

**Our loss, their gain**

JSC's excess is a boon to local school systems under a new program to transfer outdated equipment. Story on Page 3.



**Waste not, want not**

JSC is saving more than trees as its recycling program continues to grow. Story on Page 4.

# Space News Roundup

Vol. 32

September 27, 1993

No. 38

## Senate rejects challenge to space station funding

NASA's redesigned space station passed crucial votes of confidence Tuesday and Wednesday night, with Senators rejecting a challenge to its \$2.1 billion budget and approving \$14.6 billion for the agency in fiscal year 1994.

Earlier in the week, NASA Administrator Daniel Goldin reported to the White House that at a spending rate of \$2.1 billion a year for the next five years, it will cost a total of \$19.4 billion to complete the redesigned space station with a first element launch in September 1998 and per-

manent human capability by September 2003.

The spending measure, part of an \$87.9 billion appropriation for Veterans Affairs, Housing and Urban Development and independent agencies, also included \$162 million for the advanced solid rocket motor. The overall bill was approved 91-9, and now goes to a conference committee with the House of Representatives, which approved \$199 million less than the Senate.

The vote followed the defeat of two amendments, one that would

have precluded NASA's spending the full amount President Bill Clinton sought for the space station, and another that would have killed the ASRM project. The amendment that would have cut station spending was defeated by a margin of 59-40.

Goldin had submitted the costs and schedule impacts for what is being called space station "Alpha" to John H. Gibbons, the President's assistant for science and technology, on Monday.

From fiscal 1994 to 1998, Goldin reported, the total cost of the space

station program, shuttle integration, payloads and early flight research and a crew rescue vehicle is \$10.5 billion. An additional \$8.9 billion in program and payload costs would bring the total to \$19.4 billion at permanent human capability.

"The Space Station Alpha program will achieve the goals established by the President," Goldin wrote, adding that the schedule can be significantly advanced through joint activities with Russia.

Goldin said the Alpha program can be accomplished within the

specified \$2.1 billion annual funding level.

The estimates contain the prime contractor activities involved in developing, testing and certifying performance of the space station elements, and were based on detailed "bottoms-up" data, Goldin wrote. They also cover operations costs including mission preparation, training, control, logistics, sustaining engineering, management and integration, as payload operations support and integrated payload training.

## Columbia moves to launch pad

By James Hartsfield

With *Discovery's* nighttime trip home, *Columbia* is next up, poised skyward on Launch Pad 39B and with preparations in full gear for an Oct. 14 launch.

Shuttle managers plan to meet Friday for a final flight readiness review of launch preparations of *Columbia* and STS-58 after which a firm launch date will be announced.

With the Spacelab Life Sciences-2 module in its cargo bay, *Columbia*, was moved to the pad Sept. 17, and the crew—Commander John Blaha, Pilot Rick Searfoss, Mission

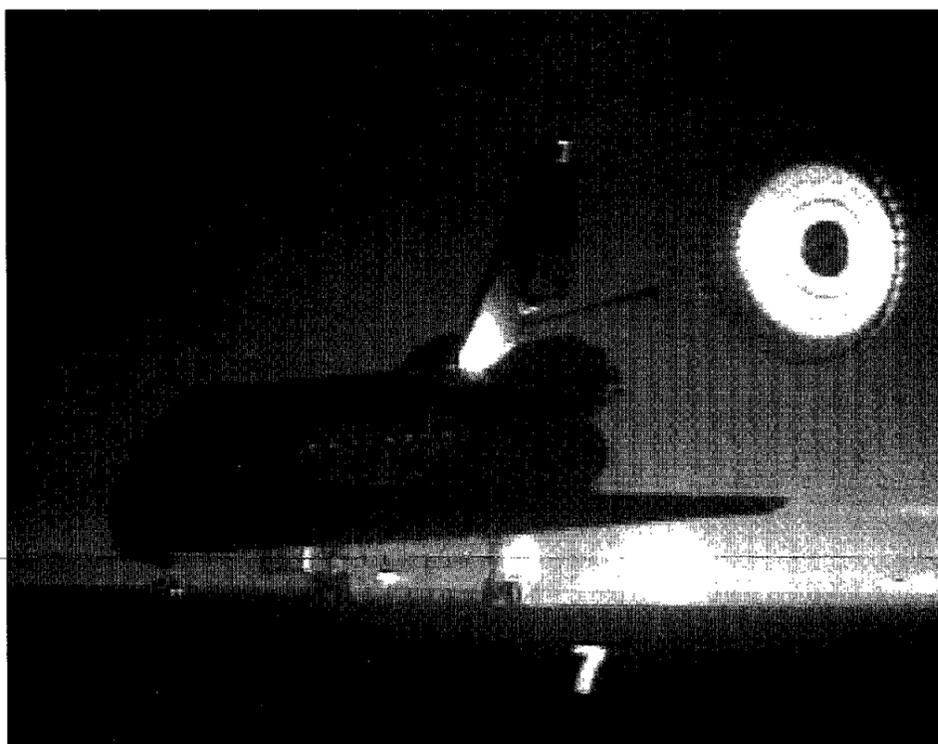
Specialists Rhea Seddon, Bill McArthur, David Wolf and Shannon Lucid, and Payload Specialist Martin Fettman—completed a dress rehearsal of the countdown Tuesday.

Late last week, technicians fine-tuned *Columbia's* inertial measurement units, tested the main engine valves, performed a leak check of the main engine plumbing, and tested the auxiliary power units for leaks. STS-58 has the longest planned duration of any shuttle flight so far, targeted for 14 days in space.

Work to ready *Endeavour* for an early December launch on STS-61 is going smoothly in the processing hangar at KSC, *Endeavour* is aiming for an Oct. 25 move to the Vehicle Assembly Bldg., where the solid rocket boosters are being assembled for STS-61, a flight to service the Hubble Space Telescope.



**COLUMBIA**



NASA Photo

*Discovery's* drag chute glows in the back light of xenon lamps as the space shuttle completes the first landing in darkness on Kennedy Space Center's Shuttle Landing Facility.

## STS-51 a learning experience

By Kelly Humphries

STS-51 was a learning experience, part of the continuum that is America's space program, Commander Frank Culbertson told family members, friends and coworkers at Ellington Field on Wednesday.

"We continue to learn," said Culbertson, who just 10 hours before had made the first shuttle landing in darkness at Kennedy Space Center. "Despite all our training, there were more things to learn up there. That's what NASA's all about. We expand our horizons. We try new things. Some of them work perfectly. Some of them work less than perfectly. But we keep trying."

Culbertson said he and his crew mates—Pilot Bill Readdy and Mission Specialists Dan Bursch, Jim Newman and Carl Walz—tried to

share their experiences with those on the ground and will continue to do so in the coming months.

"Space flight should be a shared experience," he said. "The things we do best are teamwork, persistence in solving problems and most importantly, the professionalism with which you all do your jobs. You are the best in the world at manned space flight. Don't ever forget it. This country has led the way for a long, long time and will continue to do so because of people like you."

Readdy said the STS-51 team had shared the lows, frustrations and awful hours required to prepare for the flight and that the crew also had tried to show those on the ground the high points. In particular, he

Please see **STS-51**, Page 4

## Night landing caps successful *Discovery* flight

By Kelly Humphries

Commander Frank Culbertson ended the STS-51 mission early Wednesday morning with a nightcap, the first night shuttle landing at Kennedy Space Center.

*Discovery* touched down at 2:56 a.m. CDT after making 158 orbits around the Earth in 9 days, 20 hours and 11 minutes and traveling some 4.1 million miles. Culbertson's landing, assisted by Pilot Bill Readdy, came a day later than scheduled after the crew was waved off for weather on Tuesday.

"We just worked together as a team and brought it in as carefully as we could, kept the needle center," said Culbertson, who spray-painted the mission number in green on Shuttle Landing Facility Runway 15 next to where *Discovery* rolled to a stop after completing the sixth night landing of the shuttle program.

The shuttle's pre-landing path took it north of JSC, and employees were able to see its glowing orange plasma trail stretch across the sky about 2:45 a.m.

"You left a beautiful streak from horizon to horizon as you flew past Houston on your way to the Cape this morning," Capcom Kevin Chilton radioed to Mission Control.

"You should have seen it from inside," Culbertson replied from the tarmac at KSC.

Culbertson, Readdy and Mission Specialists Dan Bursch, Jim Newman and Carl Walz accomplished all of the mission's main objectives, including deployment of the Advanced Communications Technology Satellite, deployment and retrieval of the Orbiting and Retrievable Far and Extreme Ultraviolet Spectrometer and a 7 hour, 5 minute space walk to test tools and techniques that will be used on the Hubble Space Telescope servicing mission in December.

A transfer orbit stage and apogee kick motor boosted ACTS into geosynchronous orbit 22,300 miles above the Pacific Ocean, and it is scheduled to begin checkout this week. ACTS is to spend two years in

Please see **SPACE**, Page 4



**DISCOVERY**

## Seminar today focuses on quicker technology transfer

Entrepreneurs, business managers, scientists and engineers interested in adapting NASA technology for industrial uses will explore new business opportunities at a technology transfer seminar this afternoon.

"Building Your Company via Technology Transfer" will be held from 4:30 to 6:30 p.m. at the Nassau Bay Hilton, 3000 NASA Road One. The conference is free and open to the public. Reservations may be made by calling 1-800-246-7232.

Dr. Jill D. Fabricant, newly appointed director of the NASA Technology Commercialization Center that is sponsoring the seminar, will discuss "Facilitating the Process of

Technology Transfer." Other topics to be covered include "A History of a Successful Company" by Emyre Barrios Robinson, founder of Barrios Technology Inc.; "Essentials of Starting a Business" by E. R. Geisinger, a CPA with KPMG Peat Marwick, and "How Patents are Licensed" by Edward K. Fein, patent counsel with the JSC Legal Office.

The seminar is the first in a series of outreach efforts by the NASA Technology Commercialization Center established this spring at JSC.

The TCC is a joint effort between NASA and the University of Texas at Austin's IC<sup>2</sup> Institute designed to

Please see **TECHNOLOGY**, Page 4



JSC Photo by Scott Wickes

Andrew Allen, right, and Norm Lee, center, present a reproduction of the Canada "wordmark" to Manipulator Development Facility Manager John O'Keefe in Bldg. 9.

## Robot arm trainer sports maple leaf

The new Manipulator Development Facility in Bldg. 9 has turned over a new leaf—a maple leaf.

The leaf, part of a reproduction of the shuttle remote manipulator system Canada "wordmark," will enhance the fidelity of the trainer's aft flight deck view when applied to the arm boom.

Norm Lee, local liaison manager to the space station program for Spar Aerospace, arranged for the vinyl banner. Andrew Allen, who returns to Canada for graduate studies, worked with the Canadian Space Agency on the Advanced Space Vision System to improve an operator's ability to "fly" the mechanical arm.

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# 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.

Texas Renaissance Festival — Weekends Oct. 2-Nov. 14. Discount tickets: adult, \$9.95; children 5-12 years, \$5.95.

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.

Upcoming Events: EAA Renaissance Festival Bus Trip; Wings Over Houston Airshow, Oct. 16-17; EAA Halloween Dance, Oct. 30; EAA Children's Halloween Party, Oct. 30; Entertainment '94 Coupon Books for sale.

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# 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. Oct. 6. Pre-registration is required. Cost is \$5.

**Defensive driving** — Course is offered from 8 a.m.-4:30 p.m. Saturday. Next class is Oct. 23. 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.

**Country and western dance** — Beginner class meets from 7-8:30 p.m., and intermediate class from 8:30-10 p.m. Mondays beginning Sept. 27. Cost is \$20 per couple.

**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.

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# 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: CL/Weber, 4-2-5, corner lot, lg family rm, FPL, totally renovated, \$92.5k. 692-9395.

Lease: Univ Place TH, 2 BR ea w/full bath up, 1/2 bath down, garage, c'fans, new carpet, FPL, refig/washer/dryer, \$875/mo. 486-0835.

Lease: Meadowgreen, 2-2-5-2, 2 story on cul-de-sac, \$890/mo + dep. 486-8551

Sale: LC/Meadowbend, 4-2-2, FPL, c'fans, new landscape/paint, \$70.9k nego, assum. Peter, 526-1853.

Sale: Forest Bend, 4-2-2, \$50k as is. Sandi, x33854 or 482-9226.

Sale: Pebblebrook condo, 2 BR, all app, 2 balconies, FPL, \$32k. Laura, x31303 or 326-1573.

Sale: Oakbrook West, 1940 sq ft, 4-2-2, detached garage, updated app, Satillo tile, gas log FPL, screened patio, c'fans, \$105k. 482-8800.

Lease: Clear Lake Shores, 3 BR, lg kit, wood floors, decking, trees. \$750/mo. 538-1849.

Sale: Alvin area, 3-2-2 on 2/3 acre, new roof/paint, c'fans, FPL, landscaping, workshop/storage bldg, \$69.5k. x47673 or 331-4923.

Sale: El Dorado Trace condo, 1-1-5-0p, all app, patio, balcony, designer carpets/wallpaper, low eq, assum. Jerene, 488-1900 or 764-0185 pager.

Sale: Hilltop Lakes, resort community lot, golf privileges, yours for payment of closing costs. Mike, 488-4493.

Sale: Univ Green TH, 2-2-5, FPL, garage, \$69.9. Dave, x38161 or 486-5181.

Sale: El Dorado Way condo, 1 BR, W/D, FPL, c'fans, new carpet/tile, \$29.8. Bill, x31167 or 333-9042.

Sale: Piper's Meadow, 4-2-5-2, new carpet/vinyl, low util, fans, miniblinds, gar opener, immed occupancy. Wayne, x36617 or 291-9020.

Lease/Sale: Nassau Bay, 4-2-2, recently remodeled, gas, big trees, lake view, \$895/ \$119.5k. Minh, x30992 or 484-2456.

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

Sale: LC Countryside South, contempo 3-2-5-2A, 2 story, updated paint/carpet/c'fans/custom window shades, ceramic tile kitchen, corner lot, lg yard, \$84.5k. x38413 or 554-2728.

Sale/Lease: LC Countryside, 4-2-2, no approval assum, lg lot, cul-de-sac, cov deck, \$12k equity + \$770/mo or \$850/mo. x38843 or 409-925-0111.

Sale: LC waterfront marina TH, 2-2, \$99.5. Steve Brody, 703-487-7138 or 703-532-3415.

Sale: Univ Green, 3-2-2, ex cond, new A/C, c'fans, deck, custom blinds/drapes, all app, \$83k assum no approval, 9.5%, \$18k equity, owner finance second w/\$10k dwn. 488-0345.

## Cars & Trucks

'93 Ford F-150 Supercab, 5L V8, loaded, water-tight locking tonneau cov, 16k mi, \$16.4k. Tom, 333-7497 or 992-4891.

'84 Toyota Tercel, 5 dr Dlx lftbk, 5 spd, A/C, cass stereo, 96k mi, \$1.5k. 799-2753.

'80 Honda Civic hatchback, 1500 cc, 5 spd, AM/FM/cass stereo, \$400. Gary, x39131 or 485-9066.

'80 Olds Cutlass, auto, A/C, AM/FM, needs engine work, BO. x34804 or 333-3834.

'73 Datsun 240Z, 4 spd, good body/int, some rust, SU carbs, \$1150 OBO. x38130 or 481-1719.

'81 VW Rabbit diesel, rebuilt eng, new tires, shocks, 4 dr, A/C, no dents/rust, \$2,295. 280-9621.

'84 Toyota Corolla, 125k mi, new inspection/battery, good cond, \$1050. 286-0022.

'74 Chevy Blazer, 2WD, 3 spd, standard, rebuilt straight 6, 250 eng, needs starter, \$500 OBO. x45137 or 280-8328.

'85 Ford LTD, mid sz, 4 dr, auto, A/C, AM/FM, PS, PB, cruise, new inspection, factory rebuilt eng, good cond, \$2,300 OBO. 332-2343.

'84 Toyota Celica ST, AM/FM, A/C, 5 spd, ex int and paint, no rust, \$3195. 482-5837.

'80 Ford Pinto, 2 dr hatchback, 4 spd manual, P/B, P/S, A/C needs svc, new brakes, for parts or restore, \$350 OBO. Rudy, x33836 or 946-7028.

'69 Cutlass convert, rebuilt eng and trans, needs bodywork. \$2,000. 409-744-5777.

'69 Mustang convert, needs to be finished, A/C, PS, PB, auto, new motor, \$3,500. x39491 or 409-925-2330.

'78 Mustang II, new paint, rebuilt 302 V8, auto, A/C, PS, PB, \$2,100. 538-1019.

'87 Plymouth Horizon, std, 4 dr, A/C, good tires, new battery, needs paint, no rust, \$1,800. x45421 or 286-4067.

'85 Blazer, full sz, ex cond, Silverado pkg, tow pkg, rebuilt eng, 95k mi, \$6,200. Tim, x31838 or 480-4226.

'84 Pontiac Bonneville, auto, A/C, PS, PB, PW, PL, pwr seat, cruise, ex cond, 58k mi, new tires, AM/FM/cass, \$3.2k. Andy, 992-1856.

'88 Jeep Laredo, brown, soft top, bikini top, hard top, new tires, ex cond, carpet, soft doors, hard doors, \$8k. 488-8781.

'82 Chevy S10 PU, gold, auto, 139k mi, \$2k. David, 538-4187.

'87 Nissan Maxima SE, AM/FM/cass, A/C, auto, sunroof, cruise, alarm, pwr windows/locks, 71k mi, ex cond, \$5,275. x33475.

'86 Honda Accord LXI, 4 dr, 5 spd, sunroof, PW/PL, 87k mi. x31043 or 992-5097.

'90 T-Bird SC, dk blue, loaded, \$13k OBO. x34204 or 480-2954.

## Boats & Planes

'18 Hobie, magnum wings, 2 harnesses, trlr, ex cond, sky blue hulls w/multicolor sails, \$2.6k OBO. 335-2457 or 996-5658.

'23 SeaRay Cuddy cruiser, 228 Mercruiser I/O, VHF, Furuno, dual batteries, rigged for offshore, \$8.5k Mark, x38013 or 992-4132.

## Cycies

Cushman Eagle motor scooters, one '62 Golden, red, 7.5 hp; one '54 Std, white, 5hp. Rennie, 488-3638.

'74 Kawasaki KS, dirt bike, partially rebuilt, \$130. Keith, 482-2741.

'88 Honda Hawk motorcycle, 650cc, good cond, needs minor body touch-up, \$1.5k OBO. Ken, 488-4493.

Huffy Dirt Monster boy's bike, 20", purple and black, BMX, new, assembled, was \$90, now \$75 OBO. Lou, x38826.

Fuji road bike, 10 spd, ex cond, \$75. Mark, x38013 or 992-4132.

## Audiovisual & Computers

C-128 w/2 drives, 2 printers, lots of software, \$400 OBO; Bernoulli 90 Pro, \$425. 488-3527.

JSC

## Today

**Flu shots** — The JSC Clinic will offer influenza vaccines from 10 a.m.-noon and 2-3:30 p.m. Sept. 27 through Jan. 31. For more information, call the clinic at x34111.

**Cafeteria menu** — Special: turkey and dressing. 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.

**Technology Seminar** — The NASA Technology Commercialization Center is hosting a seminar on "Building Your Company via Technology Transfer" from 4:30-6:30 p.m. Sept. 27 at the Nassau Bay Hilton Hotel. For reservations and information, call 1-800-246-7232.

## Tuesday

**Cafeteria menu** — Special: pepper steak. 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

**NMA meets** — The JSC chapter of the National Management Association will meet at 5 p.m. Sept. 29 at the Gilruth Center. Acting Center Director Paul J. Weitz with discuss the "State of the Center." Members are encouraged to invite interested non-members to attend. For reservations, NMA members should contact their boosters; non-members should call Allison Kruest at x47115.

# Dates & Data

**Cafeteria menu** — Special: Mexican dinner. 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

**AIAA meets** — The Houston section of the American Institute of Aeronautics and Astronautics will meet at 5:30 p.m. Sept. 30 at the Gilruth Center. Dr. Kenneth J. Cox, chief of the Navigation, Control and Aeronautics Division, will present "A Look at Space Avionics Technology." Reservation deadline is Sept. 27. Cost is \$9 for members, \$10 for non members and \$8 for students. For more information, call Frankie Hap, 333-6064; Ardell Broussard, 283-1040; Kim Wunsch, x31350; or Sarah Leggio, 282-3160.

**Cafeteria menu** — Special: hamburger steak with onion gravy. 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. 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. 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.

## Oct. 7

**Blood Drive** — Lockheed will host a blood drive from 8:30-11:30 a.m. Oct. 7 in Tower I and from 1:30-4:30 p.m. in Tower II. For more information, call Jennie McQuillon at 212-5042 or Teresa Esquivel at 212-5036.

## Oct. 13

**Security Fair** — The Security Division is hosting a Security Fair in Teague Auditorium from 10 a.m.-2 p.m. Oct. 13-14.

## Oct. 31

**Bike tour** — The Lions Eye Bank of Texas and the JSC Bike Club are sponsoring the 15th Annual Texas Coastal Cruise. The ride will begin at 8 a.m. Oct. 31 at Clear Lake Park on NASA Road 1. For more information, call 798-5510.

## Nov. 17-18

**NCMA conference** — The Space City-Houston Chapter presents its Fall educational conference Nov. 17-18 at South Shore Harbour Hotel. For more information, call Carolyn Moe at x34158.

## Nov. 23

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

Copy machine, older style, needs toner, \$50; 3.5 HD FD, \$45; Kenwood TS430S w/FM, \$625. x39491 or 409-925-2330.

386SX-16 computer, 2 MB RAM, 40MB HD, 1.2 & 1.44 FD, math coprocessor, SVGA, mouse. \$650. Alice, x35206.

386 notebook PC, math coprocessor, 80 MB HD, 2 MB RAM, loaded, Star printer, \$800. 919-1263.

Computex Ram Jet/DTK 286 computer, 101 kybd, Samsung mono monitor, Panasonic KX-P1595 matrix printer, desk, table, chair, \$600. Janice, 486-2189.

PCXT, turbo, 640k RAM, 10MB HD, 5.25 FD, monitor, mouse, modem, SW, \$225. Eoin, x34665 or 283-1026.

## Photographic

Besseir 23C enlarger, ex cond, color head adaptable, goodie bag of darkroom extras, \$325 nego. Eileen, 282-3812 or 480-9818.

## Pets & Livestock

Boxer/Chow mix puppies. Laurie, x35590 or 991-0821.

AKC Rotweiler puppies, 6 wks old, shots, \$350. 337-6035.

## Musical Instruments

Passport Trax for Windows, MIDI music sequences, \$50. David, x36427.

5 pc Pearl drum set, 3 toms, snare, hi-hat and crash cymbals, chrome, good cond, \$600. Bill, x47745 or 486-4895.

Guild model D40C acoustic/elec guitar, hard case, solid spruce top, scalloped bracing, multiple binding, was \$1.6k, now \$595. will layaway. 280-9621.

5 pc, red Pearl Export series drum set, 4 Platinum Zildjian cymbals, hardware and accessories, sell all of part, Steve, 992-1907.

Alto saxophone, 2 yrs old, ex cond, \$1750. 534-3279.

Bundy flute, \$200. Steve, x36725.

Ibanez EX series bass, blk, \$325; Fender Strat, \$475, both w/case; Alesis drum mach, \$175. Gary, x38674 or 996-0099.

## Household

Fiks Reed rattan dinette set, 48" table, 4 swivel chairs, white, \$350; rattan card table w/4 chairs, \$150; custom love seat/sleeper, \$100; sliding glass doors, \$50 ea; skylights, 18"x36", \$50 ea; brass floor lamp, 7 ft, marble base, 3 heads, \$200. 326-4395.

Full sz matt, box spring, hdbd, ftd, rails, \$75. x37883 or 337-3139.

Boy's furniture, dk pine, 2 bachelor's chest, hutch, corner desk w/chair, twin hdbd and frame, ex cond, \$300. 486-8081.

Custom sectional sofa and love seat, beige w/navy weave, good cond, \$325. 480-1016.

Lg 2 pc sectional sofa, peach w/pastels, wicker embellishments, was \$1300, now \$300. 482-4047.

Two pc lighted china cabinet, ex cond, \$700 OBO. 554-7669.

Black lacquer/brass dinette set w/mauve tapestry chairs; pictures, brass baker's rack, rugs, cream lacquer end & coffee table, BO. 996-5133.

Off white sectional sofa, \$100. Donna, x47910 or 286-5263.

Pecan china cabinet, glass inset front, 2 drwrs, ex cond. \$260. 554-6912.

Two oak end tables, \$35 ea; Telefunken multi-band tube type console radio, \$100; sofa, \$75; qn sz bed w/matt, box spring, hdbd, \$200; Honda 3 wheeler, ATC70, \$200. 480-7136.

Rattan furniture, couch, chair, desk w/chair, 2 night stands, formica topped table and coffee table, dining table w/4 chairs, \$600 OBO. Steve, x37152 or 992-7049.

New kg sz down pillow, used one night, \$15. x35258 or 482-0374.

13" Sylvania color TV, ex picture, rarely used, \$85. x35258 or 482-0374.

Dresser, \$50; coffee table, \$30; computer desk, \$30; book case, \$30. 333-6573 or 488-4813.

Portable B&W TV/radio; adjustable desk lamp; lighted makeup mirror, BO. x38278 or 334-7258.

Kg sz waterbed, oak frame, connecting night stands, motionless mattress, accessories, \$350 OBO. Robert, 282-2991 or 480-9672.

TV and stereo entertainment center. Fred, 944-3523.

## Wanted

Want someone to watch 4 yr old 5 hrs per day, Mon - Fri, light house keeping. 480-3424.

Want guitar case in good condition. 286-0022.

Want natural finish Simmons crib. 488-8267.

Want sm inexpensive foreign car or PU, high mileage OK. 488-5445.

Want nonsmoking roommate to share house w/lg yard in quiet neighborhood, off Egret Bay, \$210/mo + 1/2 util. Rick, x47373.

Want nonsmoking roommate to share 3-2-5-2 in LC Meadowbend, \$300/mo + 1/3 util + dep. Gloria, x31891 or 538-2283.

Want female roommate to share 3 BR house in LC, the Landing, \$300/mo + 1/2 util. Cathy, x47802 or 554-4579.

Want 12-17' canoe, prefer good cond aluminum. Steve, x37152 or 992-7049.

Want female roommate to share nice house, close to I-45, \$285/mo util incl. Theresa, 333-6491 or 480-6980.

Want new or used bricks, color not important. x38169 or 482-8496.

Want nonsmoking roommate to share Friendswood 4-2, W/D, cable, VCR, microwave, gas grill, all house privileges, \$250/mo all bills paid. Michael, x38169 or 482-8496.

Want nonsmoking, college age roommate to share Camino South 3-2-2, \$250/mo + 1/3 util. 280-8822.

Want pickup truck, low cost, '80 or later, must be in good cond, mechanically and appearance. Tim, x31461 or 486-2074.

Want nonsmoking roommate to share 2k sq ft LC house, sep BR, bath, living area, garage, W/D, sec sys. 332-4290 or 282-2517.

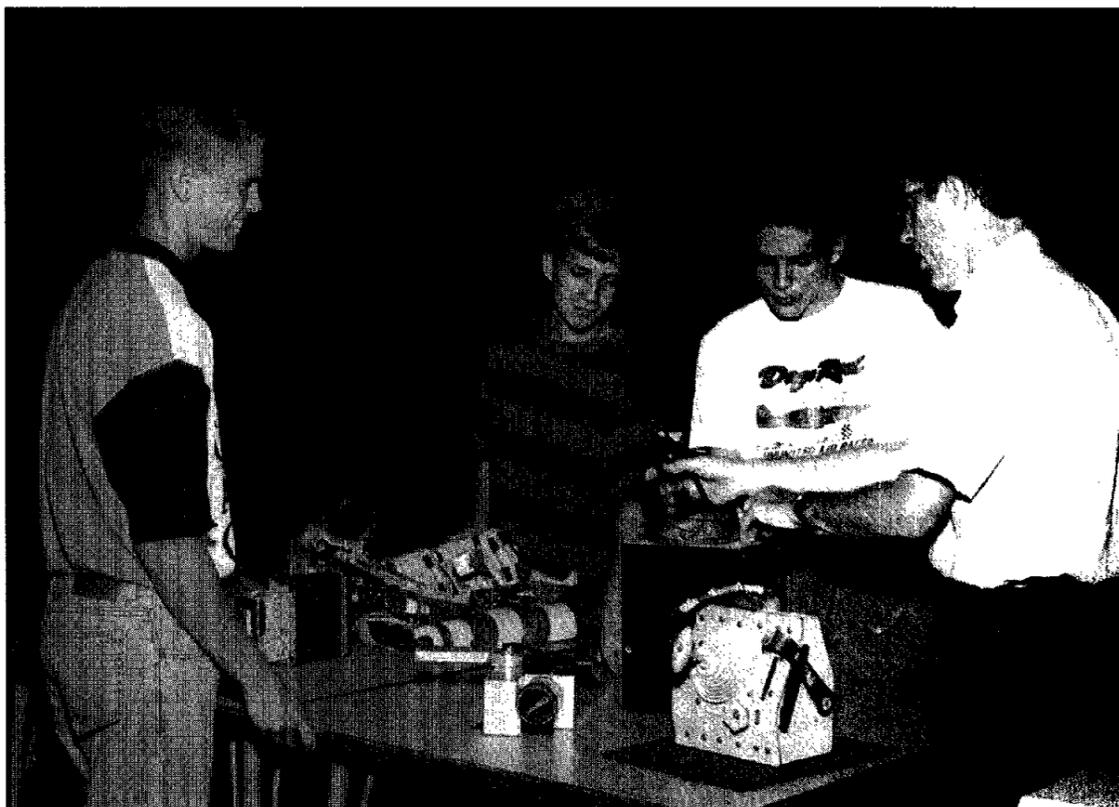
Want donations of furniture and appliances for annual Cub Scout Pack 870 garage sale and fund raiser. 480-6195, before 10-1-93.

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

Want van pool riders, West Loop Park and Ride to JSC. Richard Heetderks, x3755

# Second Time Around

## Castoff equipment finds new life in education



By Eileen Hawley

**A**JSC program which donates outdated or excess government equipment to schools is helping increase local student interest in science, math and technology.

The pilot program makes excess government equipment available to area schools for use in promoting technical and scientific research activities. Schools active in the Partnership Center for Education Enhancement were offered the first opportunity to participate in this pilot program to help refine procedures through the initial phase.

The Partnership Center, formerly known as Partners in Space, is a not-for-profit organization in the Clear Lake area supported by JSC, aerospace contractors and other businesses in the community. Their educational efforts reach students from kindergarten through college.

Nancy Robertson, program co-chair, said the next step in the program is to expand it to incorporate other districts, in particular the Houston Independent School District. This is a significant step since HISD alone has a larger student population than the combined population of the ten districts participating in the pilot study. HISD consists of 240 campuses with a population of about 200,000 students. The pilot participants have 157 campuses with about 134,000 students.

"This is the sort of phased approach we wanted to take, starting with smaller districts with whom we already had strong relationships and then moving on to the bigger districts in the next phase," Robertson said. "At the end of each phase, we will stop and evaluate results to be sure we're going about this in the right way."

While pilot program participation has been limited, all state, private, home, or parochial schools are eligible for the program, and Robertson says that no qualified school will be turned away.

There is a variety of equipment available under the program including pumps and compressors; valves; radios; electrical and electronic equipment including resistors, capacitors, tubes, diodes and transformers;

medical, dental and veterinary equipment; instruments and lab equipment; photographic equipment; and data processing equipment.

Several schools have already found the excess equipment valuable in enhancing their science and math programs, and popularity of the program is growing throughout the state. The Pharr-San Juan-Alamo school district in South Texas recently picked up the space station cupola, stand and other equipment for use in their inter-disciplinary science and space studies program. The cupola is currently on display as part of a space exhibit at Memorial Middle School in Pharr and will be ultimately used to help outfit an old school bus being refitted as a space station model.

Locally, Alvin High School science teacher Victor DeAlmeida has found an equally unique use for the excess equipment he recently acquired. With the assistance of students, DeAlmeida is building a Mission Control Center, space station mock-up and shuttle simulator in the vocational and technical education center on campus.

DeAlmeida is positive about the program's potential and believes that "some of these students will end up coming back to NASA as workers in the future." The Alvin High School effort also is aided by the Consortium for Aerospace Technology Education, a project of the training division of the Mission Operations Directorate. CATE is a program MOD initiated with three local community colleges geared towards issuance of a two-year Associate of Arts degree in space-related subjects. The training division developed two courses to be taught at the community college level, but with the assistance of the training division's Camille Frost, one of those courses is already being taught to Alvin High School students.

The aerospace technology course at Alvin High School is an expanded version of the one being offered at the community college level. Frost helped DeAlmeida customize the two-year course for the high school students. It covers all shuttle and space station systems and generic engineering studies such as orbital mechanics and coordinate systems.

"The students at Alvin have the benefit of a hands-on type laboratory with these simulators that the college-level students don't have," Frost said. "They have the opportunity to learn a great deal more because of the two-year commitment and the practical experience of working on the simulators."

The CATE program also allows NASA engineers to help DeAlmeida create realistic training simulations for use by students in the Mission Control Center mockup and other mockups he is creating at Alvin High School.

In addition "the mockups may also be used by NASA to help train educators to encourage practical applications of math and science" DeAlmeida said.

The disposal process is monitored by JSC Property Disposal Officer Eileen Bellmyer. Participants in the property disposal program send a letter to Bellmyer designating individuals authorized to screen the warehoused material for availability and acquisition by the school. These "screeners" are given access to the property disposal warehouse to review any excess equipment currently housed there. During these visits the screeners can designate and place a hold on any piece of equipment for their school. Participants are encouraged to visit the warehouse frequently since equipment flows through the warehouse on a daily basis and there is no way to predict what equipment will be stockpiled on any given day.

There are some limitations on the availability of equipment to the schools. Although screeners can identify and place a hold on a particular piece of equipment for donation to their school, federal regulations require that all excess government equipment must first be offered to JSC and other federal employees.

Within the first 30 days of warehousing, any equipment entering the property disposal system may be claimed for use by any NASA organization. From 30 to 45 days after the initial warehousing, other federal agencies are eligible to claim equipment for use in the performance of their jobs.

The property disposal officer routinely issues reports listing the equipment available from the property disposal warehouse.

These reports are sent to individuals who are designated to receive them by their directorate and division management. If equipment previously frozen by an authorized screener for the pilot program is not claimed by JSC or other federal employees within the 30-day limit, the school is notified of its availability for pick-up.

Schools are responsible for transporting any claimed equipment and it must be removed from the warehouse within 14 days of availability notification. Equipment which has been in the warehouse for 60 days or more may be selected and removed by authorized schools on the same day. The property disposal warehouse is open from 7:30 a.m.-4 p.m. during regular work days.

All excess equipment is donated to the schools "as is" with no guarantee or provision for its return to the JSC warehouse. In addition the program does not provide any technical expertise or assistance to the schools on the operation, maintenance or repair of the equipment.

JSC's pilot program is one of only a few such programs currently in operation. It has attracted the attention of the Coordinating Committee on Education-Related Federal Equipment, a subcommittee of the Federal Coordinating Council for Science, Engineering, and Technical Education. This subcommittee is monitoring the progress of the JSC program with the goal of developing guidelines which would allow all federal agencies to participate in similar operations. In a recent report the subcommittee on education applauded the "good faith and intent of all involved in order to benefit our most needy children."

The JSC pilot began in late July and is co-chaired by Robertson, and Joel Walker, acting chief of the Logistics Division. The Lewis Research Center is conducting a similar pilot program geared towards higher education institutions. Both programs are conducted under the auspices of the Stephenson-Wylder Technology Innovation Act (as amended 1992) and was enabled by Executive Order 12821 signed by former President George Bush on Nov. 16, 1992. □



**Above:** Alvin High School students, from left to right, Thomas Fletcher, Jacques Dunwald and Bryan Reynolds help teacher Victor DeAlmeida sort through equipment collected from the JSC warehouse. The computer keyboards, hand controller and work station equipment will be used to outfit the Mission Control Center and space station mockups being constructed by students at the high school.

**Left:** Joseph Kertesz of Memorial Middle School, left, and Hank Jackson of McDonnell Douglas load the space station cupola on a truck bed for its trip to Pharr, Texas. The cupola is on display in the school's library as the centerpiece of a space science exhibit. The cupola eventually will be mated to a school bus which is being outfitted as a space station mockup.

**Right:** JSC warehouse worker Perry Buggs and Alvin High School representatives inventory equipment acquired by the school under JSC's pilot property disposal program. The Mission Control Center and space station mockups being constructed at Alvin High School will be used by students enrolled in a two-year Aerospace Technology course.



# STS-51 crew remembers 'superb' teamwork

(Continued from Page 1)

thanked the training team that had spent untold hours teaching the crew how to do its job well.

"We hope that through our efforts maybe vicariously you could participate in that experience like you do in all the other experiences we've had," said.

Newman expressed special thanks to the Mission Control team and the scientists and flight controllers that worked with the Orbit-

ing and Retrievable Far and Extreme Ultraviolet Spectrometer and its Shuttle Pallet Satellite.

"It takes a lot of people to put America into space, a team of people who go to work and deliberately do a good job every day," Newman said. "That's how we fly safely. We'll be criticized for our failures and sometimes even for our successes, but I believe we are doing the right thing, not only for our country but for others as well."

Bursch thanked a number of normally unsung heroes, such as those who prepared all the midnight breakfasts while the crew was in quarantine before the flight, the aircraft operations support personnel, the people who prepared the flight data file that shows up as hundreds of pounds of on-board checklists, the flight medicine team that helped keep the crew healthy and the scientists who worked on the medical Detailed Supplement-

ary Objective experiments, which looked at how lack of gravity affects the human body.

"I think the medical techs know our veins so well that they began giving them pet names," he said.

Walz said he would remember the superb teamwork that occurred between the crew, the flight control team and the payload operations centers, and noted that the Advanced Communications Technology Satellite is on orbit and

preparing to give the world some important new capabilities.

"It's a NASA satellite, a NASA program," he said. "It was criticized a bunch, but it's going to do great."

Walz also described his space walk with Newman.

"What can I say about an EVA? It was just an awesome experience. The view was like sticking your head in front of the windshield of a convertible and just watching the world go by, literally, the world's going by."

## Dynacs Engineering, GB Tech get minority contractor honors

JSC has nominated Dynacs Engineering Co. for the "NASA Minority Contractor of the Year" award presented during Minority Enterprise Development Week, Oct. 3-9.

Each year, NASA honors one of its outstanding minority business contractors and each field center selects one nominee. Dynacs Engineering provides engineering services, independent research and software development in guidance, navigation and control; spacecraft dynamics; structural mechanics; simulation; materials and special purpose computer hardware development.

GB Tech Inc., also received Minority Enterprise Development Week honors. The JSC subcontractor was selected as a regional "Service Firm of the Year" by the Minority Business Development Agency's Dallas regional office.

Established in 1982, Minority Enterprise Development Week focuses attention on the achievements of minority businesses in local communities and their contributions to the national economy. The theme for this year's salute is "Minority Business: Building Economic Strength Through Diversity."

"NASA, since its inception, has recognized the potential of the minority business community and has actively worked to utilize the capabilities within those companies," said Bob Dupstadt of JSC's Small and Disadvantaged Business Office.

During fiscal year 1992, JSC placed more than \$126 million in contracts and subcontracts to minority businesses.

## Security Fair eyes work, home safety

Would-be "perps" beware. The JSC Security Division will host employees and representatives from local, state and federal law enforcement agencies at the Security Awareness Week Fair to be held from 10 a.m.-2 p.m. Oct. 13-14 in Teague Auditorium.

Employees will learn how JSC security specialists work with local police departments, constables, Secret Service and other law enforcement agencies to provide the best possible protection on the job and at home.

Mason and Hanger security officers will showcase the security support services provided to the center. In addition, the Fire Arms Training System, used by security personnel for annual gun qualification requirements, will be demonstrated.

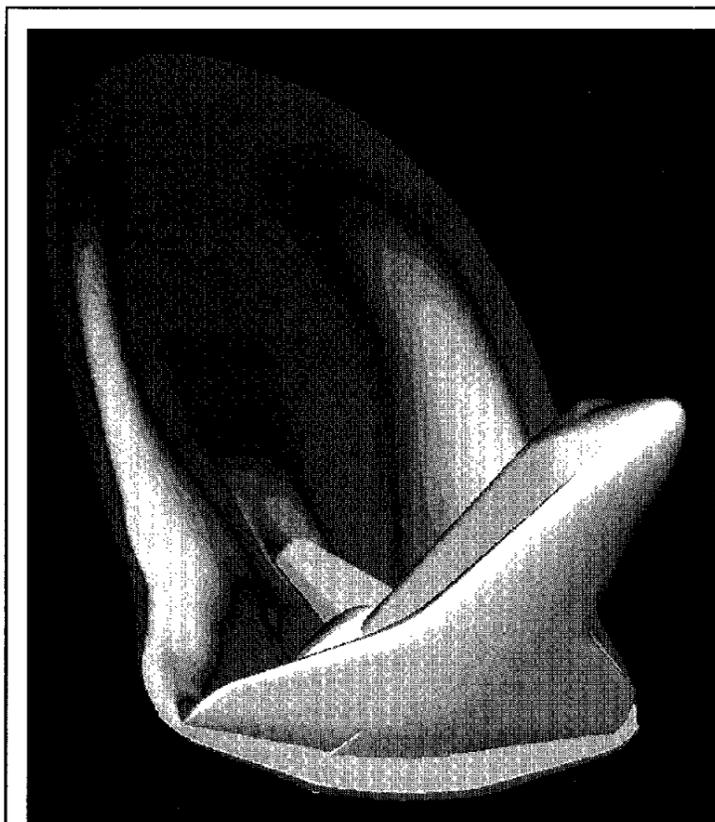
## Correction

In the Sept. 27 Roundup, a picture of Dick Kohrs was incorrectly used in an article about Paul Haney's induction into the International Space Hall of Fame on Saturday.

Known as the "voice of the astronauts" during the Gemini and Apollo programs, Haney began work at what was the Manned Spacecraft Center in 1963 as a public affairs officer and retired from NASA in 1969.



Haney



NASA Photo

**SHUTTLE AIRFLOW** — This computer-generated image shows the predicted temperature variances shuttle surfaces encounter during atmospheric entry. The image was generated at Langley Research Center using a computerized, mathematical simulation of the airflow at Mach 18. Color gradations, reproduced here as shades of gray, indicate heat levels on the orbiter surface.

## Space walk, satellite deployments highlight mission

(Continued from Page 1)

orbit characterizing the Ka frequency band and its ability to do things such as move data at high rates for high-speed computer links, transmit highly detailed images to military commanders in the field and reduce the size of satellite dishes to a foot and a half in diameter.

The free-flying German-built ORFEUS astronomy package and its Shuttle Pallet Satellite were neatly nabbed by Bursch using the robot arm on Sept. 19.

"Houston, *Discovery*. Awsgezeichnet (outstanding). SPAS is captured," Bursch said.

"Herzlich willkommen mein SPAS-schatz zurueck in shuttle mutter's armen (Welcome back, my dear SPAS, in mother shuttle's arms)," Newman added.

Astronomers said the ORFEUS instruments performed beyond their expectations, collecting spectrographs of unparalleled resolution that will help them better understand how stars are born, live and die.

"We're in a party mood," said Stu Bowyer, an astronomy professor at the University of California, Berkeley, who coordinated the development of the ultraviolet spectrograph.

After putting the arm through its paces and 14 different positions designed to document in large-format IMAX film detail the way space shuttles look while in space, Bursch returned the ORFEUS-SPAS package to its cradle in the payload bay. The film will be used in a new IMAX movie called "Destiny in Space."

The crew also completed a late addition to the flight relating to the Wake Shield Facility deployment planned for STS-60. Using the ORFEUS-SPAS package as test mass, Bursch guided *Discovery's* robot arm through the same motions that will be used in January. Flight planners were trying to figure out how much motion will be imparted to the shuttle, which will have its attitude control thrusters turned off to protect the sensitive, ultra-vacuum producing WSF, as the arm puts it into position for deployment.

"We can feel the rates being generated in the cockpit," Culbertson reported.

On the fifth day of the mission, Newman and Walz spent 7 hours and 5 minutes in *Discovery's* payload bay, testing tools and techniques that are expected to be used on the Hubble Space Tele-

## Waste not, want not

# Recycling program saves trees, more

By Audrey Schwartz

Last year, JSC employees and on-site contractors "saved" the equivalent of nearly 14,000 trees and more than \$38,000 thanks to paper recycling efforts. And that's only one example of the costs saved and natural resources conserved by JSC's waste reduction and recycling efforts.

"In 1991, the President ordered all federal agencies to promote cost-effective waste reduction and recycling as well as use of recovered materials. JSC has made great

strides over the past few years to reduce our wastes, to recycle wastes we generate and to conserve natural resources," said John Herrmann, chief of the Environmental Services Office.

The center has significantly reduced the quantity of hazardous waste going to land disposal. Photographic processing and metal finishing operation wastes now are sent for heavy metal recovery. JSC's largest waste source was eliminated

by converting from chromate to molybdate-based corrosion inhibitors in the central cooling plant.

The center recovered 811 tons of paper last year. "We now purchase recycled products for virtually all of

the paper we use for rest room supplies, and we are looking into purchasing recycled paper for our photocopiers," Herrmann reported.

JSC saved nearly \$51,000 by recycling 33 tons of aluminum, 437 tons of scrap steel, 59 tons of copper cable and 529 tires. The savings do

not include the additional costs that would have been spent to dispose of those materials.

Herrmann emphasized that employees and contractors can save more money through increased recycling and waste reduction, particularly in the area of hazardous materials used at JSC and Ellington Field. The Environmental Services Office, JJ12, seeks suggestions for recycling more effectively or for toxic material substitutes.



Earthwatch

## Technology transfer eyed

(Continued from Page 1)

accelerate technology commercialization so the public can gain benefits from space research much faster. The TCC will help identify JSC technologies appropriate for joint venturing and will work with JSC and the Houston-area economic community to help develop emerging technologies as start-up companies in a business incubator environment.

Fabricant received a doctorate in genetics from McGill University in

Montreal, Canada, and did a post-doctoral fellowship at the Pasteur Institute in Paris, France. She has served on the faculty of the University of Texas Medical Branch in Galveston where she was a principle investigator for a space shuttle experiment, and has founded two successful biotechnology companies.

Fabricant is managing the TCC at JSC under a \$400,000 first-year contract with the IC<sup>2</sup> Institute. Funding for the TCC is expected to be \$1 million a year in 1994 and 1995.

## Space News Roundup

The Roundup is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every Friday by the Public Affairs Office for all space center employees.

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

## Dual-use technology papers being sought

Opportunities to transfer and commercialize space technology to the private and public sector will be the focus of the first Dual-Use Space Technology Conference and Exhibition scheduled for Feb. 1-4 at the Gilruth Center.

Papers detailing successful experiences or describing candidate technologies should be sent to Dr. Kumar Krishen at IA4 no later than Oct. 20. For more information contact Krishen at x48583.