In control: Combined MCC team successful in historic power-down event

By Julie Burt

While Hurricane Lili was gaining strength in the storm-nurturing waters of the Gulf of Mexico last month, a group of Johnson Space Center contractors and civil servants was hard at work with emergency preparedness.

Numerous teams worked in tandem to perform two major tasks: To transfer control of the U.S. segment of the International Space Station to a waiting NASA team stationed in Russia and to entirely power down the Mission Control Center (MCC). This was the first time such a transfer of control had occurred.

Powering down MCC is a daunting task in itself because of the many intricate details involved. However, last month's process was even more challenging considering the team had a potential Category 4 hurricane looming and three ISS crewmembers depending on the teams' combined efforts to successfully shut down vital systems safely.

The historical event began to unfold on Tuesday, Oct. 1. At 5 p.m. JSC management declared a Level 3 Preparedness status (*see timeline*). The threat of a hurricane was serious enough that decisions were made to postpone STS-112 flight activities, power down shuttle flight system equipment and transfer control to the Backup Control Center. The Backup Control Center is located in the Houston Support Room outside the Mission Control Center-Moscow in Russia.

When Mission Operations Director Jon Harpold informed MCC Facility Manager Sheri Gray of those decisions, the ball was already rolling. Team members on both the Consolidated Space Operations Contract (CSOC) and the Shuttle Flight Operations Contract (SFOC) were already preparing for the process.

"The contractor team did a great job in anticipating the situation and were ready when the decision to power down the MCC was made," said Milt Heflin, Chief of the Flight Director Office. "Bottom line: They were prepared."

NASA JSC 2002e39950 Photo by James Blair

This is the Mission Control Center after it was powered down and covered in preparation for Hurricane Lili.

The team members involved in the process spent numerous hours making the process a success. For example, Cimarron's Mike Thomasson, the MCC/Integrated Planning System Maintenance and Operations Department Power Outage Coordinator, worked a full day and had been home for just two hours when he was asked to volunteer. He then spent the next 19 hours helping with the effort.

With the addition of the volunteers like Thomasson, there were at least three times as many people in the facility for this procedure than would have normally been there, said CSOC's Steve Dry, who is responsible for the MCC's Integrated Planning System.

The equipment was shut down in order of priority – from the non-shuttle and non-ISS systems to the final handover of control of the U.S. segment to the Backup Control Center. Once that happened, the NASA team in Moscow had to step right in and take over.

"Talk about unsung heroes – the Houston Support Group picked right up without missing a beat. They too were prepared, and not by accident. We periodically test their capability to provide backup command and control," Heflin said. "Some folks think we handed over control of the station to the Russians. That's not true. We handed over control of the U.S. segment to our American colleagues in Moscow."

Back here in Houston, the process was an orchestrated effort as well. For example, one team worked diligently to shut down the software and then another next team would physically power down the machines, wait for them to cool off and cover them with plastic to protect them from any water that might get into the buildings.

"In order for us to be successful in bringing the MCC back up in the shortest amount of time, it needed to be powered down in a very deliberate manner," Heflin said.

Once it was determined that Hurricane Lili was going to strike the Louisiana coast, a decision was made to return the MCC back to regular operations. The equipment was powered up and Houston regained command of the U.S. segment at 7 p.m. on Thursday, Oct. 3.

With all that transpired during that process, shuttle systems were still up and running in time for shuttle check-out tests the next day. Just three days later, Space Shuttle *Atlantis* lifted off to a successful mission.

Through it all, CSOC's Gray was the glue that held the combined teams together, said United Space Alliance's Larry Bourgeois. This was the first time that all of the elements involved in the support of human spaceflight missions had to be powered down at the same time. He said it took a person with outstanding knowledge and understanding of the detailed MCC workings to integrate the power-down plans. Gray was that person. In fact, her leadership during the process earned her a special honor: Gray was selected to hang the STS-112 plaque in the MCC to recognize the combined partnership of all the teams.

"Sheri Gray led the ground team in an unprecedented effort and really exemplifies the commitment of our teams. These folks do an outstanding job, and often don't get the recognition they deserve," said Phil Engelauf, STS-112 Lead Space Shuttle Flight Director. "It's really great to have an opportunity to acknowledge their work by having them hang the plaque." ❖

MCC power-down timeline

Sept. 23
A developing tropical storm was moving quickly, fluctuating in intensity from nearly a hurricane to a weak depression, as it crossed the central Caribbean Sea.

Oct. 1

5 p.m.
NASA notified the Consolidated Space Operations Contract, or CSOC, to start the powering down of the Mission Control Center in Houston.

5:30 p.m.
STS-112 equipment was released to the CSOC team.

7 p.m.
Hurricane Lili was about 560 miles southeast of New Orleans with winds at 105 mph. The storm was moving northwest at 15 mph.

Oct. 2

4:20 a.m.
The International Space Station Flight Control Team transitioned control to the Backup Control Center in Moscow.

10 a.m.
Lili became a major hurricane, located 365 miles south-southeast of New Orleans. Winds were near 120 mph. The storm was moving northwest at 15 mph.

2 p.m.
At Mission Control Houston, the powering down of equipment was completed and most equipment was covered.

4 p.m.
Lili had maximum sustained winds near 140 mph. The storm was then a Category 4 on the Saffir-Simpson Hurricane Scale.

10 p.m.
JSC cancelled Hurricane Readiness activities. Lili was southeast of Louisiana, with winds at 145 mph.

Oct. 3

4 a.m.
The MCC teams began uncovering equipment.

10 a.m.
Lili made landfall in Louisiana as a Category 2 hurricane.

7 p.m.
Control of the U.S. segment returned to Mission Control Houston.

Oct. 7

2:46 p.m.
Space Shuttle *Atlantis* successfully launched from the Kennedy Space Center and the mission was fully controlled by Mission Control Houston.

Joel Montalbano is a NASA Flight Director on a temporary assignment in Russia with the Moscow Technical Liaison Office. Here, Montalbano shares his thoughts and experiences on the following:

The process of receiving control from Houston...
This went very smoothly. Operations Lead Adam Baker is the Houston Support Group (HSG) expert on Backup Command and Control (BCC) and Mr. Baker was in Moscow for his regular rotation. His experience and the experience of the other HSG leads, Sean Fuller and James Lyons, allowed this transition to occur very smoothly.

What it felt like to be in Russia, helping out the Houston MCC Team...
The Houston team was anything but lifeless. They were with us on the telephone the whole way. The HSG is really just an extension of the Houston Flight Control Team. Together we were able to operate in BCC function.

How NASA works with the Russians in International Space Station flight control operations...
The Houston Flight Control Team is the Lead Flight Control Center for ISS Operations. We handed over the responsibility for Lead Control Center to Moscow with the understanding that the HSG would be responsible for the U.S. segment. The HSG is located in the same building at the Moscow Mission Control Center and has full commanding capability to the U.S. segment. The main difference is that the U.S. segment commands, which are sent by HSG flight controllers, are uplinked via Russian ground systems/network and onboard systems.

The NASA teamwork in Moscow...
The team in Moscow did great. The leadership shown by the shift leads – Adam Baker, Sean Fuller and James Lyons – proved this concept can work. Additionally, the support by the remaining team members was invaluable.

NASA JSC 2002e45249 Photo by Joel Montalbano

Pictured here are just three of the members of the Houston Support Group (HSG) in Moscow, Russia. From left to right is Phillippia Simmons, Lisa Whalen and Kevin Metrocavage. The HSG team spends most of their console time monitoring telemetry and talking to the International Space Station U.S. crew. Even when the Houston Mission Control Center is fully functional, the HSG still receives telemetry almost full time.

Flying high: Aircraft Operations wins division award

By Kendra Ceule

Every day JSC's Aircraft Operations Division goes above and beyond expectations, and that effort was recently recognized by the General Services Administration. GSA awarded AOD its prestigious Federal Aviation Award in September.

"The award recognizes best practices, and an efficient and effective use of the federal government's fleet," said GSA's Mike Miles. Miles said that AOD "just rose to the top" of the competition.

AOD earned the award with its efficiency, proactive thinking and impressive safety record – the division has not had a major safety mishap in 20 years.

The award, now in its second year, is judged by a team of aviation leaders. The judges represent such organizations as the Aircraft Owners and Pilots Association and the National Business Aviation Association, as well as management, budget and safety groups.

"It was a team award," said Bob Naughton, AOD's Chief. Naughton, who himself was given a prestigious honorable mention for his work as the Division Chief, said that the award "reflects the dedication and professionalism of very special people on the AOD team."

Working as one team

Naughton has been with AOD for 13 years, having started as a Deputy before becoming its Chief. He not only manages AOD's workforce of nearly 400, but has also been the Chairman of the NASA Intercenter Aircraft Advisory Panel for the past five years. This panel manages NASA's aircraft programs and operations. During his tenure, Naughton has guided the Agency through a NASA-wide aircraft operations realignment.

"I'm very grateful that I have Bob running AOD," said Dr. Steven Hawley, Director of Flight Crew Operations. AOD is a part of the Flight Crew Operations Directorate.

Naughton said he wanted to create a positive, proactive and safe work environment at AOD. "It's been my goal to make AOD a great place for good people to work," he said. "Everyone has a can-do spirit, and I'm kinda proud of that."

Teamwork is also an important part of Naughton's AOD. "Bob fosters an environment where civil servants and contractors are part of one team," said Hawley. "He spreads the idea that no matter what goal you're working toward, you can only accomplish it if you work as a team."

For example, Naughton made sure that AOD's contract companies were recognized and included in the division's award.

NASA JSC 2002e Photo by James Blair

Bob Naughton, Chief of the Aircraft Operations Division, accepts the Federal Aviation Award at General Services Administration Headquarters in Washington, D.C.

Getting the job done

"We have some super contractors," said Naughton. He cited the excellent way that the Shuttle Training Aircraft (STA) can replicate a certain shuttle in specific weather conditions - it's work done by AOD contract employees.

Astronaut Dom Gorie said he was pleased with the preparation he was given by his STA training. "When I faced adverse weather conditions in my approach to the Cape," said Gorie, "I felt comfortable because the shuttle flew just like the STA. Boy, was I thankful."

Astronaut training, like that done with STAs, is AOD's primary mission, but not its only one. AOD is also responsible for supporting the Space Shuttle and Space Station Programs in many ways – such as ferrying the space shuttle aboard the Shuttle Carrier Aircraft, transporting spaceflight cargo in the "Super Guppy" and providing opportunities for reduced-gravity research in the KC-135.

"Every plane we fly is unique in some way," said Hawley. "There's a special kind of care involved in operating such unique aircraft."

For example, when there was a recent brake problem with the T-38Ns, the AOD team went beyond typical maintenance procedures. "Usually in a situation like that," said Hawley, "there's a tendency to discard the broken part, replace it and move on. Our guys don't work that way."

Instead, AOD employees looked deeper and found an inherent flaw in the plane's brake design, then devised a more permanent solution. The planes' ejector seats are also being adapted to better serve the astronaut corps, and the Air Force has since been convinced to modify its T-38Ns in the same way.

AOD's attention to detail and concern for safety put astronaut trainees at ease, said Hawley, who flew in five space shuttle missions before accepting his current post.

"It gives you a good feeling as a crewmember to know that those planes are better maintained than any other planes in the world," he said.

Naughton said he is proud of his team's safety record, but also of the work that it gets done every day. "There's a healthy balance between being safe and getting the mission done," he said.

AOD benefits from having pilots serve as its safety experts, so that they more fully understand the situations at hand and can work toward solutions. "Flying is inherently dangerous," Naughton said, "but we mitigate as much risk as possible with experience." ❖

Presidential Management Intern Program has history of excellence

By Kendra Ceule

It's been around for 25 years, but you may not have heard of it. Someone in your office may be a part of it. Even NASA Administrator Sean O'Keefe did it.

What is it?

It's the Presidential Management Intern (PMI) Program.

"The PMI program is a well-kept secret," said Kendra Perkins, former Johnson Space Center PMI. Perkins has recently completed her two-year PMI internship and now works in the External Relations Office within the Office of Public Affairs.

One reason that the program is not well known is that there are relatively few interns selected – applicants from all over the country vie for just a few hundred internships each year. Perkins, along with Anne Roemer of JSC's Education Branch, is part of the PMI class of 2000. The other members of their class are now dispersed all over the country, working in government agencies.

NASA JSC 2002e41928
Photo by Robert Markowitz

Anne Roemer works in JSC's Education Branch.

PMI is geared toward master- or doctorate-level graduates interested in a career with the federal government. The program was established in 1977 with a Presidential Executive Order to attract such individuals, from various academic areas, into careers in public policy.

Perkins applied for the program in the final year of her Master of Public Policy Program at Harvard University's John F. Kennedy School of Government. Roemer came to PMI by way of the University of Denver's Graduate School of International Studies, where she earned her master's in International Administration.

After going through a rigorous application process – first at their graduate schools, then with the PMI program – the PMIs are selected and placed with a federal agency of their choice.

Then, following an orientation period, the new interns begin their two years of federal service – during which they rotate at least once to a different center within their agency, or to a different role within one center. After two years, interns may have the chance to start a career with their agency.

Roemer's and Perkins' internships ended in August, and they now have careers at JSC. Perkins began in the ISS Resources Management Office. She then worked in the Space and Life Sciences Resources Management Office, and is finishing up her internship at her current post in PAO. Perkins said she has enjoyed rotating around the Center.

"The flexibility that the PMI program provides," she said, "is a tremendous benefit because it allowed me to see and experience JSC from many different perspectives."

Roemer began her internship in the JSC Education and Student Programs Office. She then spent four months at NASA Headquarters and is now back at JSC in Education.

"It's given me exposure to areas that otherwise I wouldn't have seen," she said of her PMI experience, "and it was a great opportunity to spend time at Headquarters so early in my career."

In addition to their regular work, the two were also required to complete at least 80 hours of training during each year of their internship – a requirement that Perkins and Roemer didn't mind.

NASA JSC 2002e41928
Photo by Robert Markowitz

Kendra Perkins works in the External Relations Office within Public Affairs.

"Everyone has the opportunity to take that training, but PMI requires it," said Roemer, who said she benefited from classes in leadership and project management, among others. Perkins said the training is "perhaps the best thing about the PMI program" and that it complemented her career development well.

Another benefit of the PMI program lies in the contacts made. Perkins has worked to establish a nationwide network of PMIs through a PMI career development group, and both interns have benefited from the experience of former PMIs who now work at JSC.

One former PMI now leads NASA – Administrator O'Keefe was in the very first PMI class. There's no telling how high the program will carry today's interns. For now, Perkins and Roemer are focusing on the near future. They are getting the most out of their time at JSC, and looking forward to attending their PMI graduation in December in Washington, D.C. ❖

Profiles

Cinda Chullen

TIME AT JSC: 17 years
ORGANIZATION: Engineering Directorate
POSITION TITLE: Technical Manager: Science, Engineering, Analysis and Test contract
EDUCATION: Bachelor's of Science, Thermal and Environmental Engineering, Southern Illinois University;
MBA, University of Houston – Clear Lake;
Master's of Science, Environmental Science, UHCL;
Certified Emergency Medical Technician, San Jacinto College
PLACE OF BIRTH: McDowell, Ky.
HOBBIES: Spending time with my husband and two children, teaching my "exercise class" at Gilruth, coordinating family education classes at church, Creative Memories scrapbooking with my daughter and friends, and reading.

WHAT DOES NATIVE AMERICAN HERITAGE MONTH MEAN TO YOU?
To me it means to be strong! Being strong is what Native Americans had to do in light of their adversity. As well, "Be strong" is used as a farewell when departing in Native American culture. I am also reminded to hand down my great-grandmother's Cherokee Indian heritage to my children, just as my parents handed it down to me. I believe being strong is what has kept the Cherokee Nation a noble nation of extraordinary vitality.

FAVORITE WORDS OF WISDOM:
My mother always said, "Get an education! It is the one thing that no one will ever be able to take away from you." She is now 81 and is the only one of 12 siblings to earn a college degree.

Mary McLain

TIME AT JSC: 22 years
ORGANIZATION: ISD, Information and Imaging Sciences Division
POSITION TITLE: Technical Information Specialist/AFGEs Union President
EDUCATION: High school; life
PLACE OF BIRTH: Washington, D.C.
HOBBIES: Flower gardening, crafts, traveling by auto, helping all animals, playing the slots.

WHAT DOES NATIVE AMERICAN HERITAGE MONTH MEAN TO YOU?
It reaffirms that America recognizes the importance of and need for diversity, as well as the benefits enjoyed from being receptive to all cultural contributions.

FAVORITE WORDS OF WISDOM:
Positive contributions are equally important as status.

J.C. Elliott

TIME AT JSC: 37 years
ORGANIZATION: Space Shuttle Program Office
POSITION TITLE: Aerospace Technologist
EDUCATION: Physics
PLACE OF BIRTH: Oklahoma
HOBBIES: Music

WHAT DOES NATIVE AMERICAN HERITAGE MONTH MEAN TO YOU?
It's an observance that the American Indian has contributed much to the richness and greatness of this country, and continues to do so, and that we are survivors – we are still here!

FAVORITE WORDS OF WISDOM:
It's always best to be flexible. That way, you can never get bent out of shape.

John Herrington

Did you know?

Endeavour will carry STS-113 Mission Specialist John Herrington. He is the first Native American with an active tribal affiliation to fly in space.

Herrington was born in Oklahoma and grew up in Colorado, Wyoming and Texas – always surrounded by airplanes, since his father was a pilot. He said he dreamed of flying in space as a child but "never thought it was something I could actually achieve."

After earning his bachelor's and master's degrees, Herrington became a test pilot for the Navy and was selected as an astronaut in 1996. He said he hopes that his success can inspire others to pursue what they want in life.

"If my heritage as a Chickasaw Indian and the fact of what I do here will help motivate somebody who might not otherwise think they could achieve their dreams," he said, "that's a good thing. It's an honor to be in that position."

NATIVE AMERICAN MONTH

SPACE CENTER 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 in Bldg. 2, Rm.166A. The mail code is AP121. Visit our Web site at: www.jsc.nasa.gov/roundup/weekly/
For distribution questions or to suggest a story idea, please call (281) 244-6397 or send an e-mail to roundup@ems.jsc.nasa.gov.

Editor . . . . . Kendra Ceule
Senior Editor . . . . . Melissa Davis

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