

Space News Roundup

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No. 26

Space partnership a legacy for new millennium

By Vice President Al Gore

This week, weather and technical circumstances permitting, the shuttle *Atlantis* will begin a historic new mission into space, guided by the professional men and women of Houston's Johnson Space Center.

Once in orbit, the *Atlantis* will slowly approach the Russian Space Station Mir, steering jets firing out and away from delicate equipment on the 9-year-old orbital laboratory. Aboard the station, an American astronaut will watch with his two Russian crewmates as *Atlantis* closes

in. With a gentle bump, American and Russian spacecraft will meet once again high above the planet for the first time in two decades.

Twenty years after the Apollo-Soyuz linkup, our two space programs are finally partners again on the space frontier. Together with Europe, Japan and Canada, the United States and Russia are working to forge a common approach to the exploration and utilization of space. There is much to be learned out there, and all the nations on Earth have a stake in what we bring back:

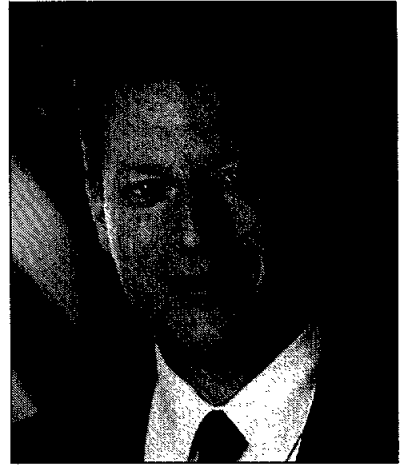
the seeds of knowledge.

And while all of that is taking place, something greater is happening: the spacefaring nations of the world are coming together in the largest peaceful scientific enterprise in history. In just over two years, the first components of a new international space station will start coming together in low Earth orbit, and with it an international partnership that could be one of the most important legacies our generation leaves for the next.

Out on the space frontier, gravity and temperature and vacuum can be

utilized in ways not possible back here on Earth. It is a unique natural laboratory, one where scientists and engineers from many nations can pursue the new knowledge and new technologies that will form the basis for devices and techniques our children and their children will take for granted in the 21st century.

The fact that we are doing this as partners with the Russians, the fact that our space engineers are getting to know their space engineers, is an astonishing turnaround from the Please see **COOPERATION**, Page 6



Al Gore

Astronauts leave corps

By Kyle Herring

Veteran space shuttle astronauts Kenneth Reightler, Dick Richards and Pierre Thuot have taken jobs outside the Astronaut Office following a cumulative nine shuttle flights.

Reightler left the Astronaut Office June 6 while serving as the chief of the space station branch. He will join Lockheed Martin's Houston office July 5 as the program manager, engineering, test and analysis. He will manage that portion of the contract including robotics, Earth observations, engineering analysis, simulation and thermochemical test.

Reightler flew twice on the shuttle, STS-48 deploying the Upper Atmosphere Research Satellite and STS-60 which was the first flight of the Wake Shield Facility.

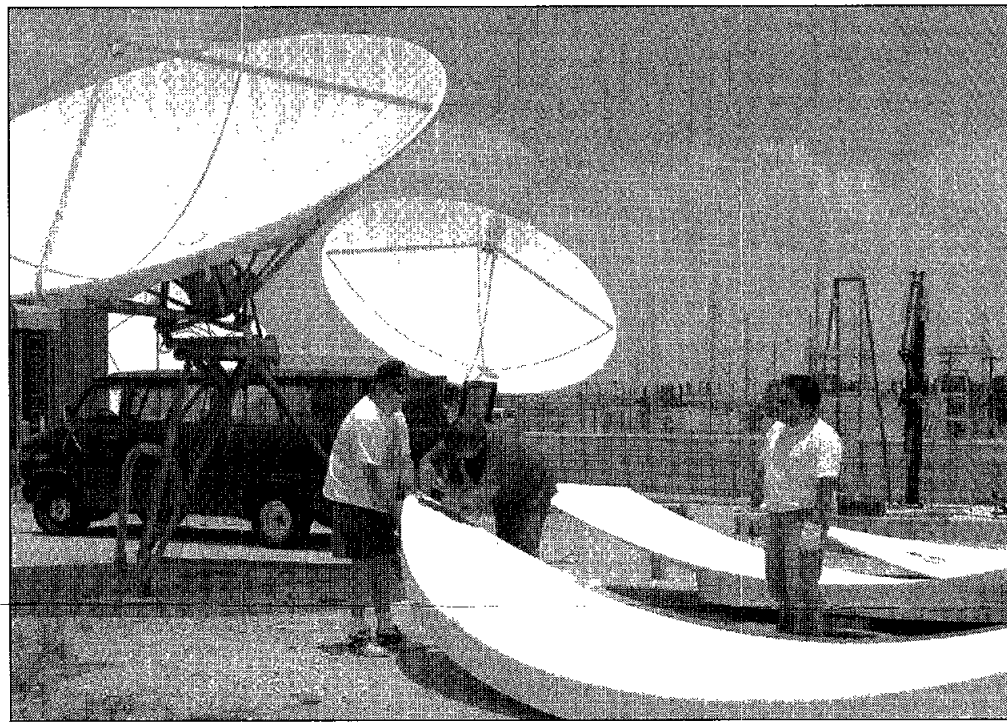
Richards stays with JSC moving from the Astronaut Office to the Space Shuttle Program Office to serve as mission director for the second servicing mission of the Hubble Space Telescope and flight manager for next year's second flight of the Tethered Satellite System and third flight of the Wake Shield Facility.

He will interface with external organizations in all matters relating to mission planning and execution of HST as well as coordinate project activities. He also will assist in maximizing the effectiveness of shuttle flights within established technical, budgetary and schedule constraints.

Richards has flown on four shuttle missions STS-28, a DOD mission; STS-41 to deploy the Ulysses planetary spacecraft; STS-50 that carried a laser to study Earth's environment.

Thuot has returned to the Naval Academy after three shuttle flights to be an instructor in the Aerospace Engineering Department. He will primarily teach undergraduate courses in astronautics. His three shuttle flights included a DOD mission-STS-3; The maiden flight of *Endeavour* STS-49, and STS-62.

Thuot



JSC Photo by Benny Benevides

MOSCOW IN TUNE—Workers install a new satellite dish antenna behind Bldg. 9 that will receive transmissions from Russia's Mission Control Center in Kaliningrad. The new antenna will give television production crews more flexibility and a stronger signal that will help improve NASA Television coverage of the historic STS-71 mission.

Ulysses begins second leg explores Sun's northern pole

The Ulysses spacecraft has begun to explore the northern pole of the Sun, initiating the second phase of its primary mission to study regions above and below the Sun never before explored by spacecraft.

Ulysses, a joint NASA-European Space Agency mission, climbed to 70 degrees north of the Sun's equator this month. The spacecraft will spend the next 110 days gathering data on the complex forces at work over this high-latitude region of the Sun, reaching a maximum northern latitude of 80.2 degrees on July 31.

The spacecraft then will begin to journey out to the orbit of Jupiter, returning in September 2000 to the vicinity of the Sun,

again at high latitudes. At that time, during the peak of the Sun's 11-year solar cycle, scientists expect to find a dramatically changed global view of the Sun (the Sun is currently nearing its most inactive or "quiet" phase of that cycle, meaning that fewer sunspots—massive storms on the Sun's surface—form in a given period of time).

As the spacecraft begins its pass over the northern polar region of the Sun, scientists are reporting a variety of new discoveries from Ulysses' recently completed pass over the southern pole. These findings are allowing them to begin assembling a new, three-dimensional picture of the Sun. Their latest

Please see **SOLAR**, Page 6

Atlantis begins trip into history

The Florida skies cleared Tuesday to allow a flawless, on-time launch of *Atlantis* on a historic Mir docking mission that will set the stage for cooperation on the International Space Station.

The first link-up of American and Russian spacecraft in two decades was scheduled to take place at 8 a.m. CDT Thursday. Following the docking and a welcoming ceremony, the six Americans and four Russians on orbit were to begin five days of joint experiments in the Spacelab.

Commander "Hoot" Gibson, Pilot Charlie Precourt, Mission Specialists Ellen Baker, Greg Harbaugh and Bonnie Dunbar, Mir 19 Commander Anatoly Solovyev and Flight Engineer Nikolai Budarin reported that all systems on the shuttle were working well.

As *Atlantis* closed on Mir, Gibson, Precourt and Dunbar activated the science module in the ship's cargo bay Wednesday morning and checked out tools that were to be used during rendezvous.

After a 66-hour chase through the skies, Gibson was to gently ease *Atlantis* toward the Mir. Latches and hooks on the Orbiter Docking System in the payload bay and on a docking mechanism attached to the Kristall module on Mir were to engage each other at 8 a.m. CDT Thursday and mate the two ships.

About two hours after docking, Gibson was to open *Atlantis*' hatch, float into the docking tunnel and shake the hand of Mir 18 Commander Vladimir Dezhurov.

"It's going to be really fascinating for me to get there in the Mir and see the inside of this vehicle that has been up there in orbit for nine years...and counting," Gibson said before the flight. "I'm gonna be really fascinated to get to see the interior of a space vehicle that all of us have been talking about, studying, thinking about, watching in action for a great many years now."

The handshake will come almost 20 years after Tom Stafford and Alexei Leonov met each other in orbit during the Apollo-Soyuz mission.

Please see **SOYUZ**, Page 6



Employee sons study space

Boys of all ages participated in the Bring Your Sons to Work day.

Estella Hernandez Gillette, director of the Equal Opportunities Program Office greeted a full house in Teague Auditorium. Fathers and sons were treated to a special presentation by STS-70 Commander Tom Hendricks, and Mission Specialists Kevin Kregel and Nancy Currie.

Other activities included demonstrations of a space suit, a wind tunnel and the space station. Information packages were given to each boy who attended the program. The remainder of the day was spent with their fathers, learning exactly what

Dad does every day.

This is the first year JSC has participated in Take Your Sons to Work. For several years, JSC employees have shared their experiences with girls in the national program Take Your Daughters to Work. The Equal Opportunity Programs office responded when interest was shown to include boys in the program.

"There has been an interest in bringing sons as well as daughters to the workplace," said Gillette. "JSC decided this year to give all children an opportunity to see Mom and Dad at work."

Both programs generated interest and the auditorium was full for both events.



JSC Photo by Mark Sowa

Ray Brown of Taft Broadcasting and son Drew listen to Take Your Son to Work presentations with son Drew in Teague Auditorium.

JSC

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.

Ringling Bros. Circus: 11 a.m. July 29 at the Summit. Tickets Cost \$10. Tickets on sale until July 14.

Country and Western Dinner/Dance: 7:30 p.m. July 29 at the Gilruth Center. Tickets cost \$12.

Loving Feelings Concert: 7 p.m. Sept. 30 at the Summit. Tickets cost \$32.50.

Schlitterbahn: Tickets cost \$17.80 for adults and \$15.30 for children 3-11.

Sea World: Tickets cost \$23.50 for adults and \$16.25 for children 3-11.

Six Flags: Tickets cost \$23.70 for a one day pass, \$31.75 for two day pass and \$20.30 supersaver not valid on weekends in June July and August.

Astroworld: Tickets cost \$18.10.

Splashdown: Tickets cost \$11.05.

Fiesta Texas: Tickets cost \$20.35 for adults and \$15.80 for children 4-11 and seniors over 55.

Moody Gardens: Discount tickets for two of three different attractions: \$9.50

Space Center Houston: Discount tickets, adult, \$8.75; child (3-11), \$7.10.

Metro tickets: Passes, books and single tickets available.

Movie discounts: General Cinema, \$4.75; AMC Theater, \$4; Sony Loew's Theater, \$4.75.

Stamps: Book of 20, \$6.40.

JSC history: *Suddenly, Tomorrow Came: A History of the Johnson Space Center.* Cost is \$11.

Upcoming Events: Tickets go on sale July 7 for the Justin World Bullriding Championship Aug. 18-20 in the Summit. Tickets cost \$10-\$18. Sam Houston Raceway Park discount packages available soon. ASTP party tickets available soon.

JSC

Gilruth Center News

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

EAA badges: Dependents and spouses may apply for photo identification badges from 7 a.m.-9 p.m. Monday-Friday; and 8 a.m.-4 p.m. Saturdays. Dependents must be between 16 and 23 years old.

Weight safety: Required course for employees wishing to use the weight room is offered from 8-9:30 p.m. July 12 and July 27. Pre-registration is required. Cost is \$5.

Defensive driving: Course is offered from 8:15 a.m.-3 p.m. Saturday. Next class is July 8. Cost is \$19.

Exercise: Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays.

Aerobics: High/low impact class meets from 5:15-6:15 p.m. Tuesdays and Thursdays. Cost is \$32.

Aikido: Martial arts class meets from 5-7 p.m. Tuesdays and Wednesdays. Cost is \$25 per month. New classes begin the first of each month.

Ballroom dancing: Cost is \$60 per couple. For additional information call the Gilruth Center at x33345.

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

JSC

Swap Shop

Property

Sale: Canyon Lake, Village West, 3-2, .25 acre, satellite, gazebo, waterfall, \$130k. 210-899-3447.
Rent: Condo, Clear Lake, 2-1-CP, tennis courts, marina, exercise room, 24 hr security, \$650/mo incl utilities. x30246 or 480-5583.

Rent: Condo off El Dorado, W/D & kitchen appl, upstairs, \$390/mo + \$300 deposit, ref req. Richard, x31488 or 286-6915.

Sale: Webster condo, 2-2-2CP, FPL, ceiling fans, mini blinds, new D/W, refrigerator, W/D conn, \$39.9k. x47513 or 280-0285.

Lease: Friendswood/Pearland area, FPL, large yard, cathedral ceilings, \$625/mo. 992-5447.

Sale: Friendswood, Regency Estates, 3-2-2, new carpet/root/paint, \$84.5k. 864-1037.

Lease: Webster condo, lg upstairs w/balcony, 2-1, W/D conn, appl, FPL, ceiling fans, new hi efficiency A/C, \$510/mo. 486-0315.

Sale: Egret Bay condo, 2-1-2CP, 2 storage closets, FPL, W/D, appl, new carpet/tile, boat launch, \$45k. x41036 or 333-4577.

Lease: Pipers Meadow, nice clean house, 3-2A, fen, CF, avail 8/01/95, \$760/mo. 486-0315.

Sale: Seabrook, 4-3-2, new roof/paint, det garage, courtyard, trees, \$85k obo. 409-925-8869.

Sale: LC, 8x2130 lot, \$6.5k. 333-5493.

Sale: Lot, Newport near Lake Houston, restricted & wooded, \$2.5k, poss owner fin, 997-2280.

Rent: Condo on the Seawall, Galveston, 2-2, 7/1 - 7/15 & 10/28-11/4/95, sleeps 6. Carolyn, 488-7509.

Lease: Cabin, Lake Travis, private boat dock, A/C & heat, fully equip, sleeps 8, spring/summer, \$550/\$650 wky, \$120/dly. 474-4922.

Cars & Trucks

'66 Bonneville convertible, ex cond. John, x38988 or 482-6364.

'78 Porsche 924, org owner, good cond, 5k mi on rebuilt eng, A/C, sunroof, \$3k obo. John, x49816 or 486-0097.

'87 Nissan 200-SX XE htchbk, red, ex cond, auto, pwr, cruise, sunroof, A/C, AM/FM/cass, alloy wheels, spoiler, 97k mi, \$4.2k. 282-3229 or 286-4547.

'91 Corvette, black, black interior, 42k mi, 6 spd, adjustable performance handling pkg, AM/FM/cass Bose stereo, warning system, \$22k/obo. Tony, x30699 or 286-2937.

'91 CRX, red, 5 star rims, clean std, pull-out radio. Kyle, 996-1264.

'64.5 Mustang, red, 289, looks & runs good, \$3k obo. 486-0972.

'85 Blazer, red & silver, Tahoe pkg, \$2.9k. 326-2093 or 648-8960.

'93 Nissan Sentra XE, Ltd Ed, 4 dr, std, pwr options, cruise, 22k mi, ex cond, \$8.5k obo. Dilhar, 480-3233 or 488-2549.

'81 Datsun 280 ZX, nice car, needs A/C, \$2k obo. Steve, x38144 or 554-4095.

'82 Pontiac Gran Prix, \$650 firm. Joe, 409-

948-4931.

'84 Chrysler New Yorker, 95k mi, blue, new tires, power, A/C, cruise, great cond, \$2.5k obo. 338-1844.

'86 Porsche Carrera 911, red, 86k mi, ex cond, \$17.5k firm. Bob, x33313 or 480-3977.

'86 Toyota Celica, 88k mi, good engine, auto, P/W, alarm, \$3.8k. x34144 or 996-8900.

'86 Mercedes 190E 2.3 cabernet auto, sunroof 131K, maint records, good cond, \$7k. Polly, x48928 or 337-5392.

'88 Corsica, 62k mi, PS/AT, A/C, AM/FM stereo, \$3.5k. Scott, x34614 or 334-2278.

'85 TransAm, 5.0 fuel injection, T-tops, 42k mi, ex cond, \$6k. 409-945-9722.

'94 Z28 Camaro, green, loaded, CD, auto, low miles, \$17.9k. Lydia, x46154 or 409-938-8972.

'80 Olds Delta 88, good work car, \$500. x37340.

'78 Oldsmobile 350 fuel injection eng w/elec module, \$350 obo. Dean, x40125 or 488-7032.

Cycles

Polaris 4-wheeler w/lift trailer, very good cond, \$1.8k. Jim, x48464 or 286-9632.

'86 Honda Magna 700cc, low mi, ex cond, \$2.5k. 488-6526.

'84 Heritage Classic Harley-Davidson, less than 8k mi, extras, \$13.5k Dorothy Ludwig, 332-3371.

'83 Yamaha SECA 400, low mi, new battery, tune up, \$600. 996-0339.

Boats & Planes

Chrysler Sailboat, 22', 10 hp electric starter Chrysler outboard, roller furling jib, wheel, CB, depth finder, knot meter, binimi, sleeps 5, galvanized trailer, \$4750. Jim, x48464 or 186-9632.

Laser 2 sailboat w/trailer, spinnaker rigged, trap, vest, \$1k obo. x41095 or 486-8185.

'88 Invader, 210 cuddly cabin, I/O 200 hp Merc, galv trailer, loaded, great condition. 997-6141.

'88 Searay 18' bowrider, 130 hp I/O, pwr trim/tilt/steering, galvanized trailer, ex cond, fully outfitted for skiing, \$8k. 532-1673.

Hobie 16, good cond, many extras, new parts, \$1.5k; O'Brien Epoxy Lite 9'4" slalom, ex cond, \$100; Westwind Wave board 72 liter, \$100; KC fiber carbon fiber mast, \$90. 992-5832.

Sunfish sailboat, \$400. 332-2453.

Sailing/rowing dingy, 8' w/sails & oars, \$500. 532-3013.

Audiovisual & Computers

AT&T-6300. color monitor, green monitor, 30 Mb HD, Hayes 1200 baud modem, Epson FX-80 printer, math co-processor, computer workstation, \$125; Fisher, tower/floor spkrs, 14" woofers, 4" mid-range, 3" tweeters, 10-100 watts, shielded for use by TVs, stereo/amp, cass player/recorder, stereo cabinet w/glass doors, \$110. 334-1934.

486 DX2-66, 8 Mb RAM, 528M HD, 15" SVGA monitor, 3.5 & 5.25 FD, 14.4 fax/modem, soundcard, spkrs, mouse, some software, \$1,125.

x35549 or 554-7104.

US Robotics HST 14.4k modem, \$100; Supra 2400 internal modem card \$20. 291-9654.

Apple II E computer, dual disk drives, monochrome monitor, software, \$100 obo. x48715 or 286-5106.

Delco 2001 AM/FM/CD car stereo, 16 w/channel, 7 band EQ, 12 preset sta, \$80. 333-7167.

Motorola pager, green, \$55. x36171 or 409-935-9202.

TI-6400 computer, kids/teens software. Fred, 944-3523.

Grolier's Encyclopedia CD-ROM for Mac, \$30; Global Village 9600 baud, ext fax modem for Mac, \$60; new battery for Mac Powerbook, \$50; SCSI card for IBM computer, \$75. 280-7432 or 488-4382.

'80 Olds Delta 88, good work car, \$500. x37340.

'88 Corsica, 62k mi, PS/AT, A/C, AM/FM stereo, \$3.5k. Scott, x34614 or 334-2278.

'85 TransAm, 5.0 fuel injection, T-tops, 42k mi, ex cond, \$6k. 409-945-9722.

'94 Z28 Camaro, green, loaded, CD, auto, low miles, \$17.9k. Lydia, x46154 or 409-938-8972.

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'84 Chrysler New Yorker, 95k mi, blue, new tires, power, A/C, cruise, great cond, \$2.5k obo. 338-1844.

'86 Porsche Carrera 911, red, 86k mi, ex cond, \$17.5k firm. Bob, x33313 or 480-3977.

'86 Toyota Celica, 88k mi, good engine, auto, P/W, alarm, \$3.8k. x34144 or 996-8900.

'86 Mercedes 190E 2.3 cabernet auto, sunroof 131K, maint records, good cond, \$7k. Polly, x48928 or 337-5392.

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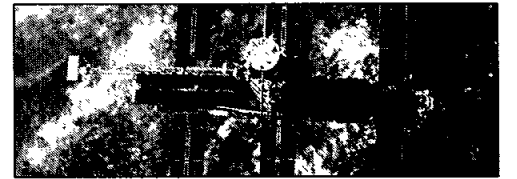
Director's Safety Page

A publication of the
NASA Johnson Space Center
For Employees
Safety and Health

June 1995

**JSC Safety Awareness
Day**

Take a "Time Out" for Safety
...It's coming in August!



Safety aboard Mir

Docking with the Russian Mir Space Station has created unusual testing requirements. Story on page 4.

Engineering Directorate is on top of safety

By Rindy Carmichael
Input from Craig Dinsmore

The JSC community is focusing its sights on making JSC the Center of Excellence for Occupational Safety and Health.

With this increased sense of responsibility for safety and health comes hard work and the determination and dedication to make it happen. Policies have been established, committees have been formed and new processes are being devised. The Engineering Directorate has been successful in implementing change in the "way they do business." Leonard Nicholson, director of Engineering, began putting plans into action in the fall of 1994. In a short time, Engineering has achieved a significant number of accomplishments.

The heart of Engineering's expeditious approach to safety may well lie within the Safety Implementation Committee. The committee, made up of directorate and division representatives, moves fast and works hard during its weekly two-hour sessions. Lewis Casey serves as chairman and works as a liaison between the steering and the implementation committees. After receiving direction from the Executive Safety Committee, the steering committee, which is made up of division chiefs and direc-

torate personnel reviews all new safety or health issues, incident and mishap reports and the products of the implementation committee.

The implementation committee focuses on the standardization of processes, procedures and documentation. Casey takes a no-nonsense approach to getting the job done during the meetings. The group discusses problems, suggest solutions and makes decisions. Their time is well spent and the proposed processes are taken immediately out into the field for implementation. Because they are empowered to make decisions and act upon them the group bypasses time normally taken to seek approval. Should they run into a problem out in the field, the problem is documented as lessons learned, and they press on.

"We're putting a jump start to the JSC process, sort of like jumper cables, due to new regulatory requirements," said Wallace Tuthill, committee member and chief of the Energy Systems Test Branch.

It is possibly this kind of thinking

that spawns their energy and maintains their focus.

The committee's major goal has been to develop common processes by which the different divisions within engineering will do business and ensure that safety is integrated into all operations. Some of the areas for which standard processes have been developed include the modification and configuration control of engineering facilities, development and conduct of tests, conduct of hazard analyses and laboratory operations. In addition, planning for and response to emergencies, training and certification and investigation of mishaps and close calls—including tracking of discrepancies and recommendations—have been addressed.

Standardization of the engineering work processes will even include the use of common forms and work authorization documents. The end result of all this will be improved communication among the Engineering organizations and a better understanding and imple-

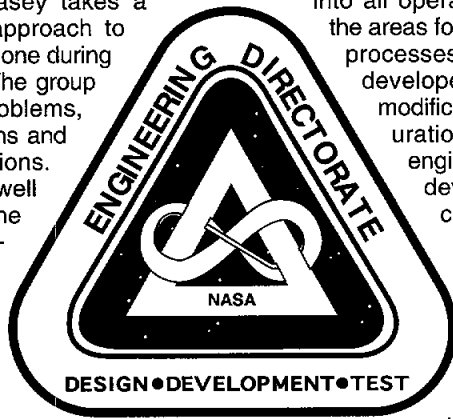
mentation of the requirements for safe work processes.

Nicholson is obviously pleased with his directorate's success. "It has been a fairly simple thing for me," he said. "I took people who run the labs and facilities and put them on the implementation committee. They are highly motivated to run the best operation they can and, if given the proper mechanisms and processes, they make it happen. All I had to do was give them the process."

Nicholson also commented on what he considered the key in getting his directorate organized and moving which was putting Casey on his staff. Casey's background and experience gives him insight into the problems the people are dealing with.

"It was simply a matter of recognizing that we needed to approach this question of safety in a more organized way, being sure we are all attuned to what the standards are. From there, I find the people are more than willing to make it happen," Nicholson said of Engineering's safety strategy.

Clearly, the entire Engineering Directorate is doing their share to fulfill the center's basic safety goal. The result is fewer employee injuries and property damage incidents while conforming to new requirements.



Fight job heat, prevention tips

The best way to fight heat illness is to prevent it. Here are some tips to help employees through hot times on the job:

- On the first day in a hot environment, expect to do only half the work ordinarily done. Each day, increase workload until operating at full capacity.
- Drink plenty of water. Sweating is one way body cools itself. Since sweating results in water loss, the only way to replace the water is to drink more of it. Drink at least eight ounces of water every 20-30 minutes while working in a hot environment.
- Avoid alcohol and carbonated drinks which can cause cramps.
- Wear protective equipment. Personal protective equipment for hot environments can range from ordinary work clothes made from fabrics that "breathe" to specially designed suits that are cooled by air, ice and even portable air conditioners. Check with a supervisor about the right personal protective equipment for a job.

The Director's Safety Page

is a health and safety publication produced by the Health, Safety and Environmental Compliance Office (NA3) at the Johnson Space Center.

For information, feedback, or to submit articles to be considered for the next issue, contact Rindy Carmichael at 244-5078, mail code HE/B225.

Director's Corner

Safety is the protection of lives, property and the environment to assure continued, effective, efficient operations throughout the center. As such, I believe it is every employee's job to understand the safety requirements for his or her job and to implement safety as a constant effort. It is management's job to foster safe attitudes, develop safe practices, implement policy and assure training of employees. This total force participation in our safety program will change how we work in the long term and bring us continually closer to an accident-free workplace.



As JSC Director, I am firmly committed to establishment of Johnson Space Center as the Center for Excellence in Occupational Safety and Health. To this end, I have supported the development and implementation of the following efforts at the center.

Center Director's Hotline. This hotline was established to facilitate direct communication among all employees and JSC leaders on safety, health and environmental compliance and other work-related issues. All employees are encouraged to use the hotline to express their concern about worksite problems or hazards. Callers will remain anonymous if they desire. Feedback addressing corrective actions or resolutions will be provided through this column.

Comprehensive Emergency Preparedness Plans. This is a high priority issue and has resulted in the complete revamping of the Emergency Operations Center which has included a complete process review and drills, exercises and simulations to support training and proficiency of JSC personnel in safety and emergency response situations and strengthened our managers' understanding of their responsibilities.

Safety Awareness and Mandatory Management Training. Safety is now a special emphasis in manager's performance for mid-level managers. The development of a Senior Manager's Safety Course as well as the Manager's Safety Course have provided excellent visibility to safety-related issues.

JSC Facility Managers. JSC civil service personnel have been designated as facility managers and given full responsibility and authority for ensuring the safety of their facility and will be held accountable for the effectiveness of implementation. They have been provided training and have already made significant contributions to the increased awareness of safety in many of our facilities.

Close Call Reporting Process. A new process to report close calls has been initiated. The announcement publicizing the process was distributed during the last week of May. Many of you have seen the close call posters and reporting forms displayed prominently in your buildings. The focal point for investigating a close call will be the affected line management. Close calls will be entered into a database and tracked for action and trend analysis. Feedback will be provided to the originator (who will remain anonymous upon request) as soon as the investigation of the close call is completed and corrective action taken.

These program elements are designed to support our employees and provide a part of the driving force for our overall safety effort. I sincerely hope that you will participate, use the tools and embrace the philosophy. We will all benefit.

JSC Close Calls, serious business

JSC has implemented a new close call reporting system as part of a centerwide emphasis on safety.

Studies reveal there are about 300 close calls for every serious workplace accident. It is essential to report close calls as part of an accident prevention program.

A close call is defined as an accident in which there was no personal injury or equipment damage, but where the potential exists. By reporting the incident, corrective action can be taken to avoid a future incident where injury does occur.

The program includes a simple reporting form which should be filled out and faxed to x33801 or mailed to the Health, Please see **CLOSE**, Page 4



NSRS Reporting System

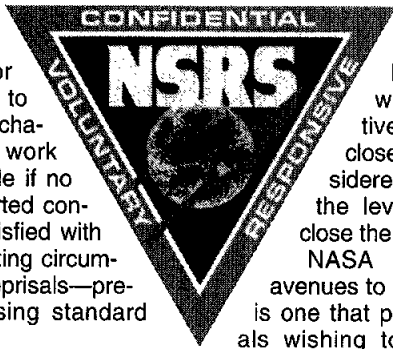
NASA Headquarters

The NASA Safety Reporting System provides a direct channel through which employees and contractor personnel can alert NASA management of safety concerns.

NSRS has supported all flights since the *Challenger* mishap and has been expanded to cover all operations. The NSRS is a confidential, voluntary reporting system which provides timely notification of potential risks to personnel, mission and conditions for NASA programs and activities.

All NASA and contractor employees are encouraged to initially use the reporting mechanisms available at their work sites. The NSRS is available if no action is taken on the reported concern, an individual is dissatisfied with the action taken or extenuating circumstances—such as fear of reprisals—prevent an individual from using standard reporting channels.

Use of the NSRS report form provides anonymity to the maximum extent possible within the law for individuals disclosing their safety concerns. The form contains a section at the top for individuals to include their names, addresses and telephone numbers. After processing a form, the Research Planning, Inc. NSRS team removes the top section unless it is determined that additional data would be useful. If so, the team contacts the sender for the needed information and then removes and returns the top section to the sender as proof that the report has been

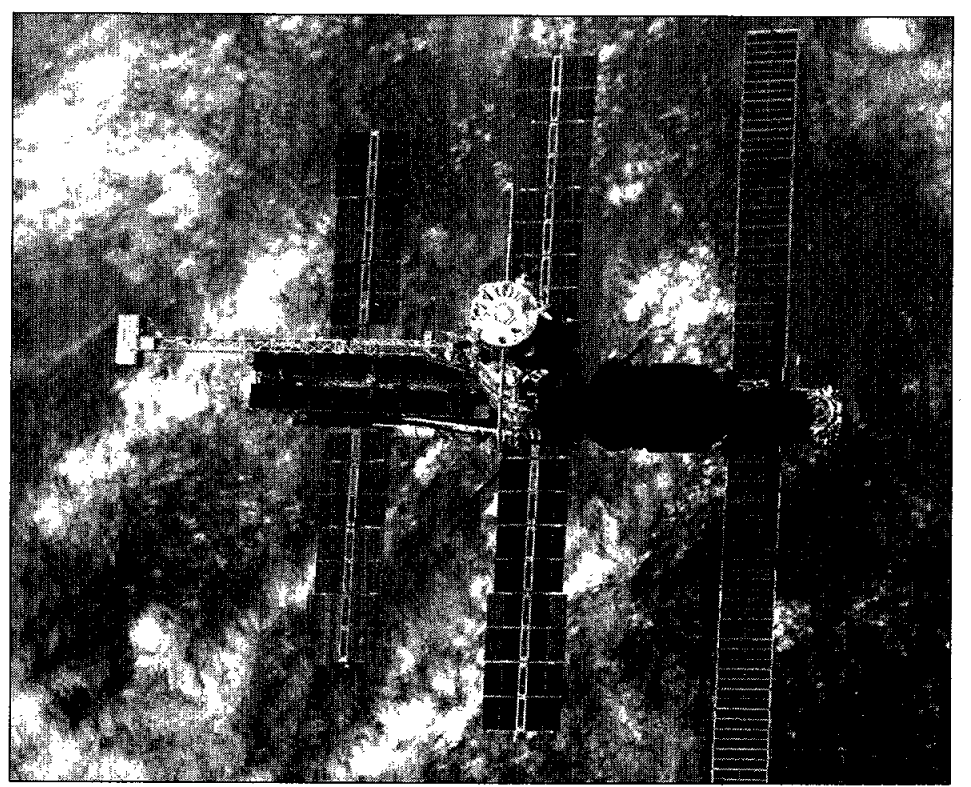


filed. No record is maintained of the reporting individual's identity.

The Research Planning, Inc. NSRS team then summarizes the report and forwards it to the NSRS chairperson or the NASA Safety and Risk Management Division for investigation in cooperation with a Technical Advisory Group. The Technical Advisory Group consists of representatives from NASA centers. The NSRS chairperson assigns an action to the appropriate organization for resolution and

response. If the NSRS chairperson and the director at the Safety and Risk Management Division agree with the response and corrective action taken, the report is closed. If the response is not considered adequate, it is elevated to the level required to resolve and close the matter.

NASA gives employees several avenues to report safety hazards. NSRS is one that provides anonymity. Individuals wishing to report a concern to the NSRS should document their concerns on pre-addressed, postage paid forms that are available at all NASA facilities and many contractor sites. The confidential report form is sent to Research Planning, Inc., in Falls Church, VA. Research Planning, Inc. is under contract to NASA Headquarters to administer the NSRS for the NASA Safety and Risk Management Division of the Office of Safety and Mission Assurance. Forms can be obtained at NSRS displays at NASA facilities or by writing to: RPI, P.O. Box 6037, Falls Church, Va., 22040-9824.



NASA Photo

Docking with the Russian Mir Space Station poses different testing requirements at JSC. Changing requirements cause potential safety hazards in testing areas and must be addressed to insure employee safety.

Safety aboard the Mir

Ground safety for Mir testing

By Bob Seiwel

Did you know that testing for the mission that docks an American shuttle with the Russian Mir Space Station has brought about some very unusual safety requirements?

Much of the equipment used by the orbiter flight crews during missions is being tested for STS-71. For example, oxygen capability testing is necessary because of the different oxygen-testing percentages that are used for Mir. Orbiter hardware is tested to meet a 30 percent oxygen level while Mir hardware is tested to a 40 percent oxygen level. Approximately one and one-half years ago, part of an existing test facility in the Energy Systems Test Branch was converted to support the Mir testing requirement. In a chamber designed for both non-functional and functional testing of an oxygen-enriched atmosphere, testing will determine whether orbiter equipment could provide an ignition source onboard Mir.

What does this have to do with ground safety? During initial negotiations with Russia for the joint missions, it was determined there was a potential problem associated with testing the Mir equipment. Safety was clearly a critical issue. Because

of this, the Energy Systems Test Branch personnel requested assistance from the Health, Safety and Environment Compliance Office to develop safe facilities and procedures to test more than 80 items. The proposed changes to the test chambers—modified to allow safe testing of the 80 items—were made by the Energy Systems Test Branch. Safety engineering then provided guidance in conducting hazard analyses and developing procedures and processes for the testing. A review of the facility led to several changes in test operations. These changes included being able to conduct tests with very little time and cost impact and completing an analysis of the chamber's ability to vent pressure if a fire or an explosion occurs.

Ground safety engineering personnel are now taking part in the acceptance testing of Mir equipment which is occurring in various buildings on site at JSC. Part of the testing will address the different oxygen-testing percentages. Together with personnel in the programs and test facilities, the Ground Safety Engineering personnel are also assuring the safe performance of all testing related to the unusual requirements of the Mir mission.

Summertime sun poses risk

By Eileen Hawley

It's summer in Houston and the beaches and parks are crowded with sun worshippers and weekend athletes.

Most people recognize the need to drink lots of water and avoid over exerting themselves during the hottest parts of the day, but Houston's sultry summertime conditions pose an additional and often forgotten risk—skin cancer. JSC's Total Health Program has posters on site reminding employees of the danger of too much fun in the sun.

"Skin cancer can be prevented easily," said Lynn Hogan of the JSC Clinic. "With a little preparation and common sense, people can minimize their risk of developing a skin cancer."

Until recently, Hogan said, skin cancer was the fastest rising cancer in the United States. Ultraviolet radiation given off by the sun causes the damage that may give skin cancers such as basal cell, squamous cell and malignant melanoma.

"Sunburn is the least of a person's problems when they get too much sun," Hogan said. "A person who had a severe, blistering-type sunburn before the age of 18 is at an increased risk of developing melanoma, the most serious form of skin cancer."

The increasing popularity of tanning salons, and the lighter clothing worn during the hot summer months both have contributed to the increased incidence of skin cancers.

The depletion of the ozone layer that provides a protective barrier against harmful radiation leaves skin more vulnerable to damaging UV radiation. NASA scientists have had some success in developing countermea-

sures to help protect the ozone layers.

Additionally, chlorofluorocarbons that used to be found in aerosol sprays and which have been detected in other environment off-gassings, also allow increased penetration of the UV radiation that may lead to the development of malignant melanoma.

But the news is not all bad.

The Total Health Program suggests the following guidelines. Play in the shade or during times when the sun's rays are less intense—in the morning or evening hours. The sun's rays are strongest between 11 a.m.-2 p.m., and remember that UV radiation is present even on overcast days. Wear hats, collars, scarves or use a parasol to shield sun-exposed areas.

Apply sunscreen with a sun protective factor of at least 15 every two or three hours. A water resistant sunscreen should be used during water sports or heavy exercise that will generate heavy sweat.

Avoid tanning booths and blistering sunburns. Even the less harmful UV-A type radiation in most newer tanning booths has been shown to penetrate and damage deeper skin structures. (UV-B radiation is the most carcinogenic.)

Develop a habit of checking your skin monthly for any changes in the color, size or shape of moles or blemishes.

Hogan stresses the importance of early detection in skin cancer. With the exception of malignant melanoma, skin cancer has a 95 percent cure rate when detected early.

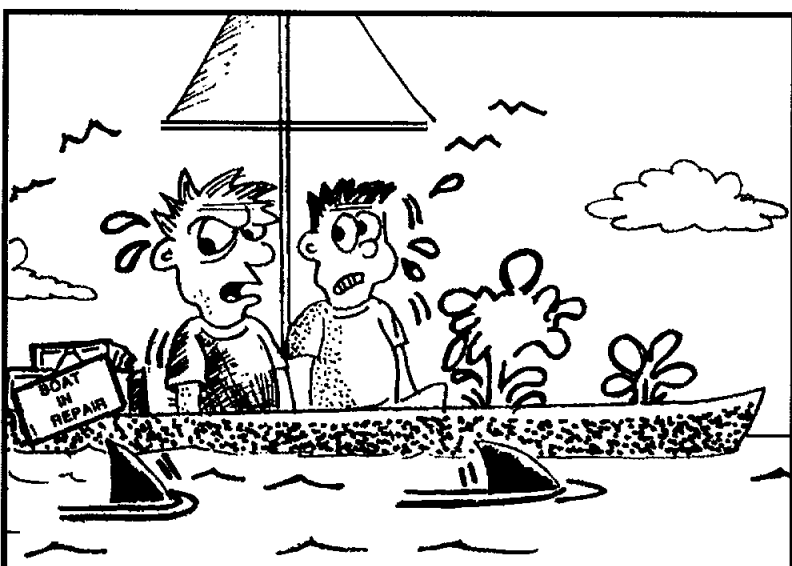
The JSC Clinic conducts skin cancer screenings by appointment. For information or an appointment, contact the Clinic at x34111.



total health

The Safe Side

By Tim Allen



"It's apparent FRED ... You don't "READ" ...or observe "SIGNS" very well!"

Too much heat stress leads to heat illness

A hot job, a hot day and high humidity—it all adds up to heat stress. And too much heat stress leads to heat illness.

There are three kinds of heat illness—heatstroke, heat exhaustion, and heat cramps. They can occur separately or in combination.

Heatstroke happens when sweating stops. Heatstroke occurs when the body's heat-regulating system breaks down under stress and sweating stops. There may be little warning and unless the victim receives quick treatment, death can occur.

A heatstroke victim usually has red or spotted skin and a body temperature that reaches 105°F or higher. The victim may also suffer from confusion, convulsions or delirium before losing consciousness. Unless the victim receives treatment, death can occur.

To help a heatstroke victim, call an ambulance and move the victim to a

cool place. Then thoroughly soak the person's clothing with cool water or place the person in a tub of cold water (do not add ice). When the victim's temperature has dropped, dry him or her off. If body temperature rises again, repeat the cooling process.

When body fluids get low, heat exhaustion sets in. Heat exhaustion develops when the body loses more fluid through sweating than it is taking in. A victim of heat exhaustion sweats profusely but becomes extremely weak or giddy. In more serious cases, the victim may vomit or faint. The skin becomes clammy and the complexion pale, but body temperature stays fairly normal.

To treat a victim of heat exhaustion, have the person sip water for about an hour while lying down. Loosen any clothing and raise the victim's feet eight to 12 inches. Then apply cool, wet cloths and fan the victim. If vomiting occurs, discontinue

fluids and take the person to a hospital where an intravenous solution can be administered.

When the body loses salt, watch out for heat cramps. Heat cramps are painful muscle spasms. The arms, legs and abdomen are usually affected first, but any muscles used when working are susceptible. Heat cramps strike those who sweat profusely and drink a lot of water but fail to replace body salt lost through sweating. Low salt content in the muscles causes painful cramps during or after work hours.

To treat a victim of heat cramps, press firmly with the hands on the cramped muscles or gently massage them to relieve the spasm. If the victim has no other medical condition, half a glass of salt water (one teaspoon of salt per glass of water) may be given every 15 minutes for about an hour. Victims with other medical conditions should see a doctor.

Paint reduces crosswalk hazard

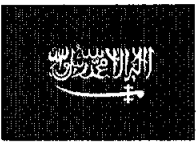
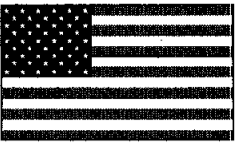
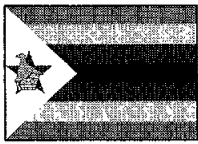
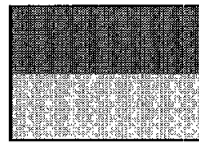
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Safety and Environmental Compliance Office, mail code NA3, or called in on the Safety Action Hotline at x37500 within four hours of the incident. The report will be forwarded to line management for investigation without names. After investigating the problem, line management reports back to the Health, Safety, and Environmental Compliance Office on corrective action.

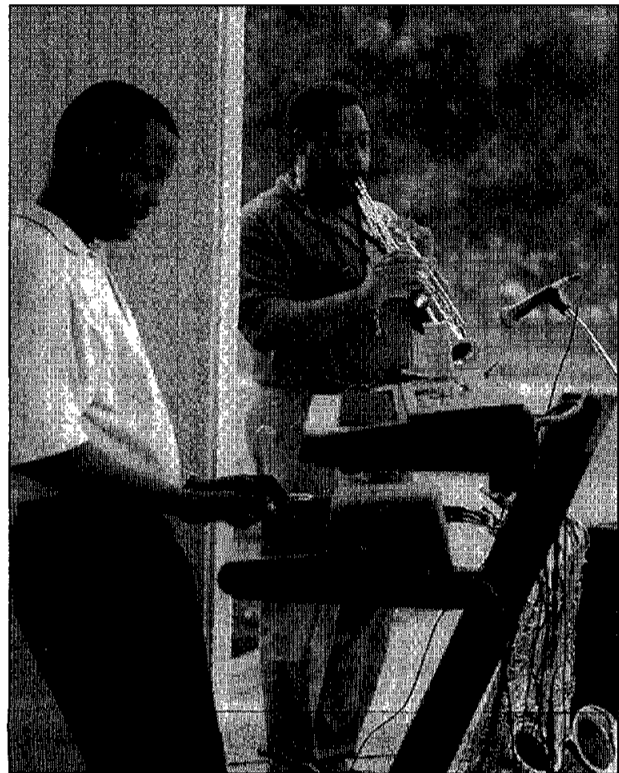
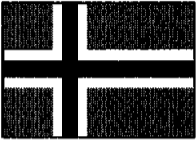
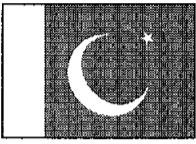
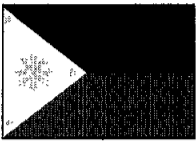
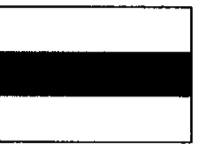
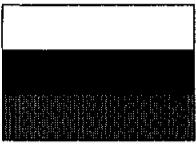
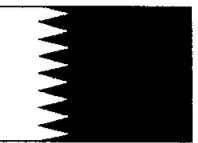
Recently, four close calls reported slick

paint on crosswalks. This problem was referred to the Plant Engineering Division. Plant Engineering is now using a new grit paint to paint crosswalks. Crosswalks are being repainted as needed. Participation makes the site safer for everyone.

The close call reporting forms can be found on display in many buildings at JSC and Ellington Field. The form is also available through the Information Management Branch, mail code PS335, or by calling x36164.



Heralding American Heritage



By Jovan-Justine Love

While a single thread is easy to break or cut, a hundred threads woven tightly into a rope can pull a much heavier load.

In much the same way, a single cultural outlook may not hold the answer to an important scientific, technical or managerial problem that is crucial to successfully achieving center goals. But by combining the real and potential contributions of all its employees, highlighting their cultural, ethnic, and racial diversity, JSC is able to triumph over difficult obstacles day after day.

The strength and resilience of JSC's diverse heritage will be celebrated from 3-8 p.m. next Friday in the mall area behind Bldg. 1. All employees are invited to attend and participate in American Heritage Day festivities.

The activities planned this year include singers, town criers, art displays, balloon sculpting, bag pipers, face painting, ethnic dance groups and all kinds of entertainment and some special guests. Employees will be given an opportunity to expand their understanding of the rich American heritage represented within the JSC team, exchange ideas, enjoy a variety of food and drink and discover the differences they can make.

"Knowing and understanding our different backgrounds helps all of us to better recognize and appreciate the unique contributions that we each have to make at the center," said JSC Director Dr. Carolyn L. Huntoon. "Celebrating the heritage of each employee is an excellent way of uncovering hidden talents and resources that can lead this center toward a bright future."

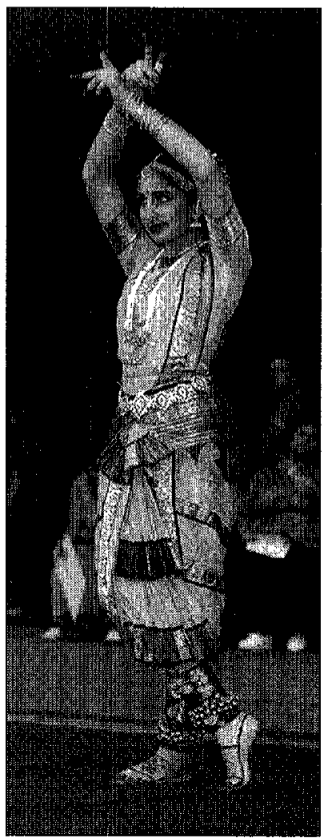
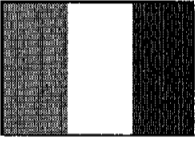
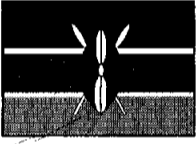
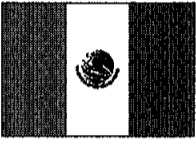
The bright future that Huntoon speaks of is evident today with a workforce made up of men and women from many ethnic heritages including, African Americans, Mexicans, Puerto Ricans, Japanese, Russians, English, French, Italians and Germans, just to name a few, reflecting not only the center but the world the way it truly is.

"The motivation that drives every single employee at JSC is the desire to make a difference," said Equal Opportunity Program Director Estella Gillette. "It is the difference we make that lets us know we have accomplished something worthwhile. Being, doing, or having something 'unique' is a clear signal that a potential exists for making an important contribution."

JSC's rich mixture of cultures creates new ideas, generates ingenuity and produces a team of interdependent, outstanding performers producing advanced technology that will improve the quality of life on Earth and the expansion of life in space.

This year's celebration of American Heritage Day will mark the second time that the center has held the event.

"The tremendous success of last year's American Heritage Day Celebration created a demand by JSC employees to do it again this year," Gillette said. "The sense of family and unity was very strong and the employees really enjoyed the activities." □



Employees enjoy several types of entertainment during last year's American Heritage Day including a Civil Rights Act 30th Anniversary commemorative speech, a motivational speech by a football team giant-Rocky Bleier and a wide range of entertainment. Top to bottom, left to right: The Mariachi Continental plays Spanish tunes in front of Bldg. 1. Cash Flow entertains employees with jazz tunes. The Alabama-Coushatta native American Indians from Livingston perform authentic Indian dances. The Ballet Folklorico Azteca de Houston click their heels while a huge crowd looks on. Employees from James Coney Island dish out hot dogs to hungry guests. Mamacita's Mexican restaurant serves guests all types of Mexican dishes. European Space Agency Astronaut Claude Nicollier talks with employees' children during the celebration. A dancer from the Archana Dance Academy entertains employees with dancing accompanied by finger symbols.



NASA forms task teams to review space access options

NASA is forming several task teams to address all aspects of its strategy for access to space following the latest failure of an Orbital Sciences Corp. Pegasus launch vehicle carrying a U.S. Air Force payload on June 22.

The task teams will review near term recovery for Pegasus-related missions already in the inventory, as well as long term issues associ-

ated with next generation launch vehicles. The review effort is being organized by Associate Deputy Administrator Michael Mott.

"NASA sees a serious shortage over the next few years of small launch vehicle support for its scientific missions," said Dr. John Mansfield, associate administrator for Space Access and Technology. "At the moment, there is a signifi-

cant backlog of these important missions, a situation NASA cannot allow to continue. These missions must have assured launch support."

As part of this effort, NASA anticipates issuing a Request for Information asking for expressions of interest from industry in providing alternate sources of small expendable and reusable launch

vehicle services in both the near and long term. NASA is interested in innovative technical and business approaches to ensuring that launch support is available when needed to carry out its missions, Mansfield said.

To reach the broadest section of industry, including small businesses, NASA will announce its intent and the availability of this RFI in

the Commerce Business Daily as soon as possible. After analyzing NASA's requirements and capabilities, as well as any expressions of interest received as a result of the RFI, Mott will make recommendations concerning near and long term launch strategies, to include improvements appropriate to ensure more robustness, redundancy and flexibility.

Better late than never

By Barbara Tomaro

Did you ever clean out a closet and discover something you know you borrowed, but whose age is so indeterminate that you have trouble determining what it is, let alone where to return it?

And if you can identify that—gardening equipment, article of clothing, or JSC property—does your conscience make you return it, or just hope that the lender has as poor a memory as you do?

JSC Education Specialist Jim Poindexter found out what happens, at least in the case of JSC property. As part of his job in education, Jim routinely loans out films to schools for use in the classroom. In this way JSC fulfills part of its mandate to bring the science and discoveries of space exploration back to Earth. This activity has been a successful part of JSC's education outreach programs since the early days of the organization. The films are generally loaned out to educators and then returned to JSC within weeks or months. Occasionally, a film is lost or destroyed, and is never returned.

Recently, however, an educational 16mm film entitled "Launch of the Saturn V" appeared with Jim's regular incoming mail without much identifying paperwork. There was nothing to indicate who returned it, only that it was loaned to a school Jan. 1, 1976. Nineteen years later, it came home—anonously, of course. Apparently honesty, no matter how grand, does not outweigh embarrassment.

Sound like a record? Well, almost, exhibits contract supervisor Bob Luke reports that an ejection couch from the Gemini Program was once displayed at the 1970 World Exposition in Japan. Over twenty years later it appeared at the exhibits warehouse with a brief note of explanation. It was apparently discovered in a warehouse where it had rested comfortably since the close of the exposition. The Japanese warehouse employees in charge of cleaning the facility were apparently unaware of the historic significance of the artifact until closer scrutiny revealed its origin. They noticed the Manned Spacecraft Center emblem and returned it to JSC with apologies for keeping it so long.

After the JSC Exhibits Shop cleaned up the couch, they positioned it on the Gemini historical mezzanine in the old Teague visitors center. There, visitors were able to sit in it and have their picture taken. Following the closure of the Teague Center in 1992, the couch was placed on display at the Thomas P. Stafford Airport in Weatherford, Okla.



JSC Photo by Mark Sowa

SYSTEM SETUP— Workers from Design Security Controls, Inc. and Design Electric install the new employee alarm system. The system uses solar panels to charge internal batteries and wireless radio frequency signals to transmit control and audio signals. The speaker enclosures mounted atop each of the seven poles located around the center will broadcast specific siren tones to get employees' attention followed by appropriate verbal messages about the nature of the emergency.

Solar wind speed changes

(Continued from Page 1)

results include:

- Ulysses has verified global differences in the speed of the wind flowing out from the Sun at different latitudes. Most notably, solar winds at high southern latitudes traveled at roughly double the speed found in the equatorial zone.
- As the spacecraft approached the equator, the solar wind continued to be very fast until around 20 degrees south latitude, at which time an abrupt transition to the low-speed, low-latitude wind was seen.
- The loss of material from the Sun over the south pole, caused by the flow of the wind, is roughly one million tons per second.
- High energy cosmic radiation entering the inner solar system from the galaxy is controlled at all latitudes by the level of solar activity,

which is determined by each phase of the Sun's 11-year sunspot cycle. The findings suggest the Sun's control over how much cosmic radiation enters the solar system is just as effective in the polar regions as it is near the equator.

- Plasma waves—electrical and magnetic fields that result from unstable distributions in the particles making up the solar wind—play a role in regulating the behavior of wind particles and were expected to be found at nearly identical levels in both hemispheres of the Sun. However, as Ulysses crossed the Sun's equator and entered the northern hemisphere, observations revealed higher levels of several varieties of plasma waves in the northern region, compared to their presence in the southern hemisphere.

EAA host summer activities cafeteria offers coupons

The Employee Activity Association is sponsoring a variety of summer activities for JSC employees.

Tickets are currently on sale for a Country and Western dance from 7:30 p.m.-midnight July 29 at the Gilruth Center. The Quick-Get-Away band will play old and new country along with favorite rock and roll classics. The \$12 ticket includes a barbecue buffet dinner.

Tickets will go on sale July 5 for a one day trip to the Grand Casino Coshatta in Louisiana. Buses will depart JSC at 6:30 a.m. Aug. 6. Tickets are \$5 and limited to six per bagged employee.

The JSC Travel Fair will be held on Aug. 15 at the Gilruth Center. Door prizes including America West, Delta and Continental domestic air-

line tickets, will be awarded to employees present at the event. Over 45 vendors will be on hand.

A 50's Dinner and Dance is scheduled for Aug. 19. Disc Jockey music will be provided by "Jimmy Mckinzie's Moveable Sounds." Tickets for this event go on sale at the end of July.

To show appreciation to their customers, the JSC cafeterias are now issuing coupons to customers. Customers who make purchases of \$3.30 or more will receive a coupon for free food. Seven coupons will be redeemable for one daily special or equivalent. Coupons will be issued now till the end of July and will be honored through September.

For more information call the Exchange Store at x35350.

MCC open for STS-71 viewing

The Mission Control Center viewing room will be open to JSC employees and their families during portions of the STS-71 mission.

Employees will be allowed to visit the MCC from 11:30 a.m.-2:30 p.m. Wednesday.

Because of the dynamic nature of shuttle missions, viewing hours may be changed or canceled without notice.

For the latest information on the schedule, call the Employee Information Services at x36765.

Cooperation advances science

(Continued from Page 1)

past. It is hard these days to remember what a shock the nation felt in October 1957 when the Soviets launched Sputnik. That first satellite was followed by a second, and then by a dog, and then by a man, and the United States was seen to be lagging on this new ocean of geopolitical rivalry.

Our two space programs circled one another warily for 15 years before the thaw came in 1975. Then it was back on separate tracks for another 20 years—until now. Next week, Russian Prime Minister Viktor Chernomyrdin and I will meet in Moscow to review the joint projects our two nations have undertaken in a number of areas, and we will talk about the enormous strides we have taken together in space since we agreed to cooperate almost two years ago.

Russian cosmonauts have flown aboard the space shuttle, and U.S. astronaut Norm Thagard has set a new American endurance record, surpassing the time aloft of the last Skylab crew in 1974. Docking equipment manufactured in Russia has been delivered to Florida for launch, and solar panels made in America have already been delivered to Mir to help supply electrical power. This first phase of cooperation has been

impressive, but it is only a beginning.

At the dawn of a new century and a new millennium, we have put aside the rivalries of the Cold War to focus on our common heritage, as poet Archibald MacLeish described it, as "riders on the Earth together, brothers on that bright loveliness in the eternal cold-brothers who know now that they are truly brothers." We have common interests, such as the health of the planet and the need to better understand it, and we have common questions that are best answered by pooling our talents and resources.

President Kennedy, who did so much to set this nation's course on what he called the new ocean of space, loved to tell the story of Abraham Lincoln and a friend, standing outside one November night as a meteor shower blazed across the sky. Lincoln's friend was frightened, but Lincoln looked past what he saw "shining serene in the firmament," and said, "Let us not mind the meteors, let us keep our eyes on the stars."

Together, with our eyes on the stars, the spacefaring nations of Earth are beginning to create a new legacy of scientific and engineering achievement high above the cloud tops of our home planet, just in time for the new millennium.

Soyuz to capture undocking

(Continued from Page 1)

"When the hatch is fully opened and when we shake the hands of the entire crew of most competent astronauts on board the orbiter, this will be an impetus to the rest of the program," Dezhurov said before launch. "And it will be a great pleasure to go through the rest of the program. And there is no doubt we will complete it with great success with the feelings that will fill us after that encounter."

In addition to the biomedical tests taking place on board *Atlantis*, Baker is testing countermeasures on the Mir 18 crew members to assist their return to Earth.

The astronauts and cosmonauts will also transfer hardware and supplies back and forth, *Atlantis*' crew delivering goods and experiments to Mir, while the cosmonauts load up *Atlantis* with experiments and hardware used aboard the space station.

Undocking is scheduled for 6:18 a.m. CDT July 4. *Atlantis*' departure from Mir originally consisted of a simple undocking procedure and a flyaround inspection of the space station. But Russian officials are now planning to allow Solovyev and Budarin to undock their Soyuz capsule from the Mir before *Atlantis*' undocking to capture historic photos and video of the shuttle docked and undocking.

For the veteran Solovyev, he says the task of undocking his Soyuz vehicle is not difficult, but the choreography of a shuttle, a Soyuz and Mir all flying close will be a challenge.

Landing is scheduled for 9:56 a.m. CDT July 7 at Kennedy Space Center. Dezhurov, Strekalov and Thagard—have been aboard Mir since March 16—will join Gibson, Precourt, Baker, Harbaugh and Dunbar for the ride home on *Atlantis*, while Solovyev and Budarin will remain aboard the Mir until August.



JSC Photo by Nick Nelms

SCI-FI CONNECTION—Science fiction writers Kevin Anderson, left, and Dave Wolverton, both writers for Star Wars and other science fiction visit JSC and the shuttle trainer.

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