

# Space News Roundup

Vol. 31

May 1, 1992

No. 18

## Endeavour launch reset for daylight

By James Hartsfield

Shuttle managers this week rescheduled the launch of *Endeavour* on STS-49, putting the liftoff in daylight at 6:06 p.m. CDT Thursday and allowing better photographic documentation of the new orbiter's first launch.

The three-day delay moved the Kennedy Space Center launch time up about an hour and a half. "We reviewed the criteria for the first flight of *Endeavour* and determined it would be prudent to delay the date from May 4 so that we could obtain the normal photographic documentation that a daylight launch affords," Acting Associate Administrator for



Space Flight Tom Utsman said.

Preparations at Launch Pad 39B continued to go smoothly this week, with all pre-countdown work planned to be completed by this evening. After a weekend off, technicians will begin the countdown on Monday.

*Endeavour's* payload bay doors were closed for the flight on Wednesday and the engine compartment was closed for flight Thursday night.

The STS-49 crew — Commander Dan Brandenstein, Pilot Kevin Chilton and Mission Specialists Bruce Melnick, Pierre Thuot, Kathy Thornton, Rick Hieb and Tom Akers — will fly to KSC on Monday.

Elsewhere at KSC, *Columbia* is being readied for a mid-June flight carrying the United States Microgravity Laboratory-1 in processing bay 3. Work this week included filling the hydraulic system, modifying the crew's stowage areas for an extended flight, electrical checks of the orbital maneuvering and reaction control systems, and an anti-skid test of the brakes.

*Atlantis*, being prepared for a mid-July flight with the Tethered Satellite System-1, is in bay 1 of the processing hangars. Work this week included tests of the orbital maneuvering system, main propulsion system, auxiliary power units and Ku-band antenna.



JSC Photo by Mark Sowa

An aerial photograph shows progress on Space Center Houston. Since the photo was taken, construction crews have closed in the remaining roofing and walls. In the background, evidence of the road construction that will change how employees enter JSC and the new Bldg. 110 badging station, can be seen.

## Space Center Houston to open doors in October

By Kari Fluegel

In less than eight months, Space Center Houston will open its doors, initiating a new world of experience for an estimated 2 million visitors annually.

Space Center Houston officials announced Thursday that the new facility will open Oct. 16.

"Now that we're closed-in, we're in control of our destiny and we can move forward in installation of what shows without potential weather delays," said Vance R. Ablott, general manager.

Officials also announced that tickets for the 183,000 square-foot facility will be \$8.75 for adults, \$5.25 for children under 12 and free for children under three and qualifying school groups.

"Today marks a major milestone

in the progress of Space Center Houston," said Harold S. Stall, president of the Manned Space Flight Education Foundation.

Space Center Houston is a project of the non-profit Manned Space Flight Education Foundation Inc. The \$70 million facility will give visitors a hands-on introduction to the past, present and future of manned space flight.

The center, which was conceptually designed by Walt Disney Imagineering and constructed by the CRSS/Linbeck project team, will offer four major venues and a tram tour of JSC.

BRC Imagination Arts, Los Angeles, is producing exhibits that will make visitors aware of space exploration by sharing what it is like to train for and travel in space.



## Goldin assigns three from JSC to top spots

NASA Administrator Daniel Goldin this week named six senior managers at NASA Headquarters including three current and former astronauts.

Goldin's appointees include Marine Maj. Gen. Jeremiah W. Pearson III, associate administrator of the Office of Space Flight; Marine Col. Bryan D. O'Connor, deputy associate administrator for programs in the Office of Space Flight; Marine Col. Charles F. Bolden, assistant deputy administrator; and Air Force Col. Frederick D. Gregory, associate administrator for the Office of Safety and Mission Quality.



Gregory

Pearson will replace William B. Lenoir who will leave the agency May 4. In this position, Pearson will be responsible for overall management of the space shuttle program, Spacelab operations and planning for space station operations. Pearson previously served as assistant deputy chief of staff for plans, policies and operations and director of the Plans Division, Plans, Policies and Operations Department at Marine Corps Headquarters. Prior to that he was deputy commander of Marine Forces, Central Command,

during Operation Desert Shield/Storm in Riyadh, Saudi Arabia.

O'Connor will be responsible for the review of all Office of Space Flight programs to ensure realistic planning and execution. In particular, he will be concerned with shuttle activities and the overall Total Quality Management activities being accomplished across the board. A veteran of two space missions, O'Connor has logged more than 383 hours in space as pilot on STS-61B in 1985 and as commander of STS-40 in June 1991.

Bolden will be responsible for integrating and ensuring the effective accomplishment of the Total Quality Management review activities being initiated across the agency. A veteran of three space missions, he served as pilot on STS-

61C in January 1986, and STS-31 in April 1990, and was commander of STS-45 in March.

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O'Connor



Bolden

## Space station supporters fight off budget challenge

By Kelly Humphries

Space Station *Freedom* supporters in the House of Representatives fought off an attempt by opponents Wednesday to cancel the program, and NASA Administrator Dan Goldin hailed the vote as both a victory and a warning.

The House voted 254-159 to authorize spending the \$2.25 billion requested by President Bush for the space station in fiscal year 1993.

In a televised message to all NASA employees Thursday,

Goldin said the debate was healthy, and that he believed all of the representatives, whether *Freedom* opponents or proponents, were genuinely trying to do what was right.

Goldin said those who opposed the authorization were not necessarily against Space Station *Freedom* or space science, but that they were doing what anyone who spends money does, trying to make sure that Americans receive

Please see GOLDIN, Page 4

## Simanton riding tall as Trail Boss of Year

JSC's Don Simanton has been named Trail Boss of the Year by the Government Services Administration for his work to get the wagons rolling quickly on major acquisitions.

Simanton, assistant director for information resources management in the Information Systems Directorate, received the award last week at the second annual Trail Boss Round-Up at Virginia Beach, Va.

GSA started the Trail Boss Program three years ago to promote reductions in the time it takes to process major government acquisitions, or equipment purchases. Information management acquisitions, with their growing complexi-



Simanton

ty, have been prime targets. The program promotes teamwork among JSC, NASA and GSA, combining the talents of procurement, IRM and technicians.

In the program, managers attend classes and learn to become "super project managers" able to cut through red tape in a single bound. For Simanton, GSA waived its normal requirement that the Trail Boss of the Year have attended the seminar classes.

Simanton is the Trail Boss for three acquisitions, the Institutional Automated Data Processing Program, the Operational Automated Data Processing Program

Please see TRAIL, Page 4



JSC Photo by Mark Sowa

LITTLE HAND, BIG GLOVE — Judy Allton, a principal scientist in the Lunar Curatorial Laboratory, helps a young visitor into the work gloves of a sample case during the Space and Life Sciences Directorate's Open House. More than 1,000 directorate employees and contractors attended the open house last week.

## AAS symposium to eye station progress

The chairman of the House Science, Space and Technology Committee will be the keynote speaker at the American Astronautical Society-Southwest Section's Spring Symposium next Friday.

The symposium will review the progress and benefits of Space Station *Freedom* from 8 a.m.-4 p.m. in the University of Houston-Clear Lake Bayou Bldg.

Rep. George E. Brown will discuss the political environment surrounding Space Station *Freedom* and the United States' obligations to other nations who are partners in the project at 1 p.m.

Other speakers will include Space Station Program Director Richard Kohrs; Rudy Michaelis, director of the Space Station Project for McDonnell Douglas Space Systems Co; Franklin Martin, director of sci-

Please see AAS, Page 4

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# Ticket Window

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

EAA Galveston Historical Home Tour (May 2, 3, 9, 10): \$11.

Movie discounts:

- General Cinema, \$4.
- AMC Theater, \$3.75.
- Loews Theater, \$4.
- Sea World, \$18.90.
- Astroworld, \$16.95 and \$44.95.
- Waterworld, \$9.50.
- Six Flags, \$16.95.

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# Gilruth Center News

**Sign up policy** — All classes and athletic activities are first come, first served. Sign up in person at the Gilruth Center and show a badge or EAA membership card. Classes tend to fill up four weeks in advance. For more information, call x30304.

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

**Weight Safety** — Required course for employees wishing to use the Gilruth weight room is offered from 8-9:30 p.m. May 12. Cost is \$5.

**Defensive driving** — Course is offered from 8 a.m.-5 p.m. May 9 and June 6. Cost is \$19.

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

**Exercise** — Low-impact classes meet from 5:15-6:15 p.m. Mondays and Wednesdays. Cost is \$24.

**Aikido** — Martial arts class meets Tuesdays and Fridays. Cost is \$35 per month.

**Ballroom dance** — Eight-week classes in beginning, intermediate and advanced ballroom dancing will meet Thursdays beginning May 7. Beginning and advanced classes meet from 7-8:15 p.m.; intermediate from 8:15-9:30 p.m. Cost is \$60 per couple.

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

**Softball tournament** — A Men's Spring Fling Open "C" Softball Tournament will be played at the Gilruth May 16-17. Entry fee is \$95; deadline is 7 p.m. May 14.

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# Dates & Data

## Today

**Technology 2002** — Abstracts for Technology 2002, the third national technology transfer conference and exposition, are due May 1. Abstracts should be sent to Leonard Ault, program Chairman, Code CU, NASA Headquarters. For more information, call Ault at 703-557-5598, or Justina Cardillo at 212-490-3999.

**Cafeteria menu** — Special: barbecue link. Entrees: deviled crabs, broiled codfish, liver and onions. Soup: seafood gumbo. Vegetables: buttered corn, green beans, new potatoes.

## Monday

**FEB/FBA banquet** — The Houston Federal Executive Board/Federal Business Association annual awards banquet will be at 11:30 a.m. May 4 at the Gilruth Center. Awards will be presented to Houston and Galveston federal and military employees for achievements in their jobs and community affairs. For more information, call Teresa Sullivan at x38970.

**Cafeteria menu** — Special: chili and macaroni. Entrees: barbecue sliced beef, parmesan steak, spare rib with kraut. Soup: French onion. Vegetables: ranch beans, English peas, mustard greens.

## Tuesday

**Cinco de Mayo** — The JSC Hispanic Advisory Committee will sponsor a Cinco de Mayo program and luncheon at noon May 5 at the Gilruth Center. Dr. Albert Baez, well known educator, physicist and holography pioneer, will speak about his Vivamo Mejor projects

involving edible oyster mushrooms grown from coffee bean waste pulp, child development and Mexican women weavers who are learning to manage their own work. Luncheon tickets are \$8 and may be obtained in the Equal Opportunity Programs Office, x30604, or from committee members. For more information, call Michael Ruiz, x38169.

**Cafeteria menu** — Special: corned beef hash. Entrees: meatballs and spaghetti, liver and onions, baked ham with sauce. Soup: split pea. Vegetables: buttered cabbage, cream style corn, whipped potatoes.

## Wednesday

**Lunch and learn** — The American Institute of Aeronautics and Astronautics Thermophysics Section will present a lunch and learn meeting at 11:15 a.m. May 6 in the Bldg. 3 cafeteria. Steve Rickman of JSC's Thermal Analysis Section will discuss "The Thermal Synthesizer System for Interactive Thermal Analysis." For more information, call Bill Best at 283-0261.

**Cafeteria menu** — Special: barbecue link. Entrees: cheese enchiladas, roast pork and dressing. Soup: seafood gumbo. Vegetables: pinto beans, Spanish rice, turnip greens.

## Thursday

**NCMA meets** — The National Contract Management Association's Space City-Houston Chapter will meet at 11:30 a.m. May 7 at the Nassau Bay Hilton. Robert Young, president and chief executive of Lockheed Engineering and

Sciences Co., will discuss environmental contracting. Reservations deadline is May 1; cost is \$5 for members in advance, \$6 for members at the door, and \$7.50 for non-members. For more information, call Lucy Yates at x31864, or Theresa Borrego at 282-2765.

**Cafeteria menu** — Special: chicken fried steak. Entrees: roast beef with dressing, fried perch, chopped sirloin. Soup: beef and barley. Vegetables: whipped potatoes, peas and carrots, buttered squash.

## May 8

**AAS symposium** — The American Astronautical Society's Southwest Section will present an AAS Spring Symposium from 8 a.m.-4 p.m. May 8 to review the progress and benefits of Space Station *Freedom* in the University of Houston-Clear Lake Bayou Bldg. Registration is free; box lunches are \$5 when purchased by May 1 or \$7 at the symposium. For more information, contact James Vanderploeg, 488-8503.

**Cafeteria menu** — Special: fried chicken. Entrees: fried shrimp, baked fish, beef stroganoff. Soup: seafood gumbo. Vegetables: okra and tomatoes, buttered broccoli, carrots in cream sauce.

## May 9

**MOD Chili Cook-off** — The Mission Operations Directorate will host its annual MOD Chili Cook-off from 8 a.m.-4 p.m. May 9 at the former Lunar and Planetary Institute grounds on NASA Road 1. Tasting kits will be \$2; all JSC employees are invited to attend.

# 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: Meadowgreen, 4-2-5-2, study, landscaped, trees, garden, kitchen, formal, whirlpool. 486-7747.

Sale: Nassau Bay TH, 4-2-2, 2000 sq. ft., 2-s den, atrium, deck, \$1290/mo or \$119.9k. Jerry, x38922 or 488-5307.

Sale: Univ. Green, 3-2-5, study, bar, deck, vaulted ceiling, gar. dr opener, \$118.5K. x37432 or 286-6402.

Sale: Pipers Meadow, 3-2-2, new carpet, paint, fans, custom blinds, FPL, 1650 sq. ft, mid '70's. Mike 282-3156 or 286-2387.

Sale: League City, 4-2-2, lg bdrms, all modern updates. 332-7082.

Rent: Barringer Way, 2-1, W/D conn, pool, stor area, no pets, ex. cond, \$425/mo. 486-2048.

Sale: Univ Trace Condo, 2 BR, new paint, W/D, reserved parking, possible owner finance, \$35K. 286-1934.

Sale: League City/Kemah near South Shore Harbor, 3.67 secluded acres, unrestricted, trees, pond, util, \$55K/make offer. Dave 488-2763 or 488-3747.

Rent: Cancun, Mexico, beach front resort condo, full kitchen, maid service, avail year-round, trade for Puerto Vallarta, \$450/wkly. Katie, x33185.

Sale: Seabrook, Bayfront 75' x 250' lot, view, \$99K. Steve, 282-3097 or 471-2859. Lease: 2-2-2 condo, avail 5-9-92, ref req., no pets, \$450/mo. w/\$200 dep. Faye, x39084 or 488-5481.

Sale: Hobby Airport, Garden Villas, 4-2 on 7/8 acre, split level, kitchen upgrade, lg master suite, lg den, cathedral ceiling, 5 fans, \$76K. x34787 or 326-1499.

Sale: '87 Oakridge Mobile Home, 16' x 80', 3-2, skirted, fenced, lg cov deck, \$25K. Greg, x31580 or 997-2250.

Sale: CLC TH, 3-2-5-2cp, renovated, painted, patio, FPL, fan, new a/c. W/D conn, \$63.9K or \$800/mo. Ed, x36969 or 332-0442.

Lease: Pipers Meadow, 3-2-2, 1560 sq. ft., vaulted ceiling, blinds, fans, appls, fenced, \$825/mo + dep. x31826 or 480-9436.

Rent: New Orleans condo, French Quarter, jazz festival week Apr 24-May 1, private rooftop deck, skyline view, furn, \$500. 282-6422 or 280-8927.

Sale: Middlebrook, 4-2-2, 1900 sq. ft., new carpet/paint, formals, den, fenced. 334-3984.

Sale: Tiki Island, waterfront lot, new bulkhead, good view. x30220 or 337-4168.

Sale: Friendswood, 3-2-2, open floor plan, high ceilings, WBF; 5 CF; fresh paint, cov patio, fenced, \$65K. x31177 or 996-8721.

Sale: Friendswood lot, 70' x 185', owner financing w/10% dn, \$16K. 482-5226.

## Cars & Trucks

'68 Mustang, red, great body, 117K, good int, in-line 6 (orig), \$4150 OBO; '80 Yamaha XS-1100, ex. mechan. shape, 36K, \$1050 firm. Sue 488-5445.

'82 Nissan 280 ZX, auto, bronze, t-tops, A/C, AM/FM, 62K, \$4.2K; '89 Honda Accord DX, 3 DR, red, 5 spd, A/C, AM/FM, 31K, ex. cond, \$7.8K., 335-1378.

'84 Mazda 626, auto, 4 DR, cruise, A/C, stereo, ex. cond, \$3.5K. 280-9173.

'86 Ford Taurus, 3.0L w/OD, loaded, tint, tow package, \$2.8K. 474-4742.

'91 Chevy GEO Storm wagon, AM/FM/cass, A/C, low mi, make offer. 286-1754.

'87 Camry LE, loaded, ext warr, 50K mi, ex cond, \$7.2K. x36149.

'79 Datsun 280ZX, new paint, 92K mi, \$2.2K. x37892 or 333-9518.

'86 Chrysler Laser, lgt. blue, clean, \$3K. 471-4100.

'82 Mazda RX7 GSL, new paint, silver w/maroon int, sunroof, AM/FM/Cass, 73K, \$3.8K. x33251.

'84 Nissan PU, auto, white, good work truck, \$1.3K OBO. Mike, x38169 or 482-8496.

'81 SWB Chevy PU, new paint, rebuilt 350, A/C, AM/FM/cass, ex cond. Lisa, 333-6795.

'80 GMC Heavy Half PU, 3-tone blue, chrome side rails, bedliner, heavy duty hitch, 4 new 15 x 70 road hugger tires, sliding rear window, PS, tilt, cruise, fabric bench seat, radio/tape player. 943-1694.

'89 Toyota Corolla SR5, loaded, ex cond, 55K mi, \$7K OBO. Joel, 992-4259.

'85 Chevy Cavalier, 4-dr, 4 cyl/2.0L, auto, new tires, brakes, 75K mi, ex cond, \$2.4K. 488-5522.

'75 Jeep CJ5, new x-heavy duty suspension w/ 2.5" lift, new tires/drive train, \$4K. 554-4315.

## Boats & Planes

'90 Liberator jet boat, like new, 21' w/trlr, \$14K. 426-5866.

19' boat trlr, 2500 lbs, \$450. 534-2179.

Sailboat, Dolphin 17' sloop w/main and jib, access, trlr, ex. cond, \$1650. 474-4136.

Hobie 14, trlr, tequila sunrise sail & trampoline, \$600 OBO. Chuck, x31912 or 482-1859.

22' Aurora sailboat w/ fixed keel, 3 hp long shaft outbd, \$1.5K. Cindy, 527-8699.

'89 O'Brien Excellebrator windsurfer, board only, good cond., \$200. x38311 or 992-5832.

'79 Chrysler Sailor, 7.5hp outbd, \$400 neg. Ronnie, x32294.

'91 O'Brien windsurfers; Elite 11', Excellerator 10'4", ex. cond, 2 sails ea. John x35514 or 332-0134.

16' skiboat w/85hp Chrysler motor, \$1.3K. x38740 or 992-3827.

Hobie 16, multi-color sails, blk anodized alum frame, dbl trapeze, righting sys, trapeze harnesses, galv trlr, custom cat box, \$1.2K. Carla, x32959 or 992-4137.

12 person white water raft, thick rubber, \$250; Johnson Outboard Shop manual, 50-235 hp, '73-87. x36186 or x35046.

18' Prindle, dbl trapeze, new sails, ex. cond., \$1.8K, 22'4" Gulf Coast sailboat, main jib & spinnaker, new uphol, 6 hs, outboard, \$2.5K. Greg, x32259 or 474-7634.

## Cycles

'79 Yamaha XS 1100 special, recent tires & batt, 15K, inspected, windshield, fairing, 4 cyl, shaft drive, AM/FM stereo, \$1K OBO. x34787 or 326-1499.

## Audiovisual & Computers

Macintosh IICX, 8 mb RAM, 40 MB internal HD, Apple 13" color RGB monitor, Apple extended kybd., AppleCare warr., \$3495 OBO. Peter, x31624 or 487-0290.

Commodore 64 computer w/ model 1541 disk drive, used approx 20 hrs, software incl., \$200 OBO. 409-945-7584.

Panasonic bus partner, 600, 2 floppy drives, 30 MB HD, mono monitor, extended kybd, DOS, internal modem, graphics card, new L.E. word processing PGM, all manuals, \$675.00. 488-5564.

Macintosh SE, 1 MB, 2 800K disk drives, Apple kybd., Imagewriter II, cables, documents, original boxes w/foam, \$900. x45359 or 326-4679.

2400 baud interior modem w/software, 40 MB + Hardcard II w/software, serial card w/manual and software, Intel Aboveboard 2 MB expanded memory, ethernet network card, Dlink, EGA Paradise Wonder Card. x36186 or x35046.

26" Sony console TV less than best picture, \$25. 488-3288.

## Pets & Livestock

Need AKC male boxer to breed w/ my female in 2-4 mo. You get pick of litter. 474-2660.

AKC german shepherd pups, born 4-1-92. Sable, Rin Tin Tin bloodline, \$350. Lana or Scott, 332-3210.

AKC registered male golden retriever looking for a mate to bring about puppies. Doug, x35556 or 286-7631.

Free, affectionate, playful small black kitten needs good home. 486-2035.

Free, 2 of 3 cats, all spayed or neutered, calico, longhaired, tabby or black & white. x34155 or 534-3476.

## Musical Instruments

Fender Squire II stratocaster guitar, mint cond., incl. Seiko Quartz tuner, softcase, and cords, \$250. Chuck, 282-4868.

Yamaha, kybd PSR-47, midi in/out,

recorder, aux. dual voice, pitch bend wheel, drummer & auto bass, ex. cond., \$480. 282-4564.

## Household

Sofa, rust contem, \$275; 2 French Provincial, reg & love, \$425; 2 traditional, reg & love, \$325. x30581.

Blk leather sofa & chair, mint cond., \$650 OBO. x33185 or x37990.

Wicker sofa, \$175; rattan sofa, \$200; newly reuphol sofa \$150. Pautl x34636.

Dusty rose velvet couch, ex. cond., \$395 OBO. x37906 or 286-9455.

Natuzzi blk leather sofa, chair and ottoman, 1.5 yrs old, ex. con, \$1.6K neg. 283-8109 or 282-2040.

Jenn Air range, good cond, 6 yrs old, \$150 OBO. Jean x33098 or 922-6674.

Coffee table and end tables, \$75; rocker recliner, \$150, wicker room divider, \$50. x31279.

Dining rm table, French Provincial w/6 chairs, \$600; Early American round w/6 chairs, \$250. x30581.

Small kitchen table, formica w/2 antique bentwood chairs, \$125; pair outside recliners, \$25; wrought iron bench, \$75; Panasonic cordless phone, \$35; old axe, \$18; new water timer, \$7. 488-5564.

3 pc bdrm suite, full size, box spring, mattress; oak dinette set, table, 4 chairs. Crystal, 480-9897.

Kenmore full sz W/D, gold, old but works fine, \$50/pr. x31934.

Broyhill dining rm set, table, 4 chairs, \$350; trundle bed, bolsters and mattresses, \$190; coffee table, walnut, \$50; loveseat, colonial rocking, \$65, all ex. cond. 488-3288.

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Want working and nonworking appli, refrig, W/D, lawnmowers, air cond. 479-1608 or 476-0612.

Want frequent flyer certificates to aid a Methodist Church mission team to travel to Costa Rica in July 1992. Jerry Borrer, 244-5871.

Want used car top carrier or luggage rack, 483-7486 or 545-8325.

Want roommate for a college student who works parttime. Sandy, 480-0184.

Want almond gas stove, white gas dryer. Will trade Hotpoint almond elec. stove and white Kenmore elec. dryer. Phil, 283-5648 or 538-1665.

## Miscellaneous

1.5 yr old window A/C, 18K BTU, ex. cond, \$425 firm; mobile home gas heater, 75K BTU, \$85 firm. Sue or Kent 488-5445.

Used dishwasher and 4-burner gas range, \$50/ea.; 77 CJ5 jeep top (brwn) incl doors; \$75; rear bumper '83 Ford Ranger, \$25, make offer. x34109.

Russian amber necklaces (4) each different, from \$50 - \$140. 538-1599.

.75 carat round diamond solitaire, JSI quality, orig \$4k, now \$2K OBO. Peter, 244-5578 or 286-8346.

Soloflex type; incl fly, leg unit, extra bands, \$150.; Stair stepper, \$70. 282-3282 or 332-0478.

The Furniture Idea/Gift certificate, \$1067 value, sell \$967, expires March 1993. 538-3444.

Remington Model 7400 30.06 autoloader rifle w/3 x 12 raised Tasco scope, case, sling incl, ex. cond, \$425. Tim, x39289 or 487

# Triple Play

## Space-walking astronauts will put together orbital building blocks to wring bugs out of procedures for building space station

[Editor's note: This is the second of two articles examining the complex task of performing three space walks on the same shuttle mission. Part 2 details plans for the two Assembly of Station by EVA Methods space walks.]

By Kyle Herring  
and Kelly Humphries

Once the first two *Endeavour* space walkers have attached a new boost motor and the Intelsat spacecraft is released, all attention will shift to learning more about what it will take to put together and maintain Space Station *Freedom*.

Two additional days of space walks will be needed to test Assembly of Station by EVA Methods hardware including the Crew Self-Rescue equipment. The tests are designed to gather data on how equipment can be moved about the station as well as how best to meld the efforts of astronauts working outside the station with those working from inside to direct the remote manipulator system or robot arm.

The primary objectives for the two ASEM space walks are to perform three back-to-back EVAs. One of the key tasks will be to evaluate attachment techniques between the truss structure assembly and a Multi-Purpose Experiment Support Structure that will contain all hardware for the space walks.

"Using the RMS and EVA astronauts together is very applicable from an operations standpoint to the Space Station Program," said Karen Armstrong, lead on the ASEM work in the Mission Operations EVA Section.

Manipulating large structures in space also will increase the database required for changing equipment and experiments located along the space station's truss structure, and weighing in at about 3,500 pounds, MPSS will fill that bill.

Mission Specialist Kathy Thornton will "lift" MPSS above the payload bay to test proposed techniques for translating equipment from one location to another such as large batteries.

"Some orbital replacement units for space station weigh roughly 2,000 pounds," Armstrong said.

During the two space walks — on flight day five Thornton and Tom Akers will step outside the airlock, and on flight day six it will be Pierre Thuot and Rick Hieb — the space construction teams will build a truss pyramid; unberth the MPSS, maneuver it untethered in the payload bay, then berth the structure once again in the payload bay.

After the pallet attachment exercise, the arm will take MPSS and the crew members over-the-nose for an exercise that will evaluate the ability of astronauts to work with the robot arm above and in front of the payload bay — the location chosen for Space Station *Freedom* assembly work.

Other tests during the second and third space walks will evaluate the assembly area and MPSS berthing operations guided by the space walker and a space suit-mounted camera called the EMU TV.

Other "cues" that will be evaluated are robot arm movements by Bruce Melnick on the flight deck with voice-only guidance by the crew member in the payload bay.

"Using both could add flexibility to space station EVA operations," Armstrong said.

Including the Intelsat space walk on flight day four, the three consecutive EVAs will evaluate the capability to perform variable and multiple tasks of astronauts needed to build the space station.

Another of the ASEM procedures will be a demonstration of crew self rescue device prototypes. Five concepts will be tested by the four space walking astronauts to determine their feasibility in the event an astronaut or piece of equipment gets separated from the space station. All of the hardware was developed the direction of the Crew and Thermal Systems Division at JSC.

The astroscope is a type of "lasso" to wrap around an element of the station. The telescoping pole is similar to a telescoping radio antenna and reaches up to 12 feet. The bi-stem pole consists of two strips of spring steel and a power tool for extension and retraction. The inflatable pole uses a tubular sock that is pressurized to form a rigid pole. The crew propulsive device is essentially a redesigned hand held maneuvering unit from Gemini and Skylab.

Crew training for *Endeavour's* STS-49 mission has been extensive. Three space walks has meant double and triple the work necessary to get four crew members ready to go outside the orbiter.

Richard Fullerton, EVA flight controller for the execute phase during the ASEM space walks, said that by the time the mission begins the four EVA crew members will have been through about 28 training sessions in the Weightless Environment Training Facility. But the training didn't stop there, he said, comparing the training for STS-49 with that of STS-61B in November 1985.

"This time around we've used every single facility there is possible to use. We didn't use all the facilities for 61B,"

he said.

In addition to the WETF, the crew trained on the air-bearing floor, the KC-135 and the Manipulator Development Facility in Bldg. 9. Fullerton said that much training reduces the chance of problems during the actual mission, but "It only really comes together totally on orbit."

Computer animation also played a big part in crew training for the ASEM EVAs, he added.

Usually, animation is created after the procedures are written and practiced, but in this case animation of the EMU-mounted camera view developed in the Integrated Graphics, Operations and Analysis Laboratory helped show the astronauts where they should position themselves in the payload bay to be most helpful in guiding the robot arm.

"The IGOAL computer lab simulated the EMU TV camera view and found the best location for the crew without us putting a person on the crane above the MDF.

"Instead of running a big expensive, risky test, we used this to demonstrate the crew view position," Fullerton said.

The Space Station Program Office hopes to benefit in several ways from *Endeavour's* first mission.

The ASEM work is designed to exercise processes and procedures of the Work Package 2 contract here at JSC by serving as a "pathfinder" to streamline operations and create a "lessons learned" database that can be applied to future space station activities.

"To do all three EVAs is one of the primary objectives of ASEM," said Jerry Miller, who will be the execute phase EVA flight controller for the Intelsat retrieval. "The whole point is to look at how the shuttle will support station assembly requiring three consecutive complex EVAs all on the same mission."

As part of the streamlining, JSC's EVA contingent had to be innovative to stuff all four EMU suits and ancillary equipment into the shuttle.

Scott Bleisath, who will provide EMU support in the Mission Control Center multipurpose support room during the flight, worked with Kieth Johnson and engineers from the Engineering Directorate, Rockwell's Downey, Calif., plant, and Kennedy Space Center to create and verify those procedures.

The first big issue was where to put the four suits. Normally, two primary EMUs are carried in the shuttle airlock, one on either side, and a backup is attached to the floor. After looking at the possibilities of putting the fourth suit in the middeck or flying the Spacelab tunnel adapter for storage space, they chose the ceiling of the airlock.

"We started off with just whether or not you could fit a suit up on the ceiling," Bleisath said.

It took several exercises in the Crew Compartment Trainer in Bldg. 9 using foam core models and the development of some new ground servicing equipment at KSC to validate the plan. All four suits were installed and checked out at KSC last week with Lockheed Test Project Engineer Greg Koch leading the test.

"Everything flowed really smoothly," Bleisath said. "The stowage reviews we did here at JSC — Phil Mongan in Man-Systems ran those — proved to be very helpful and things went very well."

Because the airlock clearances are so tight, the helmets not attached to the suit on the floor (all are the same size, so only two and a backup are needed) were mounted to the airlock floor. The Hamilton Standard contractor team led by Rob Boyle had to design and build helmet holding fixtures using surplus Apollo neck rings that could do the job and stay out of the way of the airlock doors.

With the four EMUs taking up well over half of the volume of the airlock, it took some creative packing and procedure development to make it possible for the crew to get in and remove the suits for EVA preparation. For example, the liquid cooling garments and new thermal comfort undergarments are being stowed inside the hard upper torsos of the suits.

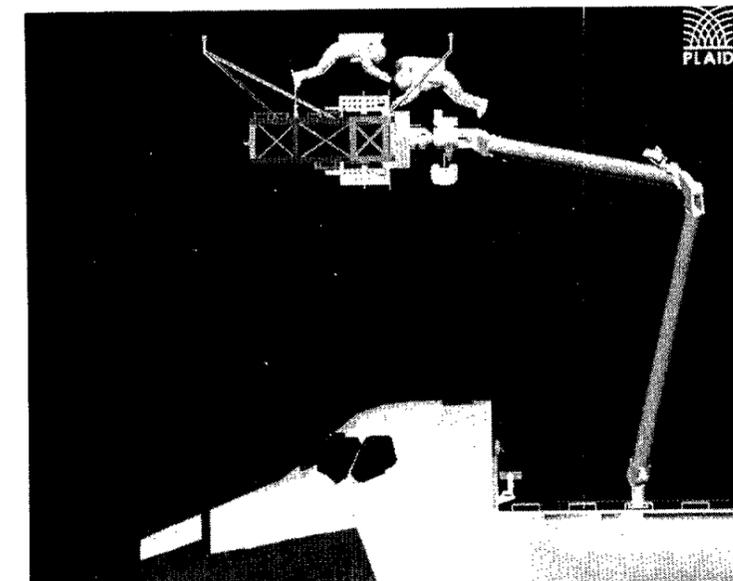
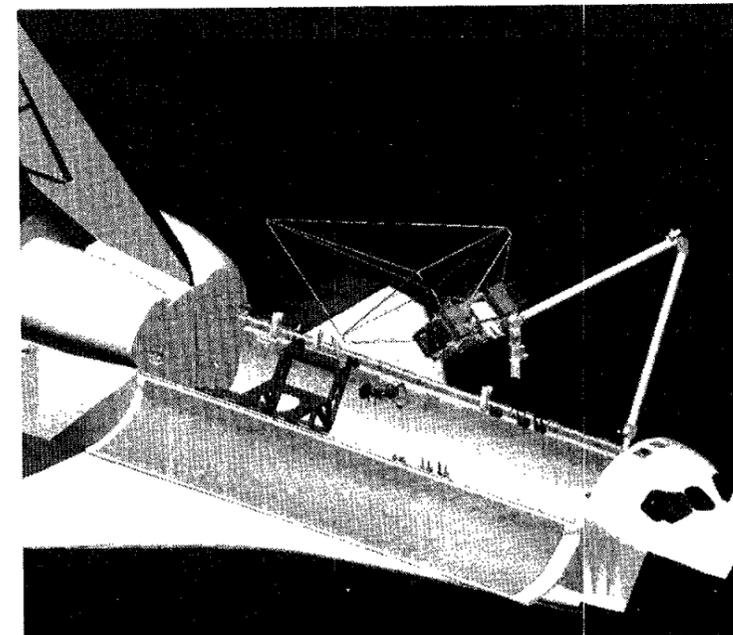
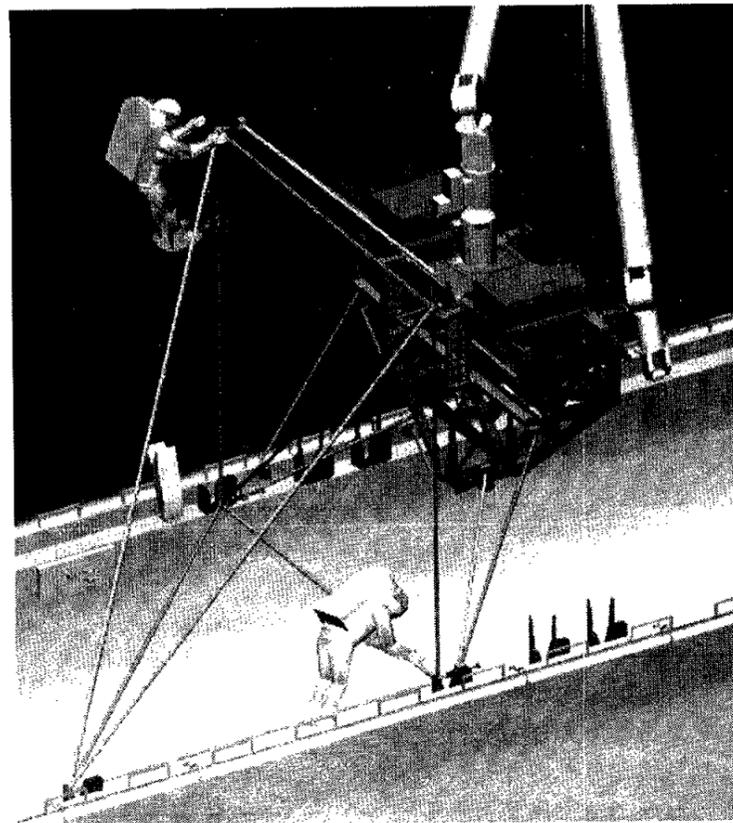
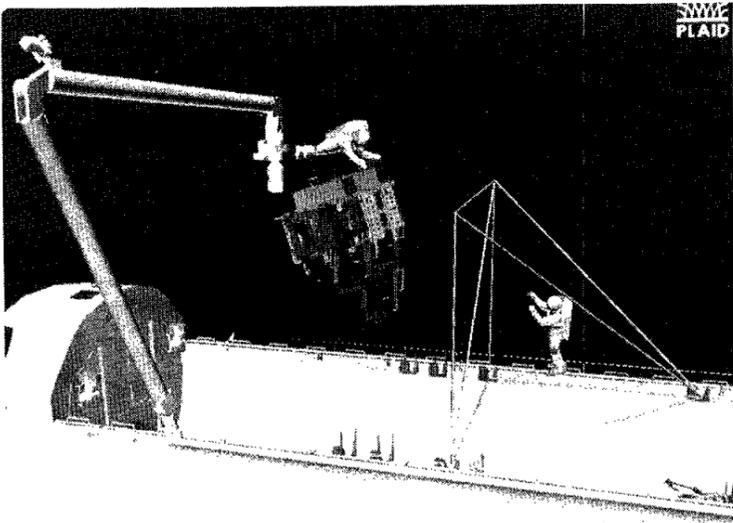
"We're trying to take full advantage of every unused area on this flight," Bleisath said.

To help develop space station assembly data, *Endeavour* will carry enough space suit equipment to support three scheduled EVAs and two contingency EVAs — one for shuttle and one for station.

STS-49 also will be the first use of a new portable recharging unit that can be used to recharge the batteries of two suits on the middeck while the airlock is in use during the second EVA. Previously, the 20-hour recharge was accomplished with the airlock power supply.

Since there isn't room for a spare EMU, a contingency matrix was developed so that if one suit should fail, the crew will know who can use what components from the other suits. This plan covers failures in the EMUs for everyone but Thornton, who wears a "small." Bleisath noted that it is doubtful the matrix will be used because they have been so reliable in the past that shuttle astronauts have never had to use a backup suit.

The triple space walk also will provide much-needed data and experience that will apply directly to the Hubble Space Telescope servicing mission planned in November 1993. □



From top down: 1) After the truss assembly has been constructed, Kathy Thornton grabs and maneuvers the Multipurpose Experiment Support Structure with the help of robot arm operator Bruce Melnick. 2) Next, she and Tom Akers attach the MPSS to the truss with "legs." 3) The following day, Melnick drives Rick Hieb and the integrated assembly out of the payload bay. 4) After reberthing the truss structure and detaching MPSS, both crew members tether themselves to the arm which moves them to the Space Station *Freedom* assembly position over the nose of the orbiter.

PLAID Computer Illustrations

# Exploration chief to address technical interchange players

NASA Associate Administrator for Exploration Mike Griffin will discuss progress on the Space Exploration Initiative at a third Technical Interchange Meeting next week.

The meeting, sponsored by the Exploration Programs Office, will be open to interested JSC employees from 8:30 a.m.-5:15 p.m. Tuesday and 8 a.m.-5 p.m. Wednesday in the University of Houston-Clear Lake's auditorium.

Astronaut John Young, special

assistant to the JSC director for engineering, operations and safety, will speak at a dinner at 6:30 p.m. Tuesday in UHCL's Atrium II. His topic will be "Back to the Moon — This Time to Stay." A reception will precede the dinner at 5:30 p.m. in Atrium I.

The quarterly Technical Interchange Meetings are part of a continuing SEI effort to exchange information with industry and academia about exploration plans and activities, and to search for technical

advances that could be useful in SEI programs.

The meeting's primary subject will be the first lunar outpost definition project for returning to the Moon by the end of the decade and establishing a permanent base. Briefings will cover a mission overview, science and payloads, surface systems, lunar habitats, space transportation and Earth-to-orbit transportation. Additional presentations will look at near-term precursor missions such as the

lunar resource mapper and Artemis.

The first day will be a general session with SEI representatives summarizing the status of on-going and planned activities. The second day will include a general session dedicated to management and parallel technical sessions to identify and discuss issues and alternatives.

A broad range of speakers from NASA and industry is expected. There is no registration fee, but the Exploration Programs Office

requests that anyone who plans to attend fax their name, organization, phone and fax numbers, and address to Sonia Zavala at 283-5818. Zavala can answer questions at 283-8284.

Today is the deadline for reservations for the Tuesday reception and dinner, which costs \$20. For reservations, fax information to Peggy Towns at 480-2456. For more information about the dinner, call Towns at 280-7312 or Myrna Dorman at 282-6311.

## Ellington AFB reunion nears

Only two weeks remain for those who worked at Ellington Air Force Base to register for the 1992 Ellington AFB Reunion May 29-31 at the Howard Johnson Hobby Airport Lodge.

Reservations deadline is May 15 and all those who served as Ellington as Air Force, regular or reserves; the Air National Guard; civilian employees; NASA; and NASA contractors during the 1940s to 1970s are invited to attend.

The event will begin with a golf tournament and happy hour May 29. Activities May 30 will begin with a welcoming ceremony. Also Saturday, reunion attendees will participate in a tour of the current Ellington facilities, a cocktail party featuring open microphone for reminiscences, and dinner and dancing. The weekend will conclude with a reunion breakfast May 31.

Cost is \$30 per person and should be sent to the Ellington Reunion Committee, Cherry Ventresca; 7610 Moline; Houston; 77087. For more information, call 643-0286.

## Gregory replaces retiring Rodney

(Continued from Page 1)

Gregory will replace George A. Rodney, who is retiring in June. Gregory will be responsible for the safety and mission quality for all NASA programs and activities, and for the direction of reporting and documentation of problem identification, problem resolution and trend analysis. A veteran of three shuttle missions, he served as pilot on STS-51B in April 1985, and was commander of STS-33 in November 1989, and STS-44 in November 1991.

Goldin also announced the appointment of Alison L. McNally as executive officer and Deidre A. Lee as executive assistant.

## AAS reviews station

(Continued from Page 1)

tific space programs for Lockheed Corp.; and JSC Space and Life Sciences Director Carolyn Huntoon.

Registration is free; box lunches are \$5 when purchased by today or \$7 at the symposium. For more information, contact James Vanderploeg, 488-8503.

## Strength of opposition warns of coming challenge

# Goldin sees House vote as battle victory

(Continued from Page 1)

fair value and a good product for what is spent. The strength of the opposition is a warning of difficult and challenging times ahead, he added.

"We have won our battle, but we now have to win total acceptance by the Congress, the Senate and the American people," he said.

The proposed \$14.9 billion budget for NASA in fiscal 1993 could face more challenges when Congressional appropriation deliberations begin in about six weeks. However, the President has indicated he would veto any bill Congress adopts that would substantially reduce or terminate space station funding.

"NASA must redouble its efforts toward economy, precision and

innovation," Goldin said, adding "I am extremely confident of our chances."

Rep. Tim Roemer, D-Ind., led the attack on the *Freedom's* budget, proposing an amendment that would have cut station spending to \$100 million, which would have been used to close out the program.

"This is a space station in search of a mission. It is lost in space," Roemer said. "This is an accordion expanding one way in the NASA budget, and that's out."

Supporters included Rep. Mike Andrews, D-Houston, who argued that "The choice is clear: Keep America No. 1 or stop our space program dead in its tracks. This debate is about jobs — new jobs — the jobs of the next century."

Rep. Jack Brooks, D-Beaumont, said space station research could help fight cardiovascular diseases, diabetes, immune disorders, osteoporosis and aging, and Rep. Tom DeLay, R-Sugar Land, countered the testimony of medical researchers who said earlier in the week that more important work could be done on Earth with the money earmarked for *Freedom*.

"Clearly, any suggestion that the space station is an economic debacle, pumping billions of dollars into a fiscal black hole, is a position that simply is not credible," DeLay said.

"Likewise, the notion that a manned space station is somehow at odds with our best interests in the fields of space science and robotic space exploration is highly misleading."



Kelly Air Force Base loadmasters move a huge crane, capable of lifting a shuttle orbiter, into a modified C-5 Galaxy aircraft during a recent test.

## Threading the needle

### Shuttle crane fits inside plane

By Kari Fluegel

It was a case of putting a 218,000-pound thread through a needle, but the loading of a 60-foot-long crane recently demonstrated the feasibility of carrying shuttle-lifting equipment overseas.

The loading, which went smooth as silk, proved that the one-of-a-kind piece of equipment used to load the shuttle onto a Boeing 747 Shuttle Carrier Aircraft could be shipped out in the event of landing at an alternate site.

Loadmasters at Kelly Air Force Base inserted a Demag TC4000 crane, provided by Nicholas Construction Co. in Baton Rouge, La., into a modified C-5 Galaxy aircraft for the test.

The crane was used once to load the Space Shuttle *Enterprise* onto a 747 at the World's Fair demonstration in Mobile,

Ala., said Major Mike Hale of the Department of Defense Mission Support here.

Besides the massive weight, the crane's size and eight axles added to the difficulty in loading. Normal loading angles did not allow clearance for the procedure so a 50-foot ramp constructed of 540 pounds of 2-by-12 planks. It took technicians six hours to calculate the proper angle and construct the ramp. Then, moving at a speed of eight-inches per minute, the crane was loaded onto the C-5 using the aircraft's heavy-duty winch.

After verifying the fit, the crane was unloaded and loaded again under its own power.

The work was done by loadmasters from the Air Force Reserve's 433rd Military Air Wing at Kelly AFB working along side active-duty loadmasters.

## Software managers earn recognition for Quality Partnership

Two MITRE Corp. employees working to improve NASA management's insight into the cost, schedule and quality of software for JSC's operational ground systems are the latest winners of the Quality Partnership Award.

George Stark and Robert Durst received the award April 24 for their initiative in developing a set of measurements on which to judge the software testing process.

The pair's invention came about as a result of work with the NASA Systems Engineering Office, the Mission Operations Directorate and their contractors to define, develop and implement a software management metric set to be used on all current and future MOD projects.

The measurement standards are being implemented on six MOD projects, the Shuttle Mission Control Center Upgrade, Shuttle Mission Training Facility Upgrade, Space Station Control Center, Space Station Training Facility, Flight Analysis and Design System, and

Operational Data Reduction Complex.

Stark and Durst also led the development of an MOD Software Development Metrics Handbook.

Their efforts have provided JSC employees and contractors with a powerful tool allowing them to measure their progress toward product delivery and quality, said Jack Heberlig, MITRE's associate technical director, who made the nomination.

The Quality Partnership Award is presented twice a year by JSC's Safety, Reliability and Quality Assurance Office. It recognizes individuals outside SR&QA who play key roles in helping JSC employees and support contractors reach a common goal of excellence.

For more information about the award, call M.C. Perry, chief of the Quality Assurance and Engineering Division, x34352.

Several key decisions were made by NASA managers based on the information.

## 1992 Computer Expo is Thursday

The 1992 Computer Expo will feature more than 40 exhibits at the Gilruth Center from 8 a.m. to 5 p.m. Thursday.

The event, which will include a variety of classes and demonstrations, is sponsored annually by the

Information Systems Directorate and the University of Houston-Clear Lake/RICIS.

Admission is free. For more information, contact Diane Robinson, x37595.

## Mission Control viewing room open to employees, families

The Mission Control Center viewing room will be open to JSC and contractor badged employees and their families during portions of the STS-49 mission.

Based on a Thursday launch, employees will be allowed to visit the MCC May 8 from 11:30 a.m.-2:30 p.m.; May 9 and 10 from noon to 3 p.m.; May 11 from 11:30 a.m.-2:30 p.m. and 5-7 p.m.; May 12 from 11:30 a.m.-2:30 p.m.; and May 13 from 11:30 a.m.-2:30 p.m. and 5-7 p.m.

Employees must wear their badges and escort family members through the regular public entrance on the northeast side of Bldg. 30. Children under 5 will not be permit-

ted. No flash photography or loud talking will be permitted at any time.

Because of the dynamic nature of shuttle missions, viewing hours may be changed or canceled without notice. For the latest information on the schedule, call the Employee Information Service at x36765.

Special cafeteria hours also will be in effect during the mission.

The Bldg. 3 cafeteria will be open from 7 a.m.-4:30 p.m. weekdays, except launch day, and from 11 a.m.-4:30 p.m. weekends. The Bldg. 11 cafeteria will be open from 6:30 a.m.-2 p.m. weekdays, except launch day, and 7-10 a.m. weekends.

## Simanton's efforts earn him honor of 'Trail Boss of Year'

(Continued from Page 1)

and the Information Systems Contract.

The estimated cost of the first two was more than \$600 million, but through Simanton's efforts the actual negotiated cost was only \$300 million. Simanton only recently became Trail Boss on the ISC, a contract in excess of \$500 million for information services.

GSA also congratulated Simanton for raising the visibility of the value of the Trail Boss Program by managing large-scale acquisitions throughout NASA, promoting the program throughout the agency, and helping make NASA the lead horse in the federal team with the majority of Trail Boss acquisitions.

## 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.

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