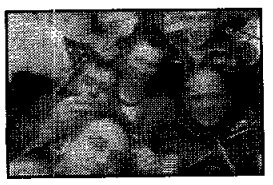
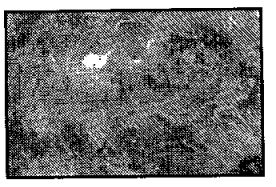
National Aeronautics and Space Administration
Lyndon B. Johnson Space Center
Houston, Texas



Scientific studies

Norm Thagard will conduct experiments on the Mir space station developed at JSC. Story on Page 3.



Venus views

Magellan continues to give scientists radar mapping data on the planet Venus. Story on Page 4.

Space News Roundup

Vol. 34 March 24, 1995 No. 12

JSC offers outplacement aid to workers

Human Resources Director Harvey Hartman announced the establishment of a new outplacement program intended to help civil service employees taking the buyout or considering leaving NASA.

The new Career Transition Assistance Program was created in response to the need to reduce agency manpower as a result of the national initiative to downsize government.

"Although we cannot fully determine the extent of reductions needed at this time, we want to make full use of all voluntary methods for decreasing the size of our workforce," Hartman said. "The buyout is a key part of the Agency's voluntary reduction strategy."

While CTAP does not guarantee employees job offers or find jobs for them, it will help them assess alternative job prospects and sharpen their job search skills, Hartman said.

Services will include a staff with extensive experience in providing job assistance to government employees and in translating government experience into marketable skills for the private sector; individual career counseling and needs assessment by professional counselors; group seminars and employment workshops that cover skills assessment, objective setting, job offer evaluation, salary and benefits negotiation, networking, interviewing techniques and resume and cover letter preparation.

Also available will be a library of resource materials and use of fax, copier and telephone, access to worldwide employer databases and job openings (updated daily), a computer data base linked to more than 14,000 U.S. national employers and computer stations and laser printers for resume, application and cover letter preparation.

For additional information, contact the Human Resources Management Branch at x33008.

JSC Photo by Mark Sowa

RECORD SHATTERED–The STS-67 crew return home Sunday from a record setting 16 day mission at Ellington Field. Commander Steve Oswald leads the way for fellow crew mates and family members towards awaiting friends. An Employee Briefing and Space Flight Medal Presentation is scheduled for 2 p.m. Thursday in the Teague Auditorium. A public briefing will take place at 11 a.m. Next Friday at Space Center Houston.

National Women's History to be celebrated next week

In observance of National Women's History Month, the Equal Opportunity Programs Office will sponsor a program from 10 a.m. - noon March 31 in the Teague Auditorium.

The theme for JSC's 1995 Women's History Month is "Promises to Keep: Today's Women—The Next Generation." The program will focus on the lives of several women who made history by becoming the first women in their chosen career fields.

"By being first, these women have certainly set an example for others," said Estella Gillette, director of the Equal Opportunity Programs Office. "Hopefully in the future we won't have to focus on women being the first of anything, it will be the norm."

This year's program will feature Eileen Collins, the first woman astronaut pilot; Martha Wong, the first Asian woman Houston City Council member and Harriet Ehrlich, the first woman director of the Equal Employment Opportunity Commission, Houston District. Other prominent women include in the program are Cilia Teresa, the former national board member of the MS Foundation and the National Organization for Women and Sonceria Messiah, owner and publisher for the Houston Defender.

JSC civil service and contractor personnel are encouraged to attend the activities as workloads permit. Questions or additional information regarding this program may be directed to Lupita Armendariz at 483-0604.

Endeavour sets new record for shuttle flight

By Rob Navias

Having collected a treasure trove of data about ultraviolet radiation from distant celestial objects, *Endeavour*'s seven astronauts glided to a smooth touchdown March 18 at Edwards Air Force Base, California wrapping up a shuttle-record 16 1/2 day astronomy research mission.

"Welcome home *Endeavour*, after a fantastic, record-setting mission that will be a tough one to beat," radioed spacecraft communicator Curt Brown to Commander Steve Oswald after the shuttle rolled to a stop on the concrete runway at Edwards to complete a 6.9 million mile mission.

The landing was delayed a day by clouds and thundershowers at Kennedy Space Center on March 17, which persisted the following day, forcing flight controllers to direct *Endeavour* to its landing at the backup site in California's Mojave Desert. The orbiter and its seven astronauts were pronounced in excellent shape after the completion of the flight, which drew high praise from its commander.

"This has been a fabulous adventure with a great crew and a fantastic flying machine," Oswald told a crowd of well-wishers, which greeted the crewmembers upon their return last Sunday at Ellington Field.

The trio of ASTRO-2 telescopes in *Endeavour*'s cargo bay collected three times more data than was accumulated on the first ASTRO mission in December 1990 and the telescopes and the Instrument Pointing System on which they were mounted performed flawlessly throughout the record-setting flight.

Two days before landing, Oswald took a few minutes out from his schedule on orbit to talk via a ship-to-ship radio link to his former crewmate, Norm Thagard. Thagard had arrived earlier in the day on the Mir space station aboard a Soyuz capsule to begin three months of scientific research as the first American to fly in space on a Russian rocket.

Oswald and Thagard flew together aboard *Discovery* on the STS-42 mission in January 1992, and agreed that flying in space at the same time on different nations' spacecraft was symbolic of the direction human spaceflight is taking.

"It looks like we can do things together in a very orderly and successful fashion," Thagard told Oswald, as he settled into his new orbital home.

"It shows that we can make a very complex program work"

Thagard spent the first few days of his marathon flight unpacking gear and familiarizing himself with the Mir complex. Last Monday, as he and his crewmates prepared for the departure of three other cosmonauts who have spent months aboard Mir, Thagard said life aboard the Russian Space Station is not unlike life aboard the Shuttle.

"The two systems, since they have to solve the same problems and do the same tasks, work surprisingly similarly," Thagard explained during his first news conference from Mir.

"The similarities are much more striking than the differences."

Please see ***ATLANTIS***, Page 4

Thagard settles into Mir

By Kari Fluegel

A week after he became the first American to ride on a Russian rocket, Astronaut/Cosmonaut Norm Thagard is settling into life on board the Mir Space Station.

Thagard took time from his schedule to talk with reporters in Russia and the U.S. on Monday, and a correspondent from the NBC Today Show Tuesday. Thagard told reporters he feels comfortable and welcome on the station and that he is looking forward to the three months ahead.

The schedule for the Mir 18 crew's first week on orbit is fairly light to allow Thagard, Commander Vladimir Dezhurov and Flight Engineer Gennady Strekalov time to acquaint themselves with their surroundings and to adjust to the microgravity environment of space. Thagard, however, has completed several activities with the Shuttle Acceleration Measurement System including a calibration of the system and relocation of the sensors around Mir. SAMS has been collecting data on disturbances to the microgravity environment of the Mir since August 1994 when it arrived on a Progress cargo vehicle. This information will be used by investigators to analyze experiment data collected on Mir.

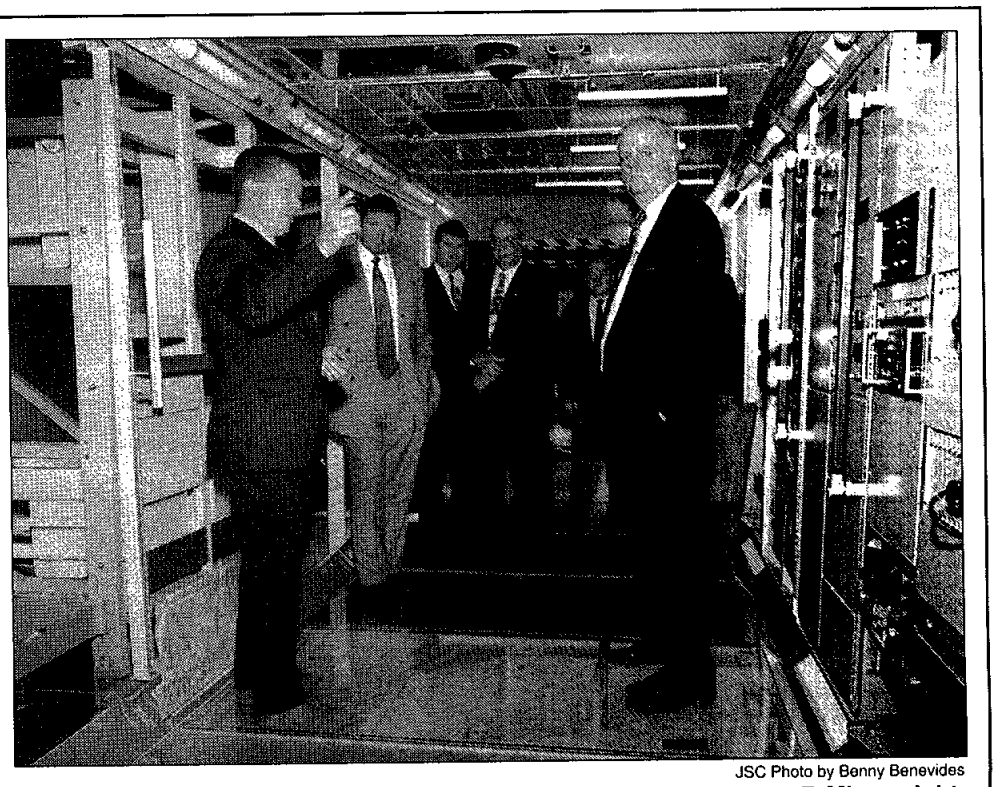
The primary activity on Mir for this week, however, was to prepare for the departure of the Mir 17 crew, which consisted of Commander Alexander Viktorenko, Flight Engineer Elena Kondakova and Physician Valery Polyakov. The Mir 17 crew returned to Earth Tuesday in the same Soyuz capsule that took Viktorenko and Kondakova to Mir in October.

The cosmonauts spent several hours stowing equipment and experiment samples in the capsule to be returned to Earth. They also conducted a series of briefings between the two crews to update the Mir 18 group on the status of the station's systems.

The Mir 17 took its place in the Soyuz capsule shortly after 3 p.m. JSC time Tuesday. The hatch between the space station and the Soyuz closed at about 3:35 p.m.

The return of the Mir 17 crew brings Polyakov's record setting stay on orbit to an end. The 52-year-old physician began his mission on January 8, 1994, and has spent 438 days in space. That eclipses the previous record of 366 days set by Vladimir Titov and Musa Manarov in 1988. Polyakov, whose first Mir flight was in 1988 to assess Titov's and Manarov's physical condition before their return to Earth, has now spent a total of 679 days in space during his two missions. During the press opportunities this week, Polyakov, who has exercised regularly on Mir, said he felt physically fit for the trip home.

Viktorenko and Kondakova were launched to Mir on October 4, 1994, and have spent 169 days in space.



JSC Photo by Benny Benevides

CONGRESSIONAL VISIT—Congressman F. James Sensenbrenner, R-Minn., right, listens as Bill Shepherd, far left, deputy manager of the Space Station Program Office, explains elements of the space station mock-up in Bldg. 9. The chairman of the House Subcommittee on Space and Aeronautics, visited JSC last week for meetings with JSC Director Dr. Carolyn L. Huntoon and program managers. Joining in the tour was from left, Randy Brinkley, manager of the Space Station Program Office; Ken Clark, staff aide to Congressman Steven Stockman, R-Texas; Doug Stone, program manager for Boeing Space Systems and Lynn Heninger, deputy associate administrator of the Office of Legislative Affairs.

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.

Snow White: Snow White and the Seven Dwarfs, noon April 8 at the Summit. Tickets cost $12.

Bluebonnet trip: Bluebonnet trail bus trip April 1 and 8. Four different trips to choose from. Cost is $15 and $24 limit four tickets per employee.

JSC Picnic: The JSC picnic April 22 at Astroworld. Tickets cost $11 for the first 3,000 $20 after. Includes all attractions and all-you-can eat barbecue dinner.

Loving Feelings: Loving Feelings Concert at 7 p.m. Sept. 30 at the Summit. Tickets cost $32.50.

Seaworld: Seaworld tickets cost $23.50 for adults and $16.25 for children 3 - 11.

Astroworld: Astroworld early bird tickets cost $14.70. Season passes cost $45.50.

Moody Gardens: Discount tickets for two of three different attractions: $9.50

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; 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.

Upcoming events: Houston International Festival, Fiesta Texas, Schlitterbahn, Six Flags and Splashtown tickets available soon.

JSC

Gilruth Center News

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.

Weight safety: Required course for employees wishing to use the weight room is offered from 8-9:30 p.m. March 30 and April 11. Pre-registration is required. Cost is $5.

Defensive driving: Course is offered from 8:15 a.m.-3 p.m. Saturday. Next class is April 1. Cost is $19.

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

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.

Country dancing: Beginners class meets from 7-9 p.m. Mondays; advanced class meets from 8:30-10 p.m. Mondays. Partners are required. For additional information, contact the Gilruth Center at x33345.

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

Softball tournament: A preseason softball tournament will be held March 25-26. Cost is $100 per team. For more information call the Gilruth 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

Dates & Data

Today

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

Saturday

Toy sale: The JSC Child Care Center will hold its annual Children's Clothing and Toy Resale from 8:15 a.m.-noon March 25 at the Clear Lake Recreational Center Pavilion. For sale will be previously owned infants' and children's clothes, maternity clothes, toys and baby equipment. A portion of the proceeds benefits the Child Care Center. The sale will be open to the public. For more information, call Mary Cerimele at x36621.

Monday

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

Tuesday

BANN meets: The Bay Area Networking group will host a luncheon at the Bay Oaks Country Club at 11:30 a.m. March 28. Sandy Vilas will offer "The 10 Commandments of Networking." For more information, contact Noi Dawson at 486-0315.

Cafeteria menu: Special: pepper steak. Total Health: barbecue chicken. Entrees: baked lasagna, pork chop and fried rice, turkey a la king, baked chicken, fried cod fish, French dip sandwich. Soup: black bean and rice. Vegetables: breaded squash, steamed spinach, baby carrots, navy beans.

Wednesday

Astronomy seminar: The JSC Astronomy Seminar will meet at noon March 29 in Bldg. 31, Rm. 129. An open discussion meeting is planned. For more information, call Al Jackson at 333-7679.

Toastmasters meet: The Spaceland Toastmasters will meet at 7 a.m. March 29 at House of Prayer Lutheran Church on Bay Area Blvd. For additional information, contact Darrell Boyd, x36803.

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

Thursday

AIAA workshop: The American Institute of Aeronautics and Astronautics will host a real-time workshop on MATLAB software from 9 a.m.-4 p.m. March 30 at the LPI Lecture Hall. For more information call Naz Bedrossian at 333-2127.

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

Friday

Abstracts due: Abstracts are due March 31 for papers to be presented at the Joint Applications in Instrumentation, Process and Computer Control Symposium. The symposium is scheduled for April 28 at the University of Houston-Clear Lake. Topics include, but are not limited to, advanced control systems, communications, sensing and intelligent systems. For more information, call Kent Byerly at 333-6198.

Alumni league: The NASA Alumni League will hold its annual dinner/dance beginning at 6 p.m. March 31 at the Gilruth Center. Tickets cost $7.50 for members, $15 for nonmembers. For additional information call Al Richmond at 280-7777 or Jerry Craig at 420-2936.

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

April 12

PSI meets: The Clear Lake/NASA Area Chapter of Professional Secretaries International meets at 5:30 p.m. April 12 at the Holiday Inn on NASA Road 1. For more information, contact Elaine Kemp x30556.

May 10

PSI meets: The Clear Lake/NASA Area Chapter of Professional Secretaries International meets at 5:30 p.m. May 10 at the Holiday Inn on NASA Road 1. For more information, contact Elaine Kemp x30556.

May 29

Memorial Day: Most JSC offices will be closed in observance of the Memorial Day holiday.

June 14

PSI meets: The Clear Lake/NASA Area Chapter of Professional Secretaries International meets at 5:30 p.m. Feb. 8 at the Holiday Inn on NASA Road. Patsy Mitchell will present "Leadership Without Authority." For additional information, contact Elaine Kemp x30556.

Swap Shop

Property

Sale: Taylor Lake Estates, residential lot 90' x 135', $39.5/obo. Don, x38039 or 333-1751.

Rent: Galveston condo, furn, sleeps 6, Seawall Blvd & 61st St, wkend/wkly/dly rates. Magdi Yassa, 333-4760 or 486-0788.

Rent: El Dorado Trace, 2-2, furn, FPL, alarm, sauna, $675 + elect. 333-8126 or 488-1327.

Rent: New Orleans condo in French Qtr, Jazz festival wk, 4/28 - 5/5, furn Greek Renaissance, priv rooftop deck, $500. 333-8126 or 488-1327.

Sale: Rosewood Memorial Cemetery, 4 lots, $395/ea. x40250 or 941-3262.

Sale: Santa Fe, 2.5 acres, Ave E. & 32nd South off Hwy 646, front 220' x 495D, $20k, 337-1311.

Rent: El Dorado Trace condo, 2-2-CP W/D, wet bar, CF, 1100 sq ft, $525/mo. 333-6962.

Sale: Waterfront .5 acre lot on Dickinson Bayou, new bulkhead, trees, $85k. x31370.

Lease: Seabrook, 3-2-2, remodeled, 1800 sq ft, fenced yard, $800/mo. 474-2857.

Lease: Barringer Way condo, 2-1, W/D conn, pool, no pets, ex cond, $495/mo. 486-2048.

Sale/Lease: CLC Oakbrook, 4-3-2, 2600 sq ft, pool, fenced, $1.1k/mo + $1k/dep; $104.9k w/assum, $75k @ 8%. Will x37439 or Jan x45405.

Sale: League City, 3-2-2, new roof, remodeled kitchen, lg yard, $71k. x34606 or 554-2487.

Sale/Lease: Pebblebrook condo, Seabrook, 2-2, pool, FPL, W/D, ceiling fans, assum $29.9k or $500/mo. 992-4923.

Sale: 3-2-2A, new carpet, paint kitchen, CF, deck, assum $393/mo; possible trade for equity, $65k. 992-3662 or 286-3161.

Sale: 4-2-2, new Lennox heat pump, w/hot water recovery, updated/painted, $65. Betty, 482-0167.

Sale/Lease: Santa Fe, 3-2-2, breakfast area, den, pool, satellite, 5 or 2.5 acres. 337-1311.

Sale: Egret Bay condo, 2-1-2CP, 2 storage closets, FPL, fans, W/D, appl, new carpet/tile/roof, contempo, $45k. x41036 or 333-4577.

Lease/Option: Sterling Knoll, Webster, 3-2.5-2, FPL, wet bar, formal DR. 332-6409.

Cars & Trucks

'80 Corvette, PS/PW/PD, 350 auto, needs carpet, $6.5k firm. Steve, 947-3270.

'86 Nissan Sentra, blue, 5 spd, A/C, AM/FM, 77k mi, $1,750/obo. G. Moore, 286-1863.

'83 Olds Tornado, V-8, power, $2k/obo. Steve, 947-3270.

'93 MX-6, green w/taupe inter, 5 spd, loaded, AM/FM/cass, alarm, sunroof, ex cond, 27k mi, $15.6k. 486-2414.

'89 Honda Civic DX, 4 dr, std, A/C, AM/FM/cass, ex cond, $4k. 282-3478 or 409-935-4161.

'93 Geo Storm, 5 spd, 35k mi, ex cond, A/C, 2 dr, AM/FM/cass, $13.9k. Sharwin, x30616.

'87 Honda CRX HF hatchback, 5 spd, 67k mi, Pioneer stereo, JBL speakers, 1 owner, good cond, $3.5k. Michelle, x48993 or 554-6874.

'81 Monte Carlo Landau, black, t-tops, auto, A/C, AM/FM/cass, cruise, alarm, 75k mi, ex cond, $2.5k. x34083 or 488-2185.

'91 Toyota MR2, white, sunroof, auto, 50k mi, car phone, 4 new tires, $11k/obo. 996-8516.

'84 Toyota Celica, auto, 2 dr, A/C, power, runs good, $1.9k. Kenny, 282-2764 or 554-2249.

'67 Morris Minor 1000, not running, 2 dr, $800. 333-2395.

'72 Triumph GT6 fast back, runs good, $2k/obo. David, x35859 or 486-4870.

'92 Eagle Talon, 5 spd, 4 cyl, maroon, 62k mi, stereo & speakers, $8.5. Steve, 482-0167.

'92 Mitsubisi 3000GT, 5 spd, A/C, charcoal gray, 20k mi, sunroof, $15.2k. Mack, x47112.

'85 Alfa Romeo Spider Veloce convertible, silver 5 spd, P/W, leather inter, new top, A/C, 58k mi, $5.2k. Robert, 280-5900 or 484-1123.

'93 Chevy Cavalier, red, 5 spd, AM/FM/cass/CD 10 disk changer, warranty, low miles, $8,950. Billy, x33571 or 480-5570.

'68 Porshe Classic, red, org good interior, runs good, mechanic work under warranty, $9k. 554-4139.

'86 Nissan Sentra, 5 spd, A/C, 2 dr, light blue, 95k mi, $1.8k. Ian, x34853.

'87 Chevy Nova, auto, new tires/timing belt/battery, ex cond, $2,650. Ian, x34853.

'87 Mazda RX7 Turbo, 5 spd, P/B, P/W, A/C, AM/FM/cass, cruise, sunroof, $6.5/obo. 280-0285.

'82 Transtar Motorhome, all extras, including generator, new tires/roof/dash air, 19' awning, ex cond, $8k. 339-0327.

Saab 900 Turbo, runs great. Dennis, x39012 or 992-5285.

'91 Leer M122 camper, fits '82-'93 S10 or Sonoma PU w/6' bed, maroon w/sliding tinted windows, ex cond, $400/obo. David, x39678 or 424-8130.

Cycles

'89 Trek 2000 road bike, 54 cm frame, Shimano 600 Ultrega components, $400. x48112 or 480-1800.

Trek 560, Look pedals, gel seat, Shimano gears, loaded, $375 firm. 488-8409.

Boats & Planes

Sovereign, 24' ex cond, extra jib, depth sounder, head, stove, sleeps 4, elec start Johnson O/B, make offer. Mike, 282-2787 or 286-1691.

Sportcraft 14' boat w/trailer, 44 hp Johnson O/B, runs good, $975. Sam, 332-3168.

'86 Celebrity Bowrider, 19', Merc I/O, fully outfitted, Sportsman trailer, ex cond, $10.9k. Charlie, 488-4412.

'90 Yamaha Waverunner LX, cover, new carb & Yusa battery, 42 hp, Sportsman trailer, access, $2.5k. Linda, 996-5107.

Sea Eagle, inflatable boat, hvy duty vinyl, 9'7"x4'6", 4 adult, floor boards, motor mount, oars, $225. Sina, x36582 or 480-3698.

'81 Catalina 25, Evinrude 7.5 O/B, Bimini, head, $7.5k. 334-6615.

'94 Galvanized McClain trailer for approx 19' boat, $950. Bob, 244-4431 or 326-5616.

'82 Tornado Catamaran fiberglass, 3 mains & jibs, beach wheels, custom tilt/breakdown trailer, $4.5k. 333-6246 or 480-3986.

Audiovisual & Computers

ZEOS 386SX 20 MHz w/240MB HD, 4 MB RAM, FAX/modem, 3.5" & 5.25" FD, Windows 3.1 & DOS 6.2, 14" VGA monitor, Microsoft mouse, $699. 532-2147.

Citizen printer, "CSX-140" w/GSX color option, $250. Magdi Yassa, 333-4760 or 486-0788.

IBM PC Jr, $125; Commodore C64 w/disk drive, color monitor, printer, joystick, software, $200; VCR, Montgomery Ward HQ, VHS format, stereo, $50. 481-8839.

Intel 486SX25 upgrade excellerator chip, new $310 sell $125. Stan, x49672.

Amiga 500, ext FD, HD, monitor, software, $1k firm. Scott, 488-4569.

Color Radius Pivot/LE monitor w/PDS video card for Mac, new $800 sell $550. 480-3424.

Paradox for Windows, $80; Visual C++ book w/CD ROM, $40; Paradox book w/software examples, $60; Space Quest V, $30; printer board, $15. 282-3570 or 474-3820.

Aegis Guardian of the Fleet on CD-ROM, $25. Ray, x38030.

Musical Instruments

Kimball upright entertainment organ player w/beginning organ course books, $175/obo. x31694 or 481-8561.

Trombone, beginners, fair cond, $100. 337-1265.

Fender stratocastor guitar w/hardshell case, $400; Fender Princeton Reverb guitar amp, $350; folding amp stand, $20; Ibanez Tube screamer overdrive pedal, $30. Brad, x37653 or 488-4989.

Trombone, Bach Stradivarius mdl #42, silver, trigger, good cond, school approved, $500. 337-1265.

Pets & Livestock

Rottweiler puppies, AKC reg, $350/ea. Linda, 484-0987.

Black Lab mix, 3 yrs, female, good with kids, smart. 286-0930 or 280-2415.

Quiet home & TLC for 5 yr old short hair Torti cat, female, spayed. x37176 or 554-2487.

Young male cat, neutered, black & tan. x34606.

Free blond Lab/German shepherd mix, 2 yrs, neutered, shots, male. Charlotte, x33564.

Parakeets, blue/green/white/yellow, 2 males/2 females, w/cage & seeds, $40. Pete, x31694 or 481-8561.

Household

Full/qn sz bed/frame, dresser/mirror/nite stand, $450; solid oak rocking chair, $85. Kim, 996-0152.

Love seat, brown velour, contemporary style. x40250 or 941-3262.

Sink, dbl, stainless, w/faucet, $35. 488-4089.

Lt blue girls furniture, twin board, dresser, mirror, bookcase/desk, $225/all. x33187 or 488-5162.

RCA 25" color console TV, works good, $75. Sam, 332-3168.

Antique Lincoln rocking chair, $95. Claire, 488-5307.

Qn sz waterbed w/heater, $50; student desk w/bookcase, $40. 488-1537.

Dining/breakfast set w/6 chairs w/1 leaf, $150; solid oak hutch, glass doors/shelves, $500/obo. x39173 or 474-3612.

Kg sz matt/box springs, Sterns & Foster pillow top, ex cond, $50. Don, x38039 or 333-1751.

Victorian wall shelf black w/daisies c.1880, $100; Wedgewood, misc green & white Jasperware pcs, $12-$20. x31057.

Brown vinyl Lazy-Boy recliner, $75; Sterns & Foster brown vinyl sleeper sofa, $75; lt blue fabric wing back recliner, $75 or $150/all. 486-0926.

Antique vanity table w/drawers, oval mirror, ex cond. Margaret, x33666.

Wood bunkbeds, ladder & mattress, $100; Oak Mission desk, $250. 339-0327.

Sofa & loveseat, dk blue w/floral pattern, very good cond, $200. 538-1759.

Executive desk, $100; glass bath enclosure, $20; freezer, 13 cu ft, $50; W/D, $100; solid oak desk, $150. Sina, x36582 or 480-3698.

Sleeper sofa, good cond, lt earth tones, new $500 sell $250/obo. Lem, x36069 o r 280-0290.

Wards microwave high capacity oven, $75/obo. Johnny Conkin, x32353 or 992-8177.

Cargo bunk beds, honey pine, w/side rails, ladder/mattress, $695. 280-9621.

Wanted

Want 30'-32' extension ladder, top dollar, Johnny Conkin, x32353 or 992-8177.

Want clean safe garage apt or living area, CL, have sm dog, no furniture needed. Becki, 480-9376.

Want personnel to join VPSI Vanpool departing Meyerland Park & Ride lot at 7:05 a.m. for JSC, vanpool consists of on-site personnel working the 8 a.m. - 4:30 p.m. shift, looking for 2 - 3 more. Travis Moebes, x45765 or Don Pipkins, x35346.

Want low priced school/work car or truck. 271-7011.

Want clothes & toy donations for needy family of 5, all girls, twins 4yrs, girl 1yr, new born girl, mother sm frame. Bea, x31094 or 948-0282.

Want new or slightly used headphones with mike. 282-3570 or 474-3820.

Want Jon boat and/or motor; self propelled lawn mower. 482-0874.

Want quality used water skis & access, lg slalom, combo slalom, children skis, trick skis, hydro slide, etc. 532-1364.

Want inflatable dinghy, 3-4 person, good cond, motor optional. x38278 or 334-7258.

Want metal detector, salt water type preferred, regular type ok. 482-0874.

Want babysitter for a 5 yr old boy in afternoons. John or Kim, 286-7384.

Want personnel to join VPSI van pool, West Loop Park & Ride at 6:30 AM to NASA/contractors. Richard Heetderks, x37557 or Ed Rangel, x36124.

Want to rent sm RV for 2 day camping trip to Yogi Bear Park, May 19/20. David, x35859 or 486-4870.

Want Micky Mouse cookie jar, $10-$15; piggy bank, $5-$8. Bea, x31094 or 948-0282.

Want scaffolding to borrow or rent/buy. Tim, x38843 or 409-925-5011.

Want scholarships for Texas A&M student; personal computer for college, reasonable. x40295 or 731-2850.

Want '89 Buick Park Avenue car cover. 990-5543.

Miscellaneous

Chevy, 15" wire spoke hubcaps, w/locks, $50. Mike, 484-0987.

Pinch-pleated, lined, rosy plum drapes, ex cond, 4-37" x 84", panels, 5-35" swags, 2 cascades, 3 ties & sheers, HW, $300; Nordic Track Achiever, $600. Janine, x45084 or 482-7550.

Hot tub, 8 person, not hooked up, pump/filter, heater/fittings, obo; high performance sm block Chevy cam & lifters. Bobby, x38823 or 337-4134.

Exercise stepper, Vitamaster Pro100, $40. Tony, x35966.

White wedding dress w/veil & slip, sz 6, $800; racks for cars w/rain gutters, windsurfer attach, $75; amethyst formal dress, sz 6, $60; car cover, med, $50. Su, x45722.

Cruise to the Bahamas, starts Ft Lauderdale, ends in Orlando, 7 nights/8 days, $300/2 people. Jennifer, x32417.

.40 Caliber CVA Blackpowder Colonial pistol kit, $30. 479-3297.

Baby swing battery powered, $25; infant carseat w/head pad, $10; Jenny Lind changing table, $30; cradle w/pads/matt/pillow, $75; electric dryer, $75, other items. Dennis, x39012 or 992-5285.

Alum storm door, $15. x33187 or 488-5162.

Precor 620 rowing machine, $60. 488-8409.

Marcy exercise bike, sit down version, new $200 sell $85. x32567 or 488-3314.

Day timers Planners w/zipper notebook, full 8.5 x 11 sz, desk paper punch, fillers thru Sept, '95, $60. Eric, x31917.

Wedding gowns, sz 9/10 & sz 6, both are white & includes veils, $375/ea/obo. 9980407 or 338-6645.

14kt gold dia-cut rope bracelet, 7", 2.5 mm wide, $50. Eric, x31917.

Girls clothing, 2T-4, boys clothing 8-10; boys bike, BMX Diamondback Viper F.W, ex cond, $95. 286-8457.

Lifetime membership in Friend Connection, $1.5k. Tim, x31456 or 334-6118.

President & First Lady Premier plus membership, $500; annual dues start 4/96. James, 282-4713 or 286-3341.

Mir/Orbiter commemorative STS-63 T-shirts, Rendezvous & STS-71 Docking, $7.50/ea. B.B., x31633.

Prom/pageant long beaded dress, royal blue & silver, sz 13. Margaret, x33666.

Craftsman gasoline lawn edger, $75; camper top for Nissan short bed, aluminum, white, $100; O'Brien slalom, 70" w/case, $100. x39814.

VW parts, call for list. Dennis, x39012 or 992-5285.

Gravity Rider exercise machine, $75; contempo, cognac leather swivel chair w/foot stool, $40. x31370.

White ceiling fan w/light, $35; art deco desk lamp, $20; 2 used Samsonite suitcases, $15/ea/obo. x38278 or 334-7258.

Winchester 12 gauge semi-auto shotgun, mdl 1400 MKII, 28" vented barrel, $250/obo. James, 991-0533.

HEPA air filter for home A/C, 5 ton max, $75; Sears drill stand, mdl 335.25987, $20; Gerry booster auto seat, mdl #675, $25; ridged foam attic ceiling door insul kit. Doug, x48851 or 486-7412.

20 gal aquarium, underground filter, air pump, heater/gravel, accessories, $85. 480-3424.

Antique dining table, 45"x70", oak & pine inlay, $550; ladies mink coat/leather trim, stroller length, sz Lg, $1k; antique baby bed, wht iron, $225. 488-3588.

Craftsman 4 hp, push mower, rear bagger, $40/obo. x37167 or 488-5561.

Exercise bike, Vitamaster, ex cond, $50. 474-5601.

Meade 4" telescope, mdl #2045, Schmidt-Cassegrain table tripod, access/case, $500 firm. Marie-France, x39309.

Garden tiller, 5 hp, $150; solid wood dining table & chairs, $100; desk, solid oak, $75; antique postal scale, $150. x38843 or 409-925-5011.

4 Goodyear P225/70R14, Eagle-ST, all season, new $400 sell $200. 919-2980 or 335-1407.

Flowering plants, shrubs, negotiable. 326-2221.

Threshold Crossing

Mir 18 medical investigations take microgravity research to next level of understanding

When Norm Thagard crossed the threshold of Mir last Wednesday, he stepped into not only a new era of international cooperation in space, but a new dimension in biomedical research.

During his three-month stay aboard the Russian space station, Thagard and his crewmates will help scientists look with greater acuity than ever before at how the space environment affects the human body and a variety of other materials.

On an even larger scale, the 90 days of research are expected to contribute new depth to JSC's understanding of how to do long-term science in the space station era.

"It's really a role model for operations on board the international space station," said Tom Sullivan, mission scientist for the Mir 18, Mir 19 and STS-71 portions of the Shuttle-Mir Science Program. "We're going to start learning how people from different nations can live and work together peacefully in space and what it takes on the ground to help make that happen."

By that, he said he means dealing with situations where we might launch equipment on two or three different spacecraft and the crew on another spacecraft. Training on operating those experiments must be in sync with the equipment available on orbit, and hardware delivery to the space station must be accomplished.

"Crews may not have trained together," Sullivan said. "For instance, when we launch STS-71, Norm will have been gone for 1 1/2 years and the Mir 18 crew will have had their last shuttle training nine months prior to their return. This is quite different from the way we do shuttle missions. Those are the types of issues we'll be facing in the era of international space station and we're really just now beginning to grapple with the implications."

Scientific research has always been one of the most important objectives for both Russian and American space flight missions. As scientists learn more about the effects of the space environment, they continue to develop questions from the fields of human life sciences, the spacecraft internal environment, fundamental biology, biotechnology, materials sciences and acceleration monitoring.

Space flight places humans in one of the most unusual environments they can experience. Microgravity has many more effects than the obvious ones, chiefly on the internal workings of the human body. Medical investigations have shown that the body's response to weightlessness includes a decrease in muscle quantity and bone density, decondi-tioning of the heart and fluid loss.

The human body is amazingly adaptive, constantly working to maintain a state of balance under changing conditions. In space, blood and other fluids that normally pool in the lower part of the body due to gravity are redistributed. As a result, there is more fluid in the head and upper body than is normal on Earth. The amount of blood plasma and other body fluids is reduced. The metabolic experiments on Mir are designed to help understand how these changes occur and what effects they have on the body, Sullivan said.

Just as important, understanding how the body operates in space also helps scientists and doctors understand how gravity affects the body on Earth. Until space experimentation was available, there was no way to separate the effects of gravity from those of other physiologic changes that occur over time. Space provides a unique opportunity to advance scientific understanding of how gravity influences such conditions as anemia, high blood pressure, osteoporosis and immune system deficiencies.

The experiments Thagard will be working on during his Mir 18 flight will be primarily human life sciences studies, ranging from hygiene, sanitation and radiation to metabolism and regulatory mechanisms,cardiovascular and cardiopulmonary systems, neuromuscular and neurosensory systems, behavior and performance and microgravity studies.

For the most part, these investigations were developed at JSC in the Space and Life Sciences Directorate in cooperation with the investigators' Russian counterparts. Both countries have supplied a lead scientist for every discipline and an investigator for every experiment. Most of the JSC experimenters work in the Medical Sciences Division, and most of the experiment hardware was developed and built by JSC's Life Sciences Project Division. Two experiments were developed at Ames Research Center, one at Marshall Space Flight Center, and one at Lewis Research Center.

There are four experiments loosely held together under the category of hygiene, sanitation and radiation in the spacecraft environment. These include a microbiology experiment that will look at the effects of spacecraft air, water and surfaces on the crew and how they interrelate. There's an in-flight radiation monitoring experiment that will use U.S. and Russian dosimeters and an instrument that has flown on shuttle, the Tissue Equivalent Proportional Counter, to measure cosmic radiation exposure.

One experiment, which will be performed only pre-and post-flight will measure any biological changes in the cosmonauts' DNA. Exposure to cosmic rays and radiation trapped by the Earth's magnetic field can cause that and the test will try to quantify what those changes might be, Sullivan said. Thagard is not expected to reach any exposure level that could be harmful.

The fourth experiment in the hygiene suite will look at trace chemical contamination. Air and water quality will be monitored using at least three methods, water samples will be returned to Earth for detailed analysis to understand the interaction between the air and water in a closed life support system.

"The thing that's unique about the spacecraft environment is that they're constantly recycling the air and extracting drinking water from the humidity in the air," Sullivan said. "If there are low-level contaminants in the air there's the possibility for those contaminants to appear in the water system, even though it's treated."

Metabolism studies will look at a wide range of physiologic responses and regulatory systems related to fluid redistribution and other effects of weightlessness.

Ten separate experiments will look at the effects on red blood cell production, bone density, muscle mass and the immune system. But since all of the body's systems are interrelated, investigators will share blood, urine and saliva samples, as well as body mass, diet, fluid and drug intake data to maximize the efficiency of the experiments, Sullivan said.

The investigations will look at fluid shift and loss, calcium absorption, kidney stone risk, response to exercise, red blood cell changes and survival rates, absorption of drugs and susceptibility to latent viruses.

Cardiovascular and cardiopulmonary systems—and ways to combat the detrimental effects of long stays in space on those systems—will be the target of three Mir 18 experiments. These will look at orthostatic tolerance and intolerance using a lower body negative pressure device to pull fluids back into the cosmonauts' lower extremities, and monitoring of electrocardiograms and blood pressure under a variety of situations. To understand the effectiveness of exercise as a countermeasure, the cosmonauts' heart and lung response to exercise on a stationary bicycle will be evaluated. The ability of their bodies to regulate their temperatures will be scrutinized and tested in relation to cardiovascular strain during exercise.

"There's a standard set of equipment that will be used for blood draws, saliva sampling, urine sampling. One of the nice things about the metabolic series of experiments is that they're trying to utilize the samples that are taken in as many ways as possible to satisfy several experiments at once," Sullivan said.

"What they're going to do with these samples after they get them back to Earth is to divvy them up. In this way, you can minimize the number of times you have to poke the astronauts and still maximize the science."

Sensory-motor and neuromuscular investigations will look at another major adaptation humans must make in weightlessness, that of orientation and movement. Four studies will focus on visual target acquisition, posture and locomotion control and muscle fitness. This data will help scientists learn more about the body's adaptation to zero-G and readaptation to Earth's gravity.

The investigations will evaluate skeletal muscle performance, the chemical, structural and cellular characteristics of muscle tissue, eye-head coordination during target acquisition and the mechanisms involved in balance control of the body.

A related experiment will look at behavior and performance on-orbit through the use of a flight simulator. Scientists are curious about the extent of changes in reaction time, mental acuity and manual dexterity on long space flights.

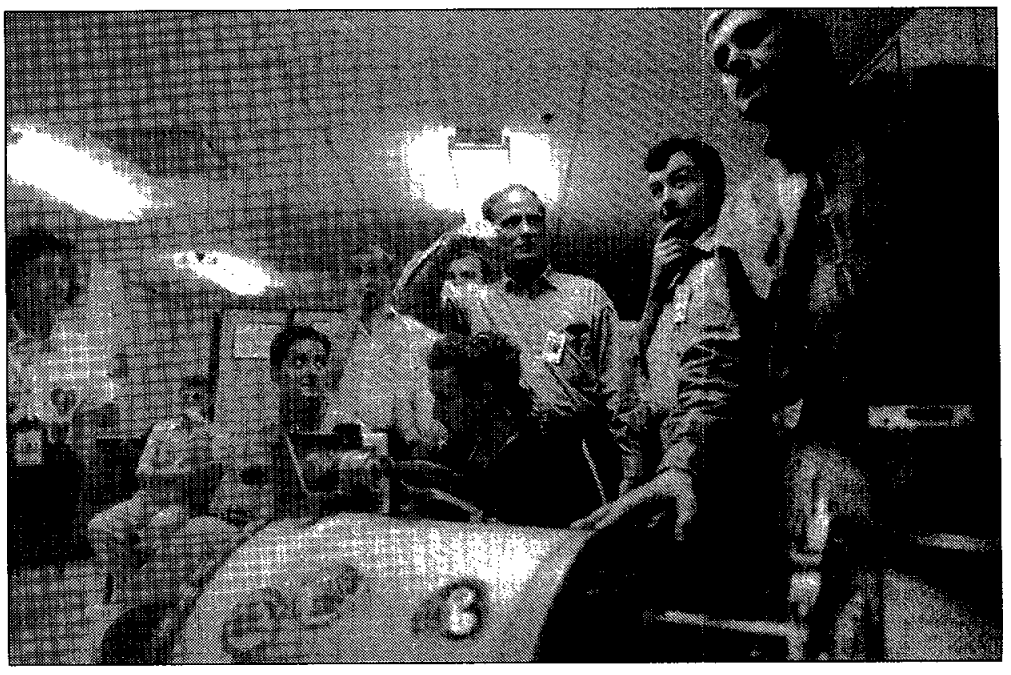
"We are using some Russian equipment, but by and large most of the equipment has been sent up on three Progress vehicles," Sullivan said. "Finally, we've got the Spektr module that is scheduled to launch in May. It will carry up with it some additional hardware, but mostly it is going to be carrying hardware and supplies for the following missions."

There is one fundamental biology experiment, Sullivan said, sponsored by Ames Research Center, which involves an incubator that will warm quail eggs so that scientists may learn how they develop in microgravity. A second Ames developmental experiment, which will be conducted on Mir 19, is a greenhouse experiment to see how dwarf wheat develops in microgravity.

"This new partnership will provide knowledge and capabilities that contribute to the development of an International Space Station," Sullivan said, "and both countries will have the opportunity to learn more about how to live and work in space and on Earth." ❑

JSC Photos

Top: Mir 18 guest researcher Norm Thagard, right, floats weightlessly aboard the Russian space station with Flight Engineer Gennadiy Strekalov, Flight Engineer Elena Kondakova, Commander Vladimir Dezhurov. Bottom left: In keeping with Russian tradition, Thagard signs the diary of the first Russian cosmonaut, Yuri Gagarin, as his Mir 18 crewmates, Dezhurov and Strekalov, look on. Bottom right: Thagard trains at JSC on the use of the Russian lower body negative pressure device. With him are, from left, Sally Robinson of Krug Life Sciences, Yury Onufrienko the Mir-18 reserve commander,Todd Schlegel of the Medical Sciences Division, Alexander Poleshchuk the Mir-18 reserve flight engineer, Strekalev, Linda Barrows of Krug Life Sciences, Thargard, Dezhurov, Yevgheny Kobzev the Mir-18 flight surgeon and inside the chamber John Charles of the Medical Science Division.



New views of Venus released

Newly processed global views of Venus showing its rich and varied landscape have been released by scientists associated with NASA's Magellan mission, which concluded last October after mapping more than 98 percent of the planet with imaging radar.

"These images will form the basis for all future scientific studies of Earth's sister planet, and will provide the necessary maps for all future Venus missions," said Magellan Project Scientist Dr. Stephen Saunders of NASA's Jet Propulsion Laboratory.

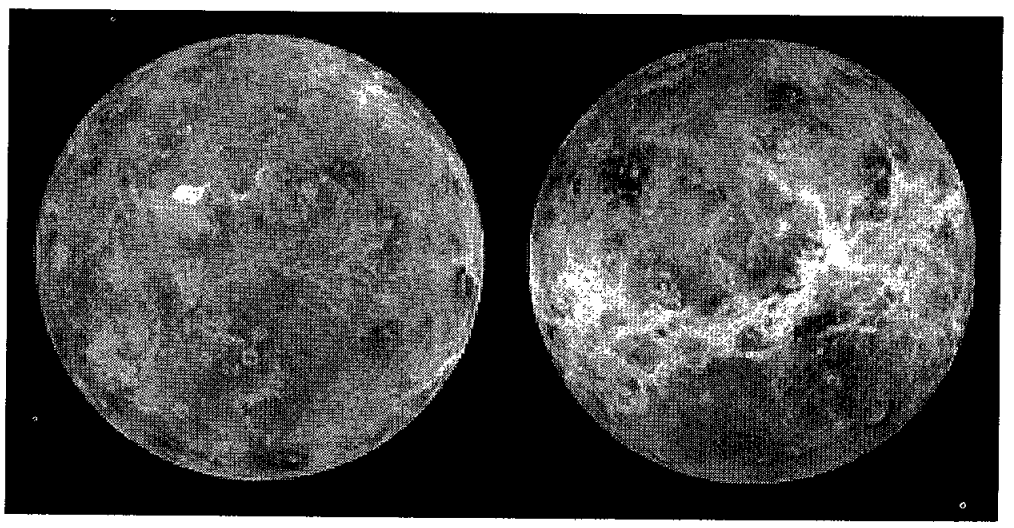
The images — mosaics collected from data gathered during Magellan's orbital mission — were released at the Lunar and Planetary Science Conference held at JSC last week where a number of scientists gave presentations based on the new imagery database.

The Magellan spacecraft was commanded to plunge into the atmosphere of Venus last Oct. 12 after performing a final aerodynamic experiment. Mission activities officially ended in mid-February of this year, but some science tasks will continue through fiscal year 1996.

Magellan was launched from the space shuttle *Atlantis*, May 4, 1989, and entered orbit around Venus in August 1990.

It began mapping the surface of Venus in September 1990. The spacecraft continued to orbit Venus for four years, returning high-resolution images, altimetry, thermal emissions and gravity maps of 98 percent of the surface. Magellan spacecraft operations ended on October 12, 1994, when the radio contact was lost with the spacecraft during its controlled descent into the deeper portions of the Venusian atmosphere. In addition to its successful radar mapping activities, the spacecraft also acquired a high-resolution gravity field map of 95 percent of the planet.

Scientists at the conference presented papers on the geology, atmosphere, climate, volcanoes and tectonic processes of Venus, based on the vast Magellan data set.



Left: This surface image is centered at Venus' north pole. The bright region near the center of this view is Maxwell Montes, the highest mountain range on Venus. Right: This view is centered around Venus' equator and shows Atla Region. The scattered dark patches are halos surrounding some of the younger crater impacts. These photos reveal a number of craters are consistent with Venus' surface age of 300 million to 500 million years old.

Hubble gives weather data on Mars, Venus

"The weather on Mars: another cool and clear day. Low morning haze will give way to a mostly sunny afternoon with high clouds. The forecast for Venus: hot, overcast, sulfuric acid showers will continue. Air quality is slightly improved as smog levels subside."

This kind of weathercast is now possible as NASA's Hubble Space Telescope serves as an interplanetary weather satellite for studying the climate on Earth's neighboring worlds, Mars and Venus.

To the surprise of researchers, Hubble is showing that the Martian climate has changed considerably since the unmanned Viking spacecraft visited Mars in the mid-1970s, which was the last time astronomers got a close-up look at weather on the red planet for more than just a few months. Hubble images of clouds and spectroscopic detection of an ozone abundance in Mars' atmosphere, all indicate that the planet is cooler, clearer and drier than a couple of decades ago.

In striking contrast, Hubble's spectroscopic observations of Venus show that the atmosphere continues to recover from an intense shower of sulfuric "acid rain" triggered by the suspected eruption of a volcano in the late 1970s. This is similar to what happens on Earth when sulfur dioxide emissions from coal power plants are broken apart in the atmosphere to make acid rain. On Venus, this effect takes place on a planetary scale.

Knowledge about the weather is critical to planning future missions to these worlds. In the case of Mars, being able to predict the weather will be critical prior to human exploration of the planet.

Atlantis prepares for June linkup with Mir station

(Continued from page 1)

The Mir 17 crew, Alexander Viktorenko, Elena Kondakova and Dr. Valery Polyakov undocked their Soyuz capsule from Mir in the early hours of March 22 and returned to Earth safely, leaving Thagard, Vladimir Dezhurov and Gennadiy Strekalov behind.

The three Mir 18 crewmembers will return to Earth aboard *Atlantis* in June following the docking of the shuttle to the Mir on the STS-71 mission scheduled for June.

Meanwhile, engineers at KSC continued to prepare *Atlantis* for its trip to link up with Mir. Technicians reinstalled main engines in *Atlantis* and continued tests with the Orbiter Docking System which will be mounted in the cargo bay to enable the shuttle to link up to Mir for the first time.

Discovery also is undergoing routine processing, being prepared for its scheduled June launch of STS-70 that will deploy a new Tracking and Data Relay Satellite.

JSC Photo by Andrew Patnesky

From left Kevin Dunn, Kathy Akagi, Ken Bain, Eddie Trlica and Jeff Wyrick all of the Instrument Pointing System Team look on as Chuck Shaw, lead flight director, awards the hanging of the STS-67 plaque to Tim Garner, Karl Silverman, and Steve Sokol of the Spaceflight Meteorology Group.

Two teams share STS-67 plaque hanging honors

The STS-67 Flight Directors had a very hard time this mission deciding who would have the honor of hanging the mission plaque in the Mission Control Center.

A tradition of all spaceflight missions, the team selected for the honor of hanging the mission plaque is recognized for providing critical support during the mission.

"This was as tough a decision as the decisions made during the flight by the team members themselves," said Chuck Shaw, lead flight director for STS-67.

"In a mission that set so many new records, it takes the entire team all doing their jobs so well to have such a successful mission," Shaw said. "This makes the decision a tough one. But, two teams rose above all the other real-time operations teams. The decision on which team should have the honor could not be finalized until the final moments of the mission."

When trying to break the tie for who should hang the plaque, it came down to the simple fact that STS-67 would not have launched on time, nor would it have been able to land without the Spaceflight Meteorology Group. The weather team included: Tim Garner, Karl Silverman, Mark Keehn, Richard LaFosse, Steve Sokol, Doris Rotzoll, Wayne Baggett, Bryan Batson, Dan Bellue, Monica Sowell, and Pavlina Papadopoulous.

To make sure both teams were recognized, Garner was asked to climb the ladder and hang the plaque while the Instrument Pointing System Team aimed the ladder at the proper place, just as they had ensured the telescopes were aimed .

"The weather team exemplified the type of support that the traditions of manned spaceflight are built on," Shaw said. "The weather prelaunch was, typically at Kennedy Space Center, very iffy, with low clouds and light rain. Based on advise from Lead Forecaster Garner, the Flight Director gave the KSC team a go for launch."

The weather was so bad for the scheduled reentry, that Flight Directors didn't attempt a landing. The next day, the weather was slowly improving at KSC, while a front was approaching Edwards Air Force Base making the winds pick up and threaten to violate the flight rule limits Shaw said.

"The question was to wait for KSC, hoping it would improve, or go for Edwards, hoping it would not get worse," he added.

The pressure was on to give an accurate forecast. Garner had the skills and experience to advise the winds would stay within limits. Based on this input, the Flight Director gave a go for deorbit.

"During the next hour everyone watched the dust devils swirl across the lake bed as the wind rose and shifted back and forth across the runway," Shaw said. "As the Orbiter came in sight, true to the forecast the wind was in limits and Steve Oswald was able to execute a safe landing in the gusty conditions. Without the confidence of the weather report, the mission would have had to have been extended yet another day."

While the weather team won out, Shaw notes that the IPS team was also at its very best.

The IPS team, lead by Jeff Wyrick, was a new position in the MCC, dedicated to making sure the IPS was properly checked out and operated in its role of pointing the three ASTRO-2 Ultraviolet Telescopes. This required months of close coordination with Marshall Space Flight Center while taking the lessons learned from the previous two missions of the IPS.

"Over 400 pointing operations were conducted with the complex IPS," Shaw said. "Several software patches were developed in real time to further improve on the IPS's performance, and there were several procedural improvements uplinked to the crew in real time to even further improve the performance." The result was over three times the amount of science data achieved during the ASTRO-1 mission and no major systems problems.

Wyrick had lots of help during the 16 day mission. There were four teams on a rotational schedule Wyrick and Terri Murphy were the Orbit 2 Team, Terry Keeler and Kevin Dunn were the Orbit 1 Team, the Orbit 3 team included Eddie Trlica and Kathy Akagi and the Orbit 4 Team was comprised of Ken Bain and Michelle LaFleur.

Take daughters, sons to work

Employees will have the opportunity to take either their sons or daughters to work in the coming months.

JSC will once again participate in "Take Our Daughters To Work " on April 27 and on June 14, JSC will sponsor "Take Our Sons to Work."

"There has been an interest in bringing sons as well as daughters to the workplace," said Estella Gillette, director of the Equal Opportunity Programs Office. "JSC decided this year to give all children an opportunity to see Mom and Dad at work." Take Our Sons To Work activities are still being formulated and details will be out soon, Gillette said.

This year, JSC is opening participation to all civil service and contractor employees as their workloads permit and with supervisory approval. Contractors should contact their employer for registration details.

Any employee may bring one girl between the ages of 9 and 15 to the Center. Girls do not have to be badged individually, but need to be escorted at all times by her badged sponsor. Employees who would like to participate may bring their daughters to the Teague Auditorium at 8:30 a.m. for a series of presentations. Scientists, engineers, and a NASA astronaut will provide an inside look at the professional opportunities in a wide range of disciplines in the space program. The presentations will conclude at 10:30 a.m. Each girl may spend the remainder of the day observing and sharing in her sponsor's normal business activities.

The first 250 girls and their sponsors who attend the Teague Auditorium presentations will receive free tickets to Space Center Houston for that afternoon.

Take Our Daughters To Work was created by the Ms. Foundation for Women. The Ms. Foundation is a national, multi-issue public women's fund which supports the efforts of women and girls to govern their own lives and directs resources to activities that break down racial, age, and cultural barriers.

Questions regarding Take Our Daughters To Work may be directed to Pam Adams at x33761. Questions regarding Take Our Sons To Work may be directed to the Equal Opportunity Program Office at x30600.

New shuttle main engine set to fly

NASA has successfully completed testing a new high pressure liquid oxidizer turbopump and is ready to fly an upgraded main engine on STS-70 this summer.

"Completing flight certification of the Alternate High Pressure Oxidizer Turbopump is a major milestone in the Space Shuttle Main Engine program," said Otto Goetz, SSME deputy project manager for development at NASA's Marshall Space Flight Center.

NASA completed final certification of the new liquid oxygen high pressure turbopump on March 15. The new pumps underwent a test program that is equivalent to 40 shuttle flights. By achieving this milestone, NASA reached the final step in certifying the turbopumps for flight.

"The certification is unprecedented in that none of the certification units had to be removed from the engine during the test series," said Goetz. NASA did not perform any detailed inspections other than verifying free pump rotation after each test.

The high pressure liquid oxygen pumps used in the current SSME must be removed after each flight for inspection. The new pumps will not need any detailed inspection until they have flown ten times. The new pumps also are expected to increase safety margins and reliability for the SSMEs. These engines provide approximately 1.5 million pounds of thrust during launch of the shuttle into low-Earth orbit.

The new turbopump also incorporates state of the art technology in its design. The pump housing is produced through a casting process, thereby eliminating all but six of the 300 welds that exist in the current pump. Eliminating welds is one of the keys to increasing safety margins on the main engine.