



Space News Roundup

Vol. 36

March 7, 1997

No. 10



JSC Photo S97-02992

RAPT ATTENTION—Students in Ginny Royer's gifted and talented class at Rustic Oak Elementary in the Pearland Independent School District examine a space suit glove intently during National Engineers Week. Cinda Chullen, left, technical manager for the Science, Engineering, Analysis and Test contract for the Engineering Directorate, visited two schools during February's educational outreach effort. A total of 220 JSC volunteers visited 117 different schools in the local area.

Spotlight on women in March

[Editor's note: This is the first of four articles highlighting the accomplishments of women at JSC in observance of National Women's History Month.]

JSC's Federal Women's Program Manager reports the role of women at the center has changed dramatically over the past two decades, and continues to evolve.

"One of the first things I did as the incoming Federal Women's Program Manager here at JSC was to dig, and I mean really dig, through the files of my predecessors," said Jessie Hendrick of the Equal Opportunity Program Office. "I was interested in the program and what had been done before my watch. What I found was very interest-

ing...and included an article from the September 1980 "FWP Network" newsletter on the statistics concerning the women in JSC's workforce."

Statistics have changed dramatically since 1980, she said. The article in 1980 stated that "one of every five JSC employees is female." Today's figures show that one of every three JSC employees is female. The actual figures in 1980 were 719 women employees out of 3,420 permanent full-time employees. Today there are 1,068 women in the workforce of 3,189. Today, as then, women are in every job classification.

In 1980, the professional classification was comprised of engineering support, science and engineering,

life sciences and administration. The 1980 figures show that there were 2,575 professionals of which 205 were female or eight percent. Using the 1980 classification of professional, today there are 2,740 professionals, 741 are female or 27 percent. In 1980, two women had achieved a GS-15 grade, the highest grade for any JSC female employee at the time. Currently, there are 63 women and 370 men who hold the GS-15 grade. The highest grade possible is Senior Executive Service...two women and 63 men have achieved that rank. In addition, there were 13 women supervisor/managers out of approximately 493 in 1980, now there are 52 women out of 278.

Please see **STATISTICS**, Page 4

Space Ops seeks private industry plans

By Toni Loftin

JSC's Space Operations Management Office will issue a call Tuesday for proposals to begin consolidating agencywide human and robotic space operations capabilities.

"It's a big, new job for JSC, and is critical to the future of the agency," said John O'Neill, director of the Space Operations Management Office. "Our approach will revolutionize the way NASA does operations. Saving money in routine operations will enable NASA to apply more of its resources to research and, ultimately, exploration."

An initial contract is to be awarded in May to develop an "Integrated Operations Architecture," a preliminary step leading to award in 1998 of a single contract known as CSOC, the Consolidated Space Operations Contract. That contract is expected to be a multi-year agreement for sustaining engineering, operations and maintenance of networks, control center facilities, and other critical systems.

In some cases, the contractor will provide control and monitoring of spacecraft and related functions. The CSOC contract to be awarded later is estimated at \$500-\$600 million a year for 10 years.

"The contractor under CSOC will have more end-to-end responsibility for service products, and will work to our requirements," O'Neill said.

SOMO was created after an agencywide review under O'Neill's direction, looking for efficiencies in similar operations around NASA. The review identified common activities at a number of centers, indicating

potential cost savings through consolidation.

The study was a response to NASA's Zero-Base Review that recommended the agency focus its civil service resources on science, research and development, and move end-to-end operations service responsibility and accountability to industry.

SOMO's function will be much like that of a private sector operations organization, working toward providing high quality operations at a reduced cost, moving civil service resources out of operations and into research and development, and commercializing whenever possible. Also, as new programs are designed across the agency, SOMO will act as a consultant to advise on the most efficient and cost-effective methods of operation, O'Neill said.

"We're not part of an enterprise or traditional agency process," he said. "We're a service management organization, the first of its kind in the agency."

The new JSC office will coordinate operations including tracking, telemetry, control, data handling, flight operations support and communications. It will provide the environment and services required by the flight program, whether human-piloted or not. Work that is more standardized will be included in the CSOC, while core competency work will stay with the centers.

A first draft of the mission services catalog and additional information about SOMO and CSOC can be found at the website: <http://www.jsc.nasa.gov/somo>



Texas to provide educational funds for special training

The Texas Legislature has established a Skills Development Fund to help employers increase the skill level of their workforce, and JSC contractors are taking advantage of this fund.

During the last session, Texas legislators established a \$25 million fund that is available to businesses in partnership with local community colleges to develop customized training for employees. The Texas Workforce Commission Business Services

Division works with businesses, labor unions, community organizations and colleges to establish specific projects that increase the skill level of workers.

Two JSC contractors, Barrios Technology and Johnson Engineering, and Space Center Houston have accessed this fund to increase their employees' skill levels.

Barrios teamed up with San Jacinto College and was awarded a grant for computer training. Forty employees will receive

training on a variety of computer programs. Johnson Engineering has developed a training program for employees who operate the Neutral Buoyancy Laboratory at the Sonny Carter Training Facility. Classes available to these workers will enhance their capability to operate this state-of-the-art facility with an emphasis on safety. Space Center Houston is in the process of developing a training program for its employees.

The Clear Lake Area Economic Develop-

ment Foundation is working with the Texas Workforce Commission to make these funds available to small-to-medium-sized companies in the Clear Lake area. Companies must have a training plan and pay the occupational wage in their local area. Employers interested in finding out more information about the Skills Development Fund may contact the Foundation at 486-5535 or the Texas Workforce Commission at (512) 463-8844.

Strategic plan all-hands meeting set

Information about strategic planning available on-line

JSC managers next week will discuss key activities around the center and how the projects fit into NASA's Strategic Plan.

Managers from several organizations will talk about the accomplishments, milestones and challenges of their programs and projects at 10 a.m. Wednesday in Teague Auditorium. This forum is to inform employees of key activities under way across the center, and to illustrate how JSC is implementing the NASA and Human Exploration and Development of Space strategic plans.

The panel for this follow-on

meeting to NASA Deputy Administrator Jack Dailey's recent visit will consist of David Short, discussing "Space and Life Sciences Initiatives"; John Muratore, talking about the "X-38 Project"; Lili Moore, examining the "Orbiter Upgrades Study"; Doug Cooke, discussing "Mars Mission Planning"; and Bonnie Dunbar, looking at "Operations Advanced Developments."

A third JSC all-hands meeting on April 9 in Teague Auditorium will feature Tommy Holloway, Frank Culbertson, Randy Brinkley, Don McMonagle, John O'Neill, and David McKay.

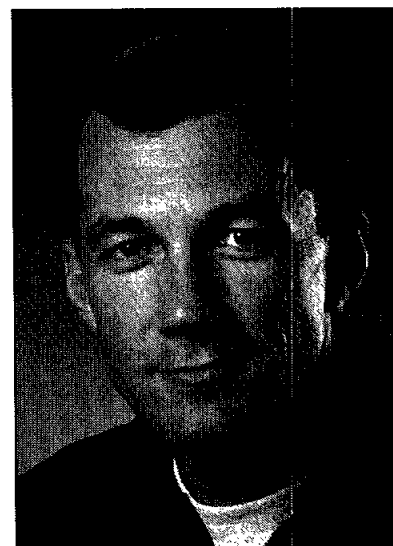
Employees who would like more information about the documents Dailey talked about during last month's all-hands meeting may find them on-line.

The Strategic Management Handbook is at: <http://www.hq.nasa.gov/office/codez/strahand/frontpg.htm>

The NASA Strategic Plan is at: <http://www.hq.nasa.gov/office/nsp/NSPTOC.html>

The HEDS Enterprise is at: <http://www.osf.hq.nasa.gov/heds/hedsplan.html>

In addition, The National Performance Review and an 800-document library is at: <http://www/npr.gov>



Terry Wilcutt

Wilcutt to lead STS-89 mission

By Eileen Hawley

Astronaut Terry Wilcutt will command the eighth of nine planned missions to dock the space shuttle with the Russian Mir Space Station. STS-89 is targeted for a January 1998 launch on *Discovery*.

Three members of the 1995 astronaut class and a veteran space flyer round out the crew. Joining Wilcutt on the flight deck will be Pilot Joe Edwards. Mission Specialists for the flight are Bonnie Dunbar, Mike Anderson and James Reilly.

Discovery also will carry Mission Specialist Gregory B. Bressler. Please see **ROOKIES**, Page 4

JSC

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Store from 10 a.m.-2 p.m. Monday-Thursday and 9 a.m.-3 p.m. Friday. For more information, call x35350 or x30990.

Children's Easter Party: 11 a.m. March 22 at the Gilruth Center. Tickets are \$5 for children, \$2 for adults.

Disney on Ice: "Toy Story" noon April 5 at the summit. Tickets are \$12.

JSC Picnic: 11 a.m.-8 p.m. April 6 at Astroworld. Tickets are \$15 for the first 3,100.

EAA cruises: Seven-day cruise to Alaska for \$1294 per person May 23-31. Seven-day cruise to Caribbean leaving from Houston in November. Prices vary depending on cabin choices. For more information call Dick McMinimy at x34037.

Astroworld season pass: \$56.75.

Moody Gardens: Tickets are \$9.50 for 2 of 3 events.

Space Center Houston: Adult \$8.95; children (4-11) \$6.40, annual membership \$25.95, family membership (up to four) \$59.95.

Movie discounts: General Cinema, \$4.75; AMC Theater, \$4.50; Sony Loew's Theater, \$4.75.

JSC logo shirts: Polo style, \$23. T-shirt, \$10.

Stamps: Book of 20, \$6.40.

Orbit: The book "Orbit" by Jay Apt, Mike Helfert and Justin Wilkinson is on sale for \$28.

Metro tickets: Passes, books and single tickets available.

JSC

Gilruth Center News

EAA badges: Required for use of the Gilruth Center. Employees, spouses eligible dependents, NASA retirees and spouses may apply for photo identification badges from 7:30 a.m.-9 p.m. Monday-Friday, and 9 a.m.-1 p.m. Saturdays. Cost is \$10. Dependents must be between 16 and 23 years old.

Complete Weight Control Program: starts April 1 with sessions on Monday, Wednesday and Friday. For more information call x30301 or x30302.

Hatha Yoga: A stress relieving, stretching and breathing exercise routine to unite body, mind and spirit. Classes meet from 5:30-6:30 p.m. Thursdays. Cost is \$40 for eight weeks.

Nutrition intervention program: A six-week program to learn more about the role diet and nutrition play in health, including lectures, private consultations with a dietitian and blood analysis. Program is open to all employees, contractors and spouses. For more information call Tammie Shaw at x32980.

Defensive driving: One-day course is offered once a month. Pre-registration required. Next class is March 22. Cost is \$25.

Stamp club: Meets at 7 p.m. every second and fourth Monday in Rm. 216.

Weight safety: Required courses for employees wishing to use the weight room will be offered from 8-9:30 p.m. March 11 and 25. Pre-registration is required. Cost is \$5. Annual weight room use fee is \$90. Additional family members are \$50.

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

Aikido: Martial arts class meets from 5:15-6:15 p.m. Tuesday and Wednesday. Cost is \$35 per month. New classes begin the first of each month.

Aerobics: Classes meet from 5:15-6:15 p.m. Tuesdays and Thursdays. Cost is \$32 for eight weeks.

Ballroom dancing: Beginner classes meet from 7-8:15 p.m. Thursdays. Intermediate and advanced classes meet from 8:15-9:30 p.m. Cost is \$60 per couple.

Country and Western dancing: Beginner class meets 7-8:30 p.m. Monday. Advance class meets 8:30-10 p.m. Monday. Cost is \$20 per couple.

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

Gilruth Home Page: Check out all activities at the Gilruth online at: <http://ww4.jsc.nasa.gov/ah/exceaa/Gilruth/Gilruth.htm>

JSC

JSC

Dates & Data

Today

STS-82 crew briefing: The STS-82 crew will discuss the Hubble Space Telescope servicing mission at 1:30 p.m. March 7 in Teague Auditorium. For more information call Helen Harris at x38413.

Cafeteria menu: Special: meat sauce and spaghetti. Total Health: baked potato. Entrees: rainbow trout, liver and onions, beef cannelloni, ham steak, fried cod fish, Reuben sandwich. Soup: seafood gumbo. Vegetables: steamed broccoli, okra, corn, black-eyed peas.

Monday

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

Tuesday

Space Medicine Grand Rounds: Paul Spudis, staff scientist with the Lunar and Planetary Institute, will discuss "Why Go Back to the Moon?" at 8:30 a.m. March 11 at the Shriners Hospital Auditorium, 815 Market Street. To reserve a space in the van leaving from Bldg. 37 at 7:15 a.m. call Carmen Hollins at x30452. **NPMA meets:** The National Property Management Association will meet at 5 p.m. March 11 at Robinette and Doyle Caterers, 216 Kirby in Seabrook. Dinner cost \$14. For details call Sina Hawsey at x36582.

Aero club meets: The Bay Area Aero Club will meet at 7 p.m. March 11 at the Houston Gulf Airport clubhouse at 2750 FM 1266 in League City. For more information call Larry Hendrickson at x32050.

Cafeteria menu: Special: pepper steak. Total Health: barbecue chick-

en. Entrees: baked lasagna, pork chop and fried rice, turkey a la king, baked chicken, fried cod fish, French dip sandwich. Soup: black bean and rice. Vegetables: breaded squash, spinach, carrots, navy beans.

Wednesday

Spaceland Toastmasters meet: The Spaceland Toastmasters will meet at 7 a.m. March 12 at the House of Prayer Lutheran Church. For more information call Jeannette Kirinich at x45752. The Spaceteam Toastmasters will meet at 11:30 a.m. March 12 at United Space Alliance, 600 Gemini. For details call Pat Blackwell at 282-4302.

MAES meets: The Society of Mexican American Engineers and Scientists will meet at 11:30 p.m. March 12 in the Bldg. 3 cafeteria. For details call G.D. Valle at x38835.

Astronomy seminar: The JSC Astronomy Seminar will be held at noon March 12 in Bldg. 31 Rm. 129. For more information call Al Jackson at x35037.

PSI meets: The Clear Lake/NASA Chapter of Professional Secretaries International will meet at 5:30 p.m. March 12 at the Holiday Inn, NASA Road 1. Dinner costs \$15. For details call Elaine Kemp at x30556.

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

Thursday

SSQ meets: The Houston Clear Lake Chapter of the Society for Software Quality will meet at 6 p.m. March 13, at Ramada King's Inn on NASA Road 1. Charles McKay, of the University of Houston-Clear Lake will discuss "Requirements Modeling Process for Object-Oriented Domain

Engineering." Dinner cost \$12 for members, \$16 for non-members. For more information call Renne Peterson at 335-2034.

Airplane club meets: The Radio Control Airplane Club will meet at 7:30 p.m. March 13 at Clear Lake Park Community Bldg. For details call Bill Langdoc at x35970.

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

Friday

NCMA seminar: The Space City-Houston Chapter of the National Contract Management Association will host a "Commercial Item Acquisition" seminar from 7:45 a.m.-4:30 p.m. March 14 at Moody Gardens. Cost is \$155 for members, \$205 for nonmembers. For details call Erin Province at 280-2399.

NSS meets: The National Space Society will meet at 6:30 p.m. March 14 at the Holiday Inn at 9100 Gulf Freeway. Paul Spudis will discuss "Clementine Explores the Moon." Tickets are \$5. For more information call Murray Clark at 367-2227.

Astronomers meet: The JSC Astronomical Society will meet at 7:30 p.m. March 14 at the Lunar and Planetary Institute, 3600 Bay Area Blvd. For more information call Chuck Shaw at x35416.

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

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. The blank form is available electronically on the Internet at <http://www.jsc.nasa.gov/pao/roundup/weekly/>. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Ads must be submitted in paper form, and may be run only once. Send ads to Roundup Swap Shop, Code AP2, or deliver them to the deposit box outside Rm. 181 in Bldg. 2. No phone or fax ads accepted.

Property

Sale/Lease: Tiki Island, waterfront, 3-2-1, w/boat dock and lift, \$1100/mo or \$112k. Phil, x30220 or 3374168.

Sale: Duplex in Galveston, 2 blks from Seawall Beach. Jim, x35853 or 474-7747.

Sale: Summerset Place, Alvin, lots, city water and sewer, restricted subdivision, no mobile's. \$4950. 281-997-2280.

Lease: Lakeside townhouse furn, 2-2.5, 2 balconies, FLP, microwave, W/D, pool, security gate, avail 3-1-97. 45' boat slip in private marina. 532-4153.

Sale: Large wooded lot 90' x 135' in Taylor Lake Estates waterfront subdivision near JSC. \$39.5k obo, can finance. Don, x38039 or 333-1751.

Rent: La Porte duplex, large 3-2, new carpet, paint, tiles. \$550 + dep. 996-0152.

Lease: Clear Lake condo, over looks marina, 2-2.5-2, pool balconies and patio, W/D, refrig, security gates, \$950 mo. 474-4922.

Sale: BayGlen, 3-2.5-2, new paint/carpet, 26 cu ft, \$107.9k. x33894 or 980-7656.

Lease: Webster condo, large upstairs, clean, 2-1, balcony, all appli, FPL, ceiling fans, vaulted ceiling, hi-eff A/C, avail 3/10/97, \$530 mo. 486-0315.

Lease: Pipers Meadow, large immaculate 3-2-2A, FPL, fenced, deck, avail 4-1, \$920/mo. 486-0315.

Sale: Lot at Toledo Bend, Holiday Forest, Hemphill, TX, subdivision has private dock w/public dock outside entrance to the subdiv, lot includes sm travel trailer, \$7.2k. 244-7914 or 488-2852.

Sale: 40 prime/clear acres, house, barn, all amenities, 15 mi east of Tyler. \$120k. 488-5058.

Rent: South Lake Tahoe cabin, sleeps 8, 3-2, wood stove, cable TV, VCR, microwave, modern kitchen, W/D, \$85/night. 244-1065 or 326-2866.

Cars & Trucks

'93 Corvette Coupe, 15k mi, 2 tops, theft deterrent sys, AC, cruise, traction control sys, premium stereo, mint cond, \$23k. x34723 or 326-4968.

'90 Plymouth Laser RS, 50k mi, auto, tinted glass, \$4.2k. x39115 or 332-7166.

'93 Mercury Villager LS, auto, AM/FM/cass, keyless entry, sec alarm, maroon/gray, leather, ext warranty, rear AC, ex cond, \$12.5k obo. x30633 or 218-334-4148.

'86 Cadillac Fleetwood, loaded, well maintained, high mileage, \$3.9k. x31997 or 992-3827.

'94 Chevy Corsica, 4 dr, 43k mi, ex cond, \$8.5k obo. x36185 or 281-286-2174.

'90 Corvette hatchback, red w/tan leather inter, garage kept, 30k mi. \$17.5k 409-948-3975.

Ford Escort LX, 4 dr, new tires, ex cond, 76k mi,

\$4260 obo. x47890 or 486-8712.

'86 Ford Country Squire Station wagon, auto, V8, AC, AM/FM/cass, PW/PL, tinted windows, maintenance records, clean, \$4.9k obo. 281-280-9740.

'90 Toyota Corolla DX, auto, AC, PS/PB, 4 drs, non-smoker, AM/FM, very clean, \$5k obo. Joe Gardner, x33190 or 482-3069.

'93 Pontiac Sunbird, 4 cyl, ex cond, clean, wht, 4 dr, 43k mi, new battery/alt, tires, tune-up, \$6.9k obo. Jerry, x30819.

'94 Honda Accord LX, ex cond, 30k mi, 4 cyl, wht exterior, tan cloth interior, auto, 4 dr, dual airbags, PS/PW/PL, AC, AM/FM/cass/CD, \$14.3k obo. Gus, x33425 or 286-3402.

'94 Chevy Camaro, 14k mi, ex cond, T-tops, power, custom wheels, Bose stereo, blue, \$15.3k. x31838 or 480-4226.

'90 Chevy Truck, original, no modification's. Jim, x35853 or 474-7747.

'84 Dodge Prospector Van, sleeps 2, stereo, dual AC, new interior, \$1,950. Rich, x33222 or 538-2870.

'85 Audi 4000S, auto, AC, 4 dr, silver w/dk blue int, new tires, AM/FM/cass, 58k mi, ex. cond, \$3.5k. Bobby, x42444 or 488-4382.

'81 Chevrolet Silverado, AC, automatic, good cond, \$3k obo. James, 337-5583.

'89 Ford Mustang LX, blk w/grey int, overhauled, PL/PW, brakes, steering, AC, cruise, auto, 69k mi, \$3.4k. x38853 or 488-5352.

'91 Mercury Sable LS, 3.9l V6, leather, AC conv to R134a, cruise, cass, auto, keyless entry, PW/PL, 94k mi, \$5.5k. Karen, x32688 or John, 368-4252.

'94 Chevy Cheyenne, wht, w/lockable tonneau cover, AC, AM/FM/cass, PW/PL, custom rims, new tires, 54k mi, ex cond, \$11.5k. x37703 or 538-1627.

'89 Lincoln Mark VII LSC, loaded, new tires and brakes, garaged, \$6.3k. x32827 or 538-2152.

'89 Ford Ranger XLT, SWB, V6, AC, auto, cassette, tint, new motor, ex cond, maintenance records, \$3750. Billy, x31339 or 409-741-0083.

'92 Chevy Suburban Silverado, loaded, ex cond, white w/maroon int, 120k mi, \$13.9k. Tom, x40048 or 334-2593.

'76 Ford 2000 diesel tractor, good cond, new paint and battery, \$3950. 281-997-2280.

Boats & Planes

'87 Executive Cruiser Pontoon boat, 115 outboard, stereo, canopy, power trim, trailer, depth finder, \$6.2k. Rich, x33222 or 538-2870.

Half ownership in 28' Pearson sailboat, 3 sails, spinnaker, 30 hp, inboard atomic 4 eng, \$5k + \$100/mo maint/slip fee. x47806 or 538-1681.

'93 Crownline 20', seats 8, Mercruiser 305 V8, SST prop, depth finder, AM/FM/cass, low hours, bimini top, custom cov, Shorelander custom trailer, \$13.9k obo. Don, x38039 or 333-1751.

Outboard engine, 8.0 Hp Evinrude long shaft, \$450. Robert, 334-1677 or 717-8231.

Aluminum prop from 21' Mercruiser I/O 135 hp engine, \$50. Robert, x37739.

Boat trailer will accommodate 18' boat has 16" tires, \$250. 244-7914 or 488-2652.

'97 Citabria 7GCBC (explorer), Lyc. 160 hp, full gyro pkg, NAV/COM, many extras, \$60/hr. x38879 or 281-482-8213.

Cycles

'84 Honda ATC, 110 cc, needs work, \$200. Luke,

667-3248.

'84 Yamaha RZ 350, 6k mi, \$1.4k. 244-7914 or 488-2652.

Trek 1200 rad bike, 56cm AL frame, w/accessories, \$550; Minoura Magrollor Assy. \$100; Kreitter Stand, \$30; all in ex cond, \$575 for all. 481-1518.

'96 Harley Davidson "883 Sportster Hugger" less than 1k mi, extra chrome and windshield, garaged, midnigh blue, extra leather seat, ex cond, \$8.3k. 244-1791 or 488-1326.

Audiovisual & Computers

MAC Se30 computer, 8 Mb RAM, deluxe carrying case, \$975. 488-7771.

Fantavision Animation program for Apple II+//IIe/IIc, org pkg, \$30 obo. Joe, 713-455-5046.

MacIntosh SE computer plus software, \$250. 713-896-4223.

Bose 901 series VI w/stand; no equalizer, ex cond, \$650. 379-3627.

Nokia 2610 "Digital Plus" cellular phone, never used, \$150. 281-335-6469.

Microsoft Visual C++ 4.0, \$50; Russian language home study course, incl 16 records, 3 text books, dictionary, carrying case, \$50. David, 282-5338 or 488-6853.

US Logic multimedia monitor, \$325 obo; Soundblaster 32 Pnp sound card, \$125; both \$400. x48727 or 281-326-2767.

Lapis Pro Color server 24x color graphics card for Mac SE/30, \$200; Cordura carrying case for Mac SE/30, \$35; Phonemate answering machine w/Feature Phone. 480-3424.

Ten ft dia solid satellite dish and electronics, I.Q. Prism satellite receiver w/descrambler disk, needs remote arm, \$500. Russ, x45989 or 332-1769.

US Logic multimedia monitor, \$325 obo; Soundblaster 32 Pnp sound card, \$125; both \$400. x48727 or 281-326-2767.

Lapis Pro Color server 24x color graphics card for Mac SE/30, \$200; Cordura carrying case for Mac SE/30, \$35; Phonemate answering machine w/Feature Phone. 480-3424.

Ten ft dia solid satellite dish and electronics, I.Q. Prism satellite receiver w/descrambler disk, needs remote arm, \$500. Russ, x45989 or 332-1769.

US Logic multimedia monitor, \$325 obo; Soundblaster 32 Pnp sound card, \$125; both \$400. x48727 or 281-326-2767.

Lapis Pro Color server 24x color graphics card for Mac SE/30, \$200; Cordura carrying case for Mac SE/30, \$35; Phonemate answering machine w/Feature Phone. 480-3424.

Ten ft dia solid satellite dish and electronics, I.Q. Prism satellite receiver w/descrambler disk, needs remote arm, \$500. Russ, x45989 or 332-1769.

US Logic multimedia monitor, \$325 obo; Soundblaster 32 Pnp sound card, \$125; both \$400. x48727 or 281-326-2767.

Lapis Pro Color server 24x color graphics card for Mac SE/30, \$200; Cordura carrying case for Mac SE/30, \$35; Phonemate answering machine w/Feature Phone. 480-3424.

Ten ft dia solid satellite dish and electronics, I.Q. Prism satellite receiver w/descrambler disk, needs remote arm, \$500. Russ, x45989 or 332-1769.

US Logic multimedia monitor, \$325 obo; Soundblaster 32 Pnp sound card, \$125; both \$400. x48727 or 281-326-2767.

Lapis Pro Color server 24x color graphics card for Mac SE/30, \$200; Cordura carrying case for Mac SE/30, \$35; Phonemate answering machine w/Feature Phone. 480-3424.

Ten ft dia solid satellite dish and electronics, I.Q. Prism satellite receiver w/descrambler disk, needs remote arm, \$500. Russ, x45989 or 332-1769.

US Logic multimedia monitor, \$325 obo; Soundblaster 32 Pnp sound card, \$125; both \$400. x48727 or 281-326-2767.

Lapis Pro Color server 24x color graphics card for Mac SE/30, \$200; Cordura carrying case for Mac SE/30, \$35; Phonemate answering machine w/Feature Phone. 480-3424.

Ten ft dia solid satellite dish and electronics, I.Q. Prism satellite receiver w/descrambler disk, needs remote arm, \$500. Russ, x45989 or 332-1769.

US Logic multimedia monitor, \$325 obo; Soundblaster 32 Pnp sound card, \$125; both \$400. x48727 or 281-326-2767.

Lapis Pro Color server 24x color graphics card for Mac SE/30, \$200; Cordura carrying case for Mac SE/30, \$35; Phonemate answering machine w/Feature Phone. 480-3424.

Ten ft dia solid satellite dish and electronics, I.Q. Prism satellite receiver w/descrambler disk, needs remote arm, \$500. Russ, x45989 or 332-1769.

gerie dresser, vanity desk w/chair, nightstand, will take 2 payments of \$200/obo. 409-948-6945.

Sofa, \$35; love seat, medium brown, good cond, \$25; \$50 both. x38875 or 538-1887.

Cherry-wood veneer dining table w/4 chairs, ex cond, \$500 obo. x36185 or 281-286-2174.

Sleeper sofa new \$2.5k sell \$750; portable washer, \$275; Hoover vacuum cleaner, \$125. 992-9203.

Leather Lazy-Boy, brown, faultless, \$75; king size waterbed, contempo, \$75; dishwasher, \$50; Serger, Elana Lock, 4-spool, \$500. 485-8930.

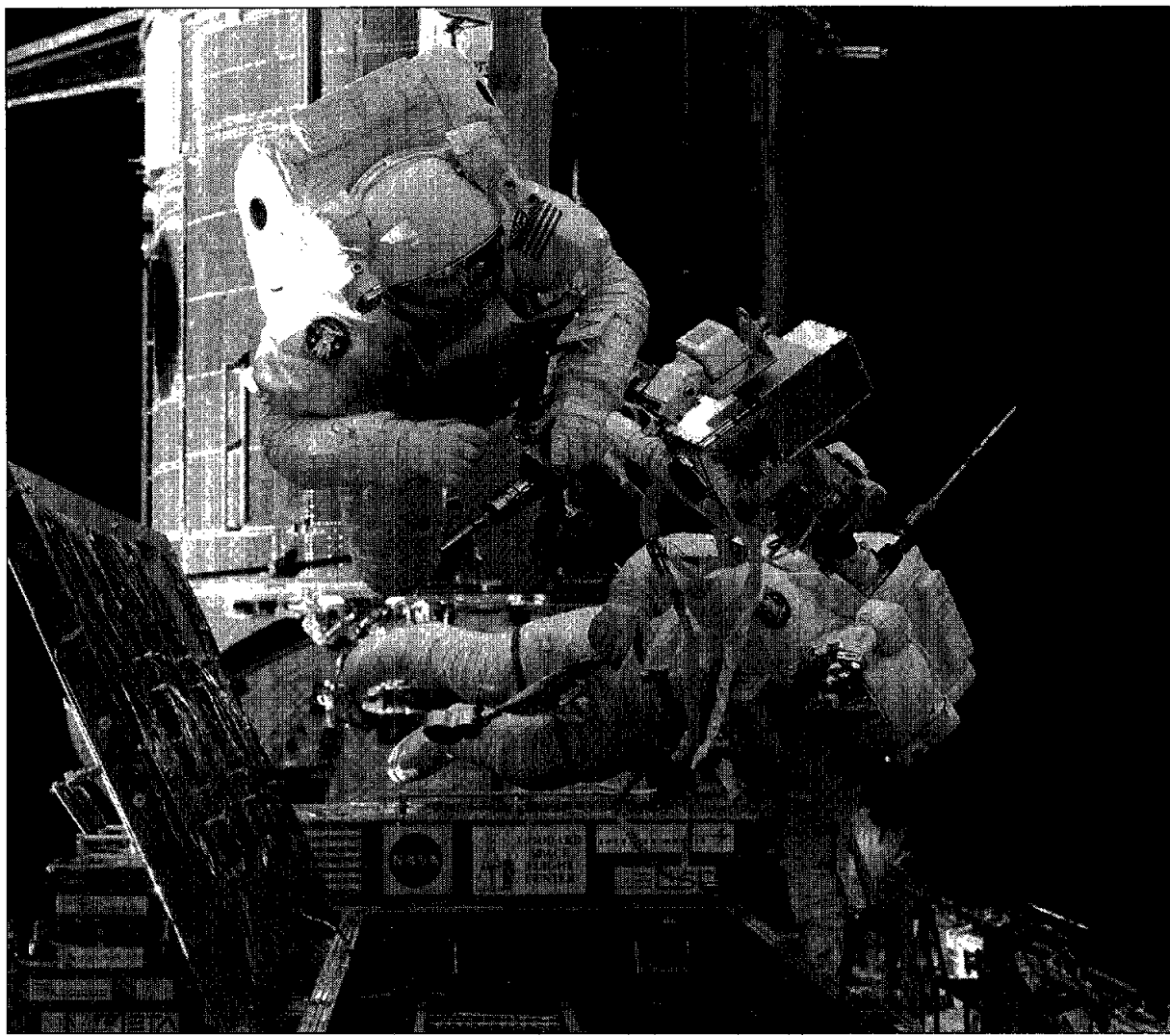
Side-by-side 23.7 cu ft refrig, ex cond, \$595; G.E. washer and dryer set, ex cond, \$350. 486-6009.

Sofa and loveseat, good cond, \$300 obo. Mike Eter, 486-6034 or 333-4760.

Maytag electric dryer, almond, ex cond.

Gearing up with tools for the first extravehicular activity to service the Hubble Space Telescope are from left, Mission Specialist Steve Smith and Payload Commander Mark Lee. They were among four STS-82 crew members who shared several alternating two-member space walking work sessions during the flight. The space walkers removed two older astronomy instruments and installed the Near Infrared Camera and Multi-Object Spectrometer and the Space Telescope Imaging Spectrograph. Hubble also received a refurbished fine guidance sensor, a new pointing device and service to its support systems. →

STS0832-717-026



Hubble Helpers

STS-82 crew successfully capture, repair, deploy orbiting observatory



↑ Mission Specialist Joe Tanner, on *Discovery's* flight deck, checks off completed procedures of the space walkers in the cargo bay. Before the flight, the astronauts practiced every aspect of the mission from rendezvous, retrieval and deployment to try out the more than 150 special tools and crew aids developed for STS-82. STS082-317-003

Commander Ken Bowersox monitors activities on *Discovery's* flight deck. Bowersox and Scott Horowitz fired small jet thrusters to boost Hubble to a higher attitude for the resumption of astronomical studies. Bowersox congratulated his crew for an outstanding job done to service Hubble. →

STS082-345-005



← Mission Specialist Steve Hawley operates the remote manipulator system arm on the aft flight deck. Hawley used the arm to retrieve the orbiting telescope and place it in *Discovery's* cargo bay. Hawley also was responsible for moving the space walkers, who were attached to the arm, into position for servicing operations and deploying Hubble back into space. STS082-353-035

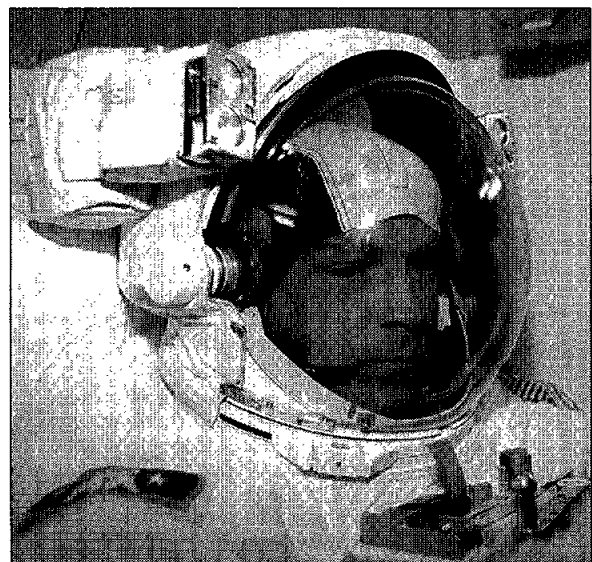


↑ Mission Specialist Greg Harbaugh prepares his extravehicular mobility unit space suit for one of two space walks he performed during STS-82. Harbaugh commented during homecoming ceremonies that his space walks were magical moments he will never forget. STS082-356-001

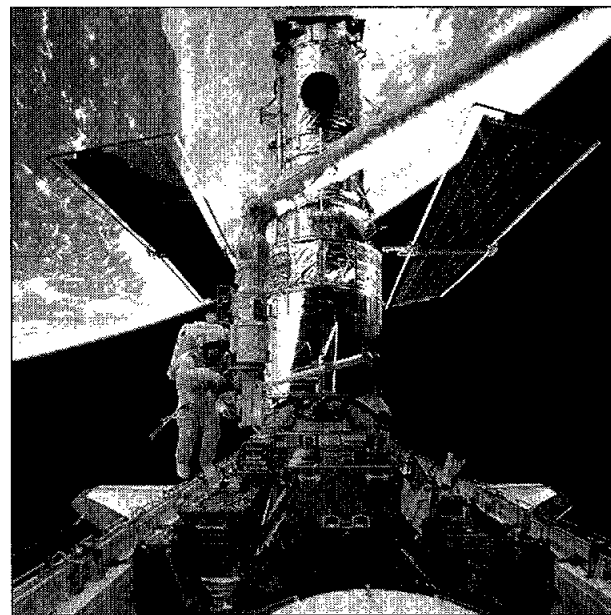
Mark Lee, top, on the end of the remote manipulator system arm, performs a patch task on the worn insulation material of the Hubble. Steve Smith assists with the patch work during the final space walk. During their final excursion, Lee and Smith attached several thermal insulation blankets to three equipment compartments. →



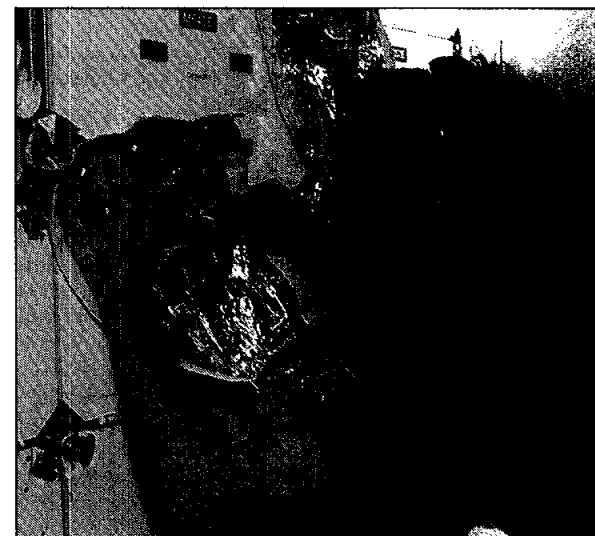
STS082-325-034



← Attired in the extravehicular mobility unit space suit, Mark Lee, in *Discovery's* airlock, prepares for one of five space walks. In all, a total of 33 hours and 11 minutes were logged during the space walks, about two hours shy of the time recorded during the first servicing mission more than three years ago. STS082-344-019



↑ This wide shot of the Hubble Space Telescope in *Discovery's* cargo bay, backdropped against Australia, was taken during the third STS-82 space walk to service the orbiting observatory. Steve Smith works near the foot restraint of the remote manipulator system. STS082-310-017



↑ On *Discovery's* mid deck, Pilot Scott Horowitz works on one of the patches to be used by two crew mates on an upcoming space walk to repair worn insulation on the Hubble Space Telescope. STS082-350-021

Center ops gets new deputy

Joseph Fries has been named the new deputy director of Center Operations.

Fries began his career at JSC in 1963 and has held progressively responsible technical and managerial positions at JSC. Following a 15-year career in the Propulsion and Power Division, Fries moved to WSTF in 1978. In 1985 he was selected for a branch chief position, and in 1986 became chief of the Propulsion Test Office.

EVA team hangs plaque

Oscar Koehler and his EVA team hung the STS-82 plaque in Mission Control after developing real-time solutions to insulation tears discovered during the Hubble Space Telescope servicing mission.

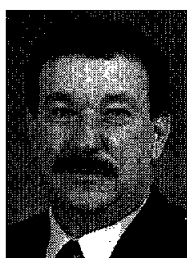
"The EVA team was responsible for the development of procedures, crew training and real-time execu-

tion support for all the complex EVA tasks," said Lead Flight Director Jeff Bantle. "They performed some outstanding work developing Hubble's insulation repair procedures."

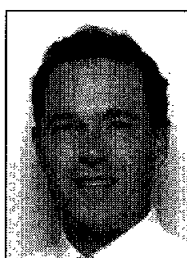
The EVA team included Paul Boehm, Stacie Greene, Michael Hess, Kieth Johnson, Kerri Knotts, Tricia Mack, Randall McDaniel, Daryl Schuck, Linda Thomas, Wayne Wedlake, Dana Weigel, Salvatore Ferrara, Daniel Goodwin, J. Dennis Hayes, Lauri Hembree, Albert Lee, Jose Lozano, Alberto Magh, Angela Prince, Anita Ramos, Ronnie Rogers, Jeffery Stone, Jerry Ross and Jeff Hoffman.

Kerrick chosen for ISU

Ginger Kerrick of Mission Operations' Space Flight Training Division will be JSC's representative in the International Space University summer program.



Fries



Koehler



Kerrick



Krishen



Attaway



Otten

Kerrick will attend the multidisciplinary, multinational space education program and learn about systems architecture and mission design; business and management; engineering; life sciences; policy and law; resources, robotics, and manufacturing; and satellite applications.

Kerrick was chosen because of her potential to assume future leadership roles, outstanding record of contributions, and her ability to work well in teams and deal effectively with a wide range of people.

Krishen elected fellow

Kumar Krishen of the Technology Transfer and Commercialization Office has been elected a fellow of the Society for Design and Process Science.

Krishen received the honor based upon his significant engineering and science achievements in the integration of disciplines, theories and methodologies in design and process related disciplines.

Secretaries earn honors

Two secretaries recently earned

the Marilyn J. Bocking Award for secretarial excellence.

Harriett Attaway of the EVA Project Office was cited for her dedication to excellence in the office. She has initiated innovations that blend state-of-the-art computer databases allowing rapid access to critical records.

Lorraine Otten of the Space and Life Science Directorate was recognized for her quality work and her attention to detail. She consistently seeks ways to improve office efficiency.

Columbia ready for pad move

The Space Shuttle *Columbia* is in the Vehicle Assembly Bldg., scheduled to roll out to the launch pad Monday for the home stretch of Microgravity Science Laboratory-1 pre-launch work.

The move from Kennedy Space Center's Orbiter Processing Facility was delayed Tuesday for replacement of six tiny

liners that accept screws that in turn connect the orbiter's 17-inch quick-disconnect umbilical to the external tank. The threads on the liners were stripped and

the liners had to be replaced. Some of the liners were in hard-to-reach places, and *Columbia* was repowered so that the umbilical door could be repositioned to allow access.

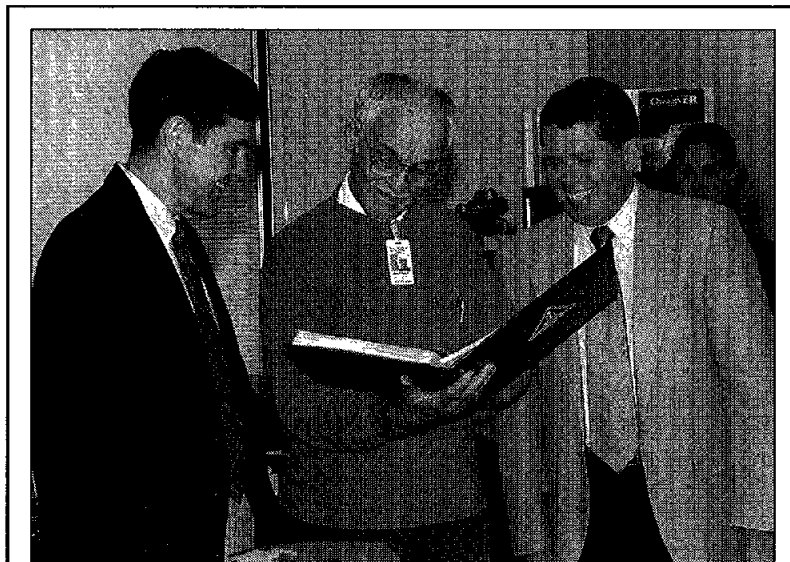
With the liners replaced overnight Tuesday, technicians moved on to the work of putting *Columbia* into position for the attachment of its external tank and solid rocket boosters late this week. Roll out to Launch Pad 39A is on track for Monday. After rollout, technicians plan to hot fire one of the shuttle's three auxiliary power units.

Commander Jim Halsell, Pilot Susan Still, Payload Commander Janice Voss, Mission Specialists Mike Gernhardt, Don Thomas, and Payload Specialist Roger Crouch and Greg Birtcher are set to fly to KSC on Tuesday, arriving late in the afternoon to participate in the final dress rehearsal of the STS-83 launch. The crew will be briefed on safety procedures and go through a simulated countdown.

Columbia and its crew are scheduled for launch at 1:01 p.m. CST April 3 on a 16-day mission that will foreshadow research on the International Space Station. The payload is a complement of experiments that focus on materials processing technology and other science and research requiring the low-gravity environment of Earth orbit.

Meanwhile, *Atlantis* is being readied for STS-84, the sixth shuttle-Mir docking mission, in May. *Atlantis* is in OPF Bay 3 this week, having its forward reaction control system and main engines installed. The STS-84 solid rocket boosters and external tank will be assembled late this month, with roll over of *Atlantis* for mating in the VAB set for April 9.

Discovery is in OPF Bay 2, being readied for STS-85, the second Cryogenic Infrared Spectrometers and Telescopes for the Atmosphere-Shuttle Pallet Satellite mission to study the Earth's atmosphere. Technicians are removing residual propellants from its hypergolic tanks and preparing to remove the main engines.



JSC Photo S97-02994 by Karen Schmidt

THE LONG GOODBYE—From left, Bob Cabana, chief of the Astronaut Office, presents a collection of astronaut farewells to JSC Public Affairs Photographer Andrew "Pat" Patnesky with the help of Flight Crew Operations Director Dave Leestma. Patnesky came to JSC when only cows roamed the current facility and has covered astronaut training from the Mercury Seven to the present day. He recently retired from JSC after 58 years of government service, 36 spent at JSC.

Gilruth center goes on-line; fitness challenge begins

Just in time for the 1997 NASA Fitness Challenge, a new interactive Web page has been developed to share general information about recreational opportunities available at the Gilruth Center.

With just the click of a mouse, employees can now find information on athletic activities, health and nutrition programs, leisure classes and more.

"Since JSC employees are using the Internet more often, this is an exciting and effective medium for getting up-to-date recreational information directly to current and potential Gilruth Center users," said Bob Musgrove, the Employee Activities Association's vice president of athletics.

Employees may access the Gilruth Center Home Page from the JSC Internal Home Page, or at the address: <http://www4.jsc.nasa.gov/ah/ExcEAA/Gilruth/Gilruth.htm>

In addition, the Gilruth again will sponsor the NASA Fitness Challenge. The event, held yearly and began March 1 and ends Aug. 31, promotes physical activity and friendly competition among all NASA centers.

JSC participants who meet the standards for the challenge win a free multi-colored T-shirt. Standards for the challenge were established by the President's Council on Physical Fitness and Sports. A copy of rules and a personal fitness log may be obtained from the fitness staff or by calling x30301.

Employees must keep a record of their activities in the log and when at least one requirement is met, turn in the log to the fitness staff at Mail Code AW9 to receive at least one Presidential Sports Award.

All NASA civil servants, contractors, dependents and retirees are eligible.

Statistics show improvements for women of JSC; more workers in responsible positions

(Continued from Page 1)

The next category reviewed in 1980 was that of technicians and clerical staff. In 1980, three out of five employees in this category were women. The category included 303 technicians—14 were women; and 542 clerical workers—500 were women. Now, four out of five employees are women. There are 130 technicians, of which 14 are women, and 318 clerical employees, of which 313 are women.

"As these statistics indicate, there have been many improvements for women during the last 17 years at JSC," Hendrick said. "As for any employee, the keys to advancement

are education and practice. By education, I mean any formal or continuing education and skills enhancement. We are very fortunate here at JSC to have the Human Resources and Development Branch which provides access to multidisciplinary courses to assure enhancement in a variety of skills."

Employees also need arenas in which to practice these skills. With the help of their management, all employees should look for opportunities to use new skills and improve existing ones, Hendricks said. These opportunities may include rotational assignments, special projects or working on teams.

Mir 22 crew departs; Linenger works on sleep experiments

The Mir 22 cosmonauts said farewell to their colleagues Sunday and the three remaining crew members began analyzing back pain and sleep patterns.

Mir 22 Commander Valeri Korzun, Flight Engineer Alexander Kaleri and Cosmonaut Researcher Reinhold Ewald returned to Earth in the wee hours Sunday, leaving behind Mir 23 Commander Vasily Tsibliev and Flight Engineer Alexander Lazutkin and Flight Engineer Jerry Linenger. The trio will remain on Mir until *Atlantis* returns to the Russian outpost in May to deliver supplies along with Linenger's replacement, Mike Foale.

Meanwhile, science operations continued in the fundamental biology and microgravity science disciplines. The Mir 23 crew members completed their daily Magnetic Resonance Imaging back pain questionnaires, performing this activity for the first 10 days after reaching Mir. From now on, the Mir crew members are scheduled to complete the questionnaire only on days they experience back pain.

Linenger continued the human life sciences sleep investigation that examines immune system alterations in relation to sleep in microgravity. It should provide long-term data on the physiology and behavior of human sleep under conditions of prolonged microgravity. The experiment will be conducted at scheduled intervals throughout Linenger's mission by all crew members on board.

A sample of the Liquid Metal Diffusion experiment was initiated last week to continue the evaluation of material dynamics in space. The experiment takes advantage of

the Microgravity Isolation Mount to reduce or eliminate vibrations that could disturb the sample processing. In conjunction with experiment operations, the Space Acceleration Measurement System also was activated.

The Enhanced Dynamics Load Sensors hardware set-up and calibration session was performed to both passively and actively measure the forces exerted by the crew members on Mir during their daily activities.

Rookies to ride on STS-89

(Continued from Page 1)

Specialist David Wolf to Mir to begin a planned four-month stay. Wolf will replace Astronaut Wendy Lawrence, scheduled to arrive at Mir in September 1997 during the STS-86 mission aboard *Atlantis*. Lawrence will return to Earth on board *Discovery* as a member of the STS-89 crew.

STS-89 will mark Wilcutt's third space flight and his second visit to Mir. He was the pilot on STS-79, the fourth shuttle/Mir flight which

saw the first exchange of U.S. crew members on the Mir, leaving John Blaha and returning Shannon Lucid to Earth. Wilcutt's first flight was STS-68 in 1994.

Dunbar is a veteran astronaut with four space flights to her credit. She flew on STS-61A in 1985, STS-32 in 1990, STS-50 in 1992, and the first shuttle/Mir docking mission, STS-71 in 1995.

Edwards, Anderson and Reilly will be making their first trip to space during STS-89.



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.

The Roundup office is located in Bldg. 2, Rm. 181. The mail code is AP2. The main Roundup telephone number is x38648 and the fax number is x45165.

Electronic mail messages should be sent to the editor, khumphri@gp301.jsc.nasa.gov or the managing editor, kschmidt@gp301.jsc.nasa.gov.
Editor Kelly Humphries
Managing Editor Karen Schmidt