SPACE CENTER
Roundup

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JSC celebrates 30th anniversary of Apollo 11 mission

By Nicole Cloutier

More than 2,500 JSC employees, family members and space enthusiasts convened at the Gilruth Center July 22 to commemorate the 30th anniversary of the first lunar landing and first person to walk on the Moon.

"The best thing that happened to the United States and to the world in the 20th century was landing on the Moon," said Christopher Kraft Jr., former JSC director. "It's great for us to be together to remember Apollo and I'm proud to have been a part of it."

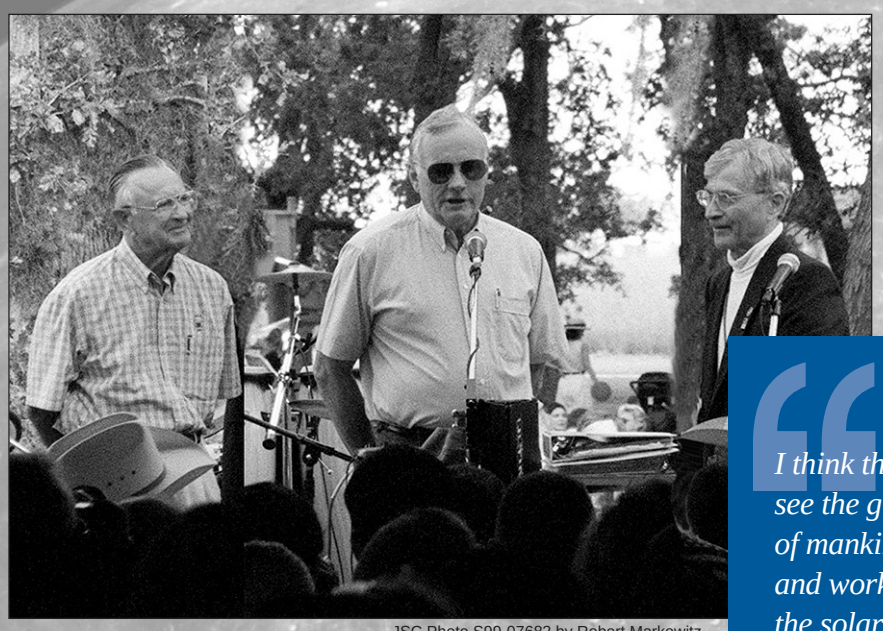
Kraft was joined by Neil Armstrong, the first astronaut to walk on the Moon, and Astronaut John Young, JSC's associate technical director. Each guest related recollections of the Apollo landing, its impact on the space program as well as the future of space exploration.

The speakers also recognized the contributions of numerous individuals in their addresses, including Dr. Robert Gilruth, John Victory and Dr. Maxime Faget.

"It was Dr. Faget who first proposed the U.S. build a spacecraft with a blunt body shape more than 40 years ago," said Armstrong. "That day was the beginning of manned space flight."

Many in the audience felt privileged to see Armstrong in person and enjoyed his light-hearted address to the crowd where he called Capt. Young his "idol" who is "in line for another flight."

"This is really an unforgettable day for me!" said Joerg Kindler, a German visitor working on the X-38 project. "I saw the first astronaut on the Moon and shook hands with him. Neil Armstrong is somebody who kept his eyes on the stars but always his feet on the ground – and that's why I can look up to and learn from him. A lot of my friends back in Germany will envy me for that."



JSC Photo S99-07682 by Robert Markowitz

Neil Armstrong, Apollo 11 commander, flanked by Chris Kraft Jr., (left) former center director, and John Young (right) associate technical director, addresses picnic guests.

> *I think the next 30 years will see the greatest achievement of mankind. We'll learn to live and work on other places in the solar system. Apollo will have opened that door.*
>
> – John Young

Entertaining the revelers were Kelly McGuire & Hurricane and The Fab 5 filling the air with classic tunes from the Apollo era throughout the festivities. Picnickers enjoyed a traditional barbecue dinner while reminiscing with each other about the accomplishments of the past and possibilities of the future in space.

"On this night 30 years ago, NASA Road One was closed down and people were dancing in the streets," said Don Lewis, NASA engineer, who worked the rendezvous procedures for the Apollo Program. "Some of these people here today weren't even around then, so I think it's great to see this many people here today to remember the Apollo event."

Inside the Gilruth Center were Apollo Program exhibits and artifacts including a small-scale Lunar Module and the Mobile Equipment Transporter, which allowed astronauts to carry tools around on the lunar surface; lunar surface maps; and assorted magazines and newspaper headlines announcing the landing. ■

Accident claims life of astronaut Conrad

Charles P. (Pete) Conrad (Capt., USN, Ret.), the third human to walk on the Moon, died July 8 in a hospital in Ojai, Calif., of injuries sustained in a motorcycle accident. He was 69.

Conrad made history on November 19, 1969, when, as commander of the Apollo 12 mission, he and Astronaut Alan Bean set their lunar module "Intrepid" down on the Moon's Ocean of Storms to achieve the second of six landings in the Apollo Program.

Some five hours later, Conrad stepped onto the Moon and, parodying the historic words of Neil Armstrong four months earlier, said, "Whoopee! Man, that may have been a small one for Neil, but that's a long one for me."

"Pete was an explorer and a hero of the space frontier," said JSC Director George W. S. Abbey. "From Gemini to Apollo, to his command of the first crew to live aboard an American space station, Pete was a true professional. He combined skill and ability with wit and humor to become one of the courageous pioneers who took humankind beyond the bounds of our planet. We will miss him greatly. Our heartfelt sympathy goes out to his wife, Nancy, and their family."

Conrad was selected in the second class of NASA astronauts in 1962 following a distinguished career as a Navy test pilot and instructor. Following his graduation from Princeton University in 1953, he entered the Navy and attended test pilot school at Patuxent River, Md., where he was assigned as a project test pilot.

After being selected as an astronaut, Conrad was assigned to fly on the Gemini 5 mission as the co-pilot to Gordon Cooper. In August 1965, Cooper and Conrad spent what was then a record eight days in orbit, perfecting techniques for use in later lunar missions and proving the capability of astronauts to spend more than a week in space.

Conrad then commanded the Gemini 11 mission in September 1966, in which he and co-pilot Richard Gordon established the fastest rendezvous and docking in history, linking their Gemini spacecraft with an Agena target vehicle before establishing a new altitude record of almost 850 miles above the Earth.

Conrad was joined by Bean and Gordon on the Apollo 12 mission in November 1969, forming an all-Navy crew for their Command Module "Yankee Clipper" and their Lunar Module "Intrepid." Conrad and Bean proved that pinpoint landings could be made on the lunar surface and conducted the first significant science operations during their 31 hours on the Ocean of Storms.

Conrad's fourth and final space flight occurred in 1973 as the commander of the first crew to live and work on America's first space station, Skylab. Conrad, Paul Weitz and Joseph Kerwin were launched on a modified Saturn rocket on May 25, 1973, 11 days after the station itself was launched.

Among Conrad's numerous awards are the Congressional Space Medal of Honor, two NASA Distinguished Service Medals, two NASA Exceptional Service Medals, two Navy Distinguished Service Medals and two Distinguished Flying Crosses. He was enshrined in the Aviation Hall of Fame in 1980.

The funeral for Conrad was held July 19 at Fort Myers Chapel at Arlington National Cemetery.

Conrad is survived by his wife, three sons and seven grandchildren. ■

Guppy delivers station Structural Test Article.

Page 2

JSC celebrates its diverse culture.

Page 4

Astromaterials team prepares for future.

Page 7

Guppy delivers station Structural Test Article

JSC Photo S99-06280 by James Blair

JSC Photo S99-06281 by James Blair

STATION ELEMENT ARRIVES AT ELLINGTON FIELD – The Structural Test Article for one of the International Space Station's 40-foot-long truss segments arrived at Ellington Field late last month to undergo acoustical vibration testing in Bldg. 49. This testing will continue through the summer and fall and will verify the launch environment for the actual hardware that will be delivered to the station on assembly flight 9A scheduled in mid 2001.

International Space Station Update

Station Mission Evaluation Room managers provide round-the-clock support

The International Space Station Mission Evaluation Room in Bldg. 30 at JSC opened its doors last November with the launch of Zarya, the first ISS component. It has remained opened ever since.

Twenty-four hours each day, seven days per week, the MER brings together national and international station designers, builders and operators in solving hardware and systems issues that affect performance and safety. These specialists provide engineering support for all ISS activities both in real-time and during quiescent periods.

Twelve managers – three from NASA, eight from Boeing, and one from Lockheed Martin – oversee the day-to-day activities of the ISS MER. Mark Glorioso of NASA and Curt Phelps of Boeing lead the team.

"This team was put together in a relatively short time, and together we established the operating procedures for the ISS MER in about six months," said Glorioso. "It is a highly motivated team of engineers who look forward to coming to work every day to do their part in the assembly of the International Space Station."

A MER manager is on console around the clock during non-assembly operations. During station assembly operations, three managers are on console around the clock, with a full team of 300 engineers represented from all ISS subsystems nationwide ready to support.

Subsystem engineers and safety and operations specialists coordinate all activities necessary to make real-time decisions affecting the space station. Primary activities focus on protecting the on-orbit hardware from damage from any source and providing engineering support to repair hardware in the event that it fails. These tasks are shared between the Flight Control Team, which provides the operators, and the MER, which provides a path back to the ISS designers.

Technical inputs from the ISS MER Subsystems, Flight Control Team and other segments of MOD are reviewed and a coordinated response is provided to resolve anomalies that arise during in-flight or quiescent periods.

As the engineering consultants for the Flight Control Team, the MER managers interface directly with the ISS and the space shuttle flight directors during shuttle missions. ISS MER managers communicate with the flight directors using voice loops and a messaging system that uses a formal electronic signature to document information passed between the MER and the flight controllers.

MER members and the flight controllers make up the team that successfully troubleshoots problems that arise on board the orbiting space station. The team has successfully resolved numerous issues over the past nine months including implementing procedures to repair the faulty Early Communications System aboard Unity, completing a successful hatch adjustment, repairing the Russian Electrical Power System aboard Zarya and implementing software updates.

ISS viewing opportunities from the ground can be found on the Internet at: http://spaceflight.nasa.gov/realdata/sightings/ ■

Twelve managers oversee the day-to-day activities of the International Space Station Mission Evaluation Room at JSC. The managers are, from left, front: Dan Bahadorani, Chuck Armstrong; back: Shannon Walker, Bill Killingsworth, Matt Duggan, Henry Domingo, Michael Boulavsky, Mark Glorioso, Pete Sprunger, Curt Phelps. Not pictured: Todd Dark-Fox, Keith LaMay.

JSC Photo S99-05668 by Mark Sowa

COMMUNITY NEWS

Lopez receives 1999 JSC scholarship

By Bill Jeffs

JSC Photo 99E07137 by James Blair

Pamela Lopez

NASA Exchange announced that the 1999 JSC scholarship has been awarded to Pamela Lopez, daughter of Telma A. Lopez of the Safety, Reliability and Quality Assurance Office at JSC.

"I am very honored to receive this scholarship," said Lopez. "It has further encouraged me to achieve my goals and aspirations."

A 1999 graduate of Friendswood High School, Lopez is a member of the National Honor Society, Who's Who Among American High School Students, Minorities in Medicine and the Hispanic National Honor Society. She also is an assistant instructor for judo, a hospital junior volunteer, a library volunteer and a cheerleading instructor. She plans to attend Texas Tech University this fall and major in medicine.

"I'm really looking forward to a new environment," said Lopez. "There will be so much to take in – new school, new climate and snow, which I've never seen before!"

Lopez was born in Corpus Christi and lived there until her father was transferred with Exxon to the Houston area in 1995.

"I credit my parents a lot," said Lopez. "My father always pointed me in the right direction and my mother has always been someone I could talk to about anything."

Lopez said when deciding about college courses, she knew she wanted to be challenged and, after her experience volunteering at the hospital, she knew she wanted to help people.

Although Lopez does not leave for her new home until August, she already has plans lined up for her many other interests. She plans to try out for the all-girl cheerleading squad in September and, as an assistant judo instructor, she's already been approached about setting up a judo club at the school. Lopez received her black belt in judo in June.

The 4-year, $1,000-per-year scholarship is awarded based on academic achievement, financial need, and extracurricular activities. The scholarship was available to children of NASA employees throughout JSC at both Houston and the White Sands Test Facility. ■

Kramer named one of Houston's leading women in technology

Rebecca Bergeron, left, president of the Association for Women in Computing – Houston Chapter, presents the Top 20 Houston Women in Technology Award to Cathy Kramer, director of the Technology Outreach Program.

Catherine Kramer, executive director of the NASA/Clear Lake Area Economic Development Foundation Technology Outreach Program (TOP), received one of the "Top 20 Houston Women in Technology" awards during a ceremony held last month at the Doubletree Guest Suites Hotel in downtown Houston. The Association for Women in Computing presented the awards.

"I was absolutely thrilled to receive this honor," said Kramer. "It's so wonderful to know that so many women are tackling technology and making it a sole focus of their career."

Kramer is taking a one-year break from her duties at JSC to direct the TOP. Prior to her current assignment, she managed JSC's Biomedical Hardware Development and Engineering Office and served as chief of the Life Sciences Project Division.

She was honored for her work at JSC and with the TOP, a free service designed to speed the transfer of space technology to the private sector by giving up to 40 hours of free technological assistance to local small businesses.

The Association for Women in Computing is a national, nonprofit, professional organization for individuals with an interest in information technology.

For additional information on the TOP, call (281) 486-5535. ■

Volunteers needed for Open House

JSC is making final preparations as the fifth annual Open House approaches. This year's event will be held on August 28.

Volunteers have made this event highly successful as visitors are introduced to the employees and facilities here at NASA, and this year will be no different with the theme of "Pathway to the Future."

Employees may volunteer to be a part of this outstanding event. There are many ways to get involved:

- Staffing one of 12 information booths
- Acting as rovers (giving directions)
- Assisting visitors in the cafeterias

Volunteering is a great way to showcase the wonderful work that is going on at JSC. Bilingual speakers and those willing to volunteer for afternoon timeslots are needed. Get involved and remember that all volunteers receive free drinks and special parking on the day of the event.

The easiest way to sign up is by going to the volunteer home page. This can be accessed at: http://www4.jsc.nasa.gov/openhouse/Databases/

Volunteers who have already signed up should attend one of seven different training sessions to receive vital information needed for the day of Open House `99. These sessions will be held in the Bldg. 30 auditorium. Please attend one of the following sessions:

- 10 a.m. Friday, August 13
- 10 a.m. and 2 p.m. Monday, August 16
- 2 p.m. Tuesday, August 17
- 10 a.m. and 2 p.m. Wednesday, August 18
- 2 p.m. Thursday, August 19

The Ballunar Liftoff Festival will be held at Rocket Park in conjunction with the Open House. This exciting event will include activities such as the grand parade of balloon pilots, arts and crafts fair, food booths, midway rides and games, business exhibits, and the much anticipated balloon glows. More information on this event can be found at the following Web site: http://www.ballunarfestival.com/menu.html

All NASA civil servants will be admitted free to this festival with valid work identification. Come join us and let's make history as we have the biggest and best Open House that NASA has ever seen. ■

Summer Camp brings science to students

By Nicole Cloutier

Wide-eyed and full of curiosity, children at JSC's Sizzling Summer Camp are doing some scientific research of their own.

Every Wednesday afternoon, Dr. Ruwaida Haddad and Dr. Marguerite Sognier, research scientists from JSC's Biotechnology Program, volunteer a couple of hours to bring hands-on science activities to the 27 children in the camp, a cooperative effort among University of Texas Medical Branch, NASA, and the JSC Child Care Center.

"Interactive science activities actually improve academic performance in children in all academic areas – not just science," said Dr. Sognier. "The program also provides role models for young girls who tend to lose interest in science and math during fifth through seventh grades."

"Our goal is to plant the seed of logical thinking and stimulate analytical minds among our most precious resource, our children," added Dr. Haddad.

This is the first year for the pilot program and is limited to 7- to 12-year-old children of JSC employees. The camp is held in Bldg. 265 and is filled to capacity for this summer but organizers hope to expand the program next year.

"We've had a great response, and Dr. Haddad and Dr. Sognier really go all out – I think sometimes they are more excited than the kids," said Kristy Hirning, executive director for the camp and JSC Child Care Center. "We wouldn't be able to do this without their efforts. And Mr. Abbey provided use of the building and the folks in the transportation department have been very supportive with the use of vans for exciting field trips."

Proceeds from the camp are being directed toward construction of a new child care facility that will expand enrollment to first grade. Employees wanting more information can call x34734. ■

JSC Photo S99-05910

Kiarra Gradney, 7, and Ashlee Calvert, 8, gaze at a bubbling and oozing display of scientific wonders as part of "Weird Science Day" at JSC's Sizzling Summer Camp.

American Heritage Week

For the sixth year JSC celebrates its diverse culture

S99-06766

The Lost Soul Band performs at the Gilruth Center during the grand finale celebration.

Employees celebrated their diverse heritage during a weeklong celebration held June 28 to July 2. The event provided employees with the opportunity to expand their knowledge of the rich heritage represented within the JSC team. JSC's American Heritage Committee and Team NASA sponsored the sixth annual event.

Special activities were held daily during American Heritage Week in the Bldg. 3 cafeteria. Entertainers including the JSC Town Criers and the Mixteco Ballet Folklorico Dancers entertained employees. Exhibits ranging from Apollo memorabilia to wearable art were on display.

The American Heritage Week parade took place July 1. NASA civil servants, local contractor employees and members of the community participated.

The weeklong celebration concluded with the grand finale on July 1 at the Gilruth Center. An American Heritage Week mini-parade, featuring the award-winning Houston Showstoppers Marching Band, kicked off the event. Attendees were able to view exhibits. Employees and their families enjoyed a host of cultural performances including praise dancing, American Indian dancing, and Polynesian dancing. ■

S99-06677

The JSC Town Criers drive around the center on one of many floats on exhibit during the parade.

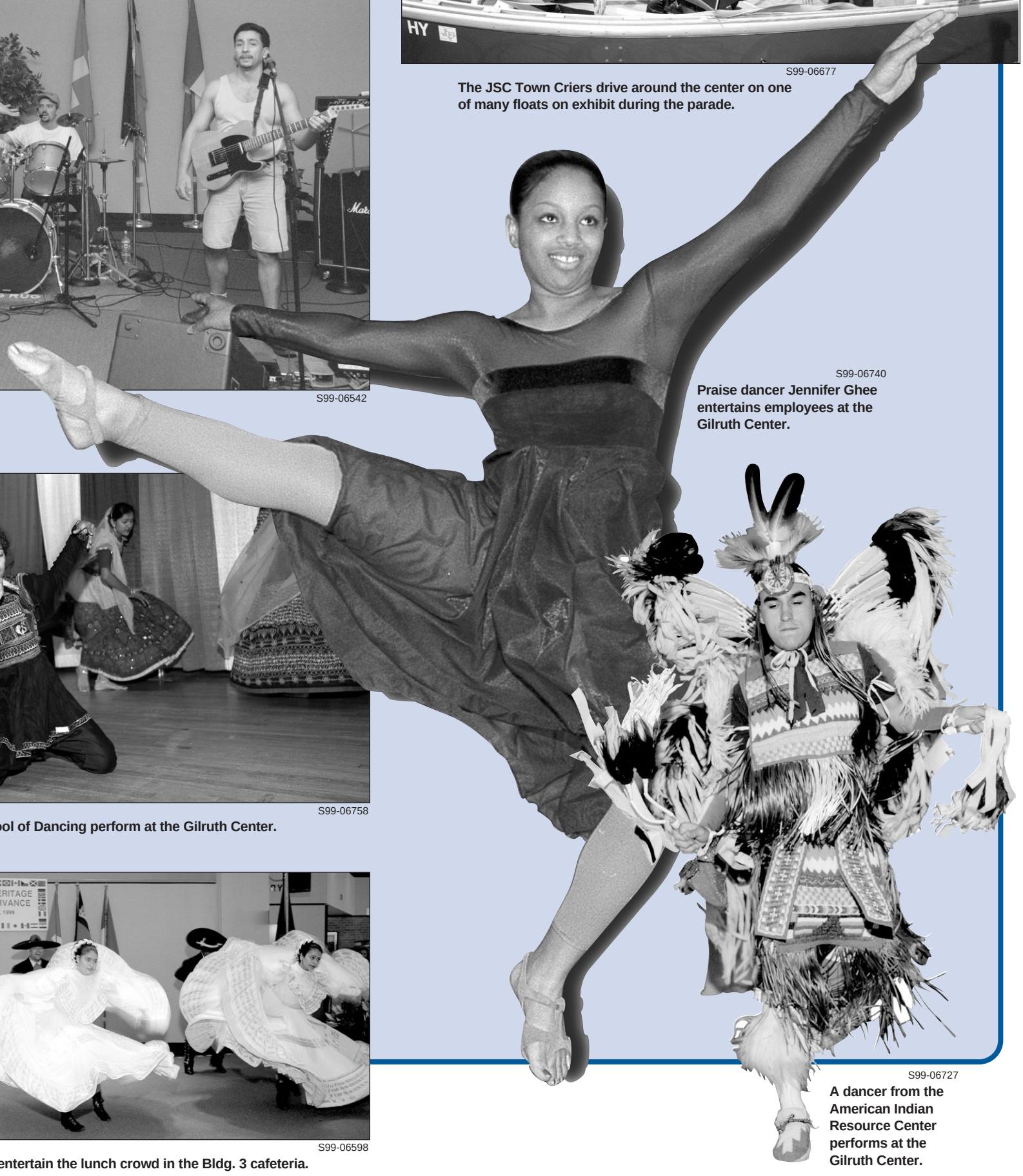
JSC Photos by James Blair

S99-06542

Abraham's Tree performs in the Bldg. 3 cafeteria.

S99-06758

Dancers from the Jhankar School of Dancing perform at the Gilruth Center.



S99-06740

Praise dancer Jennifer Ghee entertains employees at the Gilruth Center.

S99-06598

The Mixteco Ballet Folklorico Dancers entertain the lunch crowd in the Bldg. 3 cafeteria.

S99-06727

A dancer from the American Indian Resource Center performs at the Gilruth Center.

Co-op relives day with Neil Armstrong

Visit with Armstrong, Young and Runco makes for memorable experience

By Nicholas Saadah

When I started my first tour as a co-op at JSC last fall, I knew I was in for the experience of a lifetime, but nothing could have prepared me for what happened one Monday in late June. What started as a normal day of sims and display modifications ended with a ride aboard the Shuttle Motion Simulator while Apollo 11 Commander Neil Armstrong and JSC Associate Director (Technical) and Astronaut John Young flew simulated approaches to the Kennedy Space Center. Needless to say, it was an experience I will never forget.

I first met Armstrong earlier that day in the viewing room of the Mission Control Center. I introduced myself and explained that I was a co-op from Purdue University, his alma mater. I found Armstrong to be as personable and friendly a person as I have ever met. Standing there, speaking about the Purdue women's basketball team and its recent accomplishments, one would never guess that this man was the first to walk on the moon. He had come to JSC to appear on Italian television via satellite and was to be interviewed in front of Mission Control.

After lunch, I gave Armstrong a tour of the White and Blue Flight Control Rooms which he had never seen. Astronaut Mario Runco Jr., three-time shuttle flier and lead capcom for STS-93, joined us as we took Armstrong in and out of the various control rooms, much to the delight of everyone there to see him. He asked many questions about the space shuttle and mission operations and was fascinated to know how they worked. Listening to him speak about the differences between Apollo and the space shuttle further made me realize how very much this organization has advanced in the last 30 years, and indeed how much it continues to advance.

JSC Associate Director (Technical) John Young, left, co-op student Nicholas Saadah, Apollo 11 Commander Neil Armstrong, and Astronaut Mario Runco share memories of the nation's space program.

When we arrived in the Blue FCR, Runco began to tell Armstrong how he had watched the moon landings with wide eyes and decided he wanted to be an astronaut. The irony of the situation became clear. Here I was, looking up to people like Runco, hoping to someday accomplish what he had accomplished, just as he had looked up to Armstrong years ago. It was then that Runco asked Armstrong if he had ever flown the shuttle simulator before. When Armstrong responded that he hadn't, Runco scheduled a sim and invited me along.

So, at the end of a long and exciting day, I found myself sitting in the fifth seat inside the SMS while Armstrong and Young flew two approaches. This was the most incredible part of the day, not because I was inside the SMS, not because I was in the presence of three astronauts, but because I was getting the world's most exciting history lesson.

I listened as Armstrong and Young, two of the space program's most famous and decorated, reminisced on the days of Apollo. Runco, the Public Affairs Office escort, and I could only sit and listen as these two Apollo commanders relived those miraculous days of 30 years ago.

As I listened to them laugh and share memories, it took everything within me to remain composed. This was history; this is what NASA and America's commitment to the exploration of space is all about. It was an aural masterpiece, flowing from the mouths of these two incredible individuals, and incredible friends.

Young pointed to the switches on the center console. "These are original Apollo switches," he explained. "They weigh a pound and a half each, but Deke [Slayton] wasn't about to let us throw these away." As we approached the runway, Young coached Armstrong down the path. "Doin' fine, Neil. Ffly the needles, just like in the old LM. This is a Delta wing. Just hold it in ground effect and it'll come down nice and soft." Armstrong put it down softly and made a perfect landing… once again. ■

Employees line up to meet the *'Last Man on the Moon'*

"Here Man completed his first exploration of the Moon, December 1972 A.D. May the spirit of peace in which we came be reflected in the lives of all mankind.

–Apollo 17

All available copies sold out when employees lined up July 14 in the Bldg. 3 cafeteria to get an autographed copy of Apollo Astronaut Gene Cernan's book, "Last Man on the Moon." Employees received a free autographed photo of Cernan with each book purchased from the JSC Exchange Store, which hosted the book signing.

Cernan, 65, last man to walk on the moon, was commander of Apollo 17. He and fellow crewmembers Ronald Evans and Harrison Schmitt journeyed to the moon and back in December 1972. While Evans circled in "America," Schmitt and Cernan collected a record 108.86 kilograms of rocks during three moon walks.

Schmitt and Cernan roamed 33.80 kilometers through the Taurus-Littrow Valley in their rover, discovered orange-colored soil, and left behind a plaque attached to their lander "Challenger," which read: "Here Man completed his first exploration of the Moon, December 1972 A.D. May the spirit of peace in which we came be reflected in the lives of all mankind." The Apollo lunar program had ended.

Earlier in the Apollo program, Cernan descended to within nine miles of the moon's surface on Apollo 10 in May 1969. Cernan also flew as pilot of Gemini 9 in June 1966. ■

JSC Photo S99-07349 by Robert Markowitz

Ripped from the ROUNDUP

Ripped straight from the pages of old Space News Roundups, here's what happened at JSC on this date:

1 9 6 4

The Ranger spacecraft impacted on the moon in the "Sea of Clouds" (Mare Nubium) area last Friday morning at 7:25 (CST), but not before it had taken 4,316 pictures and transmitted them back to Earth and the Deep Space Network tracking station at Goldstone, Calif.

Jet Propulsion Laboratory scientists said the Ranger impacted within ten miles of the planned target area and continued taking pictures up until three-tenths of a second before impact. The last picture was taken at less than a half-mile from the moon's surface and covered an area some 65 feet across. Pictures were recorded on 35mm film and magnetic tape.

1 9 6 9

July 20, 1969, came eight years after an American President, John F. Kennedy, committed his nation to a manned landing on the moon; it came just four decades after aerospace pioneer and prophet, Robert Goddard, predicted the technological ability to achieve a safe landing; and it came centuries after man first stared up at the large glowing orb in the night sky and wondered what miracle might take him there.

On July 20,1969, the people of Earth witnessed the culmination of that technological "miracle" as Neil A. Armstrong lowered himself from the spacecraft to the lunar surface and took "one small step for man, one giant leap for mankind."

1 9 8 9

The far encounter phase of Voyager 2's appointment with the planet Neptune will not begin until Sunday, but information from the 12-year-old spacecraft already is yielding surprises. Images have revealed three additional new moons in orbit around Neptune, Voyager imaging team scientists announced Thursday.

The discovery brings to six the number of moons known to exist around the blue planet, including one, 1989 N1, discovered by Voyager 2 last month. The spacecraft, launched in 1977, has explored Jupiter, Saturn, and Uranus and will come within 3,000 miles of Neptune on Aug. 24.


ROUNDUP
Frosch, Yardley cover new space technology in STS development

JSC holds successful 'Bring Our Children to Work Day'

By Jessie Hendrick

Bring Our Children to Work Day was held on June 11 at the Gilruth Center. Approximately 500 students and their parents had an opportunity to learn more about the work that is done at JSC. Jessie Hendrick of the JSC Equal Opportunity Programs Office and Janet Gouveia, an AverStar employee representing Team NASA, coordinated the event.

With the words, "Are we ready to rumble?" the biotechnology team introduced students to how JSC research scientists use the bioreactor to study the effects of microgravity on cells. Dr. Marguerite A. Sognier of the biotechnology team, employee of the University Space Research Association and assistant director of Science Education at the University of Texas Medical Branch, led the team. Other members of the team were Dr. Ruwaida Haddad, a USRA employee also working in the biotechnology program, and Diane Byerly, chief of integration in JSC's biotechnology program. The program was very interactive and allowed children to see and use balloons to model how cells grow on Earth in one unit gravity (monolayer) and in space in microgravity (three dimensions). The aims of the biotechnology program and the research devoted to tissue engineering, such as the long-term goal of creating replacement tissues, were discussed.

The students and parents also viewed bioreactors that were on display courtesy of Synthecon, Inc. and learned how these NASA-designed devices simulate gravity, one of the success stories from the biotechnology program. Attendees learned how cells are grown in these devices and how useful they are for tissue engineering. They also learned what is involved in being a research scientist and about the important biotechnology science facilities being constructed to support the International Space Station.


JSC Photo S99-06218 by Robert Markowitz

Equal Opportunity Programs Director Estella Hernandez Gillette hands out goodie bags to the children during registration at "Bring Our Children to Work Day" on June 11.

In the second presentation, students and parents were given a glimpse of the future in space design by learning about the TransHab and the Combination Lander. Dr. William Schneider, JSC senior engineer, Space Systems, and George Parma, aerospace engineer, Structural Mechanical Design and Analysis Branch, both of JSC's Engineering Directorate, were the presenters.

Students and parents were fascinated by the concept of a lighter and cheaper spacecraft (TransHab) that may be used for the International Space Station and manned missions to Mars. Members of the audience were able to see and touch the Kevlar material that is an integral part of its construction. Students were encouraged to guess what size particle would make a fist-sized dent in a 2-inch-thick, 10-pound piece of aluminum. They were astonished to realize that in space, a particle just a little larger than a BB could cause such damage. Schneider and Parma further explained that the design, which includes the Kevlar, would protect the TransHab while it is on orbit. Schneider and Parma also brought a model of the Combination Lander that may be used in a Mars mission.

"Bring Our Children to Work Day is a wonderful opportunity for students to learn about the work here at JSC," said Hendrick. "We are already planning for next year – our target date is Friday, June 9, 2000, with presentations on the International Space Station and planetary science, and we hope to see you and your children there." ■

White Sands firefighter comes to the rescue

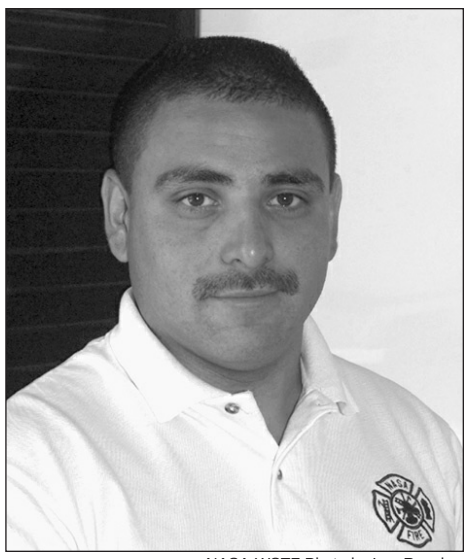
By Nicole Cloutier

Parade spectators in Las Cruces, N.M., were witness to a live emergency procedure during the Fourth of July weekend.

As most of the crowd was taking in the holiday procession of Las Cruces' "Electric Light Parade," a young boy began choking on a piece of hard candy. Luckily, also in the crowd was Lt. Eric Crespin, a NASA firefighter and Emergency Medical Technician at White Sands Test Facility.

"I saw the father, holding the child upside down, striking the child's back in an attempt to dislodge the obstruction," said Crespin, 25. "That tends to further lodge the object, so I knew I had to take action."

After introducing himself to the father as a trained EMT, Crespin stood the child upright and confirmed he had an obstructed airway. Crespin then used a modified version of the Heimlich maneuver on the small child to expel the obstruction.


NASA-WSTF Photo by Lou Rosales

Eric Crespin, firefighter

"He immediately took control of the situation and dislodged the object," said Fermin Rubio, city attorney for Las Cruces and one of the bystanders who saw the incident. "I was very impressed. Saving a person's life is a pretty big accomplishment and he seemed very modest about it, but he deserves a lot of thanks for doing such a great job."

"I couldn't tell you how I felt at the moment," added Crespin. "As an EMT, I don't think of anything but my patient."

Lt. Crespin is an "exceptional firefighter,"according to Merritt Pratt, WSTF fire chief. He recently completed intermediate EMT training, and in his role at WSTF, instructs other employees on first aid, including the Heimlich maneuver and CPR. He attended the parade with wife, Penny, and son, CJ. ■

Editor's note: JSC offers CPR training as part of its "Got the squeeze – call the 33333s" program. Call x36475 or x37896 for more information. For immediate assistance with any onsite emergency, such as choking, call x33333.

TICKET WINDOW

ADMIT ONE

Exchange Store hours

Monday-Friday

Bldg. 3 7 a.m.-4 p.m.

Bldg. 11 9 a.m.-3 p.m.

All tickets are nonrefundable.

Metro tokens and value cards are available.

For more information, please call x35350.

The following discount tickets are available at the Exchange Stores:

General Cinema Theaters				$5.50
Sony Loew's Theaters				$5.00
AMC Theaters				$4.75
Fiesta Texas	adult	$18.25	(child under 48")	$15.50
Astroworld One-day Admission				$21.00
Astroworld Season Pass (valid at all Texas Six Flags Theme Parks and Water World)				$54.75
Water World				$10.75
Moody Gardens (2 of 6 events)				$9.75
Sea World	adult	$27.25	child (age 3-11)	$18.25
Schlitterbahn Water Park	adult	$20.75	child (age 3-11)	$17.50
Space Center Houston	adult	$10.25	child (age 4-11)	$6.50
Space Center Houston Annual Pass (JSC civil service employees free.)				$18.75
Splash Town Water Park	adult	$14.50	(child 48" and under)	$11.50

Houston Comets tickets are now available for August 6 and August 18. Limited quantities.

Houston Astros tickets are now available for August 13 and September 12. Limited quantities.

Stepping stones: *JSC astromaterials team prepares for future*

By Nicole Cloutier

Protected by more than 18 inches of concrete and steel, a motion detector system and a sound build up alarm quietly resides the country's moon, meteorite, and cosmic dust samples in JSC's curation facility. But inside those reinforced walls, researchers and acclaimed scientists are piecing together the solar system's history bit-by-bit, while preparing to make some history of their own.

"Being NASA's home of extraterrestrial materials makes us a unique facility," said Dr. Carl Agee, chief scientist for astromaterials. "But the continued work here has prepared us for making history again – by receiving the samples that will be brought back from Mars in 2008."

A visitor's scan across the JSC campus would hardly suggest that one of our national treasures is neatly tucked away in Bldg. 31N. But there, the Lunar Sample Laboratory Facility houses the more than 842 pounds of lunar rocks, core samples and soils gathered during six Apollo lunar landings, plus a small amount (3/4 of a pound) from unmanned Soviet missions. Although the samples were collected more than 27 years ago, nearly 1,000 samples are distributed each year for continuing research and teaching projects.

Improvements in research technology along with fresh theories from budding researchers allow scientists to revisit unanswered questions and pursue new ones.

"Lunar sample research is not complete by any means-it is alive and well," said Andrea Mosie, a senior scientist for Lockheed Martin at JSC. "People sometimes visit the facility expecting to find a museum, but it's not. It is a working lab with research continuing everyday."

Mosie celebrated more than 24 years with the facility in June and provides an invaluable "corporate memory" for the center. Others like her make up the lunar sample team, which experiences low turnover. Lunar sample processor Linda Watts similarly is a 22-year veteran of the team, and Dr. Gary Lofgren, head curator for the Lunar Sample Facility, has been on staff since 1968.

JSC Photo S99-06274 by Robert Markowitz

JSC's astromaterials team is gearing up for solar wind and Mars samples. Shown here is Dr. Gary Lofgren, head curator for the Lunar Sample Facility, with a sample from the lunar collection. Lofgren is joined by Andrea Mosie, a senior scientist for Lockheed Martin and Dr. Carl Agee, chief scientist for astromaterials.

"It's a rare find in itself," said Dr. Agee of the wealth of experience among the astromaterials team and the Planetary Sciences Branch of SN. After 8 years as an Earth and planetary sciences professor at Harvard, Dr. Agee joined JSC Director George Abbey's senior staff in August 1998 to lead the center's astromaterials research and to prepare facilities for Mars sample return. "The amount of enthusiasm and involvement from colleagues here at JSC, all working towards this common goal, all with lots of new ideas and approaches, makes for a very stimulating environment."

The goal Dr. Agee refers to is NASA's forthcoming missions to Mars for sample retrievals.

Although sample return missions aren't planned to visit the Red Planet until 2003, and a second in 2005, discussions are already under way about facilities needed to accommodate the samples once they arrive.

Compared with the lunar sample facility, which is a model laboratory, Mars presents many new issues to contend with.

"The lunar facility has turned out to be a wonderful stepping-stone for preparing us for the Mars samples," said Dr. Lofgren. "But the Mars samples will bring new challenges for clean room and laboratory processes, which is what we are working on now."

The lunar facilities, regarded as a level 1000 clean room, require researchers to gear up with full-coverage smocks ("bunny suits"), caps and gloves and undergo an "air shower" before entering the 'pristine' laboratory. The samples are additionally contained in nitrogen-filled glove box cabinets. Samples are loaned out for external research, but only about 10 percent of the collection are considered compromised and are kept separated from the 'pristine' samples upon return.

All of these barriers are designed to protect the lunar samples from Earth oriented contaminants, but Mars samples will need two-way contamination control.

"We'll be investigating the Mars samples for life forms and organic compounds," said Dr. Lofgren. "This requires a new process to handle quarantine and analysis, both to protect the samples from Earth contaminants as well as protecting us from any unknown contaminants the samples might contain."

Reduced pressure, colder temperatures, and mimicking of a CO_2 rich environment are other facility issues still being considered.

The Mars samples will be coordinated in two separate phases: initial assessment, quarantine and analysis and then archiving, curation and distribution. Soon, NASA will assess various sites for these projects, including White Sands Test Facility, Ames Research Center and JSC. JSC's experience with the lunar samples uniquely positions it as a coordinating site for the Mars samples, but it may be more than a year before an official decision is made.

Meanwhile, under the leadership of team member Dr. Eileen Stansbery, a new facility has been constructed in Bldg. 31N for the Genesis project. The facility is located directly beneath the lunar lab and will house specimens from the Genesis discovery mission. Genesis is a three-year mission scheduled to depart in 2001. ■

Employees empowered for safety: *Just plane safe*

By Kathleen N. Leonard

Whether you travel so much that the message "your mailbox has exceeded its limits" is a permanent part of your inbox or you only get out of the office once a year, there are things you can do that are "just plane safe" before and during a flight emergency. Moreover, school is out, summer is here; at this time of year families everywhere are planning getaways.

Dressing for success looks different when you have a meeting with an aircraft. Wear sensible clothing for ease of movement and protection in the unlikely event of an evacuation. Wear clothes made of natural fabrics such as cotton, wool, denim, and leather. Synthetics may melt when they are heated. Wear low-heeled shoes or boots (avoid sandals). High-heeled shoes will have to be removed before leaving the airplane via an escape slide. This will slow your departure from the airplane and put you at risk for severe injury from possible hazards such as broken glass or metal debris. Arms and legs should be as fully covered as possible.

Once you reach your seat, locate the closest emergency exit in front of you and behind you, and then count the seat rows to reach those emergency exits. This will be very helpful in case of evacuation in a smoke-filled airplane.

Maybe you have heard pre-flight safety briefings so many times that you automatically tune them out. Don't – things are subject to change! Listen to the them and read the safety data card in the seat in front of you. Know where the flotation devices are and how to use them. One of the best things you can do to be prepared is to plan the actions you would need to take in case of an emergency.

In a recent study, nearly 300 turbulence-related injuries to passengers were reported over a 10-year period. None of the injured had their seat belts fastened. You should keep your seat belt fastened at all times while in your seat – not just for take-off and landing.

The atmosphere in the airliner cabin is pressurized to about the same altitude as Denver, so any alcohol you consume will affect you more strongly than at sea level. The alcohol decreases the oxygen level in your brain even further and you will get drunk even quicker. It will be extremely hard to keep your wits about you if you are involved in an emergency situation.

The mostly likely emergencies that you will face are an evacuation of the aircraft using the emergency slides or using the emergency oxygen system. In case of evacuation by the emergency slides, the best preparation is to be familiar with the locations of the exits, follow the commands of the flight crew, and wear slide friendly clothes (as mentioned earlier). Stay calm and proceed quickly to the nearest exit. Leave all your possessions behind. Jump feet first into the center of the slide. (Do not sit down to slide.) Place arms across chest, elbows in, and legs and feet together.

Emergency oxygen masks may be deployed automatically or be deployed manually by the flight crew. Pull oxygen mask toward you to start oxygen flow. Put your mask on as quickly as possible, then help children and others. Unfortunately in the event of aircraft fires, the oxygen masks on most airliners are unable to provide effective protection because most of them allow the passengers to breathe ambient cabin air along with the supplementary oxygen.

In the past 20 years there have been a number of fatal airline accidents that were notable in that several passengers died not from injuries sustained from the crash, but from the effects of smoke inhalation. Passengers face two kinds of risks from aircraft fires: thermal injuries from the effects of heat and flame; and injuries from breathing the by-products of combustion.

In the event of a fire, use a wet paper towel or handkerchief to cover your nose and mouth. Use bottled water or saliva if necessary to moisten it. Stay low. Proceed your predetermined number of seat rows and/or follow floor proximity lighting to an exit. In the event of excessive smoke, your eyes may be burning or you may not be able to see floor lighting. That's why it is so important to count the seat rows to the nearest exits as stated earlier. It is up to each passenger to make good decisions concerning his or her safety and stay informed. IT IS "JUST PLANE SAFE." ■

DATES & DATA

August 2

NSBE meets: The National Society of Black Engineers will meet at 6:30 p.m. August 2 at Texas Southern University, School of Technology, Rm. 316. For details, call Kimberly Topps at (281) 280-2917.

August 4

Astronomy seminar: The JSC Astronomy Seminar Club will meet at noon August 4, 11, 18, and 25 in Bldg. 31, Rm. 248A. For more information, call Al Jackson at x35037.

Communicators meet: The Clear Lake Communicators, a Toastmasters club, will meet at 11:30 a.m. August 4, 11, 18 and 25 at Freeman Library, 16602 Diana Lane. For more information, call Allen Prescott at (281) 282-3281 or Mark Caronna at (281) 282-4306.

Spaceland Toastmasters meet: The Spaceland Toastmasters will meet at 7 a.m. August 4, 11, 18 and 25 at the House of Prayer Lutheran Church. For more information, call George Salazar at x30162.

Spaceteam Toastmasters meet: The Spaceteam Toastmasters will meet at 11:30 a.m. August 4, 11, 18 and 25 at United Space Alliance, 600 Gemini. For more information, call Patricia Blackwell at (281) 280-6863.

August 5

Warning System Test: The site-wide Employee Warning System will perform its monthly audio test at noon August 5. For more information, call Bob Gaffney at x34249.

August 10

Aero Club Meets: The Bay Area Aero Club will meet at 7 p.m. August 10 at the Houston Gulf Airport clubhouse at 2750 FM 1266 in League City. For additional information call Larry Hendrickson at x32050.

NPMA meets: The National Property Management Association will meet at 5 p.m. August 10 at Robinette and Doyle Caterers, 216 Kirby in Seabrook. Dinner costs $14. For more information call Sina Hawsey at x36582.

August 11

IAAP meets: The Clear Lake/NASA Chapter of the International Association of Administrative Professionals (formerly Professional Secretaries International) will meet at 5:30 p.m. August 11 at Bay Oaks Country Club. Cost is $16. For details and reservations, call Tami Barbour at (281) 488-0055, x238.

August 12

Airplane club meets: The Radio Control Airplane Club will meet at 7 p.m. August 12 at the Clear Lake Park building. For more information call Bill Langdoc at x35970.

MAES meets: The Society of Mexican-American Engineers and Scientists will meet at 11:30 a.m. August 12 in Bldg. 16, Rm. 111. For more information, call George Salazar at x30162.

August 13

Astronomers meet: The JSC Astronomical Society will meet at 7:30 p.m. August 13 at the Center for Advanced Space Studies, 3600 Bay Area Blvd. For details, call Chuck Shaw at x35416.

August 18

Scuba club meets: The Lunarfins will meet at 7:30 p.m. August 18. For details, call Mike Manering at x32618.

August 19

NSS meets: The Clear Lake area chapter of the National Space Society will meet at 6:30 p.m. August 19 at the Freeman Memorial Branch Library, 16602 Diana Lane. For additional information call Murray Clark at (281) 367-2227.

Directors meet: The Space Family Education board of directors will meet at 11:30 a.m. August 19 in Bldg. 45, Rm. 712D. For more information on this open meeting contact Gretchen Thomas at x37664.

August 22

Westside NSS meets: The Westside group of the Clear Lake area chapter of the National Space Society will meet at 2 p.m. August 22 at Silicon Graphics, 11490 Westheimer, Suite 100. For additional information, call Murray Clark at (281) 367-2227.

GILRUTH CENTER NEWS

http://www4.jsc.nasa.gov/ah/exceaa/Gilruth/Gilruth.htm

Hours: The Gilruth Center is open from 6:30 a.m.-10 p.m. Monday-Thursday, 6:30 a.m.-9 p.m. Friday, and 9 a.m.-2 p.m. Saturday. Contact the Gilruth Center at (281) 483-3345.

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

Gilruth badges: Required for use of the Gilruth Center. Employees, spouses, eligible dependents, NASA retirees and spouses may apply for photo identification badges from 7:30 a.m.-9 p.m. Monday-Friday and 9 a.m.-2 p.m. Saturdays. Cost is $10. Dependents must be between 16 and 23 years old.

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

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

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

Weight safety: Required course for employees wishing to use the Gilruth weight room. Pre-registration is required. Cost is $5. Annual weight room use fee is $90. The cost for additional family members is $50.

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

Step/bench aerobics: Low-impact cardiovascular workout. Classes meet from 5:15-6:15 p.m. Tuesdays and Thursdays. Cost is $32 for eight weeks. Call Kristen Taragzewski, instructor, at x36891 for more information.

Yoga: Stretching class of low-impact exercises designed for people of all ages and abilities in a Westernized format. Meets Thursdays 5-6 p.m. Cost is $32 for eight weeks. Call Darrell Matula, instructor, at x38520 for more information.

Ballroom dancing: Classes meet from 7-8:15 p.m. Thursdays for beginner-advanced classes and from 8:15-9:30 p.m. for beginner-intermediate and intermediate students. Cost is $60 per couple.

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

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

NASA BRIEFS

GLENN MISSION, SOHO MAKE ADVANCE ON SOLAR MYSTERY

The high-speed portion of the solar wind achieves its high velocity –up to 500 miles per second – by "surfing" magnetic waves in the Sun's outer atmosphere.

For 37 years, solar scientists have been puzzled by the fact that the high-speed solar wind travels twice as fast as predicted by theory. Observations and theoretical analyses have discovered a surprising explanation for this mystery: magnetic waves. The observations were made using instruments aboard NASA's Spartan 201 spacecraft, deployed from the Space Shuttle during the STS-95 mission, and the international Solar and Heliospheric Observatory (SOHO).

"The mystery was first presented by the Mariner 2 spacecraft in 1962, the same year as Glenn's first flight," said Dr. Marcia Neugebauer of NASA's Jet Propulsion Laboratory, Pasadena, Calif., the co-principal investigator of the solar wind instrument on Mariner 2. "The new observations made by SOHO and by the Spartan 201 mission during Glenn's return to space put us much closer to finally unraveling the mystery of the acceleration of the solar wind."

NASA TECHNOLOGY SPURS NEW ENVIRONMENTAL BUSINESS

Don Sumner knew that past attempts to detect plant stress had been too labor intensive to be cost effective. He believed that if a farmer or forester could efficiently and routinely analyze plant stress, savings in harvest time, fertilization costs and crop losses could substantially increase profits.

Sumner is modifiying Stennis' plant-stress prototype, which detects stress by measuring far-red and infrared light waves.

Sumner recently signed a license agreement for the center's first dual-use technology transfer project. He projects that his Associated Technical Management Corporation of Texarkana, a consortium created to research and develop applications for the imager, could gross approximately $20 million over the next five years from the commercial use of NASA technology.

NASA ANNOUNCES UPCOMING DISCOVERY FLIGHTS

The first comprehensive mission to map pockmarked Mercury and a radical mission to excavate the interior of a comet have been selected as the next flights in NASA's Discovery Program.

The Mercury Surface, Space Environment, Geochemistry and Ranging mission, or Messenger, will carry seven instruments into orbit around the closest planet to the Sun. It will send back the first global images of Mercury and study its shape, interior and magnetic field.

Messenger, to be launched in spring 2004, will be NASA's first mission to Mercury since the Mariner 10 flybys in 1974 and 1975.

Deep Impact will be launched in January 2004 toward an explosive July 4, 2005 encounter with P/Tempel 1. It will use a copper projectile because that material can be identified easily within the spectral observations of the material blasted off the comet by the impact, which will occur at an approximate speed of 22,300 mph.

SPACE CENTER Roundup

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