



National Aeronautics and Space Administration

Lyndon B. Johnson Space Center  
Houston, Texas

## Second time around

The United States Microgravity Laboratory returns to space for another round of experiments. Story on Page 3.



## Welcome home

A crowd greeted the STS-69 astronauts upon their return to Ellington Field this week. Photo on Page 4.

# Space News Roundup

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## Marathon mission lifts off Thursday

STS-73 astronauts and flight controllers said Wednesday they are ready to begin a marathon microgravity mission aboard *Columbia* on Thursday, and shuttle managers gave a clean bill of health to recalculated solid booster joints.

The 16-day microgravity research flight aboard *Columbia* is designed to increase scientific understanding of basic physical processes on Earth and in space, as well as prepare for more advanced operations aboard the International Space Station. The launch window opens at 8:35 a.m. JSC time Thursday and extends for 2 1/2 hours.

Commander Ken Bowersox, Pilot Kent Rominger, Mission Specialists Kathy Thornton, Cady Coleman and Michael Lopez-Alegria and Payload Specialists Fred Leslie and Albert Sacco completed the terminal countdown demonstration test last week and are expected to leave JSC for Kennedy Space Center on Monday.

The seven crew members will work around-the-clock

in two teams to conduct scientific and technological investigations in microgravity. The Red Team will include Bowersox, Rominger, Thornton and Sacco. The Blue Team will consist of Coleman, Lopez-Alegria and Leslie.

Shuttle Program Manager Tommy Holloway reported Monday that post-launch inspections found no evidence of hot gas penetration to the O-ring seals of the solid rocket motors that boosted *Endeavour* into orbit. Rubber insulation protecting those seals was removed and replaced at the launch pad on the SRMs attached to both *Endeavour* and *Columbia*.

"The bottom line is we had very successful operations repairing the joints and it worked as we expected," Holloway said.

As an added highlight of STS-73, students at four sites across the country will interact with *Columbia's* astronauts to discuss and compare onboard microgravity experiments with similar ground-based experiments.

Please see **ASTRONAUTS**, Page 4



NASA Photo

STS-71 crew members and alternates conduct training exercises in the Spacelab that will be used during the USML2 mission. From left are Mission Specialist Kathy Thornton, Payload Specialist Albert Sacco, Alternate Payload Specialist R. Glynn Holt, Payload Specialist Fred Leslie, Alternate Payload Specialist Dave Matthiesen and Mission Specialist Cady Coleman.

## Emergency numbers are a critical link

By Bob Gaffney

The use of the JSC emergency phone number helps emergency responders act quickly and may delay response to a scene.

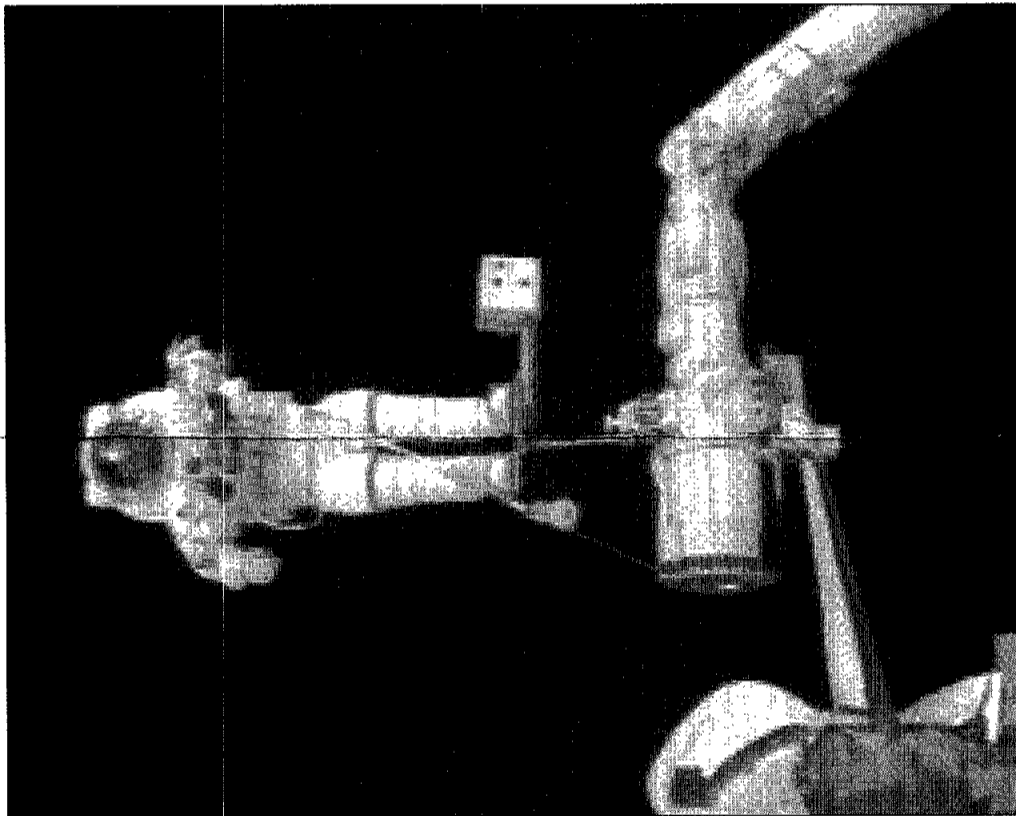
Emergencies can happen at any time or place. A 911 call connects individuals with a regional dispatcher who can provide police, fire and rescue or medical response in nine minutes or less, anywhere in Harris or Galveston Counties.

At JSC, dialing 33333, or 47231 at Ellington Field, will summon on site professional emergency responders in three minutes or less. Calls made to 911 are referred to JSC's Emergency Operations Center where emergency calls are monitored. So using the on site dedicated number for emergencies can save time.

In the early years of JSC, a decision was made to provide dedicated response on site and at Ellington Field because of the high population density during normal duty hours and because airfield operations have an inherent hazard potential. Although aircraft operations safety programs are among the most successful within NASA as well as throughout the aerospace industry, when an accident does occur, it tends to be a magnitude greater than routine emergencies.

The 33333 number is a special number, a communications link, that says people have a serious emergency. An emergency is a serious situation when a security officer, fire fighter or an ambulance is needed.

Please see **PHONE**, Page 4



NASA Photo

Mission Specialist Jim Voss attached to *Endeavour's* mechanical arm test tools and techniques that may be used on the International Space Station.

## Life Science Project Division transfers

As a result of continued efforts to consolidate and streamline JSC functions and processes, engineering functions in the Space and Life Sciences Directorate's Life Science Project Division were transferred this week to the Engineering Directorate.

Acting JSC Director George Abbey said the division's responsibilities for science principal investigator management and experiment requirements development will remain within Space and Life Sciences.

Managers for Space and Life Sciences and Engineering are developing a joint plan to

ensure an efficient transition of responsibilities, Abbey said. Specific personnel assignments will be determined as part of the transition and announced as soon as possible.

Due to the criticality of the functions of the Life Science Project Division, the division will remain intact until the transition is complete. The division chief will continue to report to Acting Space and Life Sciences Director John Rummel on matters relating to science principal investigator management and experiments requirements development until final reorganization details are completed.

## Space walk validates tools, suits for station

*Endeavour* returned to Kennedy Space Center early Monday, completing the first mission ever to deploy and retrieve two satellites by returning the first ultravacuum-grown thin films and new data about the Sun's corona and the solar wind.

Commander Dave Walker glided *Endeavour* to a flawless landing at 6:38 a.m. CDT, wrapping up a 10 day, 20 hour and 28 minute flight that covered 4.5 million miles.

The crew—Walker, Pilot Ken Cockrell and Mission Specialists Jim Voss, Jim Newman and Mike Gernhardt—deployed and retrieved both the Spartan-201 and the University of Houston-designed Wake Shield Facility.

On Saturday, Gernhardt and Voss validated space suit improvements, tools and techniques that may be used to assemble the space station.

The 6 hour, 46 minute space walk, which began at 3:20 a.m., had Gernhardt and Voss each spending 45 minutes on the end of *Endeavour's* mechanical arm as Jim Newman maneuvered them away from the radiated warmth of the payload bay. With the shuttle's payload bay pointed away from the Sun, the space walkers were exposed to temperatures as low as minus 120 degrees Fahrenheit during the "cold soak" evaluation.

"I would characterize the EVA as a glowing success," said Jim Thornton, team lead for the Space Station Program Office EVA project. "The EVA validates a number of EVA hardware design concepts that are being used for ISS. With a few minor unimportant exceptions, all the hardware and tasks were rated as doable by crew members, and thermal modifications to the EMU seemed to be 100 percent successful."

Voss and Gernhardt continually provided subjective ratings on their comfort levels to flight controllers on the ground while temperature sensors mounted on the robot arm and in the payload bay provided quantitative

Please see **SPACESUIT**, Page 4



## Danger of worker furlough dropping

JSC continues to make contingency plans, in case

Although Congressional leaders are now discussing a continuing resolution that could eliminate the need for a government shutdown, NASA and JSC are continuing to plan for the possibility of a furlough.

JSC's Human Resources Office is developing lists of emergency employees who would work during furlough based on two scenarios. These lists have been sent to NASA Headquarters, compiled in a report, and forwarded to the Office of Management and Budget. The agency identified 1,573 emergency positions, or 7.4 percent of the workforce.

First, if the center were to shut down completely, five positions would be needed to perform critical

to the safety of human life and protection of property.

Second, if the STS-73 mission flies as scheduled, 208 positions would be required to address the above concerns and support the flight.

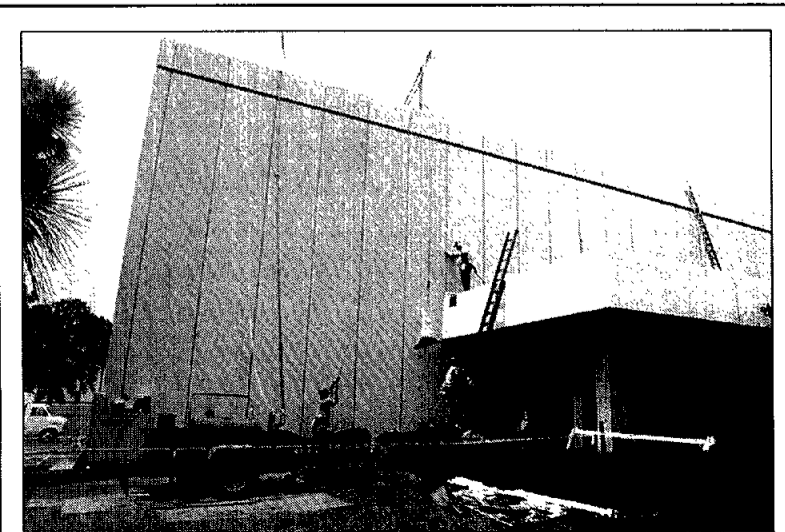
A third list of emergency positions is being developed based on a scenario of continuing to meet the shuttle manifest.

If a furlough seems likely to occur, emergency employees who will be required to work during the furlough will be notified. These employees will be paid, but will not receive paychecks until after the furlough has ended.

A communication framework has been established to handle unexpected

emergencies during a furlough (examples of this could include the presence of a hurricane in the Gulf of Mexico, or the failure of a major computer system requiring immediate repair). An on-site duty officer will have a list of names and pager numbers of "on-call" duty officers for each organization (generally top-level managers), who in turn have similar lists of contacts internal to their own organizations. Employees who are "on call" will be required to carry electronic pagers and remain within the Houston area to be able to respond quickly in an emergency.

After a period of low activity, calls to the Human Resources hotline are



JSC Photo by Andrew Patnesky

Workers transfer supplies via rope to the roof of Teague Auditorium. Repairs to the roof have been ongoing for several weeks.

Please see **EMPLOYEE**, 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.

**University of Houston vs. Baylor football:** Oct. 14, Astrodome, \$8.

**University of Houston vs. University of Texas football:** Nov. 11, Astrodome, \$15.50.

**Sea World:** Tickets cost \$23.50 for adults and \$16.25 for children 3-11.

**Splashtown:** Tickets cost \$11.05.

**Space Center Houston:** Discount tickets, adult, \$8.75; child (3-11), \$7.10.

**Metro tickets:** Passes, books and single tickets available.

**Movie discounts:** General Cinema, \$4.75; AMC Theater, \$4; Sony Loew's Theater, \$4.75.

**Stamps:** Book of 20, \$6.40.

**JSC history:** *Suddenly, Tomorrow Came: A History of the Johnson Space Center.* Cost is \$11.

JSC

## Gilruth Center News

**Sign up policy:** All classes and athletic activities are first come, first served. Sign up in person at the Gilruth Center and show a NASA badge or yellow EAA dependent badge. Classes tend to fill up two weeks in advance. Payment must be made in full, in exact change or by check, at the time of registration. No registration will be taken by telephone. For more information, call x30304.

**EAA badges:** Dependents and spouses may apply for photo identification badges from 7 a.m.-9 p.m. Monday-Friday; and 8 a.m.-4 p.m. Saturdays. Dependents must be between 16 and 23 years old.

**Women's self defense:** Martial Arts training for women only from 5-6 p.m. Tuesdays and Wednesdays. Cost is \$25 a month.

**Weight safety:** Required course for employees wishing to use the weight room is offered from 8-9:30 p.m. Sept. 28. Pre-registration is required. Cost is \$5.

**Exercise:** Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays.

**Aerobics:** High/low impact class meets from 5:15-6:15 p.m. Tuesdays and Thursdays. Cost is \$32.

**Aikido:** Martial arts class meets from 5-7 p.m. Tuesdays and Wednesdays. Cost is \$25 per month. New classes begin the first of each month.

**Ballroom dancing:** Cost is \$60 per couple. For additional information call the Gilruth Center at x33345.

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

JSC

## Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site-contractor employees. Each ad must be submitted on a separate full sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Ads may be run only once. Send ads to Roundup Swap Shop, Code AP2, or deliver them to the deposit box outside Rm. 181 in Bldg 2. No phone or fax ads accepted.

### Property

Sale: Clear Lake Forest, 4-2-5-2, glass walled den w/high ceiling, FPL, formals, family room, new roof & paint/carpet/paper. 326-2307.

Sale: Holly House town house, near Texas Medical Center, 2-2-5-2, 1648 sq ft, security guard + alarm sys, avail immed. Jack Cohen, 488-3171.

Sale/Lease: Condo "The Cloister", 2-2, 2 car parking, FPL, W/D. 339-0904.

Sale: League City, 3 BDR house, 3 acres, barn, pool, lots of trees, close to NASA, \$150k. 554-6138. Lease: South Belt/145, 4-2-2, 1900 sq ft, fenced, formals, lg den, no indoor pets, \$795/mo. x38037 or 331-1136.

Sale/Lease: Baywind II, 2-2-5, split level, W/D, refrig w/ice maker, FPL, corner unit, \$39.9k/\$625/mo + dep. Sue. 282-3950 or 339-3464.

Sale: Land 22 mi west of Llano, Tx, 165 acres, \$1.1k per acre, hunting, farmland, & mineral rights, yr round creek on property. Merrell, x37570 or 286-9123.

Sale: Townhome near Galleria inside Loop, 2-2-5-2, ex cond, all appliances. 498-7343.

Sale: Cancun/Cozumel vacation club packages, 1 ea, pd \$6.4k ea make offer. John, x32169.

Rent: Arkansas Cottage on Blue Mountain Lake, huge stone FPL, screened porch, \$250/wkly or \$50/dly. x33005 or 334-7531.

Rent: Beach house, Crystal Beach, Galveston Co, lg deck, 4-2, sleeps 12, \$225/wknd, \$400 wkly. x32805 or 409-684-4419.

Rent: Galveston condo, furn, sleeps 6, Seawall Blvd & 61st ST, cable TV, swimming pools, wknd/wkly/dly rates. Magdi Yassa, 333-4760 or 486-0788.

### Cars & Trucks

'91 Geo Metro, 4 dr, 40k mi, new tires, ex cond, super economy car, \$3.8k. Rich, x47257 or 996-7630.

'88 Jeep Wrangler, 83k mi, 6 cyl, 5 spd, A/C, new soft top, ex cond, \$7.5k. 334-7143.

'66 Mustang, 289, 4 spd, dual exhaust, good cond, \$3.5k. 331-9255.

'89 VW Jetta GL, Wolfsburg Ed, blue. 56k mi, 1 owner, ex cond, \$5.2k. Tom, x33651 or 280-8084.

'74 VW Thing, white, new engine/battery, good tires, \$2.5k obo. Dick, 335-6842 or 286-4444.

'79 Buick LaSalle, good work car, \$800. 482-5621.

'80 Mercedes 300SD, turbo diesel, auto, A/C, loaded, ex cond, \$5,795 obo. 983-7660.

'86 Jeep Cherokee Laredo, 4 WD, 5 spd, A/C, white/tan, very clean, 1 owner, \$5.4k. x48541 or 538-

3444.

'92 Suzuki Samurai, 2x4, low mi, ex cond, soft top & bikini top included, \$5.5 obo. 280-5816 or 426-4799.

'81 Mercedes 240 Diesel, 4 dr sedan, 4 spd, 4 cyl, \$3k firm. x30012 or 333-4174.

'68 Jaguar XKE 2+2, 4 spd, 4.2 liter eng, A/C, red/tan, totally restored, \$17k. Ray, 244-4764.

'84 Nissan 300 Zx, blue, 5 spd, A/C, AM/FM, new timing belt/clutch/tires, T-tops, 130k mi. 486-1750.

'90 Geo Prism auto, pwr, A/C, cruise, sunroof, \$3,995 obo. 488-5445.

'85 Camaro body, 4:11 rear, race setup, \$300. Tony, 946-9090.

'87 Toyota Van LE, dark blue, 85k mi, dual A/C, pwr, cruise, dual sunroof, capt chairs, AM/FM, ex cond, \$3.9k. Allyson, x39318 or 486-4663.

'88 Dodge Aries wagon, 2.2L, 5 spd, TBI, PS/PB, rear wiper & defrost, cruise, new clutch/A/C evap/waterpump, 7.9k mi, \$3k obo. 280-0437.

'94 Eclipse, green 5 spd, sunroof, 6 spkr stereo, ex cond, 23k mi, \$11.5k. x30197 or 482-2068.

'92 Dodge Grand Caravan, V6, 1 owner, many options, dual A/C, 47k mi, ex cond, \$12.9k. 488-5019.

'86 460 Sel Mercedes, 74k mi, ex cond, \$16,999. 337-6090.

'94 Pace Arrow motorhome, 8.5k mi, 34', Chevy 454, ex cond; '87 Ford escort equipped for towing, 49k mi, new tires, package \$65k. 282-0317.

### Cycles

'82 Honda 750F w/Faring, 1.9k mi, \$1.5k. 486-1984 or 480-5056.

'87 Yamaha FJ 1200, ex cond, new tires, \$3.2k. 282-9148.

### Boats & Planes

'87 Beneteau sailing sloop, 23.5', equipped for racing, 2 jibs, 2 spinnakers, 9.9 Hp Johnson OB, VHF radio, elect depthfinder, auto tiller, Loran, safety equip, sleeps 4, head, sink, alcohol stove, \$14.5k. Ken, x31496.

'88 Thundercraft, 17' bowrider, 130 Hp Mercruiser, galvanized trailer, skies & jackets, \$4.5k. x47385 or 484-6462.

Center console cruiser, 19', self-bailing, '87 Evinrude 140 Hp oil-injected motor, pwr trim & tilt, sportsman trailer, 1 owner, \$2.6k. 326-4856.

Stainless steel propellers for Johnson/Evinrude outboards, \$100/ea. 282-9148.

### Audiovisual & Computers

NEC computer, 286 w/NEC EGA monitor, 40 Mb HD, 5.75 FD, internal modem, S/W & games, \$200 obo. x37066 or 286-4255.

Mac Pro Plus Extended Macintosh keyboard, \$100; several 44 Mb cartridges, \$25 ea; Focus Ether LAN SC.SI to Ethernet Macintosh adapter, \$100. 480-3424. Compaq Notebook, LTE Lite/2SE, 25 MHz, 386 SL, E4 Mb, 4 Mb RAM, converter/changer, fax, S/W, \$895 obo. 771-0955.

KLH Prologic speakers, set of 3, \$75; Fisher stereo speakers, full sized, \$90/pr; Fisher AM/FM stereo

JSC

## Dates & Data

### Today

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

### Monday

**Cafeteria menu:** Special: meat sauce and spaghetti. Total Health: potato baked chicken breast. Entrees: wieners and beans, sweet and sour pork chop, potato baked chicken, steamed fish, French dip sandwich. Soup: cream of broccoli. Vegetables: French cut green beans, seasoned rice, California vegetables, buttered beans.

### Tuesday

**Space medicine seminar:** NASA and the University of Texas Medical Branch, Galveston, will present a Space Medicine Grand Rounds seminar at 8:30 a.m. Sept. 26 at the Shriner's Hospital Auditorium at UTMB Galveston. JSC Flight Surgeon Thomas Marshburn, M.D., will discuss "Space Motion Sickness: Problem Solved?" and Terry Pattinson, M.D., will discuss "The Effects of Betaxolol Ophthalmic Solution on Intraocular Pressures During Parabolic Flight." For more information, call Kay Nute at 244-2019.

**Photo club meets:** The Bay Area Photo Club will meet at 7:30 p.m. Sept. 26 at the Faith Covenant Church. For more information call Kelly Prendergast at x37655.

**Cafeteria menu:** Special: smothered steak with dressing. Total Health: baked potato. Entrees: beef stew, liver and onions, shrimp Creole, baked chicken, fried cod fish, French dip sandwich. Soup: navy bean. Vegetables: steamed rice, seasoned cabbage, corn O'Brien, peas.

### Wednesday

**Halloween dance:** Tickets for the JSC Employee Activities Association Halloween dinner/dance will go on

sale at 10 a.m. Sept. 27, in the Bldg 11 Exchange Store for \$15 each. The event will begin at 7:30 p.m. Oct. 28 at the Gilruth Center. For additional information contact Mavis K. Ilkenhans, 244-9644.

**Cafeteria menu:** Special: salmon croquette. Total Health: baked potato. Entrees: roast pork, stir frybaked perch, steamed fish, vegetable lasagna, Reuben sandwich. Soup: seafood gumbo. Vegetables: mustard greens, okra and tomatoes, vegetable sticks, lima beans.

### Thursday

**NMA meets:** The JSC chapter of the National Management Association will meet at 5 p.m. Sept. 28 at the Gilruth Center. JSC Comptroller Wayne Draper will be the spotlight speaker, and JSC Human Resources Director Harv Hartman will be the featured speaker. Guest tickets are \$9. For information, contact Kathleen Kaminski at 483-8706.

**Radio club meets:** The JSC Amateur Radio Club will meet at noon Sept. 28 in Bldg. 16 Rm. 253. For more information call Larry Dietrich at x39198.

**NASACOM meets:** The NASA Commodore's User's Group will meet at 7:30 p.m. Sept. 28 at the Clear Lake Park Bldg. For more information call Glenda Souliere at x31764.

**Blood drive:** Barrios will host a blood drive from 8-11 a.m. Sept. 28 at 1331 Gemini. For more information, call Tom Hanson at x47473.

**Cafeteria menu:** Special: stuffed cabbage rolls. Total Health: baked potato. Entrees: beef tacos, ham and lima beans, pork and beef egg rolls, steamed fish, catfish, French dip sandwich. Soup: beef and barley. Vegetables: Brussels sprouts, green beans, buttered squash, pinto beans.

### Friday

**Cafeteria menu:** Special: baked chicken. Total Health: roast beef au jus. Entrees: deviled crab, baked chicken, beef cannelloni, steamed

pollock, Reuben sandwich. Soup: seafood gumbo. Vegetables: seasoned carrots, peas, breaded okra, steamed cauliflower.

### Saturday

**SHPE meets:** The Society of Professional Engineers—Texas Bay Area Chapter will host a 5K Fun Run/Walk at Nassau Bay at 8 a.m. Sept. 30. There also will be a 1K kids' run. Entry fees are \$12 and \$9 respectively before Sept. 23 and \$15 and \$12 thereafter. Proceeds benefit the SHPE-TBAC Scholarship Fund. For information call 587-6824 or Rafael Munoz x38359.

### Oct. 3

**STS-69 presentation:** The crew of STS-69 will share its experiences with employees from 2-4 p.m. Oct. 3 in Teague Auditorium. Commander Dave Walker, Pilot Ken Cockrell, and Mission Specialists Mike Garnhardt, Jim Newman and Jim Voss will discuss highlights from their mission, including the space walk and the deployment and retrieval of two scientific spacecraft. Immediately prior to the briefing, the crew's accomplishments will be recognized by the presentation of the NASA Space flight Medals.

**ABWA meet:** The Clear Lake Area Chapter of the American Business Women's Association will meet at 5:30 p.m. Oct. 3 at Space Center Houston's Silver Moon Cafe. For more information call Nancy Hutchins at x34006.

### Oct. 4

**Infertility seminar:** The JSC Clinic will present a Total Health Program infertility seminar from 7-9 p.m. Oct. 4 in Rm. 216 of the Gilruth Center. Vicki Schnell, M.D., a gynecologist, infertility specialist and endocrinologist, will discuss the causes, medical evaluation and treatment for infertility. Emotional issues also will be addressed. The seminar is free to JSC civil service and contractor employees. To sign up, call x37783.

receiver, \$35. Bobby, x42444 or 488-4382.

Peavey C5800 power amplifier, 400 watts/channel, bi amplifying capabilities, \$450 obo. James, x33571 or 337-5583.

Brother electronic typewriter, 15k memory, 40-character display, ex cond, \$150. Jerry, x48045 or 334-5042.

### Musical Instruments

Peavey Predictor AX, electric guitar, blue, \$275. Greg, 554-6200 or 554-7769.

G&L Asat Classic Telecaster guitar & hardshell case, \$950; Crate practice amp, \$80. Brad, x37653 or 488-4989.

### Photography

Pentax IQ Zoom 105R Point & Shoot camera w/38-105 mm lens, 1 yr warr, \$200. x38459 or 538-3631.

### Pets & Livestock

Free 9 mo puppy, Golden Retriever mix, all shots, neutered male. 280-0973 or 244-7294.

Free young black male cat, fully equipped. x38624 or 475-9671.

### Household

GE Spacemaker, microwave oven, brown, under cabinet mounted, 30"x14.75"x13", 1.35kw, temp probe, touch controls, ex cond, \$125. 339-0904.

G.E. electronic, 27", copper-tone built-in wall mount oven, works great, \$50. Linda, 484-0987.

Large Teak wall unit, \$200 obo; Ivory leather sofa, \$200 obo. 333-6868 or 485-8016.

Kg sz black lacquer waterbed w/lighted cabinet hdbd, reduced motion, black dresser w/round mirror, \$600. Connie, x31349 or 286-9302.

Sofa, love seat, dinette set, bunk beds, all household items, ex cond. 867-8820.

Wooden daybed waterbed, super single w/heater, full motion, set of sheets, \$100 obo; qn sz waterbed, full motion, white hdbd w/shelves, \$100 obo; sm pine desk w/4 drws, \$25. Brenda/Dennis, 409-925-4558.

King size Ponderosa pine waterbed, hdbd w/mirrors, lights & drws, high profile pedestal, free flow mattress & heater, ex cond, \$550 obo. Brian, 333-6059.

Oversized sofa, chair & ottoman, brown plaid, very good cond, \$250. 488-3984.

GE microwave, 6 cu ft oven interior, removable turn table, \$60. 488-7354.

Love seat, brown velour print, good cond, large size, \$75. 244-0250.

Sofa, chair & ottoman, Ex cond, \$200; microwave cart, \$15. x32603 or 470-7865.

Westinghouse, refrigerator, 22 cu ft, side-by-side w/water & ice on door, ex cond, \$550. Ray, x53954 or 665-8808.

Formal dining table w/4 chairs, \$250; China cabinet, \$250; steam iron & ironing board, \$20; metal patio table w/4 chairs, \$25; clothes hamper, \$5; Eureka self-propelled upright vacuum, \$65; Kenmore zigzag sewing machine & cabinet, \$75. 922-7545.

Maytag electric washer/dryer, works fine, \$150;

Mont. Ward combo, \$50. Ray, x53954 or 665-8808.

### Wanted

Want roommate, nonsmoker to share 3-2.5 townhome, Clear Lake area, cable, W/D, household privileges, bills paid, \$300/mo. John, x30543 or 286-7384.

Want roommate, 4-1, pool, jacuzzi, \$275/mo + 1/3 util. Ken, x31496.

Want roommate, house in Clear Lake, 3-2-2, smoker welcome, \$350 + 1/2 utilities. Susan, 486-7065.

Want someone to Time Share on 21' sailboat/racing sloop, 5 Hp Nissan motor, use of marina facilities, experienced sailor, \$118/mo. x37187 or 488-0323.

Want personnel to join VPSI vanpool departing Meyerland Park & Ride at 7:05 am for JSC. Van pool consist of on-site personnel working 8 am/4:30 pm shift. Don Pipkins, x35346.

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

Want to share ride occasionally from Santa Fe to Building 17 area. x40250 or 925-7839.

Want carpooler from Bear Creek area, I-10/Hwy 290 to Clear Lake JSC area, hours 7:00 am - 4:00 pm. Racquet, x34167 or Bob, x35207.

Want any Apollo era sticker, decal or patch w/Snoopy on it. Tom, x38032.

Want low priced pickup, prefer Toyota, Nissan or Mazda, also school/work car. 271-7011.

Want STS-69 payload & experiment cloth patches & decals, Wake Shield, Spartan-201, IEH-1, UVSTAR, SEH, GLO, CAPL-2. Andrew, x34312 or 280-0647.

Want Macintosh computer must be in good working condition, \$400 or less. 326-2307.

Want K&E slide rule, any condition. 332-2229.

### Miscellaneous

Daisy Kingdom nursery set, ex cond, \$220; Gerry Snuggly front/sling baby carrier, \$20; quality boys clothing, 12-18 mos, Gymboree, ex sm, Oshkosh & others. 488-3314.

Country music CD's over 75 latest & best, ex cond, \$6 ea; gas BBQ grill, \$45; Seiko Quartz Chronograph watch w/alarm/stop watch, \$35; Sony AM/FM cass Jambox, sport style yellow w/carrying strap, \$55. Bobby, 244-2444 or 488-4382.

Tropical plants, 5' tall rubber plant, \$40; 5' tall vine, \$40; 15' tall Pony Tail Palm, \$500; misc other plants in permanent pots, \$5 up. Bob, x33149.

Hawes Western Marshal 357 Mag revolver, \$175. Charles, x37678 or 661-4789.

Self propelled mower, \$30; Cathedral bridal rose china; Norman Rockwell plates. x31883.

Air Gometer exercise bike, ex cond, \$40. 484-7402. "New Home" Memory Craft 8000 sewing machine w/extra accessories, ex cond, \$2.3k. 332-2229.

Sears 3Hp radial arm saw & accessories, \$350. Phil, 212-1339 or 337-6614.

Gold-leaf framed mirror, ex cond, 36"x27", \$85; coffee table, thick oval glass, 59L x 29.5W mounted over pair hand-painted oriental table, \$350. 488-5564.

Pair of Victorian pictures, 21" diam, antique hand

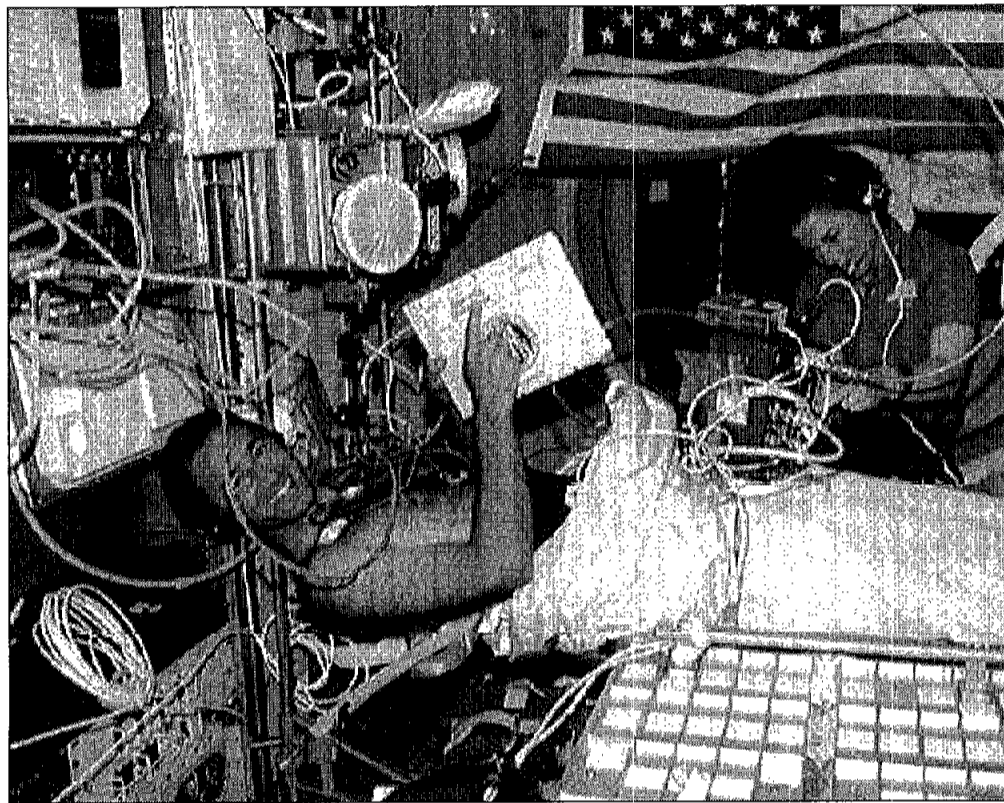
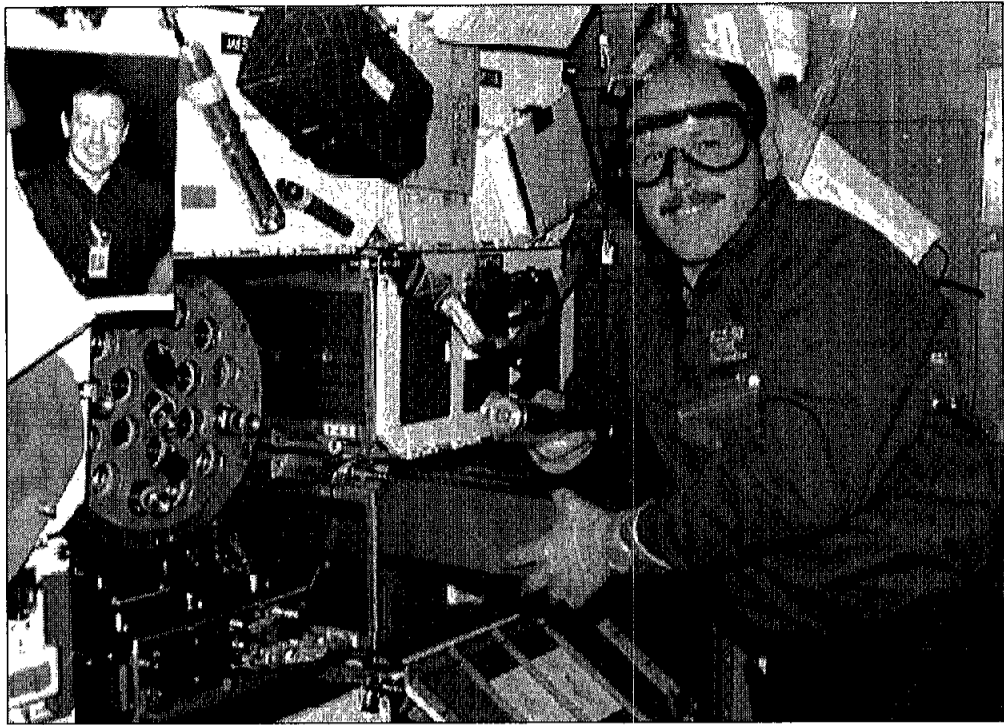
painted pictures, \$150/both; love seat, 2 cushion, \$250; 4 story doll house, completely furnished, 26"Wx31.5"H, \$100; antique washstand, 3 drawer, \$350. 488-5564.

Shopsmith multipurpose woodworking system w/jointer & lathe duplicator functions as a 10" table saw, 12" disk sander, 5" drill press & 34" lathe, new \$2.8k sell \$1.2k obo. 332-6170.

'93 GT Vertigo free style bicycle, chromoly frame, new Pitbull brakes/brake levers/cables & King axle pegs, ex cond, \$150. Joe, 554-5156.

Golf clubs, left hand, 3-PW & Driver, Cavity Back Irons, \$125. Richard, x39149 or 482-6127.</

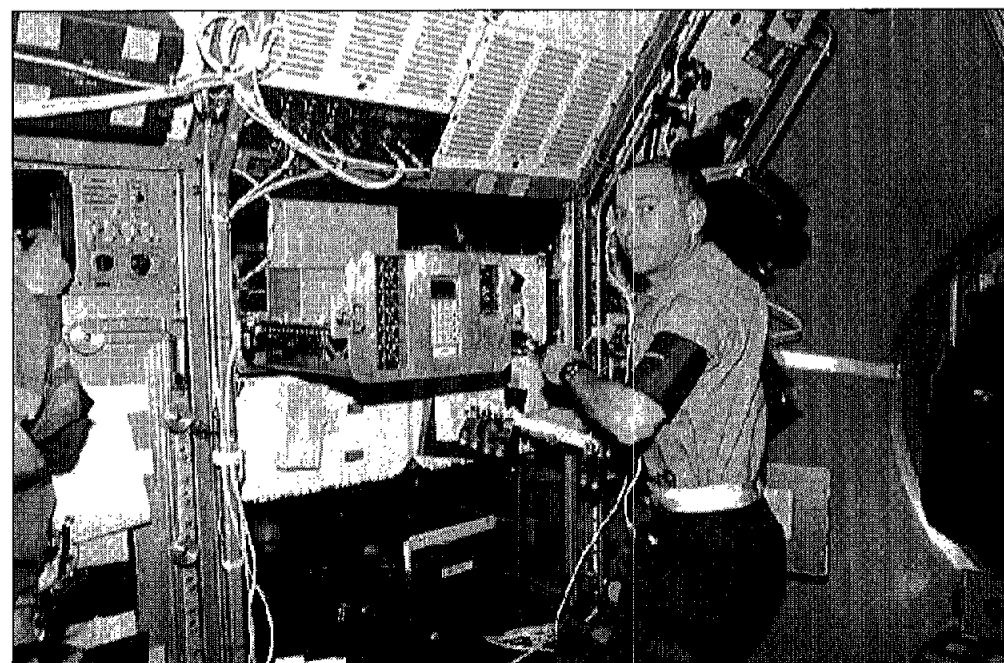




Top to bottom: 1) STS-50 Pilot Ken Bowersox in the mid deck with the stowage lockermounted Zeolite Crystal Growth experiment. 2) STS-50 Mission Specialist Bonnie Dunbar and Payload Specialist Lawrence DeLucas work in the Spacelab with the Lower Body Negative Pressure Study. DeLucas is encased in the suit and Dunbar is administering and overseeing the procedure. 3) An internal camera detail view shows the Spacelab Surface Tension Driven Convection Experiment wick and wetting process; and 4) Mission Specialist Carl Meade in the Spacelab at the Generic Bioprocessing Apparatus switching out the sample incubators.



NASA Photos



# Foundation Follow-up

## Second U.S. Microgravity Lab expands on research of predecessor mission

The second United States Microgravity Laboratory Spacelab mission will build on the foundation of its predecessor, providing new insights into theoretical models of fluid physics, the role of gravity in combustion and flame spreading, and how gravity affects the formation of semiconductor crystals.

"What we are doing on this mission, STS-73, is somewhat less visual and exciting to people on the ground," said Payload Commander Kathy Thornton. "But we are continuing the same sort of mission. We're doing experiments in space, to learn about fundamental properties of matter, in the environment we are in up there."

USML-1, which flew aboard *Columbia* in 1992, was the first flight for four major experiment facilities—the Drop Physics Module, the Surface Tension Driven Convection Experiment apparatus, the Crystal Growth Furnace and the Glovebox—which promise to provide a valuable technology base for future flights. A major objective of the USML program is to develop more capable instruments to support and refine mature space-based experimentation for the future.

"On USML-1, in my opinion everything was done right," said Commander Ken Bowersox, who was the pilot on STS-50. "I'm just trying to carry some of the things there so that we can do them again on USML-2. There aren't a lot of changes that I needed to see through from that first flight."

Technical knowledge gained has been incorporated into the USML-2 mission plan to enhance procedures and operations. Where possible, experiment teams have refined their hardware to increase scientific understanding of basic physical processes on Earth and in space, as well as to prepare for more advanced operations aboard the International Space Station and other future space programs.

"I don't think of USML-2 as just a repeat of USML-1, I look at it as complementary," said Payload Specialist Fred Leslie. "Typically (science is) not done with a single decisive experiment, that solves the major problem. More realistically it's a series of experiments where each one gives us a piece of the puzzle and so by doing these over and over—that is using the hardware over and over, not the same experiments—we can put the pieces together and help understand the phenomena."

Research during the mission is concentrated within the same overall areas as the first USML flight. Reflow experiments will follow-up on results from that mission, probing for answers to the next level of scientific questions.

Fluid physics research with the Drop Physics Module, the Surface Tension Driven Convection Experiment and the Gravitational Fluid Flow Cell will seek to improve understanding of fluid behavior and to apply that understanding to processes of scientific and technical importance. Fluid physics is fundamental to many types of science, from the ways molten metals solidify and fuels burn, to the way planetary atmospheres operate. In space, subtle and complex phenomena normally hidden by the stronger force of gravity can be revealed for detailed study.

"Probably the ones people first will realize benefits from are the protein crystal growth and Zeolite crystal growth experiments," Thornton said. "The others for the most part are studying basic science."

Materials science research in those two experiments will increase insight into the relationships between the structure, processing and properties of materials. Mixtures that separate on Earth because of different component densities can be evenly mixed and processed in microgravity.

"We have about 20 different experiments on this mission," said Mission Specialist Cady

Coleman. "The way I look at this mission, we are basically a predecessor to space station. Until they build the big laboratory up in the sky, 16 days is as good as it gets and we are going to be able to do a lot of really interesting science, we are growing crystals that take a long time to grow. Four or five days isn't enough but 16 days, I think we will be able to get some good results."

Biotechnology research on USML-2 will grow protein crystals in three different experiment facilities, attempting to produce crystals of sufficient size and perfection that scientists can determine their structure and how they form. This approach is being pursued because of the promise it holds for the development of improved drugs. Two other biotechnology experiments address the development of food crops.

Combustion science, a study of how the basic combustion process is affected by gravity, will be represented by one of seven technology investigations within the versatile Glovebox enclosure. Understanding the way a fire starts and spreads without the interference of gravity could lead to more efficient fuels and improved fire safety, both in space and on Earth.

Three sets of sensors will help scientists evaluate the quality of the microgravity environment, identifying factors which may disturb sensitive experiments.

Several USML-2 experiments will look at how the presence or absence of gravity affects living organisms. This will aid long-term space efforts and also provide a better understanding of life on Earth.

Commercial space processing technologies will again be demonstrated with the Commercial Generic Bioprocessing Apparatus, giving a large number of university and industry researchers access to space. Techniques for plant cultivation in microgravity will be further advanced in the Astroculture facility.

Several investigators will be able to view live video of their experiments at the same time, thanks to the new six-channel Hi-Pac video downlink system which will be making its first flight on USML-2.

"I guess my biggest concern is doing the science for the people I know who have invested 20 or 30 years," said Payload Specialist Albert Sacco. "This is not just 16 days to them, this is a culmination or at least an important weigh station on their careers, where they have spent 10, 15, sometimes 20 years developing their background and sometimes necessary to develop the experiments that I am going to be performing. I am their hands, eyes, their ears, and their legs in some cases, it's extremely important."

USML-2 experiment racks will be housed in a 23-foot Spacelab module inside the cargo bay. The laboratory module is pressurized so researchers can work in their shirtsleeves instead of bulky space suits, and it is furnished with much of the same equipment that they would use in their labs back home. USML-2 flight controllers and scientists will direct payload activities from Spacelab Mission Operations Control at Marshall Space Flight Center.

"As we build the space station, we're working very hard to lower costs and streamline our organizations but we have to have a vibrant dynamic science capability when we get to the space station or it's going to take us a few years after the station is built to develop that capability," Coleman said. "STS-73 helps to accomplish this."

"What I'd really like in my wildest dreams is that unexpected, that unknown, that exciting potential discovery out there, happens on USML-2," Bowersox said. "Science is a lot of luck and a lot of hard work. We know we are going to do the hard work on USML-2, but what I would I hope in my dreams is that we are going to have that luck and something exciting, something fantastic is going to come out of this mission." □



# Daily Cyber Space Roundup debuts on Internet

Monday marked the first issue of The Daily Cyber Space Roundup, available on the World Wide Web segment of the Internet for all NASA employees.

The location of the Cyber Space Roundup — and archives of the Daily Space Fax Roundup dating back to January — is: <http://www.jsc.nasa.gov/pao/roundup/>

The advent of the new format for the daily

news sheet is expected to improve distribution, that previously was effected through faxes and an automated printing routine to a number of printers around JSC. Difficulties in maintaining the distribution system and a need to conserve increasingly expensive paper led to the decision to move the daily news sheet to the Internet. In addition, the new format is expected to boost accessibility

for off-site contractor employees.

Currently, accessing the Cyber Space Roundup requires the configuration of a "helper" application on each computer's World Wide Web browser (e.g.: Mosaic). Users with more powerful computers may choose to configure Microsoft Word 6.0 as the helper application, but users with less powerful computers probably will need to

download from Microsoft a copy of the Word 6.0 Viewer, which is a smaller subset of the Word program requiring less memory to operate. A link to the Viewer will be available on the Cyber Space Roundup page.

Developers intend to add a standard HTML version of the paper, without photos, in the near future. Monday was the final day for paper distribution of the Space Fax Roundup.

## Child Care Center needs volunteers

The JSC Child Care Center is seeking special volunteers who would like to earn college credit hours by providing one-on-one care for children with special needs.

The center is looking for volunteers to help teach these children one-on-one, daily or every other day, skills such as self-dressing, self-feeding, learning better speech, and playing safely on playground equipment and to ensure full inclusion in art work and other small group activities.

The volunteer will be provided training. Duty hours can be arranged for the convenience of the volunteer. College credit hours may be obtainable for students in child development or social work fields.

The center always has been very supportive of its families and is now taking yet another step to ensure that all children are served according to their needs. For a very small group of children at the center who have special needs, this can mean the difference between learning to overcome their challenges or falling behind in their development.

The center is regularly visited by CCISD teachers and Early Childhood Intervention therapists for a one-year old, and school buses take two of the three-year olds to school for a few hours a day to participate in a special education program. The child care center staff also participate in other special training to help these special children.

They still need more help. Often, certain activities that the caregivers do with the kids are difficult for the special kids to understand and keep up, especially if they are visually impaired.

Other skills that children naturally develop, special children need extra help learning. Lots of one-on-one special instruction is needed to help these children understand their world and what they can do in it.

For more information call Fran Brockington at x34734 or Alison Rickerl at x30371.



**Above: Mission Specialist Jim Voss signs autographs for several youngsters upon his return to Ellington Field from the Kennedy Space Center after the STS-69 mission. Right: Commander Dave Walker, left, and Acting JSC Director George Abbey discuss the success of the 10 day mission during welcome home ceremonies.**

JSC Photo by Robert Markowitz



## Spacesuit improvements pass cold temperature tests

(Continued from Page 1)

data that will be correlated with their evaluations. Suit improvements included thermal socks, insulated boots, heaters in the glove fingers and an ability to shut off the flow of cooling water in frigid conditions.

"Couldn't be more comfortable," first-time space walker Gernhardt said while hanging upside-down from a foot restraint on the arm. "These gloves are working great."

Voss and Gernhardt removed a debris shield from the work site, manipulated a computer control box for a robot arm under development and tested helmet lights as they maneuvered around the cargo bay.

The crew spent much of its day Sunday packing up equipment. They transferred some of the accumulated

waste water onboard *Endeavour* into a contingency water container when attempts to free up a blocked waste water dump line were unsuccessful.

Although the Spartan free-flyer was out of position when it was recovered by the crew, scientists said telemetry was characteristic of a minimum reserve power shutdown that would not threaten the collection or recording of solar physics data.

Wake Shield's ability to use a small thruster to move away from *Endeavour* was another first for the mission, since on all previous satellite deployments the shuttle has had to maneuver away from the payload.

Scientists will begin to evaluate data collected as soon as post-flight processing is complete and instruments are returned for analysis.

## Astronauts, students to compare experiments during mission

(Continued from Page 1)

The goal is to involve students as participants in shuttle investigations in an effort to generate interest in physical science and chemistry.

The first live downlink with students is scheduled for flight day 12.

Middle school students at the Museum of the Rockies in Bozeman, Mont., will discuss mixing and sedimentation of crystal growth experiments. Students from Sierra Middle School in Las Cruces, N.M., will compare crystallization experiments.

On flight day 13, high school students from South High School in Worcester, Mass., will discuss fluid experiments with the astronauts while students at Louisville Science Center in Louisville, Ky., will compare their notes on combustion

experiments.

Meanwhile, repairs to *Columbia's* booster nozzle joints are complete and engineers began aft main engine close out. This week engineers began countdown preparations, installing the contingency

space suits in the airlock, installing the flight crew lockers in the mid-deck, charging the support equipment in the USML-2 and purging the external tank in preparation for loading of liquid hydrogen and oxygen next week.

## Employee hotline answers furlough questions about benefits, leave

(Continued from Page 1)

increasing as Oct. 1 draws closer. Most calls relate to the effect of a furlough on benefits, retirement and leave. Employees with any type of human resources question can call the Employee Hotline at x30616 and leave their name, phone number, and question. A member of the Human Resources staff will return your call usually within 24 hours.

Rumors about unemployment compensation are making the rounds, but the facts are that federal employees who are furloughed become eligible for unemployment compensation from the state after five furlough days. Weekly payments are based upon previous salary and

will vary from about \$55 to a maximum of \$252 per week. Payments are usually received within three to five weeks of state approval. If a furlough appears imminent, Human Resources will distribute the necessary forms and instructions to employees during the last week of September. One word of caution: if a furlough occurs and an employee is paid retroactively for the period of furlough, the state will expect repayment for any unemployment compensation received.

JSC contractors are being urged to operate with minimal disruption to their contracts, no increase in cost and no schedule impact should civil servants be furloughed.

## 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](mailto:khumphri@gp301.jsc.nasa.gov) or the associate editor, [kschmidt@gp301.jsc.nasa.gov](mailto:kschmidt@gp301.jsc.nasa.gov).

Editor ..... Kelly Humphries  
Associate Editor ..... Karen Schmidt

## Phone calls to emergency number provide fastest, most reliable help

(Continued from Page 1)

When every second counts, the JSC dedicated emergency numbers are the fastest, most reliable help.

Whenever individuals dial any emergency number, they should remain calm and speak clearly. The operator must know the type of emergency and location to be sure the appropriate help is sent as quickly as possible. Callers may be placed on hold temporarily so that units can be dispatched, but should be prepared to provide more information when the operator returns.

All emergencies must be reported to the EOC, even if they are handled by people at the scene. Fire, security and medical emergencies are inves-

tigated to determine cause and corrective actions.

Emergency numbers should never be used to call for help in unlocking a vehicle or to report someone parked in a reserved parking space. Although these events are a major inconvenience at the time, they are not life threatening and should be reported to the JSC non-emergency number at x34658.

Dialing the emergency numbers to report non-emergencies could tie up the telephone line when some one else needs to report a legitimate emergency. A delay in reaching the EOC operator could make the difference between life and death for a co-worker.

## Halloween dance set for next month

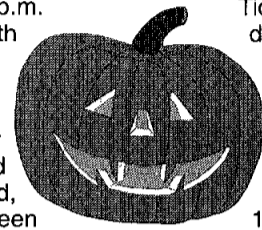
The Employee Activities Association will hold an annual Halloween dinner/dance at 7:30 p.m. Oct. 28 at the Gilruth Center.

A variety of music will be provided by the "4th Wave Rhythm." Dinner includes turkey and dressing, health salad, mashed potatoes, green beans and pumpkin or pecan pie. Costumes are encouraged but not

required. Prizes for best costumes will be awarded.

Tickets go on sale Wednesday in the Bldg. 11 Exchange Store for \$15 per person. Badged NASA and contractor employees, and NASA retirees may purchase one table of either 6, 8 or 12 seats.

For additional information contact Mavis Ikenhans at x49644.



## JSC has ski week openings

Skiers from JSC will have a chance to gather with fellow NASA snow lovers at Crested Butte, Colo., early next year on NASA Ski Week V.

For the past five years, all the NASA centers have pooled their resources to put together a combined ski trip. Each year around 250 people round out the trip and all have agreed that each year seems to get a little better, said JSC organizer Ron Davis.

JSC is hosting this year's trip to Crested Butte over the Martin Luther King Holiday. (Jan 14 - Jan 21). Cost is \$741 and includes charter air fare direct to Gunnison, Colo.; welcome reception; seven days/nights at a first class hotel on the slopes; five of six day lift tickets;

an evening banquet; heated swimming pool; hot tubs; and a T-shirt.

Extras on this trip will include cross-country skiing, snow shoeing, a wide range of slopes for skiers of varying skill, dog sledding, horseback riding, snow mobiles, hot air balloons and ski in / ski out accommodations. For beginners, ski lessons and equipment rentals are available. There's also a sleigh ride dinner and fondue dinner available after hours on the mountain, finished off with a participatory torch-light parade.

There are still several slots available at JSC to round out the 42 anticipated participants. For more information, call Ron Davis at 482-5952, or Martha Watkins at 486-5063.

## JSC sponsors poster contest during fire prevention week

The Johnson Space Center is sponsoring a poster contest in recognition of Fire Prevention Week that will be held Oct. 8-14.

The contest is open to all children of civil service and contractor personnel. Recommended size for drawings is on 8 1/2" x 14", standard legal size paper. Pictures should reflect the this year's fire prevention theme, "Watch What You Heat, Prevent Home Fires."

The Houston Fire Department will judge and award ribbons to first, second and honorable men-

tion in the three age categories, 4 and under, 5-9 and 10 and above. Drawings will be posted in Bldg. 25, the on site fire station, during Fire Prevention Week for viewing by employees.

All posters must be turned in by close of business Oct. 6 to Bldg. 110. Include the child's name, address, telephone number and age, along with the employee's name, mail code and extension on the back of each poster.

For additional information, contact Rindy Carmichael at x45078.