



Rendezvous retake

The STS-77 crew returned home with pictures to share during their record rendezvous flight. Story on Page 3.



EOC opening

VIPs from the surrounding community visit the new Emergency Operations Center. Photo on Page 4.

Space News Roundup

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No. 23



STS-78 crew members take a break during the Crew Equipment Interface Test at Kennedy Space Center. From left are Payload Specialist Jean-Jacques Favier; Mission Specialists Chuck Brady, Rich Linnehan and Susan Helms; Pilot Kevin Kregel; Payload Specialist Bob Thirsk; and Commander Tom Hendricks.

NASA Photo

Columbia set to launch early next Thursday

By James Hartsfield

With all preparations continuing to go smoothly, the launch countdown clock for *Columbia* will begin ticking early Monday morning toward a 9:49 a.m. CDT liftoff on STS-78 Thursday.

Columbia will carry the Life and Microgravity Spacelab aloft, a cargo bay laboratory where studies will focus on the effects of weightlessness on humans, other living organisms and on various materials. The flight is slated to become the second longest shuttle mission ever with landing planned after almost 17 full days in orbit. With an on-time launch, *Columbia* would return to Florida for an 8:51 a.m. CDT touchdown on July 7.

The STS-78 crew—Commander Tom Hendricks; Pilot Kevin Kregel; Payload Commander Susan Helms; Mission Specialists Rich Linnehan and Chuck Brady; and Payload Specialists Jean-Jacques Favier, a French astronaut, and Bob Thirsk, a Canadian astronaut—will arrive at KSC Monday afternoon in preparation for the launch. The crew will be keeping waking and sleeping hours similar to those in Houston during the mission.

The LMS life sciences investigations will focus on the effects of weightlessness on the muscles and bones, among other areas. The materials experiments will study the processing of more pure metal alloys in weightlessness. In addition, a variety of other investigations in the Spacelab will study the effects of weightlessness on the metabolism, heart and lungs and sense of bal-

ance as well as the growth of protein crystals for medical studies on Earth after the flight.

Work on *Columbia* this week at KSC's Launch Pad 39B included fueling the spacecraft's orbital propulsion systems, testing of the two spacesuits stowed onboard in the event they are needed, and closing out the orbiter's main engine compartment.

The countdown will begin at 3 a.m. CDT Monday and the crew is planned to arrive in Florida at 3:30 p.m. CDT Monday.



COLUMBIA

Elsewhere, *Atlantis* remains on schedule for a launch on STS-79, the fourth shuttle-Mir docking flight, targeted for late on July 31. Currently in the Bay 1 processing hangar, technicians plan to close the payload bay doors for flight by Wednesday. *Atlantis* could be moved to the Vehicle Assembly Bldg. to be mated to the STS-79 solid rockets and fuel tank as early as June 24.

The STS-79 crew—Commander Bill Readdy, Pilot Terry Wilcutt, and Mission Specialists Tom Akers, Jay Apt, Carl Walz and John Blaha—completed interface verification tests last week.

In KSC's Bay 3 hangar, *Endeavour* is being readied for a maintenance and modification period at Rockwell's Palmdale, Calif., shuttle factory.

Endeavour's next mission is planned to be the first launch of the International Space Station assembly sequence aboard a shuttle in fall of 1997, and the spacecraft is planned to be in California for about

Please see **DISCOVERY**, Page 4

Thornton to leave NASA, join Virginia faculty

Astronaut Kathy Thornton will leave NASA on Aug. 1 to join the faculty of the University of Virginia.

Thornton, 43, has more than 950 hours in space, including more than 21 hours of extravehicular experience. Thornton joins the faculty as a professor in the School of Engineering and Applied Sciences area and also will serve as director of the Center for Science Education.

"We will certainly miss Kathy's experience and skills," said Dave Leestma, director of Flight Crew Operations. "We wish her the best in her new career."

Thornton is a veteran of four space flights including STS-33 in 1989, STS-49 in 1992, STS-61 in 1993 and STS-73 in 1995.



Thornton

Thornton was a mission specialist on the crew of STS-33 which carried Department of Defense payloads and other secondary payloads. On her second flight, Thornton served on the crew of STS-49, May 7-16, 1992, on board the maiden flight of the Space Shuttle *Endeavour*. During the mission the crew performed a record four space walks to retrieve, repair and deploy the International Telecommunications Satellite, or INTELSAT, and to demonstrate and evaluate numerous EVA tasks to be used for the assembly of the International Space Station.

Thornton served as a mission specialist on the STS-61—the Hubble Space Telescope servicing and

Please see **VETERAN**, Page 4

Onufrienko, Usachev conduct final space walk this week

By Karen Schmidt

Mir 21 cosmonauts conducted their final space walk this week while Astronaut John Blaha and his STS-79 crew mates geared up to join the trio in fewer than 50 days.

The Mir 21 crew spent most of the week preparing for Wednesday's space walk. Commander Yuri Onufrienko and Flight Engineer Yuri Usachev installed a new boom truss to the underside of the Russian Mir Space Station's core and Kvant-1 modules. The Rapana boom will replace the existing

boom and will be used on future space walks to transfer cargo from one module to another.

Meanwhile, scientific experiments continue as Cosmonaut Researcher Shannon Lucid focused on life and materials science experiments in the Kristall and Priroda modules. Last week, Onufrienko and Usachev attached the Particle Impact Experiment and Mir Sample Return Experi-



LUCID

ment outside the Mir station during a three-hour space walk. The experiments were sent to Mir on the Priroda module in April and will remain outside Mir for six months collecting cosmic dust.

"I don't think we will have any problems finishing up," Lucid said during a news conference last week. "I hope that everything goes along as it's going along now and we will be able to finish everything

before STS-79 gets here and we change out. So far everything we have been doing has been going fairly well, and I don't see anything that's going to be a show-stopper."

Lucid's science activities last week included verification tests of the Microgravity Isolation Mount, experiments to characterize the long-term effects of space on the human body and Earth observations.

Meanwhile, Astronaut John Blaha, next in line to replace Lucid in August, spent most of

Please see **CREW**, Page 4

American Heritage week concludes with grand finale at Gilruth today

American Heritage Week will reach a crescendo today with a grand finale of the week-long celebration of JSC's cultural diversity.

Entertainers, food purveyors and exhibitors will welcome visitors from 3-7:30 p.m. in the Gilruth Center's ballroom and old gym.

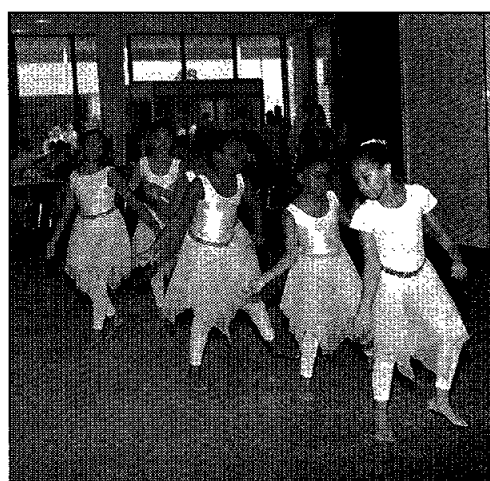
Native American Jerry Elliott will open the festivities with a prayer and song and Dale Anderson will sing the Star Spangle Banner. A Color Guard will be on hand to complete opening ceremony activities and the entertainment will begin with Czech dancers.

Other entertainers on hand today include the Clear Lake High School Flairs; Hip Bones n' Motion; O'Maoiuleidigh Irish

dancers; Young Performing Stars of Texas; Chinese Senior Association of Houston Singers and Dancers; Ambassadors International Ballet Folklorico; Seabrook Intermediate Voice Quartet; Singer Yelena Shklar; Flies in Paradise, a Latino musical group; Indian dancers; guitarist Vladimar Rachmanov; Ian Martin's Bagpipes; and tenor Dale Anderson.

Vintage automobiles and Chinese calligraphy will be on display, as will items exhibited earlier in the week at the Gilruth Center.

An Italian lunch special featuring cannelloni beef, pasta verdi, a tossed salad, a roll and butter, and a drink will be served at both cafeterias.



JSC Photo by Robert Markowitz

Hip Bones n' Motion kicks off American Heritage week Monday with a performance for the Bldg. 3 cafeteria lunch crowd.

Juneteenth program features jazz, drills

JSC's Equal Opportunity Programs Office will sponsor a Juneteenth program featuring a local drill team and a high school jazz ensemble from 11-1 p.m. Wednesday in the Bldg. 3 cafeteria.

Juneteenth celebrates the anniversary of the day that Blacks in Texas received their notification of freedom following the Emancipation Proclamation. The proclamation, drafted in 1862 and put into effect on January 1, 1863, freed slaves in those states that had seceded from the Union. It took six months for the news to reach Texas.

The first group to perform Wednesday will be the Christian Community of Praise! Soldiers Drill Team. CCOPS is part of a local youth crusade ministry whose goals is to let young people know that there is an alternative to life's problems.

Please see **JUNETEENTH**, 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.

Arena Football: Texas Terror vs Florida 7:30 p.m. July 13 at the Summit. Tickets cost \$11.50.

EAA Caribbean Getaway from New Orleans: Carnival Cruise Sept. 13-20, from \$539, \$200 deposit required, final payment due July 8.

EAA Mexico Copper Canyon Train Trip: Nov. 6-12, \$995 per person, \$200 deposit required, final payment due Sept. 6.

Schitterbahn: One day pass cost \$19.75 for adults, \$16.95 for children.

Astroworld: One day pass cost \$22.75, two day pass cost \$34.25.

Fiesta Texas: One day pass cost \$22.75, two day pass cost \$34.25.

Six Flags at Arlington: One day pass cost \$22.75, two day pass cost \$34.25.

Sea World: Adult tickets cost \$24.50, children (3-11) cost \$17.25.

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

Movie discounts: General Cinema, \$4.75; AMC Theater, \$4.50; 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.

Metro tickets: Passes, books and single tickets available.

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.

Golf instruction: Group Golf Clinics throughout spring and summer at Clear Lake Golf Club. Sign up at Gilruth.

Fitness Challenge: 1996 Fitness Challenge runs to Aug. 31. Employees are eligible to win \$100 gift certificates. For more information call Larry Wier at x30301.

Defensive driving: One day course is offered once a month. Cost is \$25. Interested employees should call the Gilruth.

Stamp club: Meets at 7 p.m. every 2nd and 4th Monday in Rm. 216.

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. June 27. Pre-registration is required. Cost is \$5.

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

Aikido: Martial arts class meets from 6:15-7:15 p.m. Tuesday and Wednesday. Cost is \$25 per month. New classes begin first of each month.

Aerobics: Class meets from 5:15-6:15 p.m. Monday, Tuesday and Thursday. Ballroom dancing: Cost is \$60 per couple. For additional information call the Gilruth Center at x33345.

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

Fitness program: Health Related Fitness Program includes a medical examination screening and a 12-week individually prescribed exercise program. For more information, call Larry 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. 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: League City, Bayridge subdivision, 3-2-2, cul-de-sac street, new roof, \$55k make offer. James, 286-1934.

Lease: Clear Lake, Oakbrook, 4-2-5-2, golf course, formal-den, no pets, available now, \$1,250 mo + deposit. Jack H. Cohen, 488-3171.

Lease: Clear Lake City, 4-2-2, fenced, formal, near school, park, pool, avail 7/1. 282-3479 or 532-1112.

Sale: 130 cleared acres, 5 pastures, 15 mi E. of Tyler, house, hay & horse barns, divide, all amenities. 488-5058.

Sale: University Trace condo, 1BDR + studio or 2nd bedroom, appliances, W/D, new carpet/paint, \$28.5k. 333-3925.

Lease: League City, 2-1, appliances, W/D, ceiling fans, enclosed spa in backyard, bills paid, \$550 mo + deposit. Bill, 332-3649.

Rent: University Trace condo, 1BDR + study-1 1/3 bath, W/D, assigned covered parking, \$520 mo. x39541 or 480-2417.

Rent: League City, Pecan Forest, 3-2-2, FPL, very clean, no pets, \$850 mo. 554-6200.

Sale: Nassau Bay, 3-2-2+, remodeled/updated, vaulted ceilings w/skylights, big yard, FPL, fans, \$109.9k. Bryan, x30385 or 335-1559.

Sale: Wooded lot 90' x 135' in Taylor Lake Estates, \$39.5k can finance. Don, x38039 or 333-1751.

Sale: Brook Forest, 4-2-2, 2348 sq ft, FPL, new carpet/paint/tile/fence, A/C & H, \$129.9k nego. Brian, x32635 or 480-4351.

Rent/Sale: House, 3-1-1, new central air w/gas heat, D/W, gas range, new roof, W/D conn, \$550 mo/\$38k. Bill, 332-3649.

Rent: Arkansas cottage in the woods overlooking Blue Mt Lake & Mount Magazine, furnished, FPL, \$50/dly or \$250 wkly. Corcoran, x47806 or 334-7531.

Rent: Condo in Winter Park, CO, 2-2, sleeps 6, hot tub/heated pool, low summer rates. 488-4453.

Rent: Beach house, Crystal Beach, TX, Galveston county, sleeps 10, furnished, cable TV, ocean view, weekly/weekend rates. 486-1888.

Rent: Beach House, West Galveston, Jamaica Beach, all amenities, sleeps 5-7, avail 6/28 - 7/5, other times avail. 488-6796 or 409-737-5017.

Rent: Lake Travis cabin, private boat dock, central A/C & heat, furnished, sleeps 8, summer/fall \$650/\$550 wkly/\$120 daily. 474-4922.

Rent: Galveston Beach house, Bay View, 3-2, sleeps 8, canal lot, all amenities, fisherman's paradise/wife's oasis, wknd/wkly rates, no pets. 488-4412.

Cars & Trucks

'84 Dodge Cargo van, Ram 250, many new parts, cold A/C, captain chairs swivel & recline, \$2.7k. Rich, x33222 or 538-2870.

'93 Ford Probe GT, very nice, black, all powered, 5 spd, AM/FM/cass w/graphic equalizer, key-less entry, 36k mi, anti-theft, \$11.9k obo. x34016 or 335-8025.

'92 Chevy Lumina, Euro 3.4, black w/grey interior, sport instrumentation, ex cond, w/Delco Bose, AM/FM/cass, alarm, \$7.8k. x33196.

'88 Toyota Celica ST Coupe, 5 spd, grey, many extras, 67k mi, good cond, new exhaust/tires, 1 owner, \$5.3k. 333-6646 or 486-1834.

'50 Chevrolet 3/4 ton PU, \$2.2k. 286-5971.

'91 Chevy Beretta, blue, low miles, reg maint, interior/exterior, engine ex cond, \$6.8k. Dan, 482-7550.

'91 Ford Tempo, 4 dr, auto, A/C, P/L, 85k mi, great cond, \$3.5k. 451-8279.

'90 BMW 525i, black/black leather interior, moonroof, cruise, 6 CD, on-board computer, ex cond, \$13k obo. 481-3210.

'93 Lincoln Mark VIII, emerald green, garaged, 22k mi, everything but sunroof, \$21k. Howard, x36650 or 471-1485.

'87 Chevy Cavalier, auto, A/C, AM/FM/cass, 4 cyl, runs good, \$1.9k. Richard, x31440 or 333-5693.

'83 Mercury Zephyr, 6 cyl, new tires/brakes/carburetor, runs good, \$900. x35092 or 944-2391.

'86 Honda Civic Sedan, 4 dr, white, 5 spd, ex cond, \$2.6k obo. Mark, x35597 or 554-5156.

'90 Nissan 240SX fastback, midnight blue, stick, new tires, A/C, AM/FM, moonroof, 59.5k mi, \$8.5k obo. x47014 or 486-7417.

'92 Lexus LS400, loaded, CD, moonroof, phone, radar detect, very clean, 66k mi, new tires. 428-1080.

'87 Chevy Astro van, good cond, \$2k. Gary, x37896 or 333-2751.

'90 Pontiac Sunbird convertible, loaded, white, w/black top, \$6k. David, x36027.

'85 S-10 Blazer, new water pump/timing chain & alternator/entire A/C system, cold A/C, 153k mi, \$2,750 obo. x30120 or 486-0117.

'89 Ford Probe GT Turbo, 5 spd, loaded, alarm, phone capability, great cond, \$5k. Tiffany, x31888 or 643-2210.

'84 Mazda RX-7 GSL-SE, black/red, 5 spd, sunroof, AM/FM/cass, good cond, \$2,950. 318-0412.

'89 Crown Victoria LX, cream exterior/beige cloth interior, V8, 68k mi, great cond, all power, loaded, \$5.5k. 333-0267.

'90 XLT Aerostar, extended length, 1 owner, high miles, very clean, \$6,250. 332-2229.

'85 Chevy Astro van, 6 cyl, 4 capt chairs & bench seat, A/C, auto, cruise, tilt, P/W, P/L, \$2,950 obo. Ray, x41010 or 333-2977.

'85 Mustang convertible, 75k mi, all power, V6, \$2.5k. 332-2229.

'84 Toyota, 2 dr hatchback, 5 spd, 4 cyl, great work car, \$800 obo. Ray, x41010 or 333-2977.

Cycles

Ross Grand Tour training bike, 10 spd. Rob, x41027 or 334-3529.

Boats & Planes

'92 Kawasaki 750 Waverunner Super sport, trailer, life vest, \$3.5k. 488-2184.

Audio Visual & Computers

Mac Performa 450: 25MHz, 4Mb RAM, 512 NB HD, 14" color monitor, keyboard, 1.4 Mb floppy disk drive, complete documentation, ex cond, \$650. 488-1326.

Today

Crew briefing: The STS-77 astronauts will share flight memories at 10:30 a.m. June 14 in Teague Auditorium.

Technical awards banquet: The Clear Lake Council of Technical Societies will hold its annual awards banquet at 5:30 p.m. June 14 at the Gilruth Center. The featured speaker is Astronaut Franklin Chang-Diaz. Tickets cost \$10. For more information and reservations call Marcia Taylor at x30195.

Cultural exhibits: Stop by the Bldg. 3 cafeteria from 11 a.m.-1 p.m. June 10-14 to view displays from earlier in the week plus an extensive collection of Native American artifacts and vintage automobiles.

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

Cafeteria menu: Special: baked meatloaf. Total Health: baked potato. Entrees: chicken fajitas, ham steak, pork and beef egg rolls, steamed fish, Reuben sandwich. Soup: seafood gumbo. Vegetables: stewed tomatoes, seasoned spinach, cut corn, macaroni and cheese.

Sunday

BBQ-by-the Bay: The Bay Area Chorus will host a barbeque on the bay from noon-8 p.m. June 16 in Kemah. Event tickets cost \$8 adults, \$3 children. Raffle tickets cost \$5. For more information call Irene Piatek at x39043.

Monday

Cafeteria menu: Special: Italian cutlet. Total Health: roast beef au jus. Entrees: chicken a la king, enchiladas with chili, vegetable lasagna, steamed pollock, French

dip sandwich. Soup: split pea and ham. Vegetables: Brussels sprouts, oriental vegetables, buttered carrots, lima beans.

Tuesday

Cafeteria menu: Special: stuffed cabbage rolls. Total Health: roasted turkey. Entrees: turkey and dressing, country style steak and hash browns, beef ravioli, baked chicken, fried cod fish. Soup: tomato Florentine. Vegetables: Italian blend, okra and tomatoes, corn cobbette, navy beans.

Wednesday

Astronomy seminar: The JSC Astronomy Seminar will meet at noon June 19 in Bldg. 31, Rm. 129. An open discussion meeting is planned. For more information, call Al Jackson at x35037.

Scuba club meets: The Lunafins will meet at 7:30 p.m. June 19 at Redfish Restaurant under the Kemah/Seabrook Bridge, Seabrook Side. For more information call Fred Toole at x33201.

Cafeteria menu: Special: pepper steak. Total Health: stir fry pork with rice. Entrees: liver and onions, stir-fry pork with rice, steamed fish, western special, Reuben sandwich. Vegetables: steamed broccoli, yellow squash, macaroni and cheese, vegetable sticks.

Thursday

Directors' meet: The Space Family Education board of Directors will meet at 11:30 a.m. June 20 in Bldg. 45 Rm. 712D. For more information on this open meeting call Gretchen Thomas at x37664.

CTAP workshop: The Career Transition Assistance program will hold a "Communication Anxiety" seminar from 1-4:30 p.m. June 20 in Bldg. 45, Rm. 128. For more information and to sign up, call Keisha

Gilbert at x34300.

Abstracts due: The Office of Space Access and Technology is soliciting papers for Technology 2006, scheduled for Oct. 29-31 at the Anaheim Convention Center in Anaheim, Calif. Abstracts are due June 20 to the Technology Utilization Foundation, 317 Madison Ave., Suite 921, New York, 10017, fax 212-986-7864.

Cafeteria menu: Special: chicken fried steak. Total Health: baked potato. Entrees: beef tacos, steamed pollock, baked chicken, catfish special. Soup: navy bean. Vegetables: spinach, cut corn, breaded okra, pinto beans.

Friday

Juneteenth Picnic: The annual Black Cultural Association's Juneteenth Scholarship Picnic will be from 11 a.m.-8 p.m. June 21 at the Gilruth Center. For more information, call Judith Elam at x34028.

Cafeteria menu: Special: tuna noodle casserole. Total Health: baked potato. Entrees: steamed salmon steak, baked chicken, fried cod fish, ham steak. Soup: seafood gumbo. Vegetables: French cut green beans, cauliflower with cheese, green peas, black-eyed peas.

June 26

CTAP Workshop: The Career Transition Assistance program will hold a "Preparing a Curriculum Vitae" seminar from 8:30-10:30 a.m. June 26 in Bldg. 45, Rm 128. For more information and to sign up, call Keisha Gilbert at x34300.

Astronomy seminar: The JSC Astronomy Seminar will meet at noon June 26 in Bldg. 31, Rm. 129. Discussion will focus on the "Search for the Tunguska Meteorite." For more information, call Al Jackson at x35037.

Lost & Found

Found 4 month old Beagle in Camino South. x30897 or 480-3473.

Household

Contemporary entertainment center, whitewash finish, 2'x4'x6", accommodates 30" TV, drawers, trays/smoked glass doors, ex cond, \$250; wooden king size waterbed w/access, \$90. Gus, x33425 or 286-3402.

Mauve/blue country sofa, \$300. 480-8001 x559 or 996-8016.

Living room set, forest green couch, coffee table, 2 end tables, 2 lamps, all in ex cond, \$600; corner style wood computer desk, \$150; bar stool, \$10; stereo cabinet, \$25; office chair, \$75; queen sz bed, \$350, all obo. x47014 or 486-7417.

Black/brown/gold plaid couch & chair, \$125. 282-3758 or 996-0418.

Queen size waterbed, all accessories, drawers, shelves/headboard, EC, \$225. Don, 333-8155.

Dining room table, solid wood, w/extra leaf & pad, 2 arm & 4 side chairs, china cabinet, ex cond, \$1.6k. x34132 or 486-5531.

Queen size Queen Anne style headboard & footboard, \$100 obo; 26" Sony color console TV, \$75 obo. Vincent, x34348.

Large living room sofa, \$200; armchair, \$75; end table, \$50; light pine entertainment center, all in ex cond, \$400 obo. 474-5258.

Custom oak entertainment center, great cond, \$250. x32317 or 282-0816.

Kenmore Trash compactor, 34"x24"x15", ex cond, \$75 obo. J. Dornbach, 326-3459.

Couch & 2 Lazy Boy rocking chairs, top quality, \$985 obo. x46198 or 488-6875.

Oak dresser, 6 drawer w/mirror, \$200; wicker bookcase, \$50. 332-2453.

Brown leather group, 3 pieces, sofa, loveseat, chair, ex cond, \$700 obo. 996-8410.

Want Ads

Want ride to & from work, willing to pay gas expense, Pasadena, Richey area, 7:30 a.m. - 4:00 p.m. x48871 or 472-5205.

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

Want personnel to join VPSI Vanpool, departing South Braeswood Park & Ride lot at 6:50 a.m. for JSC & offsite locations, 7:30 - 4:30 shift. Susan Gaynor, 282-5447 or Al Ruder, x34997.

Want housemate to share 3-2.5, 4 story waterfront townhouse, South Shore Harbor area, community pool, private hot tub & tanning bed, 2 bars, 2 decks overlooking canal, boat slip, lofted study, enclosed garage, \$550 mo + 1/2 utilities. Terry, x39234 or 335-0113.

Want non-smoking roommate to share 3-2-2, League City, \$275 mo + 1/3 utilities. Rob, x31027 or 334-3529.

Want roommate to share 4-2.5-2, 2 story home in Seabrook, separate phone & living area, \$350 mo. 474-4742.

Want someone to share Quarter Share condo, 8th floor, San Luis Hotel in Galveston, \$18.50. 532-1263.

Want your non-working mower or edger. x31883. Want Champion juicer. 474-4922.

Want canoe & single speed beach cruiser type bicycles. Gene, x38020 or 334-1505.

Want space memorabilia for private collection, flown items (e.g. utensils, clothing), autographs on photos, covers, letters, relating to Mercury, Gemini, Apollo, Skylab, Shuttle. Richard, 481-8080.

Miscellaneous

Beautiful, white beaded victorian wedding dress size 7, veil, fitted v-back w/drop pearls & long bustled train w/cutouts, \$500. Leah, x34544 or 326-3759.

Door locks w/built-in security full 1" deadbolt, 2 sets, easy do-it-yourself installation w/no extra holes to drill, ex cond, \$25 ea. x32920 or 992-3014.

Joelle designer wedding dress, white, sz 6/8, short train, veil & petticoat, \$400; teal evening gown, sz 6, \$150; heart shaped wedding guest book, \$35; dirt devil deluxe upright vacuum, \$50; 4 dia clay plant pots, 2-\$30 both. Su, x45722.

Top of the line treadmill, EC, \$250. Don, 333-8155.

Stair climber, ex cond, \$80 obo; microwave, \$50. x34016 or 335-8025.

Ergometer exercise bike Tunturi E-330, ex cond, \$50. 992-1552.

Approximately 1 cord of seasoned oak firewood, \$100. x48640 or 332-9720.

Waterford crystal cookie jar, 25 yrs old, new \$130 sell \$85; Lladro figurine, approx, 25 yrs old, ex cond, withdrawn Orthodox Bishop, 11" tall, new \$350 sell \$175. x31057.

Seats w/brackets for post office jeep, 2, \$75 ea or \$125 both. 482-7529.

Extra large ice chest, Coleman 150 qt Marine Ice chest, ex cond, \$75, x37300 or 482-7529.

Wall to wall carpeting, 1 yr old, approx 850 sq ft, beige, no pets, no stains, ex cond, color avail in bldg 2, new \$20 sq ft sell obo. Bill, 331-0611.

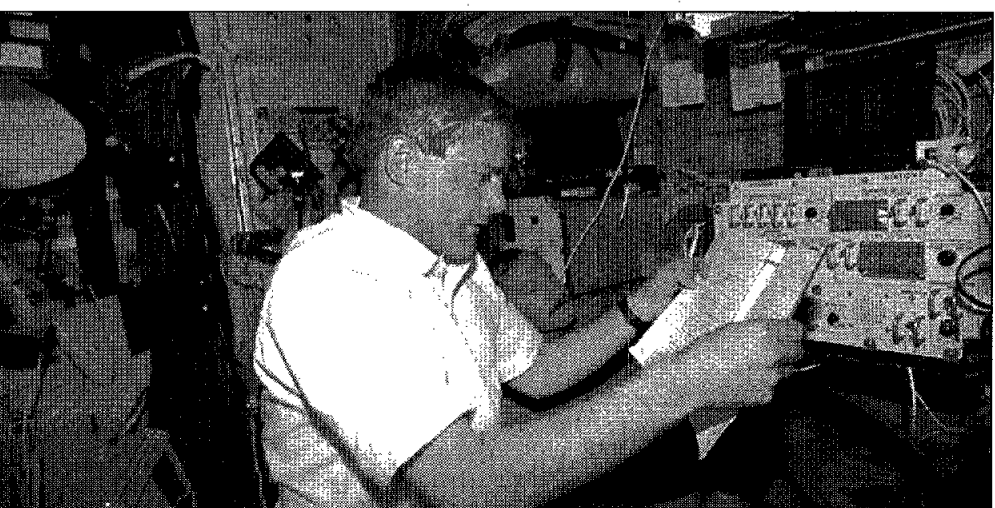
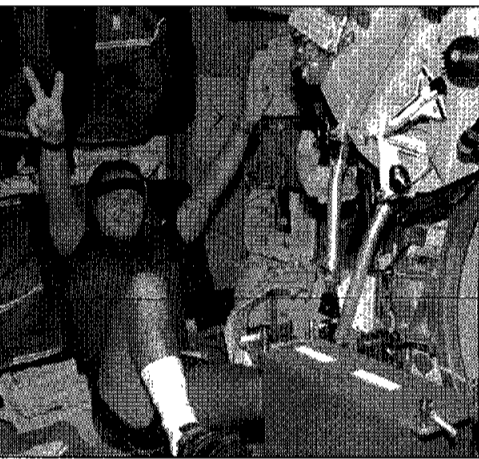
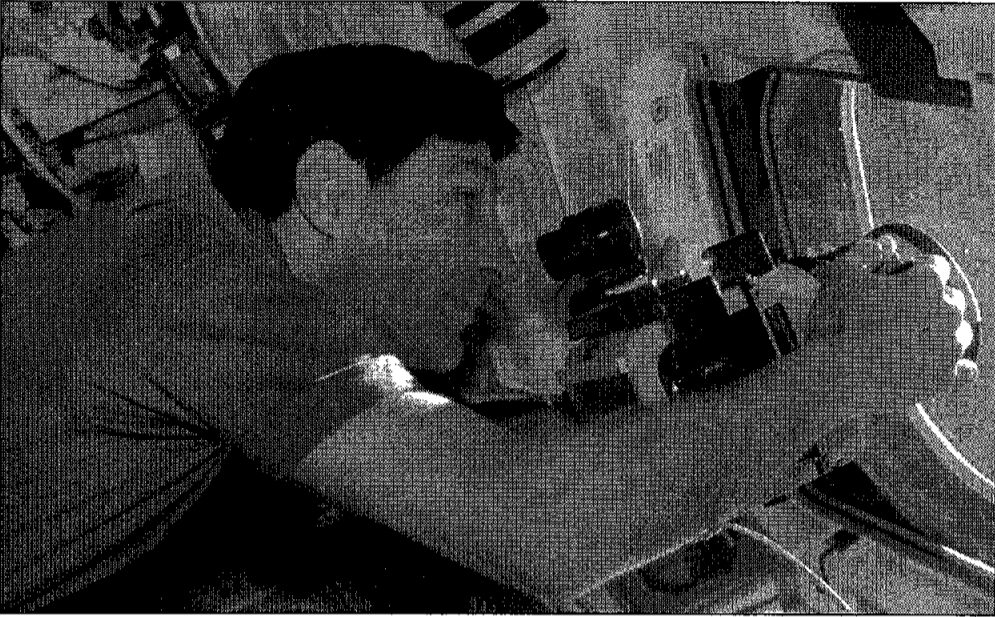
Ruger P-89, 9mm semi-auto pistol, 3-15 round, magazines, case, AMBI safety, alloy frame, \$270. Barry, x39280 or 996-5739.

Two 15-round factory magazines, fits Taurus, PT 92/99, \$50. Barry, x39280 or 996-5739.

Heavy duty storm door, fully adjustable w/screen, ex cond, \$110. x32920 or 992-3014.

Hot tub/spa, 4 person, 6" round electric, redwood surround, ex cond, \$900. x31025 or 996-1985.

B



Fine Flyin'

Endeavour crew sets new mark for rendezvous

Ten days, two satellite deployments, one satellite retrieval, multiple crystal growth runs and a record four rendezvous after their launch, the astronauts of *Endeavour* are back at JSC and ready to share their experiences with coworkers.

The crew's post-flight presentation for employees is scheduled for 10:30 a.m. today in Teague Auditorium, following presentation of the Space Flight Medals and special honors to other key people who worked the flight.

On-board photography from the STS-77 mission shows the breadth of work conducted during the flight. From left to right, top to bottom:

1) The six astronauts aboard the Space Shuttle *Endeavour* for NASA's STS-77 mission pose for the traditional in-flight portrait. Left to right, front, are Mission Specialist Andy Thomas, Commander John Casper and Mission Specialist Mario Runco. On the back row are Pilot Curt Brown and Mission Specialists Marc Garneau and Dan Bursch.

2) A time-lapse collage shows the deployment of the Inflatable Antenna Experiment and the retrieval of its free-flying carrier, the Spartan-207 spacecraft.

3) On the aft flight deck, astronaut Runco uses a large-format camera during station keeping operations with the Passive Aerodynamically Stabilized Magnetically Damped Satellite/Satellite Test Unit (PAMS/STU). Casper and Brown steered *Endeavour* to three rendezvous with the trash can-sized satellite that tested a new technique for maintaining attitude without the use of propellants.

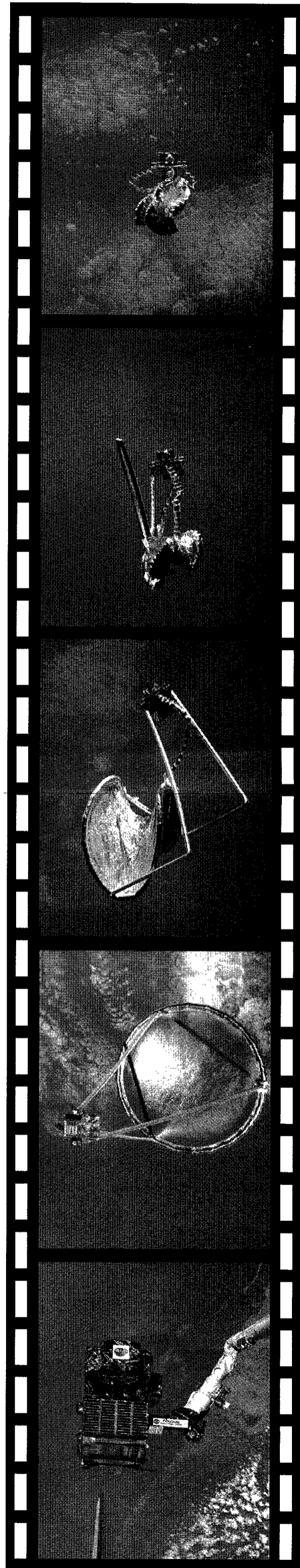
4) Bursch works out on the bicycle ergometer on *Endeavour's* middeck.

5) Inside the Spacehab Module, Thomas works with the Commercial Generic Bioprocessing Apparatus experiment.

6) Casper mans the commander's station during rendezvous operations.

7) Brown is seen on the starboard side of *Endeavour's* aft flight deck just prior to the deployment of the Satellite Test Unit. Brown's image was captured with an Electronic Still Camera.

8) Inside the Spacehab module, Garneau joins Brown in checking out the audio control system for Spacehab. □



New Hubble images of doomed star Eta Carinae

A huge, billowing pair of gas and dust clouds are captured in stunning new Hubble Space Telescope images of one of the most massive stars in the Galaxy, the supermassive Eta Carinae.

Eta Carinae, located more than 8,000 light years away, was the site of a giant outburst about 150 years ago, making it one of the brightest stars in the southern sky. Though the star released as much visible light as a supernova explosion, it survived the outburst. Somehow, the explosion produced two polar lobes and a large thin equatorial disk, all moving outward at about 1.5 million miles per hour. The new observation shows that excess violet light escapes along the equatorial plane between the bipolar lobes. Apparently there is relatively little dusty debris between the lobes down by the star; most of the blue light is able to escape. The lobes, on the other hand, con-

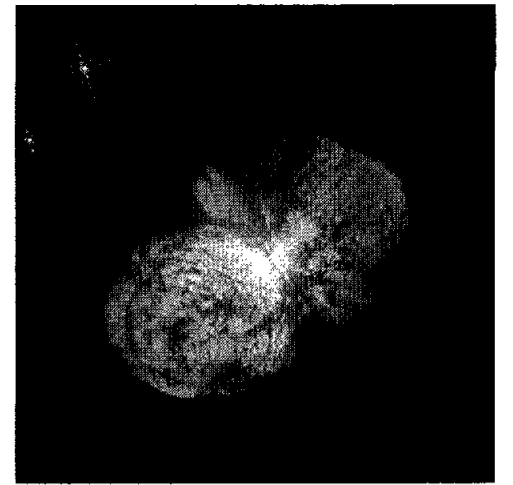
tain large amounts of dust which preferentially absorb blue light, causing the lobes to appear reddish.

Estimated to be 100 times more massive than the Sun, Eta Carinae may be one of the most massive stars in the galaxy. It radiates about five million times more power than the Sun. The star remains one of the great mysteries of stellar astronomy, and the new Hubble images raise further puzzles. Eventually, this star's outburst may provide unique clues to other, more modest stellar bipolar explosions and to hydrodynamic flows from stars in general.

A combination of image processing techniques reveal astonishing detail of the exploding star. Images taken through red and near-ultraviolet filters were subsequently combined to produce a color image. A sequence of eight exposures was necessary to cover the

object's huge dynamic range—the outer ejecta blobs are 100,000 times fainter than the brilliant central star.

Individuals with Internet access can view a unique three-dimensional image of the exploding star, which was assembled from two HST images of Eta Carinae taken 17 months apart. Hubble's high resolution of the motion of the gas and dust between the observations allowed astronomers to combine and encode the images to reveal the true three-dimensional geometry of the system. To see the 3-D structure, the image must be viewed through color 3-D glasses with the left eye looking through a red filtered lens, and right eye looking through a blue filtered lens. All the image files—including the 3-D image—may be accessed on Internet at: <http://www.stsci.edu/pubinfo/PR/96/23.html>



A huge, billowing pair of gas and dust clouds are captured in this Hubble Space Telescope image of the supermassive star Eta Carinae.

Laws change in Texas, but not at JSC

By Natasha Calder

Since the first of this year, thousands of people in Texas have been allowed to carry concealed handguns, but the possession of a firearm or other dangerous weapon at JSC is still prohibited.

"Although there have been no problems regarding this issue to date, JSC Security would like to remind everyone that only authorized federal, state, or local security or law enforcement officials are permitted to carry or display a dangerous or deadly weapon on JSC property in the performance of official duties," said Ken Ramke, chief of the Security Branch. "The penalty for violating this security regulation ranges from written reprimand to removal, even for a first offense."

The concealed weapons statute specifically states that the law does not prevent or limit the employer from prohibiting an individual from carrying a weapon on the premises of the business. JSC's Security Manual limits who may carry weapons on JSC property Ramke said.

"For anyone who wants to report a known or suspected problem with weapons at the center, a phone call to JSC Security at x34441 is all that is necessary," Ramke said. "Security will be glad to investigate and resolve the situation."



JSC Photo by Mark Sowa

EMERGENCY OPERATIONS CENTER—Area community leaders are given a first-hand look at JSC's new Emergency Operations Center. The new state-of-the-art facility provides a central location for community personnel to meet and coordinate efforts to respond to emergencies. The mini mission control also is equipped with computer aided dispatch to aid JSC personnel in an emergency situation. The 4,000 square foot facility in Bldg. 30 also features an emergency response team support area that will help coordinate efforts during an emergency and a weather console that interacts with the NOAA weather system.

Space Center Houston hosts balloon exhibit

"Pushing the Envelope: Ballooning to the Edge of Space," is an out-of-this world exhibit now on display at Space Center Houston honoring the explorers who first ventured into the upper stratosphere and became the first to see the Earth from a different view.

Featuring flight suits, helmets, gondolas, capsules, photos, artifacts and more, the exhibit pays tribute to these early space pioneers who, from the 1930s through the early 1960s, ventured to the edge of space in tiny capsules suspended under delicate plastic balloons.

Visitors can explore the invention, mechanics and the sport of modern hot air ballooning. An actual eight-foot-tall balloon travels 55 feet in the air to the ceiling, demonstrating lift and what actually makes a hot air balloon rise.

Also on display is a model of the Manhigh III capsule that, from 1957-58, flew on three separate missions. The Manhigh pilots, reaching heights of up to 200,000 feet, had to undergo rigorous pre-flight training to deal with the physical effects of the lack of oxygen at high altitudes.

Included in the exhibit is a look into the development of high altitude parachuting. Guests can view rare footage of an actual balloon flight by a man who desired to test the effects of gravity—Joseph Kittinger. In 1960, Kittinger set records for a human's highest ascent and longest parachute drop, free-falling from a height of 102,800 feet and reaching speeds of up to 614 miles per hour while passing through temperatures nearly 100 degrees below zero.

Also on display are several gondolas, including Julian Knott's high altitude gondola in which he set a hot air balloon world record altitude of 55,134 feet and the gondola of the Strato-lab IV, one of the first balloon-borne observatories from which scientists were

able to study the planet Venus. An evolution of flight suits and helmets from 1934 to the early 1960s also will be on display, complete with replicas of wicker helmets for guests to try on.

The exhibit will be on display through Sept. 2. Admission to the balloon exhibit is included in a general admission ticket. For more information, contact Space Center Houston at 244-2100.



Crew prepares for Mir mission

(Continued from Page 1)

his time last week training on activities that he will perform during his stay aboard the Russian outpost. Blaha spent time learning the Greenhouse experiment and how to technically evaluate the Microgravity Isolation Monitoring experiment. His training also included the Tissue Equivalent Proportional Counter experiment and microbiological and protein metabolic investigations. Blaha also participated in a four-hour simulation in a Soyuz vehicle mock-up.

STS-79, scheduled to lift-off Aug. 1, will carry a crew of six including Commander Bill Readdy, Pilot Terry Wilcutt, and Mission Specialists Tom Akers, Jay Apt, Carl Walz and Blaha. The fourth U.S./

Russian docking mission will drop off Blaha and bring home Lucid after her record stay on the Russian space station. In addition to conducting experiments within a pressurized module, the mission will feature a space walk to transfer several experiments from the shuttle's payload bay to the docking module on the Mir station.

Work to prepare *Atlantis* for its August mission is under way as the crew completed interface verification tests last week. Engineers at Kennedy Space Center are expected to close *Atlantis*' payload bay doors for flight next week and roll the orbiter to the Vehicle Assembly Bldg. On June 24 for mating to its external tank and solid rocket boosters.

Space News Roundup

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Verteran Thornton leaves JSC

(Continued from Page 1)

repair mission. During the 11-day flight, the HST was captured and restored to full capacity through a record five space walks by four astronauts. From Oct. 20 to Nov. 5, 1995, Thornton served aboard *Columbia* on STS-73, as the pay-

load commander of the second United States Microgravity Laboratory mission. The mission focused on materials science, biotechnology, combustion science, the physics of fluids and numerous scientific experiments housed in the pressurized Spacelab module.

Discovery to return to KSC soon

(Continued from Page 1)

eight months. Currently, technicians are removing the three main engines and plan to begin work to remove the right hand orbital maneuvering system pod on late this month.

At Palmdale, *Discovery* is nearing the end of a maintenance and modification period and being readied for

the trip back to Florida aboard the Shuttle Carrier Aircraft. *Discovery* is currently scheduled to leave California around June 25 for a two-day trip back to KSC, where it will be readied for STS-82, the second Hubble Space Telescope servicing flight planned for a February 1997 launch.