Space News ROUNDUP!

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In this issue

Today, the Space News Roundup returns to its 35-year-old roots as a bi-weekly publication.

The Roundup's purpose, as always, is to inform employees about what's happening at NASA's prime human space flight center. But with the lightning-fast communication of the computer era and the on-line Daily Cyber Space Roundup able to provide "hot" news in an even more timely manner, the Roundup is changing its focus to include more in-depth coverage of employee and contractor activities and accomplishments.

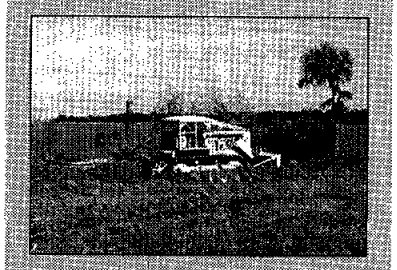
The Public Affairs Office is seeking your help in identifying more of these kinds of stories. It has established an Editorial Board made up of representatives from a broad cross-section of JSC organizations to help guide the Roundup on policy issues, and soon will be establishing a system of liaisons from organizations and contractors.

The first Editorial Board met last week. Attendees were Human Resourses' Greg Hayes, Mission Operations' Randy Stone, Engineering's Jim Jaax and Michelle Monk, Comptroller Wayne Draper, the Shuttle Program's Carl Shelley, Space and Life Sciences' Judith Robinson and Public Affairs' Doug Ward.

The Roundup staff hopes you enjoy the new paper and invites you to contact us with your contributions and suggestions. Details on how to do that are in the masthead on Page 8.

The four volunteers who spent 60 days in a sealed chamber document their stay in pictures. **Page 4**

The Scientific and Technical Information Center hosts an open house. **Page 5**



Workers begin to build the Manned Spacecraft Center in Clear Lake. **Page 6**

U.S. students fly experiments on KC-135

Twenty-four teams of undergraduate college students from around the country are "floating" through school this month aboard a NASA research aircraft based at JSC's Ellington Field facilities.

Called the 1997 NASA Reduced Gravity Student Flight Opportunities, the pilot program is funded by NASA and administered by the Texas Space Grant Consortium. Students from as near as Texas A&M and as far away as Michigan and Idaho are taking advantage of the KC-135 aircraft and support at Ellington Field for two weeks of briefings, training, preparation, and finally, flight. The program's flight phase began Monday, April 7.

Each team consists of up to four undergraduate-level college students, a supervising professor and a local professional journalist. All will fly except the supervising professor. Teams are flying experiments aboard the KC-135A aircraft that flies a roller-coaster-like flight profile over the Gulf of Mexico.

During each two-to-three-hour flight, the aircraft maneuvers through steep climbs and descents. At the top of each ascent, passengers inside the aircraft experience 25 to 40 seconds of weightlessness. The teams are designing, building, testing, and operating experiments that take advantage of the reduced-gravity environment. In addition to performing the experiments, each team will develop a program for sharing its research results with teachers, students, and the general public.

During the first week, participants received pre-flight training and assembled their experiment packages. This week, they are flying with experiments and conducting post-flight debriefings and reviews. Each team will fly twice. Depending on the precise trajectory, passengers and their experiments can experience about 25 seconds of zero gravity, 30 seconds of one-sixth gravity (the same as the gravity on the surface of the Moon), or 40 seconds of

Please see **REDUCED**, Page 8

JSC Photo S97-03961 by Benny Benavides

CONGRESSIONAL REVIEW—Astronaut Kevin Chilton, right, explains the workings of the International Space Station to, from left, U.S. Reps Nick Lampson and Sheila Jackson Lee, both D-Texas; Astronaut Shannon Lucid; and U.S. Rep Bud Cramer, D-Ala.

Faulty fuel cell forces STS-83 early return

Space shuttle managers Sunday decided to cut short the STS-83 Microgravity Science Laboratory-1 mission because of problems with one of *Columbia*'s three fuel cell power generating units.

Commander Jim Halsell, Pilot Susan Still, Payload Commander Janice Voss Mission Specialists Mike Gernhardt and Don Thomas, and Payload Specialists Roger Crouch and Greg Linteris were scheduled to land at 1:33 p.m. CDT Tuesday at Kennedy Space Center. Fuel cell 2 was shut down by the crew Sunday and several pieces of non-critical equipment was powered down so that electricity could be used to perform as much experiment work as possible.

"In the short time that we have been here (in space), thanks to the hard work of the payload people onboard *Columbia* and at Huntsville, we have been able to put together a good science program that will bring back some meaningful science," Halsell said during a crew news conference on Monday. "It's true everybody is disappointed that we have to come home early, not only the crew but the investigators and researchers whose science we are up here to accomplish."

The three shuttle fuel cells generate electricity by combining liquid hydrogen and oxygen and creating, as a byproduct, water. Although only one operational fuel cell can provide sufficient electricity to safely conduct *Columbia*'s orbital and landing operations, shuttle managers decided to end the mission early due to the loss of the failed fuel cell as a backup to the two currently operating cells. The loss of the fuel cell also reduced the amount of power available for experiments.

"We depend on electricity to fly," Halsell said. "Therefore, when you lose one third of your electrical producing capacity you have to consider that. After we had to save fuel cell 2, we had a little pow-wow on the flight deck and we made sure we understood all the emergency procedures as modified by the fact that fuel cell 2 had been shut down."

The early landing is only the third in the shuttle program's 83 flights behind STS-2 in November 1981 and

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New science center allows scientists more access

By Toni Loftin

A new science center to monitor shuttle experiments is under development as a cooperative effort of the Space and Life Sciences and Mission Operations Directorate.

The new center will allow scientists to monitor experiments aboard the shuttle, giving them more access to data such as vehicle system displays, payload systems, shuttle orientation and other previously unavailable information.

The center is part of an effort to maximize resources and consolidate operations.

"We want to provide the best operational support capability," said Bonnie Dunbar, assistant director of MOD, "We want to provide the very best environment to produce the very best data. We in Mission Operations are very interested in customer expectations for the scientific productivity of the flights."

The new facility will be located on the second floor of Bldg. 30, in a previous flight control room. The center will be a combination of MOD hardware and Life Sciences software. The center also will include MCC-style features such as a front screen display and a viewing room.

"What we are doing is taking two worlds, the Life Sciences and the MOD worlds and bringing them together," said Steven Gonzalez, project manager in charge of startup for the science center. "One of the good things about this room is that scientists that come in from different institutions, different countries can bring in whatever equipment they want and plug it in and get whatever data they need."

Ten consoles have been installed, and will be used to monitor life sciences experiments during STS-84. When completed in September, the center will have eighteen consoles. STS-90 will be the first completely operational mission for the center.

Hubble check-out finds successes, concerns

Telescope captures sharpest views of Mars

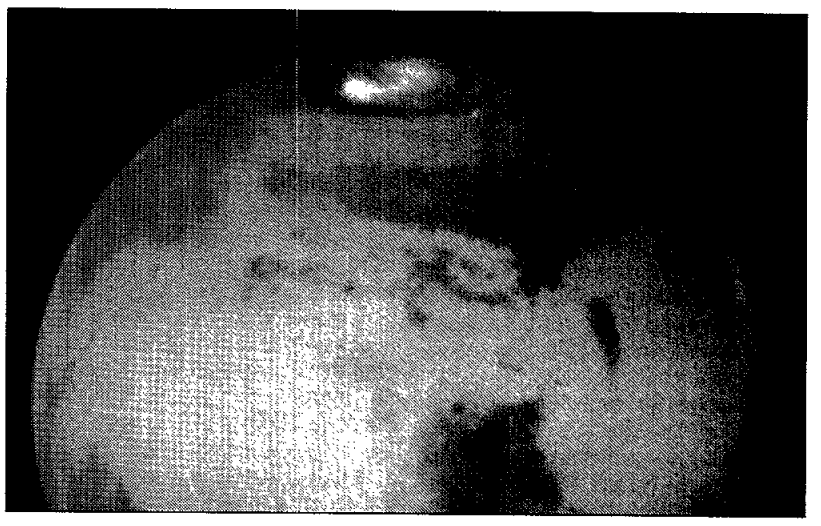
The post-servicing checkout of NASA's Hubble Space Telescope, currently about halfway complete, has found Hubble in overall excellent health, with seven of the eight components replaced during the servicing mission functioning very well.

However, a concern with one of the instruments is being evaluated.

"The Hubble Telescope is checking out extremely well overall, and the few anomalies we see give us no reason to believe we will not be able to meet all our scientific goals," said Ed Weiler, Hubble program scientist at NASA Headquarters. "I'm very impressed that in just the few weeks since the servicing mission, we've already seen Hubble take the best images of Mars ever obtained from Earth's distance. Every observatory commissioning encounters some problems, but we're on track to clear up all our remaining concerns."

Earlier this month science observations resumed, and on March 10 the science team obtained images of Mars. The images clearly show clouds, dust storms, polar caps and other bright and dark markings known to astronomers for more than a century. Taken just before the red

Please see **HUBBLE**, Page 8



NASA Photo

The sharpest view of Mars ever taken from Earth was obtained by the recently refurbished NASA Hubble Space Telescope. This portrait was taken on March 10, just before Mars opposition, when the red planet made one of its closest passes to the Earth.

Mir 23 to begin repairs of key station systems

American Jerry Linenger and his Mir 23 crew mates were expected to begin repairing key equipment aboard the Russian Mir Space Station following the planned Tuesday docking of a Progress resupply ship.

Linenger, Commander Vasily Tsibliev and Flight Engineer Alexander Lazutkin will work on one of Mir's oxygen generating units and a cooling loop leak which caused the shutdown of a carbon dioxide scrubbing machine.

Late last week, Russian flight controllers detected a leak in one of the Kvant-2 module's thermal loops. This loop provides a similar cooling function for the Kvant-2 module as does the so-called KOB loop for the Mir's core module, maintaining structural temperature.

On April 2, the crew began repair of the loop by using sealant and a waterproof cloth. To compensate for the temporary loss of this loop, the Mir station's orientation was altered so the Kvant-2 module was shadowed from the Sun by the Kvant-1 module, the core module and the station's solar arrays.

Previously, another cooling loop in the Kvant-1 module experienced a decrease in pressure across one of its pumps. This pump was switched off and another turned on to stabilize the pressure. But the pressure dropped again, resulting in a shutdown of a carbon dioxide scrubbing system known as Vozdukh. With the Vozdukh shut down, carbon dioxide removal is being performed by lithium hyroxide canisters. This is expected to continue until the Kvant-2 cooling loop is operational.

The trio continued to generate oxygen by burning solid-fuel oxygen generators known as "candles." The crew has burned three "candles" each day to maintain acceptable oxygen levels aboard the station.

The Progress, launched Sunday, is carrying repair equipment for the Mir's Elektron oxygen-generating system and additional candles, lithium hydroxide canisters, extra repair gear for the station's cooling loops as well as routine supplies of food, equipment and personal effects for the crew. New spacesuits for a planned space walk by Tsibliev and Linenger on April 29 are also stored aboard. The Progress was scheduled to dock to Mir at 12:28 p.m. CDT Tuesday, April 8.

Meanwhile, Linenger became the fourth most experienced astronaut.

Linenger's total time in space includes his shuttle flight on the STS-64 mission and puts him behind Shannon Lucid, John Blaha and Norm Thagard — all preceding him as crew members aboard Mir — as the most experienced space travelers in U.S. history. His total flight time surpassed that of the American Skylab 4 crew of 84 days in space. Linenger will surpass the single mission records of Thagard on May 6 and Blaha on May 20 before he returns home aboard *Atlantis* in May. He will be replaced on Mir by Mike Foale who returned to JSC this week for training prior to the May 15 launch.

In an interview this month with CNN, Linenger said he has seen some incredible natural wonders in space and is very busy.

"I have seen a comet up here that is absolutely spectacular," Linenger said. "There is so many natural wonders out here that it is mind boggling. It's very, very busy and very exacting work that I have to do. The most difficult thing is being constantly vigilant of what I am doing, working very methodically and using every once of brain cell that I have to try to perform these very important experiments and repair the station."

External tank completes pressure tests

The first new, super lightweight, external fuel tank for the space shuttle is set for final assembly after successfully completing proof pressure tests that verify its design.

The achievement is a significant step toward the first launch of the International Space Station. The new external tank is the same size as the one currently used on the space shuttle—but about 7,500 pounds lighter.

"Each pound we remove from the external tank is a pound that can be added to the payload," said Parker Counts, manager of the External Tank Project at NASA's Marshall Space Flight Center. "The lighter tank is essential for launching the space station because the station components will be assembled in a more demanding orbit than previously planned."

The 154-foot-long external tank, higher than a 15-story building and as wide as a silo with a diameter of about 27 feet, is the largest single component of the space shuttle.

The two major changes to the external tank involve materials and design. Both the liquid hydrogen and the liquid oxygen tank are constructed of aluminum lithium—a lighter, stronger material than the metal alloy used for the space shuttle's current external tank. The tank's structural design also has been improved. The walls of the redesigned hydrogen tank are manufactured in an orthogonal waffle-like pattern, providing more strength and stability than the previous design.

"The new external tank has passed one of the most innovative structural verification test programs ever designed, culminating with these proof tests," Counts said.

The proof test for the liquid oxygen tank was a hydrostatic, or water pressure test. The tank was placed vertically on the test stand at NASA's Michoud Assembly Facility in New Orleans, and filled with water, which has similar density to liquid oxygen. The tests simulated conditions encountered during flights and validated the design changes.

The liquid hydrogen tank was pressurized with gaseous nitrogen and subjected to conditions simulating the thrust of the orbiter's main engines and solid rocket boosters. Tests checked the new design by exposing the tank to harsher conditions than it will encounter in flight.

After the tests, comprehensive X-ray and dye inspections will be performed to further verify the tank's flight worthiness. The proof tests completed March 25 were the final in a series of rigorous certification and structural verification tests.

After thermal protection foam is sprayed on its exterior, the first super lightweight tank will be shipped by barge from Louisiana to the Kennedy Space Center, for its launch with the first elements of the International Space Station. The changes to the external tank will not affect the assembly process when the orbiter is mated to its tank and solid rocket boosters.

NASA Photo

HATCH CHECK—Astronaut Jim Newman prepares to open a hatch that was built for the International Space Station. Newman and fellow astronaut Bob Cabana participated in hatch qualification and life-cycle testing which is under way at NASA's Marshall Space Flight Center. The two astronauts are members of the STS-88 space shuttle crew in which the shuttle will carry the first U.S.-built space station element, Node 1, into space for assembly. As station elements are joined together, this and similar hatches will provide a common link or doorway between modules of the station. The modules are being built by Boeing Defense and Space Group in Huntsville, Ala.

Robotic Mars missions pave way for humans

NASA's Space Science and Human Exploration and Development of Space enterprises will jointly fund and manage two robotic missions to Mars intended to advance scientific knowledge and lay groundwork for a future decision on whether to send humans to Mars.

NASA intends to launch two separate spacecraft to Mars, a small orbiter and a small lander, in March and April 2001, respectively.

The Mars Surveyor 2001 Lander will deliver a small, advanced technology rover capable of traveling several tens of miles across the Martian highlands. The rover will collect rock and soil samples for return to Earth by a future robotic mission. Now, the 2001 Lander also will be a platform for instruments and technology designed to provide key insights to decisions on successful and cost-effective human missions to Mars. The lander will be used for an in-situ demonstration test of rocket propellant production using gases in the Martian atmosphere. Other equipment will characterize the planet's soil properties and surface radiation environment.

A companion mission known as the Mars Surveyor 2001 Orbiter will be launched in March 2001. The 2001 Orbiter will be the first to use the atmosphere of Mars to slow down and directly capture the spacecraft into orbit, in a technique called aerocapture. The scientific objectives are to conduct mineralogical mapping of the entire planet and characterize its orbital radiation.

An integrated team from JSC, NASA's Jet Propulsion Laboratory and Lockheed Martin Astronautics, Denver, will develop the missions, led by JPL.

Endeavour returns to fleet at KSC ahead of schedule

Endeavour rejoined the shuttle fleet last month with increased payload carrying capability and key new features to support the assembly of the International Space Station.

Following an ambitious eight-month structural inspection and major modification effort, *Endeavour* rolled out of the Boeing North American Orbiter Major Modification Center ahead of schedule. Upon its arrival at KSC, United Space Alliance ground crews begin processing operations to prepare *Endeavour* for its next mission, scheduled for December.

The Boeing North American team, which conducts major orbiter modifications under contract with USA, removed and reinstalled more than2,000 parts including the replacement of the internal airlock with a new external airlock designed to accommodate space walks and docking with the space station. In addition, provisions for a new assembly power converter unit were installed to make the orbiter electrically compatible with space station voltage levels.

A number of modifications also contributed weight savings including changes to the payload bay doors and replacement of 860 thermal protection system blankets with 165 new lightweight blankets. The overall reduction in weight of more than a ton translates to improved performance needed to get the shuttle to the higher altitude and orbital inclination required for station assembly.

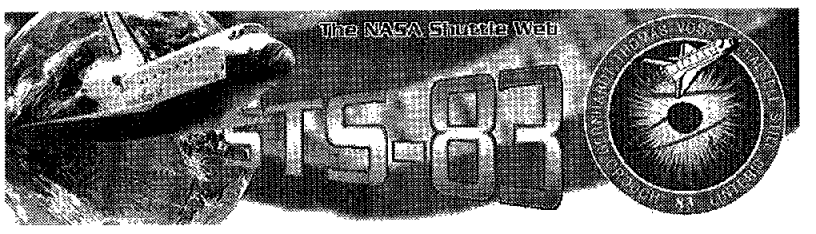
The effort marked the second use of the Palmdale, Calif., facility's new vehicle automated checkout system which replaced the previous system used since 1970. The new system has played a major role in improving the speed and efficiency of the two most recent vehicle checkouts. The next orbiter due for major modification work is *Atlantis*, currently scheduled to begin later this year.

Internet News: NASA centers cooperate to put STS-83 on-line

Need to find some interesting details on the STS-83 Microgravity Science Laboratory-1 mission? The Internet is the place to go, with NASA centers around the country providing a wealth of information about the flight, its crew and its experiments.

The first stop is the NASA Shuttle Web, which provides an overview of the activities on board with daily updates, real-time telemetry and background information that ranges from the official press kit to crew menus.

Anyone who has had difficulty accessing the NASA Shuttle Web on past missions because of heavy traffic should try again this flight, because STS-83 marks the maiden flight for the Internet Maintenance and Operations Contract. IMOC is a pathfinding effort by JSC's Information Services Directorate to outsource the maintenance and operation of the servers holding the data and the Internet connectivity that takes people there. The NASAwide



site, which is managed by JSC for the agency, is the first major public Web site to be handled under such an arrangement.

The new contract, which provides the vendor with incentives to increase the speed and accessibility of the server and the connectivity bandwidth (the size of the pipe through which the information flows), is expected to vastly improve response times and allow more people to access the information simultaneously.

From the main NASA Shuttle Web page at http://shuttle.nasa.gov, visitors will be able to visit the four major sections on Countdown, Launch, Orbit and Landing activities. Also available are overviews of the mission, the astronauts and the payloads. All of the NASA Shuttle Web's standard features will be available, including the latest electronic images, lists of sighting opportunities, orbital elements for those who like to track the position of the shuttle on their home computers, and opportunities to ask questions of the crew and flight controllers.

Several other NASA sites are providing additional details about the scientific research being tackled on this flight.

The Payload Operations Control Center offers detailed information about each of the experiments flying on MSL-1 at: http:// liftoff.msfc.nasa.gov/spacelab/msl/welcome.html

The Space Science Laboratory at Marshall also has put together a set of Web pages that answer the questions of why scientists want to study things in microgravity, how they are going about it and who is involved. You can even visit a ground cyberlaboratory and perform some mock experiments. It's at: http://www.ssl.msfc.nasa.gov/msl1/msl1hframe.htm

As NASA's lead center for microgravity fluids and combustion research, Lewis Research Center has details on the new Combustion Module-1 rack at: http://zeta.lerc.nasa.gov/msl1/overview.htm

Ames Research Center has information about STS-83 studies of plants that may someday lead to the production of life-saving medicines and other important compounds at: http://ccf.arc.nasa.gov/dx/basket/storiesetc/97_22AR.html

Finally, Langley Research Center offers the on-line version of the quarterly Microgravity News publication at: http://mgnwww.larc.nasa.gov/

Community News

JSC hosting Earth Day celebration

Grassroots observance April 22 includes radio show broadcast

By Sandra Parker

During the last Presidential election, Americans sent a powerful message to Congress, that clean water and air continue to be important priorities.

JSC's Environmental Services Office once again is organizing an Earth Day celebration for all employees at the center. This year's event, which will focus on ways to reduce, reuse and recycle in order to "Get Your Earth's Worth," will be held from 10 a.m. until 2 p.m. Tuesday, April 22, at the Gilruth Center.

Earthwatch

Americans first conveyed their concern for the environment on April 22, 1970, when millions of citizens participated in the first Earth Day event. In keeping with its history, this year's Earth Day is a grassroots, voluntary event. It offers everyone an opportunity to celebrate and protect the environment.

JSC's observance will mirror this grassroots emphasis. Workshops, exhibits, astronaut autographs, solar car races and other demonstrations are planned in the ballroom. Photographs from a Photo Contest will be displayed just inside the entrance.

John Burrows and Randy Lemmon of the KTRH radio show "Garden Line" will be broadcasting live from the Gilruth this year. Among the exhibitors, the Houston Museum of Natural Science will provide a rain forest display, Environment Associates will have an exhibit on environmentally designed homes that prevent sick building syndrome and use recycled materials, Houston Lighting and Power will show employees ways to conserve energy and the City of Houston will display methods for water conservation.

Closer to home, the Government Services Administration booth will display information about the numerous environmentally friendly products offered to JSC organizations.

Employees are invited to visit the registration table for a chance to win door prizes. Prizes include an international globe clock, a canvas portfolio, gardening supplies, bird houses and other Earth Day surprises. At the Pledge Booth, employees may receive a tote bag in return for their pledge to begin a recycling activity at home or work.

Other prizes and giveaways will include Earth Day caps, mugs, stress balls and more.

The planning for the first Earth Day event began in 1969 when then-Sen. Gaylord Nelson of Wisconsin proposed a nationwide "teach-in" on environmental issues. Thousands of schools and colleges held seminars and discussions on environmental topics. People in towns and cities across the country demonstrated their concern about air and water pollution in a wide variety of ways.

Through the first Earth Day, the concept of ecology (the relationship of living things to one another and their environment) became more widely understood.

As a result of that first Earth Day, Congress consolidated the major pollution control programs and created the Environmental Protection Agency.

Earth Day Workshop Schedule

Employees who want to learn how to help the environment may visit the Gilruth Center and attend workshops in Rm. 217. Here's the schedule:

11 a.m.: Birding on the Texas Coast, featuring Tom Scarsella
Noon: Environmentally Designed Homes, with Laverne Williams
Noon: Model solar car races will be held in the Gilruth Center parking lot
1 p.m.: Air Quality in the Bay Area, featuring Diane Sheridan

Internet Information

Information on the Earth Photograph Contest, the Original Art Coloring Contest and the 5K fun run 2K walk April 19 can be obtained from the Earth Day Home Page at: http://www4.jsc.nasa.gov/earthday/

Safe Disposal Locations

Once a year numerous communities and local industries sponsor a "Household Hazardous Materials Collection Day." This year the event will be from 9 a.m.-3 p.m. Saturday, April 19, at the following locations around town:

Clear Lake: University of Houston-Clear Lake, 2700 Bay Area Blvd., Bayou Bldg., North Student Parking Lot "D"
Baytown: Fire/Rescue Maintenance Facility, 201 East Wye Drive
Deer Park: Transfer Station, 610 Old Underwood Road
North Channel: Wallisville Annex Court House, 14350 Wallisville Road
Pasadena: Memorial Stadium, 2902 Dabney at Burke
Pearland: Pearland High School, Highway 35

The following items WILL be accepted (maximum container size is one gallon):

Automotive products such as waste oil, antifreeze, solvents, oil filters, unmounted tires (12-24" rim size), batteries, brake fluids and transmission fluid.

Gardening products including pesticides, such as ant and roach killers.

Paint products such as thinners and solvents, latex and oil paint, spray cans, strippers, lacquers, turpentine and wood preservatives.

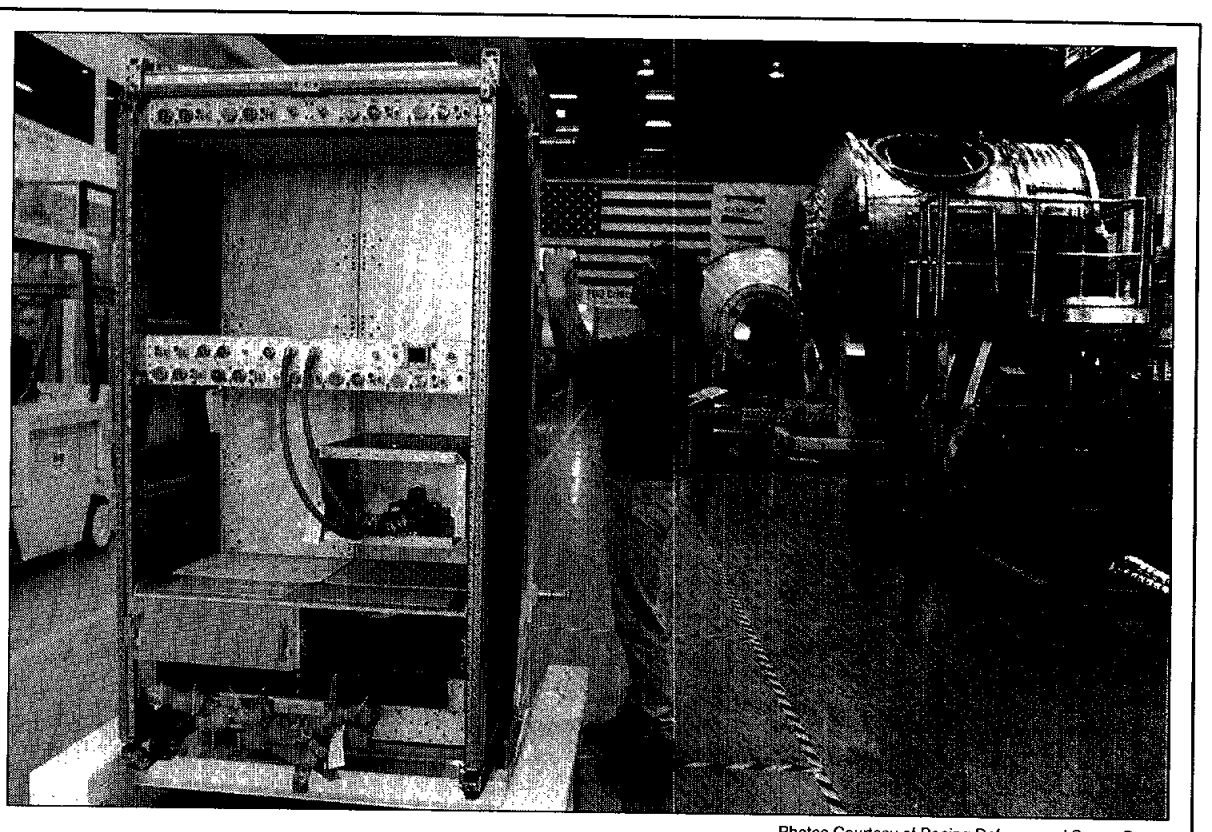
Cleaning products including drain cleaners, oven cleaners, bleach, cleaning solvents and spot removers, ammonia and concentrated cleaners.

Other household items such as moth balls, polishes and pool chemicals.

The following items WON'T be accepted at any of these locations:

Waste from commercial businesses, radioactive waste, PCBs and dioxins, explosives and gunpowder, compressed gas cylinders or medical waste.

Employees who have questions about toxicity should call: Galveston: (409) 765-1420 or Texas State Poison Center in Houston: (713) 654-1701.



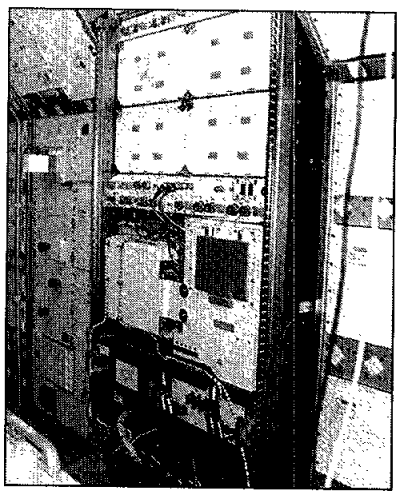
Photos Courtesy of Boeing Defense and Space Group

Above: With International Space Station modules in the background, a Boeing employee works on the Expedite the Processing of Experiments to the Space Station, or EXPRESS, rack to prepare it for shipment to the Kennedy Space Center for STS-83. Center: Inside the Microgravity Science Laboratory in *Columbia*'s cargo bay, researchers will test the EXPRESS rack's ability to put their experiments in operation in just 11 months.

Boeing builds experiment rack

Onboard the STS-83 Microgravity Science Laboratory is an International Space Station rack that may allow scientists quicker, easier and more affordable access to space.

The EXPRESS rack is designed to provide multiple smaller payloads with quick, simple integration thanks to standardized hardware interfaces and a streamlined approach. This "plug-in and go" rack, built by Boeing Defense and Space Group, will allow experiments to easily transfer from the shuttle to the International Space Station.



EXPRESS stands for Expedite the Processing of Experiments to the Space Station. The rack will allow researchers to have experiments operating on-board the space station in just 11 moths or sooner after signing a single integration agreement. In the past, researchers have had to wait three years or more to get their experiments in space.

"The EXPRESS rack provides a set of standard payload interfaces and we are matching that with a quick and simple integration process," said Annette Sledd, NASA EXPRESS project manager. "The goal is to provide the maximum science in the shortest time for minimum cost, and we have done that with the EXPRESS rack."

The EXPRESS science payload system was built by Boeing in Huntsville, Ala. It is designed to reduce the time, complexity and expense that is historically associated with orbital research. Experiments may be controlled by the crew on-board from the experiment or the rack's laptop computer, or operated via uplink from the ground from the U. S. operations center or a remote facility.

"This pathfinder rack was developed in just two years with a small, multi-disciplined team," said Ted Davis, Boeing's EXPRESS rack manager in Huntsville. "One of our biggest challenges was being the first to take a piece of space station-developed hardware off the production line and integrating it with the Spacelab interfaces and requirements."

The EXPRESS rack on STS-83 is made of graphite components and weighs about 570 pounds without experiments. It has eight single middeck lockers and two standard interface rack drawers. Included in the subsystems are an avionics air assembly that will cool experiments, power and protection subsystems and experiments. It also has a communication link between experiments, the Spacelab data systems and ground controllers. During STS-83, the systems will simulate the command and control link for the space station. After STS-83, the rack's performance will be evaluated and eight will be built for the station.

JSC Safety Alert

Evacuation of facilities when the fire alarm bell activates

What happened

Recently the fire alarm was activated in Bldg. 1. The emergency was terminated before the evacuation was complete and the people who had left the building were told to return. This caused confusion among the people who were still in the building trying to evacuate.

Outcome of the investigation

When the Fire Protection Specialist (FPS) arrived at the building he was told by a fire alarm technician that the emergency needed to be stopped since the alarm was caused by a procedural mix-up. The FPS terminated the emergency and tried to stop any further unnecessary evacuation of the facility. Termination of the emergency was done much too quickly, causing confusion to people who were still in the stairwells evacuating the building.

What you can do

If you hear a fire alarm bell:

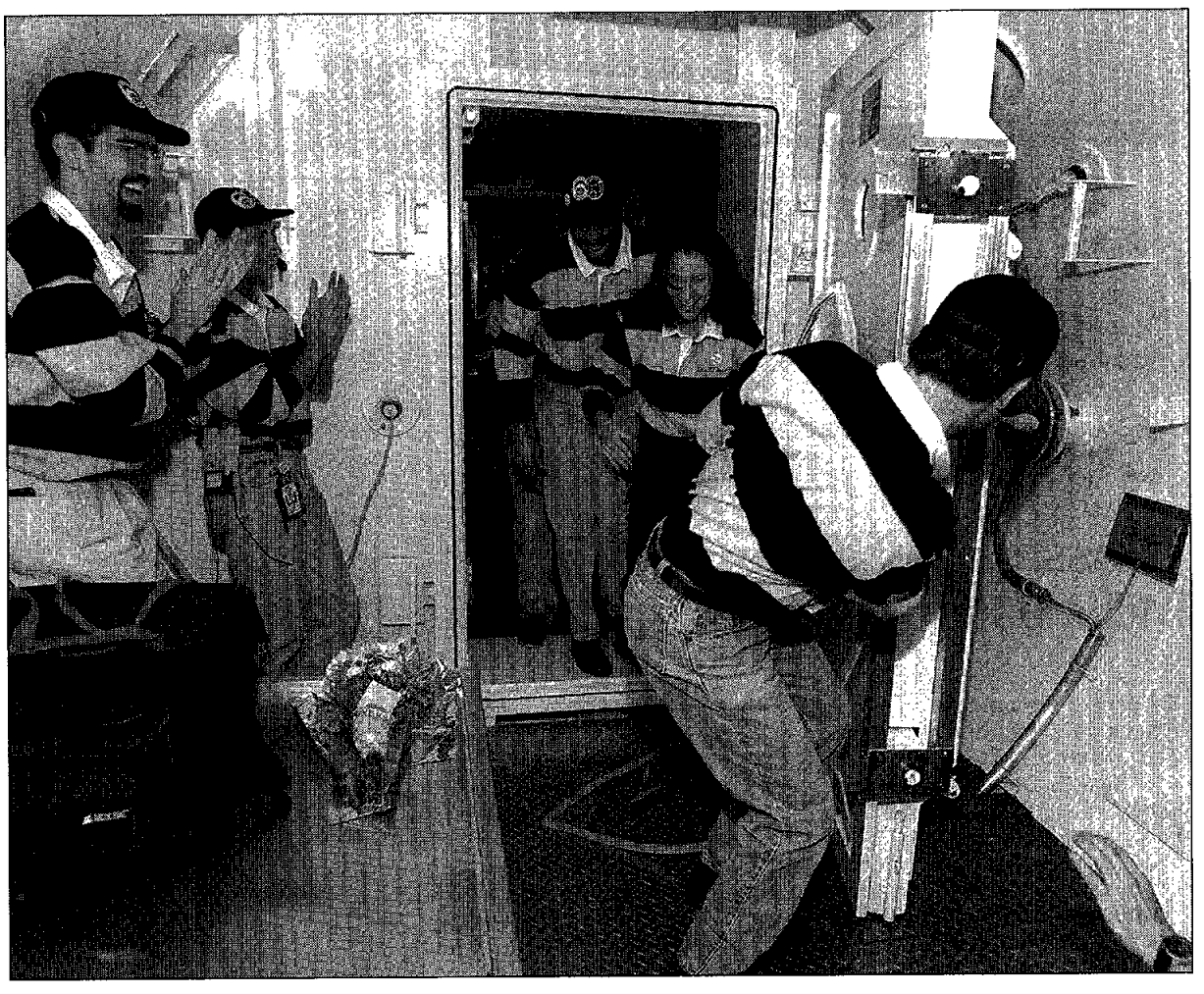
- Leave the building immediately using the exit routes shown on the evacuation diagram on your floor.
- Don't use the elevators
- Shut down hazardous operations and secure classified material if you have time.
- Go to a safe area designated by your supervisor that is at least 75 feet from the building until you get further instructions.

What is being done

Emergencies will not be terminated until all physically able persons have evacuated from a building. Physically challenged persons and their buddies will be notified of the termination at the area of rescue assistance.

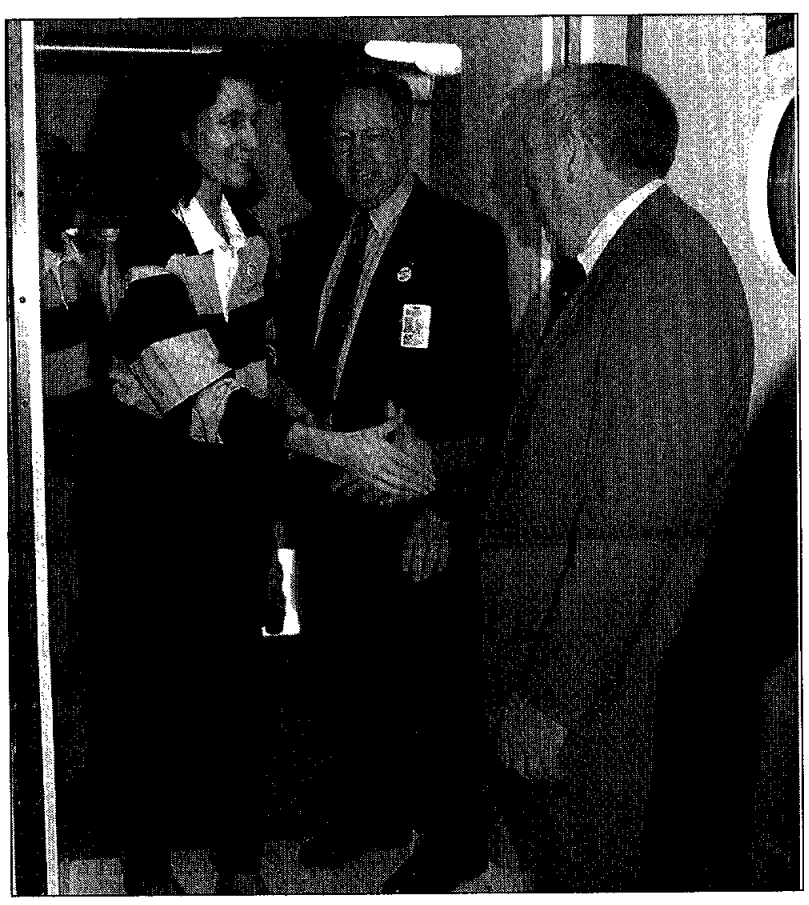
Second Time Around

Volunteers document in pictures their 60-day stay in air-tight JSC chamber



↑ After spending 60 days in a air-tight chamber, Team Lead Terry Tri opens the JSC chamber door in Bldg. 7 and Project Engineer Karen Meyers, Systems Engineer Fred Smith and Facilities Project Engineer David Staat emerge to greetings from outside team members from left, John Lewis and Don Henniger and family members. The four volunteers were sealed in the chamber as part of the Phase IIA-International Space Station Life Support Test.

JSC Photo 97-03471



From left Meyers and her team mates are greeted by Crew and Thermal System Division Chief Will Ellis, JSC Director George Abbey and a host of dignitaries including Skylab astronauts Bill Thornton and Karol Bobko.The new chamber record of 60 days surpasses the old record of 56 days held by the Skylab astronauts and set in September 197 2for the Skylab Medical Experiments Altitude Test. ←

JSC Photo 97-03468

During the 60-day test, Smith works with a Portable Clinical Blood Analyzer that was one of the 12 medical experiments the team worked on during the 60 day test. This one is a remote training tool for which the team evaluated the effectiveness of CD-ROM as a training method to use the PCBA. Smith said the test should keep the dream of returning to the Moon and Mars alive. ←

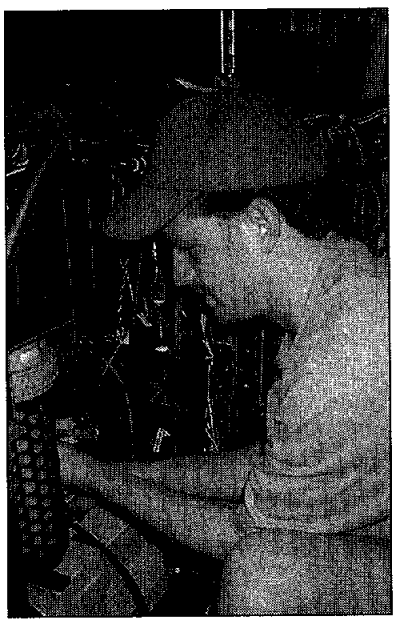
JSC Photo 97-03465

Meyers obtains carpet particulate matter for evaluation during the test. Samples were taken twice for microbiological analysis. The team successfully completed all of the demonstration projects during the 60 days in the chamber. The crew spent its time investigating mechanical and chemical means to recycle all air and water. →

JSC Photo 97-03460

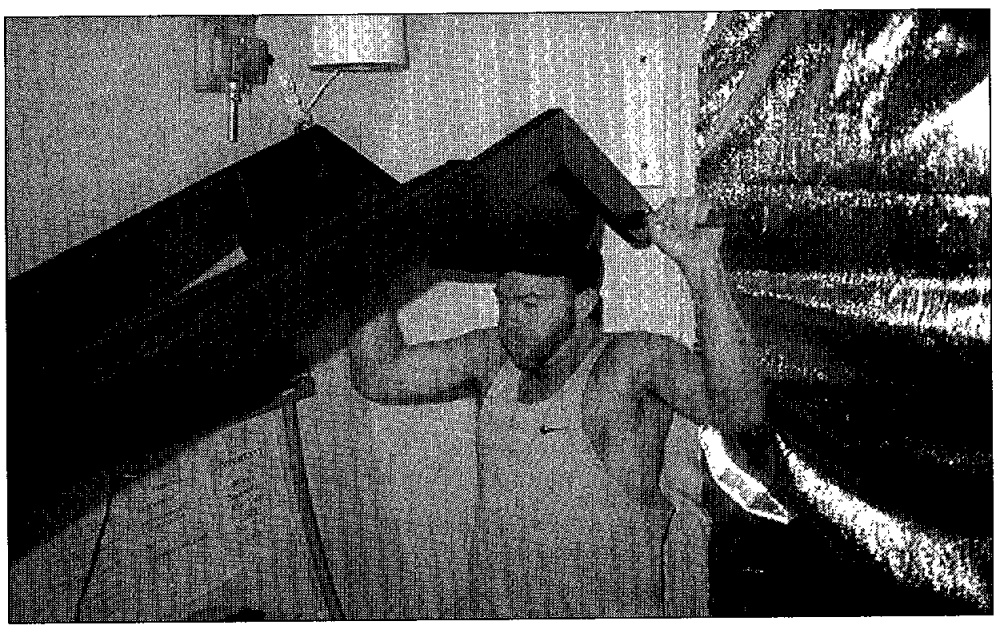
From left, Meyers and Tri take sound level measurements in the common area on the first level of the chamber. Meyer said all the tests were important so that scientists can obtain meaningful science as the space program moves toward assembly of the International Space Station and beyond. →

JSC Photo 97-03470



Staat performs preventive maintenance on the urine treatment system. The special absorbent material is removed and regenerated every two weeks. During the test, team members provided daily status reports on the operation of the air revitalization and water recovery system, as well as crew habitability criteria. →

JSC Photo 97-03466



Tri works out on the Resistive Exercise Device. Each team member worked out three times a week to build muscle and reduce calcium loss that is evident in astronauts who spend time in space. Each volunteer agreed that a team effort was essential in completing all the objectives of the test.

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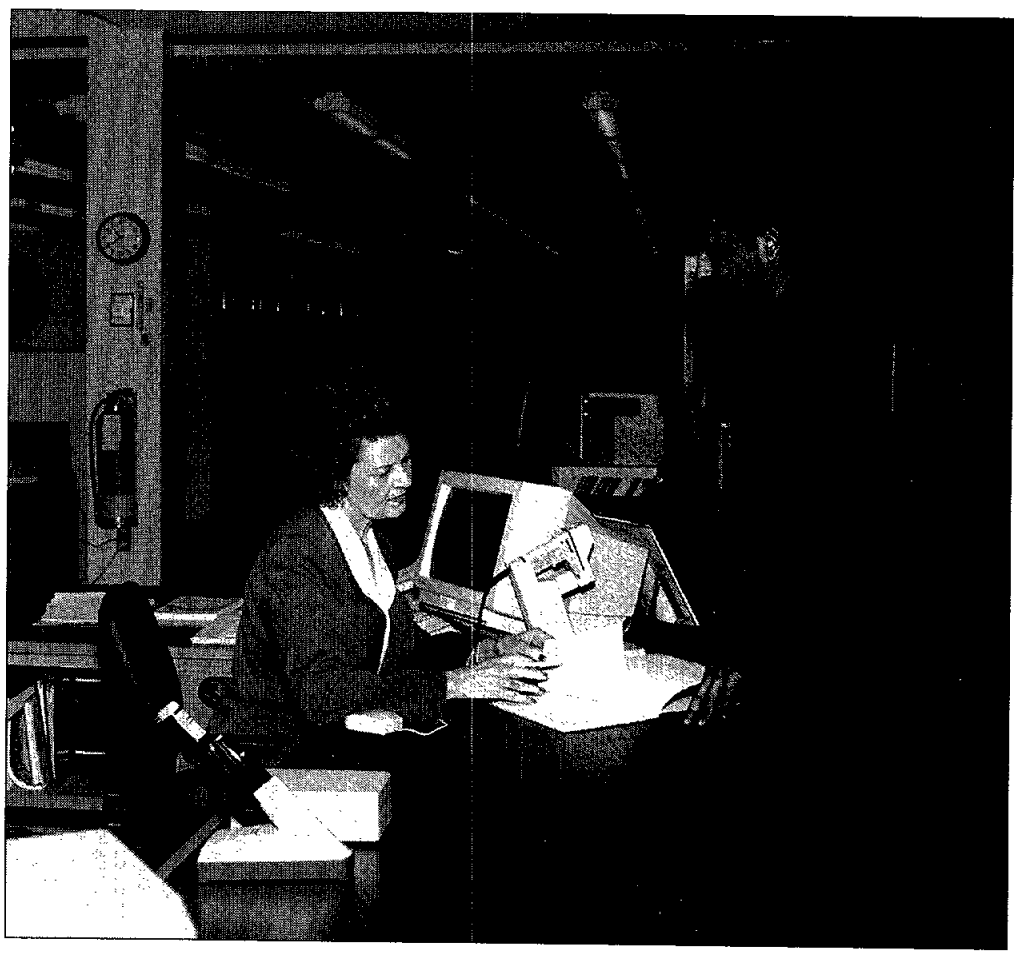
JSC Photo 97-03467

Open House

JSC's Scientific, Technical Information Center provides roadmap to 21st Century



By Patti Stockman

While many civil servants and contractor employees draw frequently upon the resources of the Scientific and Technical Information, or STI, Center to enhance their effectiveness on the job, many others in the JSC community have yet to take advantage of the wealth of information at their fingertips.

Next week, in conjunction with National Library Week, STI Center staff will host an Open House from 10 a.m.- 3 p.m. Tuesday April 15, in the Bldg. 45 annex. JSC employees will have the opportunity to become familiar with the vast array of resources and services available, tour the facilities, participate in on-line database demonstrations and challenge their library know-how through an information scavenger hunt. There will be displays and packets of information explaining the workings and resources of the library. Astronauts also will be on hand at times throughout the day to sign autographs. Prizes, awards and refreshments will be part of the activities.

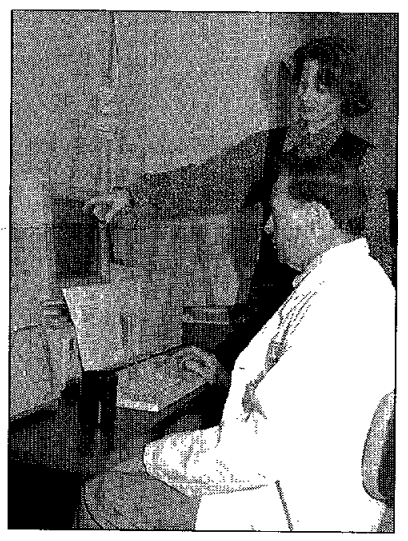
"Any NASA civil servant or JSC contractor employee may register with the STI Center in order to use its services and check out materials," said JSC Librarian Sharon Halprin. "In fact, anyone who registers with the STI Center for the first time during Tuesday's Open House will be automatically entered into a door prize drawing."

The STI Center—known simply to some as "the library"—is more than just a repository of books and journals tucked away in Bldg. 45. In addition to loaning out books and documents, the STI Center and its satellite libraries provide in-depth research services, rush document delivery and quick information look-up services.

Almost 50 percent of STI Center information requests are received by phone and 25 percent by fax or e-mail. The remaining 25 percent of requests are from employees visiting the library in person. Requests cover a broad range of subjects.

"Whether you need to obtain articles or conference papers, locate information on payloads, determine the chemical properties of a substance, find the names of NASA X-15 pilots, or research a new topic, the STI Center can assist," said Janine Bolton, an information specialist in the main library.

Most of the STI Center's extensive collections of books, journals, NASA documents, technical reports, microforms, audio-visual materials and electronic information sources are housed in the main library on the first floor of Bldg. 45. Two satellite libraries focus their holdings on materials most relevant to the clients they serve, with courier service to the main library to facilitate resource sharing. The Medical Sciences Library, the oldest of the two satellites, is located in Bldg. 37 Rm. 183 and contains a large collection of medical related resources.



Information Specialist Sylvia Hu helped establish the second satellite, the Space Station Library, which opened in November 1993. Located in Bldg. 4 South Rm. 1718, this facility supports and contains documents from the Space Station Program, its contractors and international partners.

"While the station library may be small, it serves many customers, helping 10,546 walk-in customers and filling 21,617 requests in 1996 alone," Hu said.

Customers of the STI Center will find an extensive collection of conference proceedings and papers on aerospace, engineering and related disciplines available electronically, in hard copy or microfiche.

When materials required by customers are not available in the STI Center or satellite libraries, the staff uses a nationwide database called On-line Computer Library Center, or OCLC, to identify other libraries or institutions willing to lend materials. In 1996, STI Center staff assisted customers in borrowing 20,000 books, standards and articles using OCLC and other information suppliers.

"The explosion of information available through the Internet can be a blessing and a curse," Halprin said. "We fully realize the value of JSC employees' time and we pride ourselves on our rapid service response to customers' needs. If a quick Internet search does not uncover the information sought, employees should turn to the STI Center. Our staff has access to extensive resources beyond the Internet. We can locate information quickly that might cost someone else hours of exhaustive searching on the Web."

In the last several years, the STI Center has taken advantage of technological developments and established site-wide access to electronic databases, Halprin said. This has provided NASA employees with increased access to the most current scientific and technical information. More than 30 databases are available, ranging from aerospace and engineering, to Books in Print, to procurement regulations and product, company and manufacturer information. More databases will be made available in 1997, including the STI Center's index of JSC documents. Many systems will become available through the STI Center's Website located on the Internet at http://stic.jsc.nasa.gov/collections/STIC_home/doc2.htm

Customers also may enlist research assistance from the STI Center's staff. The reference desk is staffed with professional librarians who can provide employees with a full range of information services. Every year, STI Center librarians conduct more than 20,000 searches.

Some reference requests stand out for either their complexity, urgency or criticality. Recently, supporting the Life Sciences Research Laboratories' investigation of the Feb. 23 fire onboard the Russian Mir Space Station, the Medical Sciences Library staff researched methods of analyzing components in smoke from electrical fires and burning foam insulation. STI Center staff have provided research materials to JSC scientists for use in their published articles. Materials research has supported design decisions for many space shuttle and space station elements, including the Autonomous Extravehicular Robotic Camera protective sphere and the shuttle seats for mission specialists.

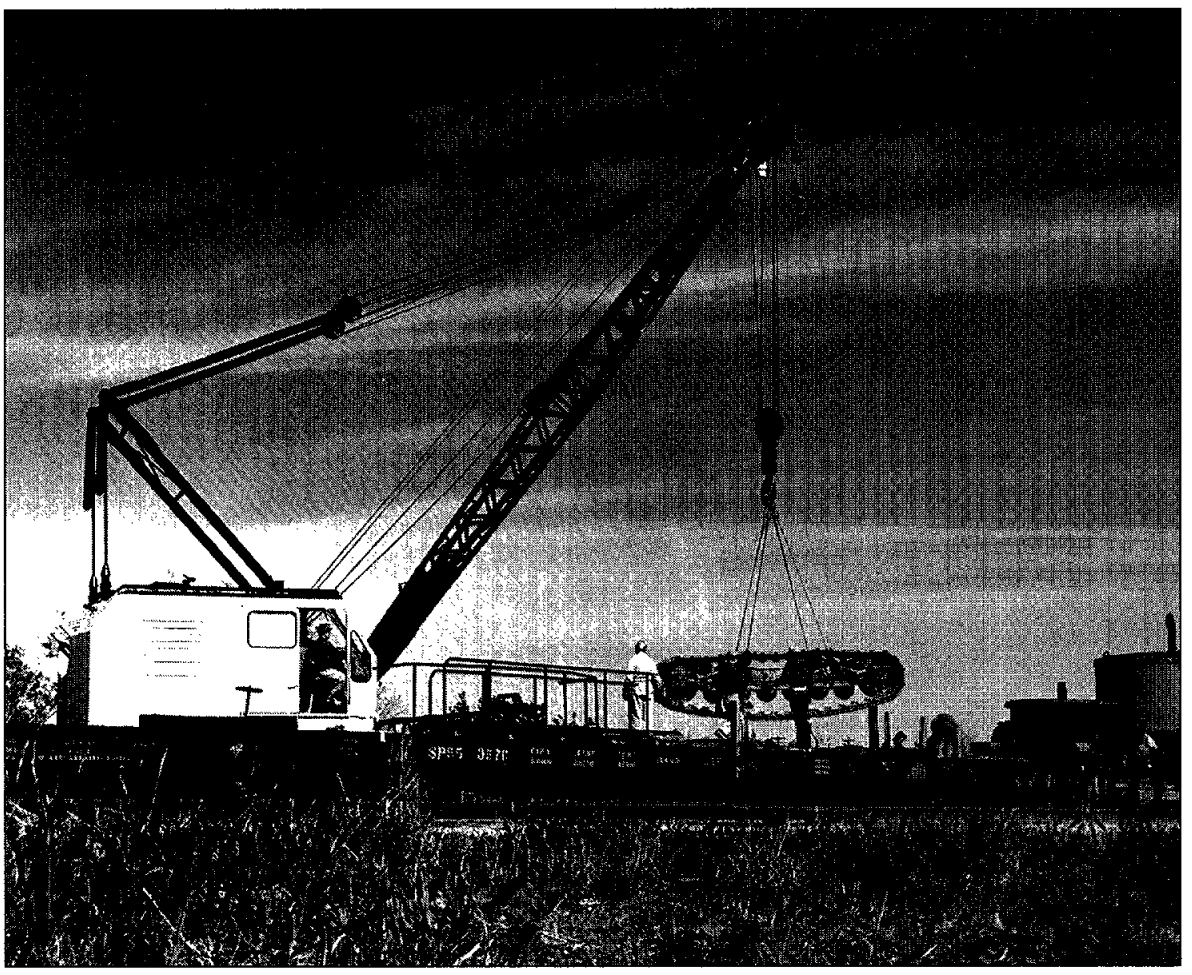
Employees who are searching for a NASA document can find the information at the STI Center. Whether it is back year copies of JSC telephone books, Management Instructions, or JSC, NSTS, or SSP documents, they are all available from the STI Center and the satellite libraries. Online full text access to new JSC documents will be made available soon. The STI Center already maintains the JSC ISO 9000 electronic document repository, that includes the full-text of many approved ISO 9000 documents.

"In this age of information, the STI Center offers new technologies and a skilled staff to help the JSC community effectively locate and evaluate a diverse range of information," Halprin said. ❑

Above: From left, Delores Davis, a Scientific Technical Information Center's circulation staff member, helps Alvin Thomas of the Safety Reliability and Quality Assurance Directorate check out a book. Center: Carol Hoover, a librarian at the Medical Sciences library demonstrates the STI Center's electronic resources to Dennis Morrison of the Space and Life Sciences Directorate. Left: The STI Center staff is ready to assist employees with their information needs. Sitting from left are Janine Bolton, Laurie Caballero and Delores Davis. Standing from left are Larissa Mayer, Sharon Halprin, Kim Dismukes, Bob Loftin, Sylvia Hu, Sue Malof, Sasha Gilbert, Kim So, Shelly Lynn Pearson, Debbie Boles, Jeff McQuate, Sandra Ivison, Jane Hultberg and Aimee Patterson. Not pictured are Jenifer Egan, Mike Koester, Jennifer Lestourgeon, Janet Kovacevich, Carol Hoover, Annie Potter, Nancy Hutchins, Bobbie Candler, Ginger Gilbert, Kandi Frye, Patty Martin and Quinette Halley.

JSC Photos 97-03896, 97-03898, 97-03899 by Steve Candler

32 Years Ago at MSC



JSC Photo S-62-671

Prior to the start of activities by Morrison-Knudson in the overall site grading and drainage phase of their contract, the company off-loads heavy equipment for use in the preliminary work at MSC's Clear Lake site.

First construction work under way at Clear Lake

Reprinted from the Space News Roundup April 18, 1962

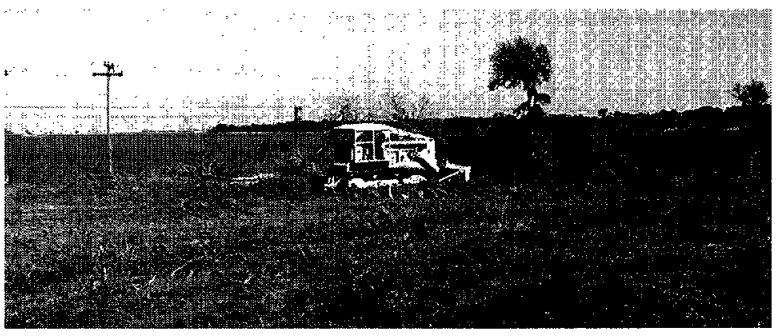
Work was started early in April on the first construction contract for Manned Spacecraft Center near Houston, according to an announcement made by Col. R.P West, district engineer of the U. S. Army Corps of Engineers Fort Worth District.

West awarded a $3,673,000 contract March 29 to the Morrison-Knudson Construction Company of Boise, Idaho and Paul Hardeman of Stanton Calif., for site development and basic utility installations at the center in the Clear Lake area about 20 miles southeast of Houston.

The Corps of Engineers is supervising the design and construction of the project for NASA.

The work will include overall site grading and drainage, utility installations including an electrical power system, a complete water supply and distribution system, sanitary and storm drainage systems, basic roads, security fence and street lighting.

The next major work at the project will be for construction of 20 buildings to house some of the principal facilities at the center.



Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Store from 10 a.m.-2 p.m. Monday-Thursday and 9 a.m.-3 p.m. Friday. For more information, call x35350 or x30990.

Houston International Festival:11 a.m.-8 p.m. April 19,20,26 and 27. Tickets are $4.25 for adults, $2.25 for children, $13.75 family.

Galveston Historic Home Tour: 10 a.m.-6 p.m. May 3 and 10 and noon- 6 p.m. May 4 and 11. Tickets are $13.75.

College football: Rice Owls vs. U.S. Air Force Academy Sept. 6. Tickets are $7.

Bay Area Chorus: Spring Scholarship Concert at 4 p.m. April 27 at Clear Lake United Methodist Church. Tickets are $10 for adults, $5 for students and seniors.

JSC Picnic: 11 a.m.-8 p.m. April 6 at Astroworld. Tickets are $15 for the first 3,100.

EAA cruises: Seven-day cruise to Alaska for $1,294 per person May 23-31. Seven-day cruise to Caribbean leaving from Houston in November. Prices vary depending on cabin choices. For more information call Dick McMinimy at x34037.

Astroworld season pass: $56.75, until March 31. Early bird tickets are $18.25 and must be used by May 31.

Moody Gardens: Tickets are $9.50 for 2 of 3 events.

Space Center Houston: Adult $8.95; children (4-11) $6.40.

Seaworld: Adult $27.25; $18.25 children(3-11).

Movie discounts: General Cinema, $4.75; AMC Theater, $4.50; Sony Loew's Theater, $4.75.

JSC logo shirts: Polo style, $23. T-shirt, $10.

Stamps: Book of 20, $6.40.

Portrait offer: 10 by 13 family portrait on canvas for $5.

Orbit: The book "Orbit" by Jay Apt, Mike Helfert and Justin Wilkinson is on sale for $28.

Metro tickets: Passes, books and single tickets available.

Space Center Houston looking for youth volunteers

Space Center Houston will unveil several exciting and first-time programs for local youth this summer.

Most programs will extend throughout the summer and offer exclusive opportunities for students to be part of out-of-this-world summer events. SCH will host a job fair from 6-8 p.m. Wednesday April 16 to detail these innovative programs.

A new Youth Volunteer Program will begin June 9 and run through September 1 for teens ages 15 to 17. Teens interested in dedicating their time and talent will work one four hour shift a week. Volunteers are asked to pay a one time fee of $10 for a volunteer shirt and training materials. Teens will be responsible for coordinating guest activities in the Kids Space Place.

Volunteers are eligible for two complimentary tickets to SCH, discounts at the Space Trader Gift Shop and special events and recognition awards.

The existing Summer Hire Program will employ individuals, 17 years or older, from mid-June through August. Positions available include center host or hostess as well as food service and gift shop opportunities.

SCH continues its year-long volunteer program and will be hosting an orientation session on May 9.

Individuals interested in either the volunteer or the summer hire program can call SCH's Human Resources department at 244-2150.

Gilruth Center News

New Hours: The Gilruth Center will now remain open until 2 p.m. Saturday and close at 9 p.m. Friday.

Sign up policy: All classes and athletic activities are first come, first served. Sign up in person at the Gilruth Center and show a yellow EAA 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 x30304.

Intercenter run: though April 30. T-shirts provided at a cost of $5. XXL is $6

EAA 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.-1 p.m. Saturdays. Cost is $10. Dependents must be between 16 and 23 years old.

NASA Fitness Challenge: runs through Aug. 31. Call x30301 for more information.

Complete Weight Control Program: starts April 1 with sessions on Monday, Wednesday and Friday. For more information call x30301 or x30302.

Hatha Yoga: A stress relieving, stretching and breathing exercise routine to unite body, mind and spirit. Classes meet from 5:30-6:30 p.m. Thursdays. Cost is $40 for eight weeks.

Nutrition intervention program: A six-week program to learn more about the role diet and nutrition play in health, including lectures, private consultations with a dietitian and blood analysis. Program is open to all employees, contractors and spouses. For more information call Tammie Shaw at x32980.

Defensive driving: One-day course is offered once a month. Pre-registration required. Next class is March 22. Cost is $25.

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

Weight safety: Required courses for employees wishing to use the weight room will be offered from 8-9:30 p.m. May 8 and 29. Pre-registration is required. Cost is $5. Annual weight room use fee is $90. Additional family members are $50.

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

Aikido: Martial arts class meets from 5:15-6:15 p.m. Tuesday and Wednesday. Cost is $35 per month. New classes begin the first of each month.

Aerobics: Classes meet from 5:15-6:15 p.m. Tuesdays and Thursdays. Cost is $32 for eight weeks.

Ballroom dancing: Beginner classes meet from 7-8:15 p.m. Thursdays. Intermediate and advanced classes meet from 8:15-9:30 p.m. Cost is $60 per couple.

Country and Western dancing: Beginner class meets 7-8:30 p.m. Monday. Advance class 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.

Gilruth Home Page: Check out all activities at the Gilruth online at: http://www4.jsc.nasa.gov/ah/exceaa/Gilruth/Gilruth.htm

Manager's Message

From Doug Ward, Director of Public Affairs

The first issue of the Space News Roundup, sporting a western-style masthead and announcing both the renaming of the Space Task Group and its impending move to Houston as the Manned Spacecraft Center appeared November 1, 1961. The paper's name had been selected by a committee of five from among 150 entries submitted by Langley Research Center employees. It included a column by the first director of the newly named Manned Spacecraft Center, Robert R. Gilruth, who outlined the paper's function as "a vehicle through which the staff of MSC may pass along to all employees information of vital interest concerning the Mercury and Apollo Projects, plans for the future...and other pertinent information." Gilruth added the hope that "within a short period of time you will look forward to receiving your copy of the Space News Roundup on a regular basis and that you will consider it as a valid source of information concerning both special groups and all of the employees as a unit."

With this issue of the Roundup we are beginning a concerted, conscious effort to recapture both the appearance and intent of the paper at its inception. The original masthead and NASA logo are back, along with a renewed commitment to retaining the Roundup's 35-year tradition as a "paper of record" for the center's major program and mission accomplishments while increasing the coverage of employee activities and achievements.

We have established an editorial advisory board to involve a broad cross-section of center organizations in management of the Roundup. And we are using the editorial board as a mechanism for establishing employee liaisons for inputs, stories and photographs.

John Powers, head of public affairs for that inaugural issue, appealed for employee contributions to the paper with the observation that, "We need your ideas, your suggestions and information... this is your paper. Help us make it a good one!" To crib a phrase from "Shorty" (his self-administered nickname) that sentiment still is "A OK."

People on the Move

Human Resources reports the following personnel changes as of March 14:

New Hires

David Hudson transfers from KSC to Mission Operations' Flight Systems Division.

Reassignments

Mary Gavalas, administrative assistant, transfers from Center Operations to Engineering Directorate.

Joe Fries, deputy director, transfers from White Sands Test Facility to Center Operations.

Arnold Levine, aerospace flight systems, transfers from Safety Reliability and Quality Assurance to the Space Station Program Office.

Promotions

Alan Dover was recently promoted to Quality Assurance Specialist in the Safety Reliability and Quality Assurance Directorate.

Resignations

Kari Fluegel of Public Affairs; Gary Sham of Mission Operations; and Carmen Parsons of Space and Life Sciences.

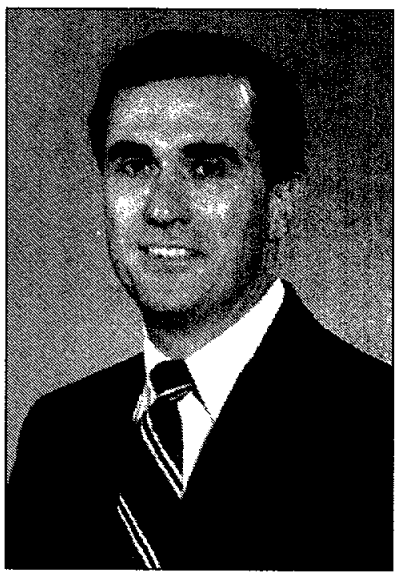
Retirements

R.R. Reynolds of Mission Operations and James Visentine of Engineering.

Transfer to Other Centers

Earl Wood of the Office of the Chief Financial Officer transfers to Stennis Space Center and Michele Burch of the Space Station Program Office transfers to Kennedy Space Center.

Winchell to head legal, Ward PAO



Mike Winchell

Michael Winchell and Doug Ward have take on the responsibility of the Legal and Public Affairs offices.

Winchell has been selected as the chief counsel for JSC succeeding Henry Flagg who retired in January.

Since 1993, Winchell has served as chief counsel at Kennedy Space Center. He previously served as counsel for the Marine Corps Logistics Bases in Albany, Ga. His federal career began in 1977 with the General Services Administration where he attained the position of assistant regional counsel. He subsequently served as an administrative judge with the Equal Employment Opportunity Commission and as counsel for the U.S. Marine Corps Southeastern Bases.

Winchell is a native of Oklahoma. He received a bachelor's degree in business administration in 1974 from Central State University, Edmond, Okla., and a Juris Doctor degree from the University of Oklahoma.

JSC Director George Abbey named Doug Ward director of Public Affairs. Ward joined the center in 1966 as a public information specialist, providing support to the Gemini Program and the Apollo missions. Later, he moved to Headquarters to serve as the assistant executive officer to the associate deputy administrator. After two years at Headquarters, Ward returned to JSC where he has worked in progressively responsible positions in the Public Affairs Office. Prior to his most recent assignments as the acting director and the chief of the External Affairs Branch in PAO, Ward served as the special assistant for Public Affairs in the Space Station Program Office.

In addition, Rob Navias has been named acting deputy director of the Public Affairs Office. Navias has worked as a public affairs specialist at JSC since 1993.

Leadership series to help expand vision

JSC is beginning a series of talks this month for center leaders.

"As we approach the challenges ahead of us, it is advantageous for us to hear from individuals and organizations who have faced challenges and problems similar to ours and to learn how they have dealt with them," said JSC Director George Abbey. "Through the George M. Low Leadership Series, we'll hear from government and industry leaders who will stimulate thoughtful discussion and expand our vision."

The series sessions are currently targeted for four times a year and will feature a variety of speakers, both in and outside the aerospace community, who can give center leaders insight into leadership challenges in government and industry. The speakers will share their perspectives on leadership, the challenges they've overcome in their careers, and the lessons they've learned from those challenges.

The series was named in honor of former JSC Deputy Director George M. Low who managed the Apollo Spacecraft Program and later became deputy administrator.

The first session will be held the evening of April 29 at the Gilruth Center and feature Harry Stonecipher, president and chief executive officer of the McDonnel Douglas Corp. Attendance is by invitation only. For more information call Diane DeTroye at x35266.

JSC managers, employees receive Rotary space awards

The Rotary National Award for Space Achievement Foundation honored several JSC employees during a banquet in March at Space Center Houston.

JSC Director George Abbey received the prestigious National Space Trophy that is given annually by the foundation to one individual for outstanding leadership and personal commitment to space exploration. JSC Associate Director, Technical, John Young was honored with the Corona Award that recognizes a distinguished lifetime of achievement in the exploration of space and is made only when the foundation board members feel that exceptional merit demands the special conferment. The Corona Award has been given once before in 1992 to Robert Gilruth.

Dr. Michael DeBakey received the Space Technology Utilization Award and a special Space Communicator Award was given in memory of KTRH's reporter Stephen Gauvain.

Several JSC scientists, engineers and managers were honored with Stellar Awards at the banquet. Neil Lemmons of United Space Alliance, JSC's Jennifer Wagenknect, Peter Gaiser of the Naval Research Laboratory, David Smith of McDonnel Douglas Aerospace, William Gerstenmaier of NASA's Moscow Mission Control Center, Neal Pellis of JSC and Garth Hull of Amers Research Center were honored for their outstanding contributions to the future of space.

Two teams were honored for their contributions to the space program. JSC's Mars Meterorite Research team of Everett Gibson and Dave McKay and Lockheed Martin's Kathie Thomas-Keprta and the Shuttle-Mir Space Station Docking Team of Steve Cavanaugh and Bruce Brandt of Boeing North American, Valerey Ryumin of RSC Energia and JSC's Tommy Holloway were honored with Stellar Awards.

JSC Photo 97-03585 by Steve Candler

SECRETARIAL TOP HONORS—From left, Christine Cole of Engineering's System Test Branch receives the Marilyn J. Bockting Award for secretarial excellence from JSC Director George Abbey and Engineering Director Leonard Nicholson. Cole is a valuable team member because she receives, verifies, and logs test requests, coordinates and performs follow-ups to the test operation process. In addition, she has taken on the additional responsibility of travel coordinator for the Crew and Thermal Systems Division. Cole has spent many additional hours assuring that all of the branch functions as well as the needs of the division's travelers are accommodated in her normal timely, efficient and friendly manner.

Dates & Data

Today

Technical seminar: The Clear Lake Council of Technical Societies will host an "Innovations '97" seminar from 11:30 a.m.-6 p.m. April 11 at the Gilruth Center. For more information call Bill Best at 282-6970.

Astronomers meet: The JSC Astronomical Society will meet at 7:30 p.m. April 11 at the Lunar and Planetary Institute, 3600 Bay Area Blvd. For more information call Chuck Shaw at x35416.

April 15

Open house: The Information Systems Directorate will host an open house of the Scientific and Technical Information Center from 10 a.m.-3 p.m. April 15 at Bldg. 45 annex. For more information call the STIC at x34240.

April 16

Spaceland Toastmasters meet: The Spaceland Toastmasters will meet at 7 a.m. April 16 at the House of Prayer Lutheran Church. For more information call Jeannette Kirinich at x45752.

Spaceteam Toastmasters meet: The Spaceteam Toastmasters will meet at 11:30 a.m. April 16 at United Space Alliance, 600 Gemini. For more information call Pat Blackwell at 282-4302 or Ben Black at 282-4166.

Astronomy seminar: The JSC Astronomy Seminar will be held at noon April 16 in Bldg. 31 Rm. 129. An open discussion meeting is planned. For more information call Al Jackson at x35037.

Scuba club meets: The Lunarfins will meet at 7:30 p.m. April 16 at Kemah Cantina. For more information call Fred Toole at x33201.

April 17

Directors meet: The Space Family Education board of directors will meet at 11:30 a.m. April 17 in Bldg. 45 Rm. 712D. For more information on this open meeting call Gretchen Thomas at x37664.

Glee club: The United States Naval Academy Glee Club will perform from 11:30 a.m.-12:15 p.m. in the Bldg. 3 cafeteria and from 3-3:30 p.m. in Teague Auditorium April 18. For details call the Equal Opportunity Program Office at 30600.

April 19

NTA meets: The National Technical Association will meet at 10 a.m. April 19 at Texas Southern University School of Technology, Rm. 316. For more information call Pam Denkins at x35272.

April 23

Spaceland Toastmasters meet: The Spaceland Toastmasters will meet at 7 a.m. April 23 at the House of Prayer Lutheran Church. For more information call Jeannette Kirinich at x45752.

Spaceteam Toastmasters meet: The Spaceteam Toastmasters will meet at 11:30 a.m. April 23 at United Space Alliance, 600 Gemini. For details call Pat Blackwell at 282-4302 or Ben Black at 282-4166.

Astronomy seminar: The JSC Astronomy Seminar will be held at noon April 23 in Bldg. 31 Rm. 129. Mark Matney will discuss "Weathering Meteor Storm-Predicting the Leonids." For more information call Al Jackson at x35037.

Financial seminar: The Texas Gulf Coast Council of the National Management Association will host a "Financial Strategies for Successful Retirement," seminar from 6-9 p.m. April 23 and 30. Cost is $60 per couple for NMA members and $85 for non members. For details call Richard Hergert at 280-0444.

April 24

Radio club meets: The JSC Amateur Radio Club will meet at 7 p.m. April 24 at Piccadilly Cafeteria, 2465 Bay Area Blvd. For details call Larry Dietrich at 39198.

May 1

Warning system test: The sitewide Employee Warning System will undergo its monthly audio test at noon May 1. For more information call Bob Gaffney at x34249.

May 6

Financial seminar: The Texas Gulf Coast Council of the National Management Association will host "Financial Strategies for Successful Retirement," seminar from 6-9 p.m. May 6 and 13. Cost is $60 per couple for NMA members and $85 for non members. For details call Richard Hergert at 280-0444.

May 8

Airplane club meets: The Radio Control Airplane Club will meet at 7:30 p.m. May 8 at Clear Lake Park Community Bldg. For more information call Bill Langdoc at x35970.

May 9

Astronomers meet: The JSC Astronomical Society will meet at 7:30 p.m. May 9 at the Lunar and Planetary Institute, 3600 Bay Area Blvd. For more information call Chuck Shaw at x35416.

May 10

Sailboat rides: The Clear lake Sailing Club will offer free sailboat rides May 10 at Clear Lake Park. For reservations call Richard Hoover at 996-7716.

May 13

NPMA meets: The National Property Management Association will meet at 5 p.m. May 13 at Robinette and Doyle Caterers, 216 Kirby in Seabrook. Social and dinner cost $14. For more information call Sina Hawsey at x36582.

Aero club meets: The Bay Area Areo Club will meet at 7 p.m. May 13 at the Houston Gulf Airport clubhouse at 2750 FM 1266 in League City. For more information call Larry Hendrickson at x32050.

May 14

MAES meets: The Society of Mexican American Engineers and Scientists will meet at 11:30 p.m. May 14 in the Bldg. 3 cafeteria. For more information call G.D. Valle at x38835.

PSI meets: The Clear Lake/NASA Chapter of Professional Secretaries International will meet at 5:30 p.m. May 14 at the Holiday Inn, NASA Road 1. Dinner costs $15. For additional information call Elaine Kemp at x30556.

News Briefs

PAO gets associate administrator

NASA Administrator Daniel S. Goldin named Peggy Wilhide as the new associate administrator for Public Affairs. Wilhide replaces Laurie Boeder, who joined the Department of Health and Human Services as the deputy assistant secretary for Public Affairs, Policy and Plans.

NASA inducted into space hall of fame

The U.S. Space Foundation has selected two NASA technologies to be inducted into its Space Technology Hall of Fame. Lewis Research Center along with NASA Headquarters and a number of contractors were honored for conceiving and producing the Advanced Communication Technology Satellite, that demonstrates numerous applications in telemedicine and long-distance education, and in commercial fields such as the banking and petroleum. The Goddard Space Flight Center and a contractor, Scientific Imaging Technologies, was inducted into the Hall of Fame for developing a new charge coupled device that would be ideal for breast cancer detection because of the common requirements between space and medical imaging.

NASA hosts space station radiator tests

An innovative radiator, designed to provide cooling for the International Space Station, is undergoing testing at Lewis Research Center's Plum Brook Station in Sandusky, Ohio. The Photovoltaic Radiator system is being tested so engineers can evaluate the radiator's deployment mechanism, thermal cycling and heat rejection performance. This is one of the final tests prior to its installation on the International Space Station.

Dryden developing state-of-the-art solar power aircraft

Aeronautical engineers in Southern California are developing an aircraft—called Centurion—which they believe will push solar-powered aircraft concepts literally to new heights.

Engineers for AeroVironment, Inc., Simi Valley, Calif., are designing the aircraft to fly at 100,000 feet altitude. The company is developing this concept as a member of NASA's Environmental Research Aircraft and Sensor Technology program, which is sponsored by NASA's Dryden Flight Research Center.

Space News ROUNDUP

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Scientists work to collect as much data as possible

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STS-44 in November 1991.

Once the decision to shorten the mission was made, Spacelab crew members and science teams at Marshall Space Flight Center worked steadily to complete as much science as possible.

Although the abbreviated mission was a disappointment to scientists, the research was marked by bright spots, such as the excitement of one team which recorded a "first" in combustion research. Voss completed several runs of the Droplet Combustion Experiment Sunday night.

"Six burns were successful and for the first time, we're burning free droplets," said Principal Investigator Forman Williams of the University of California at San Diego.

The experiment is collecting information on burning rates of flames, flame structures and conditions under which flames are extinguished. "We can't get this kind of information from ground-based experiments," Williams said.

The Coarsening in Solid-Liquid Mixtures experiment ran in the middeck Glovebox facility. This investigation, led by Peter Voorhees of Northwestern University in Evanston, Ill., studied coarsening in metal mixtures at very high temperatures. During coarsening, small particles shrink by losing atoms to larger particles, resulting in a lack of uniform particle distribution. This weakens the material and shortens its life-span.

"Because of our small size and power usage we've been able to continue experiment runs, completing four runs with good success," said John Caruso, Lewis Research Center's project manager. "We expect the samples will show uniform particle distribution."

Early Sunday evening, Crouch began a study of the Structure of Flame Balls at Low Lewis-number, called SOFBALL, in the Combustion Module. The study was determining under what conditions a stable flame ball can exist and if heat loss is responsible for stabilization.

"The two completed runs were successful beyond my wildest dreams," said Principal Investigator Paul Ronney of the University of Southern California in Los Angeles. During the first experiment, a mixture of hydrogen, oxygen and carbon-dioxide burned for the entire 500-second limit. This result is significant because, "these are the weakest flames ever burned — lowest temperature, weakest, most diluted mixtures," Ronney explained.

In the electromagnetic containerless facility, called TEMPUS, two experiment runs ended early when the undercooled, levitated samples came in contact with the wall.

Thomas, Linteris and Crouch performed runs with the Liquid Phase Sintering experiment in the Large Isothermal Furnace. The experiment looked at how liquid metals form a mixture.

Columbia blasted off at 1:21 p.m. on April 4 after a 21 minute delay due to an orbiter access hatch seal.

ISO 9000 management seminars available soon

Supervisors can learn more about JSC's ISO 9000 implementation efforts and continue communication about these activities in seminars set for April.

JSC is moving into a critical phase in its ISO 9000 implementation efforts. As the group accountable for making JSC's efforts a success, it is important that the management team have a good understanding of the progress of ISO 9000 to date and the work JSC has ahead.

Sessions are set for 1-3 p.m. Monday, April 14 and 9-11 a.m. Friday, April 18. All sessions will be held in the Bldg. 30 Auditorium.

Managers will learn the latest guidance from the Quality Council, the current schedule as JSC moves toward registration, the document control structure and the electronic document system that has been developed and the System Level Procedure.

For more information call the ISO 9000 office at x33631.

Photos by Bill Bowers

EASTER PARTY—From left, Allison Harvey, Puggles the Clown and Jennifer Bowers enjoy the Children's Easter Party at the Gilruth Center. Puggles delighted the kids with balloons twisted into various shapes. At right, Lindsay Musgrove enjoys a post-Easter egg hunt hot dog sporting the rabbit face she got at the children's party.

Employees may bring kids to work in April

By Jessie Hendrick

JSC's Equal Opportunity Programs Office will sponsor "Bring Our Children to Work" Day April 21 and 24 for about 600 JSC civil servants and contractor employees at the Gilruth Center.

"The object of the 'Bring our Children to Work' Day is to provide students, ages nine through 15, an opportunity to learn about NASA and the variety of careers available to students interested in space," said Estella Hernandez Gillette, director of the EOPO. Planned activities include space suit and space station demonstrations.

EOPO requests that each parent/sponsor bring only one student. The students do not have to be badged individually, but need to be escorted at all times by either a parent or sponsor. Information packages will be distributed to the students beginning at 8:30 a.m. The program will begin at 9 a.m. and conclude at 10:30 a.m. After the program, each student will go to his/her parent's or sponsor's primary work area to observe and share in their normal business activities. While some organizations may be planning activities and tours specifically for their own employees and students, this is not the case across the center and parents should focus their activities on the official observance at the Gilruth and within their own primary work area. Parents/sponsors should be mindful of both security and safety policies while the students are visiting JSC.

"As a part of the observance of 'Bring Our Children to Work,' both JSC cafeterias will offer a lunch special consisting of a hamburger, French fries, and drink for $2 to students attending the program," said Teresa Sullivan, manager of the Exchange Operations.

Civil servant parents/sponsors should register their students by submitting a registration form to the EPPO. Registration forms will be placed on the back of the JSC Announcement for "Bring Your Children to Work" Day. Contractor parents/sponsors should contact their companies' point-of-contact for "Bring Your Children to Work" Day. For more information, call Jessie Hendrick at x31203.

Hubble gives 'weather report' for Pathfinder, Surveyor missions

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planet comes closest to the Earth.

Hubble is being used to monitor dust storm activity to support the Mars Pathfinder and Mars Global Surveyor missions, which are en route to Mars. Hubble's "weather report" from these images is invaluable for Pathfinder, scheduled for landing July 4. The images show no evidence of dust storm activity, which plagued a previous mission in the early 1970s.

Checkout of the Near Infrared Camera and Multi-Object Spectrometer, or NICMOS, installed during the servicing mission, has provided both excellent results and some areas of concern.

The NICMOS, designed to observe the universe in near-infrared light, contains three cameras and a set of highly advanced light sensors which must be maintained at a very cold temperature. These sensors, along with filters and other components, are housed in a large cryogenic dewar.

The NICMOS Principal Investigator, Rodger Thompson of the University of Arizona, said NICMOS cameras 1 and 2 have shown excellent images in focus tests. However, these tests also show that camera 3 focus is currently beyond the range of the NICMOS internal mechanical adjustment capability.

Analysis indicates the situation may be due to unexpected thermal contact in the dewar, which results in a slightly warmer temperature and a subsequent reduction of dewar lifetime.

The analysis team expects that the thermal contact might release in the future, returning NICMOS to its nominal state. Under these conditions, analysts predict that camera 3 should move back into the instrument's range of focus and are adjusting its observing schedule.

Reduced gravity program to foster science, engineering

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one-third gravity (the same as Mars).

The program is seen as a way to encourage the next generation of scientists and engineers. The student flight experiments went through rigorous reviews by both NASA scientists and the reduced gravity office at Ellington Field before they were selected for the program.

One group from the Georgia Institute of Technology is studying acoustic levitation (a method of using sound waves to cast a powder into a complex shape), while another from Washington State is examining the phenomenon of single-bubble sonoluminescence (a phenomenon in which a bubble can pulsate and finally burst, generating a flash of light).

The more practical side of science is well represented by groups like Northern Arizona University, which will study an EVA rescue device which shoots a tethered, sticky, rubber bullet at a drifting target. Once the bullet contacts the target, the target can be reeled in. The target could be anything from a stranded astronaut to an errant tool floating away in microgravity. In a similar vein, there's also a joint project from the University of Kentucky and the University of Houston in which students are attempting to improve the accuracy of nondestructive damage detection methods for orbiting spacecraft.

The program is built on experience gained when the Texas Space Grant, in cooperation with JSC, proposed and implemented a summer program allowing students flight opportunities on the KC-135. The success of the '95 and '96 summer programs encouraged this national program. More information on the reduced gravity programs can be found on the Internet at the following addresses:

'95 program: http://www.csr.utexas.edu/tsgc/projects/surf/95/

'96 program: http://www.tsgc.utexas.edu/tsgc/surf.html

'97 program: http://www.tsgc.utexas.edu/tsgc/floatn.html

Employees may now post ads at cafeterias, Gilruth

The new format of the Space News Roundup does not include the Swap Shop advertisement section, but employees still may sell items through the cafeterias.

Bulletin boards are begin provided by the Employee Activities Association for advertisement by current and retired NASA civil service and contractor employees.

The boards are located in both cafeterias and the Gilruth Center and may be used to advertise items for sale such as property, cars/trucks, boats/planes, cycles, audiovisual and computer equipment, pets/livestock, musical instruments, lost and found, household, wanted, or miscellaneous items. They are not for commercial advertisement.

Employees posting ads should provide the following information on a 3"×5" index card or use one of the cards provided: category or sale item (as listed above); description of the item; condition; price; seller's name and phone number and the date the ad was posted.

Employees may either post the ads themselves in all of the three onsite locations or mail their 3"×5" card to AH12. Ads may remain posted for two weeks. For more information call x38970.