

# Space News Roundup

Vol. 31

July 10, 1992

No. 27

## Bush nominates Sullivan to top NOAA post

*Veteran astronaut would become agency's chief scientist*

President Bush has announced his intention to nominate Astronaut Kathy Sullivan to be chief scientist of the National Oceanic and Atmospheric Administration.

Sullivan, who still must negotiate the Senate confirmation hearing process, would succeed Sylvia Alice Earle.

The 42-year-old veteran of three space shuttle missions was the first American woman to walk in space. She has accumulated more than 532 hours in space since being selected as an astronaut in 1978. Her most recent assignment was

payload commander of the STS-45 Atmospheric Laboratory for Applications and Science-1 mission, which studied the Sun, the upper reaches of Earth's atmosphere and astronomical objects using an international array of instruments aboard the Space Shuttle *Atlantis*.

She also served as a mission specialist on STS-41G-G in 1984, which included her 3 1/2-hour space walk, and STS-31 in 1990, which included deployment of the Hubble Space Telescope.

Sullivan is an oceanography offi-

cer in the U.S. Naval Reserve, holding the rank of lieutenant commander, and an adjunct professor of geology at Rice University.

In March 1985, President Reagan appointed her to the National Commission on Space, which produced the "Pioneering the Space Frontier" report laying out goals for U.S. civilian space activities over the next 25 years.

Much of Sullivan's work before joining NASA concentrated in academic study and research. She was an Earth sciences major at the University of California, Santa

Cruz, and received her degree in 1973. She received a doctorate in geology from Dalhousie University in Halifax, Nova Scotia, in 1978.

While at Dalhousie, she participated in a variety of oceanographic expeditions under the auspices of the U.S. Geological Survey, Wood's Hole Oceanographic Institute and the Bedford Institute. Her investigations involved the Mid-Atlantic Ridge, the Newfoundland Basin and fault zones off the southern coast of California.

Among her awards are two NASA Exceptional Service Medals.



Kathy Sullivan

## Atlantis to get California refit after next flight

By James Hartsfield

With *Columbia's* landing, all four shuttles are home at Kennedy Space Center this week, with *Atlantis* next up for departure — first to space and then to Palmdale, Calif.

Following its flight with the European Retrieval Carrier and the Tethered Satellite System, *Atlantis* will be taken to Rockwell's Palmdale facility for a year of inspections and upgrades. Included in the modifications will be outfitting that will allow

*Atlantis* to fly extended shuttle missions and, possibly, a Russian docking system.

"This means the KSC team can devote 100 percent of their efforts to safely and efficiently carrying out the manifest," said Shuttle Program Director Tom Utsman. "We estimate it will require about a year to modify *Atlantis*, and we won't have to tie up an orbiter processing facility for that time."

The California work also will help maintain a skilled work force at Palmdale to build spare parts for the shuttle, Utsman said.

"By maintaining this manufacturing capability at Palmdale, NASA also will be able to integrate a Russian automated rendezvous and docking mechanism should ongoing negotiations with the Russians prove fruitful," Utsman said. "NASA has a team leaving for Russia next week to pursue this capability which would allow the space shuttle to dock with the Russian *Mir* and which could be

Please see **ATLANTIS**, Page 4



Dan Brandenstein



NASA Electronic Photo

**STS-50 Payload Commander Bonnie Dunbar enjoys a soak in the Lower Body Negative Pressure device in the Spacelab module aboard *Columbia*. The LBNP, which helps coax bodily fluids back into the lower extremities, was one of several countermeasures used to help assuage the detrimental effects of the 13-day flight on the bodies of the crew.**

## Keller to coordinate NASA's work with Russia

NASA Administrator Daniel S. Goldin announced Tuesday the appointment of Samuel W. Keller as associate administrator for Russian programs.

The new function is being established within the Office of the Administrator and will give focus to the many programs involving NASA and the former Soviet Union.

"NASA is actively pursuing opportunities for expanded cooperation in space activities with Russia. This area of international cooperation is critical and warrants creation of this

new position," Goldin said.

"Sam Keller has the kind of experience necessary to ensure that our relationship with the Russian space program is beneficial to both sides," Goldin added. "He will be responsible for overall coordination of the NASA program relating to cooperative endeavors with the Russian space program."

Keller has served as associate deputy administrator at NASA Headquarters since May 1989. He was a focal point for resolving institutional management and policy

issues and provided agency leadership on U.S./Russian cooperative ventures carried out under agreements between the two governments.

Keller began his NASA career at the Goddard Space Flight Center in 1960. After holding various management positions, he was named the director of administration and management in 1972. In 1975, he transferred to NASA Headquarters and in 1981, was appointed deputy associate administrator for the newly combined Office of Space Science and

Applications. In that position he concentrated on the development of major space flight systems including the Hubble Space Telescope, Galileo, Magellan, the Gamma Ray Observatory and the Cosmic Background Explorer.

Before joining NASA, Keller held positions at the Naval Research Laboratory, the Applied Physics Laboratory of the Johns Hopkins University, RCA Laboratories and the Office of Naval Research. He served as a pilot in the U.S. Air Force from 1956 through 1959.

## Hawley returning, Brandenstein leaving

By Barbara Schwartz

Former astronaut Steve Hawley will return to JSC in August as deputy director of flight crew operations, and Astronaut Office Chief Dan Brandenstein plans to leave JSC in October.

Hawley, associate director of NASA's Ames Research Center since 1990, will return Aug. 1.

"This is a unique opportunity to return 'home' and play a part in running my old organization," Hawley said. "I have enjoyed my two years at Ames and seeing a unique part of the agency. I will miss the Ames people very much."

Brandenstein, chief of the astro-

naut office since 1987 and veteran of four space shuttle missions, will retire as a captain in the U.S. Navy and leave NASA about Oct. 1 to pursue other interests.

"For the past 14 years I have had the opportunity to have the most challenging and interesting job in the world. It has been exciting, rewarding, and a pleasure to work with the many talented and motivated people who make up this country's space team. Although I have chosen to change careers, I will always be an avid supporter of the space efforts which I feel are essential to the advancement of knowledge and technology in this coun-

try," Brandenstein said.

Before moving to Ames, Hawley was deputy chief of the Astronaut Office under Brandenstein. He served as an astronaut from 1978 to 1990.

Hawley, 40, flew on three shuttle missions, logging 412 hours in space. An honors graduate of the University of Kansas, he received his doctorate in astronomy and astrophysics from the University of California at Santa Cruz.

"Steve's an outstanding manager, and I look forward to his return to JSC," said Flight Crew Operations Director Don Puddy. "His experi-

Please see **HAWLEY**, Page 4



Steve Hawley

## Columbia crew shatters shuttle duration record

The Space Shuttle *Columbia* delivered seven record-holding crew members safely to Kennedy Space Center's Shuttle Landing Facility at 6:42 a.m. CDT Thursday.

Commander Dick Richards' picture-perfect landing, preceded by sightings and soundings in the JSC area, brought an end to the longest shuttle mission on record at 13 days, 19 hours and 30 minutes. *Columbia's* first landing at KSC came after a 5,700,000-mile journey.

Richards, Pilot Ken Bowersox, Mission Specialists Bonnie Dunbar, Ellen Baker and Carl Meade, and Payload Specialists Larry DeLucas and Gene Trinh were reported to be in good shape.

"Congratulations on the longest shuttle flight on record," said Capcom Ken Reightler. "Thanks for helping to pave the way for space station operations."

"OK," replied Richards. "I even think we got past Gemini 7 but with a lot more comfort, I'll tell you that."

STS-50 broke that Gemini 7 record of 13 days, 18 hours and 35 minutes set back in 1965. The three Skylab flights in 1973 and 1974 retain the overall American space flight duration records at 28, 59 and 84 days.

Please see **COLUMBIA**, Page 4



JSC

# Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Gift Store from 10 a.m.-2 p.m. weekdays. For more information, call x35350 or x30990.

Spaceweek National Banquet (7 p.m. July 20, Holiday Inn Hobby): \$30 or \$55. Metro passes, books, tickets available throughout July.

Fiesta Texas Park (San Antonio): adult, \$19.50; child 4-11, \$13.55.

Sea World (San Antonio): adult, \$18.90 (child free with paying adult); child 3-11 \$13.55.

Astroworld, \$16.95 and \$14.95 (child under 54 inches), \$44.95 (season pass) and Waterworld, \$9.50.

Six Flags, \$16.95 (one-day) and \$22.95 (two-day).

Movie discounts: General Cinema, \$4; AMC Theater, \$3.75; Loews Theater, \$4.

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 badge or EAA membership card. Classes tend to fill up four weeks in advance. For more information, call x30304.

**EAA badges** — Dependents and spouses may apply for photo identification badges from 6:30-9 p.m. Monday through Friday. Dependents must be between 16 and 23 years old.

**Weight Safety** — Required course for employees wishing to use the Gilruth weight room is offered from 8-9:30 p.m. June 30, July 15 and July 28. Cost is \$5.

**Defensive driving** — Course is offered from 8 a.m.-5 p.m. Aug. 1 and Aug. 29. Cost is \$19.

**Aerobics** — High/low-impact classes meet from 5:15-6:15 p.m. Tuesdays and Thursdays. Cost is \$32 for eight weeks.

**Aikido** — Martial arts class meets Tuesdays from 6:15-8 p.m. Cost is \$15 per month.

**Softball sign-ups** — The schedule for summer softball league sign-ups is: Mixed C Recreational: July 21; Men's C, July 22; Men's B, July 23, Mixed B, Men's A, Friday Special C: July 24; non-badged teams: July 24 after 4:30 p.m.

**Softball tournament** — Moonwalk Men's Open C Softball Tournament will be July 25 and 26. Cost is \$95 per team; deadline for registration is 7 p.m. July 23.

**Scuba** — Scuba lessons will be offered at 6:30 p.m. Tuesdays and Thursdays beginning July 30. Cost is \$190 plus \$20 for the open water dive trip. Personal equipment needed runs about \$90.

**Tennis** — Beginner lessons will be from 5:15-6:45 p.m. Mondays beginning July 20. Beginner-advanced classes will be from 5:15-6:45 p.m. Wednesdays beginning July 22.

**Fitness program** — Health Related Fitness Program includes medical examination screening, 12-week individually prescribed exercise program. Call Larry Wier, x30301.

JSC

## Property

Sale: Lake Travis lot, all util, pool, golf, tennis, marina, \$12.5k. Nasser, x33685 or 334-1032.

Rent/Fleet: 2-lift-2.5 TH w/gar on golf course, no pets, sell \$90k/wk. \$850. Gil, x31373.

Rent: Timeshare condo anywhere in the world, \$600/wk. 286-8417.

Sale: Pebblebrook 2-2 condo, recent update, \$39.5k. Doug, 326-5464.

Sale: Countryside 3-2.5-2A, 2 story on lg corner lot, covered deck, \$66.9k. 554-7623.

Sale: 71 acre ranch, La Moca, TX, 2 BR house, water, cattle, \$120k. 326-1833.

Rent: Timeshare condo, anytime, anywhere, \$350/wk. Katie, x33185.

Lease: LC, The Landing, 3-1-1, fenced, mini-blinds, \$600/mo plus dep, no pets. 486-9811.

Sale: Santa Fe, 2.5 acres, well, septic, fenced, quiet, \$21.9k, no owner financing. 534-2231.

Sale/lease: CL Baywind II condo, 1-1, FPL, frig, W/D conn, \$27.9k/\$425. x31114 or 486-0898.

Sale: Texas City, 3-1-5, 2 story, corner lot, new roof, paint, carpet, \$49k. 943-2208.

Lease: Friendswood 4 BR, 2 story, major renovation, min 1 yr lease, \$1250/mo. 992-4064.

Sale: Jamaica Beach lot, 60' x 120', on 50' of waterfront canal. 388-4526 or 286-8558.

Sale: Pipers Meadow, 3-2-2, FPL, new carpet, paint, vinyl, \$74.9k. Susan, 488-9020 or 480-6446.

Lease: Middlebrook, 3-2-2, formals, den, 1 yr lease, \$1100/mo + dep. 283-1118 or 480-7226.

Rent: CL condo, 2-2, FPL, \$550. 399-0149 or 326-1299.

Rent: Egret Bay condo, 1-1-2CP, microwave, fan, FPL, W/D, \$495/mo. 488-6445 or 333-9078.

Rent: second story of Victorian on Bay, BR, bath, sitting rm, deck, kitchen priv, \$600/mo + 1/2 util. David, 335-8525.

## Cars & Trucks

'59 Chevy PU for restoration or parts, BO; '80 Chevy van, good cond, \$1650 OBO. 771-1012.

'78 Chevy Classic Caprice, runs well, \$500 OBO. Jackie or David, 554-7305.

'74 Toyota PU, good cond, A/C, \$1100 OBO. (409) 925-8664.

'90 Convertible Dodge Dakota PU, 13k mi, loaded, \$11k OBO. x49744 or 333-9742.

'82 Mercury Marquis, ex cond, maint records, \$1895. Linda, x31352 or Joe, (409) 945-3501.

'80 Chevy Chevette Scooter 4 spd, clean, runs well. \$750. 332-4807.

'87 Dodge Aries 4 dr, 47k mi, new brakes, \$2100 OBO. Mike, x31539.

'84 Dodge Colt Vista Wagon, good cond, well maint, \$2100. x35159 or 486-5267.

'76 BMW 2002, rebuilt eng, A/C, sunroof, ex cond, \$4k OBO. George, x35398 or 474-7021.

'84 Audi 5000 4 dr sedan, 45k mi, ex cond. \$4800 OBO. 480-8721.

'86 Taurus, V6, white w/blue int, 51k mi, \$3500. 280-1392 or 488-0597.

'88 Lincoln Town Car, 53k mi, good cond, \$8.5k. 326-3008.

'90 Ford Probe GT, ex cond, 28k mi, red ext, gray int, \$9.9k. 283-5858 or 470-8330.

'84 Nissan Sentra, 92k mi, A/C, good cond, runs well, \$1900. x37667 or 524-0251.

'75 Chevy Camaro, 350 engine, runs well, \$980 OBO. Terry, 282-4777 or 474-5639.

'83 RX-7 GS, gold w/white WS, A/C, AM/FM, cass, good cond, 89k mi, \$2k OBO. x38385.

'79 Chevy Caprice, runs, very reliable, \$500 OBO. Scott, x36132 or 334-6825.

'69 Buick Skylark, 4 dr, 350 V8, one owner, \$1k nego. 649-5092.

'84 Ford Mustang LX, V6, auto, new tires, htchbk, \$1200. x38785 or (409) 945-8787.

'81 Gold Cadillac, 110k mi, good cond, \$2200. 482-1505.

'80 Chevy Camaro, \$1500 OBO. 471-5251.

**Boats & Planes**

17 sailboat, trlr, 1 main sail, 2 head sails, 1 spinnaker, \$1500 OBO. 333-7118 or 554-4726.

20' Glasron Cuddy Cabin, 200 HP Johnson, needs starter and fuel pump, \$3900. 489-9401.

'82 17' Citation, V-hull, 125 hp Volvo, \$3000 OBO. Monte, 326-3101 or 280-2532.

26' sailboat w/sails and trlr, \$4000. 334-2208.

22'4" sailboat, main, jib and spinnaker, 6 hp Johnson, \$2.5k. Greg, x32259 or 474-7634.

15' OB w/trlr 55 hp Merc, \$775 OBO. 334-2335.

'95 30' Sea Ray Sedan Cruiser, loaded, ex cond, \$48.5k. Sterling, 335-2123 or 538-4480.

'78 16' Baja, 80 hp Merc, \$1.7k. Tom, x33790 or 337-5294.

14' Dolphin sailboat and trlr, missing mast and sail, \$200. x36622.

Contender 16' sailboat, good cond, \$1.8k. 538-1051.

Santana 22, 4 sails, 6 hp Johnson, Imron topsides and deck, epoxy bottom, \$2800. 334-3320.

14' sailboat w/trlr, \$650 OBO. Sharon, 333-5848.

Sunfish sailboat w/trlr, \$450. Gregg, x38845 or 996-8347.

O'Brien Elite windsurfer w/mast, boom, RAF sail, harness, \$450. Liz, x33417 or 280-8277.

## Cycles

'74 Yamaha 360MX, \$900. Poy, x34094 or 488-6326.

Honda FT500 MC engine, needs work or use for parts, \$35. Terry, 282-4777 or 474-5639.

Man's 23" bike, Aerobike, Nashbar Toure ST double-butted chromoly frame, \$260. 333-0901 or 488-2652.

Centurian Ironman bike, 21.5" frame, Shimano 600 compo, 14 spd, \$250. Kelly, x37655 or 480-3330.

'84 Honda Nighthawk S, 700, 10k mi new tires, red/blk, ex cond, 2 helmets, \$1600. Rob, x36441 or 480-0328.

'86 VFR750 Interceptor, 4k mi, ex cond, 2 yrs left on ext war, \$3k. Russell, x33862 or 286-7877.

## Audiovisual & Computers

Seagate ST251 42MB HD/controller, \$100; 2MB 256k static colom RAM, \$50; EGA card, \$25. 488-6326.

Panasonic 1124 printer w/32k buffer chip, cut sheet feeder, \$150 OBO. 925-8664.

Apple IIe, 128k, 2 FD, colom mon, ImageWriter, surge protector, int modem, SW/manuals, \$400 OBO. 486-0169.

Tektronix 1240 logic analyzer, 9 ch acquisition card, touch screen, \$2.5k OBO. 480-7654.

Apple IIc w/12" monitor, mouse, ext drive, modem, \$300. 538-1479.

Commodore 128, 1581 and 1571 drives, Star 1000 and 1526 printers, mouse, modem, 50 disks, 1000 programs, \$450 all or part; 5 1/4" disk mailers, \$20 ea or all 50 for \$10; OptiQuest 2000 15" monitor, SVGA flat screen, non-interfaced, 1 mb card, \$515. 488-3527.

Macintosh SE, 1 MB, 2 800K FD, Apple kybd, Image Writer II, \$850. x45359 or 326-4679.

Apple III computer w/int-ext drives, BO. 532-4766.

IBM compat XT 40 MB HD, math coprocessor, Hercules graphics, 640k RAM, 5.25 FD, \$400. 334-4894.

Nintendo, 2 controllers, gun, 2 games, \$45. 282-2766.

366SX-16, VGA, 2 MB RAM, 40 MB HD, 3.5 and 5.25 FDs, DOS 5.0, \$800. Jamie, x35459 or 482-9430.

Panasonic KX-P1090i 9-pin printer, ex cond, \$125 OBO. Jim, 283-8272 or 326-3754.

Hewlett Packard 28s, manuals, receipt, \$125 OBO. Connie, 280-2774.

Commodore 64 computer, FD, color monitor, SW, \$125. Gene, x33187 or 488-5162.

Zenith laptop, mod 181, case, charger, mouse, 10 MB HD, 720k FD, ex cond, \$500. Pat, x32661 or 326-5342.

MS PacMan, coin op commercial video game, table mod, speed-up modification, \$475. Pat, 32661 or 326-5342.

40 MB Segate ST251 HD, MFM type, \$145 OBO; Hamlin tuner/amp, dual rrd chng, needs work, 482-8324.

**Photographic**

Konic TC 35mm SLR, 28mm and 135mm, tripod, flash, bag, \$375. Warren, x36472.

Minolta 35mm SR1 101, f1.4 58mm w/case, Vivitar zoom, 85-205mm f3.8 lens w/case, tripod, \$100 for all. 282-6432 or 796-1833.

JSC

# Dates & Data

## Today

**Cafeteria menu** — Special: Salisbury steak. Entrees: fried shrimp, deviled crabs, ham steak. Soup: seafood gumbo. Vegetables: buttered carrots, green beans.

## Saturday

**Power outage** — A total electric power outage is planned from 8 a.m. July 11 to 8 p.m. July 12 in Bldgs. 1, 2, 3, 4S, 13, 14, 15, 16A, 17, 18, 39A and 110 to allow for preventive maintenance. For more information, call William Gieck at x333135.

**Star party** — The JSC Astronomical Society will host a public star party from dusk until 10:30 p.m. July 11 at Challenger 7 park, if the sky is clear. Observations of the Moon, Jupiter and Saturn are planned. For more information, call John Erickson at 335-4278.

## Monday

**Cafeteria menu** — Special: hamburger steak. Entrees: beef Burgundy over noodles, fried chicken. Soup: cream of chicken. Vegetables: buttered corn, carrots, green beans.

## Tuesday

**AIAA fair** — The American Institute of Aeronautics and Astronautics Houston Section will host an International Space Activities Awareness Fair from 9 a.m.-5:30 p.m. July 14 at the Gilruth Center. Participants are expected to include representatives of agencies or companies from six continents. For more information, call Chris Burmeister at 333-6866.

**Cafeteria menu** — Special: turkey and dressing. Entrees: baked meat-

loaf, liver and onions, barbecue spare ribs. Soup: beef noodles. Vegetables: Spanish rice, broccoli, buttered squash.

## Wednesday

**Astronomy seminar** — JSC Astronomy Seminar will be held from noon to 1 p.m. July 15 in Bldg. 31, Room 129. For more information, contact Al Jackson at 333-7679.

**Toastmasters meet** — The Spaceland Toastmasters Club will meet at 7:15 a.m. July 15 in the Bldg. 3 cafeteria. For more information, call Darrell Boyd at x36803.

**Cafeteria menu** — Special: Spanish macaroni. Entrees: broiled fish, tamales with chili. Soup: seafood gumbo. Vegetables: ranch beans, beets, parsley potatoes.

## Thursday

**Cafeteria menu** — Special: chicken fried steak. Entrees: beef pot roast, shrimp chop suey, pork chops. Soup: navy bean soup. Vegetables: carrots, cabbage, green beans.

## July 17

**UNIX meeting** — The JSC UNIX Systems Administration Group will meet at 2 p.m. July 17 in Bldg. 12, Rm. 256. Dan McCoy of Loral will discuss "Running COPS Software." For more information, call Mark Hutchison, x31141.

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

## July 18

**Lunar run** — The 14th annual

Loral Lunar Rendezvous Run will begin at 8 a.m. July 18 at the Gilruth Center. The 5-kilometer run and 2-mile walk, organized by the Bay Area Running Club, is part of the Spaceweek. Entry fee is \$12 if post-marked by July 11 or \$15 after July 12. For more information, call Len Topolski at 333-5576, or Brenda Sanzone at 480-0257.

## July 20

**Spaceweek banquet** — The Spaceweek 1992 National Banquet will be at 7 p.m. July 20 at the Holiday Inn Hobby Airport, 9100 Gulf Freeway. U.S. Rep. Mike Andrews and NASA Acting Deputy Administrator Aaron Cohen will speak. For more information, call 333-3672.

## July 22

**On-site registration** — JSC's Human Resources Office will offer on-site registration for fall semester graduate engineering courses at the University of Houston-Clear Lake from 10:30 a.m.-2 p.m. July 22 in the Bldg. 45 lobby. Registration forms are available in Bldg. 45, Rm. 146. For more information, call Elaine Trainor at x45349.

**Astronomy Seminar** — The Astronomy Video Tape Series continues during the weekly JSC Astronomy Seminars. "Gamma Ray Bursts Observed by BATSE" with Dr. C.A. Meegan will be shown at noon July 22 in Bldg. 31, Room 129. For more information, contact Al Jackson at 333-7679.

**Toastmasters meet** — The Spaceland Toastmasters Club will meet at 7:15 a.m. July 22 in the Bldg. 3 cafeteria. For more information, call Darrell Boyd at x36803.

# Swap Shop

## Property

Sale: Lake Travis lot, all util, pool, golf, tennis, marina, \$12.5k. Nasser, x33685 or 334-1032.

Rent/Fleet: 2-lift-2.5 TH w/gar on golf course, no pets, sell \$90k/wk. \$850. Gil, x31373.

Rent: Timeshare condo anywhere in the world, \$600/wk. 286-8417.

Sale: Pebblebrook 2-2 condo, recent update, \$39.5k. Doug, 326-5464.

Sale: Countryside 3-2.5-2A, 2 story on lg corner lot, covered deck, \$66.9k. 554-7623.

Sale: 71 acre ranch, La Moca, TX, 2 BR house, water, cattle, \$120k. 326-1833.

Rent: Timeshare condo, anytime, anywhere, \$350/wk. Katie, x33185.

Lease: LC, The Landing, 3-1-1, fenced, mini-blinds, \$600/mo plus dep, no pets. 486-9811.

Sale: Santa Fe, 2.5 acres, well, septic, fenced, quiet, \$21.9k, no owner financing. 534-2231.

Sale/lease: CL Baywind II condo, 1-1, FPL, frig, W/D conn, \$27.9k/\$425. x31114 or 486-0898.

Sale: Texas City, 3-1-5, 2 story, corner lot, new roof, paint, carpet, \$49k. 943-2208.

Lease: Friendswood 4 BR, 2 story, major renovation, min 1 yr lease, \$1250/mo. 992-4064.

Sale: Jamaica Beach lot, 60' x 120', on 50' of waterfront canal. 388-4526 or 286-8558.

Sale: Pipers Meadow, 3-2-2, FPL, new carpet, paint, vinyl, \$74.9k. Susan, 488-9020 or 480-6446.

Lease: Middlebrook, 3-2-2, formals, den, 1 yr lease, \$1100/mo + dep. 283-1118 or 480-7226.

Rent: CL condo, 2-2, FPL, \$550. 399-0149 or 326-1299.

Rent: Egret Bay condo, 1-1-2CP, microwave, fan, FPL, W/D, \$495/mo. 488-6445 or 333-9078.

Rent: second story of Victorian on Bay, BR, bath, sitting rm, deck, kitchen priv, \$600/mo + 1/2 util. David, 335-8525.

## Cars & Trucks

'59 Chevy PU for restoration or parts, BO; '80 Chevy van, good cond, \$1650 OBO. 771-1012.

'78 Chevy Classic Caprice, runs well, \$500 OBO. Jackie or David, 554-7305.

'74 Toyota PU, good cond, A/C, \$1100 OBO. (409) 925-8664.

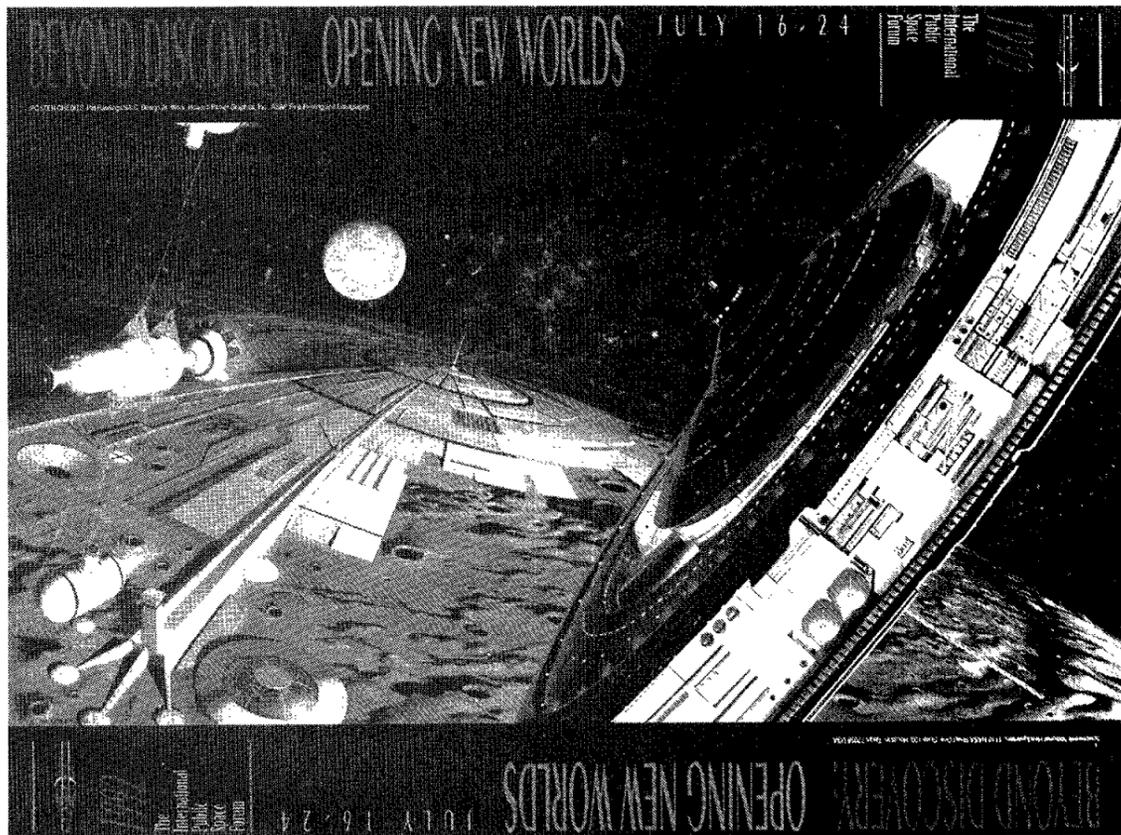
'90 Convertible Dodge Dakota PU, 13k mi, loaded, \$11k OBO. x49744 or 333-9742.

'82 Mercury Marquis, ex cond, maint records, \$1895. Linda, x31352 or Joe, (409) 945-3501.

'80 Chevy Chevette Scooter 4 spd, clean, runs well. \$750. 332-480

# Apollo Anniversary

## Annual celebration now an international public forum on future of space



The Clear Lake aerospace community will join more than 150 cities worldwide next week in celebrating Spaceweek, an international public forum on the future of space.

Organizers predict this will be the largest demonstration of public support for space exploration yet, with more than 800,000 people expected to participate.

"The 1992 Spaceweek theme, 'Beyond Discovery: Opening New Worlds,' asks us to consider what steps follow exploration and discovery," said Dennis Stone, volunteer president of Spaceweek National Headquarters in Houston.

"Twenty years have elapsed since the last Apollo explorers left the newest frontier — the Moon. In this, the 500th anniversary of Columbus' discovery of the new world, we need to ask: are we exploring space at the right pace?" added Stone, who works in JSC's New Initiatives Office.

The annual celebration also marks the first lunar landing mission in 1969, the first international space docking between Apollo and Soyuz spacecraft in 1975, and the landing of Viking, the first unmanned U.S. probe on Mars in 1976.

Major Spaceweek programs are planned in Houston, San Diego, Greenbelt, Md., and throughout the state of Hawaii. In addition, programs are scheduled in Bangladesh, France, Italy, Malaysia and the United Kingdom.

The coup de grace of the Clear Lake-area activities will be the Spaceweek 1992 National Banquet at 7 p.m. July 20 in the Atrium Convention Center at the Holiday Inn at Hobby Airport. All JSC and contractor employees are invited; tickets are \$30 and \$55.

JSC Director and NASA Acting Deputy Administrator Aaron Cohen and Rep. Mike Andrews, D-Texas, will present the keynote speeches. James Beggs, Spaceweek 1992 chairman and a former NASA admin-

istrator, will present this year's Space Pioneer Awards.

A new wrinkle at this year's banquet will be the unveiling of a new Texas Space Commission vehicle license plate. Texas State Sen. Buster Brown and Rep. Ashley Smith will present a symbolic "first plate" to Cohen at the banquet.

The Texas Space Commission is a non-profit independent state agency working with the Texas Department of Commerce to help establish the state's leadership in the industrialization of space and to expand the aerospace industry in Texas through the creation of new jobs in aviation, aircraft maintenance and assembly of space hardware and systems. The TSC works on space education initiatives for Texas schools and will utilize license plate revenues to further its "send a teacher/student to space" program.

The license plates, which were designed by space artist Pat Rawlings, a native Texan and employee of SAIC, portray Texas' "star" status as a leader in aerospace with a prominent Lone Star over the beauty of the Earth/Moon system.

Produced and distributed through the Texas Department of Transportation, the tags are available through local tax assessor offices. Cost is \$30 a year, \$25 of which goes to fund TSC projects in Texas. Plates also can be personalized with five characters for \$70 a year.

Spaceweek National Headquarters was started by JSC and contractor employees in 1980 in an effort to reach millions of Americans about the importance of space exploration. Today, organizations across the country and in other countries are planning public space programs sponsored by NASA centers, aerospace companies, libraries, museums and universities.

Houston serves as a "test bed" where new ways of involving the pub-

lic are tried and then exported to other cities. One of this year's experiments is a cooperative education training program that will culminate with an "Interplanetary Tourism: An Industry Design Workshop." Spaceweek National Headquarters worked with the Space Community Foundation to develop the youth leadership and space enterprise initiative.

This year's activities are expected to include:

### July 13-23

About 150 children will learn science and astronomy as part of a Kids University summer science camp at the University of Houston-Clear Lake.



According to Dr. Anne Copenhaver, the program for students in kindergarten through fifth grade involves a visit from the Clear Creek Independent School District's "Space Bus" and its pilot. Students get to fly a space mission and participate in hands-on learning activities.

The bus is parked outside UHCL's Developmental Arts Bldg. from 9 a.m. to 3 p.m. Monday through Thursday; morning classes are from 9 a.m. to noon, and afternoon classes are from noon to 3 p.m. Cost is \$60 for a three-day session.

For more details, call 283-3527.

### July 14

NASA and the American Institute of Aeronautics and Astronautics will sponsor an International Space Activities Awareness Fair from 9 a.m. to 5:30 p.m. in JSC's Gilruth Center.

Organizer Chris Burmeister said the ISAAF is designed to inform the

JSC community of the activities in other countries relevant to space engineering, science, exploration, products and services; to foster an appreciation for international cooperation; and to increase public awareness of International Space year.

Representatives from some 23 countries are expected to participate, he said. For more information, call 333-6866.

### July 18

The NASA-Houston Rocket Club will hold a demonstration launch of more than 100 flights from 1 to 4 p.m. July 18 in the field next to JSC's Rocket Park.

Arthur Nino, a space station safety expert who works for

Loral/Calspan and is the group's president, said between 400 and 1,000 people have turned

out for the annual

Spaceweek launch in the past.

Model rocketeers are invited to bring their own rockets out, and to launch them if an inspection by club members determines they are safe and stable.

A Lunar Rendezvous YMCA Olympics will feature track and field events for children ages 3 to 14 from 9:30 a.m.-noon at the Edgar A. Smith Family YMCA, 14650 Highway 3, Webster.

The ninth annual olympics will feature field events such as standing long jump, bean bag golf, basketball shoot, softball throw, 50 yard dash and 100 yard dash. Gold, silver and bronze certificates will be presented to each participant based on rankings from past competitions, said Marlene Jehnke, YMCA program director.

Registration begins immediately; cost is \$3. The first 200 entrants will receive a free T-shirt.

Co-chairs of the event are Christine Jowid of JSC's Gilruth Center and Jim Saxe. For more information, call 486-9626.

The 14th annual Loral Lunar Rendezvous Run will begin at 8 a.m. July 18 at the Gilruth Center. The 5-kilometer run and 2-mile walk, organized by the Bay Area Running Club will cause some traffic changes at JSC.

Entry fee is \$12 if postmarked by July 11, or \$15 after July 12. For more information, call Len Topolski, 333-5576, or Brenda Sanzone, 480-0257.

"Interplanetary Tourism: An Industry Design Workshop" will be presented as part of a youth leadership and space enterprise initiative planned by the Space Community Foundation in cooperation with Spaceweek National Headquarters. For more information, call 333-2233.

### July 20

The annual Spaceweek National banquet will feature keynote addresses by Rep. Mike Andrews, D-Texas, and NASA Acting Deputy Administrator Aaron Cohen.

Former NASA Administrator James Beggs, the 1992 honorary Spaceweek chairman, will present this year's Space Pioneer Awards. Harris County Judge Jon Lindsay will provide welcoming remarks.

The banquet — black tie is optional — will begin at 7 p.m. in the Atrium Convention Center at the Holiday Inn, Hobby Airport, 9100 Gulf Freeway. Tickets are \$30 or \$55 per person and may be purchased in the Bldg. 11 Exchange Store, Spaceweek National Headquarters, 1110 NASA Road 1, Suite 100; and Cutters, 16225 El Camino. For tickets or more information, call 333-3627.

### July 20-24

Boeing Aerospace Operations Co. will offer public open house tours of the Boeing Flight Equipment Processing Facility. Reservations are required; call Kari Thornton at 280-2028 for more information.

### July 21

The Junior Astronaut Corps of America will sponsor rocket launches, art contests and an essay contest on the topic of "Spaceweek: Remember Apollo" from 1:30 to 3:30 p.m. at the San Jacinto College Central Campus in Pasadena.

The Junior Astronaut Corps is a non-profit group to stimulate children's interest in science and math by using the excitement of space exploration. The group holds space camps each summer and offers scholarships through San Jacinto College and the United Way.

Space camp students from the Republic of China are expected to join this year's Spaceweek celebration.

About 30 space camp students plan to touch off about 60 launches, and model rocketeers are invited to bring their own, said organizer Carolyn Blacknall.

The art contest will be broken down into elementary, junior high and high school categories and will judge art that represents Apollo and space exploration. Essays should be about two pages long and discuss why humans should go back to the Moon.

Art and essay contest entries should be mailed to the group's office at 403 NASA Road 1, Suite 360, Webster, 77598 before July 22. For more information, call 486-4446.

The Friendswood Public Library will host an appearance by Astronaut Story Musgrave from 1:30 p.m. at 416 Morningside.

Musgrave is expected to present a slide show, show some space flight hardware and answer questions.

Tickets for the family-oriented program may be obtained at the library July 15. Present a slide show and talk about space and answer questions. For more information, call 482-7135.

The 1991 Spaceweek celebration was the result of cooperation among hundreds of forward-looking agencies, companies, organizations and individuals in 147 cities and 14 countries and drew some 750,000 participants. □



The new Texas Space Commission vehicle license plate will be unveiled at this year's Spaceweek National Banquet. The space commission, a non-profit independent state agency working with the Texas Department of Commerce, will use the proceeds of license plate sales to further its "send a teacher/student to space" program. The plates were designed by noted space artist Pat Rawlings, a native Texan.

# Hubble telescope sky survey reveals embryonic galaxies

A serendipitous survey of the heavens with NASA's Hubble Space Telescope is uncovering remote and unusual galaxies never before resolved by optical telescopes on Earth.

HST reveals an unusual variety of shape and structure in these distant galaxies, which previously appeared as fuzzy blobs in ground-based sky surveys. These early results may lead to a much clearer understanding of the formation and evolution of galaxies.

The results were reported by Dr. Richard Griffiths of the Space Telescope Science Institute, Baltimore, Md., at the international workshop on Science with the Hubble Space Telescope held June 29 through Thursday in Sardinia, Italy.

Some of the remote galaxies, estimated to be between 5 and 20 billion light-years away, do not have the familiar spiral and elliptical shapes characteristic of galaxies in the nearby universe, accord-

ing to Griffiths.

One cosmological model is that galaxies in the early universe interact dynamically and grow bigger by cannibalizing smaller regions of star formation. If so, the objects resolved by HST may be "building blocks" for today's large galaxies.

"We have seen several examples of what appear to be interacting or merging galaxies," said Griffiths, the principal investigator on this key, long-term HST project.

HST's medium-deep "parallel"

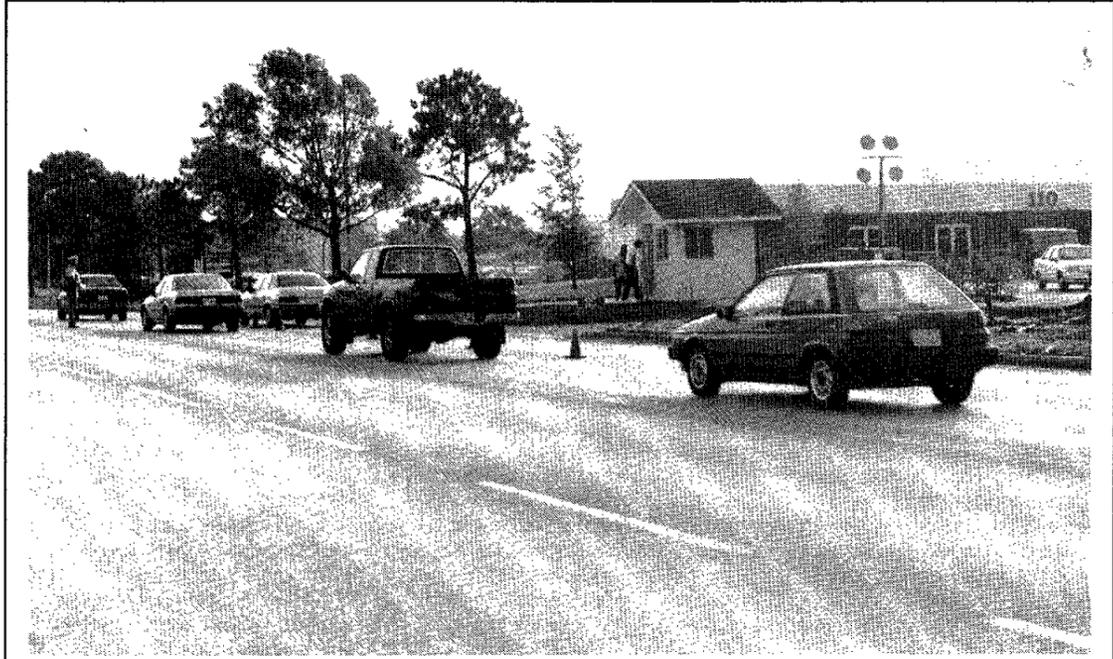
survey is carried out using HST's Wide Field Camera to take pictures in a random field while a "primary" instrument, such as a spectrograph, is performing an observation on a preselected target about one-sixth the moon's diameter away.

"By operating two instruments simultaneously, the overall efficiency of the telescope is greatly improved," said Griffiths. "During the course of the survey, several thousand images will be recorded."

Pictures are taken in multiple col-

ors — including the ultraviolet, visual and infrared — and searched for the unknown and unexpected.

Mission planners at the Space Telescope Science Institute developed the techniques necessary to schedule these observations without affecting the HST's primary science projects. The survey is led by Johns Hopkins University and STScI in collaboration with a dozen astronomers in the USA and the United Kingdom.



JSC Photo by Benny Benavides

**MOVE 'EM IN** — Security guards check car passes as employees enter JSC through its relocated main entrance. The new guard shack at the intersection of Second Street and Avenue E began being used Monday as Second became an extension of Saturn Lane and a public thoroughfare. JSC is continuing to close the Saturn Lane, or Credit Union, gate overnight to help Metro with its widening of Saturn to four lanes and the addition of two turn lanes on Second. While construction is under way, Avenue E is being blocked at Second Street after 9 a.m.

## Space Center Houston plans recruiting days

Space Center Houston is looking for people to work at "the closest thing to space on Earth," and JSC employees are encouraged to tell friends and family members about next week's two recruiting days.

Enthusiastic, reliable people with an interest in sharing the excitement of manned space flight with the public are invited to attend the recruiting sessions from 2 to 7 p.m. Tuesday and 10 a.m. to 3 p.m. Wednesday at the University of Houston Clear Lake's Bayou Bldg.

An introductory presentation will be given on the hour, and initial interviews will follow with Space Center Houston, Marriott and Host International representatives. Marriott will provide food services when the new visitor center opens Oct. 16, and Host will manage the gift shop.

"There's been so much interest expressed in Space Center Houston by the folks at JSC that we want to

encourage them to tell their friends and let them know we're hiring," said General Manager Vance Ablott. "We keep getting phone calls and for all those people who wondered when, now is the time."

Positions available include hosts and hostesses to work in guest services, attractions, ticket sales, security, tram drivers, food service, retail sales, landscaping and show systems. Tour guides also are being sought to present information to guests on JSC buildings and services.

About 150 full-time and 150-part-time jobs are available. Service industry experience can be helpful. The minimum age is 17, and applicants are encouraged to bring resumes.

NASA retirees who are interested in sharing their experience and earning supplemental income also are invited to attend.



## Manned Flight Awareness honorees see launch

Fifteen JSC civil service employees earned the opportunity to watch the very start of the longest shuttle mission so far as Manned Flight Awareness honorees.

The honor, one of the highest awards an employee can receive, recognizes outstanding achievement in support of NASA's manned space flight efforts.

The JSC honorees joined about 225 other honorees from across the country at Kennedy Space Center, where they were welcomed by KSC Director Bob Crippen, Shuttle Program Manager Leonard Nicholson, Shuttle Program Director Tom Utsman and Associate Administrator for

Space Flight Jeremiah Pearson.

JSC's honorees were:

- Al Baker, Space Station Projects Office; Vince Berend, Safety, Reliability and Quality Assurance; Tom Condon and Dave Loyd, White Sands Test Facility; Rich Delgado and Vicki Stowe, Administration; Sharon Feeney, Mission Operations; Al Ligrani and Kay Morris, Office of the Comptroller; Anselmo Lozano and Britt Walters, Space and Life Sciences; Bernard Marcantel, Space Shuttle Engineering Integration; Robert McElyea, Engineering; Dick McMinimy, Center Operations; and Merrylee Shrum, Flight Crew Operations.



## Columbia mission helps pave way for space station operations

(Continued from Page 1)

During one of seven in-flight radio and television interviews with the crew, Baker reported that she and her orbiting colleagues were having no problems adjusting to microgravity on the long mission.

"There is a point you reach between seven or eight days where this feels so incredibly comfortable up here and so incredibly natural that you almost forget what it feels like to be on the ground," Baker said.

The first U.S. Microgravity Laboratory mission had been scheduled to land Wednesday at Edwards Air Force Base in California, but rain in that area forced two wave-offs and shuttle managers decided to take

advantage of the early opportunity at KSC because of continuing weather problems at Edwards on Thursday.

When Reightler radioed *Columbia* that the landing would be waved off until Thursday, the crew — in unison — broke into its own impromptu rendition of "Stay," a 1960 hit by Maurice Williams and the Zodiacs that had been played for the crew when *Columbia* surpassed its own STS-32 duration record on flight day 10.

The crew was to spend several hours at KSC before departing for JSC and a welcome-home ceremony at Ellington Field Thursday afternoon.

The end of the mission was just the beginning of scientific discovery for USML-1 experiment teams. Some

will pick up experiment samples at the landing site, and many have gathered reams of information to peruse as they decipher their results.

Mission Manager Charles Sprinkle called USML-1 a "technological triumph and a scientific success."

USML-1 established a long-term space laboratory program designed to build U.S. leadership in microgravity science and technology, laying a foundation for full-time science operations aboard Space Station *Freedom*. It pioneered investigations into the role of gravity in five basic areas: fluid dynamics, crystal growth, combustion science, biological science and technology demonstration. It introduced several new large experiment facili-

ties designed for multiple users and multiple flights, and it demonstrated the efficiency of interaction as teams at Spacelab Mission Operations Control in Huntsville, Ala., sent remote commands to their equipment or worked with scientists in orbit to adjust their experiments on the spot.

"We are really looking forward to analyzing the ground-breaking data brought back by USML-1," said Mission Scientist Donald Frazier.

The Crystal Growth Furnace, the first space furnace capable of automatically processing multiple large samples, operated for 286 hours and processed seven semiconductor crystal samples. Investigators uplinked computer commands in

response to downlink data to remotely control the furnace; samples were automatically positioned for processing; and the crew proved the feasibility and safety of manually exchanging samples in a habitable environment.

The Drop Physics Module saw the first compound drop (one fluid within another much like a yolk in an egg); the first drop coalescence (individual drops merging to form a single drop); and the first retrieval of a drop by the module injectors.

USML-1 was the first flight of the Extended Duration Orbiter Medical Project and the unprecedented 13 days of data collection will help refine countermeasures to protect crew health during future long flights.

## Hawley, Brandenstein make career moves

(Continued from Page 1)

ence makes him well qualified to help lead the flight crew operations functions, which include recommending astronaut selections; aviation operations; payload specialist activities, both domestic and international; and operational contributions to design and development of manned spacecraft and payloads, equipment, and systems."

Brandenstein, who commanded and flew the new orbiter *Endeavour* on the recent STS-49 mission to retrieve, repair, and deploy the stranded INTELSAT-VI telecommunications satellite, is a veteran of four

shuttle missions. He holds the record among shuttle astronauts for the most time in space with 789 hours. He also has flown four of the five orbiters, and has more rendezvous experience than any other pilot.

During STS-49, the crew conducted a record-setting four space walks to rescue the satellite and to demonstrate and evaluate extravehicular activity tasks related to the assembly of Space Station *Freedom*.

"I'm sorry to see Dan go," JSC Director Aaron Cohen said. "He's one of the finest human beings I have ever had the privilege to know. He has been an outstanding astro-

naut, providing an example of excellence to which all others should aspire. His leadership skills are unparalleled here or elsewhere. I wish him the best in whatever he chooses to do."

Puddy said Brandenstein's experience and expertise will be missed.

"His many extraordinary achievements as an astronaut and exemplary performance as a manager have provided the leadership that has been very valuable to the astronaut corps, the Johnson Space Center, and NASA," Puddy said. "I wish him continuing success as he pursues a new career."

## 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.

Dates and Data submissions are due Wednesdays, eight working days before the desired date of publication.

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

## Atlantis nearly ready

(Continued from Page 1)

used on Space Station *Freedom*."

*Atlantis* is at Launch Pad 39B and shuttle managers are meeting today to decide an official launch date for STS-46, perhaps as early as July 30. TSS and EURECA were installed in *Atlantis* cargo bay during mid-week, and testing of the connections between the spacecraft and cargo is under way.

*Endeavour* is being readied for installation of the Spacelab-J module, a Japanese-United States cooperative lab, in its cargo bay in preparation for a September launch.

*Discovery* is undergoing its periodic inspections and upgrades at KSC.