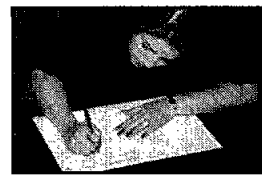


The manifest reflecting shuttle flights through 1997 has been put into a handy reference format. See Page 3.



Participants in JSC's Office Education Program learn about financial aid. Photos on Page 4.

Space News Roundup

Vol. 33

April 29, 1994

No. 17

Columbia takes center stage in Florida

By James Hartsfield

With *Endeavour* home, *Columbia* now takes center stage at Kennedy Space Center in preparation for a launch on STS-65 planned in early July.

Endeavour is reported in good shape following its 11-day voyage on STS-59. As of Thursday, *Endeavour* was still at Edwards Air Force Base, sitting atop the modified Boeing 747 Shuttle Carrier Aircraft, awaiting good weather for the piggyback flight back to Florida.

The tapes holding the data recorded by the Space Radar Laboratory aboard *Endeavour* have been removed and are now being pro-

cessed at NASA's Jet Propulsion Laboratory.

Meanwhile, *Columbia* is in the Bay 2 shuttle processing hangar at KSC being readied for the next scheduled shuttle flight. Work on the maiden shuttle this week included removing all three main engines that were used on its last mission; installing the International Microgravity Laboratory-2 cargo; testing of the extended duration orbiter pallet in the payload bay; and installing the drag chute.

Leak checks and testing also have been completed on the auxiliary power units that supply power for the orbiter's hydraulics, the main propulsion system plumbing, and the crew hatch.

The crew for STS-65 will be Commander Bob Cabana, Pilot Jim Halsell, Mission Specialist Rick Hieb, Leroy Chiao, Don Thomas and Carl Walz, and Japanese Payload Specialist Chiaki Mukai.

As *Columbia* is prepared in the processing hangar, KSC technicians are stacking the STS-65 solid rockets in the Vehicle Assembly Bldg. Work there this week focused on aligning the center segment of the right-hand booster.

Endeavour will fly next after *Columbia* to carry the Space Radar Laboratory aloft for a second time in August.

Elsewhere, *Discovery* is in the Bay 3 processing hangar going through a period of

extended inspections and checkouts performed on each orbiter after about every five flights. *Discovery* will fly next on shuttle mission STS-64 planned for September.

Plans remain on schedule to have all four shuttles back at KSC this summer with the return of *Atlantis* from almost a year and a half of upgrades and modifications being performed at Rockwell's Palmdale, Calif., shuttle factory.

The modifications to *Atlantis* include preparations for the first shuttle mission to dock with the Russian Space Agency's Mir space station planned in 1995. *Atlantis* is scheduled to return to Florida by early June.



STS-59 crew returns home to friends' cheers, applause

By Kari Fluegel

Cheers, applause and hugs from family and friends greeted the STS-59 crew at Ellington Field April 18, when the six *Endeavour* astronauts returned home after their eleven day mission.

The reunion at Ellington was the first time crew members saw their spouses and children after the flight. Because of bad weather, *Endeavour* was diverted from landing at the Kennedy Space Center where the families were waiting and landed in California.

STS-59 Commander Sid Gutierrez led the comments by thanking the families for their support before and during the mission. He then expressed his gratitude to the Mission Control Center team, the individuals that operated the Space Radar Laboratory and the training team.

He also thanked his fellow crew members.

"They did a lot of work as individu-

als but more important than that, they worked really well together as a crew," he said.

Pilot Kevin Chilton said the Mission to Planet Earth flight was a miracle from start to finish.

"From the very thought and concept of this mission to the launch, which is miraculous, to the super execution by the entire team to this point here, it's truly a miracle," he said. "What you have to remind yourselves everyday is that you all are part of the miracle. You make miracles happen, and the miracles that you work are for a pretty important purpose in my mind. This mission especially.

"I'm holding that purpose right here in my arms," he said, indicating his daughter, Mary, 2. "It's our future generation."

Mission Specialist Jay Apt, echoed Gutierrez's thanks, and said the astronauts considered everyone on the ground as part of the crew. He

also said that flight captured the public's attention because it was a flight of exploration.

"We're getting into a new phase of exploring the Earth," Apt said. "The thing that has excited people about the space program from the beginning has been exploration. I have no doubt that my children will see the time when America's imagination will be captured once again by exploration. You folks will make that happen."

Mission Specialist Rich Clifford called the flight "a tremendous adventure."

"That's due, in no small part, to the efforts of everybody out here," he said. "I appreciate the work that everybody has done. Everyone should keep in mind that this is a really spectacular adventure that we go on every time.

Clifford also said that the kind of interactive science that was done on Please see **CREW**, Page 4

FAMILY REUNION — STS-59 pilot Kevin Chilton kneels next to his daughter Madison, as they watch her younger sister Mary Catherine during the welcome home ceremony April 18 at Ellington Field. The six-member crew was greeted by cheers and applause upon their return to Houston following an 11-day mission to study the Earth's surface.

Rocket oxidizer fumes released during test

Small amounts of nitrogen tetroxide (N2O4) were released from the Thermochemical Test Area last week in two separate incidents.

The first release occurred at 11:10 a.m. April 21 when a small amount of the rocket oxidizer was released during a test setup. A cloud of N2O4 rose from the restricted test area and dissipated toward the west. The restricted test area is located on the northern boundary of JSC.

Traffic in the vicinity of the cloud was halted briefly as a safety precaution and tests conducted downwind 30 minutes after the incident showed no detectable concentrations of the substance at ground level.

Approximately 60 people were treated at the JSC Clinic and at local hospitals for mild respiratory symptoms.

"There were no serious injuries

that we know of," said Dr. Walter Hein, project director for Kelsey-Seybold and the Occupational Medicine Clinic. No significant respiratory problems were discovered.

A second small release occurred Friday afternoon as technicians attempted to burn off the residual N2O4 which had accumulated as a result of the first incident.

During that process, a small leak in the disposal system allowed a

small amount of vapor to escape from the facility. The general area briefly was evacuated as a precaution and the release was so small that it dissipated prior to leaving the immediate test cell and could not be measured outside the test area.

Technicians opened the valve to the system containing the nitrogen tetroxide for an hour about 1:30 a.m. Saturday to allow the lines to drain into a closed container. The valve

was then closed and the residual N2O4 was vaporized and burned off.

A mishap investigation team, headed by Jay Greene has been formed to investigate the incident. Other team members are John Starnes, Ken Reightler, Lewis Casey, Lee Briscoe, James Hickman, Richard Holzapfel and Charles LaPinta. Joyce Simmons of the Legal Office will serve in an advisory capacity.

Buyout program response exceeds all expectations

By Eileen Hawley

More than 270 JSC employees applied for the government-wide buyout program that paved the way for eligible NASA employees to receive a lump sum payment of up to \$25,000 if they voluntarily left the agency by July 3.

"The response of JSC employees exceeded our expectations," said Harv Hartman, director of Human Resources. "Agency-wide, the response also was very positive, with 2,017 people applying for the program."

After reviewing the effect a larger buyout would have on NASA's programs and workforce, agency management elected to increase the total number of buyout offers to 1252, an increase of 427 over the original number. All NASA field cen-

ters received allocations within the buyout program. JSC received an additional 69 allocations, bring its total to 201.

"We are losing a lot of experienced people, but on the positive side, the losses are voluntary and this activity will position us better to meet JSC's staffing challenges," Hartman said.

Of the 273 JSC employees applying for the buyout program, 241 employees signed up to leave on or before May 3 and 32 additional employees to leave between May 4 and July 3. At this point, 79 people indicated an interest in taking early-out retirements with buyouts. The breakdown of employees proposing to leave JSC through resignation or regular retirement and buyout include 36 GM-14 and above; 80 GS/GM-13's; and 78 GS-

12 and below.

According to Hartman, priority for the 201 buyout slots will be allocated first to those employees who propose to leave by May 3 and then to those employees who leave between May 4 and July 3. Within those categories, buyouts will be offered in the following priority order: those employees eligible for "early out"; supervisors and managers GM-14 or above; all other GS/GM 13's and above; and all remaining employees.

Employee Services is maintaining a list of employees who signed up for the program, but did not receive buyout slots. Since the initial application deadline, 18 people have withdrawn from the buyout and Employee Services is notifying the employees on the waiting list as slots become available.

Visitor center open to employees

By Eileen Hawley

Space Center Houston and JSC, through a cooperative arrangement with the JSC Exchange Council, are sponsoring a program that will allow NASA-badged civil servants free access to the visitor center beginning Sunday.

"This change reflects our belief that NASA employees are the ambassadors of Space Center Houston," said Vance Ablott, general manager of the visitor center.

For access to Space Center Houston, JSC employees will need to have a new bar code added to their employee badges. The badges can be bar-coded at the information desk just off the main plaza of the visitor center. Employees can then present their badge at the entry turnstile for admission without having to wait in line at the ticket window. In addition, guests accompanying any

NASA employee will receive a 20 percent discount on the purchase of tickets. A limited number of tickets still are available through the Exchange Store at \$7.95 for adults and \$4.75 for children.

JSC employees with an annual pass to the visitor center may transfer the remaining amount of time on the pass to another person. The transfer must be completed by June 15 and the pass holder and the new recipient must go together to Space Center Houston for the issuance of the new annual pass.

"We also will be offering contractor employees free access to Space Center Houston for a limited time," Ablott said. Beginning May 1 and continuing through June 15, contractor-badged employees will be able to visit Space Center Houston free of charge on

Please see **NEW**, Page 4

JSC

Ticket Window

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

EAA NASA Picnic: The picnic will be held from 11 a.m.-5 p.m., May 7 at the Gilruth Center. Cost is \$5 adults, \$3 children. Ticket prices increase by \$1 after April 29 and no tickets will be sold after May 3. Admission includes bingo, petting zoo, magic show, Batman show and more. Open to all employees.

Astroworld Tickets: Tickets available for April 29 or May 6. Admission from 6 p.m. to midnight. Cost is \$12.95. Receive a free Waterworld pass upon entrance.

Astroworld Early Bird: Tickets available for one-day admission for 1994 season. Cost is \$16.75 per person. Tickets must be purchased by May 31.

Home Tour: Tickets available for the Galveston Home Tour May 7, 8, 14, or 15. Cost is \$13.75. Seaworld of Texas: Discount tickets: adult \$20.95; child (3-11), \$14.25.

Fiesta Texas: Discount tickets: adult \$18.95; child (4-11) and seniors (55+), \$14.25.

Bay Area Chorus: Tickets are available for the 8 p.m. April 29 presentation of music by Brahms at Pasadena High School. Cost is \$10.50.

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

Space Center Houston: Discount tickets: adult, \$7.95; child (3-11), \$4.75; commemorative, \$9.55.

Metro tickets: Passes, books and single tickets available.

Movie discounts: General Cinema, \$4.75; AMC Theater, \$4; Loew's Theater, \$4.50.

Stamps: Book of 20, \$5.80

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

The Exchange Store also is taking orders for Mother's Day plants starting at \$12.50 until May 4.

JSC

Gilruth Center News

EAA badges — Dependents and spouses may apply for photo identification badges from 6:30-9 p.m. Monday-Friday; 9-11 a.m., 1-3 p.m. and 6:30-9 p.m. Wednesdays; 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. May 3. Pre-registration is required. Cost is \$5.

Defensive driving — Course is offered from 8:15 a.m.-3 p.m. Saturday. Next class is May 14. Cost is \$19.

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

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

Aikido — Martial arts class meets from 5-7:30 p.m. Tuesdays and 6:15-8:15 p.m. Wednesdays. Black Belt class from 6-8 p.m. Fridays, requires instructor permission. Cost is \$25 per month.

Sailing Club — Sailing lessons are planned for May and June. For information, contact Richard Hoover at x31360 or 996-7716.

Golf lessons — Lessons for all levels. Cost is \$90 for six weeks. For additional information, contact x33345.

Softball tournament — Softball tournament will be held May 21 and 22. Cost to register is \$100 per team. Registration deadline is 7 p.m. May 18.

Basketball tournament — Three-on-three basketball tournament is June 4. Cost to register is \$40 per team. For additional information, call x33345.

Picnic competition — Six teams are needed to participate in the "Almost Anything Goes" competition at the EAA picnic May 7. There is no cost to register, but teams must sign up by May 6.

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

JSC

Dates & Data

Today

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

Monday

Space writers — The Clear Lake Area Chapter of the National Space Society's Space Writers Group will hold its first meeting at 7:30 p.m. May 2 at Clear Lake Park. Marianne Dyson, editor of "Spacecause News," will be the featured speaker. For additional information, contact Dyson at 486-4747.

Cafeteria menu — Special: Italian cutlet. Total Health: herb flavored steamed pollock. Entrees: barbecue beef, spare ribs with kraut, steamed pollock, French dip sandwich. Soup: black bean and rice. Vegetables: California mix, okra and tomatoes, vegetable sticks, ranch style beans.

Tuesday

Cafeteria menu — Special: corned beef hash. Total Health: baked potato. Entrees: meatballs and spaghetti, grilled liver and onions, beef cannelloni, ham steak Hawaiian. Soup: split pea. Vegetables: winter blend mix, seasoned cabbage, breaded squash, lima beans.

Wednesday

Computer Expo — The Information Systems Directorate will present Computer Expo '94 beginning at 8 a.m. May 4 in the Gilruth Center. For

additional information, contact x37575.

Astronomy seminar — The JSC Astronomy Seminar will meet at noon May 4 in Bldg. 31, Rm. 129. For more information, call Al Jackson, 333-7679.

Cafeteria menu — Special: smoked barbecue link. Total Health: roast pork loin. Entrees: cheese enchiladas, roast pork and dressing, baked scrod, baked chicken, Reuben sandwich. Soup: seafood gumbo. Vegetables: Italian green beans, Spanish rice, turnip greens, peas and carrots.

Thursday

Russian speakers — Practice Russian language skills from 11 a.m.-1 p.m. May 5 in the Bldg. 3 cafeteria. For more information, call Jack Bacon, x38725, or Amy Mendez, x38066.

Cafeteria menu — Special: chicken fried steak. Total Health: roast beef with gravy. Entrees: roast beef with dressing, steamed pollock, lasagna with meat, baked chicken, French dip sandwich. Soup: beef and barley. Vegetables: whole green beans, butter squash, cut corn, black-eyed peas.

Friday

Cafeteria menu — Special: fried chicken. Total Health: vegetable lasagna. Entrees: broiled cod fish, beef stroganoff, vegetable lasagna. Vegetables: steamed broccoli, carrots vichy, Italian zucchini, breaded okra.

May 11

Astronomy seminar — The JSC Astronomy Seminar will meet at

noon May 11 in Bldg. 31, Rm. 129. For more information, call Al Jackson, 333-7679.

PSI meets — The Clear Lake/NASA Area chapter of Professional Secretaries International will meet at 5:30 p.m. May 11 at the Holiday Inn on NASA Road 1. For additional information, contact Elaine Kemp, x30556 or Diana Peterson, x30390.

May 12

Russian speakers — Practice Russian language skills from 11 a.m.-1 p.m. May 12 in the Bldg. 3 cafeteria. For more information, call Jack Bacon, x38725, or Amy Mendez, x38066.

May 18

Aerospace symposium — The 28th annual Aerospace Mechanisms Symposium will be held May 18-20 at Lewis Research Center, Cleveland. For additional information, contact Ed Boesiger, (408) 743-2377.

IEEE seminar — The Galveston Bay Section of the Institute of Electrical and Electronic Engineers will host a video conference on "Revolutionary Concepts in Human/Computer Interaction" at 11 a.m. May 18 at the Gilruth Center. Attendance is limited. For additional information, contact Zafar Taqvi, 333-6544 or Frankie Hap, 333-6064.

May 19

Russian speakers — Practice Russian language skills from 11 a.m.-1 p.m. May 19 in the Bldg. 3 cafeteria. For more information, call Jack Bacon, x38725, or Amy Mendez, x38066.

Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Ads may be run only once. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2. No phone or fax ads accepted.

Property

Sale: Friendswood, 4-2-5-2+, 2137 sq ft, FPL, jacuzzi, formal DR, ceiling fans, sec sys, \$105.9k. 992-1466.

Sale: Bay Wind II condo, 1-1, W/D/frig, D/W, FPL, \$27k. Steve, 244-9625 or 486-8047.

Sale: Bay Forest patio home, 3-2-2, upgrades, \$150k. x33075.

Sale: Nassau Bay, house, 4-2-2, \$112,500. 333-3876.

Lease: Nassau Bay TH, 4-2-2.5, 2000 sq ft, lg garage, deck, atrium, non-smoker. Jerry, x38922 or 488-5307.

Sale: Waterview home, 2-story duplex, appli. \$89.5. John Postell, 559-1574.

Sale: Heritage Park, 3-2-2, cov deck, remodeled, \$72k/neg. x40213 or 332-7092.

Sale: Taylor Crest, 4-3-2.5D, 3200 sq ft pool/spa, balconies, art studio, \$282.5k. Richard, x30271 or 326-4963.

Sale: Pearl and Sunset Meadows, 2-story, 3-2-5-2A, 2650 sq ft, sec sys, lg gameroom, \$117.9k. Diana, x37337 or 992-5064.

Sale: Bay Glen, 3-2-5-2, jacuzzi bath, FPL, \$104k. Ruben, x47119 or 486-0817.

Rent: 1-1 remodeled, no pets, \$320/mo plus deposit, \$25 app. Larry, 334-1991.

Sale: Oakbrook West, 4-2-2, updated, lg yard w/tees, \$99.5k. Denise, x31846 or 486-5146.

Sale: TH, 2-1.5-2C, 24 hr sec guard, 474-2339.

Rent: Waterfront effi apt, furn or not, util pd except phone, no pets/non-smoker, \$395/mo. 48882 or 532-1725.

Sale/Lease: Clear Lake area, 3 BR house, \$89.7k. 538-1849.

Sale: Galveston, Sea Isle, 3-2, parquet floors, garage, workshop, \$68k. 332-6752.

Sale/Rent: Nassau Bay, 3-2-2, den, \$850/ mo, \$95k. M. Duke, 488-4493.

Sale: BayWind I condo, 2-1.5-2, W/D, DW, ex cond, immediate occupancy, \$35k. Tom, 333-3992.

Sale: Nacogdoches, Tx, brick, 3-2-5-2, 3013 sq ft, 3/4 acre, CHA, WB/FPL, workshop, storage shelter, \$110k. 486-9206 or 409-560-6537.

Sale: Cypress Lakes, Cleveland, Tx, 1 lot, \$2k owner finance. Elaine, x36436 or 772-7933.

Sale: 10 acres, Hill Country. 409-925-8770.

Rent: Lake Travis cabin, cent A/C, fully equip, sleeps 8. Spring/Summer, \$325-\$425/wkly or \$90/dly. 474-4922.

Lease: Condo, 1 BR, W/D, FPL, security alarm, appli. Jim Briley, 244-4632 or 488-7901.

Sale: The Landing, condo, 2-1, W/D, all appli, \$49.5k. 326-3449.

Rent: Cancun, Mex, beachfront condo resort, wkly, kitchen, dly maid service. Katie, x33185.

Rent: Clear Lake Shores, duplex apt, 1-1, W/D hook-ups, loft, \$425/mo plus deposit. 486-2148 or 538-3627.

Sale: Piper Meadow, 4-2-2, 200 sq ft, \$800/mo plus \$5k closing approx, avail 8/94. Roy, x34094 or 488-6326.

Rent: Arkansas cottage, Blue Mt Lake, furn, 4 acres, \$250/wkly/\$50/dly. x33005 or 334-7531.

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

Cars & Trucks

'78 Chevy PU, rusty, \$800. 470-2068.

'82 Camaro, A/C, auto, 2.8L V6, AM/FM/ cass, brn/beige, ex cond, \$2.5k OBO. 991-5280.

'84 Mercury Brougham SW, PS/PB, A/C, AM/ FM tape, \$1.7k. L.D., x48767 or 480-5681.

'78 Chevy Blazer, brn & wht, 350 V8, AM/ FM/cass, AC, ex cond, \$2.6k. Ed, 481-4889.

'82 Corvette, glass T-tops, AM/FM/cass, auto, 81k mi, \$7.2k firm. 333-6821 or 474-4427.

'88 Honda Prelude, A/C, AM/FM tape, 5 spd, sun roof, 63k mi, PS/PB, ex cond, \$6750. L.D., x48767 or 480-5681.

'86 Mazda PU, ext cab, 90k mi, A/C, 5 spd. 488-8588.

'87 Mazda 626 LX, auto, 4 dr, sunroof, cruise, pwr, A/C, 70k mi. 488-8588.

'92 Toyota Tercel, red w/blk & grey inter, A/C, AM/FM/cass, 4 spd, 10k mi, \$8k OBO. x33521 or 554-83.

'87 Honda Accord, 3 dr, 5 spd, AM/FM/cass, tinted wind, 59k mi, ex cond, \$4.5k. x32774 or 480-5232.

'86 Tempo LX, 5 spd, 75k mi, \$2k. Bob, 282-4377 or 554-2250.

'65 Chevy 3/4 ton PU, red, 327 rebuilt eng, auto. x35150 or 474-9139.

'84 Mazda GLC hatchback, non-running parts car, \$200. Dave, x33845 or 996-5075.

'84 Dodge Caravan LE, A/C, auto, AM/FM, loaded, 77k mi, ex cond, \$3.4 OBO. x38151 or 532-1100.

'82 Layton 23' travel trlr, 20' awning, ex cond, \$3.5k. James, x31693 or 992-0202.

'89 Acura Integra, 5 dr AT, 58.5k mi, repairs needed, \$7k as-is. 933-1732.

'84 Ford Mustang GT, auto, 5.0L V8, AC, \$1.5k. Dena, x45122 or 332-6477.

'81 Datsun B210, white, 2 dr, \$500. 338-2046.

'85 Toyota Celica GTS convert, wht, w/blk top, 5 spd, PS/PB/A/C, all pwr, AM/FM/ cass, 102k mi, ex cond, \$5.7k. Anne, 286-2932.

'89 Olds Calais, red, loaded, \$3.5. Kathy, 947-2025.

'85 Olds Cutlass, 2 dr, \$1k. Patty, 488-2354.

'84 Toyota Supra, 91k mi, \$3.4k OBO. Mike, x30993 or 333-1856.

'78 Porche 928, brn w/leather int, auto, ex cond, 75k mi, \$8.5k. Bill, 244-8889.

Boats & Planes

Chrysler 22' sailboat, sleeps 6, galley, head, fixed keel, 5 hp O/B, mainsail/2 jibs, ex cond, \$2.5k. 282-1727.

'93 Proline 190, 115 hp, Yamaha, trlr, depth finder, live well, access, ex cond, \$14.5k. Greg, x33444 or 489-3082.

Chaparral 187, 140 hp Merc I/O, SS prop, elec, ex cond, \$5.7k. x37954 or 481-1605.

'90 Hunter 30' aux sloop, A/C, roller furling, lull battin main, digital knot/depth/wind, auto pilot, bimini, ex cond, \$52.5k. 980-7481.

Grumman alum canoe, 17', \$300. Jim, x39229.

Boat, 16', motor, trlr, \$800 OBO; utility trlr, \$200 OBO. Butch, 947-2025.

Alum 17' canoe, \$350. 474-4663.

Kayak, 11' 5", cross linked, polyethylene. 992-2768.

Canoe 17' alum + access, \$260; crab trap, \$10. 333-3071.

'91 Cajun 18.5 bay boat, '93 135 hp, Mercury PT/T, Motorguide trolling motor, \$10.5k. Gary, x37069 or 534-3080.

Windsurfing equipment, boards, sails, mast, booms. 992-5832.

Sea Ray 225 CC, 228 hp Merc, Alpha One I/O.VHF, 6" color Furuno fish finder, trlr, ex cond,

\$8.5k. Mark, x38013 or 992-4132

Cycles

Yamaha 360 MX, ex cond, \$1.2k. Roy, x34094 or 488-6326.

Honda 3-wheeler, 90 cc. x35150 or 474-9139.

Audiovisual & Computers

Macintosh Plus, 2.5 MB RAM, 40 MB IDS WIP, portable HD, \$575 OBO. Barry, x38410.

IBM compatible, NEC-286 computer, 640k RAM, 44m HD, 2 FD, color monitor, kybd, software, \$400. Earl Rubenstein, 480-1998.

US Robotics Courier HST dual std cellular fax modem, V.32 Terbo 19,200 BPS, V.17 Group III Fax at 14,400 BPS, \$550 OBO. Tony, x47401 or 482-4156.

Pioneer recvr, 40 watt; cass deck; Technics CD player; Realistic 10 band equalizer; Advent Tower spkrs, \$400. 941-5288.

MAC II fx, 20 MB RAM, 80 MB HD, 1.44 MB FD, kybd, mouse, \$1.5k OBO. 992-5285.

Atari 1040 ST, Word Proc, Spreadsheet, \$125 OBO. x41089 or 480-8335.

NEC 286, 8 MHz, 640 KB basem, 20 MB HD, 5 1/4" & 3 1/2" HD FD, kybd, mouse, monitor, DOS 3.3, \$500. Laura, 332-7468.

Free computer w/purchase of printer, XT clone 10 MB HD, dual floppies, color monitor, Panasonic KX-1180 dot matrix printer, \$175. Richard, x31440 or 333-5693.

Fisher amplifier & equalizer, Fisher AM/FM tuner & glass dr stereo cabinet, \$50. Derma, x45122 or 332-6477.

One pr of custom spkr boxes, concert sz, \$100/pr OBO; one bass box, two 15" woofers, \$150 OBO. George, 475-2132.

Cerwin Vega speakers, 400 watts, 15" woofers, \$600/neg. ML Schmid, x8604 or 474-3350.

Musical

Bundy student saxophone w/access, \$400. Dave, x33845 or 996-5075.

Flute, Yamaha beginner model, \$150. Barb, x48623.

Roland JC 55, music instrument amplifier, \$250. Jay, 992-4216.

Pets & Livestock

AKC reg Siberian Husky, female, \$150 OBO. 991-5280.

Chihuahua puppies, AKC, 2 mos. \$150/ea. 534-4667.

Free female cat, 4 yrs, spayed. x39159 or 554-2532.

Household

King sz "Cargo" head & footboard w/frame, \$250. 474-4663.

GE refrig 1.5 cu ft, \$75; 32" "Real Fyre" gas log set w/glowing embers, \$65; compact car tow bar, \$50. 333-9530.

Crib, white w/mattress, \$75; white shelf, 6', \$50; folding bookshelf, \$25. 486-2148 or 538-3627.

Designer Contemporary sofa/bed & matching loveseat, ex cond. Delaney, 282-4469.

Crystal, Waterford "Lismore" 12 ea, wht wine, saucer-champagne & tumbler, \$1k/for all. Pam, 538-3291.

Round solid oak dining table w/4 chairs, \$200. x34121 or 482-6651.

Brown qn sz sofa sleeper w/matching chair, \$250; coffee/end tables, \$50. 485-9736.

1994 SPACE SHUTTLE MANIFEST

Mission:	65	68	64	66
Date:	July	September	September	November
Orbiter:	<i>Columbia</i>	<i>Endeavour</i>	<i>Discovery</i>	<i>Atlantis</i>
Payload:	IML-02 OARE-01	SRL-02 GAS (5)**	LITE I SPTN 201-02 ROMPS-01 GBA (12)	ATLAS-03 CRISTA-SPAS-01 SSBUV/A-04 ESCAPE-II
Inclination:	28.5°	57°	57°	57°
Attitude:	160	120	140	164
Duration:	14	9 + 1	9 + 1	11
Crew CDR:	Robert D. Cabana	Michael A. Baker	Richard N. Richards	Donald R. McMonagle
PLT:	James D. Halsell, Jr.	Terrence W. Wilcutt	L. Blaine Hammond	Curtis L. Brown
MS:	Richard J. Hieb (PLC) Leroy Chiao Donald A. Thomas Carl E. Walz	Thomas David Jones Daniel W. Bursch Steven L. Smith Peter J. K. Wisoff	Susan J. Helms Mark C. Lee Jerry M. Linenger Carl J. Meade	Ellen Ochoa (PLC) Jean-Francois Clervoy (France) Scott E. Parzynski Joseph R. Tanner
PS:	Chiaki Mukai (Japan)	**Payloads under review for addition		

1995 SPACE SHUTTLE MANIFEST

Mission:	67	63	69	71	70	72	73	74
Date:	February	February	May	May	July	September	September	October
Orbiter:	<i>Endeavour</i>	<i>Discovery</i>	<i>Endeavour</i>	<i>Atlantis</i>	<i>Discovery</i>	<i>Endeavour</i>	<i>Columbia</i>	<i>Atlantis</i>
Payload:	ASTRO-02 GAS (2)	SPACEHAB-03 SPTN 204 (GCP/ODERACS-02) (CONCAP II)	OAST-FLYER WSF-02 IEH-01	S/MM-01 SL-M	TDRS-G	SFU-RETR SPTN 201-03 GBA (12) SSBUV/A-05	USML-02	S/MM-02 DM
Inclination:	28.5°	51.6°	28.5°	51.6°	28.5°	28.5°	28.5°	51.6°
Attitude:	190	170	165	170	160	250	145	170
Duration:	14 + (2)	8	10	9 + 1	5	9	16	6 + 1
Crew CDR:	Stephen S. Oswald	James D. Wetherbee	James D. Wetherbee	7*	5	5	7	5
PLT:	William G. Gregory	Eileen M. Collins	Eileen M. Collins					
MS:	Tamara E. Jernigan (PLC) John M. Grunstead Wendy B. Lawrence	C. Michael Foale Bernard A. Harris, Jr. Vladimir G. Titov (Russia) Janice Voss Ford						
PS:	Samuel T. Durrance Ronald A. Parise							

*Crew exchange mission — 7 up, 8 down

1996 SPACE SHUTTLE MANIFEST

Mission:	75	76	77	78	79	80	81	82	83
Date:	January	March	April	June	July	August	September	December	December
Orbiter:	<i>Endeavour</i>	<i>Columbia</i>	<i>Atlantis</i>	<i>Endeavour</i>	<i>Columbia</i>	<i>Atlantis</i>	<i>Discovery</i>	<i>Columbia</i>	<i>Atlantis</i>
Payload:	SPACEHAB-04 ORFEUS-SPAS-02 OAST-03 GBA (12)	TSS-1R USMP-03	S/MM-03 Long module	SPAS-III** Pl opfly	SPACEHAB-05 WSF-03 SSBUV/A-06 IEH-02	SPACEHAB-05 S/MM-04	Long module S/MM-05	CRISTA- SPAS-02 IAE SPACEHAB-06	S/MM-06
Inclination:	28.5°	28.5°	51.6°	28.5°	28.5°	51.6°	51.6°	57°	51.6°
Attitude:	160	160	170	160	170	170	170	160	170
Duration:	10	16	10	7	9	10	10	10	10
Crew CDR:	6	6	7	5	6	7	7	5	7
PLT:									
MS:									
PS:									**Payloads under review for addition

1996 SPACE SHUTTLE MANIFEST GLOSSARY

ASTRO	Ultra-Violet Astronomy Telescope	ODERACS	Orbital Debris Radar Calibration Spheres Project
ATLAS	Atmospheric Laboratory for Applications and Science	ORFEUS	Orbiting and Retrievable Far and Extreme Ultra-violet Spectrometer
CAPL	Capillary Pump Loop Experiment	ROMPS	Robot Operated Materials Processing System
CGP	Cryo Systems Experiment GLO-II Payload	SFU-RETR	Space Flyer Unit Retrieval
CONCAP	Consortium for Materials Development in Space	S/MM	Shuttle Mir Mission
CRISTA	Cryogenic Infrared Spectrometer Telescope for Atmosphere	SL-M	Joint U.S./Russian Mir Docking, Spacelab Life Sciences
DM	Docking Module	SLS	Spacelab Life Sciences
ESCAPE	Experiment of the Sun for Complementing the ATLAS payload and for Education	SPACEHAB	Commercial middeck augmentation module
EURECA	European Retrievable Carrier	SPAS	Shuttle Pallet Satellite
GAS	Get Away Special	SPTN	Shuttle Pointed Autonomous Research Tool for Astronomy
GBA	Gas Bridge Assembly	SRL	Space Radar Laboratory
HST	Hubble Space Telescope	SSAF	Space Station Assembly Flight
IAE	Inflatable Antenna Experiment	SSBUV	Shuttle Solar Backscatter Ultraviolet Instrument
ICBC	IMAX Cargo Bay Camera	TDRS	Tracking and Data Relay Satellite
IEH	International Extreme-UV Far-UV Hitchhiker	TSS	Tethered Satellite System
IML	International Microgravity Laboratory	USML	United States Microgravity Laboratory
JFD	JEM Manipulator Flight Demonstration	USMP	United States Microgravity Payload
MSL	Microgravity Science Laboratory	WSF	Wake Shield Facility
OARE	Orbital Acceleration Research Experiment		
OAST	Office of Aeronautics and Space Technology		

Enlarge 104% to fit Franklin Planner

Astronauts share experiences training for flight to Mir

Thagard, Dunbar will return to Houston with Russian crewmates for two weeks of training

By Eileen Hawley

Editor's Note: Bonnie Dunbar and Norm Thagard phoned home to JSC earlier this week to share their thoughts and experiences on training for flight at Star City. This is the first in a series of reports as they train for the Mir 18 mission.

Shuttle veterans Norm Thagard and Bonnie Dunbar arrived in Russia Feb. 24 to begin training for Thagard's flight next March to the Mir space station.

According to Thagard, the majority of their time since arrival has been spent in learning the Russian language. The two have been spending four hours a day, five days a week in Russian language training with professors from Moscow State University.

"Our main problem so far is one of learning the Russian language," Thagard said. "That's coming along well. We're not fluent, but we're getting there and we'll certainly be there by the end of the process."

In addition to the language training, Thagard and Dunbar spend two hours a day on alternate days either in physiological or psychological training. Thagard found the workout, conducted in a gym with exercise equipment, bicycles and a Mir-type treadmill

to be "pretty vigorous."

On alternate days, the two participate in psychological training that consists largely of instruction in yoga, according to Thagard.

"It teaches relaxation methods to help cope with the stress of long duration space flight," he said.

The two also just completed their winter survival training, accompanied by the Russian army officer who will command the Mir 18 mission.

A veteran of winter camping trips in the Pacific Northwest, Dunbar said "winter survival for me was the most familiar thing I've done since I arrived here."

"We'll launch out of Kazakhstan March 1 of next year, and it's very much winter at that time of year," Thagard said. "The chance always exists either on launch or if you had to land again in the Soyuz capsule, that you'd come back down in the frozen wastelands and that could require you to use the skills that we learned."

Both found the survival gear and equipment to be very effective and the exercise well managed. Thagard said the thermal quality of the clothing tends to diminish if the clothes get

wet, and he observed that when "three people change clothes in a cramped capsule that's hot from reentry, you get sweaty and the clothes get wet."

The temperatures hovered in the upper 20 degree range for most of the 48-hours the trio spent on their survival exercise. During that time they experienced a true Russian winter, with sleet, snow and rain.

The entire exercise was closely monitored and they were checked on frequently to ensure they weren't encountering difficulties.

"We never felt like we were in any real trouble," Thagard said. "The trainers demonstrated building techniques for the protective structures and made sure we didn't get into any serious trouble, but for the most part, they let us work through things ourselves."

With language training ongoing, Thagard and Dunbar also are just beginning their education on the Soyuz spacecraft. Thagard said they are receiving overview information on the spacecraft operation, coupled with some practical training in the mockup and trainers.

"Norm and I are like twins," Dunbar said. "We don't look anything alike but we're doing

the same things as we move through our training." Dunbar is training with the back-up crew to Thagard's Mir 18 prime crew.

On a personal level, both seem to be enjoying their experiences as they begin to train for the landmark mission.

"It's of course, not like living in the United States," Thagard said, "but we're doing fine. The only problem we really have here is sometimes feeling a little isolated because of the communications difficulties with telephones and computer links."

"It's a different way of living," Dunbar said. "But everything is relative. I keep reminding myself that my mother and father homesteaded in Washington in the 1948 blizzard and lived in a tent for the first seven months they were married."

Thagard, Dunbar and the Russian crew members for the Mir 18 and 19 flights are scheduled to arrive in Houston May 14 to begin science training and baseline data collection. They are, of course, anxious to see their families and friends.

"I'm looking forward to it," Dunbar said. "I have my prime member of my family in Houston. And with the work we have to do at JSC, I think it will be an interesting two weeks of training."

Letters



Home

Crew happy to be back

(Continued from Page 1)

STS-59 was key for science missions in the future.

Payload Commander Linda Godwin congratulated the individuals that worked in the Payload Operations Control Center on a job well done, but reminded them that the Space Radar Laboratory flies again on STS-68.

"All you have to do is turn it around and do it again in August," she said, "so don't go on any vacations or anything. You've got a lot of data to process and we brought all of these tapes back. We think they're full of really good stuff that we're very anxious to see and talk about."

STS-59 Mission Specialist Tom Jones will serve as payload commander for the August flight.

At the return ceremony, Jones remarked that only a few people are lucky enough to have the opportunity to make an original contribution to understanding the Earth and the universe around it.

"It's a source of immense satisfaction that we can come back with the knowledge that we have really changed the way we look at our planet," he said. "We've identified some trends that are occurring on it and we hope that this will lead directly to a better way of life for, not only the people in the countries that put this project together, but also for people around the world."

STS-59 crew set to brief employees

The STS-59 crew members — Commander Sid Gutierrez, Pilot Kevin Chilton, Payload Commander Linda Godwin, and Mission Specialists Tom Jones, Jay Apt and Rich Clifford—will discuss their recently-completed Space Radar Laboratory Mission at a 3:30 p.m. presentation May 10 in Teague Auditorium.

Immediately before the briefing, the six crew members will receive their Space Flight Medals.

The crew also is scheduled to appear at 11 a.m. May 12 at Space Center Houston.

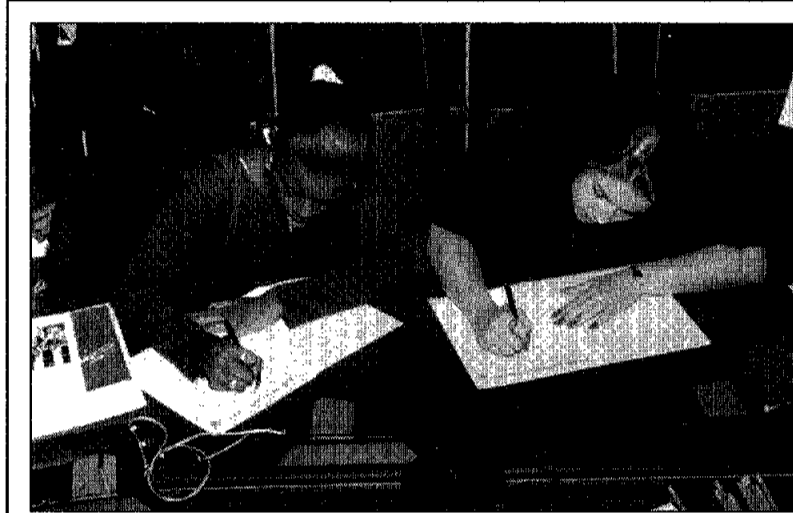
Golf tournament to honor Slayton

The inaugural Deke Slayton Memorial Golf Tournament benefiting the American Cancer Society is set for May 16 at Bay Oaks Country Club.

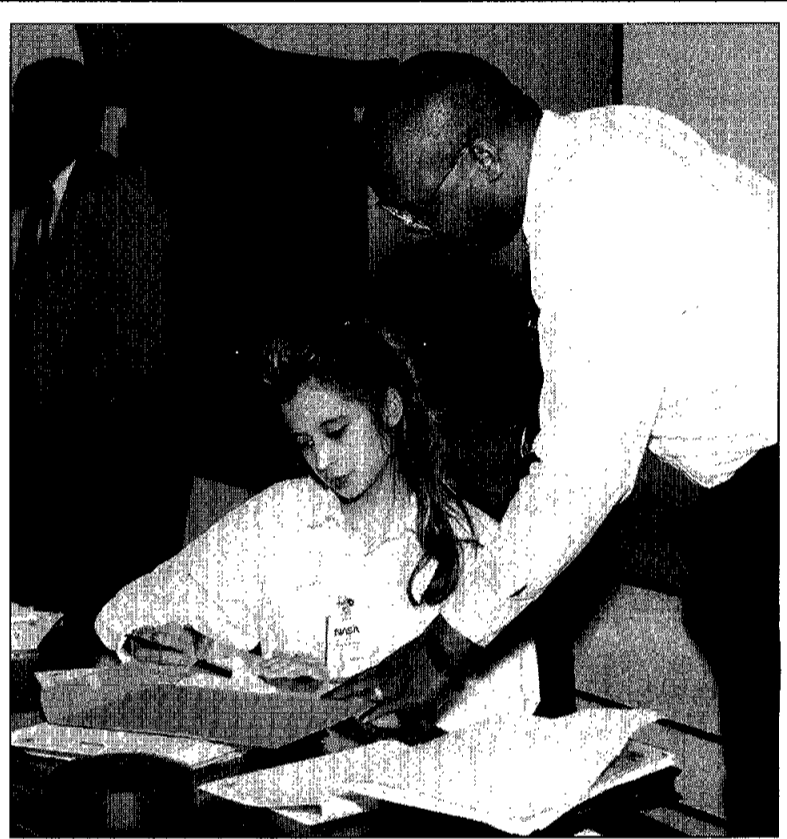
Format for the tournament will be a four person scramble. Teams can be comprised of men or women and there is no handicap restriction.

The tournament begins with a shotgun start at 12:30 p.m. There will be a "putt and chip" competition from 10 a.m.-noon. A reception and awards ceremony follows at 5 p.m.

Registration for the tournament is



STUDENTS LEARN ABOUT OPTIONS — Students participating in JSC's Office Education Program attended a seminar April 21 to learn about the options available to them as they continue their education. The one-day seminar was hosted by the Black Employment Programs Council to acquaint the students, who are primarily from inner-city high schools, with the grants and financial aid assistance available to them. More than 30 of the Office Education program participants attended the event to talk with representatives from San Jacinto College and Texas Southern University. Above: Two students complete financial aid applications. Right: Duane Hightower, chair of the Community Outreach/Career Development subcommittee, helps a student complete an application.



NASA technology to help in disaster relief response

NASA and the Federal Emergency Management Agency are exploring a cooperative venture that would utilize NASA technology to help FEMA respond more quickly to major disasters.

The venture will test and implement a prototype remote sensing system that will acquire, process and distribute photographic-like digital images of disaster-damaged areas to response and recovery officials in near real time.

"In past disasters, NASA's role has been to assist FEMA by providing aerial photographs to enhance their recovery operations and assessment of area damage. This joint venture will enhance the technology and process to enable FEMA, state and local officials to obtain information more quickly to manage disaster recovery operations," said Fred Gregory, associate administrator for the Office of Safety and Mission Assurance.

"In addition, the fully implemented technology will be made available to

commercial providers of aerial photographic services in order to expand their capability to provide images in near real time and where needed," Gregory said.

The new system is designed to give response personnel critical information about the location and magnitude of a disaster within hours of acquisition instead of days or weeks. The system will utilize advanced imaging systems, a telemetry system to relay the images to the ground and a mobile ground station to receive and construct aerial maps for use in the field.

"Since 1974, U.S. Presidents have declared 400 major disasters," said FEMA Director James Lee Witt. "This new system will optimize current technology so that fire and police units and first aid and rescue personnel can provide even faster aid and protection to people and property."

Producing and distributing images of disaster sites using current technology is a slow and labor-intensive

process requiring anywhere from 3-10 days to actually get an image to a specific geographical location. The process involves acquiring the image, relaying it to the ground for processing, then distributing it to rescue personnel. Although the present process is time consuming, the information is invaluable to recovery operations that usually take weeks or months to complete.

During other major disasters, personnel from Ames Research Center and Stennis Space Center have assisted FEMA and local governments by providing photographs and digital images.

"The use of remote sensing imagery has proven critical in FEMA's quick response to recent disasters and will increasingly be used to improve the federal government's situation assessment capabilities," said Witt.

Since the early 1980's, Ames' high altitude ER-2 aircraft has used telemetry to transmit infrared images

to ground personnel to map forest fires and perform damage assessment in Hawaii following Hurricane Iniki. Ames also flew its C-130 aircraft mapping hop spots during the firestorms in northern California in 1993, using an infrared scanner that sees through thick smoke.

In August 1992, the NASA Learjet was sent to South Florida to take photographic-like digital images of the areas hardest hit by Hurricane Andrew. The data from that imagery assisted Florida officials in assessing damage done by the storm and provided information to rescue teams about damage to homes, commercial structures and the conditions of roadways.

The ER-2 and C-130 aircraft also surveyed areas of California devastated by the Northridge earthquake in January. The photographs were used to construct maps and update information systems used to distribute critical resources into the affected areas.

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.

Editor Kelly Humphries
Associate Editor Kari Fluegel
Associate Editor Eileen Hawley

New admission policy for JSC employees set at visitor center

(Continued from Page 1)

Sundays by presenting their badges at the ticket window. The "Sundays Free" offer excludes Memorial Day weekend.

Beginning Sunday and continuing through June 15, both JSC employees and contractors will receive a 10 percent discount at the Silver Moon Cafe. A special parking section located just past the front entrance of the visitor center will be available to employees and contractors from 11

a.m.-2 p.m. Monday through Friday for their convenience when dining at the cafe.

Finally, Space Center Houston will host a JSC Employee Night from 5-10 p.m. May 6.

"We look forward to kicking off this new program for JSC employees with a special celebration May 6," Ablott said. That evening, employees and their families will be admitted by showing their NASA badge at the entry turnstile.