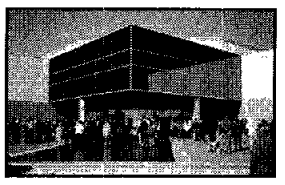
NASA
National Aeronautics and Space Administration
Lyndon B. Johnson Space Center
Houston, Texas



One year later

Space Center Houston, JSC's new visitor center, has come a long way in its first year of operation. Story on Page 3.

Well done

Karl Pohl, left, of Mission Operations, and Jon Olansen of Rockwell display their NASA Flight Safety Awards. Story on Page 4.

Space News Roundup

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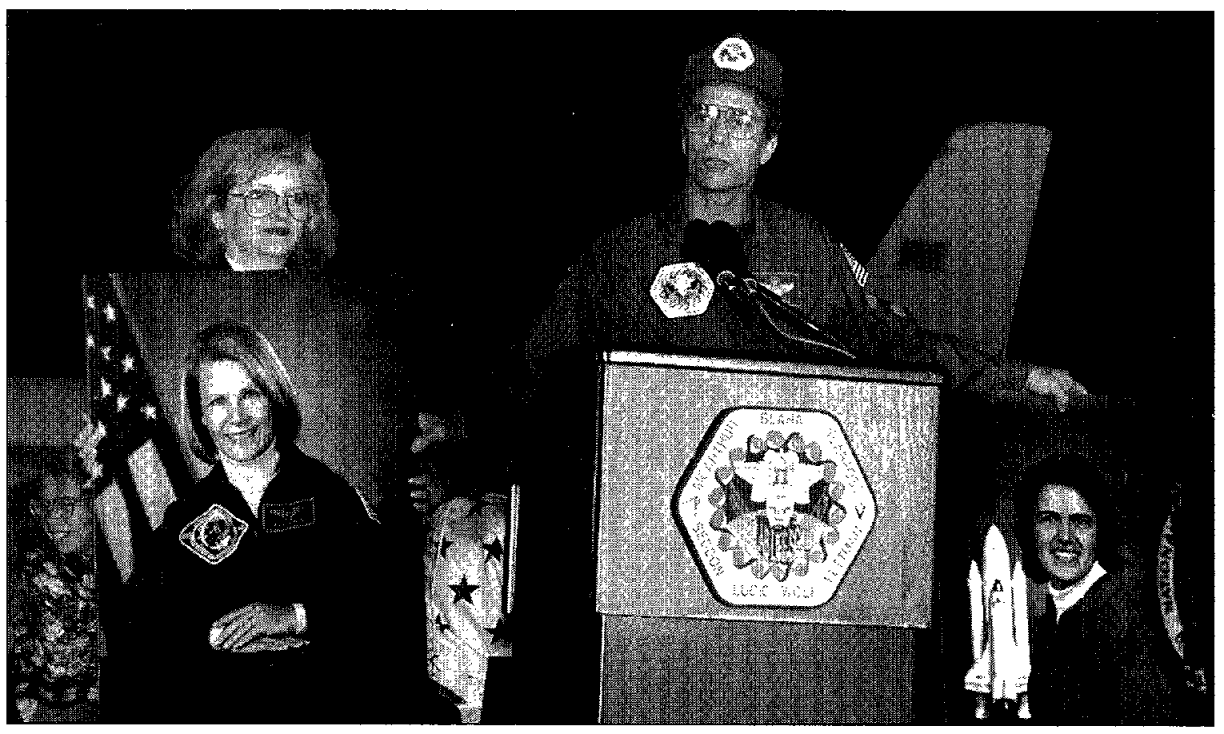


JSC Photo by Mark Sowa

STS-58 Commander John Blaha and his wife, Brenda, pay homage to the hard work of Payload Commander Rhea Seddon and Mission Specialist Shannon Lucid at the crew's homecoming ceremony at Ellington Field. Each of the orbiter crew members displayed a photo of one of the payload crew members, who were undergoing additional medical tests after landing.

Longest ever shuttle flight down safely

By Kelly Humphries

The Space Shuttle *Columbia* and its crew of seven record-setting astronauts landed smoothly and safely at Edwards Air Force Base in California last Monday, wrapping up two weeks of highly successful on-orbit medical research.

The next phase of the Spacelab Life Sciences 2 research began immediately after the 9:05 CST Monday landing as crew members began post-flight tests to evaluate how their bodies are readapting to Earth's gravity after the longest shuttle mission to date.

"All of our accomplishments exceeded our expectations," said Mission Scientist Howard Schneider, who led the JSC contingent in the Payload Operations Control Center at Marshall Space Flight Center.

Additional blood and urine samples were taken frequently this past week in JSC's Medical Experiments Data Collection Facility and will continue at regular intervals for the next month, providing biomedical researchers with a complete picture of how human systems adapts to space flight and readapt to gravity.

The 14 day, 13 minute, flight surpassed the record of 13 days, 19 hours, 30 minutes set on STS-50 in June-July 1992, making it the fourth longest American space mission after the three Skylab stays in the 1970s. Along the way, Mission Specialist Shannon Lucid became what Commander John Blaha called "the goddess of the universe" as the world record holder for time in space by a woman with 839 hours. Payload Commander Rhea Seddon set a family record for total hours in space—722—surpassing husband and Astronaut Office Chief Hoot Gibson's 632 hours.

The scientific data collected on STS-58 also set a new standard for research missions, amassing more than 650 different samples from both the crew and 48 research animals, which included the first samples of tissue preserved in their weightless state from six rats that were humanely killed and dissected on orbit by Payload Specialist and veterinarian Marty Fettman. The remaining rodents went through a battery of post-flight tests at Dryden Flight Research Center.

"This has been the best shuttle mission for life sciences that has flown to date," said Program Scientist Frank Sulzman. "We were able to get everything we planned to do, and we even got more than we hoped we could do.

"We conducted some really historic studies of the heart, lungs and blood. We learned some surprising new things about how the heart reg-

Please see **STS**, Page 4

Grit finds way onto *Endeavour* launch pad

By James Hartsfield

Preparations for *Endeavour*'s early December launch on STS-61 to service the Hubble Space Telescope remain on schedule, but technicians are double-checking the payloads after finding dust in the changeout room at Launch Pad 39A last weekend.

Endeavour's preparations are proceeding smoothly, however the payloads—replacement units for HST—were to be installed back into a payload carrier Friday and taken from the pad to Kennedy's Payload Hazardous Servicing Facility. The cargo was to be reinspected and airtight bags covering the equipment cleaned and changed.

In the meantime, workers at Pad 39A were continuing to assess the cleanliness of the Payload Changeout Room, and analyze the source of the contamination, a fine, man-made grit used in sandblasting.

If shuttle managers find the Pad 39A room not sufficiently clean and protected, they may opt to launch STS-61 from Pad 39B, a decision that would likely be made during the weekend to remain on track for a launch as early as Dec. 1.

Regardless of a switch of launch pads, the HST payloads are expected to be back in place and ready for installation in the shuttle within 10 days. An official launch date for *Endeavour* will not be set until after shuttle managers meet for the flight readiness review Nov. 17.

Meanwhile, *Columbia*, fresh from the longest space flight of any shuttle, was scheduled to depart Edwards Air Force Base, Calif., for the cross-country trek back to KSC Sunday. Early inspections showed the spacecraft in excellent shape following touchdown, although a 40-inch length of insulation around one main engine heat shield was missing.

Baker to lead Space Radar Laboratory crew

By Barbara Schwartz

Navy Capt. Michael A. Baker will command the STS-68 Space Radar Laboratory-2 mission scheduled for the fall of 1994 aboard *Atlantis*, NASA announced recently

Also on the flight are Marine Corps Maj. Terrence W. Wilcutt, pilot, and mission specialists Steven L. Smith, Peter J.K. "Jeff" Wisoff, Ph.D., and Navy Cmdr. Daniel W. Bursch. Tom Jones became payload commander in August.

SRL-2 will take radar images of the Earth's surface for Earth system sciences studies including geology, geography, hydrology, oceanography, agronomy and botany.

Baker, 39, was pilot on two space shuttle missions, STS-43 aboard Atlantis in August 1991 and STS-52 aboard *Columbia* in October 1992. On his first mission the crew deployed the fifth Tracking and Data Relay Satellite and conducted 32 physical, material, and life sciences extended duration orbiter experiments.

This will be the first flight for Wilcutt, 43, who received a bachelor of arts degree in math from Western Kentucky University in 1974.

Smith, 34, the first of the astronaut class of 1992 to receive a flight assignment, received bachelor and master of science degrees in electrical engineering from Stanford University in 1981 and 1982, and a master's in business administration from Stanford in 1987.

Wisoff, 35, was a mission specialist aboard *Endeavour* on STS-57 in June 1993, which retrieved the European Retrievable Carrier and carried the first Spacehab module. He also conducted a 5-hour, 50-minute space walk to position the EURECA communications antennas for latching and test tools and techniques for future walks.

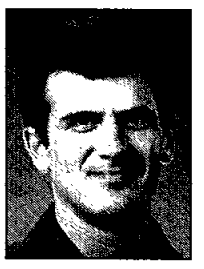
Bursch, 36, was a mission specialist on STS-51 aboard *Discovery* in September 1993, a flight to deploy the Advanced Communications Technology Satellite and to deploy and retrieve the Shuttle Pallet Satellite.

In a separate move, John M. Grunsfeld, Ph.D., was named as a mission specialist on the Astro-2 mission scheduled for late 1994 aboard *Columbia*. Astro-2 is a mission to study the far ultraviolet spectra of faint astronomical objects and to study the polarization of ultraviolet light coming from hot stars and galaxies. Tammy Jernigan was named payload commander in August.

Grunsfeld, 35, will be making his first flight. He earned a bachelor's in physics from the Massachusetts Institute of Technology in 1980, a master's in science and a doctorate in physics from the University of Chicago in 1984 and 1988.

Baker

Wilcutt



Wisoff

Bursch

Locality pay one step closer to reality at JSC

By Kelly Humphries

There's good news and bad news coming about the salaries of JSC federal workers, but the good news may keep the bad news from hurting as much. On the other hand, the good news brings its own set of problems for the center.

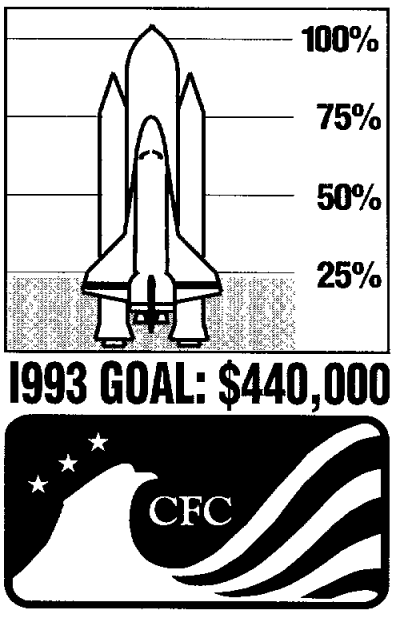
First the bad news: in a compromise over the pay package for federal employees, President Clinton and the Congress have agreed to eliminate a planned 2.2 percent comparability increase at the start of 1994.

Now the good news: the same compromise also would implement locality pay for federal workers in cities where private sector workers earn more for comparable jobs. For JSC workers this is expected to mean an increase of 6.52 percent, effective Jan. 9.

Now for the problems: the advent of locality pay will cost JSC an additional $9 to $10 million, and the funding source that provides for salaries, overtime, training and travel hasn't increased to deal with those costs.

Human Resources Deputy Director Greg Hayes said he is confident careful management of JSC's personnel resources will preclude the need for any work furlough.

Please see **LOCALITY**, Page 4



DEMOS team earns award for data-driven graphics

The Mission Operations Directorate team that developed the Distributed Earth Model and Orbiter Simulation System will receive a 1993 Federal Leadership Award for its efforts.

The DEMOS technology allows flight controllers and mission planners to interpret and represent spacecraft telemetry using three-dimensional, high-speed graphics. It is the first real-time application of virtual reality and telepresence technology within the Mission Control Center.

The large-screen display in the MCC indicating the space shuttle's on-orbit location during simulations and real-time missions is the result of this new system. DEMOS has been baselined for use in the Payload Operations Control Center for supporting shuttle payload operations and also will be used in the Consolidated Control Center Complex at JSC.

The award will be presented Nov. 30 in Washington, D.C. at the Washington Hilton Hotel.

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.

EAA Texas Renaissance Festival Bus Trips — Nov. 13, includes bus transportation and admission: adult, $16; child (5-12), $11; child (under 5), $7.

Texas Renaissance Festival — Weekends through-Nov. 14. Discount tickets: adult, $9.95; children 5-12 years, $5.95.

Contemporary Jazz Night — Nov. 13, Gilruth Center. Dinner, concert $15 per person. Tickets on sale through Nov. 10.

Entertainment '94 Coupon Books — Bay Area/Galveston/Downtown or FM 1960/Downtown: $30 each, $1 off first book for civil servants. Gold C Books: $8

Space Center Houston — Discount tickets: adult, $7.50; child (3-11), $4.50; commemorative, $9.95.

Metro tickets — Passes, books and single tickets available.

Movie discounts — General Cinema, $4.50; AMC Theater, $3.75; Loew's Theater, $4.

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. For more information, call x30304.

EAA badges — Dependents and spouses may apply for photo identification badges from 6:30-9 p.m. Monday-Friday. 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. Nov. 16. Pre-registration is required. Cost is $5.

Defensive driving — Course is offered from 8:15 a.m.-3 p.m. Saturday. Next class is Dec. 4. Cost is $19.

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

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

Aikido — Martial arts class meets from 5-7:30 p.m. Tuesdays. Cost is $15 per month.

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

JSC

Dates & Data

Today

Flu shots — The JSC Clinic will offer influenza vaccines from 10 a.m.-noon and 2-3:30 p.m. through Jan. 31. For more information, call the clinic at x34111.

Cafeteria menu — Special: turkey and dressing. Total Health: herb flavored steamed pollock. Entrees: breaded veal cutlet, beef chop suey, steamed pollock, beef cannelloni, French dip sandwich. Soup: beef and barley. Vegetables: Brussels sprouts, mixed vegetables, egg plant casserole, winter blend vegetables.

Tuesday

Cafeteria menu — Special: pepper steak. Total Health: barbecue chicken. Entrees: baked lasagna, pork chop and fried rice, turkey a la king, baked chicken, French dip sandwich. Soup: black bean and rice. Vegetables: breaded squash, steamed spinach, baby carrots, navy beans.

Wednesday

JAS meets — The JSC Astronomical Society will meet from 12-1 p.m. Nov. 10 in Bldg. 31, Rm. 129. For additional information, call Al Jackson at 333-7679.

Russian speakers — Practice Russian language skills from 11 a.m.-1 p.m. Nov. 10 in Bldg. 3 cafeteria. For more information, call Jack Bacon at x38725 or Amy Mendez at x38066.

Cafeteria menu — Special: Mexican dinner. Total Health: steamed pollock. Entrees: broccoli cheese quiche, catfish and hush puppies, spare ribs and sauerkraut, steamed fish, Reuben sandwich. Soup: seafood gumbo. Vegetables: Spanish rice, pinto beans, peas, broccoli.

Thursday

Russian speakers — Practice Russian language skills from 11 a.m.-1 p.m. Nov. 11 in Bldg. 3 cafeteria. For more information, call Jack Bacon at x38725 or Amy Mendez at x38066.

Cafeteria menu — Special: hamburger steak with onion gravy. Total Health: spicy new potatoes. Entrees: corned beef, cabbage and new potatoes, chicken and dumplings, meat ravioli, French dip sandwich. Soup: broccoli cheese and rice. Vegetables: navy beans, cabbage, cauliflower, green beans.

Friday

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

IEEE meets — The Galveston Bay section of the Institute of Electrical and Electronics Engineers' Computer Society meets at 10 a.m. Nov. 15 in Rm. 204 at the Gilruth Center. Anhhuy Ha will discuss real time simulation with VME-based open system architecture.

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

Nov. 17

NCMA conference — The Space City-Houston Chapter of the National Contract Management Association will present its fall educational conference Nov. 17-18 at the South Shore Harbour Resort and Conference Center. For more information, call Carolyn Moe at x34158.

PSI meets — The Clear Lake/NASA Area chapter of Professional Secretaries International will meet at 5:30 p.m. Nov. 17 at the Holiday Inn on NASA Road 1. For more information, contact Elaine Kemp at x30556.

JAS meets — The JSC Astronomical Society will meet from 12-1 p.m. Nov. 17 in Bldg. 31, Rm. 129. Dr. Tomasz Stepinski of LPI will discuss the evolution of protoplanetary disks. For more information, call Al Jackson at 333-7679.

Nov. 18

IEEE meets — The Galveston Bay section of the Institute of Electrical and Electronics Engineers will meet at 11:30 a.m. Nov. 18 at the Gilruth Center. Dr. Mitch Eggers will speak on Genosensors—Microelectronic for Medicine. For additional information, call Barbara Nepveux at x30194.

Nov. 23

Blood drive — The last on-site JSC blood drive of 1993 will be from 8-11:30 a.m. and 1-3:30 p.m. Nov. 23 at the Gilruth Center. For more information call Dan Mangieri, x33003; Mary O'Rear, x36531; or Susan Anderson, x33082.

JSC

Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Ads may be run only once. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2. No phone or fax ads accepted.

Property

Sale: LaMarque, 4 lots, corner of Neuman and Rosewood, 71.5' x 138', no restrictions. x38321 or 334-4272.

Rent: The Landing, 1 BR condo w/study, util paid, no dep, $650/mo, avail 11-1. 393-3237.

Rent: Watefront eff apt, furn or not, pool, util paid, flexible lease, nonsmokers, no pets, $400/mo. x48882 or 532-1725.

Lease: Univ Green, 3-3-2, patio home, good cond, $825/mo + dep. 486-8551.

Rent: Galv condo, furn, sleeps 6, Seawall & 61st St, pool, cable, wknd/wkly/dly. Magdi Yassa, 333-4760 or 486-0788.

Sale: LC/Meadowbend, 4-2-2, FPL, ceiling fans, landscaped/painted, $70.9k negotiable, assumable. Peter, 526-1853.

Rent: Bolivar Beach house, wkly/dly rates. 485-1730.

Lease: Seabrook, 2-2.5 TH, $585/mo, 1-1.5 TH, $495/mo., WD conn, front/back doors, patio, outside storage, 2 cov parking spaces. 474-9262.

Sale/Lease: Nassau Bay, 4-2-2, recently remodeled, trees, $795/$114,500. Minh, 333-6806 or 484-2456.

Lease: CL/Oakbrook West, 4-2.5-2d, contemp, lg living/dining, FPL, sec sys, garage opener, new roof, no pets, $995/mo.; Heritage Park, 3-2-2, ceiling fans, lg yard, fenced, new roof/paint, $695/mo. 482-6609.

Sale: El Dorado Trace condo, 2 story studio, 2-2.5, dbl carport, wood burning FPL, ceiling fans, window dressings, refrig incl'd. $42.5k. Chris, 480-5250.

Rent: Southern CO, furn, 2 BR, sleeps 5/6, no smoking, no pets. Bob, x30825 or 998-7372.

Rent: Lake Travis cabin, private boat dock, CA/H, fully equipped, sleeps 8, $325/wkly/dly. 474-4922.

Sale: LC, 82' x 130' lot, $9.5k. 333-5493.

Sale: LC/Bayou Brae, 4-2-2 colonial, new carpet/roof, detached all brick garage, lg lot, cov patio. 332-6325.

Sale: Sagemont, 3-2-2, new carpet/roof, lg den, both formals, FPL, x34339 or 481-1439.

Sale: Piper's Meadow, 4-2.5-2, new carpet/vinyl, low util, fans, miniblinds, auto gar dr opnr, immediate occupancy. Wayne, x36617 or 291-9020.

Rent: Arkansas cottage, furn, wooded, 4 acres, screened porch, antiques, $250/wk, $50/day. x33005 or 334-7531.

Cars & Trucks

'93 Ford Escort wagon, approx 6k mi, new teal color, $9k. 992-4216.

'91 Mustang LX, 5.0, sunroof, loaded, 32k mi, $9.7k. Dan Remington, x31004 or 331-0742.

'80 Chevy Citation, 4 spd trans, 6 cyl, 2 DR, $550. Joe, x31471 or 554-5009.

'78 Pontiac Sunbird, 2 DR hatchback, 4 cyl, 5 spd, AM/FM/cass, good cond, $890 OBO. x48882 or 532-1725.

'82 Corvette, maroon/gray, 76k mi, $10.9k OBO; '86 Lincoln Towncar, taupe/taupe, loaded, $5.5k OBO. 474-4427 or 333-6821.

'86 Ford Tempo, wht, 29k orig miles, AM/FM, AC, 5 spd, ex cond, $2k. Debbie, 750-2752 or 835-8223.

'85 CJ7 Laredo, 5 spd, AC, PS/PB, 86k mi, lift kit, mag wheels, $3.9k. 474-4742.

'75 Chevy Nova LN, 2 dr, 350, auto, PS/PB, air, needs work, $1k. Carroll, 554-4381.

'80 Olds Cutlass Supreme, wht, 4 dr, AC, auto trans, PS/PB, runs good, $128k mi, $1.5k. Allison, x37752 or 280-9424.

'87 Hyundai Excel, 5 spd, 4 dr, AC, tint, AM/FM/cass, garaged, nonsmoker, new batt, ex cond, 59k mi, $2.9k. x33662 or 334-6794.

'89 Pontiac Lemans, 35-50 mpg, $3150. Max, x38563 or 331-7957.

'79 280Z, restored, neon blue paint, mags, AC, 5 spd, many new parts, $4.4k. Bill, 482-7081.

'79 Dodge B-200 window van, 360V8, PS, AC, 5 pass, runs well, needs paint, $900. Andy, x38277 or 409-925-8854.

'81 Toyota Celica, runs good, auto, $1k OBO. 283-1285 or 992-3642.

'86 Chevette, 2 dr hatchback, 70k mi, auto, great AC, well maintained, faded paint, $1.9k. Juan, x38833 or 333-0406.

'78 Ford LTD II, good tires, batt, excellent work/school car, $550. x30552.

'87 Nissan Pulsar, red/gray and blk int, new tires, ex cond. 333-6277 or 339-3562.

Boats & Planes

'77 Cessna 150, good cond, $16.5k. x31555 or 482-8928.

22.5' SeaRay Cuddy cruiser, 228 hp Mercruiser I/O, Color Furuno depth finder, VHF, ex cond, $8.5k. Mark, x38013 or 992-4132.

Natural Arts thruster 6'6" surfboard, $195. Bill or David, 554-6242.

224 Chaparral, V-bunk cutty cabin w/head, 200 hp Johnson w/SS prop, electronics, drive-on Sportsman trlr w/new brakes, 6 ply tires, ex cond. Jim, 929-7358 or 286-9632.

Nissan O/B motor, 8 hp, ex cond, $450. Jim, x39229 or 482-7873.

Cycles

27" Fuji touring bike, 10 spd, ex cond, $75. Mark, x38013 or 992-4132.

Bianchi Premo racing bike, 51", blk, 12 spd, ex cond, $200 OBO. Mary, x31911.

Audiovisual & Computers

Citizen GSX-140 Plus, 24 dot matrix printer, ex cond, was $300, now $125. Jay, 929-7134 or 481-2335.

PCXT, 640k, 20 MB HD, 2 FD, EGA color monitor, some software, $225. x35549 or 554-4257.

Seikosha SP-2400 personal printer, single sheet or tractor feed, Apple ImageWriter II compatible, 9 pin dot matrix print head, 150 characters per sec, $250. Lori, x39347 or 480-6436.

Macintosh SE, ImageWriter II printer, 1 MB RAM, expandable, 20 MB HD, 3.5" FD, Apple 1200 baud modem, padded carrying case, $750. 997-1905.

Nintendo, $50 OBO. Paul, 992-1904.

Scanner, PRO 2021, 200 ch, preprogrammed w/local freqs, $100. Cliff, x47944 or 534-4145.

Radio Shack color computer, coco disk drive, multipack, x-pad graphics, tablet, modem interface, tape deck, software, 2 boxes of related books/magazines, $150 OBO. x36647 or 666-7440.

Photographic

Bronica S2A medium format SLR camera, 3 Nikkor lenses, 50mm, 80mm, 135mm, 120 6 x 6 cm filmback, $1k. Kevin, 283-1296 or 532-1409.

Pets & Livestock

Bunnies, $5. x31883.

Boxer/chow mix pups, 12 wks old. Laurie, x35590 or 991-0821.

Male Terrier mutt, 2 yrs old; male wht/orange cat, 3 yrs old, both neutered, free. Kelle, x31951.

Musical Instruments

Student King trombone w/case, ex cond, $250. x38804.

Peavy Fury FL fretless bass guitar, neck-strap/case incl, $300; Alvarez acoustic guitar, Dean Markley pickup/case incl, $200. Joel, x35744.

Gemeimhardt Elkhart flute, $300 OBO. Lucio, x35847 or 482-6683.

Lost & Found

Lost 6 spd Raleigh bike, Mission Control Center location. Jon Axford, x37671.

Household

Chrome/beveled glass tbl, 4 Brewers chairs, $300; bunkbeds corner unit desk, dbl dresser/shelves, $300; twin matt/box spring, $100; lg gas grill, $125; lg microwave, $30. 488-5310.

19 cu ft Kenmore refrig w/top freezer, ice-maker, reversible doors, almond color, $250 OBO. x36814 or 554-2955.

30" drop in electric stove/vent-a-hood, $75. 482-7801.

'40 7 drwr blk walnut student desk, $100; off wht swivel rocker/recliner, $100. Murray, 488-3984.

Sony 19" color tv, $75; Sony 13" color tv, $50. Joel, x35744.

20 lb capacity heavy duty elec dryer, 2 yrs old, ex cond, $125 or trade for ex cond gas dryer. 482-2351.

Oak veneer dinette w/leaf/4 chairs, $85; oak veneer tv/entertainment center w/storage, $45 OBO; small student desk w/2 drwrs/storage, $20; end tbl w/lamp and magazine rack attached, $20. Susan, x33076 or 334-5890.

Oak veneer pedestal dining rm tbl, 4 matching chairs, newly reuphol, needs minor repair, $40; Curtis Mathis 19" color tv, $40; kg waterbed, full-motion matt/heater, $25; dbl bed matt, foundation, frame/brass hdbd, $65; wheelbarrow $25. x34772.

Round 32" tbl w/bamboo legs w 2/non-matching captain chairs, $75; small old refinished phone tbl w/drwr, $12.50; sofa, off wht, 7', $95; loveseat, was $800, now $240. 488-5564.

Waterbed drwrs, ceiling fans, ex cond, x34221 or 338-1248.

Glasstop circular dining rm tbl w/4 matching chairs, steel construction, all wht, cushions, can be used outdoors. Casey, x46349 or 481-1835.

California kg sz waterbed, approx 9 yrs old, slightly damaged, $200 OBO. x47934.

Bassett formal dining rm, 6 chairs, oval tbl w/72" leaf, lighted china cabinet/buffet, $300 OBO; Childcraft wht baby bed w/matt, $65; Little Tykes blue boat, $15; Sesame Street twin comforter, 2 sheets, pillowcase, $25. 280-5058 or 283-7530.

China cabinet, 2 pcs, lighted, pecan, $260; wht wicker rocking chair, $110; oak serving cart, $70; Rose accent chair, $80; oak 2 drwr file, $45; armchair, green, $80; all ex cond. 532-3242.

Bdrm furn, solid wood, 60's style, 5 pcs, dbl box spring, no matt, good cond, $200 OBO. Terry, x36351.

Sears 19 cu ft refrig, $50 OBO. Jeff, x30687 or Diane, x33071.

Wanted

Want nonsmoker to rent furn room in CLC. 480-3424.

Want to buy Atari 2600 and games. Lili, x30962.

Want small to medium siz mig-welder. 485-5694.

Want vanpool riders from West Loop Park and Ride to NASA. Richard Heetderks, x37557.

Want part-time kitchen help at Gilruth, waitress, dishwasher positions, evening shift, 4:00 pm - 9:30 pm. Pat, x30326.

Want dual cass deck, solenoid keys preferable, Panasonic, Technics, Akai, or equivalent brand. Raymond, x31375 or 534-4839.

Want old collectable gas powered plastic flying model airplanes, prefer Cox brand; want scuba knife; hunting knife; S&W model 617; S&W model 63. Walt, x35939.

Want baby jogging stroller. Jeff, x30687 or Diane, x33071.

Miscellaneous

Ladies 16" Tex Tan western saddle w/bridle, bit, reins, breast strap, ex cond, $350. 474-3424.

Singer sewing machine without cabinet; antique brass FPL screen w/poker/shovel, $20; full sz elec blanket, $20; 28 pc wok, never used. 480-3424.

Remington model 760 .257 Roberts deer rifle w/scope, $485; Stevens .410 shotgun, $75. Jim, x38321 or 334-4272.

Seateac Hardback BC, w/inflator hose, red/blk, good cond, $125 OBO. Terry, x36351.

Woman's blue fox coat, ex cond, $225. Deborah, 333-7504.

DP weight bench w/leg extension, weights, $60; Vitamaster hydraulic tension rowing machine, $35. 480-3211.

Two studded snow tires, 14" diameter, $50 OBO. 488-6216.

Shotgun shells, 16 ga, 8 boxes, BO. 333-3071.

Two Lissi dolls, blond/brunette, 18" high, $60; child carrier, $60; tv/VCR. 286-7225 or 283-1026.

Two studded snow tires, 14" diam, $50, OBO. 282-3702.

Craftsman riding lawmower, 30" deck, 8 spd, 11 hp, ex cond, $575; 16 ga shotgun shells, 8 boxes, BO. Mark, x38013 or 992-4132.

Elec weed trimmer, good cond, $25. x48848 or 532-1725.

80 paperbacks, assorted authors, 2 boxes, 40 books ea, $25 per packaged box or all for $40. x31426.

New Pro Mizuno 1st base glove for right handed person, was $200, now $100. Eric, x31917.

29 duck decoys w/weights, mainly Mallards, $35 OBO; Schwinn exercise bike, $60; Precor rowing machine, $50. 482-4953.

After 5 dresses; blk, sz 7-12, $25 to $50; full length formals, blue, red, plum, sz 7-14, $50 to $75; all good cond. Becky, x31033 or 286-9632.

Fiberglass camper top for long/wide bed Ford truck, good cond, $450. Jim, 929-7358 or 286-9632.

Charcoal grill, full sz, round, blk, clean, elec started incl, $20. Kurt, x47705 or 992-5031.

Tour Model III golf clubs, 1-SW, $16.95/ club, metal woods, 1, 3 or 5 woods, $35/club; custom golf clubs, peripheral weighted 1-SW, $150. David, 282-3827 or 554-5514.

X-ray film viewer w/mobile stand. Enrique, 991-0821.

.7 carat pear shaped diamond ring, sz 6, have appraisal papers, was $2k, now $1k. Heather, 482-4879.

Pres & First Lady Executive gold membership, was $1080 + $7.50/mo; now $640 + $7.50/mo, negotiable. Trudy, x35106 or 333-6688.

Car ramps, heavy duty. x34221 or 338-1248.

Pres & First Lady Premier Plus membership, best offer. Ron, x30887 or 488-7797.

Two Pres & First Lady Gold Charter memberships, $750/ea. x44664.

File cabinet, meta w/locking top, $10; aquarium equip, 4 pumps, heater, fluor light assy, $10; old laundry hamper, $8; 25 lb sm scale, $7; 2 captain chairs, nonmatching, $40. 488-5564.

Dorm refrig, ex cond, $85; 14 int doors, some hardware, $3/dr; rubber cargo king mat/tail gate cover, for full sz PU, $35. Ken, x35999 or 486-5432.

1.9 cu ft compact refrig, $50; 20" lawnmower, $30; 8mm movie projector, $15; 20" BMX bike, $15; typewriter, $10; turntable and 55 albums, $20. x35092 or 944-2391.

Soloflex, $300; Jurassiac Park book on cass, $13. x32137.

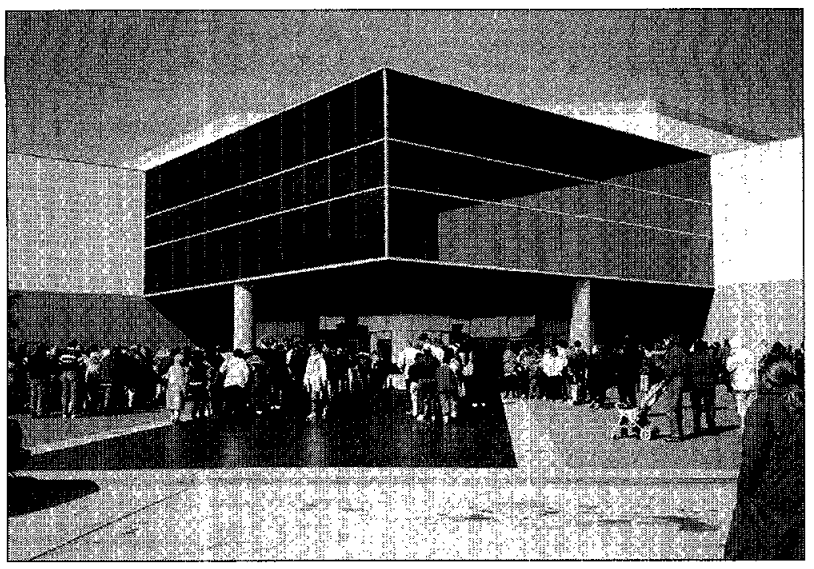
Stairstepper w/upper body workout, was $350, now $150. 992-3876.

Continental one way tickets, Intercontinental to Newark, NJ, 11-11-93, 4:00 pm, 2 adult, 1 child, $100/ea, flexible for fee. 332-2603.

Spare tires w/rim, 4/5 bolt pattern, $30 OBO; tool box for mid sz truck, w/lock, $30 OBO. Youm, x44544.

Tunturi exercise cycle, was $300, now $150. Jim, x39229 or 482-7873.

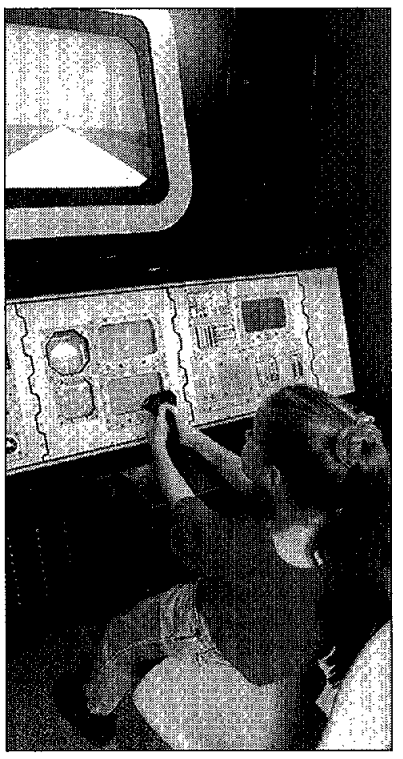
One SW ticket to anywhere SW flies, must be used by 2-7-94, $255. Steven, x47207.



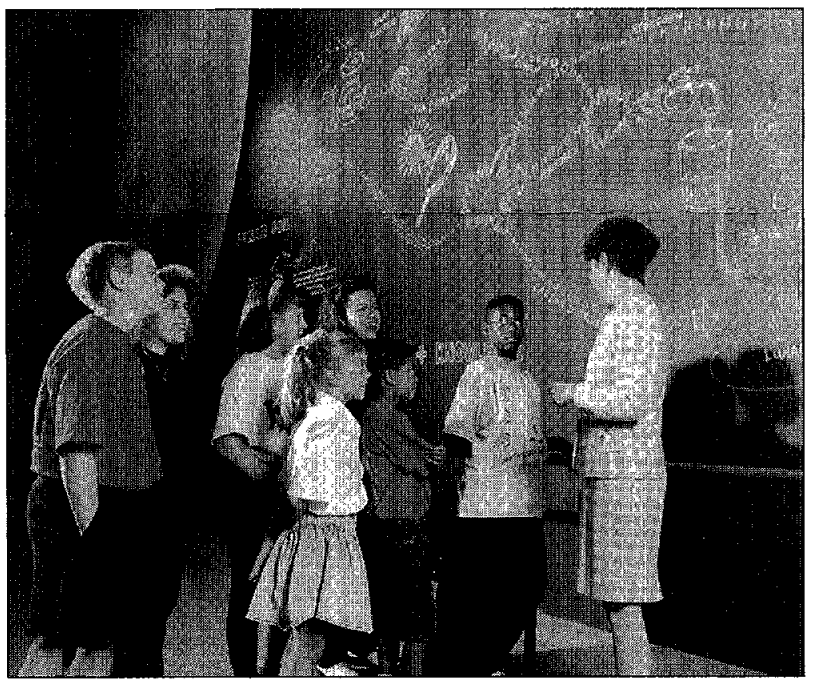
Work in Progress

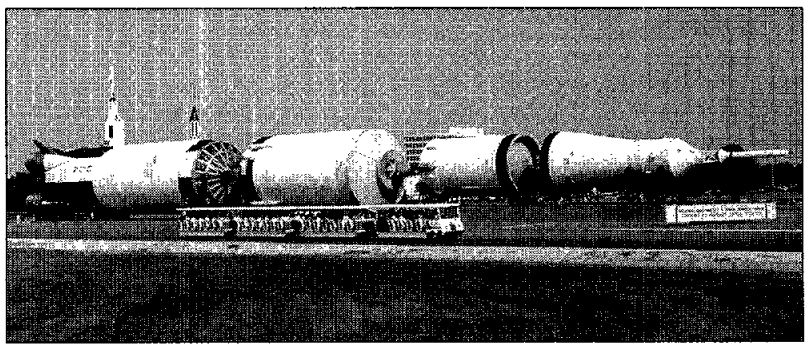
Space Center Houston sees growth and "growing pains" on its first anniversary

Above: First-year attendance at Space Center Houston exceeded that of the previous visitors center and set records during holidays. Right: Young "astronauts" show particular talent at landing the space shuttle on the SCH simulators. Below: Nearly 60,000 students from around the nation participated in SCH educational programs last year. Tram tours of the JSC site have been improved with a digital sound system and better passenger flow. Bottom left: Visitors now can see "behind-the-scenes" work at JSC such as WETF activities. Bottom right: Space Center Houston lets the public get inside a scale model of the orbiter flight deck.



Photos courtesy of Space Center Houston





The visitor was having a bad day when he arrived at Space Center Houston to take a foreign exchange student on a tour.

"I arrived at Space Center Houston harassed, fatigued and irritated. I drove into the (NASA) gates like I had in the past, only to be told to turn around and go to the 'Space Center.' I started out an unhappy camper," the Houston man wrote to the management of JSC's new visitor center.

"But I have to tell you, I left with a smile on my face. The exhibits and movies were terrific. I left enthusiastic about your facility, your presentation of the information and the outstanding people who work for you."

That response is typical of the thousands of compliments Space Center Houston has received since opening its doors one year ago. In every respect, Space Center Houston has met expectations and positioned itself for the future. In addition, it is reaching out to the public in ways that its creators never anticipated.

By the end of the first full year, paid attendance is expected to exceed the 1 million mark, surpassing the 800,000 tourists who took the self-guided tour of JSC last year.

While traffic during weekdays has been slower than projected, the SCH staff was caught somewhat off-guard by the eager throngs that jammed the parking lots on peak days during Thanksgiving, Christmas time and spring break. Some 12,000 people flowed through the turnstiles on the day after Thanksgiving alone.

Another surprise was the overwhelming response from educators, who have taken full advantage of the new "experience center." Last year, the center's capabilities were quickly saturated by the nearly 60,000 students who toured the facilities, many from out-of-state schools. SCH increased ticket prices in June to cover the cost of expanding the educational program to meet the demand. The 1993-94 program will allow upwards of 100,000 children to participate in educational programs at the center, said Danny LaBry, SCH educational programs manager.

Space Center Houston now has two full-time accredited teachers on staff to develop curricula and programs for different grade levels and educational needs. Early elementary grades are eligible for free tours. In-depth tours and teaching tools are available to upper elementary grades for a nominal fee. Other school groups may visit Space Center Houston at deeply discounted rates.

In addition, there are special "Discovery Day" hands-on activities for students with hearing and visual impairments. The center also sponsors a 4th grade space science class, comprised of 24 gifted-and-talented students from the Clear Creek Independent School District, that meets each Wednesday.

Public education is a prime mission of both NASA and Space Center Houston. In the future, the JSC visitor center plans to include special traveling exhibits and incorporate displays showing how people on Earth benefit from space, with an emphasis on environmental programs.

"When we were developing the concept for Space Center Houston, the designers were working with data based on their experiences with museums and theme parks. But we aren't a theme park and we aren't a museum," said Hal Stall, president of the not-for-profit Manned Space Flight Foundation Inc. that developed the center. "Now we have a year's experience under our belt."

Space Center Houston is a communications forum that lets the public examine what human space flight is all about. And that is particularly important to JSC and NASA employees, especially at a time when public opinion polls are revealing an American public that is more skeptical than ever about investment in the future.

But, Stall said, Space Center Houston eschews the temptation to "sell" the space program to its own "investors," the tax-paying public.

"We are here to teach not preach. Rather, we invite the American people in to look over NASA's shoulder, to show them what we do and to allow them to draw their own conclusions as to whether their tax dollars going to space are money well spent," explained Stall, who also is JSC's director of public affairs.

The popularity of Space Center Houston as a community center has been an unexpected bonus. The Silver Moon Cafe has become an "in" meeting place for the Clear Lake community as well. Groups are welcome to hold dinner meetings, presentation or receptions in the popular dining place, said Gwen Griffin, SCH public relations manager.

The visitor center is finding ways to make access easier for JSC and contractor employees, their families and friends, some of whom have felt left out with the rerouting of JSC's main entrance and the addition of admission fees that are being used to retire the bonds used to build the $70 million facility.

"As designed, the center had no outside access to accommodate those who just wanted to come to have lunch," Stall said. "Now, people can simply call the Silver Moon Cafe (283-7704) and say they're coming to lunch, and we'll have a table waiting, no ticket required," he promised.

Because MSFEFI is considered a JSC contractor, NASA employees cannot receive free tickets directly from Space Center Houston, although tickets are given to JSC for various employee incentive programs. Significant employee discounts—both on individual passes and annual passes—are available through the Bldg. 11 Exchange Store.

"When we had a free visitor center, we found we were able to do less and less for the public each year," Stall said. "Tax money was not available to keep all the exhibits open to the public, such as the Skylab trainer, which had been disassembled and placed in dead storage for lack of facilities to display it. Now, behind-the-scenes JSC is much more accessible to the public and the experience is more informative than before," Stall said.

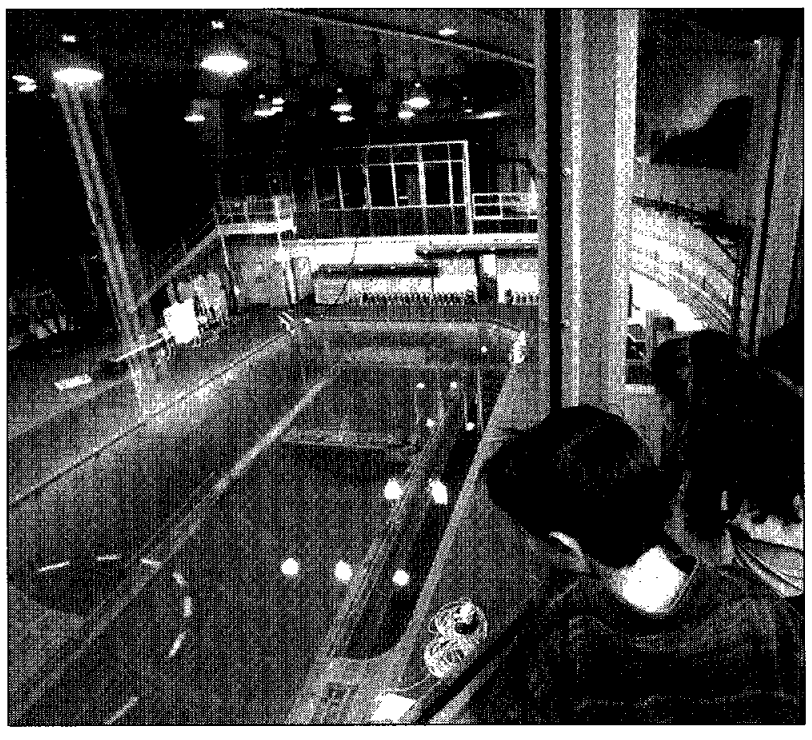
JSC employees and badged contractors may still bring their guests on-site to visit Rocket Park and tour their work facilities without charge, as before, Stall noted, but it's not possible to accommodate the vast numbers of public visitors in this way.

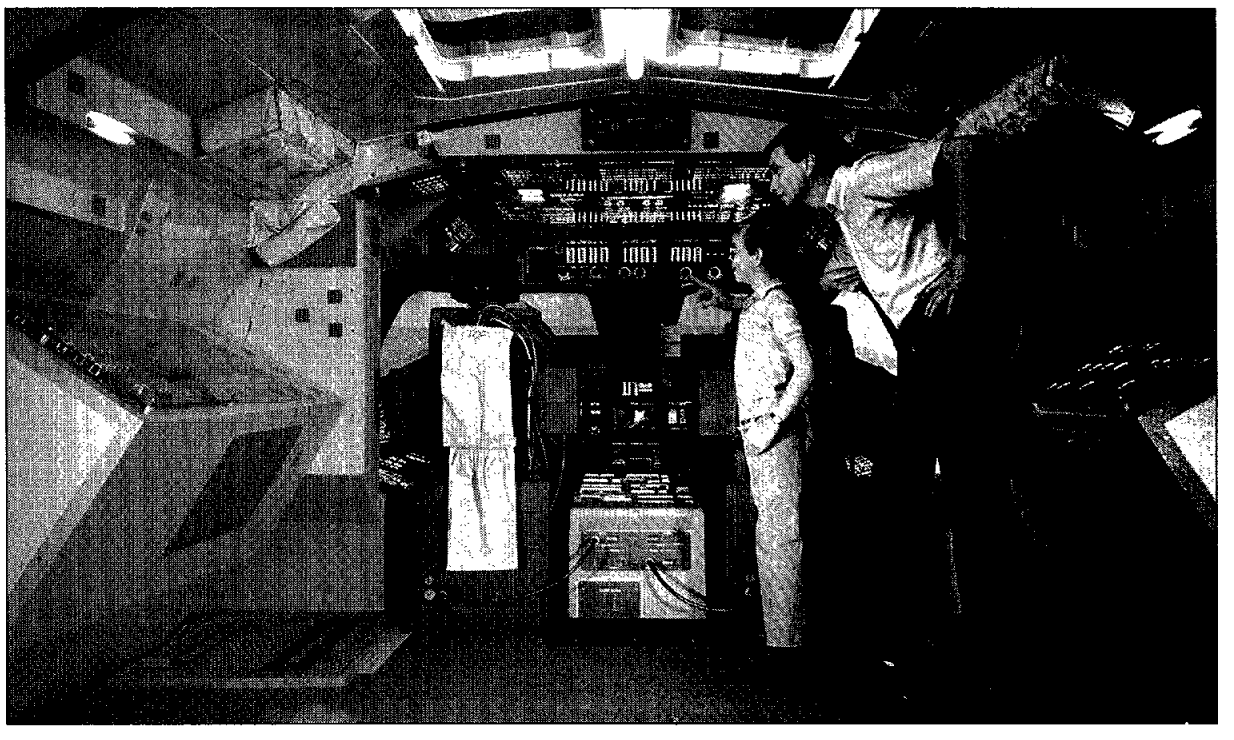
The first major Space Center Houston expansion is slated for 1995, and Stall said one of its most important aspects with be an expansion of the popular post-flight briefings by shuttle crews in Space Center Plaza to include more presentations by JSC and contractor employees about their work, careers and experiences. Films and exhibits will be updated about every two years starting with a new IMAX film premier next year.

SCH also has become a popular spot for after-hours social functions for professional associations. The National Association of Black Journalists, for example, could not otherwise have taken time from a busy convention schedule downtown to visit NASA 30 miles away, Stall noted.

Perhaps the most important evolving role for Space Center Houston is that of a forum for public debate about the future direction of the human space exploration program.

"Space Center Houston is a work in progress," Stall said. "We will continue to improve our message about space and the possibilities for the U.S. in space. And we will rely heavily on the participation and enthusiasm of JSC employees to accomplish that." ❑





Twenty receive Space Act Awards for patents, suggestions

More than 20 JSC employees recently were honored at special ceremonies for the Space Act Awards.

The awards, which carry with them various monetary stipends, are given periodically to patent applicants and Tech Brief authors.

During the most recent ceremony, the Productivity Improvement Award went to Joseph E. Rogers and Robert T. Anderson for Replacement of ECF Cray Computer.

Tech Brief Awards were presented to Joseph J. Kosmo for a Space Suit Shoulder Mobility Joint System; Scott A. Swan, Zip Boom; Steven E. Fredrickson and Larry C. Li, Method and Apparatus for Controlling Robotic Mechanisms Using Digital Neural Networks; R. Lynn Harvey, Errant Satellite Simulator; Christopher P. Hansen, Load Limiting Landing Gear Footpad Energy Absorption System; E. Steve Falls, Shackle Bolt Safety Retainer; Michelle A. Rucker, Vaporizing Sabot; and Glenn F. Spaulding, Horizontal Rotating Oxygenator for High-Density Cell Culture.

Patent Application Awards went to David A. Wolf and Glenn F. Spaulding, Cultured Normal Mammalian Tissue and Process; Jason C. McCanna, Apparatus and Method for Producing an Artificial Gravitational Field; and Scott A. Swan, Inflatable Rescue Device.

A Board Award went to Brian G. Morris for Cooled Spool Piston Compressor.

Suggestion Awards went to Paul R. Schleicher, ARMEX Paint Removal System; Thomas B. Smith, Dual-Use Training Mockup; Ann S. Fausz, Streamlining Orbiter Award Fee Process; Sandra A. Parker and Michael J. Scott, Modification to Reverse Osmosis Pre-Treat/Post-Treat; Charles K. LaPinta, Streamlining of Medical Examinations at JSC Clinic; Daniel W. Bursch, Wendy B. Lawrence, and Joseph R. Tanner, Use of Military Transportation by FCOD; and Theodore U. Ro and Scott A. Curtis, Customer Support Room II and Independent Verification Testing Facility Project Savings.

Holidays will affect Roundup deadlines

Because of the Thanksgiving, Christmas and New Years Day holidays, Space News Roundup will not be published Nov. 29 or Dec. 27.

In addition, the Roundup will return to distribution on Fridays in 1994, which means the first issue of the year will be published Jan. 7.

Both of these changes will affect some deadlines.

The deadline for Swap Shop ads for the Dec. 6 issue will be 5 p.m. Nov. 19. The deadline for Dates and Data calendar items for that issue will be 5 p.m. Nov. 24.

Around Christmas, the deadline for Swap Shop ads to be published in the Dec. 20 Roundup will be 5 p.m. Dec. 3. The deadline for Dates and Data items for that issue will be 5 p.m. Dec. 8.

The deadline for Swap Shop ads for the Jan. 7 issue will be 5 p.m. Dec. 24. The deadline for Dates and Data items for that issue will be 5 p.m. Dec. 29.

All ads and calendar items will be published on a space-available basis, first come, first-served. Any ads that cannot be published will be discarded and the requesting employee will need to re-submit a completed JSC Form 1452 to have the ad printed in a later issue.

Training catalog new, improved

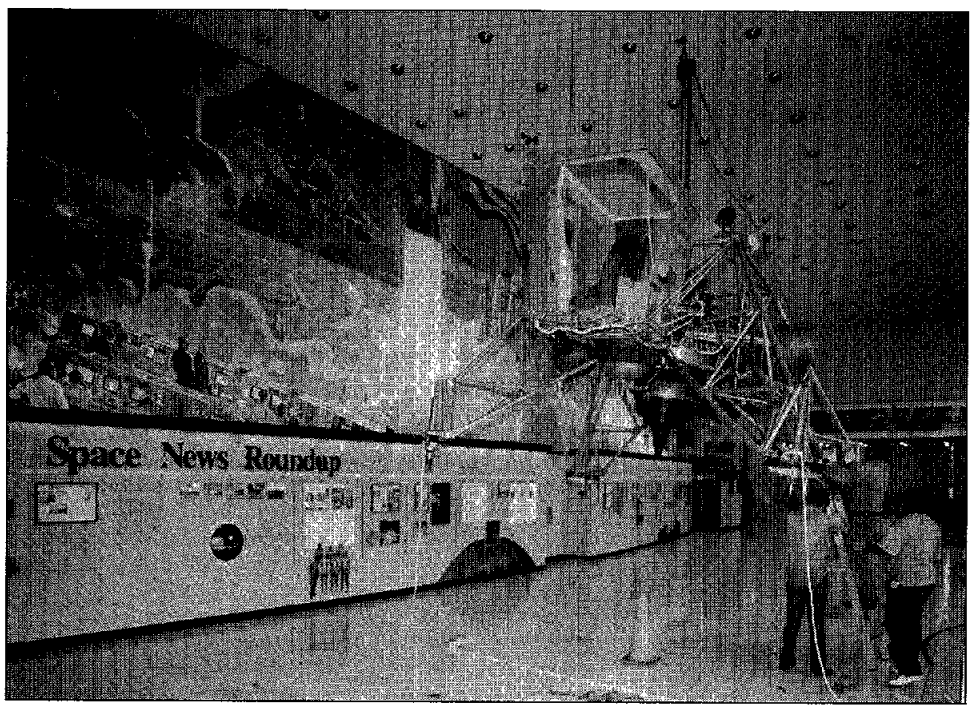
The new training catalog that all JSC employees will receive starting this week is easier to use and update and saves printing costs.

The catalog is the result of a continuous improvement effort by a team from the Human Resources Development Branch, the Documentation Management Branch and the Printing Management Branch.

In the past, an annual training catalog was issued to employees while a separate catalog went to JSC supervisors. Now, a single catalog in a three-ring binder will be issued to all employees, and annual updates can be added easily to the binder.

The new training catalog sports a more professional look for less cost. Through design improvements and advanced planning, the continuous improvement team lowered the cost to $4.18 per catalog from $5.25 last year. And future editions will cost less than 60 cents per copy.

Saving costs is important because expected reductions in the 1994 training budget means some courses may be offered less often and others may be postponed. Employees will be advised of changes to scheduled course offerings.



JSC Photo by Pete Vazquez

TAKING SHAPE — Riggers suspend the Lunar Landing Training Vehicle from the ceiling of the lobby of Teague Auditorium as a history of Johnson Space Center—from its beginnings as the Manned Spacecraft Center in 1962 through the present—takes shape. The exhibit chronicles the center's history through the pages of the Space News Roundup. Completion is scheduled for early next year.

Operations engineers earn NASA's leading Flight Safety Award

Karl Pohl of the Mission Operations Directorate and Jon Olansen of Rockwell Space Operations Co. received NASA's top Flight Safety Award for detecting a serious design flaw in the logic of the digital controller for the orbiter's auxiliary power units.

NASA Associate Administrator for Safety and Mission Quality Fred Gregory presented the award during the Manned Flight Awareness reception for STS-51 at Kennedy Space Center.

Working together as systems operations engineers, Pohl and Olansen discovered the problem that would have exposed the APUs to several potentially unsafe flight conditions. They participated in numerous design and review meetings and were instrumental in the decision to implement a new design solution.

In presenting the award, Gregory commended Kohl and Olansen for their outstanding technical ability, professional responsibility and concern for flight safety.

The NASA Flight Safety Award, administered through the NASA Manned Flight Awareness Program, recognizes extraordinary contributions to space flight safety that help avoid catastrophic mishaps that could threaten the spacecraft, crew or mission, and emphasizes the importance of crew safety for all people involved in the United States' space program.

Special emphasis programs announce council officers

Three special emphasis program councils to enhance minority participation have been named in the Equal Employment Opportunity Office for the 1994 term.

The JSC Asian Pacific American Program Council, the JSC Federal Women's Program Council and the JSC Black Employment Program Council assist in enhancing equal opportunity for the employment, training and advancement of Asian Pacific Americans, women and African Americans at JSC. The councils also organize programs to highlight achievements and promote awareness of different cultural groups in the workplace. Each council membership is for a one-year term with an option to continue for another year.

A fourth council, the Hispanic Advisory Committee, will announce new appointments in the spring.

Members of the JSC Asian Pacific American Program Council are Kamlesh P. Lulla, chair; Kho H. Nguyen, vice-chair; Larry C. H. Li, secretary; Phan T. Nguyen, treasurer; Son D. Nguyen; Sophia W. LeCour; Michelle C. Wang and Alan M. Miyamoto. Committee chairs are Viet Truong-Cao, programs, and Phong H. Nog, publicity.

Members of the Federal Women's Program Council include Chair Jessica R. Kite; Sandra J. Tetley, vice-chair; Delene R. Sedillo, secretary; Charlotte L. Wilford; Matthew R. Abbott; Patricia A. Daniel; H. Katie Nguyen; Cynthia L. King; Glenda G. Johnson; and Barry Burns.

The Black Employment Program Council members for 1994 are Terry Gobert, Johnnie Moore, LeBarian Stokes, Judith Stovall, Stanford LeBlanc, C. L. Ross, Duane Hightower, Ulrica Kelley, Lucille McGaskey, Johnny Gills, Mary Broussard, Maria Owen and Preston Lewis.

STS-58 crew says teamwork key to success of mission

(Continued from Page 1)

ulates its function, things that were not predicted before SLS-1 or SLS-2," he added, "things that will surprise cardiovascular and pulmonary physiologists and will take us some additional time to really understand the significance of these results and to apply these results to the well-being of all of us on Earth."

SLS-2 also looked in depth at how physical factors such as gravity affect the health and maintenance of bone and muscle, and documented changes in the nervous systems of both humans and animals.

"We can couple these results with findings from the research animals and really get a much deeper and richer understanding of the true extent of the changes induced by weightlessness," Sulzman explained.

The crew was wonderful, both as subjects and operators, Sulzman added, working long, hard hours, being poked and prodded and finding time to be subjects in additional experiments. But crew members pointed to teamwork as the key to the mission's success.

"We really have had a very successful mission because many people worked very hard, all the way from the East Coast to the West Coast of the United States, including many of you right here in this audience," Blaha told about 150 people who turned out in chilly weather for a welcome home ceremony at Ellington Field. "This group together, you on the ground, these people on orbit, really performed fantastically."

Only the three orbiter crew members—Blaha, Searfoss and Mission Specialist Bill McArthur—were present for the welcome by friends, family and coworkers. The payload crew—Seddon, Fettman, Lucid and Mission Specialist David Wolf—remained on their backs to counteract the pull of gravity and allow physicians extra time to collect samples before their bodily fluids moved back into their lower extremities.

The orbiter crew displayed large photos of the others during the ceremony and praised their performance.

First timer Pilot Rick Searfoss said he took a moment during entry to touch *Columbia*'s windshield, and that in spite of the extreme heat outside, the window was cool to the touch. "That's because this is American technology at its finest. It was built using that technology and the talents and skills we have in this country," he said. "This (the shuttle) is the eighth wonder of the world, the operational engineering marvel of the world. And it wouldn't be that way without those hundreds of people down in the control center, every one of them who is dedicated and knows their job and their system like you wouldn't believe, and all their back room support."

McArthur said the crew did it for the benefit of the entire country.

"It's wonderful to be back although we already miss our 14 days on orbit," McArthur said. "We may not have a cure for a disease tomorrow based on our research, but next year or five years or 10 years down the road we will. We do this for our children."

Of the 14 experiments conducted, eight were sponsored by JSC and involved the crew as both operators and subjects. Six, sponsored by Ames research Center in Moffett Field, Calif., involved the 48 rats.

Locality pay could mean big raise for JSC workers

(Continued from Page 1)

"If necessary, we will cut back in all support areas," Hayes said. "Right now, we just don't think a furlough is going to happen."

Dan Mangieri, one of Human Resources' representatives on the JSC Pay Reform Committee, explained that locality pay was mandated in the Federal Employees Pay Comparability Act of 1990. In the interim, the Bureau of Labor Statistics has been conducting wage surveys of targeted metropolitan areas. Locality pay came one step closer to reality when Congress included it in the budget bill that was signed recently by the President.

The Houston area, at 39 percent, had one of the biggest gaps in federal vs. private sector salaries in the country. That's what the Federal Salary Council, an advisory body, passed on to the President's Pay Agent following the Bureau of Labor Statistics study last year.

The 6.52 percent increase represents about the first 20 percent of the Houston-area gap. The federal government will make up another 75 percent of the gap in smaller increments over the next eight years. The intent of the law is to bring federal employees to within 5 percent of what private companies in their area are paying for comparable jobs.

However, the President's Pay Agent, a body made up of the Office of Personnel Management, Office of Management and Budget and the Department of Labor, has yet to recommend a course of action to the President. It is expected to make a recommendation at the end of November. At that point the President will have limited flexibility to cancel locality pay, but broader flexibility to disagree with the methodologies used to arrive at the extent of the pay gaps. If he does disagree, he can put forth an alternate plan that would be implemented in January unless he convinces Congress to delay the effective date.

NASA's experts do not expect major changes in the Federal Salary Council's recommendation, and that the plan will be passed on to the President by the Pay Agent. The President is not expected to make any major changes to the plan, but employees are urged not to spend the raise until it shows up in their checks.

Senior Executive Service employees won't be eligible for locality pay, and general schedule employees under special salary rates will get the greater of locality pay or their current special salary rate. This mainly affects JSC engineers at the GS-12 level and above.

Space News Roundup

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Swap Shop ads are due Fridays, two weeks before the desired date of publication.

Editor .....Kelly Humphries
Associate Editor .....Kari Fluegel

NASA-JSC