



The busy schedule of the STS-40 mission put the seven-person crew through its paces. Photos on Page 3.



Most folks can't touch this coveted award, but its time to nominate the few who deserve it. Story on Page 4.

# Space News Roundup

Vol. 30

June 21, 1991

No. 25



Frederic Dawn

## JSC award winners in spotlight

Earn two of biggest Space Act, Suggestion Awards

JSC's contributions to world technology and its efforts to keep program costs down were spotlighted recently when employees received two of the largest Space Act and Suggestion Awards ever.

Dr. Frederic Dawn of JSC's Crew and Thermal Systems Division last week received a \$25,000 Space Act Award for a scientific or technical contribution. He was recognized for his development and application of nonflammable, high-temperature Beta fibers. Beta

fibers, developed for use on Apollo space suits, are now being used as a lightweight roofing material for structures like the Detroit Lions' Silverdome.

This is only the second time such a sizable award has been presented throughout NASA, said Duane Ross, chief of Human Resources' Program Support Branch. The first \$25,000 award went to Richard Whitcomb of Langley Research Center in 1974 for a super critical wing that increases fuel economy

and aircraft range at trans-sonic speeds.

JSC's largest Suggestion Award in the past three years — \$4,905 — went to Mark Anderson of the Space Shuttle Avionics Office for his development of a way to reuse electronics in the solid rocket booster rate gyro assembly, a critical part of the space shuttle's flight control system.

For several years, the two rate gyro assemblies on each SRB Please see **AWARDS**, Page 4



Mark Anderson



JSC Photo by Mark Sowa

Mission Specialist Tammy Jernigan, center, talks to fellow Astronaut Mike Coats at the STS-40 welcome home ceremony. Jernigan, Commander Bryan O'Connor, right, and Pilot Sid Gutierrez were greeted by friends and co-workers at Ellington Field following their nine-day mission. In Jernigan's arms is Jennifer Mitchell, the daughter of a friend.

## Three home, four on their way

By Kelly Humphries

Part of the STS-40 Spacelab Life Sciences-1 crew returned to a warm welcome at Ellington Field last Friday, but the rest remained at Edwards Air Force Base "being stuck and prodded and poked and measured."

The flight crew — Commander Bryan O'Connor, Pilot Sid Gutierrez and Mission Specialist Tammy Jernigan — arrived at Ellington about 10 hours after the 10:39 a.m. CDT landing of *Columbia*.

The payload crew — Mission Specialists Rhea Seddon and Jim Bagian, and Payload Specialists Drew Gaffney and Millie Hughes-Fulford — will return home tonight. They remained in California for extensive medical evaluations designed to record

how well they are able to readapt to Earth's gravity following 9 days, 2 hours and 14 minutes in flight.

"This mission was not only important to the human space flight program, but it was important to humankind, because there will be marvels unraveled out of this mission," said JSC Director Aaron Cohen.

"The crew set very high standards and paved the way for future life science research missions," he added. "The equipment, the principal investigators, the mission management team, the flight controllers and trainers performed outstandingly."

All of the STS-40 crew members are expected to be present for the employee briefing at 1 p.m. July 1 Please see **SPACELAB**, Page 4



## Atlantis rolls toward earlier launch target

By James Hartsfield

*Atlantis* rolled out of the processing hangar Wednesday and into the Vehicle Assembly Bldg. to be matched with the solid rocket boosters and fuel tank for STS-43.

*Atlantis*' 60 days in processing for STS-43 marked some of the smoothest preparations ever for a shuttle mission. The spacecraft is scheduled to move to Pad 39A Monday, where the Tracking and Data Relay Satellite it will deploy is waiting to be loaded into the cargo bay.

*Atlantis* may be launched as early as July 22, however shuttle managers will not set a firm date until a final review of all aspects of STS-43 scheduled for July 11-12.

The crew — Commander John Blaha, Pilot Mike Baker and Mission Specialists Jim Adamson, David Low and Shannon Lucid — will deploy the sophisticated communications satellite about seven hours into the nine-day mission, then turn its attention to three other payload bay experiments and eight middeck experiments.

Space Station Heatpipe Advanced Radiator Experiment-II will test whether a natural process can serve as a dependable, durable cooling system for Space Station *Freedom*. Using two six-inch heat pipe radiator panels, SHARE-II's objective is to achieve sustained, uninterrupted performance of the heat pipes under two distinct orbital profiles.

The Shuttle Solar Backscatter Ultra-Violet instrument, contained in two Get Away Special canisters in the payload bay, will check the calibration of ozone sounders on satellites to verify the accuracy of their atmospheric ozone and solar irradiance data.

Optical Communication Through the Shuttle Window is a JSC-sponsored experiment designed to compare video and audio transmission by fiber optic technology and conventional radio frequency.

Middeck experiments will include the Air Force Maui Optical System (AMOS), the Auroral Photography Experiment-B (APE-B), the Bioserve-Instrumentation Technology Associates

Materials Apparatus (BIMDA), Investigations into Polymer Membrane Processing PCG-III Block II (IPM), the Space Acceleration Measurement System (SAMS), the Solid Surface Combustion Experiment (SSCE) and the Tank Pressure Control Experiment (TPCE).

As *Atlantis* was rolled over, *Columbia* left Edwards Air Force Base, Calif., Wednesday to begin a piggyback trip back to KSC, making an overnight refueling stop in El Paso. *Columbia* was to depart El Paso for San Antonio on Thursday, where it would refuel again and plan the remaining route according to weather forecasts. It was expected to arrive at KSC today or Saturday.



## Society names technical people of the year

The Clear Lake Council of Technical Societies has singled out three JSC employees as their technical person, technical educator and technical administrator of the year.

Leo G. Monford of the New Initiatives Office received the Technical Person of the Year award for his work in electronics and space robotics design.

A JSC employee since 1963, Monford was called an "idea generator" whose philosophy has resulted in patents in a wide variety of electronic devices. Monford was named NASA Inventor of the Year for 1991 for his work with the Targeting and Reflective Alignment Concept that allows docking or

alignment of two objects to within a hundredth of an inch and a tenth of a degree.

The other nominees were Dr. George Dicky Arndt and Charles R. Price, both of JSC, and Kathy L. Rogers of Mitre Corp.

James D. Poindexter of the Public Affairs Office earned the Technical Educator of the Year award for his 30 years of work in space science education.

Poindexter, of the Public Services Branch, was recognized for "an exciting and relevant series of lecture-demonstration programs for the eight-state area for which JSC is responsible." Poindexter also was cited for his management of the Lunar Sample Education

Project, which allows educators to borrow precious lunar samples for presentations to their classes, and the Teacher Resource Center, which provides educational materials to teachers from around the globe.

Other nominees were Dr. Lawrence Hasdorff, University of Houston-Clear Lake; Dr. Phillip M. Hopkins, Lockheed-ESC; and Patrick Rogers, SBS Engineering.

Max Engert, deputy director of Engineering, received the Technical Administrator of the Year award for his leadership in introducing and nurturing the principles of Total Quality Management in the Engineering Directorate.

Engert shares the responsibility

of managing the resources, programs and functions of the 680 civil servants and 1,400 support contractors in the Engineering Directorate.

Other nominees were William J. Huffstetler, JSC, and Marvin E. White, Lockheed-ESC.

Andy Lindberg, 1990 council chairman, said the council was formed in 1980, and has a membership of nine local technical societies — the American Institute of Aeronautics and Astronautics, Armed Forces Communications and Electronics Association,



Engert



Monford



Poindexter

Institute of Electrical and Electronics Engineers, Instrument Society of America, American Society for Quality Control, Lunar and Planetary Institute, SIG-ADA Association of Computing Machinery, Society for Computer Simulation, Society of Technical Communications, SPACEWEEK Houston and Texas Society of Professional Engineers.

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# Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Gift Store from 10 a.m.-2 p.m. weekdays.

General Cinema (valid for one year): \$4.  
 AMC Theater (valid until May 1992): \$3.75.  
 Loews Theater (valid for one year): \$4.  
 AstroWorld (valid 1991 season): season, \$44.94; child less than 4-feet, \$10.12; one day, \$15.85; WaterWorld, \$8.15.  
 SeaWorld of Texas (valid 1991 season): child (3-11), \$12.25; adults, \$17.25.  
 Six Flags (valid until Nov. 17, 1991): one-day, 15.95; child less than 4-feet, 14.95; two-day, 20.95.  
 Riverraft Trip (July 13, includes bus transportation, Natural Bridge Caverns or Wild Life Ranch, rafting, barbecue dinner): \$35.

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# Gilruth Center News

**Defensive driving**—Course is offered from 8 a.m.-5 p.m., Aug. 10, Sept. 21 or Oct. 12. Cost is \$15.  
**Aerobic dance**—High/low-impact classes meet from 5:15-6:15 p.m. Tuesdays and Thursdays. Cost is \$24.  
**Exercise class**—Low-impact class meets from 5:15-6:15 p.m. Monday and Wednesday nights. Cost is \$24.  
**Ballroom dance**—Eight-week beginning and advanced ballroom dancing class meets Thursdays from 7-8:15 p.m. starting Aug. 1. Beginning and intermediate class meets from 8:15-9:30 p.m. Cost is \$60 per couple.  
**Aikido**—Martial arts class meets Tuesdays for six weeks beginning June 25. Cost is \$30 per person.  
**Fiction workshop**—Six-week Wednesday workshop begins June 26. Class is from 6:30-8 p.m., and after class events are from 8-10 p.m. Cost is \$80 per person.

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# Technical Library News

These new publications are available in the JSC Technical Library, Bldg. 45, Rm. 100.

*Managing Disagreement Constructively.* Herbert S. Kindler; 1988. HD31 .C73 .K56 1988.  
*The Business of Listening: A Practical Guide to Effective Listening.* Diane Bone; 1988. HD31 .C73 B66 1988.  
*Better Business Writing.* Susan L. Brock; 1988. HD31 .C73 B76 1988.  
*New Employee Orientation.* Charles M. Caldwell; 1988. HD31 .C73 C32 1988.  
*Attitude: Your Most Priceless Possession.* Elwood N. Chapman; 1990. HD31 .C73 C42 1990.

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# Swap Shop

## Property

Sale: Egret Bay condo, 2-2-CP, all appl, FPL, blinds, fan, patio, storage, pools, boat ramp, \$42.9K. x30092 or 481-3637.  
 Sale: Westwood Shores lot on Lake Livingston appr value \$9.5K sell, \$6K OBO. x30032 or x31834.  
 Rent: L.C. Pecan Forest, 3-2-2, no pets, \$795/mo. 554-6200.  
 Sale: Camino South, 3-2-2A, corner, FPL, new roof, lg kitchen w/island, oak cabinets, ceramic tile, lg Satilite tile patio w/ trellises, \$74K. x33335 or 326-2582.  
 Sale/Rent: Lake Travis cabin, private boat dock, CA/H, fully equip, accom 8, wkly/dly, \$425/\$85. 474-4922.  
 Sale: Pipers Meadow, 3-2-5-2, formal LR/DR, FPL, loft, wet bar, fans, gar/dr opener, deck, landscaped, new paint, \$88K. Dennis, x34405 or 480-5076.  
 Rent: Galveston condo, lurn, sleeps six, cable TV, swimming pool, wknd/wkly rates. Magdi Yassa, x38470 or 486-0788.  
 Sale: Lake Placid near Seguin, 90' waterfront lot, 3-2-2 rock lakehouse on inc 600 sq ft boat and fishing dock, \$95K. 488-7387.  
 Sale: Nassau Bay townhome, 3-2-2, 2 living areas, private patio, wet bar, new roof, \$99.5K. 282-3497 or 333-5598.  
 Lease: C.L.C. 3-2-2, fenced, no pets, \$600/mo, \$300 dep. 326-6782.  
 Sale: Meadow Bend, 3-2-2, brick, dishwasher, microwave, FPL, fan, lg backyard, six yrs old, \$62K. 538-3458.  
 Sale/Rent: Santa Fe, new bldg, 14'x20', can be relocated, \$200/mo. Larry, x30428.  
 Sale: Bay City, assumable 3-2-2. FPL, \$100 rebate/mo 1st yr. 333-7149 or 326-1336.  
 Sale: Fairmont Park East, 3-2-2 brick, cul-de-sac, corner brick FPL, new carpet, accom \$65K. 470-2023 or 471-3165.  
 Sale: Lake Livingston, country club estate lot, 60'x110', 18 hole golf course, utili avail, trade for lot of equal value in LC, Alvin, or Frwd area, \$10K. 554-6841.  
 Sale: Meadow Green, 2 story, 2 LR, FPL, cul-de-sac, FHA 8.5 assum. 488-3191.  
 Lease: Webster/Ellington, 2-1 condo, many extras, \$435/mo. Dave, x38156 or x38161.  
 Lease: Sagemeadow, 4-2-2 formal LR/DR, family rm, FPL, fenced backyard and front court yd, new carpet, no pets, \$850/mo plus 1 mo dep. 480-0667.

## Cars & Trucks

'87 Volvo 240DL, blue, good cond, \$8.5K. 332-2796.  
 '87 Volvo 760 Turbo, leather seats, P/W, P/D, sun-roof, new turbo, metallic gold w/bk int, 60K mi, \$16K OBO. Steve or Mary, 480-7127.  
 '82 Ford truck F150, 81K mi, good cond, A/C ex cond, \$3.2K. 470-2023 or 471-3165.  
 '90 Subaru Legacy/LS, 4 dr, blk w/wh int, loaded, 38K mi, \$12K OBO. Bob, 480-1225 or 474-4747.  
 '89 Dodge Dynasty LE, good cond, 43K mi, blk w/champagne int, \$7.9K. Andy, 333-6671 or 332-9105.  
 '90 Sunbird SE, sporty, ex cond, sunroof \$8.8K. Tammie, 280-2257 or (409) 925-1802.  
 '81 Jeep CJ-7 Laredo, elec winch, P/S, A/C, 4 spd, hard and bikini top, \$5.5K. Jeff, x32283 or 489-9401.  
 '80 Chrysler LeBaron coupe, 6 cyl, 63K mi, some dents, no rust, good tires, \$900. x38869 or 488-1432.  
 '88 Toyota Supra, ex cond, loaded, low mi, 5 spd, 3.0 liter, 6 cyl, sec sys, \$12K. 482-9108.  
 '79 Toyota 4WD PU, good eng, trans, and mech, \$1.5K. Bob A., x34409 or 393-1670.  
 '88 Mitsubishi Precis, 5 spd, A/C, AM/FM/cass, 30 mpg, \$3500. 333-7070 or 482-2342.  
 '57 Porsche Speedster kit car, hi-perf eng and trans, over 17K invested, sell for \$8K. David, 929-7120 or 332-9044.  
 '81 Honda Accord LX, 5 spd, gray, 96K mi, good cond, \$1.1K. Fred, x31902 or 486-9328.  
 '84 Olds Ciera, new rebuilt eng, ex cond, 4 dr, 4 cyl, it blue, A/C, auto, \$2.7K. 280-2192 or 480-6697.  
 '85 Jeep CJ-7, red, black hard top and bikini top, 6 cyl, 5 spd, A/C, P/S, AM/FM/cass, 59K mi, \$6.5K. 470-0777.  
 '78 Chevy Blazer, 2 WD, 350 4bbl, auto, P/S, P/B, A/C, tilt, CB, AM/FM stereo, trlr hitch, all terrain tires on alum wheels, \$3K. Joe, 282-6490 or 482-0927.

'89 Mazda MX6, silver/burg, 11.5K mi, ex cond, 15/mo warr, \$9150 OBO. Blaine, x32765 or 480-1967.  
 '84 Nissan 300ZX 2-2, auto, A/C, good cond, stereo, \$5650 or '80 Pontiac Phoenix V6, auto, A/C, stereo, \$1950, sell one not both. x30092 or 481-3637.  
 '79 Ford Granada, gold, 70K mi, good cond, tires, fair body, \$700 OBO. Diana, 282-4101 or 922-2443.  
 '84 Camaro, power, A/C, IROC access, metallic gray, 65K mi, \$3.5K. Rogers, x38851 or 944-7042.  
 '85 Ford Escort, std, 56K mi, 15K on radial tires, AM/FM, \$1.8K OBO. Jim, 335-8543 or 474-2368.  
 '85 Toyota LE mini van, beige, fully loaded, all pwr, sunroof, AM/FM/cass, luggage rack, mags, 67K mi, \$5.5K OBO. Steve, 488-4913.  
 '79 Fiat X1/9, 5 spd, A/C, 70K mi, runs good, \$1.1K. Paul, x36159 or 992-1835.  
 '82 Ford Anaheim custom van, P/S, P/B, AM/FM/stereo, 4 capt chairs, sofa-bed, 2 A/C, 2 tanks, CB, cruise, tilt, BO, 488-3191.  
 '81 VW PU diesel, 4 spd, 108K mi, AM/FM, new tires, ex cond, \$1850 OBO. Bitsey, x34834 or 346-6451.  
 '71 VW Van, rebuilt eng and brakes, good cond, \$2.1K. Bill Huber, x30039 or 332-9044.  
 '89 Dodge Caravan SE, 27K mi, auto, A/C, cruise, AM/FM, 770 warr, \$11850. 992-4729.

## Cycles

'88 Yamaha DT 50 LC, low mi, good cond, \$700. Gordon, x32131 or Scott, x39378.  
 '87 Kawasaki KLR-650 multi-purpose, 6K mi, liquid cooled, elec start, ex cond, extras, \$1750. 282-3307 or 486-4016.  
 '80 Yamaha 400XS, good cond, blk, windshield/fairing, \$800. Bob A., x34409 or 393-1670.  
 '89 Kawasaki 500 Ninja EX, blk/red, 3K mi, ex cond, lower fairing, cheap ins, cargo net, \$2.4K OBO. Daryle, 282-4284 or 286-9218.  
 Honda XL250S, street or trail, ex cond, \$750. 485-7629.  
 '82 Honda FT500, runs good, new tires and chain, needs new starter, helmet incl, \$700. Terry, 282-3883 or 474-5639.  
 '85 Honda XR 350R, low mi, ex cond, trlr avail, \$1K. x31016 or 554-4452.

## Boats & Planes

Boat slip on Clear Lake w/roaf, motorized boat hoist for power boats, \$125/mo. 474-4922.  
 '83 Renken 18' sailboat, roller furling jib, 4 hp aux, galv trlr, sleeps 4, good cond, \$4K. 339-3476.  
 O'Brien-Freesail sailboat, 12', 45 lbs, 5.4 sail, stable, adj centerbd, sail battens, gear bag, \$175. x32539 or 538-1649.  
 Sailboat 12' w/14' mast, 2 sails, trlr, \$450. David, 280-5326.  
 Seacat catamaran sailboat, take apart frame, inflatable pontoons, \$100. 488-7728.  
 23' Sportcraft boat, 2.6 liter OMC Sea-Drive eng, w/trlr, \$4.5K. 474-3077.  
 '79 Pearson 23' w/4 sails, autopilot, 9.9 OB w/elec str, VHF, A/C, 2 anchors, head, stove, shore pwr, ext int, ex cond, \$9.5K. 479-4963.  
 '77 J-24 racing sailboat, totally restored, new hardware, rigging, rudder, keel faired to min, trlr coated w/zinc and paint, 4 hp Evinrude, \$12.5K. David, 929-7120 or 332-9044.  
 '84 31' Chris Craft Sportsman, twin Merc eng, low eng hrs, shower, toilet, sleeps 6, ex cond. 339-1197.  
 '79 Wellcraft 20' I/O ex cond, cabin, AM/FM stereo Hummingbird depth recorder, elec winch, SS prop, new starter, \$5K OBO. Blake, 337-25212.  
 16' alum V-bottom boat and trlr, \$400. 554-6138.  
 Boston Whaler harpoon 5.2. Bud, 486-9282 or 480-8674.

## Audiovisual & Computers

Healthkit 26" color TV w/remote, fully assem, working, complete manuals incl, \$75. Brad, 282-3570.  
 XT Clone computer, 20MB HD, dual 360K FD, multi-func card, RGB/CGA, printer, 7000. Bob, x34409 or 393-1670.  
 IBM compatible 286 AT, 32 MB HD, 1 MB RAM, 1.2 MB and 360K 5.25" FD's, 2 ser ports, 3 para ports, 1 game port, 101 kybd, 14" CGA color monitor, Epson FX85 printer, ex cond, \$900 OBO. 482-8998.

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## Today

**Juneteenth celebration**—The Black Programs Committee of JSC's Equal Opportunities Program will commemorate Juneteenth in the form of a traditional picnic at 4:30 p.m. June 21 at the Gilruth Center. Tickets are available from Pat Burke in the Equal Opportunity Programs Office in Bldg. 1, Rm. 172. Cost \$6 adults; \$3 children (8 and younger). For more information contact Freda Marks, x30603.

**Cafeteria menu**—Special: tuna and noodle casserole. Entrees: broiled codfish, fried shrimp, baked ham. Soup: seafood gumbo. Vegetables: corn, turnip greens, stewed tomatoes.

## Monday

**Cafeteria menu**—Special: meatballs and spaghetti. Entrees: weiners and beans, round steak with hash browns. Soup: chicken noodle. Vegetables: okra and tomatoes, carrots, whipped potatoes.

## Tuesday

**BAPCO meets**—The Bay Area PC Organization will meet at 7:30 p.m. June 25 at League City Bank and Trust. For more information contact Earl Rubenstein, x34807 or Tom Kelly, 996-5019.

**Cafeteria menu**—Special: fried chicken. Entrees: beef stew, shrimp creole, sweet and sour pork chop with fried rice. Soup: beef and barley. Vegetables: stewed tomatoes, mixed vegetables, broccoli.

## Wednesday

**Astronomy seminar**—The JSC Astronomy Seminar will be at noon June 26 in Bldg. 31, Rm. 129. This will be an open discussion meeting. For more information contact Al Jackson

333-7679.

**Cafeteria menu**—Special: Swiss steak. Entrees: fried perch, New England dinner. Soup: seafood gumbo. Vegetables: Italian green beans, cabbage, carrots.

## Thursday

**BANN meets**—The Bay Area NAPE (National Association of Female Executives) Network will meet at 6 p.m. June 27 at the South Shore Harbour Country Club. For more information contact Wanda Spain 483-0125.

**NASACOM meets**—NASACOM, a Commodore users' group for C64, 128 and Amiga computers, will meet at 7:30 p.m. June 27 at the Clear Lake Park Bldg. For more information, call Glenda at x31764.

**SCS meets**—The Society for Computer Simulation Chapter will meet at 11:45 a.m. June 27 at the Lockheed Plaza 3 Bldg., first floor PIC Rm. Mike Renie of SBS Inc., will discuss the "Generic Simulator Operator Console." For more information contact Wade Webster 244-4306, or Robin Kirkham 333-7345.

**NCMA program**—The National Contract Management Association will install 1991-92 officers at 6 p.m. June 27 at the Gilruth Center. Cost: \$7.50 members/one guest; \$15 nonmembers. Dr. Tom Stauffer, past University of Houston-Clear Lake president, will speak on "The Role of the University in Educating Professionals in the 1990s." Reservation deadline is 4 p.m. June 21. Call John Trahan, x30543, or Theresa Borrego, 282-6679.

**Cafeteria menu**—Special: stuffed bell pepper. Entrees: turkey and dressing, enchiladas with chili,

wieners and baked beans. Soup: cream of chicken. Vegetables: zucchini squash, English peas, rice.

## June 27

**Cafeteria menu**—Special: Salisbury steak. Entrees: baked scrod, broiled chicken with peach half. Soup: seafood gumbo. Vegetables: cauliflower Au Gratin, mixed vegetables, buttered cabbage, whipped potatoes.

## July 9

**SFEI meets**—Space Family Education Inc., the non-profit corporation established to manage the JSC Child Care Center, will conduct a special general membership meeting to elect a new board of directors at 4:30 p.m. July 9 in the Bldg. 30 auditorium. The meeting is open to all members of the corporation. For more information or to nominate a candidate, contact Reese Squires at x37776 or Mike Evans at x37667.

## July 11

**Museum activities**—The Houston Museum of Natural Science is offering several activities at 2:18 p.m. July 11 at the Museum and the George Observatory, to celebrate the upcoming solar eclipse. All the events are free except the parking fee at the George Observatory. Cost is \$2. For more information contact 639-4600; or Mike Olson 639-4613.

## July 16

**Spaceweek**—Spaceweek '91, an international week of education and promotion for space activities around the world, will be observed July 16-24. This year's theme is "Look to the Heavens and Learn." For more information, call Spaceweek National Headquarters at 333-3627.

Commodore 128-64 computer, color mon, disk dr, muppet and reg kybd, software, \$550. 286-8417.  
 Keyboard sequential circuits and KB100 Peavey amp, both \$500 OBO. 332-2796.  
 12 MHz AT clone, 4MB RAM, 2-20 MB HD, math coproc, 2400 baud int modem, 14" EGA monitor, \$800. Bryan, 480-4012.  
 Software, educ, word scramble, play and learn age 7-11, IBM or clones, full pkg w/manual, \$25. Youm, 283-4813.  
 800K int disk drive for MAC II, ex cond, \$150. Sunil, 283-4329 or 480-4270.  
 Apple II Plus w/80-col card, green mono monitor, 5.25", Olivetti PR2300 ink-jet, asst SW, \$300 OBO. Brantley, 331-0361.  
 PC tools deluxe 6.0; new, 5.25" and 3.5" disks, incl data recovery, HD, backup, DOS shell and dtkop mgr, \$50. x30852.  
 Commodore 128D w/built in 1571 disk drive, Commodore 1526 printer, Roland DG color mon, modem, manuals, SW, warr expires 9/91, \$425. John, x38429 or 482-6536.  
 IBM XT com, like new, 640K MB, 30 MB HD, 2 FD, color mon, \$975. x36290 or 486-7218.  
 Apple II E com, mon, DMP printer, RAM card, ex cond, \$700. 286-5106.  
 Apple II E 128K 80 col, RGB mon, 2 disk drives, \$550 OBO. 282-3517 or 482-4247.  
 JVC VCR, 8 yrs old, cleaned, plays, \$50. 480-7924.  
 IBM port PC w/Epson printer, 640K, 2 FD, \$600 OBO. Molly, 282-4248.  
 Casio fx7500 graphing calc, 195 functions, 10 prog areas, 4006 prog steps, 26 memories, 16 char by 8 line display, 2 manuals, \$70. Laurie, 283-5742.  
 IBM PC com 640K RAM, 30 MB HD, IBM CGA color mon \$495. x38135 or 326-1072.  
 A B Dick model 9702 copier, eng and reduce, incl rolling cart, was \$1295, now \$300. Shawn, x31786.

## Musical Instruments

Yamaha ME-10 keyboard, ex cond, was \$1.2K, now \$800. Bob, x38691.  
 Yamaha Studio piano, black lacquer finish, 5 yrs old, \$3K. 488-6232.  
 Peavey Classic guitar amp, 100 watts, 2 12" speakers, reverb, tremolo, foot switch, new cond, \$395. 333-6963.  
 TASCAM Porta 05 4 track recorder, \$300. Jim, 333-7690.

## Pets & Livestock

Amazon parrot, talks, tame, 2 yrs old, lg carrier cage, \$750 OBO. Lisa, x34305 or 454-2558.  
 Chestnut gelding, 13 yrs old, 15.3 hands, hunter, jumper, or dressage, good mover, \$2.5K OBO. Mark, 482-1376.  
 AKC Lhasa Apso puppies, born 4-23-91, parents on premises, \$175. Nancy, x34880.  
 Free yellow Lab puppies, born 5-5-91. Scott, 280-0469 or (409) 935-6605.  
 Free Lab/Shepherd mix dog, female spayed, current shots, 334-2281.  
 Free Doberman, 1.5 yrs, spayed, shots, 335-2538.  
 Free blue/gray tabby kitten, litter box trained. Terry, 282-3883 or 474-5639.  
 Free two cats, spayed, declawed, housebroken, white male, black female. 526-5155.  
 Free kittens, 7 wks old, 2 solid gray, 4 gray/white. x30649 or 941-7601.

## Household

Queen sz waterbed w/liner, htr, matt and platform, all wood, ex cond, \$100 OBO. x30768.  
 Queen sz waterbed, mirrored bookcase headbd, 6 drwr pedestal, liner, heater, \$100; two pc sofa set, apt sz, \$100. x35178 or 334-5537.  
 Sleeper sofa and loveseat, \$300; lg microwave \$150; DR table \$50; entertainment center, \$50. x31279.  
 Sleeper sofa and matching swivel chair, rust, good cond, 280-8035.  
 New queen sz matt/bspring, ex firm, was \$600, now \$350 OBO. Carol, x34279 or 286-7619.  
 LG microwave, \$100; king sz matt/bspring, free; 3 pc sectional couch, free. Bill, x30164.  
 Broyhill lowback tan sectional w/solid wood, was

\$1.6K, now \$350. 332-0365.

New microwave. Larry, x30428.  
 Twin bed frame and matt, like new, \$150. 488-6232.  
 Full sz BR suite, bed, matt/bspring, chest of drwr, night stand, and mirrored dresser, good cond, \$850 OBO. Tandy, 488-5970 or 286-3019.  
 Smoked glass kitch table w/4 chairs, \$50. 280-8006.  
 Maytag, gas dryer, white, \$125. x37870.  
 Antique 1930's English dresser, \$350 OBO. Joe, x35898.  
 Antique green BR suite, full sz bed, mirrored dresser, 5 drwr chest, 2 night stands, \$700; G.E. dishwasher w/spot scrubber, almond, built-in, 10 yrs old, needs adjust, \$70. Magdi Yassa, x38470 or 486-0788.  
 Two antique Bentwood kitchen chairs, \$50; antique silver candleabras and tray, \$250; 6' long uphol bench, like new, \$95; king sz red/gold velvet bedspread, ex cond, \$50. 488-5564.  
 Trundle bed, \$75; daybed bedspread w/2 coord bolster pillows, grey, navy, and maroon, \$25; 9 drwr chest, dk brn, \$30; mirrored shower drs for tub, \$30. 286-3560.  
 Frigidaire dbl oven, elec range, good cond, \$150. 283-1834 or 332-4807.  
 Offwhite sofa, \$75; 3 glass topped solid wood LR tables, \$200. x30972 or (409) 935-5688.

## Photographic

Canon A-1 camera w/50 mm 1.4 Canon FD lens, camera case, Canon 35-70 mm FD lens w/case, Soligera 2x extender w/case, Tiffen Sky 1-A 52 mm filter, ex cond, \$500. Keith, x33501 or 486-9700.  
 Camera accessories: Mamiya RZ6x7 polaroid back, \$200; motor winder II, \$200; Minolta maxxum 35-135mm (Sigma), \$100; Maxxum 7000 EP-7 and BP-7 battery packs, \$10/ea; Maxxum 7000 case, \$10. 282-3517 or 482-4247.

## Wanted

Want 400 watt or bigger amp, mixer 6 or more channels. Jim, 333-7690 or Steve, 996-8849.  
 Want 96" Bimini top boat cover for 20' pontoon boat, also lg ice chest. 332-0365.  
 Want racing car waterbed, elec dart board mach, Futon sofa bed. x30399.  
 Want nonsmoking female to share home in Bay Glen subdiv, will consider single mom w/child. BeBe, x35136 or 480-2466.  
 Want first in the series 3 sm angels, '88 Christmas series Lladro porcelain doll. Beverly, x38319.  
 Want free copy of SP-4009 "The Apollo Spacecraft", Vol I. x38925.  
 Want Futon, any cond, shape or sz: 4x8' latticework panels; carousel slide projector, any cond. Ronnie, x32539 or 538-1649.  
 Want to copy tape of any Martin Denim album from the '50's, will pay \$25. 486-6988.  
 Want Fisher-Price travel tender and Gerry Deluxe Kiddie Pack (framed) back carrier. x38866.  
 Want 4 or 5 drwr file cab in ex cond. 286-3560.  
 Want quality mountain bike and roof rack. Bud, 486-9282 or 480-8674.  
 Want wooden play structure, e.g., fort, swings, slide, will take down and haul away. Ron, 335-8581.

## Miscellaneous

Loran, SiteX/Koden C navigator, \$175 OBO; Sialom ski, O'Brien Tournament 66" titanium core, ex cond, \$160; Seiko combination analog and digital watch, black and gold, many functions, ex cond. 554-2728.  
 Dbl dog kennel 8'x8' w/tpc, ex cond, \$600. x37435 or 280-8249.  
 Toshiba BD-7815 copier w/cabinet/std, zoom 65% to 154%, letter, legal, 11x17, energy saver, needs adjust, \$1K OBO. Bob, 480-1225 or 474-4747.  
 Pepsi 6-pk commem young astronaut program July 1985. \$50 OBO. x30768.  
 One gal Hibiscus plants, \$3 ea. 482-5226.  
 Rims (4), black wire mesh, American Racing, used 1/mo, \$225. Rick, 283-1988 or 996-8961.  
 Wedding dress, gloves, hat, and shoes, sz 8; cream colored, short sleeves, tea length, southern belle style, \$130; lg comly chair, \$10. Ed, x36250 or Sheryl, 481-4889.  
 Textbooks for UH Central engr class, ELEE 6370/5440 adv digital design, new cond. Youm, 283-4813.

Golf bag pull cart, ex cond, \$25. Max, 488-4135.  
 President and First Lady Gold Charter Membership, \$1050 OBO. Allen, x30741 or 286-7620.  
 Smith-Corona elec port typewriter w/case, ex cond, \$75; lg hand-carved Tiki Head, \$50. 488-5564.  
 Patrick Nagel prints, commm #5, #8, #12, #16, \$350 to \$900. Mike, 283-5890 or 868-5132.  
 18K dia eng ring, .5ct, SI round center surrounded by 0.80 pts in tapered baguettes. \$1.8K. Tom, 486-7139.  
 Twin bed matt, \$10; (3) wetsuits, \$25 - \$50; dive mask, \$25; snorkel, \$5; wt set w/bench, \$25; swing set, \$30; wading pool, \$5. x35178 or 944-2391.  
 Sears lawn mower, runs good, extra blade, \$35; infant car seat, \$10. 286-0022.  
 File cabinet, 2-dr legal sz, ex cond, was \$200, now \$100; eng ring, 18 k yel/gld, round diamond solitaire, .68 carats w/4 round diamonds .18 cwt, was \$1.5K now \$1.2K. x30874 or 333-1316.  
 Antiques: wooden wheel chair w/wooden back, seat, arm rests, and foot rests: iron bed full sz. Ruby, 783-9164.  
 7 dia cluster eng ring w/band, \$450 OBO; wedding dress, veil, petticoat, sz 5/6, pearl color, long sleeves, long tail, v-neck, \$500 OBO. Cindy, 282-3960 or 333-4907.  
 3.25 cwt. London blue topaz ring set in 10K gold, \$100; amethyst w/12 dia set in 14K gold, \$50; Wilton cake dec supplies, instruction bk, practice bd, and carry case, \$55. Marisa, x30269 or 332-6046.  
 12 spd bike, 27", like new, was \$100, now \$50; Senterk 10 band graphic equal, \$20; Kenwood tuner, \$20; Realistic speakers, \$20. Barry, x31705 or 332-6046.  
 Sears exercise bike w/speedometer, timer, \$35; maple foot and headbd, matt and bsprings, \$60. Speier 333-2263.  
 Bausch and Lomb Binocular inspect microscope w/lens, lg padded carrying case, \$250. 335-8527.  
 Men's solid gold linked bracelet, appraised \$2.6K now \$985. Cliff, 335-4309 or 480-8340.  
 8' Garage dr, wdws, hardware, only \$75; Lake Concrete campground membership, nationwide, \$4995. 326-5150.  
 Motorola Ultra Classic Cellular phone w/extra battery pk, and 12 volt charging unit, was \$800, now \$550. 488-5019.  
 Two Falken (Bridgestone) FX-06C 215/60-15 tires, \$50. Jeff, x37388 or 996-1529.  
 Camper top for full truck, short bed, \$65. Luis, 282-5570 or 538-3458.  
 Wedding dress sz 5/6, ex cond. 471-3165.  
 Peach velvet ch

# Rewarding Research

## STS-40 crew returns data that should keep doctors busy for years

**R**esearchers have begun sorting through the stacks of information collected during the nine-day flight of STS-40, in hopes of increasing knowledge of the human body's response to space flight.

The crew recorded more data than planned, and that detailed information on how the human body adapts to weightlessness and back again to Earth's gravity will keep researchers busy for years to come.

In addition, *Columbia's* crew included the seven astronauts, 29 rats, 2,478 jellyfish and one "stow-away." At right, the crew poses for its on-orbit portrait with Resusci Annie, a mannequin used in a hardware verification test of the Medical Restraint System. Clockwise from her left are: Payload Specialist Millie Hughes-Fulford, Mission Specialist Jim Bagian and Rhea Seddon, Pilot Sid Gutierrez, Mission Specialist Tammy Jernigan, Payload Specialist Drew Gaffney and Commander Bryan O'Connor.

Clockwise from below:  
1) Bagian floats through a maze of experiment apparatus in the

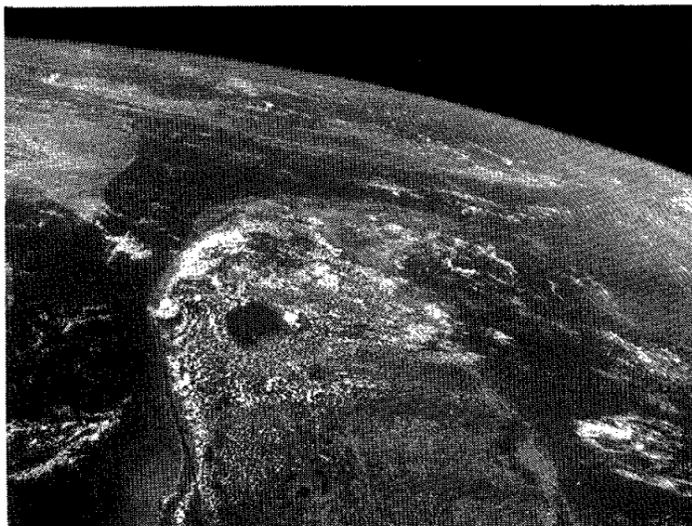
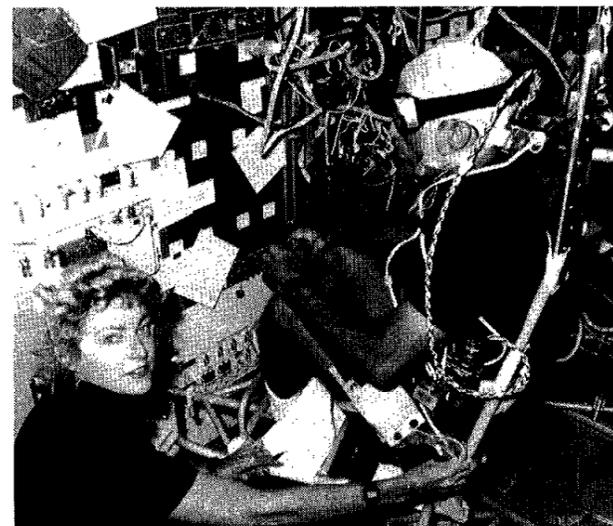
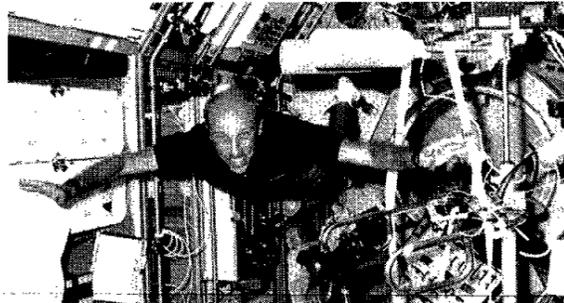
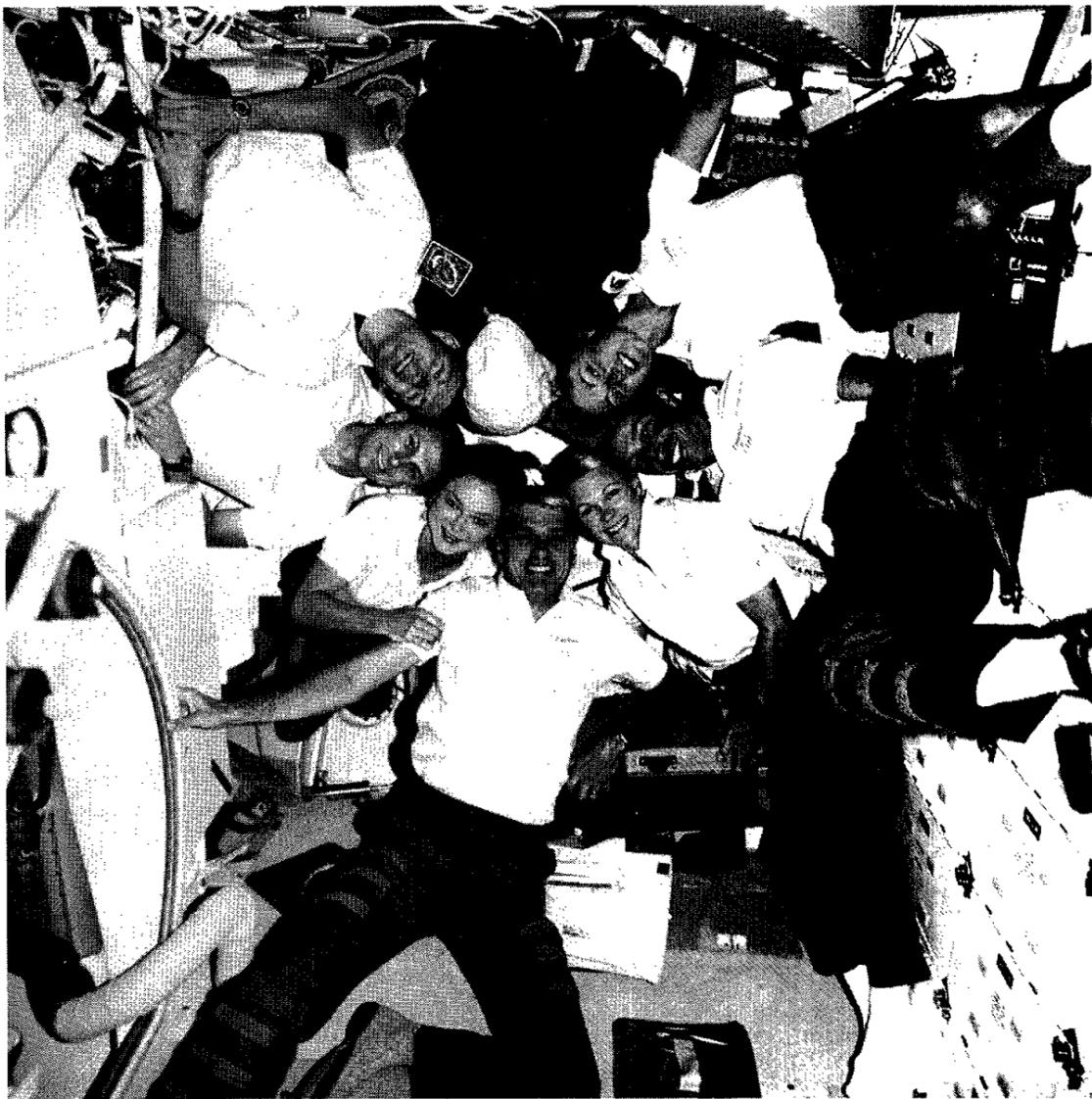
Spacelab module.  
2) Hughes-Fulford checks on the rats housed in the Research Animal Holding Facility. Nineteen animals flew in the RAHF with 10 more flying in the Animal Enclosure Module on *Columbia's* Middeck.

3) Gutierrez changes the lithium hydroxide canisters below the mid-deck's floor, one of many daily "housekeeping chores" during shuttle missions. The LiOH removes carbon dioxide from the crew compartment's air.

4) Though the medical experiments kept the crew busy, astronauts took a moment to look at their launch site at Cape Canaveral, lower left, from 160 miles away.

5) Bagian prepares for a ride on the rotating chair while wearing an accelerometer and electrodes to record head motion and eye movements. Hughes-Fulford assisted with the test of the neurovestibular system.

6) Hughes-Fulford inserts a special contact for the rotating dome experiment. The contact with a starburst pattern on it aided investigators in watching eye movements during the neurovestibular test.



# Payload team earns plaque honors

Roger Galpin, leader of the payload flight control team, earned the honor of hanging the STS-40 plaque following the recent nine-day mission.

Lead Flight Director Al Pennington said the award went to the entire payload team for its year-long effort to maintain a cohesive set of scientific investigations.

"They put forth an outstanding effort to maintain control over a flight that had been slipped for almost a year," Pennington said. "The payload team provided a focal point needed to successfully accomplish the flight."

The payload officers added another dimension to their job for the STS-40 flight, he said, providing education, leadership and guidance for the new flight controllers from JSC who staffed the Payload Operations Control Center at Marshall Space Flight Center.

## Zahler receives contract manager of year award

Peggy A. Zahler, chief of JSC's Space Station Support Procurement Branch, recently was named Contract Manager of the Year by the Space City Chapter of the National

Contract Management Association.

The award, presented at a meeting in the Gilruth Center, recognized an individual's outstanding professional leadership in the area of contract management.

Zahler's responsibility includes the Level II System Integration Support contract with Lockheed Missiles and Space, and the Assured Crew Return Vehicle contracts with Rockwell International and Lockheed.

## Adams leads Federal Women's Program

Pamela J. Adams has been appointed JSC's new Federal Women's Program manager, succeeding Freda Marks.

Adams, who joined JSC in 1987 as a personnel assistant in Human Resources, has been an administrative officer in the Mission Operations Directorate's Systems Division for the past two years.

Adams hopes to encourage participation by all JSC men and women in the activities sponsored by the Federal Women's Program, and said she welcomes any recommendations from employees.



Galpin

Zahler

Adams

McFadin

Cross

## McFadin praised for amateur radio work

Lou McFadin, an aerospace engineer in Engineering's Robotics Systems Development Branch, recently was honored by the amateur radio community for his work with the Shuttle Amateur Radio Experiment.

The Technical Excellence Award presented at the Dayton (Ohio) Amateur Radio Association's 40th annual "Hamvention," recognized McFadin's role as principal investigator in the development of hardware for the SAREX program.

McFadin, call sign W5DID, was instrumental in the development of the interface module between the headset, transceiver and tape recorder used on STS-9 in 1983, the scan converter box used on STS-51F in 1985 and the packet module flown on STS-35 in

1990. SAREX hardware also was flown on STS-37 in April.

## Cross top secretary

Lynn Cross, secretary to the chief of JSC's Astronaut Office, recently received the Marilyn J. Bocking Award for Secretarial Excellence.

Cross, who has worked in the Astronaut Office since 1966 and became secretary to the chief in 1987, received the award from JSC Director Aaron Cohen.

She was cited for her ability to coordinate the many activities of the astronauts in support of shuttle missions and as an invaluable source of information to astronauts and other secretaries in the division. In addition to her normal duties, she was crew secretary for the STS-32 mission in 1990, and was praised for her work with the crew and their launch and landing guests.

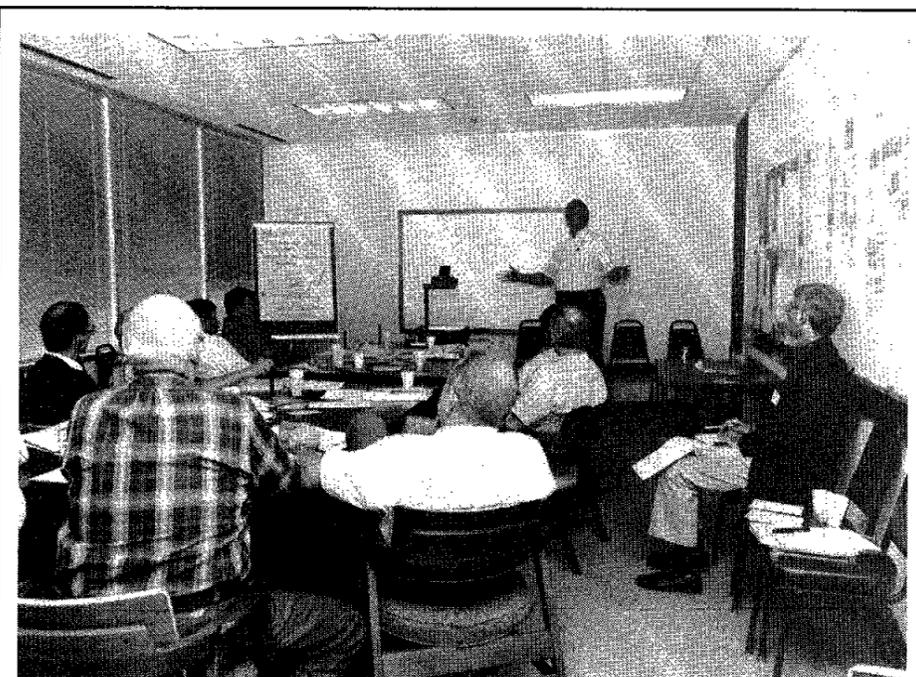
# Child Care Center offers family dialog

JSC's Child Care Center will sponsor a parent education program from 9 a.m. to noon Saturday that is geared for parents and other family members. The program will be held at the Child Care Center.

The discussion of family structures in the 1990s also will focus on when families should seek professional intervention.

Speakers at the program will include Becky Axline, a clinical social worker, and Dr. Lynn Malseed, a pediatrician and child psychiatrist in the Clear Lake area. Axline will give an overview of leading sociologist John Bradshaw's concept of the family. Afterward, Malseed will join the program to discuss the events that occur in families that might appear to be unusual but are examples of normal behavior, and about warning signs that signal the need for intervention. A question and answer period will follow.

JSC and NASA contract employees are encouraged to attend the program. Interested people are encouraged to call Georgia Strain at x34734 today if they plan to attend, but advance notice is not required.



JSC Photo by Mark Sowa

**QUALITY QUIZ**—JSC's senior staff spent Monday and Tuesday in a retreat at South Shore Harbour to advance plans for the center's move to Total Quality Management. This retreat concentrated on updating JSC's strategic plan as a foundation. The managers focused on the future work in the agency in three areas of strategic thrust — human access to space, living and working in space and space exploration and exploitation. Total Quality training already has spread to the directorate/division level and soon will be moving to the division/branch and section level, where all employees will begin to be involved in the effort.

# Silver Snoopy nominations due by July 8

The Manned Flight Awareness Council at JSC is inviting nominations for this year's Silver Snoopy Awards.

About 150 of the coveted awards are expected to be given to deserving civil service and support contractor employees. Nominations are due by July 8 through each directorate's MFA council member, who will in turn submit them to Lois Walker, council chair, x38425.

The Silver Snoopy is presented to individuals from both government and industry who have performed outstanding efforts in support of NASA's manned space flight program. Emphasis is placed on efforts to enhance mission success, such as design improvements, administrative, technical or production techniques, or error identification, correction and prevention that improves flight safety.

The award consists of the Silver Snoopy pin, certificate and letter of commendation presented by a member of the astronaut corps.



# Awards recognize work of innovative employees

(Continued from Page 1)

were completely replaced after each mission because the two gyro sensors in each assembly have a relatively high trouble rate, Anderson said. His suggestion was to reuse the electronics associated with the gyros instead of replacing the whole assembly. This is estimated to save about \$344,000 each shuttle flight, he said.

The awards, presented by JSC Director Aaron Cohen on June 12, totaled \$68,950 for Space Act Awards and \$6,555 for Suggestion Awards.

Other Suggestion Award winners were:

Thomas A. Hall, Combination Unit for Stirring Fluids; Michael E. Montz, Dual Airlock Depress/ Repress

Concept; and James T. Brown, NASA Reference Publication 1059 (acronym list).

Scientific or technical contribution awards also went to:

Peter M. Fantasia, Alignment Positioning Mechanism; Michael W. Bungo, John B. Charles, Carolyn L. Huntoon, Sam L. Pool, Lawrence F. Dietlein, Kenneth H. Hyatt and Philip C. Johnson, Fluid Loading Countermeasure; and Roger Burke, Cliff L. Farmer, Israel J. Galvan (GHG Corp.), Ludwig Zeigelmaier (RSOC), Larry Culver (UNISYS), Rodney Luebbert and Carl Franklin (Bendix), Basic Utilities for Real-Time Knowledge-Based Evaluation.

Tech Brief Award winners were:

Richard L. Sauer, Regenerable Biocide Delivery Unit; Burton G. Cour-Palais and Jeanne Lee Crews, New Hypervelocity Impact Shielding Concept and Design; Clarence J. Wesselski and Kornel Nagy, Preloading Collet Latch for Spacecraft Use; Jon B. Kahn, Expanding Blast Absorption Globe; Angelene M. Lee, Sharps Container for the Inflight Blood Collection System; and Joseph R. Trevathan, Dynatube Seal Saver.

Patent Application Award winners were:

David A. Wolf and Clarence F. Sams, Cultural Vessels with Large Perfusion Area to Volume Ratio; Margaret E. Grimaldi and Leslie S. Hartz, Memory Alloy Retaining

Mechanism for Orbiter Tile Gap Fillers; Lui Wang, Dynamic Pattern Matcher Using Incomplete Data; Clarence J. Wesselski and Kornel Nagy, Preloading Collet Latch for Spacecraft Use; Robert O. Shelton, Accelerated Training Method for Back Propagation Networks; William E. Thornton, Treadmill for Space Flight; Leo G. Monford, Magnetic End Effector with Astronaut Foot Restraint; Wallace C. Tuthill Jr., High-Velocity Gas Particulate Sampling System; Dennis R. Morrison, Qualitative Method for Measuring Cancer Cell Urokinase and Metastatic Potential; and Jon B. Kahn, for Expanding Blast Absorption Globe and Pressure Vessel Flex Joint.

## Correction

Two photograph captions in the June 14 issue of Space News Roundup included incorrect information.

In a Page 1 Spacelab photo, Mission Specialists Tammy Jernigan and Rhea Seddon are working with the Body Restraint System, not the Body Mass Measurement Device.

In a Page 4 caption about the Science Monitoring Area in Bldg. 36, the Roundup incorrectly stated that STS-40 was the first time the SMA had been used. The SMA has been used during four Spacelab missions and for limited support of several secondary payloads.

# Ulysses link restored; instruments operating

Ulysses operations have been restored to nearly normal following loss of downlink communications from the solar probe for two hours last Friday.

After loss of the downlink telemetry at 9:58 a.m. CDT, the spacecraft went into a safing mode, which automatically switched off all nine science experiments. The link was reestablished at 12:01 a.m.

The spacecraft was returned to nearly normal operational and thermal conditions by Saturday, at which time the first of the science instruments was switched back on. All but one of the science experi-

ments were back on by Tuesday. A continued shutdown of the S-band transmitter, used for radio science, interrupted the Solar Corona Experiment that measures the electron content of the Sun's outer atmosphere.

The cause of the incident remains unknown. Following a complete return to normal operations later this week, ground controllers will monitor spacecraft subsystems to assess the behavior of the Ulysses power system.

Ulysses is about 378 million miles from Earth, traveling at 46,000 mph relative to the Sun.

# 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.

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. 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.

Editor ..... Kelly Humphries  
Associate Editors ..... Pam Alloway  
Kari Fluegel

# Spacelab crew home

(Continued from Page 1)

in Teague Auditorium. "We spent nine days up there and it went so fast, it seems like we just got up there yesterday," O'Connor said at the welcome home ceremony. "On behalf of the payload crew, who could not be here because they're being stuck and prodded and poked and measured back at Edwards for another six, seven days, we appreciate what you all did to get this mission ready."

O'Connor said the mission was a great tribute to the co-workers, families and friends who helped prepare the crew and the vehicle. "We appreciate all the support that we've gotten through all of the hard-

working people at JSC and at Ames, and all the people that worked together to make this mission possible," Jernigan said. "We got a lot of medical data, I'm not sure I understand the ramifications of all of it, but I think that there will be a lot of good information that comes out of this flight."

Gutierrez, who said that after two years he still felt like a newcomer to the mission that had been in planning for more than a decade, thanked those who had persevered to make the it a success.

"There are people who have been working on this mission for over 10 years and they hung in there and kept at it until the very end."