SPACE CENTER
Roundup
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Hurricanes 101

Turn to Pages 4-5 and learn how to protect your family and property

NASA JSC STS51I-44-0052

It's hurricane season from now until the end of November. Pictured here is Hurricane Elena. With wind speeds in excess of 110 miles per hour, the hurricane was photographed in the Gulf of Mexico on September 1, 1985. Almost the entire storm can be seen in this photograph. For instance, a number of thunderstorms with their overshooting tops, the spiral bands of numerous thunderstorms leading to the eye of the hurricane and numerous cloud gravity waves within the spiral bands can be seen. Some portions of the eye wall, where the most destructive winds of the storm occur, are also visible. This storm eventually made landfall near Gulfport, Miss. This image, and many other fascinating views from space, can be found at http://earth.jsc.nasa.gov**.**

ISS: Learning for the future

Tommy Holloway, ISS Program Manager

The Apollo yesteryears are gone, and the "Yuri" generation of space enthusiasts (those born post 1961) seems a bit restless and dismayed. Yet, as people working on the International Space Station know, these are revolutionary times. We are learning so much. The challenges, accomplishments and sense of internal achievement is every bit as exciting as "the good ol' days."

There is a real story besides what's in the news. It's about men and women reaching for technical achievement, struggling through management challenges and learning from each other while working through these issues each day.

The future is now and it is exciting! We've flown 23 missions in the last 22 months – from the July 2000 Service Module launch to Soyuz 4 in April 2002. The Station is in control and flying marvelously in orbit. The success is unprecedented. While the ISS has its daily problems, each one of them is being resolved.

As the world gets a growing glimpse of the new object darting across the night skies, the ISS Station Team wakes up in Houston, Huntsville, Cape Canaveral, California, Moscow, Montreal, Paris, Noordwijk, Tskuba, Tokoyo, Baikonur, etc., ready to face another day filled with new opportunities and challenges.

On top of that, some new requirements usually are levied on their workday. Perhaps those requirements are due to the expected or unexpected technical, operational and safety issues that arise from a one-of-a-kind engineering and integration program operating 240 miles above the Earth. Or, they might be due to any number of international, management and, increasingly, business and financial issues that pour out of the ISS "job jars" on a regular basis.

I am often asked, "Why do we have a Space Station? In fact, why are we still spending billions of dollars on NASA and its programs?"

For me the answer is simple: It is because few other enterprises funded by the American taxpayer have delivered such extraordinary benefits, while enabling leadership among nations and peoples of the world.

We also have a quintessential urge to explore – to penetrate the unknown, to find out what's on the other side of the mountain. Our motives are as diverse as our backgrounds, but we are bound by this common desire.

No single purpose, person or nation created the architecture and partnership for the ISS. It represents an evolutionary step for the human spaceflight experience in four areas:

- Scientific potential enhancement
- Engineering integration
- Business and cultural management
- Operational philosophy

We've now set our sights to become as excellent in the management, business and finance of human spaceflight as we are in its technical and operational execution. We have a "no-kidding" credibility gap that needs to be restored concerning ISS budget and management. This restoration will be accomplished by achieving the U.S. Core Complete phase through the flight of Node 2 in February 2004 – on budget and on time. We will succeed in building multiple pathways for future human space exploration with each step we make "up the mountain."

The ISS program does the following for leadership in spaceflight:

We provide the spacecraft

We have an unprecedented operating international research lab – fully staffed – that is growing in science, exploration and engineering capabilities.

We provide people

Our people are the most important resource of all. They, by virtue of their involvement in building the ISS, have had to face, learn and move through issues each day on every end of the human spaceflight spectrum!

We have a strong tradition and core values

Our work is founded on the tears, sweat and soul of many who came before us, and many that will yet come. Our commitment to safety, technical excellence, integrity and trust, which goes hand-in-hand with respect for one another, is the engine and glue that gives us power, keeps us together and moves us forward.

We have developed a respect that emerges from diverse motivations but is united in common purpose. It's a respect that at times has been forced but mostly flows from a spirit of cooperation. The best attribute of our tough and fragile partnership is our ability to endure as we continue to learn. We recognize our diversity as our strength and our commitment to core values as the propulsive force. These ingredients are the basis of our learning organization and our ability to thrive in the future.

So what can we all do to support this?

- Maintain safety first and foremost.
- Continue to execute the program in the same outstanding manner.
- Maintain schedules! We are anchoring on the milestone of Node 2 in February 2004.
- Support the management and cost reduction initiatives with the same vigor and excellence that we have demonstrated in executing the technical aspects of the program.
- Recognize and support the evolution of the ISS Program to a high performance organization.

NASA offers a future for the explorers of the 21st Century. Our mission is a journey of hope, promise and discovery. I believe this spirit of exploration lives on in a new generation of Americans and youth worldwide. Their generation has enormous reservoirs of knowledge and power at their fingertips.

We owe them more opportunities to discover their talents, to expand and nourish their dreams, and to find their destiny. We can step up and deliver. We have the great privilege to play a part in discovering new worlds, as well as to experience the joy and fulfillment of helping make our own world a better place. That climb is well worthwhile! ❖

FROM THE DESK OF LT. GEN. JEFFERSON D. HOWELL, JR.

Two months and running!

I've been here two months now, and I'm still drinking from a fire hose! Every day I learn a lot more, and every day I realize how little I know about this wonderful place. However, one theme consistently comes through in every briefing or meeting I attend and every place I visit: Johnson Space Center is staffed at all levels with exceptionally talented and dedicated people. If we work as a team and everyone gives his or her very best, we will continue to experience the same success that this Center has enjoyed in the past.

Things ARE changing! Our Administrator is bringing in a new team at Headquarters and taking a new approach to our vision and mission. We are changing here, too. Our relationship with the major human spaceflight programs will be more as a partner and supporter than as their "boss." I am altering some portions of our Center organization to gear it better for our new role and for future activities.

Change in any organization can induce uneasiness and even fear in many of its members. This can lead to wild rumors and forecasts of all sorts of awful outcomes that are distracting and counterproductive. We can't let this happen at JSC!

Our mission is too important. The lives of our astronauts are too precious for us to allow ourselves to lose our focus on our duties. Keep in mind that we will continue to assemble the International Space Station, as well as conduct scientific research on it. The shuttle will continue to fly in support of it.

We are a vital part of both of these missions and will continue to be so for many years to come. We will also be a vital part of the future human space programs that follow. JSC will remain the "go to" center for these types of endeavors.

You are on a great team that will only get better in the days ahead. Keep the faith! Stay focused!

IT'S GREAT TO BE ALIVE AND IN HOUSTON!!!

Celebrate American Heritage Day!

All JSC civil servants and contractors are invited to celebrate American Heritage Day on June 26. Sponsored by the Equal Opportunity Programs Office, this year's event will honor the men and women of our military, law enforcement and fire departments.

An exhibit for these heroes will be displayed in the Teague Auditorium lobby June 24-26, with festivities taking place on June 26 from11 a.m. to 1 p.m. In addition to the exhibit, the event will include guest speakers and free food.

Come celebrate our shared American Heritage!

Overcoming limitations

By Kendra Ceule

The Habitability and Human Factors Office works to answer tough questions

How do you make a space station user-friendly? That's just one of the many questions tackled by the Habitability and Human Factors Office (HHFO), which is part of the Space and Life Sciences Directorate.

In their work, HHFO team members explore many topics, such as:

- Where should the foot restraints be in the International Space Station to ensure easy access to work stations?
- Will an astronaut's spacesuit still fit in microgravity?
- How can the shuttle's computer and warning systems be made more efficient?

Overcoming the limitations of humans in space is the overall goal of the team, which strives to improve the systems that help astronauts live and work in space. Doing this increases the astronauts' productivity.

HHFO team members support both the space shuttle and ISS programs. In many cases, they do not design items for use in space. Instead, they use research data and feedback from astronauts to improve existing items. For example, the team itself doesn't make spacesuits, but it does help engineers test and critique their design to maximize astronauts' range of motion and strength.

Numerous tools are used to answer many questions. Some of the most useful tools are the team's four research and testing facilities, which are profiled here. Read on to discover how the Habitability and Human Factors Office makes space a better place to live and work.

Usability Testing and Analysis Facility (UTAF)

Overview

The UTAF collects data on the usability of various systems, such as computer interfaces. Astronauts and other system testers use the materials in the facility's subject room while being observed and videotaped from the control room.

NASA JSC 2002e08132 Photo by James Blair

Mihriban Whitmore, Ph.D., Usability Testing and Analysis Facility Manager, assesses a computer display's user interface for a payload operation. Also shown from front to back are Dan Carr, Ph.D., Vicky Byrne and Rosie Ortiz, all of Johnson Engineering.

Projects

While many systems onboard the ISS are now computerized, they don't all work the same way because several different user interfaces are currently onboard. Astronauts have often said that the differences between the computer systems make them harder to use, so the UTAF collects data on the usability of various systems in order to correct the situation.

The UTAF is also conducting a three-year study on multipurpose crew restraints for the ISS. Hand and foot restraints are more complicated than they might appear. For instance, to use the same workstation, astronauts may need restraints in different places to accommodate their different sizes, or astronauts may be working on the floor one minute and on the ceiling the next, requiring several different restraints. UTAF's goal is to design a multipurpose restraint that could be easily moved to accommodate different people or projects, while still providing sturdy support to the astronauts.

NASA JSC 2002e08134 Photo by James Blair

Johnson Engineering's Maitri Dhutia performs a rack push force test in the Anthropometry and Biomechanics Facility. Also shown is Johnson Engineering's Javier Gonzalez, Ph.D.

One UTAF project that is still in the early stages is nicknamed "Magic Windows." This technology would display Earth scenery, photographs or even television footage onto flat-panel displays, giving astronauts an artificial change of scenery. While the natural scenery from space is breathtaking enough, astronauts on particularly long missions may benefit psychologically from a visual change. Magic Windows may even allow astronauts to interact with their families on Earth in a videoconference.

Anthropometry and Biomechanics Facility (ABF)

Overview

The ABF uses state-of-the-art strength measurement devices to assess the physical capabilities of astronauts, both suited and unsuited. The facility does research in biomechanics and ergonomics to maximize the usefulness of spacesuits, and tests suits in the KC-135, Neutral Buoyancy Lab and at remote sites in Arizona and California.

Projects

The ABF takes measurements of every astronaut in several ways. First, the astronaut's size and stature are measured with a tape measure. Then, strength measurements are taken. Finally, the entire body is scanned so that a 3-D computer image can be created. These measurements are used to select the correct size of spacesuit parts for the astronaut. Averages of the data are also used by the Graphics Research and Analysis Facility to run animated trials of mission procedures.

The ABF team members help evaluate the existing spacesuit designs in an effort to maximize the astronauts' range of motion and strength in orbit. Other projects include analysis of space hardware and crew training on Hubble Space Telescope repair missions.

Graphics Research and Analysis Facility (GRAF)

Overview

GRAF uses high-performance computer graphics programs to model and animate potential mission scenarios before launch, checking for logistical difficulties before they actually occur in space.

Projects

The computer systems in the GRAF can place a 3-D animated astronaut (based on measurement data from the ABF) in an animated shuttle or ISS module and simulate mission operations. Using data from the Light Environment Testing Facility (see below), these models can simulate light availability from various sources, such as sunlight, earthshine, reflections and glares from spacecraft. Doing so indicates whether or not the light will be sufficient to perform a mission objective.

Onboard camera views can be predicted before the mission, and allow the GRAF team members to predict potential payload problems before they occur. Even mission operations, such as ISS component attachments and spacewalks, can be simulated on the computer, allowing for contingency plans if needed.

NASA JSC 2002e08135 Photo by James Blair

Jim Maida, Graphics Research and Analysis Manager, confirms a total reflectance measurement for a target to be used in an illumination modeling system. Also shown is Kim Tran of Johnson Engineering.

One of GRAF's success stories came in the early days of the shuttle program, when engineers were faced with a challenge: If the payload bay doors didn't close, the shuttle would not be able to safely re-enter the atmosphere. However, if an astronaut performed a space walk to close the doors manually, he or she would then be stuck outside the shuttle, as the airlock is located in the payload bay. The GRAF team ran through the scenario graphically until a solution was reached.

Currently, GRAF is focusing on interior volume control for the ISS, helping to maximize working and living space while allowing for arriving payloads.

Light Environment Testing Facility (LETF)

Overview

LETF uses light sources, luminance meters, colormeters, computer models and other tools to predict and analyze the lighting availability in space mission situations. This data helps the GRAF run accurate test scenarios with its computer graphics systems and train astronauts on how to best utilize light during their missions.

Projects

Lighting plays a large part in human space missions. The people onboard must be able to see their computer workstations, scientific experiments and other spacecraft in the event of a docking. LETF works closely with GRAF and supports the ISS and shuttle programs by helping them make the most of both natural and artificial light. LETF is also involved in the research of new lighting technologies, such as solid-state

Hurricanes 101

By Bob Gaffney
JSC Emergency Preparedness Manager

The hurricane season began June 1 and ends Nov. 30. Hurricane activity in the western Gulf of Mexico intensifies from the end of July through the middle of September. However, as we learned last year, a tropical storm system could threaten our community at any time over the next six months.

Preparing now for a storm that will threaten us is not only smart but also essential if you and your family plan to evacuate before the roads become congested.

When your evacuation plan and disaster supply kit are prepared in advance, you can be on the road within an hour after local officials recommend evacuation from low-lying areas. Those less-prepared citizens will scramble frantically at the last minute at the local hardware and grocery store for increasingly fewer supplies on the shelves.

In this section, I'll cover what you need to know about hurricanes and being prepared for them. In addition, I encourage you to do your homework and visit http://mod.jsc.nasa.gov/da5/eoc/Hurr02.cfm and familiarize yourself with Johnson Space Center's Hurricane/Severe Weather Plan, as well as the JSC Employee Hurricane Handbook. You will find other vital JSC-related hurricane information and tips on that Web site.

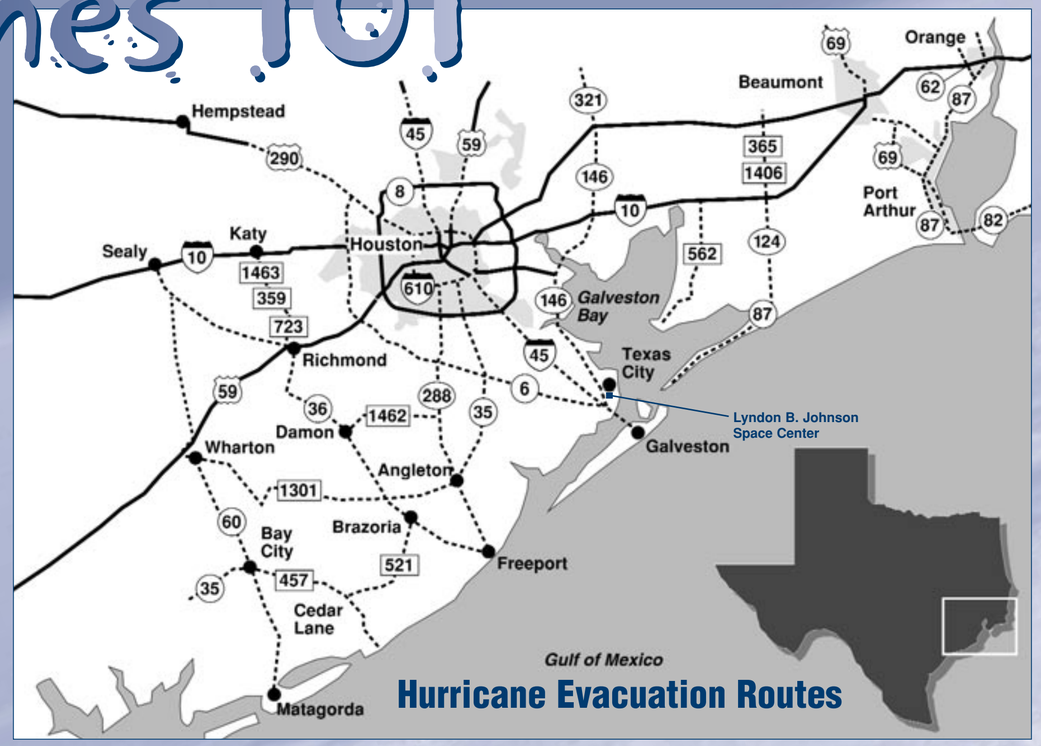
Finally, keep in mind that the Emergency Operations Office will continue to post information about emergency preparedness and the Center's readiness status when a storm threatens. That Web site is http://mod.jsc.nasa.gov/da5/eoc/. ❖

So what exactly is a hurricane?

- A hurricane is the most severe category of tropical cyclone. Tropical cyclones are low-pressure systems that have thunderstorm activity and rotate counter-clockwise.
- A tropical cyclone that has winds of 38 mph or less is called a tropical depression.
- When the tropical cyclone's winds reach 39-73 mph, it is called a tropical storm.
- When the winds exceed 73 mph, the storm is considered to be a hurricane. The Saffir-Simpson Hurricane Scale (see chart below) defines hurricane strength by categories.
- A Category 1 storm is the weakest hurricane (winds 74-95 mph); a Category 5 hurricane is the strongest (winds greater than 155 mph). The category of the storm does not necessarily relate directly to the damage it will inflict.
- Lower category storms (and even tropical storms, such as Tropical Storm Allison) can cause substantial damage depending on what other weather features they interact with, where they strike and how slowly they move.

Saffir-Simpson Hurricane Scale

Category	Winds (MPH)	Damage
Category 1	Winds: 74-95 mph	Mainly to trees, shrubbery, unanchored mobile homes, boats
Category 2	Winds: 96-110 mph	Considerable amount to trees, some roofs, windows,doors, entire marinas, minor building damage
Category 3	Winds: 111-130 mph	Destruction of large trees, some structural damage inland, damage of small buildings on coast
Category 4	Winds: 131-155 mph	Major damage to lower floors and buildings near coast, extensive structural and roof damage inland
Category 5	Winds: Above 155 mph	Destruction of many roofs, residences and industries; many small buildings blown over or away



> **"Don't wait until you see a storm** coming to determine your plan. Your decision timeline may be faulty and you could put your family and yourself in a dangerous situation. My advice is to evacuate and evacuate early."
>
> –Bill Roeh, JSC Emergency Operations Office Manager

The basic hazards of a hurricane

- The main hazards associated with tropical cyclones and especially hurricanes are storm surge, high winds, heavy rain and flooding, as well as tornadoes.
- A storm surge is a large dome of water 50- to 100-miles wide, which is the greatest potential threat to life and property associated with hurricanes.
- Hurricane winds not only damage structures, but the barrage of debris they carry is quite dangerous to anyone unfortunate enough (or unwise enough!) to be caught out in them.
- Damaging winds begin well before the hurricane eye makes landfall. Tropical cyclones frequently produce huge amounts of rain, and flooding can be a significant problem, particularly for inland communities.
- A typical hurricane brings at least six to 12 inches of rainfall to the area it crosses.
- Tornadoes spawned by land-falling hurricanes can cause enormous destruction. As a hurricane moves shoreward, tornadoes often develop on the fringes of the storm.
- These hazards can bring other consequences not directly related to the storm. For example, hurricane-related deaths and injuries are often the result of fires started by candles used when the electricity fails. Heart attacks and accidents frequently occur during the clean-up phase. And, depending on the industrial facilities in your area, hurricane damage might cause chemical spills that could make the disaster even worse.

Tropical storms are dangerous too

- From June 7-15 last year, Tropical Storm Allison left enough rain in the Houston/Galveston area to supply the water needs of the entire U. S. population for one year, according to NOAA.
- Allison was far-reaching, dumping water and destruction from Houston to the New England states.
- Allison's death toll was 47, including 22 people locally.
- Thirty Texas counties were designated as disaster areas in the wake of Tropical Storm Allison.
- Allison caused more than $2 billion in damages, making it the most expensive tropical storm in U.S. history.
- Recent studies of hurricane-related deaths show that in the United States more people die from flooding inland than along the coast from any storm surge.
- With hurricanes dropping about an inch of rain per hour, effects in low-lying areas can be catastrophic, as demonstrated by the casualties in Tropical Storm Allison's strike in Texas last year.
- The highest rainfall total reported from Tropical Storm Allison was 36.99 inches at the Port of Houston. By comparison, JSC experienced relatively little flooding and almost no damage while residences further inland were totally destroyed.

> **"We all found out on Sept. 11** that the unthinkable can happen. While each year we preach that we 'prepare for the worst and hope for the best,' this year we are especially mindful of our serious responsibility to prepare JSC for a major event, understand the possible outcomes and return our site to full operations as soon as possible. Personally, I encourage all employees to take their disaster planning a step further than I did last year, when I only thought about what I would do if a major hurricane hit this area."
>
> –Joel Walker, Acting Director, Center Operations Directorate

Be aware, be prepared

What would you do with three feet of water (or more) in your home? You and your family should consider evacuating outside the hazard zone until local officials and public health authorities determine the community is safe for citizens to return.

- Meet with family members to develop an emergency plan and rehearse the plan, including designating an evacuation route and departure time.
- Establish a meeting place in the event of a family separation. Identify a check-in contact (a family member living outside the threatened area) that the family will call if separated and to keep informed that you're safe.
- Take your pets and their shot records with you but remember they aren't permitted in the same shelter with people. Pick a destination that has animal boarding facilities nearby.
- Prepare for family health needs (prescriptions, medical supplies) by stocking up in advance.
- Don't return too soon since your community utility infrastructure may be damaged and unable to provide convenient services immediately.

Emergency Numbers

JSC Emergency Information Line (toll free)	x33351 1-877-283-1947
JSC Employee News Service	x36765
Emergency	911
Harris County Flood Control (river levels)	713-881-3100
National Weather Service	281-337-7895
Texas Highway Department (road closures)	1-800-452-9292

Emergency Management Offices

American Red Cross	713-526-8300
Galveston County	409-763-5971
Pasadena	713-943-7000
Clear Lake Office	281-282-6039
Baytown	1-281-420-6556
Clear Lake Shores	281-334-1034
Deer Park	281-478-7298
Dickinson	281-337-2489 x261
El Lago	281-326-1951
Friendswood	281-996-3335
Galveston (city)	409-766-2102
Galveston County (north)	281-534-2531 x102
Galveston County (south)	409-762-8621 x102
Harris County	713-881-3100
Hitchcock	409-986-5559
Houston (city)	713-881-3045
LaMarque	409-938-9269
League City	281-338-4836
Nassau Bay	281-333-4200
Pasadena	281-475-5588
Santa Fe	409-925-2000
Seabrook	281-291-5610
Taylor Lake Village	281-326-2843
Texas City	409-643-5707
Webster	281-333-2712

What should go into your hurricane preparedness kit?

If you are confined to your home or choose to evacuate as a result of severe weather or disaster, a disaster supply kit can be useful.

- ✔ Keep it readily accessible for safety, comfort and convenience. All household members should know where it is stored.
- ✔ Replace food, water, medical supplies and batteries as needed.
- ✔ Place the items you need during an evacuation in an easy-to-carry container, such as a backpack or plastic storage tub.
- ✔ Select the items your family will need from the suggestions in the Emergency Supply Kit pictured below.
- ✔ Don't use your emergency supply kit at your evacuation destination. You may need it when you return to your community if utilities and grocery stores aren't available for a couple of days. Eat where you are sheltered.

Emergency Supply Kit

- Flashlight
- Tissues
- Radio
- Pocket Knife
- Sanitary Supplies
  - Toothbrush
  - Soap
  - Shampoo
  - Sponge
  - Cleanser
  - Bleach
- Batteries
- Pencils
- Drinks/Juices
- Nuts
- Rice – Pasta
- Soups
- Canned Foods
- Water (1 gal per person per day)

30-gallon trash barrel

- First-Aid Kit
- Medicines
- Rubbing Alcohol
- First-Aid Handbook
- Towels
- Blankets
- Paper Towels
- Toilet Paper
- Candles
- Matches
- Can Opener
- Peanut Butter
- Crackers
- Dried Beans
- Change of Clothing
- Foul Weather Gear
- Sterno, Stove, Fuel
- Garbage Bags
- Cooking Utensils
  - Cooking Pot
  - Plastic Dishes
  - Silverware
  - Aluminum Foil

JSC Center Status:
http://www.jsc.nasa.gov/pao/roundup/centerstatus/index/

National Weather Service's National Hurricane Center/Tropical Prediction Center:
http://www.nhc.noaa.gov

'The challenges never seem to happen during banker's hours'

By Kendra Ceule

Crucial Gemini team works nights and weekends to support the ISS and its crew

WANTED: *Flight Controllers. Must be willing to do the work of three highly trained people and work primarily nights and weekends. Benefits include: Challenge of shaping a new era of flight control, appreciation and respect from other flight controllers and a great job title – ATLAS or TITAN.*

Not many people would respond to such an opportunity. But there are a few who did – an elite group of International Space Station (ISS) flight controllers called the Gemini team. The members of this team train for months, work at night and play a crucial role in the maintenance of the ISS and the safety of its crew.

"We are really changing the operations control paradigm with the Gemini program," said John McCullough, a flight director.

This nocturnal team is a relatively new addition to JSC. Gemini was created to solve a problem in the Mission Control Center: ISS flight controller burnout. Operators were frustrated with the night and weekend shifts they were sometimes obligated to work in order to maintain the 24-hour station, which led to lower overall morale. Some controllers even left their MCC jobs because of it.

"You wear and tear operators pretty quickly in the ISS flight control room," said Judd Frieling, a Gemini flight controller. "Unlike the shuttle, you never land, and it can get pretty stressful."

The reduction in manning concept is not new. During early construction of the ISS, before anyone was living and working there, the modules were monitored overnight by a Station Duty Officer (SDO). The SDO would call in the appropriate personnel if any serious technical problems arose during the night.

But after the Expedition One crew arrived at the ISS in November 2000, a fully manned control team became necessary 24 hours a day. Soon, the flight controllers' time and energy were stretched thin. The erratic hours started to take their toll, and a solution had to be found.

In the spring of 2001, the Mission Operations Directorate began looking for an answer to the burnout problem. They came up with Gemini: A reduced flight control team for the night and weekend shifts. Gemini would reduce a normal six-person team down to two people – hence the zodiac "twin" reference with the name Gemini.

Each Gemini operator would be responsible for three disciplines, whereas a regular operator focuses on one.

"The goal was to reduce the number of people working in the MCC during 'bad hours' without reducing the capability of the flight control team," said Steve Koerner, Gemini group lead. Koerner, a former shuttle flight controller, was part of the team that came up with the Gemini concept.

Then came the hard part: Recruitment. A Gemini operator would essentially be responsible for more than a regular controller, and do it during the shifts that most people didn't want. On the upside, the off-console office hours would be flexible, and a Gemini controller would "certainly be much more marketable for future MOD leadership positions," said Jon Harpold, director of MOD.

A full Gemini team would consist of six ATLAS (Atmosphere Thermal Lighting Articulation Specialists) controllers, and six TITAN (Telemetry, Information Transfer and Attitude Navigation) operators.

Koerner stepped up to the task of finding 12 people willing to do the job. Recruitment was targeted to existing flight controllers, so that they would only have to learn two additional disciplines. They believe a rookie operator would take longer to train.

Koerner offered operators the chance to build a new class of flight control from the ground up. Eleven people took him up on the opportunity, and became the first Gemini team. Today's ATLAS controllers are Stein Cantrell-Avloes, Max Haddock, Carla Haroz, Joe Peacock, Natalie Turner and Christine Tyrell. The TITANs are Trey Brouwer, Karen Bush, Judd Frieling, Dan Jackson and Mark Severance. Gemini still needs one more TITAN controller to make a full 12-person team.

The Gemini operators trained for several months to learn their new disciplines inside and out. Each controller must be able to handle any problem in his or her three systems for up to two hours – the time it might take for an on-call specialist from the individual systems flight control groups to arrive at MCC. In October of last year, Gemini controllers tested the waters, supporting ISS operations every other weekend. In January 2002, the team jumped in and took over most night and weekend shifts.

Recruitment may have been difficult, but the 11 current Gemini controllers say there's no place they would rather be.

"People have responded not to the lousy hours, but to the challenge and the responsibility of learning more and doing more," said Bob Castle, Deputy Chief of the ISS Flight Director Office.

For instance, Karen Bush, TITAN, said she enjoys learning more about the station, which makes her a better flight controller. She also said working the late-night shift, which starts at 11 p.m., "guaranteed me the opportunity to be with my family in the evening" and lets her run errands during the day.

Judd Frieling, also a TITAN, said he joined because he was "looking for a challenge, and liked the idea of molding a new group."

Frieling added that the ISS seems to experience the most technical problems at inconvenient times. "The challenges never seem to happen during banker's hours," he said.

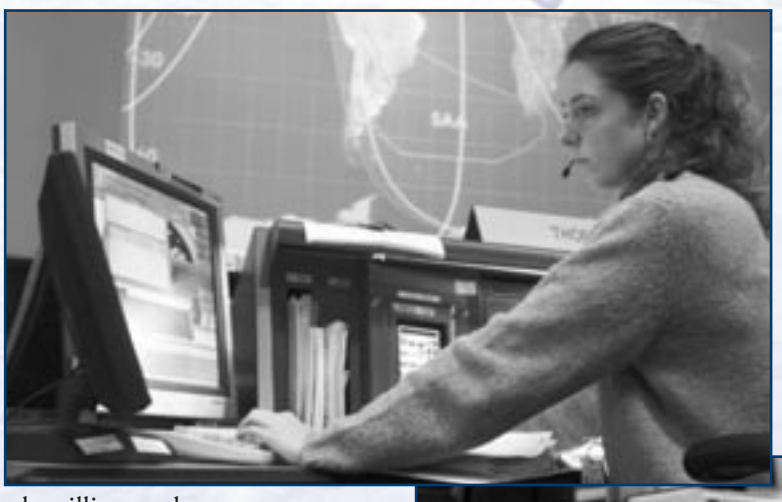
The Gemini team has certainly had its share of challenges and tests. One notable example is the Feb. 4 Loss of Attitude Control (LOAC) event. "A LOAC event affects power, which affects everything else," said Castle. "It was a significant challenge."

Frieling, who was the TITAN on console for the February LOAC, said there are advantages to the Gemini system during a technical challenge. "It's often easier to coordinate a problem between two people instead of six," he said. "Where three people might see three separate problems on their consoles, a Gemini controller can spot the overall pattern."

Gemini has been, and will continue to be, a team effort. "In the spirit of doing more with less," said McCullough, "we all roll up our sleeves and do what is necessary to be safe and successful as a very close-knit team."

Overall, ISS Program Manager Tommy Holloway is pleased with the Gemini team, saying it has "significantly improved ISS continuous operations."

He added, "The people in the group are some of the best and brightest in MOD and their efforts are essential to our future success." ❖



NASA JSC 2001e16659 Photo by James Blair

NASA JSC 2001e16657 Photo by James Blair

On nights and weekends the Gemini team members work in the B-Flight Control Room at MCC. Pictured here are two of those team members: Natalie Anne Turner (top) at the ATLAS console and Karen Bush (bottom) at the TITAN console.

When tragedy strikes...

By Melissa Davis

JSC team formed to handle critical incidents

It can come in the form of a deadly tornado, or blow in as a major hurricane. It can be as bold as a terrorist attack, or as sudden as a coworker's fatal heart attack.

No matter how a crisis presents itself at Johnson Space Center, the Employee Assistance Program (EAP) is prepared to help with the emotional aftermath.

EAP Director Jackie Reese has developed a team trained to assist with a JSC-related crisis. The newly formed Critical Incident Stress Management (CISM) team is comprised of employees serving as facilitators.

"I asked for volunteers from areas in which people use people skills as part of their day-to-day work," Reese said.

JSC has a definite need for such a team. "We are a population of over 10,000 folks. When something impacts one member of our 'family' it impacts others as well," said Reese, who works for Kelsey Seybold under the Occupational Health contract.

JCS's vulnerability to traumatizing events is not limited to space-related incidents, she said. Other crisis situations can include:

- Traumatic deaths (accidents, murders, suicides)
- Sudden serious illnesses (heart attacks, cancer)
- Work place violence (violent employees, stalkers)
- Natural disasters (hurricanes, floods)
- Terrorist attacks

The spectrum is broad when it comes to what constitutes a critical incident, said Roger Solomon, Ph.D., a certified CISM trainer working with the JSC team.

A critical incident is "any situation resulting in an overwhelming sense of vulnerability and/or lack of control," said Solomon, an international expert who trains and lectures around the world. He consults for private industry and other federal agencies, including the FBI.

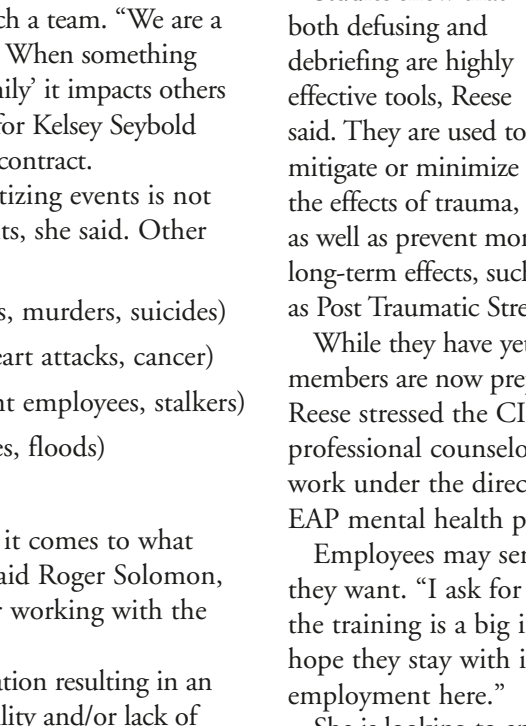
When called upon, the CISM team will offer defusings immediately for emergency personnel and victims.

"Defusings are 30-minute, low-key interventions that provide initial stabilization shortly after an incident – preferably before folks go home," Reese said. "We lessen the stress of the incident by normalizing the reactions folks have."

The team also works to help them become 'grounded' again and regain a sense of safety by helping them identify positive or functional coping plans. By doing this the team identifies people who need additional support or services.

In addition, defusings and debriefings will be available for everyone impacted in the days and weeks that follow.

Debriefings are more involved interventions lasting for a few hours. They typically take place a few days after an incident, when people start feeling the effects.



NASA JSC 2002e16815 Photo by Bill Stafford

EAP Director Jackie Reese works with employee volunteer Amy Mendez (seated) during CISM training.

The affected discuss their reactions, learn about typical reactions to trauma, identify their own coping resources and are offered other tools for adaptive coping.

"We help folks develop a self-care plan and offer resources for additional help," Reese said. "We will follow up for at least a year post-incident to see how they are doing."

Studies show that both defusing and debriefing are highly effective tools, Reese said. They are used to mitigate or minimize the effects of trauma, as well as prevent more long-term effects, such as Post Traumatic Stress Disorder.

NASA JSC 2002e16810 Photo by Bill Stafford

Pictured is JSC's first Critical Incident Management Team. Front row, from left, is Sandra Parker, Center Operations-NASA; Erin Bly, Lisa Tice, Gail Howell and Jackie Reese, all Occupational Health-Kelsey Seybold; and Linda LaPradd, Sue Leibert, Stacey Medina, Beth Hall and Amy Mendez, all Human Resources-NASA. Back row, from left, is Teresa Luker, Occupational Health-Kelsey Seybold; and Natalie Saiz, Kim Wilson, Karl Schuler, and Brad Mudgett, all Human Resources-NASA. Not pictured: Sandra Amundson, Occupational Health-Kelsey Seybold; and Eric Thomas, Human Resources-NASA.

While they have yet to respond to a crisis, team members are now prepared to act when needed. Reese stressed the CISM team is not comprised of professional counselors. "They are facilitators that work under the direction and supervision of the EAP mental health professionals," she said.

Employees may serve on the team as long as they want. "I ask for a two-year commitment, as the training is a big investment," Reese said. "I hope they stay with it for the duration of their employment here."

She is looking to enlist the help of more employees. "I am interested in building this team and will be asking for more volunteers to train next year," she said. "Anyone with good people skills, good coping skills and a willingness to help would be welcomed."

Reese believes this team is a vital component in the EAP's service to the JSC community. "I have wanted to do this since I started here because we have such a large population and have had many traumatic losses," she said.

Creating the JSC CISM program has been satisfying for Reese, especially when she sees the team's focus and desire to help those in need.

"They work well together and have been eager to learn about critical incident management and debriefing," Reese said. "They are a wonderful group of folks who understand the importance of providing support and education for fellow employees during times of crisis."

HR's Amy Mendez takes her role as a CISM team member seriously.

"As we've seen this past year, the shock of a tragedy is a hard thing to work through. Having a team like this at JSC enhances the EAP's resources available to JSC people and adds another human element to the emergency response team," she said.

"I see this team helping with a whole range of issues: From helping a small group or branch work through a co-worker's death to being part of the response team for a bigger tragedy or crisis."

Mendez is no stranger to crisis counseling. She ran a crisis center for a year while in college, and she was a crisis counselor for two years. In addition, she has a psychology undergraduate degree, and a master's degree in behavioral science and human resources.

"I volunteered because I wanted to help JSC people in any way I could, should a tragedy or disaster occur," she said. "It also connected to a lot of my background...I guess it's in my blood."

Sandra Parker also felt the call to support her coworkers. "As with most Americans, I was deeply affected by the September 11 attacks and was having a very difficult time dealing with the tragedy," she said. "Like so many others, I felt so helpless."

Parker now feels like she can make a difference for others through the CISM team. "It has provided me with the tools that if, God forbid, something like this happens again, at least I will be prepared to help." ❖

CUT AND SAVE

What to do in case of a critical incident:

- If the critical incident requires emergency personnel, call x33333. The Employee Assistance Program's Critical Incident Stress Management team will be notified as part of the Emergency Response Team.
- If the critical incident is not an emergency, you can call the EAP office directly at x36130.
- Center management, supervisors and human resources representatives can also assist in obtaining crisis services.

2002 FOD Chili Cookoff

And the winners are...

Best Chili

First place:

❖ **Dr. Bob's Cosmic Cowboy Cookers** (Pictured top left)
National Space Biomedical Research Institute

Tie for second place:

❖ **Mad Cow**
SR&QA

❖ **Red Baron**
Combined team of current/retired NASA, contractor and Air Force employees

Fourth place:

❖ **Frisky Peppers**
Oceaneering Space Systems

Tie for fifth place:

❖ **Crime Scene**
ISD

❖ **Wing Nuts**
FCOD

Long Distance Award

(Team who traveled the farthest to compete)

❖ **Staged Combustion**
Boeing-Rocketdyne, Canoga Park, Calif.

People's Choice Chili:

❖ **Wrong Stuff**
Combined Mission/Flight Operations Team
(dedicated in memory of Bill Preston by Wing Nuts)

Showmanship

First place:

❖ **Surfin' Chili** (Pictured bottom left)
Combined team of NASA and Contractor Surfin' People

Second place:

❖ **Buzzards' Breath**
United Space Alliance (Crew Support Office)

Third place:

❖ **Crime Scene**
ISD

Fourth place:

❖ **Wrong Stuff**
Combined Mission/Flight Operations Team

SPACE CENTER **Roundup**

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