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SPACE CENTER Roundup

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Zvezda launch propels station assembly into high gear

Symbolizing the perseverance of many, the Russians, July 11, not only ignited the launch of a Proton rocket carrying the crucial Zvezda Service Module into orbit, but also ignited a new phase in International Space Station assembly.

Hardly an indication of the tremendous role the mission plays in the life of the ISS, Zvezda launched uneventfully just before midnight at 11:56 CDT Tuesday, July 11, from launch pad 23 at the Baikonur Cosmodrome in Kazakhstan. The slender white vehicle, propelled by a Russian Proton booster, disappeared from view over the horizon within minutes, leaving behind a smiling, optimistic crowd of onlookers on the ground.

"We're doing what we said we're going to do," said NASA Administrator Dan Goldin. "I'm so proud of this NASA team and the teams from Russia's space agencies and our international partners. These are the pioneers. And every NASA employee, every NASA contractor should celebrate. We all did it together. It's wonderful."

Only 15 minutes into its mission, the new module was safely in orbit, its antennas, solar arrays and other exterior equipment perfectly extended.

"You just don't know how rewarding it is to see the culmination of so much hard work come together in a



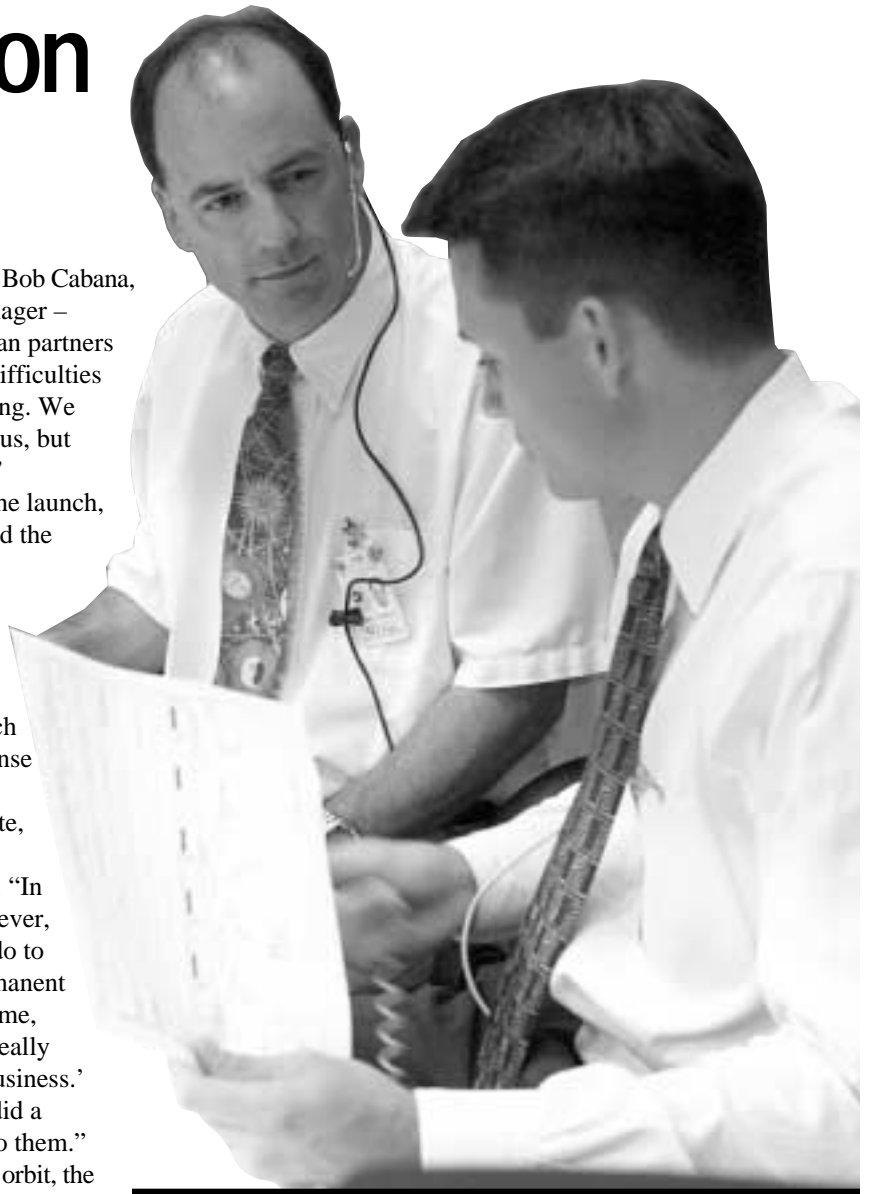
successful launch like we had today," said Bob Cabana, International Space Station Program manager – International Relations. "What our Russian partners have accomplished in spite of all of the difficulties they've had is truly amazing. We have our work cut out for us, but this is truly a team effort."

In the days following the launch, ground controllers reported the module was performing normally.

"Our Service Module team has been on this difficult path a long time and today's flawless launch brings us a tremendous sense of accomplishment and relief," said Gordon Ducote, NASA Service Module Launch Package manager. "In the next few months, however, we still have a big job to do to get ready for the first permanent crew. Someone once told me, 'You know, we do some really incredible things in this business.'

Well, this joint Russian/American team did a pretty incredible thing and my hat's off to them."

During the module's first two weeks in orbit, the Zvezda was to undergo additional verification tests and rendezvous burns. Flight controllers from the
Please see **ZVEZDA**, Page 6



NASA JSC Photo 2000e18564

Mark Ferring, an ISS flight director, and Alex Moore, an ops planner, on duty in the Johnson Space Center's Mission Control Center during the launch operations.

NASA celebrates first partnership with Russia



NASA Photo AST-5-301

Astronauts Tom Stafford and Donald Slayton and Cosmonaut Aleksey Leonov greet each other in Soyuz Orbital Module.

As the Zvezda service module continues toward its rendezvous with the International Space Station, Americans and Russians can look back 25 years to the beginning of their first space partnership. On July 15, 1975, Apollo and Soyuz spacecraft launched from different hemispheres on their way to a docking in space.

The Apollo-Soyuz Test Project was the first human space flight mission managed jointly by two nations. It was designed to test the compatibility of rendezvous and docking systems for American and Soviet spacecraft in order to open the way for future joint human flights. There were a number of difficulties that both nations had to resolve in the mission design before they could assure a safe docking of both

spacecraft and an on-orbit meeting of crewmembers. The technical challenges included different measuring systems, the different spacecraft and thus mating adapter designs, and different air pressures and mixtures.

The mission began with the Soyuz launch on July 15, 1975, followed by the Apollo launch seven hours later. The docking in space of the two spacecraft took place at 2:17 p.m. U.S. central time on July 17. Two days worth of joint operations followed.

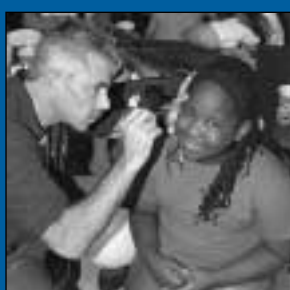
The mission was a resounding success for both Americans and Soviets. They achieved their goal of obtaining flight experience for rendezvous and docking of human spacecraft. ■

NASA's History Office has published a Web site commemorating the Apollo-Soyuz Test Project. You can review it at <http://www.hq.nasa.gov/office/pao/History/astp/index.html>.



SHARP students spend summer at JSC.

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Heritage Week gets everyone involved.

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JSC Open House seeks volunteers.

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Future space leaders

SHARP students spend summer at JSC

By Marissa Carrillo

Among the many students at Johnson Space Center this summer, there are 23 exceptionally brilliant young women and men. Eighteen of the students are here as part of the Summer High School Apprentice Research Program (SHARP), while the other five are here from the Texas Academy of Mathematics and Science.

Both groups of students are making a dream of a lifetime come true, working at NASA at the age of 16. While at JSC for eight weeks during the summertime, the students work with a mentor on a project. Projects range from computer programming to creating guideline handbooks. During this time, students gain valuable knowledge and experience that a student would not typically be exposed to until their college years, if even then.

In addition to the research exposure, students participate in a variety of enrichment activities. This year the students have attended a technical presentation class, toured the University of Houston, Rice University, Neutral Buoyancy Lab, Advance Ion Propulsion Lab, Advance Space Suit Development Lab, Mission Control, Ellington Field, X-38, TransHab, and United Space Alliance.

This year's students include Adrienne Ashford in Medical Sciences Division; Alison Carey in Life Support and Habitability; Jo Anna Castilleja, Shelonda Hughes, Danika Chevalier, and Nazer Taqvi in Information Systems Directorate; Travis Fischer in Intelligent Systems Branch; Crystal Henderson in Energy Systems Division; Casey Johnson, Stuart McGregor, Steven Mays, Sarah Solis, and Matt Spena in Advanced Operations Development Division; Cindy McReynolds in Avionics System Division; Kent Morris in Crew and Thermal Systems Division; Jose Rivera in Biomedical Hardware Development and Engineering Office;



SHARP students take a break from their activities to pose for a photo at the University of Houston. Shown here, from left, are Alison Carey, Adrienne Ashford, Steven Mays, Danika Chevalier, Matt Spena, Cindy McReynolds, Travis Fischer, Nazer Taqvi, Junius Taville, Crystal Henderson, Jo Anna Castilleja, Jose Rivera, Kent Morris, and Casey Johnson.

Junius Taville in Structures and Mechanics Division; Rory Mallard, Guadalupe Rodriguez, and Frederick Woods in Manufacturing Materials Process Technology Division; Eric Kuban and Michael Priolo in Aerospace and Flight Mechanics Division; and Chris Ezell in Automation, Robotics and Simulation Division.

A special thanks goes out to the mentors who have spent their priceless time with our future scientists. This year's mentors include Karen Pickering, Leroy Villarreal, Dennis Lawler, Michael Downey, Kevin Tones, Anthony Griffith, Carl Martin, Mike Rouen, Albert Rodriguez, Tracy Minish, Chris Hansen, Raymond Aronoff, Ervin Grice, Dan Petersen, Carolyn Krumrey, John Clack, Steven Gonzalez,

Jay Estes, Chris Lovchik, and Al Feiveson. Without their patience and expertise, this program would not be the success that it is.

This is the 20th anniversary for SHARP. The program was initiated in response to a presidential directive for all federal laboratories and research facilities to establish a summer apprenticeship program for underrepresented students in the fields of mathematics, science, and engineering. In 1980, NASA implemented the Summer High School Apprentice Research Program. While the program is geared to underrepresented populations, it is not limited. To this date, more than 2,700 students have participated in the program, with 90 percent completing college. This summer,

200 high school students took part in the program across 11 NASA field installations throughout the nation.

To apply for SHARP, students must fill out an application with letters of recommendation from a math and a science teacher. In addition to evaluating these letters, students are ranked based on their grades, number and type of math, science, and technology classes taken, number of honors/AP classes taken, extracurricular activities, community service activities, career/educational aspirations, and their ability to communicate verbally and in writing. This year, JSC received approximately 125 applications and accepted only 14 new students into the program. ■

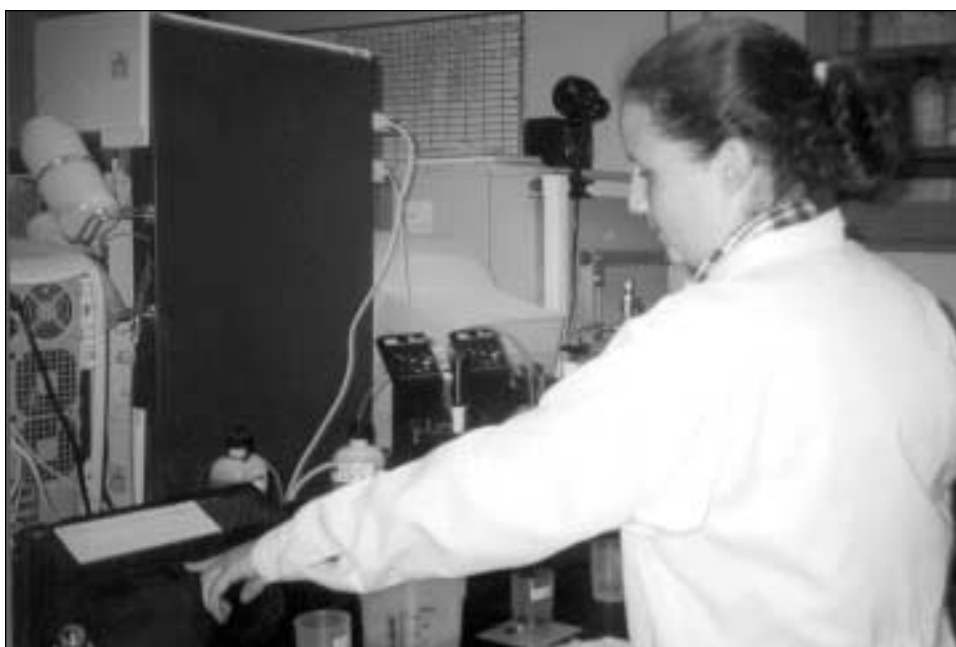
A student reflects on the SHARP experience

By Alison Carey

Before I started to work for NASA, I knew some things about it. For instance, I knew about when it was founded and about the rockets and shuttles. I also knew about the astronauts and scientists, and I knew that some of the most brilliant people in the country worked there. However, I didn't know that some of the nicest and most easy-going people I have met worked there. I read in a survey that people employed by NASA were the happiest of the people who work for the government.

Building 7, site of the water recovery system, became my home away from home. I worked in the laboratory learning scientific techniques from the professionals. I learned how to take all sorts of scientific measurements and how to be a real scientist. I would write all about what techniques make a good scientist, but they are top secret, protected by the government.

But more than technique, I learned about life and what science means to humans. I learned that the water recovery system will not only allow mankind to go



to Mars, but will also provide clean and safe drinking water to places that have none. I learned that science will struggle and it will fail, but it will never cease in its existence. Science is the only way to improve life. The deprivation of science will result in human extinction. As a

human race, we must continue to strive and we must set ourselves on a quest for our object of prolonged endeavor: scientific greatness.

I also learned that to be a scientist, you must be willing to fail. But there is a fine line between failing and quitting

and this line can only be deciphered by an achiever. As Werner von Braun once said, "Often you learn more from a failure you can analyze than from an accidental success." This experience has taught me that as much as I'd like to complain to a science teacher, "We are never going to have to know this in real life," every bit of information is useful.

I realized that reading about chemistry in a book and mixing your own standards are completely different. Sure, anyone can read about science in a book, but that's not being a scientist. A scientist is in search for answers, analyzing data over and over until a pattern is found. A scientist will take every precaution for his or her work. A scientist's final work is not persistent or accurate. It is perfect. Science does not require a Ph.D. or a 100,000-dollar salary. Science is in the mind of a person who can imagine something greater and abstract and through hard work, turn that into a reality. A scientist is the product of curiosity. ■

Alison Carey conducts tests on water in the lab in Bldg. 7.

SHARP from a mentor's perspective

By **Albert Rodriguez**

NASA Technical Monitor
Biomedical Hardware Development and Engineering Office

Current predictions by the National Science and Technology Council estimate there may be a shortage of engineers and scientists in the U.S. by the 21st century. There is a great source of untapped talent in underrepresented minorities. Oftentimes underrepresented students do not have opportunities in science and engineering for various reasons such as a lack of financial resources and shortage of mentors. The SHARP program pairs motivated talented students with NASA professionals to give them the opportunity to experience what they are capable of achieving and to encourage them to continue on their path. Working with my SHARP student, Jose Rivera, has been a great experience. He has had the opportunity to experience NASA and what engineers and scientists do, while at the same time making a contribution to the space program. I know there were teachers and mentors who made an impact in my life, and it is very rewarding to do the same for others. ■

Danika Chevalier, Wendell Smith, Kent Morris and Joe Kosmo examine spacesuit items and other space tools and equipment.



NASA... Here We Come?

By **Adrienne Ashford**

When I learned that I was one of the five students selected from the Texas Academy of Mathematics and Science (TAMS) to work at the Johnson Space Center this summer, I didn't know what to expect. My emotions were torn between surprise, excitement, and fear. No, actually it went beyond fear to terror. Not only would I break every piece of equipment in the lab, I just knew I would manage to ruin millions of dollars worth of experiments. What had I gotten myself into? While everyone at school congratulated me, I secretly wondered if I should back out. This is the first year that TAMS

students have had the opportunity to work at JSC, and I just knew that after they took one look at me, it would also be the last.

The first day we went through badging at the front gate and had an orientation session. Shortly after that I met my mentor, Dr. Alan Feiveson. That gave me some sense of ease. I had made it to the right place at the right time. Hooray! Now I only had to make it through the next eight weeks and I would be fine (maybe).

Dr. Feiveson had his work cut out for him. He is a statistician in the Medical Sciences Division. The highest math class I have had is Calculus 1. I knew no statistics, no Stata (the computer program), and no programming. Everything was over my



Texas Academy of Math and Science students Michael Priolo, Adrienne Ashford, and Eric Kuban spent part of their summer at JSC.

head, but Dr. Feiveson took me under his wing and made sure that I learned everything that I needed. He started out by teaching me the basics of statistics. When I wasn't taking notes, I was asking questions. Dr. Feiveson was excellent at answering my questions no matter how small and insignificant they were.

Now I look back on those first few days and realize that they weren't as bad as I thought. I have learned enough statistics and programming to make a few simple programs. It was such a thrill when I finally made a program that worked! Now I am working on a countermeasure simulation project. The test subjects stay in bed for 18 weeks to simulate the bone loss that occurs when astronauts go into space. Using random data, I am simulating the results of the experiment. The project has forced me to put all of my knowledge together to come up with a final product. Now that I am near the end of the project, I can definitely say that coming to NASA was not a mistake! I love it here! ■

By **Jo Anna Castilleja**

It all began as I checked the answering machine for any new messages. I glanced over my shoulder and saw two distinct figures and a red dot. Without paying much attention to the distraction, I continued listening to the messages, until I heard a voice calling me back that definitely caught me off guard. I was speechless; that voice made me realize that I was accepted into the Summer High School Apprenticeship Research Program at the NASA Johnson Space Center. I jumped for joy, not realizing that my parents were capturing every minute of my excitement. To think that NASA would allow a high school student to participate as a summer intern was definitely exciting.

When I arrived on the first day, I was anxious to meet my mentor and begin my project. I wondered how I would fit into the NASA program and if the skills I had were good enough. Finally, after the initial processing was done, I met my mentor, Leroy Villarreal, a computer engineer, along with his co-op student, Justin Turner. I wondered if as an engineer, my mentor would have a strict and uncaring schedule. I was surprised to meet a friendly, relaxed and understanding individual.

I was assigned to the Systems and Applications branch of the Information Systems Directorate and was introduced to its members. The task that I was to perform was something I had not done before. I was to build my own computer from scratch. I had no idea how because I was only

familiar with computer software, not hardware. I quickly learned how each piece fit into the puzzle and, within a couple of days, I had a personal computer up and running.

There was still more to learn, such as upgrading government computers and repairing a personal computer without knowing what the initial problem is. This assignment gave me a different perspective of computers. It was indeed fascinating to see exactly how it works and how all the pieces come together to produce an efficient system customized to the users' needs.

In addition to the NASA work experience, there were SHARP enrichment activities that were definitely a dream come true. Our SHARP coordinator, Marissa Carrillo, put together a variety of tours that gave us, the students, the chance to peer into

a whole new world at JSC – a world designed to explore the outer limits of our planet and beyond. I was in awe as I walked through the halls of the auditorium where the dignitaries of the world spoke and where NASA displays its accomplishments throughout the years. I have always looked at NASA with fascination and admiration, and now more so after encountering its many wonders such as the Neutral Buoyancy Lab, the spacesuit lab, Mission Control, and the TransHab mockup (the living area designed for the International Space Station), and Ellington Field.

Words cannot express the gratitude I have toward student programs like SHARP that teach and guide future scientists and engineers to a once-in-a-lifetime experience. ■

Texas Academy of Math and Science students spend summer at JSC

By **Adrienne Ashford**
and **Eric Kuban**



The Texas Academy of Math and Science is a unique two-year residential college-accelerated school for students gifted in mathematics and science. During the two-year experience at the Academy, students complete their last two years of high school and the first two years of college concurrently. Academy students live in a residential hall at the University of North Texas, in Denton. After two years at TAMS, students graduate with a high school diploma and 60-80 hours of college credit. Each summer, Academy students apply for summer internships and research opportunities with various organizations. Selected students receive a scholarship to cover expenses and earn six hours of college credit.

This summer five TAMS students, Adrienne Ashford, Chris Ezell, Eric Kuban, Stuart McGregor, and Michael Priolo, spent June and July at the Johnson Space Center. Each completed a research project with guidance from a mentor, which is similar to the Summer High School Apprenticeship Research Program. ■

For more information about TAMS, visit Web site <http://www.tams.unt.edu>

Students examine an aircraft at Ellington Field.

Employees enroll in Shared Care Program

Unique Center Operations Directorate program leads to safer workplace

It fosters an attitude of safety – of looking out for your own safety and that of your coworkers. Over the past year that it has been in effect across JSC's Center Operations Directorate, it has resulted in a higher safety awareness among COD employees, which reflects a safer environment for the employees in the workplace and at home.

It's called the COD Shared Care Program, an employee-driven safety initiative that allows employees to participate in a number of safety-related activities, one of which is the Safety VISA Program where employees can earn points that can result in monetary awards. But the best reward of all for the employees is the safer workplace and home environment that result from their awareness of safety and health issues.

"The COD Shared Care Program is an effective tool that empowers the employee to take a proactive stance on safety," said COD Acting Director Nate Wright. "Programs like this are great for increasing awareness. Long term, through effective processes like this, we will develop a sense of safety in everything we do."

The COD Shared Care Program is aligned closely with the Voluntary Protection Program, which recognizes and promotes effective safety and health management. Management, labor and the Occupational Safety and Health Administration unite to establish a cooperative relationship at a workplace that has implemented a strong program. Sitewide, JSC received VPP certification at the Star level in May 1999.

"In 1997, a small team of COD safety representatives got together with the intention of devising a program that would demonstrate COD's commitment to safety and the Voluntary Protection Program from the perspective of the employees themselves rather than from the management team," said COD Emergency Preparedness Officer Dennis Perrin. "Out of that working group came the Shared Care Program. We wanted the focus of this program to be on COD employees taking responsibility for their safety program and helping their coworkers and other employees have a safer workplace."

Since being implemented on April 22, 1999, the Shared Care Program has had a



NASA JSC Photo 2000-04631 by Benny Benavides
Center Operations Directorate Safety Team members, from left, front: COD Deputy Director Joel Walker, Jacque Talboy, Delores Marshall, and Leti Fenner; back: Henry Wyndon, Ken Chevalier, Byron Winters, Dennis Perrin, Grady Owens, and COD Acting Director Nate Wright. Not pictured: Becky Castillo, Ramon Ramirez, Libby Salas.

profound effect on improving the safety awareness of the civil servants in the workplace. Fifty-six percent of the COD employees participated in the 1999 Shared Care Program, a much higher figure than the 40 percent that was predicted when the program began.

those of their coworkers as well. Brochures that list elements to look for when doing facility inspections are available to assist employees.

The objectives of the planned drills are to teach coworkers what to do in case of emergencies; plan and conduct emergency drills; and evaluate COD's readiness in case of a real emergency. Emergency fire alarm drills were conducted in the 300 and 400 area buildings in 1999. COD's safety team plans to conduct emergency drills in additional buildings in the coming year.

The safety card is designed to award or alert fellow employees about a safe or an unsafe act that they did. Because they care about each other, COD employees recognize each other for acting safely or warn colleagues about unsafe actions.

As part of the program, employees can also submit their thoughts on what the 19 elements of JSC's VPP mean to them and how they will try to meet them in their work environment. These

elements include such items as accountability, preventive maintenance, employee participation, and management commitment and planning. Responses are posted on the COD homepage.

The focal point of the Shared Care Program is the safety VISA book, which

consists of two programs that offer employees the opportunity to earn special rewards for their efforts in safety involvement. One program is for management, the other for non-management employees. Each offers employees 40 opportunities to earn up to 117 VISA points during the year.

The safety VISA book allows employees to learn more about the JSC safety program, participate in the COD safety program, and earn awards.

"The safety VISA is an excellent tool for maintaining employee safety awareness," said Grady Owens, COD's safety manager. "Employees are seeking ways to participate to gain VISA points, and I'm glad to help them do just that. It's good for them and it's good for the organization. We've had zero OSHA reportable incidents in our civil service ranks for more than 2½ years, and I believe safety awareness at the individual level is the key."

"I'm especially excited about the Shared Care card developed by the employees. This card is designed for one employee to hand to another when good or poor safety behavior is observed. It's non-offensive but does get across the idea that we're observing each other in a caring way to reduce accident potential. To me, that's where we have to get to be truly a VPP culture. I want to sell this concept to the JSC community. I think it's that good."

COD employees marked the first anniversary of the Shared Care Program with a special awards ceremony on June 1. The 72 employees who participated in the Safety VISA Program during the first year collected awards. The VISA awards were divided into three levels in increments of 25 points.

The Transportation Branch led the directorate with 100 percent participation. Taking top individual honors were Libby Salas, division secretary for the Logistics Division, and Alexis Davis, secretary in the Facilities Engineering Division. ■



NASA JSC Photo 2000e16637
Libby Salas, left, and Alexis Davis took top honors at the first Center Operations Directorate VISA Award ceremony.

Elements of the program include facility inspections, planned emergency drills, and the safety card.

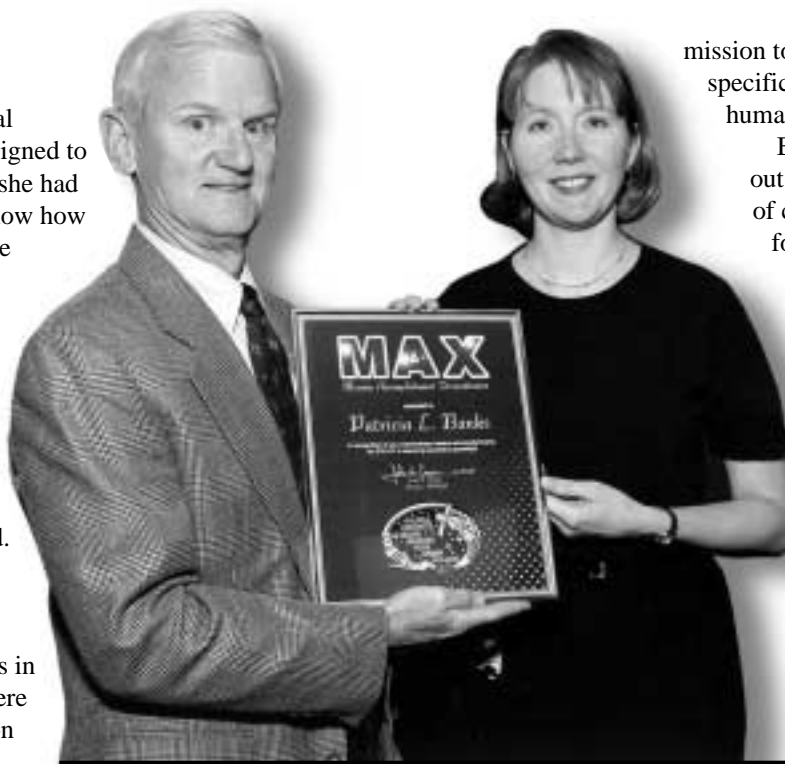
All COD employees are encouraged to take responsibility for the condition of their work areas by participating in inspections not only of their work areas but of

First 'MAX' Award given for outstanding job

By Mary Peterson

Patricia Banks, a Science Applications International Corporation engineer assigned to the STS-101 mission, thought she had done a good job. She didn't know how good until she found herself the center of applause at a special ceremony held June 19, where she was honored as the very first recipient of the newly installed Safety, Reliability, and Quality Assurance "MAX" Award.

"I was totally surprised," Banks said, "and really thrilled. I like to think I do a good job, but this was something I never expected." She was generous in her praise of others in the directorate, saying there were many who deserved recognition as well. The MAX Award, so named to recognize Mission Accomplishments eXtraOrdinaire, is being awarded after each



NASA JSC Photo 2000-05268 by Mark Sowa
NASA Safety, Reliability, and Quality Assurance Director John Casper presents the MAX Award to Pat Banks, Science Applications International Corporation safety and mission assurance engineer, for her significant contributions to the success of the STS-101 mission.

mission to honor a selected individual for specific contributions to the success of human space flight.

Banks was cited for providing outstanding tracking and reporting of certification and approval status for the STS-101/2A.2a

manifested hardware that included JSC GFE, non-JSC GFE, international partner GFE, crew performance items and payloads.

In presenting the award, SR&QA Director John Casper said, "This required an enormous amount of coordination between SR&QA, engineering divisions, launch package managers, and Russian interfaces for U.S.- and Russian-provided

hardware." Banks was constantly inundated with requests for status and, inevitably, for explanations of the status, all of which she handled reliably, accurately, and with unflinching courtesy.

In addition to a mission lapel pin and framed certificate, Banks had the further honor of hanging the crew mission logo for STS-101 on the wall of the directorate conference room.

"With the MAX Award," said Deputy Director Rob Kelso, "we hope to recognize those among the 700 SR&QA civil servants and contractors who do make an outstanding contribution to the safety and success of our human space flight missions. We have no doubt there are a lot of 'heroes behind-the-scenes' who merit this distinction."

Calls for nominations will be sent to managers immediately following each shuttle landing, and nominations will be submitted to the SR&QA directorate awards lead. The director and deputy director will then make the final selection. ■

Employees become world travelers at Heritage Week finale

If you left JSC early for the Independence Day weekend, you missed a great time the afternoon of June 30. American Heritage Week concluded in fanfare at a grand finale event that exemplified the American spirit and our country's rich diversity.

The event had record attendance as the Gilruth Recreation Center took on a festival theme with country fair flare. Organizers did a fabulous job creating the "Visions of the past – glimpses of the future" theme, transforming the familiar Gilruth into something out of Walt Disney World's "It's a small, small world."

The ballroom was brimming with men, women and face-painted children, cotton candy in hand, perusing the booths and soaking in the sights and sounds of cultural entertainers. On stage, clad in traditional plaid, Clan Ceili, a Celtic singing and musical ensemble, treated listeners to the mystical and enchanting rhythms of their ancestors. Brightly colored costumes of the Showing Japan dance troupe mesmerized children as they twirled painted umbrellas and mimed Japanese folklore. For three hours, the entertainment continued with Egyptian Folklore cultural dancing, Conjunto Folklorico Chileno's South American folk music, and even songs in sign language.

Across the hall, the gymnasium featured reflections of our modern culture and the entertainers of tomorrow. Miss Ashley Toman, a mere 10-year-old, was a voice to be reckoned with as she belted out classic tunes ranging from the *Star Spangled Banner* to the *Yodeling Blues*. Not to be outdone was *Abraham's Tree* with summer rock classics and *LS4* and *Versatyle*, two young and fresh rhythm and blues bands.

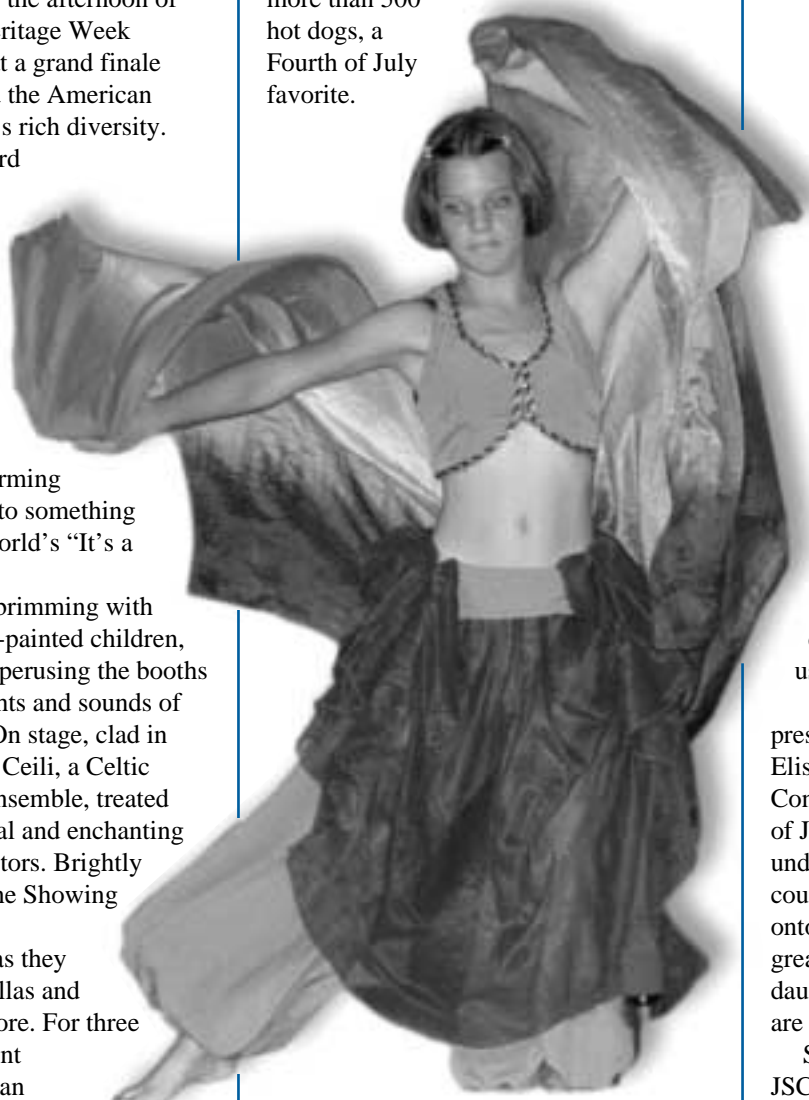
"Our music relates to the style of R&B, which goes back to jazz and soul," said Condredge Joseph, *Versatyle* spokesman. "It is a combination of old and new culture and that is why it is very important that the group perform at these types of events – so the children can hear and enjoy their music."

The gym's futuristic theme also included the gateway to the International Space Station walk-through trailers.

The international flavor would not have been complete without the tastes and aromas of the world over. Many organizations sponsored snack booths, including mouth-watering tamales and chile con queso from the JSC Diversity Council/Equal Opportunity Programs Office; sliced sausage from Lockheed Martin; beverages from EASI; popcorn from Team NASA; and, topping it all off, a buffet of rich international desserts from United Space Alliance.

"This is my fourth year to be a part of American Heritage Day, and I'm amazed at the turnout," said

Marvis Carmichael of Star Toyota, who endured the afternoon sun to provide more than 500 hot dogs, a Fourth of July favorite.



"Judging by the assorted entertainment and the cultural blend of the crowd, this year's event was the most popular."

Beyond food, many contractor organizations went the extra step to get involved and share their diversity. Wyle Life Sciences, in addition to sharing hand-spun cotton candy, displayed a world map with pins indicating where

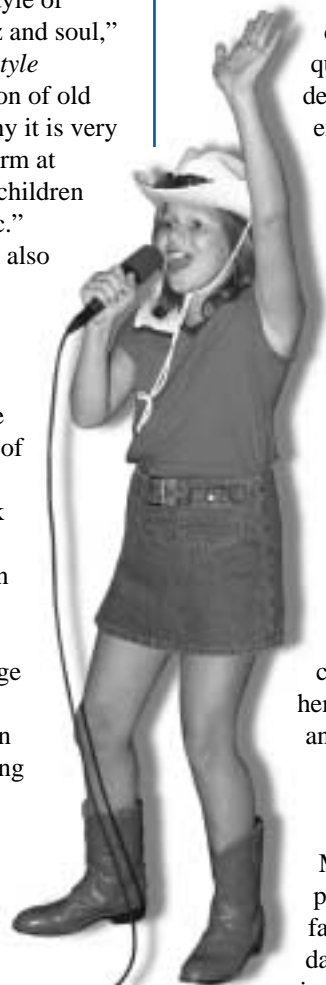
employees had descended from – which ranged from Argentina to Greenland to Syria.

Cimarron took a creative approach, inviting children to design quilt squares that depicted future Mars exploration.

"We wanted to give something back to the committee for next year's event and the quilt was an excellent medium in doing so," said Liza Abbey, community outreach manager. "The quilt reflects the past while Mars reflects our future tied into the theme perfectly."

For many, celebrating American heritage was a family affair and a terrific way to celebrate the upcoming holiday.

Rick Stiles, Lockheed Martin, had full participation from his family, including three daughters donned in pioneer girl attire.



NASA JSC Photo 2000e18602

"Our heritage is what's passed down to us from the people before us," explained Elissa Stiles, 8.

"We are very strong-minded about preserving our heritage," said Lisa Stiles, Elissa's mother. "We studied the Constitution in preparation for the Fourth of July. It's important to me that the girls understand that people came to this country for a reason and to hold onto our past. I think this event is great at reinforcing that. Our daughters are amazed by what they are seeing here today."

Similarly, Greg J. Della Longa, JSC Institutional Procurement Office team lead, brought his daughters to the event hoping to emphasize their heritage and increase awareness of others.

"We are very proud of our Italian heritage, and every chance I get, I share that with



my children," said Della Longa.

"Through events like this and the Houston Italian Festival downtown – the girls get a better understanding of our heritage."

The afternoon's activities were kicked off in festive style with an outdoor performance by the Forest Brook

High School Marching Band filling the JSC mall area with uplifting Independence Day tunes.

The band then led a parade featuring decorated cars, antiques and conventional

alike, horse buggies and trailriders around the JSC site. Friday's event was the finale

to an entire week of special lunchtime entertainers in the Bldg. 3 cafeteria.

"This year's event was a great success," said Estella Hernandez Gillette, director of Equal Opportunity Programs. "American Heritage Week is about increasing awareness of our diversity while helping us work better as a team.

The more than 1,000 people who came out could see that in action with JSC civil servants working alongside contractors and other volunteers to make it a great celebration for all." ■

A diverse mix of performers entertained employees through the week and friends and family at the Grand Finale event. Shown here, clockwise from the top, are a cultural dancer with Egyptian Folklore; the Forest Brook High School Marching Band parading through the JSC mall area; a Japanese dancer from Showing Japan; a Celtic musician with Clan Ceili, and 10-year-old country and western singer, Ashley Toman.

NASA JSC Photos by Robert Markowitz and James Blair



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

Transmission of the long awaited close-up photographs of the planet Mars began July 15 from the Mariner 4.

The first historic photograph was made available to the public late that same day. It was taken 10,500 miles as the spacecraft began its picture-taking sweep across the planet Mars. An area 200 miles square north of the Mars equator was shown in this first view. Scientists described the photo as showing broad featureless desert with a few low hills bordering it.

1 9 7 0

One of the new minerals found in samples returned from America's first lunar landing has been named "Armalcolite" in honor of the Apollo 11 crew, Neil A. Armstrong, Edwin Aldrin, and Michael Collins.

Announcement of the name came nearly one year to the day the Apollo 11 lunar module landed in the moon's Sea of Tranquility on July 20, 1969. Armstrong and Aldrin collected and returned approximately 47 lbs. of lunar material from their historic flight.

1 9 7 5

As America's Apollo spacecraft linked with the Soviet Union's Soyuz, "Contact. Capture.

Docking is completed," were the words spoken by Commander Tom Stafford to Mission Control.

This act, described by many as the culminating point of the mission, was brought into reality by the May 1972 agreement between the United States and the Soviet Union to work together toward a common docking system for future generations.

Following docking, Commander Stafford and Donald K. Slayton were the first to enter the passageway between the Apollo and Soyuz. They remained in the Soyuz spacecraft about three hours, participating in such activities as an exchange of flags, signing of flight certificates and eating the first international meal in space.

President Ford congratulated each crewmember and asked them a number of questions. Leonid Brezhnev also radioed congratulations to the crews.

JSC hosts NASA Exchange Conference



NASA JSC Photo 2000-04888 by Benny Benavides

Attending the recent NASA Exchange Conference at JSC were, from left, front: Sherry Petersen (ARC), Deborah Renick (ARC), Bennie Jacks (MSFC), May Wales (MSFC), Tracy Lamm (MSFC), Sam Lenck (KSC), Dan Remington (JSC), Greg Hayes (JSC), Sylvia Bell (WFF), Linda Layton (WFF), Lynda Haines (ARC), Mary Stites (HQ); back: Louann Beu (DFRC), Jim Hattaway (KSC), Karl Schuler (JSC), Axel Roth (MSFC), Al Harding (HQ), Mark Bettijewski (GRC), Jon Roth (SCC), Ted Mecum (GSFC), and Roberta Ross (DFRC).

They came to learn, for the first time in two years, and tour JSC. By the end of the three-day conference, they all had new ideas on how to serve employees across the agency better. What are they? NASA Exchanges – created by the Space Act, and chartered to manage health, welfare and morale activities across the agency.

About 23 Exchange managers from NASA Headquarters and most of NASA's 10 centers attended the JSC-hosted Agency Exchange Conference June 20-22 at the Gilruth Center. Attendees presented overviews of their activities over the past two years, discussed their financial performance, and shared ideas and lessons learned.

"I think it's great that all of the centers are getting together to share ideas on how to serve employees," said JSC Deputy Director Bill Parsons in his welcoming remarks. "In all your efforts, as you plan

what you do at your centers, don't forget about employee safety.

"We want employees to do after-hours activities safely, go home and be safe there, and return to work the next day."

NASA Exchanges are responsible for operating retail stores at NASA facilities, managing employee activities associations or clubs, sport leagues, and many provide food services ranging from vending to cafeteria operations. Although they are federal instrumentalities, NASA Exchanges do not receive appropriated funds and thus do not receive any direct funding from Congress. They act as non-profit businesses, surviving on the revenue they produce. Any income is used to pay for current and new products, services and facilities.

"The '90s have been challenging for NASA Exchanges, including ours," said Karl Schuler, manager, NASA Exchange – JSC Operations. "The business

environment is dynamic and Exchanges must adjust. This conference is an important tool because it allows attendees to share ideas about products and services that have worked well at their centers and that may work well in other markets."

Attendees appreciated the opportunity to learn about what Exchanges are doing. "I want to express my appreciation to all of you for taking time out of busy schedules to share lessons learned, and best practices," Allan Harding, NASA director, Contractor Industrial Relations, told those in attendance. "Special thanks go to the Johnson Space Center for hosting this event, and in particular to Greg Hayes, Karl Schuler and Mary O'Connell."

The attendees concluded their visit to JSC with a tour of the center including the X-38, Bldg. 9 and Mission Control.

The last NASA Exchange Conference was held in 1998 at the KSC. The next conference is targeted for 2002. ■

Continued from Page 1

ZVEZDA

Russian Mission Control Center in Korolev, Russia, planned to use the time to assure the module's systems were working properly, including navigation systems, thrusters and commanding and to fine-tune Zvezda's orbit in preparation for docking. All the while, Zvezda was closing in on Unity and Zarya – ISS modules already in flight – and was to become the passive vehicle on docking day as the Zarya performed the final rendezvous via remote control July 25 at an altitude of about 245 statute miles (394 kilometers).

Once attached, the 43-foot-long Zvezda will provide the life support system, electrical power system, data processing system, flight control system and propulsion for the orbiting station. Upon arrival of the first ISS crew – U.S. Astronaut Bill Shepherd and Russian Cosmonauts Sergei Krikalev and Yuri Gidzenko – Zvezda will fulfill its primary and most glamorous role as home to the early station residents.

"We are all now working together to ensure a successful docking on July 26 and integration of the ISS computer systems a few days later," added Mark Ferring, NASA ISS flight director.



The Zvezda Service Module, on board a Russian Proton Rocket, is shipped to Kazakhstan's Baikonur Cosmodrome.

"You could feel the momentum shift as soon as the third stage Proton engines cut off. The time has come to push ahead with ISS assembly, and the Houston flight control team is ready."

Zvezda's four ports also enable the module to function as the main docking vehicle for Russian Progress re-supply vehicles throughout the life of the space station. In fact, August 8, only three weeks after the Service Module's launch, the first Progress M1 cargo vehicle will dock to the aft-most port on Zvezda.

And so begins a continuous stream of missions to the orbiting outpost that will

result in rapid expansion of the largest engineering project in history. In the following months, two NASA shuttles will visit the station, preparing it for its first occupants. In September, *Atlantis* and the STS-106 crew will deliver supplies and equipment to the newly

expanded station. Later that month, the crew of STS-92 will install more station hardware and instrumentation, including the first small piece of the truss structure, its four gyroscopes and a conical docking adapter.

The Expedition One crew, including the first American to reside in space since Andy Thomas' visit to Mir in 1998, will embark for their four-month stay via a Russian Soyuz spacecraft in November.

"The baton has been handed back to NASA," said Goldin. "and we have a lot of things to do. We're going to live up to it. This is an international program and it's everyone that makes it great – the Europeans, the Japanese, the Canadians and the Americans and the Russians." ■

ROUNDUP
Frosch, Yardley cover
new space technology
in STS development

Volunteers needed for Open House



Volunteers for the JSC Open House on August 26 are still needed for the afternoon hours from noon – 2 p.m., 2 - 4 p.m., and 4 - 6:30 p.m. The success of Open House will depend upon the participation of volunteers from JSC.

To sign up, visit the Open House Web site

<http://www4.jsc.nasa.gov/openhouse/Databases/>

Volunteers must attend one of the following training sessions at the Teague Auditorium.

10 - 11 a.m., August 7 ■ 1 - 2 p.m., August 9
9 - 10 a.m., August 11 ■ 2 - 3 p.m., August 15

For more information, contact C.C. de la Garza (281) 483-1033, Joan Broadfoot (281) 483-4280, or Wendy Starr (281) 336-5373, who is representing TEAM NASA on the committee.

Open House, which begins at 9 a.m. and ends at 5 p.m., is free to the public. Visitors may enter the center through three gates not normally open to the public – on NASA Road 1 just east of Saturn Boulevard, on Space Center Boulevard near Bay Area Boulevard, and on Space Center Boulevard near NASA Road 1. Parking in JSC lots is available at no charge.

JSC's annual Open House coincides with the annual Ballunar Liftoff Festival, a three-day event sponsored by local communities and held on the NASA grounds. The festival includes more than 100 hot air balloons, midway rides, games, skydiving exhibitions and other displays. Festival admission is \$3 for adults. Children under 12 are admitted free. ■

For more information on this year's Open House event, visit the JSC Web site at <http://openhouse.jsc.nasa.gov/> or call the information hotline at (281) 244-5312.

Hoffmann-La Roche elected to space research industry forum

Hoffmann-La Roche Inc. (Roche), a leading research-based health care corporation, has been elected as a member of the National Space Biomedical Research Institute's Industry Forum. As an Industry Forum member, Roche will help NSBRI transfer biomedical technology and research advances to the general public.

"The most important purpose of the Industry Forum is to help NSBRI bring Americans the fruits of its discoveries in space medical research – from the prevention or treatment of osteoporosis to telemedicine technologies for bringing diagnosis and treatment into homes, schools and remote areas," said Dr. Joseph Kerwin, NSBRI Industry Forum chairman and a former astronaut. "Roche has the ability and desire to make

major contributions in this area, and it will be a major asset to the Industry Forum."

The NSBRI, established in April 1997 following competitive selection by NASA, is a consortium of 12 research institutions leading a national effort to carry out the research necessary to assure safe human exploration of space. The Institute's research into the health risks associated with long-duration space travel is designed to impact similar conditions found on Earth. A few of these similarities include bone loss, muscle wasting, sleep disorders and balance problems.

Representing Roche on the Forum will be Dr. Russell Ellison, vice president, medical affairs; Dr. William Smith, director, medical science; and Dr. John Caminis, medical science leader.

"Roche looks forward to working with the NSBRI Industry Forum to facilitate moving the research of the consortium members from the 'bench to the astronaut,' to all Americans and for all mankind," Smith said.

Based in Nutley, N.J., the corporation ranks among the world's leaders in pharmaceuticals and vitamins and is the number one diagnostic company. Roche discovers, develops, manufactures and markets numerous prescription drugs that enhance people's health, well-being and quality of life. Among the company's areas of therapeutic interest are virology, including HIV/AIDS and hepatitis C; infectious diseases, including influenza; cardiology; neurology; oncology; transplantation; dermatology; and metabolic diseases including obesity and diabetes.

In addition to Roche, NSBRI Industry Forum members include The Boeing Company, Draper Laboratories, InDyne, Inc., Lockheed Martin Astronautics, Payload Systems, Inc., MBI International, SGI (formerly Silicon Graphics, Inc.), Southwestern Bell, United Space Alliance, Veridian and Wyle Laboratories.

The NSBRI's consortium members are Baylor College of Medicine, the lead institution, Brookhaven National Laboratory, Harvard Medical School, The Johns Hopkins University, Massachusetts Institute of Technology, Morehouse School of Medicine, Mount Sinai School of Medicine, Rice University, Texas A&M University, University of Arkansas for Medical Sciences, University of Pennsylvania Health System and University of Washington. ■

Space Center Houston tram safety

Space Center Houston is asking for help from JSC personnel and visitors. Pedestrians entering the crosswalks too quickly and drivers cutting in front of the trams are creating a problem for the tram drivers.

One of the most familiar sights at JSC is that of Space Center Houston trams criss-crossing the streets. Drivers don't like to follow the trams because they are slow. Pedestrians assume the slow speeds mean there is

plenty of time to make it across the street before the trams overtake them. "When people suddenly dart in front of the trams on foot or in cars, the potential of harm to passengers on board the trams is increased," said Tracy Ferguson of JSC's Occupational Safety Branch.

The tram drivers are trained to anticipate pedestrian traffic in the crosswalks and will automatically slow down when they see a person approaching by gently applying the

brakes. However, if an individual steps out suddenly into a crosswalk, or worse, into an unmarked portion of the street, the tram driver reaction is to apply the brakes quickly. Applying the brakes suddenly to a 19,200-pound tram creates a great deal of forward thrust, even while only traveling the normal speed of 10-12 mph. When the tram drivers apply the brakes suddenly, the passengers, especially small children, tend to lunge forward, hitting their heads on the seats in front of them.

This happened recently, and several people on the tram were injured.

The employees at Space Center Houston are asking for the assistance of JSC personnel. They are urging extra courtesy to the trams and their passengers. Cross JSC streets in marked crosswalks only and think twice before jumping in front of a SCH tram. ■

Let's hear it!

What would you like to know?

What would you like to see or hear?

Send us your ideas for Safety & Total Health Day, and we'll try to bring you the kinds of things that will make your life better.

Send your suggestions to Jonathan Manning, Safety & Total Health Planning Committee, at x46264.

Do it now!



NASA JSC Photo S99-13240 by Steve Candler

DATES & DATA**August 2**

Astronomy seminar: The JSC Astronomy Seminar Club will meet at noon August 2, 9, 16 and 23 in Bldg. 31, Rm. 248A. For more information contact Al Jackson at x35037.

Spaceteam Toastmasters meet: The Spaceteam Toastmasters meet at 11:30 a.m. at United Space Alliance, 600 Gemini. For details contact Patricia Blackwell at (281) 280-6863.

August 3

Communicators meet: The Clear Lake Communicators, a Toastmasters International club, meet at 11:30 a.m. August 3, 10 and 17 at Wyle Laboratories, 1100 Hercules, Suite 305. For more information contact Allen Prescott at (281) 282-3281.

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

August 7

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 more information contact Murray Clark at (281) 367-2227.

August 8

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 details 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) 212-6130.

August 9

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 more information and reservations contact Tami Barbour at (281) 488-0055, x238.

OUT & ABOUT ★

ON YOUR MARK: Runners and walkers alike took over JSC the morning of Saturday, July 15, for the 22nd Annual Lunar Rendezvous 5k. Participants convened in the early morning to help raise funds to support Bay Area Museum, local student scholarships and other cultural and non-profit organizations in our area. Among the top finishers were JSC's Mark Anderson, Michael Root, Duane Ross, Daryl Schuck, and Lisa Spence. For more information on the Bay Area Running Club, contact Jay Lee at (281) 488-5583 or Mark Anderson at x30909 or visit <http://www.amtexpo.com/barc/>.

August 10

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.

MAES meets: The Society of Mexican-American Engineers and Scientists meets at 11:30 a.m. in Bldg. 16, Rm. 111. For more information contact George Salazar at x30162.

August 11

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.

NASA BRIEFS**STATION LABORATORY PASSES VACUUM CHAMBER TEST**

The U.S. Laboratory, Destiny, has successfully completed a series of milestone testing operations that move it closer to its final destination – space.

The 32,000-pound scientific research lab was the first International Space Station pressurized element to spend seven days in a renovated vacuum chamber last used when Americans walked on the moon. The 28-foot-long, 14-foot-wide laboratory was placed in the chamber July 1 to undergo the element leak test.

To perform the test, the laboratory was placed on the rotation and handling fixture inside the Operations and Checkout Building high bay at Kennedy Space Center, raised to vertical, lifted and moved to a point above the chamber, then lowered inside. Once the lid was lowered and secured, the chamber created a vacuum environment equivalent to 257,000 feet altitude or 48 miles to determine if the module had any leaks and confirm the rates at which gases were consumed.

The U.S. Laboratory has been designed to provide world-class, state-of-the-art facilities to complete scientific research in zero gravity. There is space for 24 racks inside the module – 13 will be dedicated to scientific research and 11 will provide cooling water, power, and temperature and humidity control, as well as revitalization to remove carbon dioxide and replenish oxygen. During the early assembly missions, astronauts will manipulate the Canadian robotic arm from within the lab using an integrated video system that will receive live pictures from cameras positioned on the arm and on the station's structure.

Destiny is among more than 216,000 pounds of space station elements, including truss sections, that are being prepared for flight at KSC. The lab is scheduled to be launched on shuttle mission STS-98, the 5A assembly mission, targeted for January 2001. When fully assembled in 2004, the space station will house a crew of seven.

CHANDRA CAPTURES FLARE FROM BROWN DWARF

NASA's latest observatory, designed to see the most violent and stunning cosmic phenomena, captured something unexpected. The Chandra X-ray Observatory, orbiting in space about one-third of the way to the moon, saw the first-ever flare from what's known as a brown dwarf, or failed star.

The study of the bright X-ray flare will increase understanding of the explosive activity and origin of magnetic fields of extremely low-mass stars.

Chandra detected no X-rays at all from the object called LP 944-20 for the first nine hours of a 12-hour observation, and then the source flared dramatically before it faded away over the next two hours.

The energy emitted in the brown dwarf flare was comparable to a small solar flare, and was a billion times greater than observed X-ray flares from Jupiter. The flaring energy is believed to come from a twisted magnetic field.

Brown dwarfs have too little mass to sustain significant nuclear reactions in their cores. Their primary source of energy is the release of gravitational energy as they slowly contract. They are very dim – less than a tenth of a percent as luminous as the sun – and of great interest to astronomers because they are poorly understood and probably a very common class of objects intermediate between normal stars and giant planets.

Images associated with this release, including high-resolution digital versions of the X-ray image (JPG, 300 dpi TIFF), are available on the Internet at:

<http://chandra.harvard.edu>

and

<http://chandra.nasa.gov>

GILRUTH CENTER NEWS**Sign up policy:**

All classes and athletic activities are on a first-come, first-served basis. Sign up in person at the Gilruth Center and show a yellow Gilruth or weight room badge. Classes tend to fill up two weeks in advance. Payment must be made in full, by cash or by check, at the time of registration. No registration will be taken by telephone. For more information, call x33345.

Gilruth badges:

Required for use of the Gilruth Center. Employees, spouses, eligible dependents, NASA retirees and spouses may apply for photo identification badges from 7:30 a.m.-9 p.m. Monday-Friday and 9 a.m.-2 p.m. Saturdays. Cost is \$12. Dependents must be between 16 and 23 years old.

Open from 6:30 a.m.-10 p.m. Monday-Thursday, 6:30 a.m.-9 p.m. Friday, and 9 a.m.-2 p.m. Saturday. Contact the Gilruth Center at (281) 483-3345. <http://www4.jsc.nasa.gov/ah/exceaa/Gilruth/Gilruth.htm>

Nutrition intervention program: Six-week program includes lectures, a private consultation with the dietitian and blood analysis to chart your progress. Program is open to all employees, contractors and spouses. For details call Tammie Shaw at x32980.

Defensive driving: One-day course is offered once a month at the Gilruth Center. Pre-registration required. Cost is \$25. Call for next available class.

Stamp club: Meets every second and fourth Monday at 7 p.m. in Rm. 216.

Weight safety: Required course for employees wishing to use the Gilruth weight room. Pre-registration is required. Cost is \$5. Annual weight room use fee is \$105. The cost for additional family members is \$58.

Exercise: Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays. Cost is \$24 for eight weeks.

Step/bench aerobics: Low-impact cardiovascular workout. Classes meet from 5:25-6:25 p.m. Tuesdays and Thursdays. Cost is \$40 for eight weeks.

Yoga stretching: Stretching class of low-impact exercises designed for people of all ages and abilities in a Westernized format. Meets Thursdays 5-6 p.m. Cost is \$40 for eight weeks. Call Darrell Matula, instructor, at x38520 for more information.

Ballroom dancing: Classes meet Thursdays from 6:30-7:30 p.m. for beginner, 8:30-9:30 p.m. for intermediate and 7:30-8:30 p.m. for advanced. Cost is \$60 per couple.

Country and western dancing: Beginner class meets 7-8:30 p.m. Mondays. Advanced class (must know basic steps to all dances) meets 8:30-10 p.m. Mondays. Cost is \$20 per couple.

Fitness program: Health-related fitness program includes a medical screening examination and a 12-week individually prescribed exercise program. For more information call Larry Wier at x30301.

Aikido: Martial arts class for men and women meets 5-6 p.m. Tuesdays and Wednesdays. No special equipment or knowledge is needed to participate. Aikido teaches balance and control to defend against an opponent without using strength or force. Beginning and advanced classes start each month. Cost is \$35 per month.

SPACE CENTER Roundup

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Editor William Jeffs william.p.jeffs@jsc.nasa.gov
Assistant Editor Nicole Cloutier nicole.cloutier1@jsc.nasa.gov

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