

National Aeronautics and Space Administration



Roundup

Lyndon B. Johnson Space Center

September | 2010



When humans and robots join forces

JSC Director



On the cover:

NASA's Robonaut 2 (R2), who will hitch a ride with STS-133 to the International Space Station for a tour of duty this fall, "poses" near a Destiny lab trainer with the crew. Clockwise from lower right, R2 is flanked by NASA astronauts Tim Kopra and Nicole Stott, both mission specialists; Eric Boe, pilot; Michael Barratt and Alvin Drew, both mission specialists; and Steve Lindsey, commander.



PHOTO: NASA, ESA, Hubble, R. Sahai (JPL)

Photo of the month:

Researchers do not yet know what is lighting up IRAS 05437+2502, a small, faint nebula that spans only one-eighteenth of a full moon toward the constellation of Taurus. Particularly enigmatic is the bright upside-down V that defines the upper edge of this floating mountain of interstellar dust. This recent image from the Hubble Space Telescope shows many new details, but has not uncovered a clear cause of the bright sharp arc.



NASA PHOTO

I had the opportunity to visit with several senators and representatives during "Center Director Day on the Hill" last month, and was once again impressed with the strong bipartisan support NASA and the human spaceflight program have from Congress.

I met individually with four senators, Democrats Bill Nelson and Tom Udall and Republicans John Cornyn and Kay Bailey Hutchison; and five representatives, Democrats Sheila Jackson Lee and Ruben Hinojosa and Republicans Ron Paul, Pete Olson and Ralph Hall. I was reassured by their support and enthusiasm. They were all knowledgeable and asked detailed questions about the space program.

It should be noted that the president's proposed 2011 budget calls for an increase in NASA funding to \$19 billion, and both the Senate and the House bills concur with that top line budget number. Given the current budget environment, the bipartisan agreement on an increase to NASA's budget is a clear acknowledgement that NASA's programs and concurrent technology development are an important contribution to a robust economy. The Senate and House bills have differences that must be reconciled in a conference committee, and history tells us that a continuing resolution may well be in effect as we start the new fiscal year. However, I have every expectation that a NASA bill will be sent to the White House for the president's signature sooner rather than later.

I received numerous compliments about the work all of you are doing, and I was proud to represent our team of space professionals. Keep up the good work!

Mike

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NASA PHOTO 473882MAIN_1736_FULL

TV star **Nichelle Nichols** treks to Johnson Space Center



By Laura Rochon

Who would have guessed Dr. Martin Luther King Jr. convinced Nichelle Nichols to keep her job on the legendary TV series “Star Trek” in the 1960s.

Gene Rodenberry cast her for the role of Lt. Uhura, one of the first black female characters on TV.

“I was thrilled to be part of something that’s more than a dream—it stood as a beacon of where we are going,” Nichols said.

King was a big fan of the show and Nichols’ representation, telling her he only allowed his family to stay up late to watch Star

like you.” NASA invited her and the entire cast to the rollout of the first Space Shuttle—*Enterprise*.

“The grandeur of the vehicle was palpable,” Nichols said. “I felt proud of portraying an astronaut of the future—I wanted to jump inside the shuttle and go with them. Gene, the cast, many people were there—it was a magic moment.”

Of the shuttle program, she said, “It’s not just the miracle of the launch to space, it’s what can be gained and learned scientifically.

We as a people are natural explorers—we have to know what is beyond the beyond. It’s all about possibilities—I want to express that to young people. We keep evolving.”

Nichols visited Johnson Space Center on behalf of the Traveling Space Museum (TSM), which partners with schools to promote space studies. She was joined by TSM Manager Ivor Dawson; Raj Madavilli from former astronaut Dr. Mae Jemison’s office; and a TSM protégé, 11-year-old aspiring astronaut Imanee McGee, along with her mother, Niani Price.

“And here I am at NASA, back again after all these years, working to instill that same kind of pride in young people to get their education, take advantage of [NASA’s] Summer of Innovation and inform them of programs through the museum that mentor kids in

(continued on next page)



NASA/PHOTO

Nichelle Nichols, who played Lt. Uhura on Star Trek, has always been a champion of women and minorities at NASA.

Trek. But when Nichols told him she was about to leave the show, he said, “You can’t.”

She recalls him saying Rodenberry projected a future, which we are watching ... and there are wondrous things out there that we must all be a part of.

“He convinced me to stay, and I’ve never looked back,” said Nichols, who has been an advocate of NASA ever since. “I was invited to serve on the board of directors for the National Space Institute.”

During a speech on the humanization of space, she said she had the nerve to take NASA to task for there not being women and minorities in the space program.

“Next thing I knew, NASA Headquarters asked me to do just that,” Nichols said. “I came onboard to recruit the first women and minority astronauts for the Space Shuttle Program.”

Some of those astronauts included Sally Ride, Guion Bluford, Judith Resnik and Ronald McNair. It’s a moment in her life she is understandably proud of.

Nichols did radio interviews, outreach and public service announcements such as, “NASA wants a few good men and women



NASA/PHOTO

The legendary Star Trek cast sees what real space travel is all about at the shuttle *Enterprise* rollout.



NASA/PHOTO JSC2010E109054

Nichols and Traveling Space Museum protégé Imanee McGee give a Vulcan salute beside astronaut candidate Michael Hopkins (suited).



NASA/PHOTO JSC2010E107281



NASA/PHOTO JSC2010E107347



NASA/BLAIR JSC2010E107375



NASA/BLAIR JSC2010E107368

Nichols and her guests tour JSC, taking in the motion-based shuttle simulator, Mission Control Center, Lunar Electric Rover and shuttle and station mock-ups. Nichols is pictured with the NASA team, from left to right: astronauts Stephanie Wilson and Charles Hobaugh, Flight Director Bryan Lunney and astronaut Alvin Drew.

Science, Technology, Engineering and Math (STEM),” Nichols said.

Nichols said STEM is not just for “eggheads,” but for kids learning to apply themselves, discover what they can be and how much they can do.

“They don’t need to become an astronaut—so many careers enhance our space program,” Nichols said. “We need a lot of good minds to build on our space program to continue to be the leader in the world in space exploration and discovery.”

Before the tour began, Nichols recorded messages for NASA TV that reflect her enthusiasm for NASA while encouraging girls to pursue an education in STEM fields. After the center greeting and JSC medallion presentation by JSC Associate Director (Technical) Milt Heflin, the group was treated to many hands-on experiences: a ride in the motion-based shuttle simulator and Lunar Electric Rover, virtual spacewalks, a tour of the Neutral Buoyancy Laboratory, shuttle and International Space Station mock-ups.

At Mission Control, Nichols was welcomed with a full screen photo of Lt. Uhura in both the Station and Shuttle Flight Control Rooms. “That was a special surprise,” she said.

And the USS Enterprise icon appeared on the world map where normally the shuttle or station would be orbiting. Along the tour, waves of employees greeted her, tourists from Space Center Houston clapped and took pictures and many a “Vulcan salute” was seen.

Dawson said, “Nichelle’s acknowledgement of the fans created a Hollywood atmosphere at JSC.”

Nichols said her visit to JSC was “thrilling, absolutely thrilling,” and mentioned it was an added surprise when different astronauts accompanied the group to each location.

Each summer, TSM’s youngest protégé is treated to an out-of-state road trip designed to ignite interest in space. This year, it was McGee’s turn, and she did amazingly well in her quest to become an astronaut. When asked after the tour and quasi training if launching into space was still her career goal, McGee said yes.

Dawson said McGee would also like to add “veterinary medicine as her new mission specialty,” and told Jemison she can’t wait to ride into space—along with her dog Fluffy.



NASA/BLAIR JSC2010E086540

Nichols sports a grin while posing in front of the Vestibule Operations Trainer.



NASA/BLAIR JSC2010E107312

Nichols is welcomed with her character’s image on Mission Control’s big screen.

Johnson Space Center **Safety Culture Survey** results speak volumes



By Neesha Hosein

In late April, the NASA Safety Culture Survey, developed as an anonymous assessment tool, was conducted across Johnson Space Center. JSC is among the first centers to survey civil servant and contractor employees about their perception of the current safety culture.

The survey questions were based on the NASA Safety Culture Model, which consists of five dimensions:

- 1. Reporting Culture: We report our concerns.**
- 2. Just Culture: We have a sense of fairness.**
- 3. Flexible Culture: We change to meet new demands.**
- 4. Learning Culture: We learn from our successes and mistakes.**
- 5. Engaged Culture: Everyone does his or her part.**

Approximately 21 percent of the JSC onsite workforce, contractors and civil servants, participated in the survey. This included more than 3,300 individual written comments.

Results are in ...

JSC senior leadership was presented a summary of the results, and all the comments were provided to JSC Director Mike Coats and JSC Deputy Director Ellen Ochoa.

The general consensus is employees are very satisfied with the safety culture, but the feedback illustrated some specific concerns still linger. Many folks expressed suggestions for improvement as well.

Just to convey a fraction of the results: Ninety-seven percent feel physically safe. JSC pedestrian and traffic safety present an area of concern as well as caution around the ongoing construction zones. Some folks expressed apprehension that safety will take a back burner during upcoming program changes.

“Ultimately, we hope to address all of the issues and concerns that affect our perceptions of the Safety Culture elements—Reporting, Just (fairness), Flexible, Learning, and Engaged,” said David Loyd, chief of the Safety and Test Operations Division.

One of the more interesting results is that the JSC culture is very much the same in comparison with measurements taken earlier at Kennedy Space Center and Marshall Space Flight Center in the five dimensions that describe safety culture maturity.

There have been working groups formed to address some of the more prevalent themes voiced in the survey results, including security, construction, and health concerns. The agency as a whole will be continuing the survey process at a center level.

“Folks should continue to think about safety, talk about safety and take action to improve safety,” said Stacey Menard, deputy chief of the Safety and Test Operations Division. “From a personal standpoint, that could be most anything. For example, when something happens at home, inspire others by sharing it with your co-workers.”

The survey results illustrated positive attitudes of people openly taking initiative and claiming responsibility for their safety, which was “the biggest success story that I could have ever hoped for,” Menard said.

To learn more about the survey results, visit the JSC Management Council survey summary at: http://www6.jsc.nasa.gov/safety/docs/JMC_Safety_Culture_Survey_Master.pptx



NASA/MARKOWITZ JSC2010E054611

Robot to become **first** humanoid resident on station



By Neesha Hosein

Robonaut 2 (R2) has a one-way ticket to the International Space Station aboard Space Shuttle *Discovery* with the STS-133 crew. In November, R2 bids farewell to planet Earth to become the space station's first humanoid robot resident.

R2 will launch inside the Leonardo Permanent Multipurpose Module, which will be packed with supplies and equipment for the space station, then installed permanently on the Unity node. The robot will initially undergo operational testing inside the Destiny laboratory, likely months after its arrival. Over time and observation, this testing will illustrate R2's true potential, in turn, expanding the extent of its functionality through future upgrades.

"Initially, we will be reproducing things we've done on the ground as a benchmark," said R2 Project Manager Dr. Ron Diftler. "The goal after the robot has earned its stripes is for it to start helping the crew with intravehicular activity tasks onboard station. Then long-term, we want to convert it to an ExtraVehicular Activity robot."

Who made R2, and why?

NASA and General Motors (GM) are working together at Johnson Space Center to accelerate development of the next generation of robots and related technologies for use in the automotive and aerospace industries. R2, intended to be a robotic assistant to humans, was developed jointly by NASA and GM through a Space Act Agreement. Work started in February 2007, and R2 was unveiled in February 2010.

The main objective of R2's station debut is to give engineers the opportunity to learn how dexterous robots function in weightlessness. This new venture is a stepping stone toward future upgrades and advancements in this technology.

The expectation is that one day these robots will be able to function outside the space station, potentially assisting astronauts in spacewalks, repairs or additions to the station, and possibly performing scientific work. R2 has the potential to save astronauts valuable work time by carrying out mundane tasks and can also be a flexible tool that the crew could send into situations deemed too hazardous for humans.

R2 will be tested in microgravity and subjected to the station's radiation and electromagnetic interference environments. The interior operations on station will provide performance data to engineers on the ground about how a



PHOTO/MARKOWITZ_JSC2009E155295

NASA and GM have come together to develop the next generation dexterous humanoid robot. The two robots—called R2—are designed to use the same tools as humans. One is hitching a ride to space, while the other stays on Earth.



During a training session in the Space Vehicle Mockup Facility at JSC, the STS-133 crew is pictured with its seventh crew member—R2. The STS-133 crew members are, clockwise from the top, NASA astronauts Steve Lindsey, commander; Alvin Drew, Nicole Stott and Tim Kopra, all mission specialists; along with Eric Boe, pilot; and Mike Barratt, mission specialist.

robot can work together with astronauts. Station crews may be provided hardware and software to update R2 to enable it to do new tasks. This process could take many years.

Functionality

R2 is still a prototype and does not have adequate protection needed to exist outside the space station in the extreme temperatures of space.

The 330-pound robot consists of a head and a torso with two arms and two hands. It stands three feet, four inches from waist to head with a shoulder width of two feet, seven inches. R2 has approximately 350 sensors. As for speed, the robot can move up to seven feet per second, but will be restricted to less than half speed onboard station.

R2's head houses its vision equipment in lieu of a brain. Behind R2's visor are four visible light cameras—two to provide stereo vision for the robot and its operators, and two auxiliary cameras. A fifth infrared camera is housed in the mouth area for depth perception.



R2 surpasses previous dexterous humanoid robots in strength. It is able to lift, not just hold, this 20-pound weight (about four times heavier than what other dexterous robots can handle) both near and away from its body.

In its neck, R2 has three degrees of freedom, allowing it to look left, right, up or down. Each arm is about two feet, eight inches long, giving R2 a total wingspan of eight feet. Each arm boasts seven degrees of freedom and the strength to hold 20 pounds in any pose in Earth's gravity. R2's hands have 12 degrees of freedom—four degrees of freedom in the thumb, three degrees of freedom each in the index and middle fingers, and one each in the ring and pinky fingers. Each finger has a grasping force of five pounds.

R2's backpack holds its power-conversion system, essentially allowing for plug-in. On another planetary surface, or on the moon or an asteroid, the backpack would hold the robot's batteries.

One characteristic far from humanlike is that R2 actually thinks with its stomach. Its head is full of cameras, so the only place roomy enough to store a brain is the robot's torso.

What is it made of?

The materials in R2's "skin" were upgraded in preparation for the robot's journey to the space station due to the laboratory's stringent flammability requirements. Primarily aluminum with steel and nonmetallics, R2's body consists of anodized aluminum, while the body panels are nickel. The outermost fabric covering is ortho-fabric, which is used in spacesuits.



Engineer Court Edmondson and soft goods designer Heather Bibby help R2 try on its new flight suit.

Social media connection

R2 is no stranger to the social media circuit. The robot is now tweeting at <http://twitter.com/AstroRobonaut>. With the help of its team, R2 sent its first tweet on July 26.

Future of R2

There are no plans to return R2 to Earth, so it will indefinitely reside in space. The advent of the space-bound robot provides endless possibilities for the future of space exploration.

"This project exemplifies the promise that a future generation of robots can have both in space and on Earth, not as replacements for humans but as companions that can carry out key supporting roles," said John Olson, director of NASA's Exploration Systems Integration Office at NASA Headquarters. "The combined potential of humans and robots is a perfect example of the sum equaling more than the parts. It will allow us to go farther and achieve more than we can probably even imagine today."

A quest for inspiration

Lucasfilm animator Joel Aron relays stories from his job on the TV Show “Star Wars: The Clone Wars.”



By Catherine E. Williams

computer graphics on my own, by myself.”

When Aron became a part of “Star Wars: The Clone Wars,” he indicated that the crew was not operating at the creative level it should have been.

“They had written a season of scripts, and it was kind of ramshackle,” Aron said. “People were over thinking it.”

The team met during innovation sessions to brainstorm ways to



PHOTO/COURTESY OF LUCASFILM

improve the series. Unsurprisingly, how the group functioned became a major turning point.

“I needed the teams to act as their own unit,” Aron said. “The term I use is actually a NASA term, and (it) warms my heart anytime I hear it—the go/no-go. We were able to squash all the technical issues we had with the shows and were able to be artists.”

And whether dealing with computer animation or engineering the International Space Station, attention to detail is key to turning out a fully functional product. Aron mentioned that when designing a space for the “clones,” nothing is accidental. Graphics, down to minutiae such as how a box will appear, are debated.

Though many at JSC might salivate at working with a franchise as timeless as Star Wars, Aron indicated that the qualities important in his field are valued in ours—and personality is key.

“You’ll have a lot of people who have intense computer science background, (but) their creativity will be limited because they haven’t been exposed to fine arts,” Aron said. “To really get in and succeed, you need to be creative. Know how to take direction. Listen and respect the person that is the driving force.”

“I would much rather bring someone in that has the personality and just 75 percent of the skill, because I know they have that attitude,” Aron said.

Having the right attitude can take you far, literally and figuratively. It may even take you more than 200 statute miles above Earth—and one day, even farther than that.



PHOTO/COURTESY OF LUCASFILM

NASA/PHOTO _JSC2010E115078



It is hard to impress an assembly of rocket scientists and other professional types, but Lucasfilm’s Joel Aron of the TV show “Star Wars: The Clone Wars,” did just that on Aug. 11. The Innovation 2011 Engagement Team brought Aron, computer graphics supervisor, to Johnson Space Center for a first in a series of activities meant to build on a creative and innovative culture.

“Star Wars was an inspiration to many of us in the NASA community and across the globe,” said JSC Chief Technology Officer James McClellan. “Aron is at the nexus of the next generation of the Star Wars epic, using his innovative and creative talents to stretch the bounds of what can be done in an animated TV series. His passion for excellence was infectious and can inspire us all to reach higher and farther than we thought possible.”

It was difficult to tell who was more impressed: JSC with Aron, or Aron with JSC. As he emphasized during his “From Script to Screen” presentation, NASA actually builds and flies the spaceships that turn what could be simply science fiction—into science fact. Aron uses his very active imagination to translate art into computer animation magic on the TV screen.

But to be successful at either enterprise takes teamwork and a highly creative process.

Aron spoke of his immense drive to get into the animation world.

“I wanted to know who did it, I wanted to know how it was done . . . I became obsessed about it,” Aron said. “All I had were the art books my aunts would always bring to me when they came to visit. I learned the



PHOTO/COURTESY OF LUCASFILM

A smart(card) future



By Catherine E. Williams

Computers are getting smarter—and our Information Technology (IT) world is getting simpler, thanks to Identity, Credential and Access Management (ICAM).

ICAM arrived at Johnson Space Center after NASA fulfilled Homeland Security Presidential Directive-12, issued in 2004. With completed background checks, smartcard badges issued and the transformation of IT systems, ICAM will continue the long-term management of new IT systems and processes.

As part of this, recently JSC reached its goal of closing out the NASA Consolidated Active Directory (NCAD) project.

“NCAD consolidated all JSC and White Sands Test Facility (WSTF) Windows Active Directory user accounts, workstations and servers into a single agency domain called the NASA Data Center (NDC),” said JSC ICAM Lead Mike Nevills. “NCAD migrated and integrated JSC’s IT infrastructure into the agency’s so that users may use their badge and Personal Identification Number (PIN) for login.”

This milestone required three years and the migration of more than 13,000 workstations and nearly 1,000 servers—numbers not for the faint of heart. But what it brings to JSC is enhanced simplicity and security.

“What it’s doing is increasing the consistency and security across NASA, as well as ensuring that everyone who logs in to a NASA desktop has the same experience,” Nevills said. “There was a lot of significance in getting all our users migrated and the NCAD

project completed because the agency was turning on services that provided simplified sign-on, like WebTADS and WebEx. With NCAD implemented, these systems rely on a unified source for authentication so you’re not asked to log in again or remember multiple user IDs and passwords; they use the same credentials you use every day to log in to your workstation.”

The ability to use a smartcard to log in to your computer is available now if you know your PIN. However, the majority of individuals on site were issued a smartcard badge about one-and-a-half to two years ago.

“Users more than likely don’t remember their smartcard PIN, so the Information Resources Directorate (IRD) has established contacts within organizations who can reset someone’s PIN, instead of those people having to go to Building 110,” Nevills said.

The NCAD project is done, but its effects will be lasting. “From an end-user perspective, one of the most important things we got from it is a much more simplified sign-on to your computer. If you go to another center and log in to another computer, you aren’t assigned a new user ID,” Nevills said.

The user can use his existing account that they use to log in every day at JSC, along with the same password. And, if you brought your computer to another center and connect it there, you can still get all the basic services you get at JSC.

NCAD was a necessary middle step to securing our IT future, and we are now that much closer to the end result—a smartcard reality.

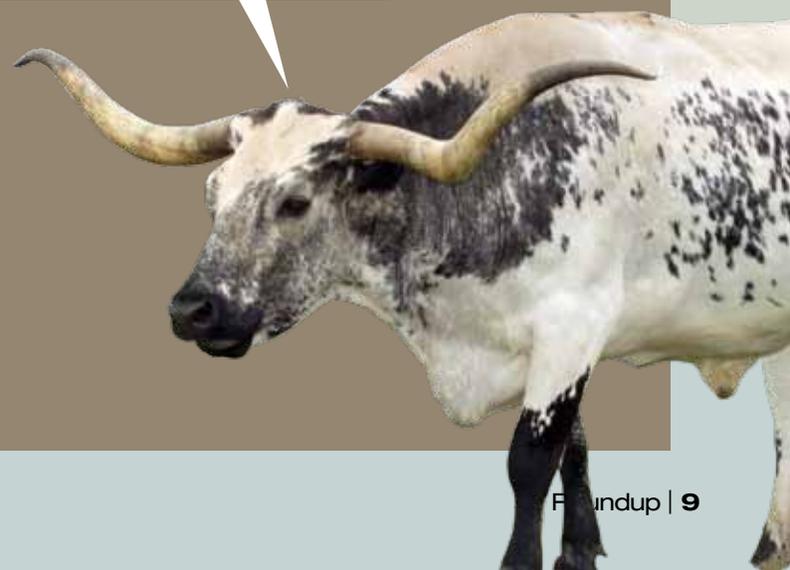
NCAD at a glance

NCAD is a single, agencywide authentication and authorization service that you access when you log in to your desktop. NCAD enables you to access servers, applications like e-mail and network resources such as printers.

After three years of consolidation and an approximately eight-month wave of user and computer migrations, NCAD is complete. During this project, IRD also renamed more than 4,000 JSC user IDs to match the agency assigned user ID. In addition, JSC transitioned its application environment to incorporate identity information contained within the NASA Enterprise Directory and NDC domain.

“Are you sure it’s NCAD ... and not N-CUD? I’m feeling a wee bit hungry.”

– Texas Twister



Spotlight Carolynn Conley

Payload Integration Manager, MEI Technologies, Inc.

Q: Coolest part of your job?

A: Working with the wonderful, dedicated people here and at several NASA and International Partner centers. They have helped me contribute to our international programs and achievements. Serving in payload integration for the past 15 years has realized my dream of contributing to the peaceful evolution of humanity beyond the boundaries of Earth. That dream has been an ambition since my 20s.

Q: What did you want to grow up to be when you were a child?

A: During my school years, girls had four career paths: secretary, nurse, school teacher and homemaker. My mother encouraged individuality and a college education. I became an aerospace technologist systems engineer.

Q: Who are your heroes and why?

A: UCLA basketball coach John Wooden. His wisdom, coupled with commitment and training, leads to successful team members cooperating on big projects—talents we practice here at Johnson Space Center.

Q: What quality do you most admire in people?

A: People who give grace to others. Grace requires intelligence, wisdom, kindness and humility.

Q: Favorite hobbies or interesting things you do away from the office?

A: For more than 10 years I have been an Irish dancer with the Kinderkin International Dancers, directed by CJ Gilson. We dance at schools, nursing homes and other community events.

Q: What would people be surprised to know about you?

A: I'm the catcher for the Seam Rippers co-ed softball team. Being safety aware at home, as well as at work, I wear a pink catcher's mask.

Q: What is your favorite food?

A: Avocados. I'm hopeful a miniature tree will be developed to grow on the moon and Mars.

Q: Favorite movie and why?

A: In "2001: A Space Odyssey," Director Stanley Kubrick presents humanity's destiny in an inspiring and artistic way.

Q: Favorite music, artist or band and why?

A: Max Q. Being a fan since 1987, I pretend that I'm a mini groupie. Their concerts are a lot of fun to experience, and I love visiting with other groupies.

Q: What is your best memory at NASA or JSC?

A: It was an honor to work in payload integration for the Shuttle-Mir Program under Frank Culbertson's leadership. It was an exciting time to be part of the early international cooperation at the end of the Cold War. That Phase I program laid the foundation for the International Space Station.



NASA/STAFFORD jsc2010e115062

Q: What would you be doing if you weren't in your current job at JSC?

A: Writing children's books about our space adventures. Children are our future, and I have been collecting lots of stories. I especially enjoy taking notes at the crew return ceremonies.

Q: What do you most look forward to at NASA?

A: NASA has a challenging future. I'm integrating the Ad Astra Rocket Company's VASIMR advanced propulsion experiment onto the International Space Station. I look forward to NASA's return to the moon. Industrial development on the moon will build the required infrastructure to allow the economical, repeated exploration of Mars.

WANTED!

Do you know a JSC colleague or team that does something extraordinary on or off the job? Whether it's a unique skill, interesting work, special professional accomplishment, remarkable second career, hobby or volunteerism, your nominee(s) may deserve the spotlight!

The Roundup shines the light on one special person or team each month, chosen from a cross section of the JSC workforce. To suggest "Spotlight" candidates, send your nomination to the JSC Roundup Office mailbox at jsc-roundup@mail.nasa.gov. Please include contact information and a brief description of why your nominee(s) should be considered.



Donations break food drive records

Nearly 13,500 pounds of non-perishable food were donated by Johnson Space Center team members during the last week of July in support of the Feds Feed Families Food Drive. June's contributions of 950 pounds brought the June and July total to 14,339 pounds.

"This is the largest single-source food drive that we've ever had," said Mark Davis, executive director of The Galveston County Food Bank/Gleaning From the Harvest organization.

Davis oversees distribution of food to more than a dozen food pantries in Galveston County from the food bank's headquarters and warehouse in Texas City, Texas. Participating charities support disadvantaged families with children, senior citizens and families still struggling to recover from Hurricane Ike.

Over the summer, the Feds Feed Families program organized donations of food at federal

facilities across the country, with pick-ups occurring the last week of June, July and August.

"Participating in the national Feds Feed Families program has not only been a great help to the Houston/Galveston area, but also to the community near White Sands, where we have donated to the Community Action Agency for Dona Ana County," said Starport/JSC Exchange Manager Karen Schmalz, who coordinated the JSC food drive in support of Feds Feed Families.

A significant influence in the record-breaking July food donation was the JSC Chief Financial Officer's (CFO's) staff. Feeling sure that JSC could gather more than June's donation of 950 pounds, the CFO's office divided into teams for a friendly rivalry. Other directorates joined in and started their own in-house food drive teams. Before long, efforts evolved into a directorate-to-directorate competition, including organizations such as External Relations, Procurement and the



NASA/DEHOYOS | jsc2010e117907

In a good-humored bid for External Relations' (AD's) support, the Office of the Chief Financial Officer (LA) courted AD with a human alphabet (pictured above), sweets, "I Love AD" T-shirts worn by LA's director and deputy director, and a serenade performed for senior staff.

Information Resources Directorate.

"I am so proud of the CFO organization for pulling together to help the needy," said CFO Dot Swanson. "Other orgs caught the wave, and together, JSC will make a huge difference for many."

Stay tuned for final food drive numbers in the next edition of *Roundup*.



NASA/BLAIR | jsc2010e117772

... and we were **'all shook up'**

Elvis was here. Reportedly.

Starport got in the spirit of "the King" on Aug. 16, serving grilled peanut butter and banana sandwiches, hound (chili) dogs and "king-sized" burgers. Elvis tunes rocked diners in the café, and a twist contest provided entertainment for team members.

Roundup

The Roundup is an official publication of the National Aeronautics and Space Administration, Johnson Space Center, Houston, Texas, and is published by the Public Affairs Office for all Space Center employees. The Roundup office is located at the Johnson Space Center, Building 2. The mail code is AD94. Visit our Web site at: <http://www.jsc.nasa.gov/roundup/online/> For distribution questions or to suggest a story idea, send an e-mail to jsc-roundup@mail.nasa.gov.

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OR CURRENT RESIDENT

It's 'cool' to be back fully functional



By Catherine E. Williams

Things can go awry ... especially when mechanics are involved. Just ask car and home owners. On the International Space Station, though, when something malfunctions, there is no easy fix.

After the loss of one of two cooling loops on July 31, ground controllers powered down and reconfigured numerous systems to provide as much cooling capability for the most critical systems aboard the orbiting laboratory. The space station was in a stable configuration, and the crew safe, but good old-fashioned ingenuity was needed to get to the bottom of the problem. Enter: a lot of spacewalks.

The first spacewalk on Aug. 7 became the longest station-based spacewalk in history at eight hours and three minutes long. Repair tasks originally included removing the failed pump module from the station's S1 Truss and retrieving a spare from an external stowage platform. As the result of an ammonia leak in the final line that needed to be disconnected from the failed pump module, the tasks were only partially completed. The decision was made to reconnect the line on the pump module and install a spool positioning device to maintain proper pressure internal to the ammonia line.

The second spacewalk on Aug. 11 had Expedition 24 Flight Engineers Doug Wheelock and Tracy Caldwell Dyson remove the failed ammonia coolant pump module.

For the third contingency spacewalk on Aug. 16, Wheelock and Caldwell Dyson exited the station hatch into the desolate environs of space to install a spare ammonia pump module on the S1 Truss. Ground controllers confirmed the module was in healthy condition when it began receiving power. After a pressure check and more fluid cable connections, the module was filled with ammonia.

In what can only be described as a very cool accomplishment, Expedition 24 was successful in reintegrating the Loop A cooling system back into operation within the station's thermal control system.

And now ... back to your regularly scheduled science programming.



NASA/PHOTO ISS024-E-011600

Attired in their Extravehicular Mobility Unit spacesuits, NASA astronauts Doug Wheelock and Tracy Caldwell Dyson (bottom), both Expedition 24 flight engineers, prepare to exit the Quest airlock of the International Space Station to begin the first of three planned spacewalks to remove and replace an ammonia pump module that failed July 31.