. Visitors who got to hear Kloeris' presentation about her experience as part of the experiment were intrigued and

amazed as they peered up to the test chamber where she and three other crewmembers resided for three months. In addition to staffing the exhibit in Bldg 7, which is related to that test project,

beginning last year Kloeris also has participated as a live presenter in Teague Auditorium regarding her experience.

"I participate in Open House because I feel it is important to share with the public what NASA is doing," explained Kloeris. "The balloon festival brings a huge audience to our doorstep and it makes a great deal of sense to open our doors to that audience. The thing I have found most

“Our best bet for public support for NASA is to educate the public on what we do and why we do it. Open House represents a fantastic opportunity to do just that. The thing I find most rewarding about Open House is seeing how interested the kids are in NASA and what we are doing.”

— Vickie L. Kloeris,
Manager, Shuttle and ISS Food
Systems

enlightening for me is how little the average person really knows about the space program. Our best bet for public support for NASA is to educate the public on what we do and why we do it. Open House represents a fantastic opportunity to do just that. The thing I find most rewarding about Open House is seeing how interested the kids are in NASA and what we are doing."

Open House was held in conjunction with the Ballunar Liftoff Festival, a three-day event also held at the Johnson Space Center. The festival featured 100 or more hot air balloons, midway rides, games, skydiving exhibitions, balloon flights and booths. ■



NASA JSC 2000-05976 Photo by Benny Benavides



NASA JSC 2000-05972 Photo by Benny Benavides

Open House

2000



NASA JSC 2000-05986 Photo by Benny Benavides

*Gateway
to the
Community*



NASA JSC 2000e21641



NASA JSC 2000-21537



NASA JSC 2000e21644

Ripped from the ROUNDUP

Ripped straight from the pages of old Space News Roundups, here's what happened at JSC on this date:

1 9 6 5

A rusty, collapsed and twisted piece of metal with a packed parachute attached was found in Galveston Bay August 24 by the shrimp boat 'Nancy' and the whereabouts of a long lost spacecraft was solved.

The spacecraft was lost May 31, 1962, when the first drop of a boilerplate spacecraft was conducted in the Bay Area. A lanyard that was to have pulled the parachute out of the canister in the spacecraft, as it left the C-119, broke and the 2,150-pound boilerplate Mercury went in a free-fall from 1,500 feet into the mud of Galveston Bay.

A search was conducted for the vehicle but it proved futile because the hulk was apparently buried in the mud out of sight.

1 9 7 5

NASA Kennedy Space Center last month awarded a contract to modify Launch Complex Pad A for space shuttle operations and to convert a mobile launcher from Apollo to shuttle configuration.

Pad A, which was the launch site for all but one of the Apollo/Saturn V missions and the Skylab space station, will be the launch site of all early space shuttle missions. Pad B will be modified later.

The reshaping of KSC's Complex 39 for its role in the space shuttle era is well underway. Construction of the 4,500-meter-long (15,000 foot), 90-meter-wide (300-foot) landing facility to the northwest of the VAB began in April 1974 and paving should be completed by the end of 1975.

1 9 9 5

Endeavour returned to Kennedy Space Center early Monday, completing the first mission ever to deploy and retrieve two satellites by returning the first ultravacuum-grown thin films and new data about the Sun's corona and the solar wind.

The crew - Commander David Walker, Pilot Ken Cockrell and Mission Specialists Jim Voss, Jim Newman and Mike Gernhardt - deployed and retrieved both the Spartan-201 and the University of Houston-designed Wake Shield Facility.

NASA technology may help preserve ancient Native American languages

By John Ira Petty

Two Native American educators from Montana are looking at technology from NASA's Johnson Space Center in their efforts to preserve and teach their people's vanishing languages.

The JSC Language Education Center is used to help teach astronauts, Russian cosmonauts and others English, Russian, and Japanese, so that they can better work together in the exploration and development of space. The facility is among the largest and most advanced of its kind in the nation.

Vernon Finley and Johnny Arlee are language instructors at Salish Kootenai College on the Flathead Indian Reservation at Pablo in northwestern Montana. Salish and Kootenai are Native American languages spoken mostly by elderly tribal members.

Arlee, 59, said most who still speak the Salish language are elders. Arlee is among the youngest of the fewer than 100 who remain.

He teaches the Salish Cultural Leadership Program. It tries to develop leaders to replace the elders, and that cultural leadership includes being able to pass on the language. "The language is the main part of it," he said.

Finley, 46, teaches Kootenai. He said that while there have been language preservation efforts, they have not pro-

duced many fluent speakers. The visit to JSC had been a kind of verification that they were moving in the right direction, he said. One obstacle they face is that they have to produce many of their own materials, and those used in JSC's language lab provided examples of types of materials they might try to develop.

"Instead of reinventing the wheel," Finley said, "we can look at their materials and say, 'I hadn't thought of that issue.'" He cited examples such as computer programs and use of various media in language instruction.

Kootenai has even fewer fluent speakers than Salish, Finley said. About the time of first European contact, he said, an estimated 10,000 Kootenai attended one winter camp. Now there are about 2,000 Kootenai, and very few of them are fluent in the language. He said that his band is one of five and numbers about 500. Of them, perhaps 20 speak Kootenai well, and almost all are in their 70s or older.

Tony Vanchu, director of the Language Education Center, said he believes the two visitors had seen technology and methodology that would help them teach and preserve their languages. "I would say it was a very productive visit."

Arlee and Finley gave sample lessons in their languages to teachers at the Language Education Center. Vanchu said

those lessons and other contacts with the two "made our teachers think about what we do with our students and how we do it. They have a different set of problems we don't even have to think about."

Lee Snapp, a JSC aeronautical engineer, taught engineering and mathematics at Salish Kootenai College during the 1999-2000 school year under the NASA Administrator's Fellowship Program. He helped host the visit.

The fellowship program focuses on minority institutions. NASA instructors teach for one year, followed by a review. When Snapp returned to JSC for his review, he invited Joe McDonald, president of Salish Kootenai College, to come with him. McDonald was impressed with what he saw at the Language Education Center and helped arrange the visit of Finley and Arlee.

NASA/JSC's continuing efforts to transfer benefits of space-related research and development to the private sector are coordinated by Johnson's Office of Technology Transfer and Commercialization.

Johnson Space Center Inspection 2000, November 1 to 3, will showcase space-based technology for representatives of business, government and education who are seeking answers to technical challenges. For more information see <http://inspection.jsc.nasa.gov>. ■



Tony Vanchu, far right, director of JSC's Language Education Center visits with Vernon Finley, far left, and Johnny Arlee, of Salish Kootenai College. NASA JSC 2000e20987 Photo by Robert Markowitz

Firm earns honors for superior performance

Documentation Data Management Systems Inc., a Houston-based minority-owned business and a major contractor for the Johnson Space Center, recently received an Emerging 10 (E 10) Award in recognition of its significant contributions to its industry and the community.

Founded by President and CEO Vijay Krishen in 1993, DDMS was one of 10 locally based and minority-owned companies recognized for their success not only in the business arena, but also for their contributions to the minority business community.

Krishen and her staff of more than 15 employees provide data management support for the International Space Station Program. DDMS technologies deliver the contract-required data for

all government-furnished equipment and government-furnished data on the program. This data includes information from the U.S. as well as all international organizations participating in the ISS Program. DDMS has supported JSC for more than six years.

"I find NASA the Mount Everest of technical organizations," said Krishen.



Vijay Krishen

NASA JSC 2000e15201

"Our employees are thrilled that they work at a place which is looking for the answers to the formation of the universe and life in it."

DDMS' services encompass management information systems, configuration control and documentation management. The company provides engineering support, inventory management systems, ISO 9000 support and consulting services.

The election of the E 10 winners is overseen by the Houston Minority Business Council, which sought nominations from ethnic groups and chambers of commerce throughout Houston. About 125 company applications were submitted for the 10 awards.

Companies must be owned, managed, and controlled by 51 percent or more by one or more minority individuals, be a certified minority business, in business at least three years, and able to demonstrate above average growth in sales or employment. ■



Updated menu and conveniences give JSC cafeterias fresh appeal

Online ordering, right-to-your-office delivery and a more diverse menu are just a few of the newest cafeteria features added in recent months. The JSC cafeteria staff and management team say they are committed to filling their customers needs and changing your perception of onsite dining.

"I am trying to change the cafeteria with the times," said Gary Novominsky, manager for the past year and a half. "The last thing I want is for people to look at the calendar and say, 'Oh, it's Tuesday - which means its fried chicken day.' I am striving for 'Hmm, I wonder what they are serving in the cafeteria today?'"

And these days, it could be anything. Although popular favorites, such as chicken fried steak and the catfish special, remain on the menu, more often than not, you'll find new, more upscale dishes you might not expect to see from an employee cafeteria - things like pan-grilled flounder, roast pork loin with spiced apples or blackened snapper with wine sauce.

"I want to change their attitude and perception of cafeteria food," adds

Novominsky. "I am trying more high-end entrees, such as stuffed cod, that you normally wouldn't find. I've got to eat here every day too, and it's important to me that it's good food and good quality."

Although the cafeterias have a loyal customer base, Novominsky noticed many customers pick up food to go, and patronize the cafeteria for convenience. He launched a pizza delivery service that has enjoyed strong success and expanded the delivery service to include box lunches.

"Picking up food to go is fairly convenient for those close to the cafeterias, and when you are in a rush or having a busy day, the delivery service can be really helpful," said Novominsky. "But for people in the far-reaching buildings, it's a challenge. My goal is to feed everyone on site and get service out to as many people as possible."

Technology is helping. The cafeteria team recently unveiled a new,

improved Web site that enables employees to order delivery items from their desktop. Additionally, users can preview the upcoming menu, find out about



NASA JSC 2000e21252 Photo by James Blair

Many of the cafeteria's popular menu items come from employee suggestions, such as the famed cinnamon rolls in Bldg. 11. "Baking is fun!" said Ilet Joseph, who begins each day at 6 a.m. to begin preparing the homemade kolaches and cinnamon rolls. "People line up for them!"



NASA JSC 2000e21252 Photo by James Blair

JSC cafeteria cooks serve up popular favorites as well as new, flavorful delicacies. Shown here, left to right, Clara Thompson, Jeannette Siems, Delia Skinner, and Viola Conrad display their cooking pride.

special events and prices for catering office events. The Web site is www.hro.jsc.nasa.gov/cafe.

Each day, the cafeteria serves breakfast or lunch to more than 2,000 people, many of them regulars who've made eating at the cafeteria part of their routine.

"Some of our favorite customers come every day and eat the same thing, sit at the same table," said Novominsky. Frequently, it's the kitchen staff that bring them back.

Rudy Marenty, retired after 35 years as a JSC engineer, continues to come to the cafeteria each Wednesday.

"I've made a lot of friends here over

the years," said Marenty. "They are people I've gotten to know day in and day out. Plus I like the more relaxed environment and the variety. This gives me a chance to see visit with some of my friends and buddies."

Across from the table sits one of his former coworkers, Roy Bellard, who also regularly comes to the Bldg. 11 cafeteria for breakfast and lunch.

"I love it for the convenience," said Bellard. "And the staff is very nice."

Sumptuous meals combined with a friendly, service-oriented staff have given JSC's cafeterias a winning combination.

Take the taste test and see for yourself. ■



NASA JSC 2000e21257 Photo by James Blair

Bldg. 11 Cafeteria - Shown left to right, back row: Lotfollah Sadeghian, Brian Plitt, Minnie Daniels, Thelma Felicien, Shirley Williams, Zlatuse Kertesz, Joyce Thomas, Muriel Bloir, Wai Ching Mui. Front row: Nhon Nguyen (Bldg. 11 supervisor), Ilet Joseph, Cindy Barnes, Hung Lam, Prisisima Agustin, and Hai Thi Nguyen.



NASA JSC 2000e21253 Photo by James Blair

Bldg. 3 Cafeteria - Shown left to right, back row: Viola Conrad, Zella Crawley, Elizabeth Sarmiento, Irenie Louis, Yvette Burton, Clara Thompson, Jeanette Siems, Delia Skinner, Yolanda Gonzales. Middle row: Beverly Trivitt, Nga Giang, Debbie Trussell, Pamela Bryant, Cecelia Guzman, Mary Martin, Ngu nu Ton, Lee Moreland, Beatrice Fey. Bottom row: Marvin Coleman, Sandra Guzman, and Roy Trussell.

DATES & DATA**September 27**

Astronomy seminar: The JSC Astronomy Seminar Club will meet at noon September 27 and October 4 in Bldg. 31, Rm. 248A. For more information contact Al Jackson at x35037.

★**Scuba club meets:** The Lunarfans meet at 7:30 p.m. September 27 and October 18. For more information contact Mike Manering at x32618.

Spaceteam Toastmasters meet: The Spaceteam Toastmasters meet at 11:30 a.m. September 27 and October 4 at United Space Alliance, 600 Gemini. For more information contact Patricia Blackwell at (281) 280-6863.

September 28

Communicators meet: The Clear Lake Communicators, a Toastmasters International club, meet September 28 and October 5 at 11:30 at Wyle Laboratories, 1100 Hercules, Suite 305. For more information contact Allen Prescott at (281) 282-3281 or Richard Lehman at (281) 280-6557.

Radio club meets: The JSC Amateur Radio Club meets at 6:30 p.m. at Piccadilly, 2465 Bay Area Blvd. For more information contact Larry Dietrich at x39198.

September 29

Golf tournament deadline: Registration ends for the XA and Friends Golf Tournament. Registration is \$40 for the four-person scramble which will be held at Beacon Lakes Golf Course on November 10. For more information contact Greg Lesturgeon at x33444.

October 2

NSS meets: The Clear Lake area chapter of the National Space Society meets at 6:30 p.m. at the Parker Williams Branch of the Harris Co. Library at 10851 Scarsdale Blvd. For details contact Murray Clark at (281) 367-2227.

October 3

Quality Society meets: The Bay Area Section of the American Society for Quality will meet at 6 p.m. Tuesday, October 3, at the Ramada King's Inn on NASA Road 1. No reservations are required. For more information, contact Ann Dorris at x38620.

October 5

Warning System Test: The site-wide Employee Warning System performs its monthly audio test at noon. For more information contact Bob Gaffney at x34249.

October 6

Chess Club meets: The Space City Chess Club meets from 5 p.m. - 9 p.m. at the Clear Lake Park Recreation Bldg. All skill levels are welcome. For more information call James Mulberry at x39287 or James Termini at x32639.

October 10

Aero Club meets: The Bay Area Aero Club meets at 7 p.m. at the Houston Gulf Airport clubhouse at 2750 FM 1266 in League City. For more information contact Larry Hendrickson at x32050.

NPMA meets: The National Property Management Association meets at 11:30 a.m. at the Gilruth Center. For more information contact Ray Whitaker at (281) 212-6030.

October 11

IAAP meets: The Clear Lake/NASA chapter of the International Association of Administrative Professionals meets at 5:30 p.m. at Bay Oaks Country Club. Cost is \$16. For details and reservations, call Tami Barbour at (281) 488-0055, x238.

MAES meets: The Society of Mexican-American Engineers and Scientists meets at 11:30 a.m. xx in Bldg. 16, Rm. 111. For more information contact Laurie Carrilo at 281-244-5203.

October 12

Airplane club meets: The Radio Control Airplane Club meets at 7 p.m. at the Clear Lake Park building. For more information contact Bill Langdoc at x35970.

October 13

Astronomers meet: The JSC Astronomical Society meets at 7:30 p.m. at the Center for Advanced Space Studies, 3600 Bay Area Blvd. For more information contact Chuck Shaw at x35416.

October 19

Directors meet: The Space Family Education board of directors meets at 11:30 a.m. in Bldg. 45, Rm. 712D. For more information contact Lynn Buquo at x34716.

OUT & ABOUT ★

Shown here, Mike Manering of the Lunarfans Scuba Club dives in the blue waters of Cozumel. The Lunarfans sponsor many dive trips throughout the year. They meet 7:30 p.m. at Watergate Yacht Club October 18. For more information contact Mike Manering at x32618.

TICKET WINDOW**The following discount tickets are available at the Exchange Stores**

General Cinema Theaters	\$5.50
Sony Loew's Theaters	\$5.50
AMC Theaters	\$5.00
Fiesta Texas	adult . . . \$20.50 . . . child (under 48 inches) . . . \$17.25
Astroworld	. . . 1 day . . . \$21.00 . . . 2 day . . . \$31.00
WaterWorld	\$12.00
Moody Gardens (2 events) (does not include Aquarium Pyramid)	\$10.75
Moody Gardens (Aquarium only)	\$9.25
Sea World	adult . . . \$29.00 . . . child (3-11 years) . . . \$19.25
Schlitterbahn	adult . . . \$21.50 . . . child (3-11 years) . . . \$18.00
Space Center Houston	adult . . . \$11.00 . . . child (age 4-11) . . . \$7.25
(JSC civil service employees free.)	
Space Center Houston annual pass	\$18.75
Splash Town	. . . 1 day . . . \$13.00 . . . Season Pass . . . \$37.50
Postage Stamps (book of 20)	\$6.60

Exchange Store hours

Monday-Friday
Bldg. 3 7 a.m.-4 p.m.
Bldg. 11 9 a.m.-3 p.m.

- All tickets are nonrefundable.
- Metro tokens and value cards are available.

Super September Sale

- 10% off all merchandise, candy and cards Sept 1-15! Stop by the stores for details.

For additional information, please call x35350.

Please bring your driver's license to pay by personal check.

NASA BRIEFS**X-RAY OBSERVATORY MARKS FIRST ANNIVERSARY**

NASA's Chandra X-ray Observatory celebrated its initial year in orbit with an impressive list of firsts. Through Chandra's unique X-ray vision, scientists have seen for the first time the full impact of a blast wave from an exploding star, a flare from a brown dwarf, and a small galaxy being cannibalized by a larger one.

Chandra is the third in NASA's family of great observatories, complementing the Hubble Space Telescope and the Compton Gamma Ray Observatory. "Our goal is to identify never-before-seen phenomena, whether they're new or millions of years old. All this leads to a better understanding of our universe," said Martin Weisskopf, chief project scientist for the Chandra program at NASA's Marshall Space Flight Center. "Indeed, Chandra has changed the way we look at the universe."

Chandra was launched in July 1999. After only two months in space, the observatory revealed a brilliant ring around the heart of the Crab Pulsar in the Crab Nebula, the remains of a stellar explosion providing clues about how the nebula is energized by a pulsing neutron, or collapsed, star.

Chandra also detected a faint X-ray source in the Milky Way galaxy, which may be the long-sought X-ray emission from the known massive black hole at the galaxy's center. A black hole is a region of space with so much concentrated mass there is no way for a nearby object, even light, to escape its gravitational pull.

The observatory captured as well an image that revealed gas funneling into a massive black hole in the heart of a galaxy, two million light years from our own.

PACIFIC DECADAL OSCILLATION PACKS A ONE-TWO PUNCH

Astronomers using NASA's Hubble Space Telescope have taken attendance in a class of brown dwarfs and found indications that these odd and elusive objects also tend to be loners.

The Hubble census — the most complete to date — provides new and compelling evidence that stars and planets form in different ways.

"Because the brown dwarfs bridge the gap between stars and planets, their properties reveal new and unique insights into how stars and planets form," said Joan Najita of the National Optical Astronomy Observatory in Tucson, AZ. Her study with fellow NAOJ researcher Glenn Tiede and John Carr of the Naval Research Laboratory, Washington, DC, will appear in the October issue of the *Astrophysical Journal*.

Considered an astronomical oddity only a few years ago, brown dwarfs are intriguing objects that, unlike stars, are too low in mass to burn hydrogen, but are more massive than planets. At 15 to 80 times the mass of Jupiter, the light that they emit is so faint it's hard to tell how many of them are scattered throughout the galaxy, and how they're formed.

The Hubble census finds that, like stars, there are more low-mass brown dwarfs than high-mass ones, and this trend continues down to low, nearly "planetary" masses. "In this respect, the isolated, or free-floating, brown dwarfs found by Hubble appear to represent the low-mass counterparts of the more massive stars," added Najita. "This suggests that stars and free-floating brown dwarfs form in the same way."

However, the Hubble finding also offers the strongest evidence so far that free-floating brown dwarfs are far different than the recently discovered planets that orbit nearby stars. Najita's team found brown dwarfs more often alone than in orbit around other stars. "This suggests that the extra-solar planets and, by extension, the planets in our own solar system, formed very differently from how the Sun and other stars formed," Najita noted.

SPACE CENTER Roundup

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