

National Aeronautics and Space Administration



# Roundup

Lyndon B. Johnson Space Center

October 2008



Celebrating the First 50 Years



# JSC Director

**Hurricane Ike** has tested all of us in some way in terms of our strength, patience and flexibility. The Johnson Space Center team pulled together and worked extremely hard to secure the center and take care of our people. Although we can improve the process, I am very happy that we have accounted for all of our employees. Several lost everything, most had some level of damage or utility service interruption. But with patience, perseverance and help from each other, we are on the road to recovery. It will take some time for our communities to recover fully, but through your efforts the center is back on track to fulfill our mission.



The days ahead are very important to NASA and, as you know, JSC plays a critical part in mission success. I would like to thank the Ride-out Team, made up of individuals from several organizations, that stayed behind to secure the center so that many of us could evacuate out of harm's way. They were the first on the scene to begin the recovery process, which was key in assessing damage and getting the center reopened and operational. Many dedicated individuals from each organization and our contract partners spent the majority of the week following the storm cleaning up testing and accessing systems and facilities, allowing us to quickly reopen, begin mission training and bring the International Space Station Mission Control back to Building 30 quickly.

It will be a long process for many of us to regain normalcy. During the next several weeks and months, I ask that you look out for your coworkers, listen empathetically and help where you can. The strength of the center is its people. You are the folks that make it happen on a daily basis during normal operations. The extraordinary efforts that I have witnessed following the storm by all employees solidify my long-held opinion that we have the best and brightest here at JSC.

We will try to capture many of the Hurricane Ike recovery efforts and lessons learned in a special edition of the November Roundup so that you can share some of your stories. We look forward to the launches of both shuttle and Soyuz. They will be fitting testaments to your commitment and hard work.

I want to thank the entire NASA family for your hard work in taking care of each other and enabling us to execute our missions during an extremely challenging time.

## Photo of the Month

*JSC's own photographer captured this colorful image of a Monarch butterfly and caterpillar crawling on the flower of a milkweed plant in the garden at the front of Building 8.*



NASA/BLAIR jsc2008e094689



**On the cover:**  
*Celebrating the first 50 years.*

**Q: How long have you been with NASA?**

**A:** I started working at Johnson Space Center in 1996 at the White Sands Test Facility, and subsequently at the Neutral Buoyancy Laboratory. Shortly afterward, I began working on the BIO-Plex project in the Crew and Thermal Systems Division by developing the Biomass Transporter System. For the past nine years, I have been working in the Automation, Robotics and Simulation Division, primarily with the Robonaut Project.

**Q: What kind of hobbies or interesting things do you do away from the office?**

**A:** My time is pretty much filled up with my family. I enjoy watching my children grow and stay involved in their activities as much as I can. In addition, I have been preserving our family history for the future by converting my parents' old film and slides into digital format. There are quite a lot of them, so it's been a full-time job. Whenever I do have the time, I've always been interested in flying radio-controlled airplanes.

**Q: What is the last good book or article you read?**

**A:** I have not had a lot of time to read many books. Probably the last good one I read was "The Chinese in America," which was given to me by my father. The book interested me because it gave me insight into my ancestry and what my parents went through when they immigrated to the United States.

**Q: What is the best movie in your collection?**

**A:** I enjoy action and comedy movies, especially when there is an interesting twist to it. Some of my favorites include "The Matrix," "Back to the Future," "Star Wars" and "Crimson Tide."

**Q: What is the coolest part of your job?**

**A:** As an engineer, I am always fascinated to see ideas turn into reality. From small finger parts to large structural elements, each one provides a unique challenge. In addition, I have had the pleasure to work with talented, skilled people who are passionate about their work. They are dedicated to succeed and get the job done. The work at JSC is truly inspiring and innovative. It is motivating to think that perhaps one day, the work that I do can influence how we look and eventually venture out into the universe. Now that is cool.

**Q: What does JSC mean to you?**

**A:** JSC, along with NASA, represents a look into the past, insight to the present and a means to the future. Other than my own personal growth, JSC offers an opportunity to have a profound influence on how we live our lives and how we perceive ourselves.

**Q: What is your favorite quote?**

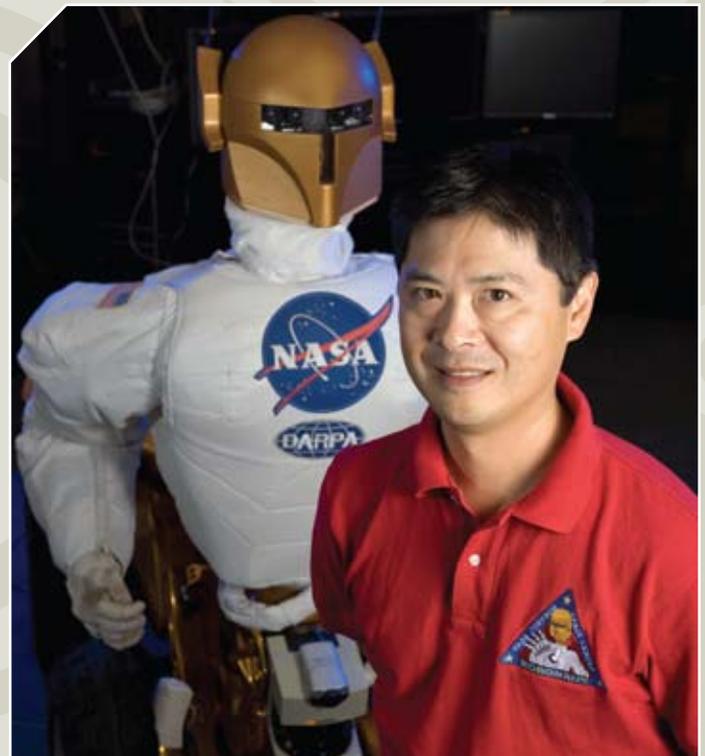
**A:** There are three quotes that I like:

- 1) "Honesty is the best policy ..." by Mark Twain;
- 2) "Your future hasn't been written yet ... It is whatever you make it,

so make it a good one," by Doc Brown from "Back to the Future;" and 3) "I have not failed. I've just found 10,000 ways that don't work," by Thomas Edison.

**Q: Who are your heroes?**

**A:** My heroes are those who are put into extraordinary situations and overcome adversity to reach their goals. They can be anyone from our exceptional military personnel to the police and firemen to those who come into this country with little more than a dream to make an honest, better life. I considered my parents in that category, especially my father. He immigrated to the United States with little more than an English dictionary and a can of hash. He worked diligently to support himself as well as his family back home. He eventually scaled the ladder of success to provide a life for us all.



NASA/BLAIR | jsc2008e097168

### WANTED!

Do you know a fellow JSC team member who 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 may deserve the spotlight!

The Roundup shines the light on one person each month who is chosen from a cross section of the JSC workforce. To suggest a "Spotlight" candidate, send your nomination to the JSC Roundup Office mailbox at [jsc-roundup@mail.nasa.gov](mailto:jsc-roundup@mail.nasa.gov) with the person's name, title and a brief description of why he/she should be considered.

# A better view

**The** Orion crew exploration vehicle is getting the equivalent to Lasik eye surgery. As NASA's latest exploration vehicle is being built, upgrading its windows to get a better view of space is on the list of priorities.

The Image Science and Analysis Group at Johnson Space Center recently tested several window materials to find the most lightweight, durable and transparent material for Orion's windows. Considering such options as diamond and

sapphire, the group decided also to test materials with a little less "bling," such as fused silica, aluminosilicate and polycarbonate.

"We want to make sure the windows are good quality so we can take good photographs," said David Bretz, a 12-year veteran of the Image Science and Analysis Group. "As shuttle winds down and Constellation ramps up, this is important for us to get involved in."

Sure, the windows in shuttle and the International Space Station are clear enough for

the human eye to observe the cosmos. However, according to former astronaut Mario Runco, it just wasn't good enough for still photography and video.

"The windows were not adequate to the task we had assigned them. Some of the images we got back were distorted, blurred, (meaning we were) not able to assess some of the engineering ramifications," said Runco, lead for Spacecraft Window Optics and Utilization.

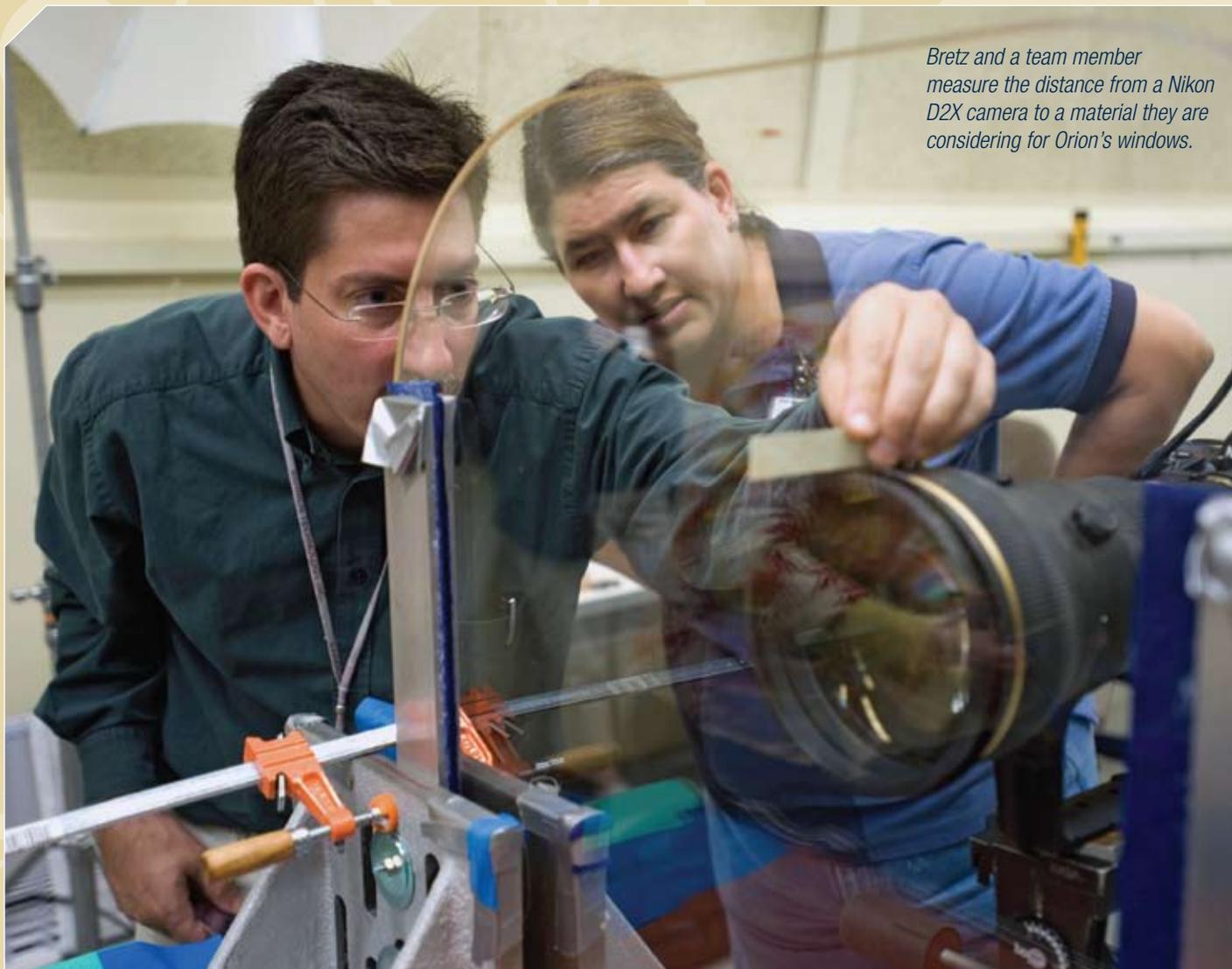
Needing to not only capture

the space around them, astronauts also need clear windows to assess any damage on their vehicle. Runco said it doesn't matter if NASA ships an expensive camera into space if the windows are opaque.

"If the window is not up to the same optical quality as the camera, it's like buying a \$10,000 camera and putting a piece of plastic in front of the lens, making it a \$20 instamatic," Runco said.

During the August testing of Orion's windows, the group set

*Bretz and a team member measure the distance from a Nikon D2X camera to a material they are considering for Orion's windows.*



# JSC aims to take clearer pictures through Orion's windows

By Heather Nicholson



NASA/MARKOWITZ jsc2008e057005

*The Image Science and Analysis Group is testing different types of materials to see which would offer the clearest view from inside Orion.*

up a Nikon D2X camera with a 180 mm lens in front of a resolution chart. Acting much like an eye chart for a digital camera, the resolution chart was placed six-and-a-half feet from the camera, and then different window materials were placed in front of the lens to see which offered the clearest view.

"We are starting to realize at JSC how important imagery is to providing information and understanding events," Bretz said.

So far, Bretz and his team have only tested ordinary, "off-the-shelf" polycarbonate, which had no strict optical specifications, along with three scrapped shuttle windows made of aluminosilicate and fused silica, which also had no strict specifications.

"The unfigured polycarbonate samples performed very poorly compared to the shuttle samples, and that is something we expected. We are awaiting samples of both fused silica and polycarbonate that will be shaped or polished so they have much flatter surfaces and meet some of the optical specifications needed to allow good photography. We will test those samples in a similar test in the near future," Bretz said.

## Did you know?

*Not all weather is picturesque, as evidenced by our recent tribulations with a certain hurricane. Sometimes we can get beautiful space weather from our own sun. Solar winds follow magnetic lines of force. Some of the charged particles flow right down into the Earth's atmosphere, near the poles. When these charged particles hit the Earth's atmosphere, they glow in gorgeous shades of green and red. We call these glowing colors the Northern Lights and Southern Lights, or the Aurora Borealis and Aurora Australis. They are curtains of light that move and sway in the night sky. Usually, you can see them only if you live somewhat close to the North Pole or South Pole, far from the equator.*

# Talkin' Trash **Energy Awareness Month**

## Got paper?

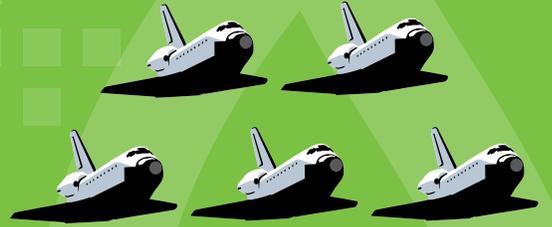
*Recycling paper at Johnson Space Center is something that most employees are used to. However, what constitutes recyclable paper remains unclear to some.*

### What can be recycled:

printer paper, any colored paper, brochures/pamphlets, JSC Roundup, envelopes (including plastic windowed envelopes), Post-it notes, memo pads/notebooks, junk mail, magazines, folders (including manila folders that may contain plastic or metal strips), manuals with glue bindings, receipts and paperback books.

### What cannot be recycled:

newspapers, phone books, hardback books, photographs, tissue paper and paper ream wrappers.



In 2007, JSC recycled 767,660 pounds of mixed paper. Those efforts saved 6,525 trees, 767 barrels of oil, 2.7 million gallons of water, and 1,150 cubic yards of landfill space. That is equal to the weight of 70 African elephants or five space shuttles.

## Solar Recharge Station for Mars Surface Simulator

Recently, the Environmental Office collaborated with the Advanced Extravehicular Activity (EVA) Group to bring a more environmentally friendly power source to JSC's EVA Remote Field Demonstration Test Site. The solar recharge station will be used to recharge electric tools and equipment during onsite field tests.

The solar station provides a quieter and more representative power source for spacesuit tests than the gasoline generator used previously. While emissions from small gasoline engines are not currently regulated, all fossil fuel-powered machines have been under examination due to Houston's persistent air pollution problem.



The Environmental Office is studying other uses of gasoline and diesel engine generators at JSC to see if there are other candidates for switching to more environmentally sustainable technologies. With all the advanced technology work going on at JSC, the solar recharge station is one good example of how state-of-the-art technology can be applied to improve life on Earth, as well as explore space.



### The solar recharge station consists of:

- A 120-watt solar photovoltaic panel
- Gel-cell lead-acid battery
- Charge controller
- Inverter
- 12 Vdc and 110 Vac power outlets
- A mobile frame

## 'LEEDing' the way



MASA/Hammett jsc21006-103721

JSC is also involved in using the Leadership in Energy and Environmental Design (LEED) rating system when remodeling existing buildings or creating new office spaces. LEED standards ensure that buildings follow strict environmental codes, crediting builders for green designs, construction materials and methods. These combined efforts will make JSC not only more pleasing to the eye, but friendly to our natural surroundings, as well.

# Hometown Heroes

## NASA Wraps Up **Hometown Heroes** Campaign, Visits Seven Cities

By Heather Nicholson & Sean Wilson

With the roar of thousands of baseball fans cheering them on, five NASA astronauts threw out the ceremonial first pitch at Major League Baseball games this summer. These astronauts traveled back to their home regions to promote NASA's celebration of the International Space Station's 10th year in orbit. The tour not only combined NASA with America's favorite pastime, it also promoted human spaceflight to the local media and various community outlets.



**NASA astronaut Clay Anderson poses for a photo with fans before the Kansas City Royals game on May 15.**

The first stop on the tour was the Kansas City Royals. Expedition 15 Flight Engineer Clay Anderson threw out the first pitch after spending his morning sharing the story of his five-month stay on the station. He spoke to thousands of students from the area and conducted live interviews on TV, including Fox Sports Net (FSN).

Anderson also visited Seattle, where he presented the Mariners CEO Howard Lincoln with a picture of Seattle taken from space.

"From the kids receiving autographs all the way up to the CEO receiving the photo of Safeco Field from space, everyone in attendance enjoyed having Clay out to the game," said Mariners Marketing Coordinator Mandy Sundblad.

Terry Virts, station CAPCOM from Expeditions 8-15, had the pleasure of throwing out his pitch at Oriole Park at Camden Yards in his hometown of Baltimore. During his trip, Virts was interviewed by a former World Series MVP on TV and spoke to about 40 children at the Maryland Science Center.

"I thought the whole program that we did was perfect," said Virts. "Hometown visits are the best kinds of NASA public relations, I think."

Recently named Director of Kennedy Space Center Bob Cabana's visit to Minneapolis was the fourth stop on the tour. Cabana spent the top of the third inning chatting live on-air with the FSN broadcast team and signed autographs for fans the rest of the game.

Cabana also visited the Minneapolis Central Library, where he gave two presentations about the space program.

Dan Tani, Expedition 16 flight engineer, spent a full day in Chicago with media interviews and a museum presentation in the morning and a Cub's game in the evening. In addition to throwing out the first pitch, Tani took part in a baseball tradition by singing "Take Me Out to the Ballgame" during the seventh-inning stretch.

Flight engineer for Expeditions 16 and 17, Garrett Reisman closed out the campaign with the last two trips: the New York Yankees and the Los Angeles Dodgers. Reisman's three-day tour in New York included media interviews, a museum presentation and throwing out the first pitch on the field of Yankee stadium – a lifelong dream for this New Jersey native. In Los Angeles, Reisman

presented a photo of Dodger Stadium from space to Tommy Lasorda and the Dodgers, who celebrate their 50th birthday along with NASA this year.



**NASA astronaut Terry Virts throws out the ceremonial first pitch at Oriole Park at Camden Yards on July 2.**

### Hometowns NASA Hit

- Kansas City
- Baltimore
- Seattle
- Minneapolis
- Chicago
- New York
- Los Angeles



*I thought it was really cool to meet an astronaut. I was really excited to get to meet someone who's been in space. It was cool to hear everything he had to say about what he saw in space, how he had to sleep and other stuff. I had lots of fun.*

*- Megan Hansen,  
A fifth-grade student at  
Manor Hill Elementary School  
in Liberty, Mo.*

# Celebrating the First **50** Years

**NASA** has accomplished a lot in the last 50 years, from the Saturn V rocket, to landing on the moon, to the Space Shuttle, International Space Station and Constellation Programs. Members of the Johnson Space Center community share their NASA memories and pictures from the past 50 years, whether they were working on the Apollo missions or watching Neil Armstrong on TV.

The next 50 years holds a lot of promise and excitement, as well. Since NASA announced its plans to retire the shuttle and develop Orion to take mankind deeper into the cosmos, individuals within the JSC community also share their thoughts about the space agency's future. Here are a few of the comments:



NASA PHOTO 8811-40-5878



NASA PHOTO 8817-147-22526



"When I talk to children today, I tell them that I see future computer systems that have 3-D holographic projectors instead of screens, voice communications systems instead of keyboards and mouse connections and artificial intelligence components (to recall, remember and invoke repeated patterns, data and thought processes). I see space vehicles that are as far advanced from us as we are from the Redstone. And finally, spaceflight as common and routine as taking a trip to New York or San Francisco. These will become as much a part of their daily lives as the electronic marvels they enjoy today."

-- Jack Baston, *Internet Applications Developer, USA JSC-Site IT Services*



"For me, the STS-124 launch was one of those memorable moments of motherhood. As the daughter of two JSC engineers, Sarah is obviously aware of the space program, but at 3-and-a-half years old, she has no understanding of NASA's global context. She was simply living in the moment and experiencing the immediate magic of a launch. Her reaction captures the true essence of it all, I think."

-- Beth Moses, *Manager of Vehicle Interface Element, Constellation EVA Systems Project Office*



"I've been at JSC for most of the first 50 years (since 1962). The next 50 will be much like the last 35 years (the years since the Apollo landings). We will have amazing accomplishments and undoubtedly some 'bad days,' and will have to work hard for continuing support from the public and the political world. This will be helped by retaining an important part of our work for in-house accomplishment, sharpening and improving our own staff's skills and by each person assuming responsibility as a spokesman to the public and an ambassador to the world of education. For those who will live this next period, it will be rewarding—as has my time."

-- Norman Chaffee, *Education Outreach Volunteer and president of NASA Alumni League JSC Chapter*



NASA PHOTO 18S013E48788



NASA PHOTO 965-30427

Sarah Camryn Moses, 3, watches the launch of STS-124 in Cape Canaveral, Fla.



NASA PHOTO/Beth Moses 18C20086118227



"I was 18 years old, and my classmates and I were newly graduated from high school and working as junior co-ops in the Mission Planning and Analysis Division in Building 30. All we could think of was the separation of the Lunar Module and its planned landing on the moon. We were told that we could stay at home (up to an hour late) and watch the 7 a.m. launch or come in to work early and go into Mission Control Center to watch it. We, the newly graduated high school students, thought everyone else would take the opportunity to stay home so we all got out early so that we could sit in the Mission Control Center and watch the controllers talk to the crew and see the launch preparing for the first man to step foot on the moon. Were we surprised when the viewing room started filling up. It was a magnificent experience to be there with the people that we were applauding for helping to make this happen."

-- Rhonda Alcorn, Staff Engineer, Avionics and Software



NASA PHOTO | jsc2008e118228

President George W. Bush and first lady Laura Bush exit Building 12 in February 2003 for the Columbia Memorial. Submitted by Sharyn Lee Willis, Contract Specialist/BT, JSC/NASA



"Apollo—I can only stand back in sheer awe! Just 40 to 50 years ago—was it not just a wonder—a miracle in itself. Absolutely amazing to think of what our fathers overcame. Over the past several years, our quickened pace of work life has sincerely (given me) a renewed appreciation. What a monumental achievement Mercury, Gemini and Apollo really were. Truly 'a giant leap for mankind!'"

-- Joseph Cook, Subsystem Manager for Crew Module Propulsion



"I envision NASA setting up a station on the moon to serve as an intermediary to use before landing (mankind) on Mars. And after Mars, could we land (people) on more distant planets in our solar system? Why not? Perhaps we could make another station on Mars for that purpose, and harness new propulsion methods using nuclear energy or ion engines. NASA has already demonstrated an ability to push the technological envelope farther than believed by many people by landing (people) on the moon nearly 40 years ago. Don't stop believing and working to keep pushing the technological and space exploration envelope farther and farther over the next 50 years of NASA's existence."

-- David C. Goodman, Engineering Business Analyst, Management Integration Group



NASA PHOTO | jsc2008e118229

A photo we will never see again is of a Longhorn in Rocket Park with the rocket in the background, taken in 1997. Submitted by Sharyn Lee Willis, Contract Specialist/BT, JSC/NASA



"We are at the cusp of a brand new space era with the growth of activity across the International community and the emergence of the 'new space' companies. The next 50 years will find JSC leveraging this capability and leading an integrated international and commercial team in the exploration of the moon, Mars and beyond."

-- Steven Gonzalez, Deputy of the Advanced Planning Office



# Star of Constellation

**Duane Chin** aims to keep **moon-bound** astronauts healthy

NASA's Constellation Program isn't just about building the next generation spacecraft, but launching explorers that will help us learn more about our world. Discover the faces behind the hardware that will send humans to the moon and beyond with each Star of Constellation profile.

**A** biomedical engineer for Wyle, Chin works as a Crew Health Integrations specialist at Johnson Space Center. Chin supports the flight surgeons during shuttle missions and is working with NASA's Constellation Program, which is developing America's next spacecraft. This fleet includes the Ares I and Ares V rockets, the Orion crew exploration vehicle and the Altair lunar lander.

Chin was born in Kingston, Jamaica, but when he was 5 years old, his family moved to Miami. The self-proclaimed "Star Wars" nut spent his childhood going on family vacations and working as a bag boy at the local Winn-Dixie. While attending Miami Sunset Senior High School, he developed an interest in science, specifically in marine biology, and became involved in multiple biology clubs. His interest in science continued when he graduated from high school in 1992 and attended the University of Florida.

"There are numerous things you can do with a biomedical engineering degree," Chin said. "My specialization was biomechanics. I was involved more with mechanical systems."

Chin focused his interest on the field of biomedical engineering, prompting him to join the student chapter of the Biomedical Engineering Society. After graduation, Chin worked with several companies developing rehab assistive technology, when he heard about the opportunities with NASA.

"I just got more interested in the idea of becoming a flight controller," Chin said. "Sitting inside Mission Control, interacting with the crew and sending commands to hardware boxes really appealed to me."

Chin is now working on technology that will aid astronauts during extended stays aboard the space station or on the lunar surface. Chin is involved in the development of operational requirements for new exercise equipment that will ensure the astronauts' bones and muscles stay in good shape during long-duration spaceflight. Chin credits his education and interest in science and engineering as sparking the creativity and commitment he brings to his role at NASA.

Out of all the things the new Constellation Program is offering, Chin is most excited about landing on the moon.

"I think going back to the moon is something I'm definitely looking forward to. I really hope that my career extends long enough that I'm able to be here and be a part of that," Chin said.

For photos and video of Chin and more information on NASA's Constellation Program, visit:

<http://www.nasa.gov/constellation/stars>

*Duane Chin has gone from Jamaica to Florida to Houston during his life. Now his sights are set on the moon.*



NASA/MARKOWITZ | jsc2008e055021

# Center Scoop

## New Emergency Vehicle Takes Command

The primary use of the Mobile Command Vehicle is for situations in which the center is attempting to mitigate a prolonged incident, such as an environmental spill, fire or security incident. The large bus-like unit is able to provide a centralized incident command post for managing the incident and maintaining communications with various members of the Emergency Operations Center, senior staff and others supporting emergency



NASA/BLAIR jsc2008e096862



NASA/BLAIR jsc2008e096863

management events.

The vehicle will also be deployed as Incident Command to predesignated locations away from a storm

during Category 3, 4 and 5 hurricanes. The vehicle will be used by senior staff for staging public announcements, monitoring the storm and

recovery efforts at Johnson Space Center during the storms. Other uses for the vehicle include the Ballunar Liffott Festival, Public Affairs Office events and other center activities.



NASA/BLAIR jsc2008e096866

## Exhibit Helps Blind Learn About Space Travel

A hands-on demo for blind and vision-impaired individuals was exhibited at Space Center Houston in July. Johnson Space Center Learning Technologies and retired NASA

engineer Norm Chaffee provided support. The group of about 80 people includes members of the National Beep Baseball Association (NBBA) who were in town for the NBBA World Series.

They squeezed in a visit to JSC amid their busy tournament schedule.

Exhibits included Braille space books and tactile planetary graphic sheets, astronaut helmets and gloves, a model of the shuttle, small shuttle components, robotic hands and space food. JSC Learning Technologies also presented their accessible MathTrax and Earth+ software to the group and provided MathTrax CDs.

JSC Learning Technologies drew



NASA/STAFFORD jsc2008e094632

on their expertise with science, technology, engineering, and mathematics—or STEM—education adaptations for the vision-impaired, help and resources from JSC Equal

Opportunities, the Lunar and Planetary Institute, Exploration Systems, JSC Exhibits, the JSC Educator Resource Center, Chaffee and Space Center Houston to provide the hands-on activities.



NASA/STAFFORD jsc2008e094631

# Coats in the trenches

## JSC Director Mike

**Coats** and his staff toured Buildings 30 and 4N, where representatives from the Mission Operations Directorate (MOD) gave them an overview of the Mission Control Center. They also viewed Sim City, a training facility for grappling free-flying spacecraft, and Flight Controller Part Task Trainer/International Space Station Systems Integrated Simulation projects and facilities. Deputy Director Ellen Ochoa was even given the opportunity to demonstrate her skills in using the robotic hand controllers. Workers in these facilities are helping Johnson Space Center redefine the models for Mission Control data architecture and flight controller training for the International Space Station and Constellation Program.



Members of senior staff are briefed by representatives of the Mission Operations Directorate.

*Danielle Snyder shows Ellen Ochoa and Mike Coats how to use the robotic hand controllers in Mission Operations as Bobby Watkins looks on.*



## 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 2200 Space Park Drive, Rm. 220. The mail code is AP22. 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](mailto:jsc-roundup@mail.nasa.gov).

**Catherine E. Ragin** Editor  
**Heather L. Nicholson** Assistant Editor  
**Logan Goodson** Graphic Designer  
**Laura A. Rochon** NASA Publication Manager  
**Cassandra V. Miranda** Contractor Publication Manager

**PRSR STD**  
**U.S. POSTAGE**  
**PAID**  
**WEBSTER, TX**  
Permit No. 39