

Space News Roundup

Vol. 34

June 23, 1995

No. 25

JSC strives to protect workers

New employee alarm system ready for testing

By Bob Gaffney

JSC's Center Operations Directorate is installing a state-of-the-art employee alarm system to significantly improve JSC's ability to warn employees and the surrounding community of imminent danger from weather or hazardous materials emergencies on site or in the vicinity.

The system will undergo testing at 9 a.m. Wednesday.

"An important part of preparing employees for hazards they may encounter in the workplace or living on the Texas coast is educating them about warnings and what they mean," said Keith McQuary, the JSC emergency preparedness man-

ager. "Each employee should know immediately whether to run away or shelter in place when they hear the siren or fire bells sounding, which is what we're trying to explain in the current program."

The alarm system uses solar panels to charge internal batteries and wireless radio signals to transmit control and audio signals. The speaker enclosures mounted atop the seven poles will broadcast specific siren tones to get employees' attention followed by appropriate messages about the emergency.

"The installation is going smoothly and will be tested next week," said Ken Chevalier, project engineer of

the Facilities Development Division.

Siren poles are located throughout the center. Alarms may be found at the south end of Bldg. 2 on Avenue D, on 5th Street west of Bldg. 38, at the southeast corner of Bldg. 227, at the southwest corner of Avenue C and 2nd Street, at the north end of 2nd Street across from the Gilruth Center, at the northwest corner of Bldg. 356 and on the north side of Avenue B about one kilometer west of the water tower.

In a serious incident where the siren might not be needed initially, the JSC Incident Commander at an emergency scene may direct siren activation if needed or ask that an

announcement be broadcast.

"Ideally, employees will never hear the siren except during periodic system tests to verify the system is functioning properly," McQuary said. "The center is in such close proximity to community residential areas, we need to tell them in advance when we're going to test the alarm; likewise, we need to tell our employees."

The surrounding community will be notified of testing and a verbal announcement will precede use of the siren during tests. A schedule for regular system tests, based on final system acceptance, will be
Please see JSC, Page 4

Whoop (low to high siren)



Take cover and get more information

3-5 minute wavering tone



Attack warning (nuclear or conventional)

Wail (conventional siren)



All Clear

Chimes (like church bells)



Periodic system test

Goldin says cuts cripple science data

NASA Administrator Daniel S. Goldin said Tuesday that proposed Congressional cuts to the Mission to Planet Earth program would dismantle the national approach to U.S. global change research.

Goldin said that the cuts would condemn American scientists to pursuing an approach to environmental research that is more than a decade out of date. The cuts would cripple the core of the program—the Earth Observing System—the first integrated satellite and research system designed to observe the linkages of all the Earth systems. Understanding these linkages is critical to unlocking secrets of the environment.

"The House of Representatives has approved a FY96 budget resolution which assumes a massive reduction over the next five years to NASA's efforts to study the Earth," Goldin said. "Such a cut would dismantle the national approach to U.S. global change research priorities established over the last three Administrations and undercut U.S. leadership in this important area of research. It would destroy the program's basic feature and turn an integrated, program into a series of disconnected and less effective measurements."

NASA's approach to EOS converges both scientific and practical interests. First, the same instruments will collect data of value to communities, as demonstrated by more than two successful decades of Landsat information. Second, scientists recognize that they must be able to translate research down to the regional level to understand climate effects. Most importantly, the EOS data will be used to forecast the climate—a year in advance at first, then progressively longer.

"The ability to make reliable regional and global climate forecasts will have a profound impact on society," Gold said. "Such forecasts are key to improvements in agricultural and urban planning, water and forest management, investment and capital decisions, and fishing, all of which affect U.S. competitiveness. They would also enable improvements in our ability to predict and react to natural disasters, thereby preventing greater loss of life and property."

All of these gains would be lost if the proposed cuts to EOS are sustained. Goldin stressed that the government—in partnership with scientists, private companies and other nations—must ensure that
Please see SCIENCE, Page 4



JSC Photo

ASCANS ZERO-G—The 1995 astronaut candidate class get their first taste of microgravity on the KC-135. The ASCANS experience 20 seconds of microgravity in each parabola to practice procedures they will perform in a weightlessness environment. Top row, left to right, C. J. Struckow, Rick Husband, Dave Williams, Steve Robinson, K.C. Chawla, and Takao Doi. Bottom row, Michel Tognini, Carlos Noriega, Susan Still, Janet Kavandi, Michael Anderson and Joe Edwards.

Atlantis nears historic liftoff

With all preparations finally completed, the shuttle *Atlantis* is poised to begin its historic mission to linkup to the Russian Mir Space Station for the first time.

Engineers were scheduled to fuel *Atlantis* this morning for blastoff at 4:08 p.m. JSC time to begin an 11-day flight which will be highlighted by the docking of *Atlantis* to the Mir's Kristall science module on Monday at about 9:07 a.m. *Atlantis* has a seven-minute window in which it can be launched for a rendezvous and docking on the fourth day of the flight. A launch tomorrow would result in a Flight Day Three docking, which would still occur on Monday.

Commander "Hoot" Gibson, Pilot Charlie Precourt, Mission Specialists Ellen Baker, Greg Burcham and Bonnie Dunbar, Mir 19 Commander Anatoly Solovyev and Flight Engineer Nikolai Budarin arrived at the Kennedy Space Center Tuesday, just hours after the start of their countdown. All of *Atlantis*'s systems have been performing well in support of launch.

"We're glad to be here to start such an important

Please see THAGARD'S, Page 4



New Internet access to shuttle, science data

Shuttle Home Page offers real-time data Science experiments now on-line

With the countdown under way for this week's planned launch of *Atlantis*, NASA unveiled Wednesday a permanent home on the Internet for shuttle mission information.

"On Board STS-71," focusing on the *Atlantis*-Mir docking flight, is the maiden voyage of the official NASA source for World Wide Web information about all space shuttle missions.

Development of the page was an agencywide effort led by the JSC Public Affairs Office, with technical support being provided by JSC's Information Services Directorate. NASA Headquarters and other NASA field centers made significant contributions to the Web site.

On-Board STS-71 includes a fully cross-referenced Shuttle Reference Manual, details about STS-71 and Mir crews, search indexes for both the Web pages and a 14,000-entry acronym definitions list and a variety of NASA Fact Sheets and Information Summaries. More than 100 pages of information will be available on the joint life sciences experiments that will be conducted while *Atlantis* and Mir are docked and details on the docking mechanism.

The page also features five spectacular new images of Russia's Mir Space Station. The pictures are being released to help illustrate the

upcoming docking of the Space Shuttle *Atlantis* to the Mir space station. The high resolution images show Mir over the Pacific ocean and were recorded using the IMAX Cargo Bay Camera during the STS-63 rendezvous mission on Feb. 6.

The IMAX images and other information on STS-71 can be accessed at the following URL: <http://shuttle.nasa.gov>. The shuttle home pages are designed to give visitors the opportunity to experience a space shuttle mission through access to detailed, up-to-the-minute multimedia information during each flight. The first effort to provide this kind of information to the public drew interest from tens of thousands of computer users all over the world during the STS-67/Astro-2 mission earlier this year.

For this and subsequent missions, the NASA shuttle home page will provide real-time data that originates with the actual stream of telemetry between the *Atlantis* and the Mission Control Center. JSC's Mission Operations Directorate provided the links to the telemetry and technical assistance in transferring that information to the Internet.

Computer users are now able to access the first stage of a NASA data archive that eventually will provide the wealth of scientific knowledge developed from 30 years of space-based research into the effects of microgravity on living systems, including the human body.

The Life Sciences Data Archive contains overview information on the 18 experiments conducted on the Spacelab Life Sciences-1 mission that flew on board the shuttle in June 1991. As the system grows and matures, information from other life sciences research conducted on other missions, such as the International Microgravity Laboratory flights, Spacelab-Japan and Spacelab Life Sciences-2, will be included.

"We have a great deal of valuable information in our life sciences archive," said Gerry Taylor, project manager of the Life Sciences Data Archive and staff scientist in the Life Sciences Program Integration Office. "Now, people will be able to learn about the research we have done and how it has direct applications to their own quality of life here on Earth."

The information is housed at the National Space Science Data Center with active links to a number of other NASA-related home pages. Internet users can access the information at: http://nssdc.gsfc.nasa.gov/life/nssdc/life_home.html

The archives are designed for easy use by researchers, educators and students. The master catalog will serve as a top-level directory describing completed life science space flight, and provide an overview of experiments conducted during flights. Beginning in the Fall of 1995, users also will be able to order several CD-ROM products from the NSSDC for more information about a single mission or single experiment. The mission CD-ROMs will provide information about the mission itself; the available LSDA Experiment CD-ROM will contain data for particular life sciences flight experiments.

"We are very excited about the prospect of sharing this wealth of knowledge with the American public," Taylor said. "With the archives available through the Internet, researchers will be able to stay current with space life science research and results, and will benefit from having a central location where they can find this information."



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.

- Ringing Bros. Circus:** 11 a.m. July 29 at the Summit. Tickets Cost \$10.
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.
Splashtown: 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: Country and Western Dinner/Dance July 29. Tickets cost \$12. 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 8:30-9 p.m. June 29 and July 12. 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.

Sailing class: NASA Sailing Club will hold classes from 9 a.m.-noon Saturdays in June. For more information call Richard Hoover at 996-7716.

Golf lessons: Lessons will begin June 24 or 27. Cost is \$100 for a six week course.

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: Bayridge, 3-2-2, split plan, new garage door & A/C, new carpet, ceramic tile kitchen, patio cover, fenced. Becky, x38521 or 334-3995.

Sale: Canyon Lake, Village West, 3-2, .25 acre, satellite, gazebo, waterfall, \$130k. 210-899-3447.
 Sale: Webster condo, 2-2-2CP, FPL, ceiling fans, mini blinds, new D/W, refrigerator, W/D conn, \$39.9k. x47513 or 280-0285.

Rent: Condo, Clear Lake, 2-1-CP, tennis courts, marina, exercise room, 24 hr security, \$650/mo incl utilities. x30246 or 480-5583.

Lease: Barringer Way condo, 2-1, W/D conn, pool, storage area, ex cond, no pets, \$495/mo. 486-2048.

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

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

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

Sale/Rent: Waterfront condo 201A on Lake Livingston, Cape Royale, wkend/wkly/dly rates. Barbara, 713-337-1494 or 1-800-367-2256.

Sale/Lease: 3-2-1 remodeled, carport, appl, ceiling fans, \$45k or \$550/mo. 332-1614.

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.

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

Rent: Winter Park, Co, condo, 2-2, hot tub, heated pool, fully furnished, sleeps 6. 488-4453.

Cars & Trucks

'86 Lincoln Mark VII LSC, graphite, looks and runs great, \$3.5k. 474-7432.

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

'84 Toyota PU truck, runs great, \$1.2k obo. Quan, x38304.

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

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

'81 Oldsmobile Cutlass Supreme, runs great, V8, auto, \$1k obo. Quan, x38304.

'93 Ford Taurus, ex cond, tinted windows, ext warr, 38k mi, \$9,950 obo. x37113 or 286-3019.

'87 Ford Tempo, looks & runs good, \$2k obo. 534-4024.

'86 Pontiac Bonneville, V6, garaged, ex cond, \$2.8k obo. 559-2331.

'89 Pontiac Sunbird, blue/grey, A/C, auto, cruise/tilt, alloy wheels, AM/FM/cass, ex cond, \$3.7k obo. Bill, 244-1123.

'87 Ford Tempo, runs good P/W/L, auto, nice int, \$2k obo. 333-6982.

'85 Honda Accord LX, 4 dr, auto, A/C, AM/FM/cass, 137k mi, ex cond, \$2.6k. Tony, 486-5707.

'87 Nissan 200-SX XE htchbk, red, ex cond,

auto, pwr, cruise, sunroof, A/C, AM/FM/cass, 97k mi, \$2k. 282-3229 or 286-4547.

'87 Chevy IROC Camaro, 5.0L, 4BBL, 103k mi, \$3.5k. Ken, x34448 or 482-9524.

'86 Chevy Spectrum, 4 dr, 5 spd, A/C, good mileage, 110k mi, \$950. Marty, x36478.

'85 Camaro, 51.1k mi, ex cond. 333-1789.

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

'95 Nissan PU XE, wht, w/grn stripes, chrome pkg, tinted windows, AM/FM/cass w/JBL spkrs, PS/PB, A/C, \$11.5k obo. 992-8913.

'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.

'87 Hundai Excel GLS, 4 dr, 5 spd, fair cond, good body, \$850. Sam, x33202.

'88-'93 front grill for Chevy full size pickup, complete w/parking lights & side maker lights/lenses, \$175 obo. x38393 or 992-4703.

Standard truck size used tires, 235-75-R15, \$10/ea. x32507 or 488-3314.

'86 or later model Pontiac Fiero nose bra, \$50 obo. 333-6868 or 983-7660.

Four - 4 lug Ford mag wheels, metric tires, 220UR 390's, \$150/all. Mikey, x38402.

Boats & Planes

Lowe 14' Jon Boat w/Evinrude 25 hp E. S. motor, galvanized tilt trlr, new propeller, decked, carpeted, access, ex cond, \$1,850 obo. 481-6993.

Laser 2 sailboat w/trailer, spinnaker rigged, trap, vest, \$1.1k obo. x41095 or 486-8185.

Sovereign, 24', ex cond, extra jib, depth sounder, head, stove, electric starter Johnson PB, recent bottom job, Mike, 383-2787 or 286-1691.

'88 Invader, 210 cuddly cabin, 1/0 200 hp Merc, galv trailer, loaded great condition. 997-6141.

Windsurfing equipment, Westwind 9.5 slalom board, \$250; Mistral Challenge flex board, \$90; Bic Rap slalom board, \$350; Up slalom sails, all sizes. David, 486-8487.

Audiovisual & Computers

MacQuadra 605 Performa 475, 8Mb RAM, 160Mb HD, 14" .29 dpi Apple color plus monitor, keyboard, mouse, 68040, Sys 7.1P, 9600 baud fax modem, \$775. 280-7432 or 488-4382.

JVC, Fisher, & Marantz 3-way stereo speakers, \$125/pr; KLH Prologic set of 3 speakers, \$75; JVC 100 watt amp w/tuner, \$85; JVC tape deck, \$50; TEAC equalizer, \$65. 280-7432 or 488-4382.

Kenwood Tm441A 440 MHz transceiver, \$475; Kenwood TS-130SE HF Transceiver, \$575. Bill, x36650 or 554-6242.

Full size arcade action adventure video games, CADASH & Golden Axe, 1 or 2 players, \$295/ea. 538-1759.

Computer memory & IDE controller, 4Mb 80ns, 1mx1 Dram, \$160; 4 x30 Pin 2565 Simms, \$25; 2 x 30 Pin 5 Mb simms, \$25; VLBUS IDE controller, \$20. x47253 or 489-8507.

Image Assistant software for Mac, color image editing, new \$400 sell \$20. 486-8716.

Beartracker automobile scanner w/police extender detection, alters driver to patrol cars within 2-3

Today

Cafeteria menu — Special: tuna noodle casserole. Total Health: broiled chicken breast. Entrees: deviled crabs, broiled pollock, liver and onions, broiled chicken with peach half, Reuben sandwich. Soup: seafood gumbo. Vegetables: Italian green beans, cauliflower au gratin, steamed rice, vegetable sticks.

Monday

Cafeteria menu — Special: Italian cutlet. Total Health: herb flavored steamed pollock. Entrees: barbecue beef spare ribs, steamed pollock, baked chicken. French dip sandwich. Soup: black bean and rice. Vegetables: California mix, okra and tomatoes, vegetable sticks, ranch style beans.

Tuesday

Artemis Society meets: The Artemis Society of Houston will meet at 7 p.m. June 27 at the Lunar and Planetary Institute. For information call Greg Bennett at 554-4539.

BAPCO meets: The Bay Area PC Organization will meet at 7:30 p.m. June 27 at League City Bank. For more information call Guy Thibodeaux at 333-5340.

Cafeteria menu — Special: spaghetti with meatballs. Total Health: baked potato. Entrees: stir fry beef, liver and onions, beef cannelloni, ham steak French dip sandwich. Soup: split pea. Vegetables: winter blend mix, seasoned cabbage, breaded squash, lima beans.

Wednesday

Astronomy seminar: The JSC Astronomy Seminar will meet at noon June 28 in Bldg. 31, Rm. 129. An open discussion meeting is planned. For more information, call Al Jackson at 333-7679.

Toastmasters meet: The Space-land Toastmasters will meet at

7 a.m. June 28 at House of Prayer Lutheran Church on Bay Area Blvd. For additional information, contact Elaine Trainor, x31034.

Cycle club: The Space City Cycle Club will meet for a 25-mile ride beginning at 6 p.m. June 28 at the University of Houston Clear Lake soccer field. For more information on this ride and weekend rides call Mike Prendergast at x45164.

Cafeteria menu — Special: smoked barbecue link. Total Health: roast porkloin. Entrees: cheese enchiladas, roast pork and dressing, baked chicken, steamed pollock, Reuben sandwich. Soup: seafood gumbo. Vegetables: Italian green beans, Spanish rice, turnip greens, peas and carrots.

Thursday

Radio club meets: The JSC Amateur Radio Club will meet at noon June 29 in Bldg. 16 Rm. 253. For more information call Larry Dietrich at x39198.

NMA meet: The National Management Association will meet at 5 p.m. June 29 at the Gilruth Center. For information call Kathy Kaminiski at x38706.

Cafeteria menu — Special: chicken fried steak. Total Health: roast beef with gravy. Entrees: steamed pollock, lasagna with meat, steamed pollock, catfish, French dip sandwich. Soup: cream of turkey. Vegetables: whole green beans, butter squash, cut corn, black-eyed peas.

Friday

Cafeteria menu — Special: fried chicken. Total Health: vegetable lasagna. Entrees: pollock hollandaise, beef stroganoff, vegetable lasagna. Vegetables: steamed broccoli, carrots vichy, Italian zucchini, breaded okra.

July 4

Independence Day: Most JSC offices will be closed in observance of the Fourth of July holiday.

July 5

Astronomy seminar: The JSC Astronomy Seminar will meet at noon July 5 in Bldg. 31, Rm. 129. An open discussion meeting is planned. For more information, call Al Jackson at 333-7679.

Toastmasters meet: The Space-land Toastmasters will meet at 7 a.m. July 5 at House of Prayer Lutheran Church on Bay Area Blvd. For additional information, contact Elaine Trainor, x31034.

Cycle club: The Space City Cycle Club will meet for a 25-mile ride beginning at 6 p.m. July 5 at the University of Houston Clear Lake soccer field. For more information on this ride and weekend rides call Mike Prendergast at x45164.

July 7

American Heritage Day Program: A celebration of JSC employee cultural diversity from 3-8 p.m. July 7 in the courtyard area behind Bldg. 1. Food, music, entertainment and special guests. For information call Estella Gillette on x30603.

July 8

Star gazing: The JSC Astronomical Society invite the public to view the summer skies through telescopes from dusk-10 p.m. July 8 at Challenger 7 Memorial Park. For more information call Bill Williams at 339-1367.

July 11

Scholarship rally: The Galveston County A & M club will host its annual scholarship rally July 11 at El Mina Shrine Temple. R. C. Slocum will be the featured speaker. Advanced tickets cost \$11. For more information call Rob Way at 332-3077.

up, also school/work car or truck. 271-7011.

Want personnel to join VPSI Vanpool departing Meyerland Park & Ride lot at 7:05 a.m. for JSC, on-site personnel, 8 a.m. - 4:30 p.m. shift, Travis Moebe, x45765 or Don Pipkins, x35346.

Want personnel to join van pool, departing Southwest Park & Ride lot at 6:50 a.m. for JSC & offsite locations, 7:30a.m.-4:30 shift. Susan Gaynor, 282-5447 or Ed Rangel, x36124.

Want old Forgen 4x4 work truck, '79-'86. Joseph, 480-9468.

Want R/H side clutch cover for '84 Honda CR 125 dirt bike engine; '84 or compatible bike for parts. Keith, 335-2514 or 332-9414.

Want to purchase home, 3-2-2, det garage, in CLC, need 9/15/95, to \$75k. 484-5860.

Want to buy houses. 480-9468.

Want to buy a Bach 42B Trigger trombone, Don, 333-8155 or 486-6726.

Want pop-up camper w/shower, A/C, refrig. Howard, x37346.

Want now working Mitsubishi VCR. BK, x31610.

Want carpooler from I-10 west, 290 north area to CL area, w/working hrs between 7 a.m. - 4p.m. Racquel, x34167 or Bob, x35207.

Want roommate(s), 4-2-5-2, 2 story house in Seabrook, ceiling fans sep phone lines, W/D, \$350/mo. 474-4742.

Want house in Heritage Park, assumable w/low equity. 480-9468.

Miscellaneous

Ivory man made leather sofa/loveseat, \$650; Evenflo ultra 3 pos, recy car seat, \$70. 996-0152.

Portable 5 person spa/hot tub, \$950. Tim, x33791 or 482-2308.

MARES, large BCD w/attached reserved regulators, \$100. 480-7927.

Baby crib/youth bed, ex cond, \$200. 282-2731 or 331-0164.

German language text books/tapes for self study, begin or intermed levels. Bob, x32193 or 326-3984.

Wilson Persimmon 3-wood golf club, \$25; Reggie Jackson registered, autographed pict, \$100; Oilers Alumni autographed football, \$100; Superbowl football w/enclouser, \$100. x30085.

Spray Rig, 50 gal tank w/5Hp Briggs & Stratton engine, \$300. 482-8820.

Sliding glass doors, 2-8" & 1-6", \$40/ea; 1-4'x5' window, \$30; 110Vac, \$100. Ken, x30921.

Outdoor lighting kit, 4 floodlights, 8 accent lights w/cables, \$30. x32920 or 992-3014.

Remington 270 cal deer hunting rifle model 700 ADL w/3x9 Leupold sling & soft case, \$550. x38393 or 992-4763.

Kid's Suzuki 750 pwr wheels, 2 spd, 12v recharge battery, \$45; Black Beauty spring horse, \$40; cozy coupe, \$25. x32290 or 992-3014.

Fisher Price car seat, ex cond, \$15; FP 3-wheeler riding toy, \$10. 474-5601.

President & First Lady membership, \$6.50/mo dues pd thru 4/96, \$600 obo. Leigh, 246-3193.

Electric W/D, \$225 obo; Men's 27" Raleigh 10-

spd road bicycle & women's 26" 12 spd bicycle, \$85 ea obo; rattan swivel rocker, ex cond, \$75 obo; stair stepper & exercise bike, \$50 ea obo. 470-9775.

Wedding dress, pale pink, sz 10/12, long, full skirt, white lace w/sequins 7 pearls on bodice & sleeves, \$350. Evelyn, x48068 or 480-5380.

Six carnival-type games, access, \$100; Nordic Trac "Pro" exercise mach, w/pulse monitor, \$375. 488-1326.

White fan w/light kit, \$45; dome shaped light kit for fan, \$15; 13.5x49.5 fluorescent light fixture, \$25. 532-1610.

Puch 10 spd ladies bicycle, \$100; Tunturi rowing machine, \$45; wicker coffee table, \$50. 482-8820.

Navy colts, 1851 model, \$60; Taurus .380 semi-auto, \$300; Uncle Mikes rifle case, med length, blk, \$15. Jim, x30411 or 480-2646.

Moving boxes; Graco swyngomatic wind-up swing, 4 position, recliner, \$35; Cosco hi-chair, swing-away tray, \$40; safety 1st swivel bath seat, \$7; Nordic Track 505, \$375; Beautyrest full sz waterbed w/adj cylinders, frame, \$300. Muldoon, 280-7412.

Super single waterbed w/6 drawers, pads, bookcase hdbd, EC, \$150 obo; treadmill in EC, \$250. Don, 486-6726 or 333-8155.

Day-timers planner w/zipper notebook, 8.5x11 sz, desk paper punch, notebook paper punch, filler thru 9/95, \$60; 14k diamond-cut rope bracelet, 2.5mm wide, 8" long, \$55. Eric, x31917.

DP/Performer 960 stairstepper, \$80. David, x38947.

'84 Olympic First Day cover stamp set, \$75. 486-8716.

Half Pint microwave, \$60; Samsung TV, \$40; VCR w/remote, \$50; Unisonic answering mach, \$15; Schwinn 26" 10 spd bike, \$40. Debbie, x47130 or 286-2947.

Boy's 16" bike, w/2 new tires, \$25; 22RF Browning A-bolt, NIB, \$300; 1911A1 Norinco .45 ACP, \$260. Howard, x37346.

Fathom full wet suit, male, med, good cond, \$50. 482-2369.

Bedliner for '85 Toyota shortbed PU, 55.75" wide, 72" long, 15" deep, ex cond, \$100; Fisher Price car seat, \$40. 480-3424.

Hot tub, 6 person, gas heater, good cond, pump timer, \$750 obo. x30385.

Home water softener system, ex cond, \$3k obo; 13" RCA color TV w/remote, \$75. x37660 or 333-6868.

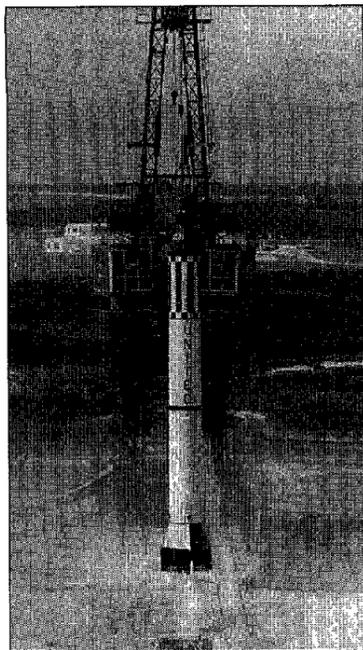
Various 8 track tapes & player; candle holders, brass; antique chairs, best offer. Jim, x38624 or 475-9671.

John Wayne Commem rifle, 32-40 cal, collectors item, 1 box of Duke cart. Stan, 471-0972.

Tennsmith metal shear, 16 ga, 3' wide, \$900 obo; Pex to 13ga shear 30" wide, \$300; hvy duty 5" swivel vise, \$70; auto repair manuals, '6

Centennial Celebration

The STS-71 launch will mark an American space achievement



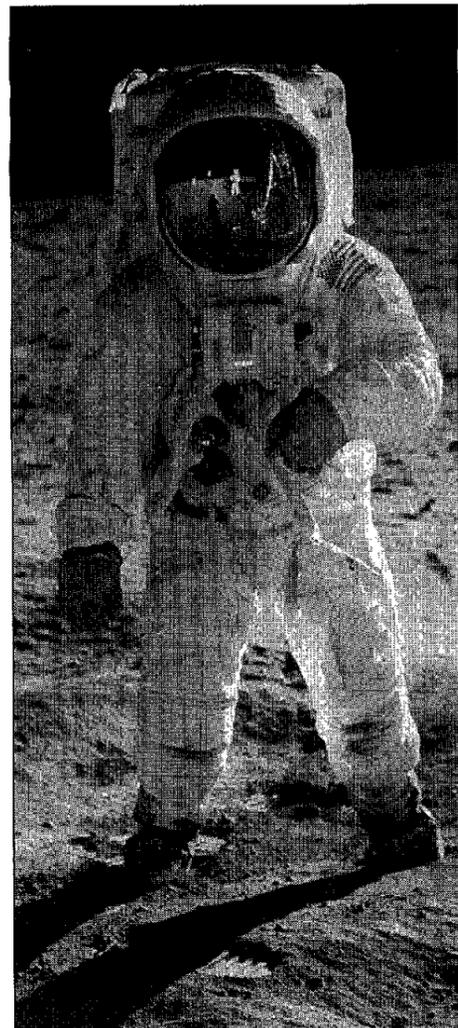
May 5, 1961 – First flight



Feb. 20, 1962 – First circumnavigation of Earth



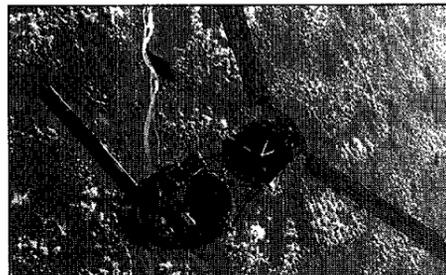
June 23-25, 1965 – First space walk



July 16-24, 1969 – First lunar landing



July 26-Aug. 7, 1971 – First lunar rover



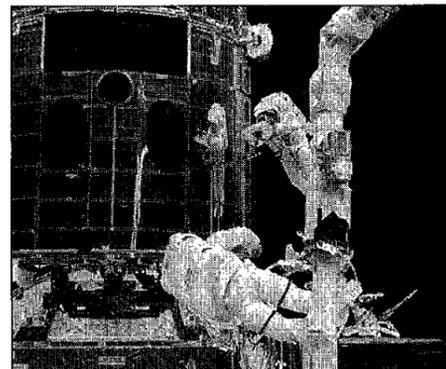
May 25-June 22, 1973 – Skylab, first American space laboratory



July 15-24, 1975 – First U.S.-Russian docking



April 12, 1981 – First Space Transportation System flight



Dec. 2-12, 1993 – First Hubble Space Telescope repair mission

The launch of STS-71 marks the 100 U.S. human space flight. Americans have gone to the moon; walked in space; deployed, retrieved and serviced satellites and rendezvoused with a variety of space craft in the span of 34 years. The *Space News Roundup* takes a look at how we got from 1961 to 1995.

May 5, 1961

Freedom 7, the first piloted Mercury spacecraft carrying Astronaut Alan Shepard, was launched from Cape Canaveral. It was the first American space flight involving human beings. His flight lasted 14.8 minutes.

Feb. 20 1962

John Glenn became the first American to circle the Earth, making three orbits in his Friendship 7 Mercury spacecraft.

March 23, 1965

Following two unoccupied orbital test flights, the first operational mission of Project Gemini took place on March 23, 1965 with Gus Grissom and John Young onboard.

June 23-25, 1965

The second piloted Gemini mission, GT-4, stayed aloft for four days and astronaut Edward White II performed the first extra-vehicular activity or space walk by an American.

Oct. 11-22, 1968

The first piloted flight of the Apollo spacecraft, Apollo 7, and Saturn IB launch vehicle, this flight involved astronauts Wally Schirra, Donn Eisele and Walter Cunningham.

Dec. 21-27, 1968

On Dec. 21, 1968, Apollo 8 took off with Frank Borman, James Lovell and William Anders for a historic mission to orbit the Moon. As it traveled outward the crew focused a camera on Earth and for the first time humanity saw its home from afar, a fragile "blue marble" hanging in the blackness of space.

July 16-24, 1969

The first lunar landing mission, Apollo 11 lifted off on Jul. 16, 1969, and after confirming that the hardware was working well began the three day trip to the Moon. At 3:18 p.m. JSC time on Jul. 20, 1969, the Lunar Module-with astronauts Neil Armstrong and Edwin Aldrin-landed on the lunar surface while Michael Collins orbited overhead in the Apollo command module. After checkout, Armstrong set foot on the surface, telling the millions of listeners that it was "one small step for man-one giant leap for mankind."

April 11-17, 1970

The flight of Apollo 13 was one of the near disasters of the Apollo flight program. At 56 hours into the flight, an oxygen tank in the Apollo service module ruptured and damaged several of the power, electrical, and life support systems. NASA engineers determined that the Lunar Module, a self-contained spacecraft unaffected by the accident, could be used as a "lifeboat" to provide life support for the return trip. The crew returned safely on Apr.17.

July 26-Aug. 7, 1971

The first of the longer, expedition-style lunar landing missions, Apollo 15 was the first to include the lunar rover. They brought back one of the prize artifacts of the Apollo program, an ancient lunar crust called the "Genesis Rock."

Dec. 7-19, 1972

Apollo 17 was the last of the Apollo missions to the Moon, and the only one to include a scientist, astronaut/geologist Harrison Schmitt, as a member of the crew.

May 25-June 22, 1973

Following the launch of the orbital workshop, Skylab, on May 14, 1973, the Skylab 2 mission began. The workshop had developed problems due to vibrations during lift-off and the shield-designed also to shade Skylab's workshop from the Sun's rays-ripped off, taking with it one of two solar panels. The Skylab 2 crew launched to repair the workshop.

July 15-24, 1975

The Apollo-Soyuz Test Project was the first international human space flight. Apollo and Soyuz crews conducted a variety of experiments over a two-day period.

April 12, 1981

Astronauts John Young and Robert Crippin flew the Space Shuttle *Columbia* on the first flight of the Space Transportation System (STS-1).

June 18, 1983

Astronauts Robert Crippin and Frederick Hauck piloted *Challenger* (STS-7) on a mission to launch two communications satellites and the reusable Shuttle Pallet Satellite. Sally Ride became the first American woman in space.

Aug. 30, 1983

Astronauts Richard Truly and Daniel Brandstein piloted *Challenger* (STS-8) on another historic mission, carrying the first black American astronaut, Guion Bluford, into space.

Nov. 28, 1983

Astronauts John Young and Brewster Shaw piloted *Columbia* (STS-9) on a mission that carried the first non-U.S. astronaut to fly in the U.S. space program, West German Ulf Merbold.

Jan. 28, 1986

The Space Shuttle *Challenger*, STS-51L, was tragically destroyed and its crew of seven was killed, during its launch from Kennedy Space Center about 10:40 a.m. The explosion occurred as a result of a leak in one of two solid rocket boosters that ignited the main liquid fuel tank. The disaster prompted a thorough review of the shuttle program, leading to substantive reforms.

April 24-29, 1990

During the flight of *Discovery* (STS-31) the crew deployed the Hubble Space Telescope. Soon after deployment, controllers found that the telescope was flawed by a mirror defect that prevented Hubble from focusing all light to a single point. NASA received considerable negative publicity, but soon scientists found a way to work around the abnormality. Even with the aberration, Hubble made many important astronomical discoveries.

Dec. 2-12, 1993

Astronauts Richard Covey and Kenneth Bowersox piloted *Endeavour* (STS-61) on a highly successful mission to service the optics of the HST. Orbital verification of HST's improved capabilities occurred in early January, well ahead of the March schedule.

Feb. 3-11, 1994

Astronauts Charles Bolden and Kenneth Reightler flew *Discovery* (STS-60) on a mission featuring the first Russian cosmonaut to fly on a U.S. mission in space, Mission Specialist Sergei Krikalev.

Feb. 3-11, 1995

Exactly one year after a major cooperative flight with the Russians in STS-60, *Discovery*, on STS-63, flew a flyby near the Russian Mir Space Station. It also featured the first woman shuttle pilot, Eileen Collins. □

Hubble observes the fire and fury of a stellar birth

NASA's Hubble Space Telescope has provided a detailed look at the fitful, eruptive, and dynamic processes accompanying the final stages of a star's "construction."

Images from the orbiting observatory reveal new details that will require further refinement of star formation theories. The HST observations shed new light on one of modern astronomy's questions: how do tenuous clouds of interstellar gas and dust make stars like our Sun?

"For the first time we are seeing a newborn star close up—at the scale

of our solar system—and probing the inner workings," said Chris Burrows of the Space Telescope Science Institute. "In doing so we will be able to create detailed models of star birth and gain a much better understanding of the formation of our Sun and planets."

The HST images provide a clear look at a collapsing disk of dust and gas that builds the star and provides ingredients for a planetary system.

The images offer clues to events that occurred in our solar system when the Sun was born 4.5 billion

years ago. Astronomers commonly believe that Earth and the other eight planets condensed out of a circumstellar disk because they lie in the same plane and orbit in the same direction. According to this theory, when the Sun ignited it blew away the remaining disk, but not before the planets had formed.

"The Hubble images are opening up a whole new field of stellar research for astronomers and clearing up a decade's worth of uncertainty," added Jeff Hester of Arizona State University. "Now we can look

so close to a star that many details of star birth are clear immediately."

"The Hubble pictures appear to exclude whole classes of models regarding jet formation and evolution," said Jon Morse of the Space Telescope Science Institute.

A disk appears to be a natural outcome when a slowly rotating cloud of gas collapses under the force of gravity—whether the gas is collapsing to form a star, or is falling onto a massive black hole.

Material falling onto the star creates a jet when some of it is heated

and blasted along a path that follows the star's rotation axis, like an axle through a wheel.

Jets may assist star formation by carrying away angular momentum that otherwise would prevent material from reaching the star. Jets also provide astronomers with a unique glimpse of the inner workings of the star and disk. "Not even the Hubble can watch as material makes its final plunge onto the surface of the forming star, but the new observations are still telling us much about that process," said Hester.

MCC open for viewing

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

Based on an on-time June 23 launch, employees will be allowed to visit the MCC from 11:30 a.m.-2:30 p.m. Thursday and from 7-11 a.m. June 1. The June 1 viewing time will feature the undocking of *Atlantis* from the Russian Mir Space Station.

Employees must wear their badges and escort family members through the regular public entrance on the northeast side of Bldg. 30.

Children under 5 will not be permitted. No flash photography or loud talking will be permitted at any time. 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.

Thagard's ride home in route

(Continued from Page 1)

mission and we are ready to fly," said Gibson, as the crew left their T-38 training jets minutes after their arrival at KSC Tuesday.

Once on orbit, the astronauts and cosmonauts will activate the Spacelab science module housed in the ship's cargo bay and will checkout many of the tools which will be used during Monday's rendezvous procedures. After a 66-hour chase through the skies, Gibson will gently ease *Atlantis* toward the Mir, a slow final approach at one-tenth of a foot per second before the two vehicles contact one another. At that point, capture latches and hooks on the Orbiter Docking System in the payload bay and on a docking mechanism attached to the Kristall module on Mir will begin to engage each other to structurally mate the two ships together.

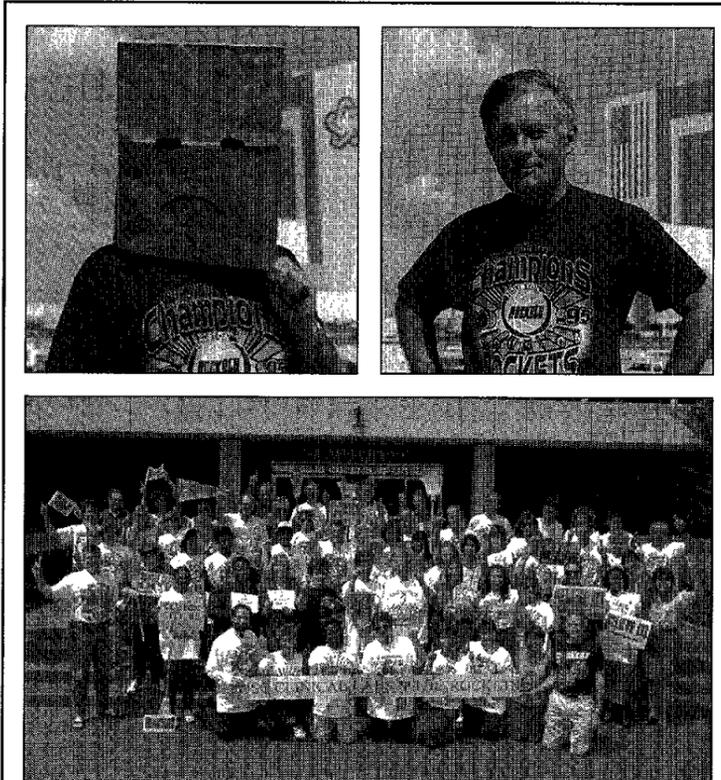
About two hours after docking, after leak checks of the docking system tunnel are completed, Gibson will open *Atlantis*' hatch, will float into the tunnel and will grasp the hand of Mir 18 Commander Vladimir Dezhurov, who along with Flight Engineer Gennady Strekalov and U.S. Astronaut Norm Thagard, have been aboard Mir since March 16th. That handshake will come almost 20 years after Tom Stafford and Alexei Leonov met each other in orbit during the Apollo-Soyuz mission.

A welcoming ceremony in the Mir core module will follow the initial greetings between the crews before the real work of the mission begins.

During almost five days of docked operations, the ten astronauts and cosmonauts will conduct numerous biomedical experiments in the Spacelab and Baker, a medical doctor, will perform countermeasures on the Mir 18 trio to assist their adaptation into a gravity environment once they return to Earth.

Dezhurov, Strekalov and Thagard will ride home on *Atlantis*, while Solovyev and Budarin will remain aboard the Mir until August.

Atlantis is expected to land at KSC on July 4.



ROCKET CRAZE—Top: Kennedy Space Center Director Jay Honeycutt tries to pay off his bet with JSC Director Dr. Carolyn L. Huntoon and stay anonymous, but Houston Rockets supporters at KSC reveal his true identity. Middle: JSC employees, members of the Solid Rocket Boosters, revel in the championship victory. Bottom: Pat McKee, left, of the Robotics Systems Technology Branch sweeps her boss, Charles Price into the Rocket spirit.



Science key to competitiveness

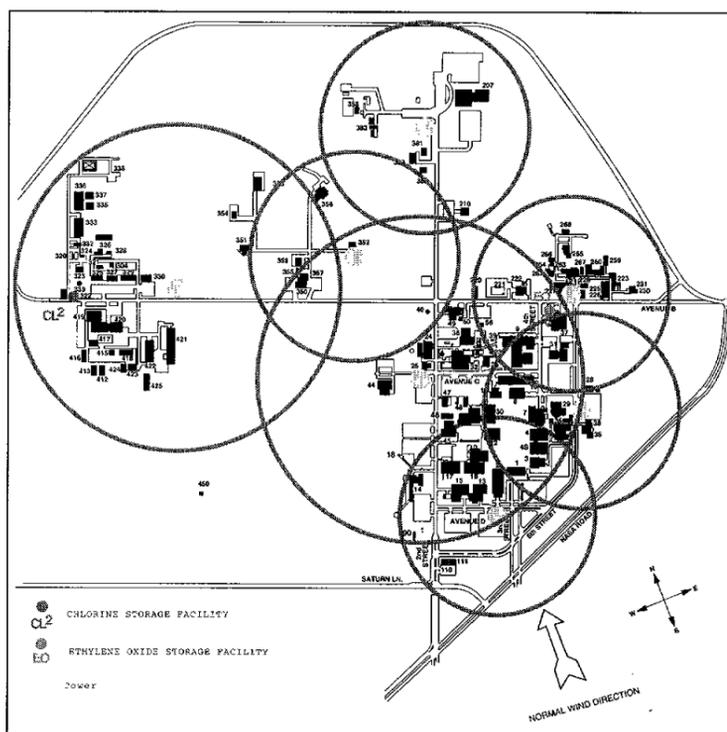
(Continued from Page 1)

this cutting-edge research continues. Government leadership in innovation is the key to enabling the commercial contributions in the environmental field and realize benefits for science, commerce, and policy.

"NASA has been at the forefront of such advances in knowledge and we stand committed," he added.

By walking away from a systematic and comprehensive approach, the U.S. would give up its leadership in science and jeopardize technologies in a commercial market he said.

"Significant U.S. investment in environmental science is the key to sustaining U.S. economic competitiveness in the global marketplace. We at NASA are committed to deficit reduction. NASA has already made enormous reductions in future budgets. However, further cuts to Mission to Planet Earth—and environmental research in general—seriously jeopardize an investment in the future that will return benefits far in excess of what we spend



Alarm system poles are throughout JSC in the center of each circle on this map. Alarms are at Bldg. 2, Ave. D; 5th St. west of Bldg. 38; south-east corner of Bldg. 227; corner of Ave. C and 2nd St.; north end of 2nd St.; northwest corner of Bldg. 356 and near the water tower on Ave. B.

American Heritage Day to celebrate diverse workers

The Office of Equal Opportunity Programs is planning and celebrating the multi-cultural talents, gifts, skills and abilities of all employees at JSC from 3-8 p.m. July 7.

"This is a day to celebrate multiple diversity within the JSC workforce," said Equal Opportunity Program Director Estella Gillette. "JSC is a family of rich heritage. We want to acknowledge and share our backgrounds. And as we begin to understand our background, we will be able to form a strong team with a common bond to enhance our work

in meeting the JSC and NASA goals."

Some of the activities planned include, singers, town criers, art displays, balloon sculpting, face painting, ethnic dance groups, all kinds of food, entertainment and some very special guests.

Volunteers with a creative artistic talent are needed to help the planning committee in developing a very special day for all JSC employees. For information, call Pat Burke at x30606 or complete the form below and mail to Code AJ by next Friday.

JSC AMERICAN HERITAGE DAY

Name _____

Mail Code _____

Phone _____

I WISH TO VOLUNTEER FOR: Singer Town Crier Art Display

SCH highlights Apollo 13

Space Center Houston is currently featuring an Apollo 13 exhibit in conjunction with the opening on June 30 of the major motion picture about the near tragic Apollo mission.

The exhibit will feature authentic props and sets from the movie including the lunar, command and recovery modules complete with rafts and floats and the spacesuits worn by the actors. Apollo era artifacts include clothing, food, mission checklist, a recovery parachute and the lunar excursion module trainer control panel. SCH will also have on hand the real round hatch door removed from the Apollo 13 command module complete with reentry burns.

The flight of Apollo 13 was one of the near disasters of the Apollo flight program. At 56 hours into the flight, an oxygen tank in the Apollo service module ruptured and damaged sev-

eral of the power, electrical and life support systems. People throughout the world watched as NASA personnel on the ground and the crew worked together to find a way safely home. While NASA engineers quickly determined that sufficient air, water and electricity did not exist in the Apollo capsule to sustain the three astronauts, they found that the Lunar Module could be used as a "lifeboat" to provide austere life support for the return trip.

In addition SCH commercials recently produced featuring JSC employees are currently running on major morning news shows and cable channels.

"Space Center Houston would like to extend a stellar thank you to those JSC employees who donated their time and talents on behalf of our 1995 commercial filming," said Jennifer Casey of SCH's public relations office.

JSC emergency service improves

(Continued from Page 1)

developed and available to workers.

Additional measures are being developed to prepare employees for emergencies. The Emergency Preparedness Office is developing an employee emergency handbook for distribution in the near future. All employees at JSC will have information on how to protect themselves in weather emergencies, as well as fires, spills and terrorism.

"When you hear the siren sound and need more information, please don't call the emergency telephone unless you are reporting an emergency," said Joe Olivarez, security representative to the Emergency Response Team, whose office is responsible for the EOC. "The non-emergency telephone for the fire and security dispatcher is x34658, but during an emergency, they're pretty busy." Every effort will be made to provide additional information quickly using the JSC Television Distribution System or the Emergency Information Line recording, which provides information on emergencies as it becomes available.