

# Space News Roundup

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No. 16

## New orientation program to make debut

By Linda Copley

A group of about 40 recently hired civil service employees will be the first to initiate the center's new employee orientation program when it makes its debut on May 2.

Having completed a highly successful trial run earlier this month, the comprehensive 25-hour program incorporates suggestions from a test audience of current employees from all areas of JSC, according to Debbie Hagen, the Human Resources Office's new employee orientation manager.

"The first day of work for JSC employees will still have them filling out necessary forms, like all of us have been used to," Hagen said. "But within

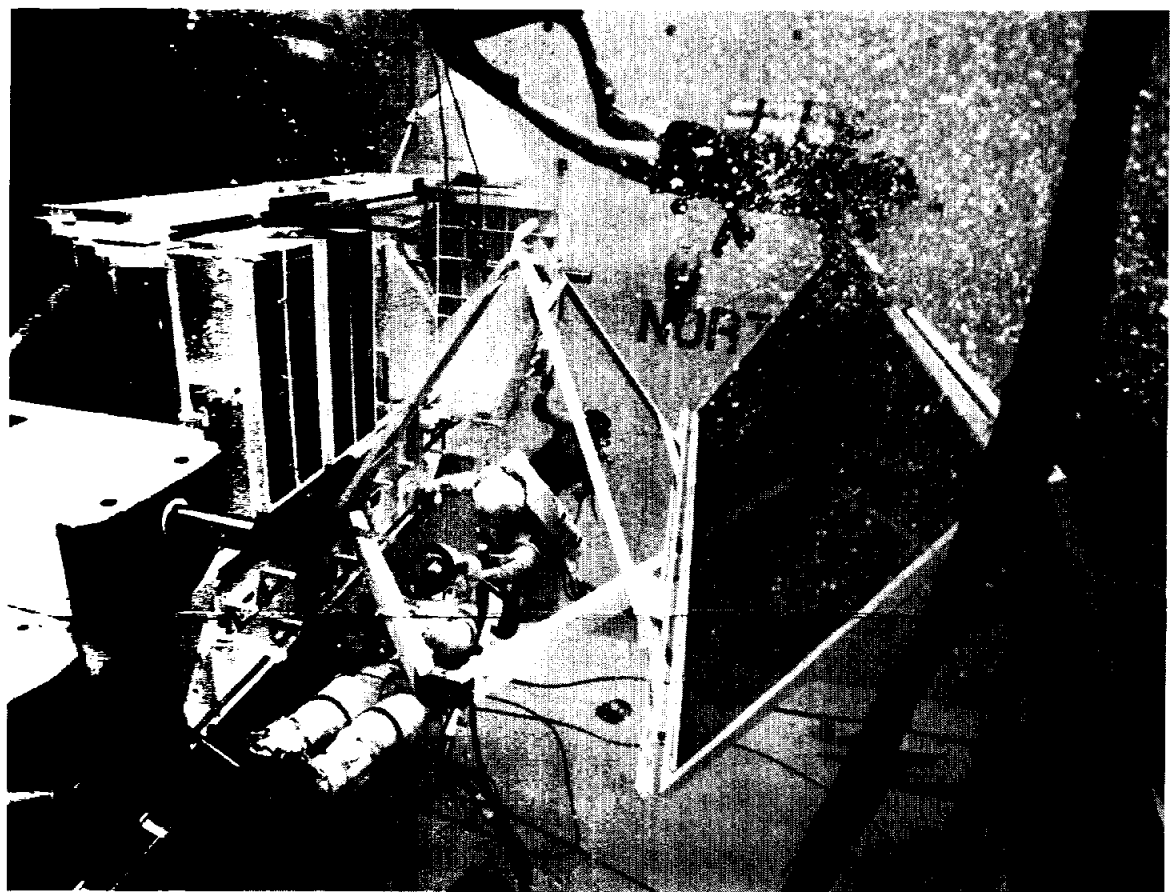
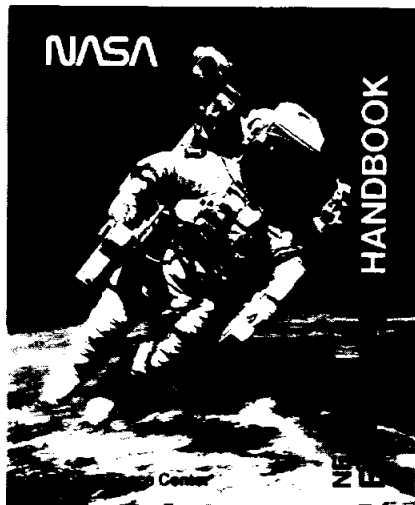
their first month they'll be introduced to Johnson Space Center, how it works, and where it's going by some of our top people. Instead of a brief overview from Human Resources, they'll be briefed by the people who make JSC what it is today—top managers from all our directorates. It's an exciting prospect."

The ambitious program will be offered in seven half-day segments over a two-week period. It will introduce the class to the history of the center; present overviews of each directorate from their own managers; and provide tours of mock-ups and facilities most employees are well aware of but seldom have the opportunity to experience first-hand.

"The idea for an employee orientation of this caliber has always been recognized within training," explained Hagen. "And last summer everything seemed to fit into place in order to, at last, develop and implement the program."

The Mission Operations Directorate (MOD), which launched its extensive 100-hour orientation program for all new employees two years ago, helped get the initiative under way by detailing Bobbie Gail Swan, an engineer from crew training in MOD, to the Human Resources Office. Swan led an ad hoc orientation committee for six months. The 18-member committee represented each JSC directorate.

Please see **EMPLOYEE**, Page 4



**GAMMA RAY EVA**—Astronauts Pinky Nelson and Thomas Akers work with the Gamma Ray Observatory (GRO) mock-up in JSC's Weightless Environment Training Facility (WET-F). Nelson and Akers verified changes last week in handrail and foot restraint locations made during 1985 training. They also practiced unplanned GRO solar array and high-gain antenna deployment, refueling and module change-outs. Training for the April 1990 STS-37 mission to deploy GRO is scheduled to begin this fall. Astronauts Jerry Ross and Jay Apt have been named as the EVA specialists for that flight.

## Final preparations under way

# Atlantis launch target date holds for next Friday

By Kyle Herring

Final preparations are under way at Kennedy Space Center's Launch Complex 39-B on *Atlantis* for the scheduled launch next Friday of mission STS-30 to deploy the Magellan interplanetary spacecraft to map Venus.

Shuttle managers last week recommended holding the launch to the original launch target date of April 28 announced in the October 1987 Shuttle manifest. Launch on Friday could occur dur-

The two extravehicular mobility units (EMUs) were installed in the airlock Tuesday for use during a spacewalk if one is required during the mission.

Monday, 18 flight batteries were installed in the inertial upper stage (IUS) booster attached to Magellan and Wednesday a 17-hour simulated payload launch countdown began.

The exercise was to be completed Thursday afternoon.

This countdown procedure is identical to the

one that will be followed by the payload test team on launch day and contains no simulated problems. It is standard procedure, but is usually an IUS stand-alone test without spacecraft involvement. However for STS-30, Magellan will be powered up and will respond to signals received from the IUS.

On Saturday, the ordnance which separates the IUS first stage and second stage, and the Magellan spacecraft from the IUS, will be installed. The payload bay doors of *Atlantis* are scheduled to be closed Tuesday in preparation for picking up the actual STS-30 launch countdown at 7 a.m. CDT that morning.

The five-member crew—Commander Dave Walker, Pilot Ron Grabe and Mission Specialists Norman Thagard, Mary Cleave and Mark Lee—will leave JSC for the launch center later that day.

After taking part in practice simulation in the Shuttle simulator with Mission Control, the crew will depart Ellington Field in NASA T-38 jet trainers for the Shuttle Landing Facility at KSC.



**STS-30**  
Magellan

## NASA suspends random drug testing

NASA and JSC will suspend implementation of the random drug testing portion of the new Drug-Free Workplace Program following the filing of a lawsuit by employee union locals at three NASA centers.

The suspension will affect about 475 of this center's civil servants who were subject to the random tests because of their jobs' importance to safety, mission success and national security.

Jack Lister, JSC director of Human Resources, said Wednesday the decision to suspend the

tests follows an April 4 lawsuit filed in the District Court for the District of Columbia by the Goddard, Marshall and Lewis Engineers and Scientists Associations—three locals of the International Federation of Professional and Technical Engineers.

A motion for preliminary injunction was filed to stop the implementation of random testing, which was announced by former NASA Administrator James C. Fletcher on Jan. 26. In the complaint, the union locals allege that the program

violates various constitutional and statutory rights of their members.

NASA will continue to develop and implement general education programs on the problems and effects of drug abuse, Lister said, but program-specific introductory briefings and supervisory and managerial training programs will be suspended. The agency will determine its next course of action once the court rules on the preliminary injunction motion.

"I'll keep you informed of further developments," Lister said.

## Myers resigns; lauds successors

Dale D. Myers, acting NASA administrator since Dr. James Fletcher's resignation on April 8, has announced his plans to resign effective May 13.

The announcement followed President Bush's nomination of Rear Adm. Richard H. Truly to be the new NASA administrator and J. R. Thompson to be deputy administrator.

Myers, commenting on the president's move, said, "I am delighted by President Bush's nomination of Dick Truly to be the next administrator of NASA. During the past three years I have come to know Adm. Truly and his capabilities well. His experience

and accomplishments demonstrate that he is well qualified to lead America's civil space program into a period of scientific, commercial and exploratory activities.

"The new administrator will be inheriting an organization of people who demonstrated anew their ability and determination by the way they recovered from the *Challenger* disaster and returned the nation to space flight.

"In nominating J.R. Thompson, who currently heads our Marshall Space Flight Center, to be the agency's deputy administrator, the President

has created a superb team to guide NASA into the future.

All of my colleagues are delighted with these nominations," Myers said.

Myers served as NASA deputy administrator from Oct. 6, 1986, when he was called back to NASA by President Reagan.

Myers served as the associate administrator for manned space flight from 1970 to 1974, and as under-secretary, U.S. Department of Energy from 1977 to 1979. From 1974 to 1977, he was vice-president, Rockwell International, and president, North American Aircraft, El Segundo, Calif.



Dale D. Myers

## Astronaut forms deadline June 30

A June 30 deadline has been set for receipt of applications for the selection of the next class of astronaut candidates.

The candidates chosen will be the first in the regular two-year selection cycle announced last year. The astronaut candidate class of 1990 will be announced next January, following six months of screening, medical evaluations and interviews. Candidates will report to JSC.

Applications received after June 30 will be eligible for consideration in the 1992 selection.

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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. to 2 p.m. weekdays:

- General Cinema (valid for one year): \$3.50 each.
- AMC Theater (valid until May 31): \$3.00 each.
- Sea-Arama Marineworld (Galveston, valid until Aug. 17, 1990): adults, \$8.75; children \$5.50.
- Sea World (San Antonio, year long): adults, \$17.25; children \$14.75.
- Astroworld (1989 season pass): \$32.36; (adults), \$14.12; (children under 4): \$11.99.
- Waterworld (valid 1989): \$8.15.
- Galveston Historic Homes Tour (May 6,7,13,14): \$8 per person.
- "Pericles, Prince of Tyre" (April 22-28, 8 p.m., Satellite Theatre, UHCL): \$4.
- "Blithe Spirit" (April 21, 22, 28 and May 5, 6, 12, 8:15 p.m., Clear Creek Country Theatre): \$5.
- JSC Picnic (May 6, includes barbecue lunch, entertainment, for children and adults): adults, \$3.50; children under 13, \$2.50
- FEB-FBA Employee of the Year Luncheon (May 4, 11:30 a.m., Holiday Inn Crown Plaza): \$15.
- Ramses Egyptian Art Exhibit (May 20-21, Dallas, includes transportation, overnight accommodations, lunch, breakfast, admission): \$90 per person.

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# Gilruth Center News

- EAA badges:** Dependents and spouses may apply for a picture I.D. Monday-Friday, 6-9:30 p.m.
- Defensive driving:** Course offered from 8 a.m.-5 p.m. on Saturday, April 15 or May 20: \$22.
- Weight safety:** Required course for those employees wishing to use the Rec Center weight room. The upcoming four classes will be April 6, 19, May 4, 18; 8-9:30 p.m.: \$4.
- Ballroom dance:** Professional instruction in beginning, intermediate, and advanced ballroom dancing. Classes meet every Thursday for eight weeks, beginning May 4. Beginning and advanced classes meet 7-8:15 p.m.; intermediate 8:15-9:30 p.m.: \$60 per couple
- Aerobic and exercise:** Both of these classes are ongoing: free of charge
- Taekwondo and Hapkido:** Learn the Korean art of self-defense, mental and physical discipline. Classes held 6:30-8:30 p.m., Tuesday and Wednesdays, beginning April 18: \$40 per person per month
- Spring intercenter run:** The 10 kilometer and two mile races for the annual intercenter run will be held throughout April and runners may submit their times at the Rec Center anytime during the month: free of charge
- Almost anything goes:** Six coed teams including three men and three women each are needed Saturday, May 6 at the JSC employee picnic. Each team member will receive a t-shirt. Entry deadline is May 2: \$10 entry fee.
- Tennis lessons:** Beginning tennis, Mondays 5:15-6:45 p.m.: six week course beginning April 24: \$32 per person.

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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. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2.

## Property

- Sale: 4-2-2 on 5 acres in Bedias, TX. (27 mi. west of Huntsville), house in the country, ex. cond., 2,200 sq. ft. 339-1197.
- Rent: League City/Countryside South, 3-2-2, w/boat or RV storage, new paint, wallpaper and floor coverings, \$575/mo. 554-4798.
- Sale: New Heritage Park, 3-2-2, assume 10.5% fixed for \$3,500/dn., ex. cond., carpet, miniblinds, drapes, tile, landscaped, decking, elec. bill \$81. 996-1990.
- Sale/Lease: Dickinson, 3-2-2, FPL, indoor W/D hookups, quiet neighborhood, near schools, \$475/mo. plus 1st mo. dep. 534-2985.
- Sale: Friendswood/Sun Meadow Estates, wooded lot, estab. neighborhood, cul-de-sac, bordered by stream and golf course on 2 sides, approx. 245' deep and up to 86' wide, util. on site, \$31,500. Doug, x32860 or 486-7412.
- Lease: Piper's Meadow, 3-2-2, FPL, open floor plan, near NASA, \$505/mo. Mike, x38169 or 482-8496.
- Lease: University Place townhouse, 3-2-5-1, W/D, FPL, micro., refrig., miniblinds, ceiling fans, \$700/mo. David, 483-2791 or 488-9768.
- Sale: Friendswood/Heritage Park, 3-2-2, lg. den., ceiling fans, miniblinds, fenced, FPL, com. sec. sys., low equity, assume loan. Danny, x33605.
- Sale: Seabrook, 3-2-5-2, trees, garden window, lg. master bath w/skylight, boat ramp, assum. VA, 9.5%. 326-3213.
- Rent: New Orleans condo, French Quarter, Jazz Festival week, Apr. 28-May 5, "Penthouse", sundeck, great view, fully furn., kitchen, linens. 282-6422 or 280-8927.
- Sale: Heritage Park, 3-2-2 custom home, tile entry, walls of windows in LR and DR, custom kitchen, deck and fence, baths redone, custom vanities, new paint inside and out, wallpaper, miniblinds, \$58,500. Tony or Lori, 482-5139.
- Sale: Seabrook, 3-2-2, both formals, FPL, spa w/redwood deck, remod., A/C, heater, roof, cul-de-sac, assume at 9 7/8%, \$70,000 by owner. Richard, x30271 or 474-9334.
- Lease: Bay Glen, 3-2-5-2 w/loft, 2 story, 2,000 sq. ft., 2 yrs. old, ener. eff., w/sec. sys., FPL, miniblinds, micro., W/D, 5 min. to NASA, \$990/mo. Rick, x33117 or 480-4827.
- Rent: University Trace condo, sleeps six, by wk. or mo., 5 min. from NASA, \$280/wk. Barbara, 480-1746.
- Rent: Lake Travis cabin, priv. boat dock, CA/H, fully equip., spring/summer rates, \$300-\$425/wk. 326-5652.
- Sale: 60 acres, 3 mi. from Kames City, TX., Hwy. 80, 50 mi. from San Antonio. 783-9164.
- Sale: Webster, 3-2-2, new roof and carpet,

- gameroom, det. gar., near JSC, Webster Med. Cen., Baybrook, \$59,500. 332-5177.
- Sale: Big Bend hunting land, 160 acres, \$145/acre, CFD 20% down, 9% for 5 yrs. 337-4051.
- Sale: Nassau Bay, 4-2-2D, 2,180 sq. ft. storm windows/doors, den, bay window, wkshp., \$108,000. 333-1709.
- Rent: Clear Lake lg. 2 BR apt., \$350/mo. Eric, 483-8420 or Herb, 483-8161.
- Sale: Assume 9.875% loan w/approval, 2-story condo, mirrors, grey carpet, ceiling fans, BR balcony, storage, split BR, 2 lg. baths upstairs, 1/2 down, ex. cond. x34640 or 488-3211.
- 1982 14' x 72' Fleetwood Festival mobile home, 2-2, CA/H, appli., ex. cond., \$9,000, OBO. 474-4306 or 409-925-5554.
- Sale: Green Acres residential lot, 1/2 acre, city util. avail., \$11,500, OBO. Boyd, x36866.
- Sale: University Green patio home, 2-2-2D plus study, corner lot, good cond., low maint. yard, \$89,900; 10 acres, 25 mi. NW of Austin, Hwy. 71, off FM 640 (Bee Creek Rd. 486-4633.
- Cars & Trucks**
- '79 Pontiac Grand Prix, runs good, good cond., \$1,595. 282-4616.
- '71 Lemans Sport, one owner, 400 C.I.D., blueprinted, Positrac, 400 T.H., etc., needs some work, \$2,450, OBO. Ron K., x34713 or 333-2273.
- '76 Malibu Classic, 2 dr., 350 V8, P/S, P/B, P/L, A/C, AM/FM cass., ext. dep., \$800. Craig, 333-6779 or 480-3246.
- '79 VW camping bus, com. Westfalla equip., 1600cc eng., 20,000 mi., car 90,000 mi., \$1,200, OBO. 333-6564 or 482-3824.
- '65 VW bugs (2), #1-160K, orig. owner, runs good, needs steering work, #2-no title, strictly for parts, \$250 for both. x37670 or 482-3963.
- '88 Dodge Colt wagon, 8,000 mi., white/dark grey int., A/C, auto. trans., AM/FM stereo, luggage rack, reclining seats, warr. x30936.
- '85 Cadillac El Dorado, cream yellow w/leather int., dig. display, symphony stereo, Vogue tires, 8 cyl., ex. cond., one owner, \$12,000. x37953.
- '81 FM 150 P/U truck, 6 cyl., auto., A/C, pwr., runs good, \$2,500. Randy Emmons, 480-8326.
- '61 Chrysler Windsor, 4 DR, brown w/white top, ex. cond., \$3,500. 486-4466.
- '78 Corvette, Silver Anniv. Edition, new 2-tone silver w/oyster white int., all pwr., T-tops, 14K mi. on new eng., totally restored to show room cond., \$11,250, fin. avail. Richard, x30271 or 474-9334.
- '88 Mazda 323 SE, 5 spd., A/C, AM/FM w/tape, 24,000 mi., ex., \$6,800 or take over payments. Jay, 335-7134 or 481-2335.
- '85 Nissan 300 ZX w/T-tops, red w/grey int., ex. cond., all records, one owner, \$9,950. Rick, x33117 or 480-4827.
- '79 Plymouth Horizon, AM/FM/cass., A/C, 4 dr. plus hatchback, 4 spd., 72K mi., good cond., \$1,000. Jerry, 282-2687.
- '87 Honda Civic Si Hatchback, red, 5 spd., A/C, AM/FM cass., sunroof, ex. cond., \$7,600. Stuart, x36370.
- '77 Chevy Nova, low mi., 6 cyl., ex. eng., needs

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# Dates & Data

## Today

**ACM meets**—The Association for Computing Machinery (ACM) holds its monthly meeting today at 11:30 a.m. at the Cleburne Cafeteria, Village Real West Center, 803 NASA Road 1. For more information contact Tom Sullivan, 480-4101, or Gary Young, 480-1994.

**Houston Space Society**—The Houston Space Society's April meeting will begin at 7:30 p.m. in the Atlantic Room of the University of Houston's Student Center. Peter Lange will discuss concepts presented in the book "The Overview Effect - Space Evolution and Human Evolution" by Frank White. For more information, contact Peter Lange at x30850.

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

## Monday

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

## Tuesday

**BAPCO meets**—The Bay Area PC Organization (BAPCO) will meet at 7:30 p.m. April 25 at the League City Bank & Trust. For more information, call Earl Rubenstein, x34807, or Ron Waldbillig, 337-5074.

**BFEC meets**—Bendix Field

Equipment Corp. will meet at 5:15 p.m. April 25 in the Rec Center. Glynn Lunney will speak. For more information, call Vicki Mittendorf, 282-6652, or Bill Foster, 282-4049.

**Cafeteria menu**—Special: turkey and dressing. Entrees: baked meatloaf, liver and onions, barbecue spare ribs. Soup: beef noodle soup. Vegetables: Spanish rice, broccoli, buttered squash.

## Wednesday

**Cafeteria menu**—Special: Spanish macaroni. Entrees: roast beef, baked perch, chicken pan pie. Soup: seafood gumbo. Vegetables: mustard greens, Italian green beans, sliced beets.

## Thursday

**Stress and Single Parenting Seminar**—A seminar discussing the joys and struggles of single parenting will be held in the Building 30 auditorium, 11:30 a.m.-12:30 p.m., April 27. Pamela Barton, M.A., clinical director of interact counseling, family therapist, and president of The Bay Area Mental Health Providers Association, will speak and answer questions.

**Space flight symposium**—The Texas Bay Area Chapter of the Society of Hispanic Professional Engineers (SHPE) will co-sponsor "The Challenge of Space Flight: A Space Symposium" to be held April 27-28 at JSC. The joint effort will be aimed at disseminating information to minority groups, educators, technical professionals and managers of EEO pro-

grams concerning current and future manned space activities and skills needed by JSC to meet the manpower needs of the 21st century. For more information, call Otilia Sanchez, x39319.

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

## April 28

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

## May 2

**Inventors luncheon**—The third annual JSC Inventors Luncheon will be held on May 2 to honor JSC employees whose NASA patents were issued last year. The luncheon will be at noon in the Rec Center upstairs dining room, room 216. JSC Director Aaron Cohen will present 18 plaques to the 13 individual inventors. Contact the JSC Patent Counsel, x31012, for more information.

## May 25

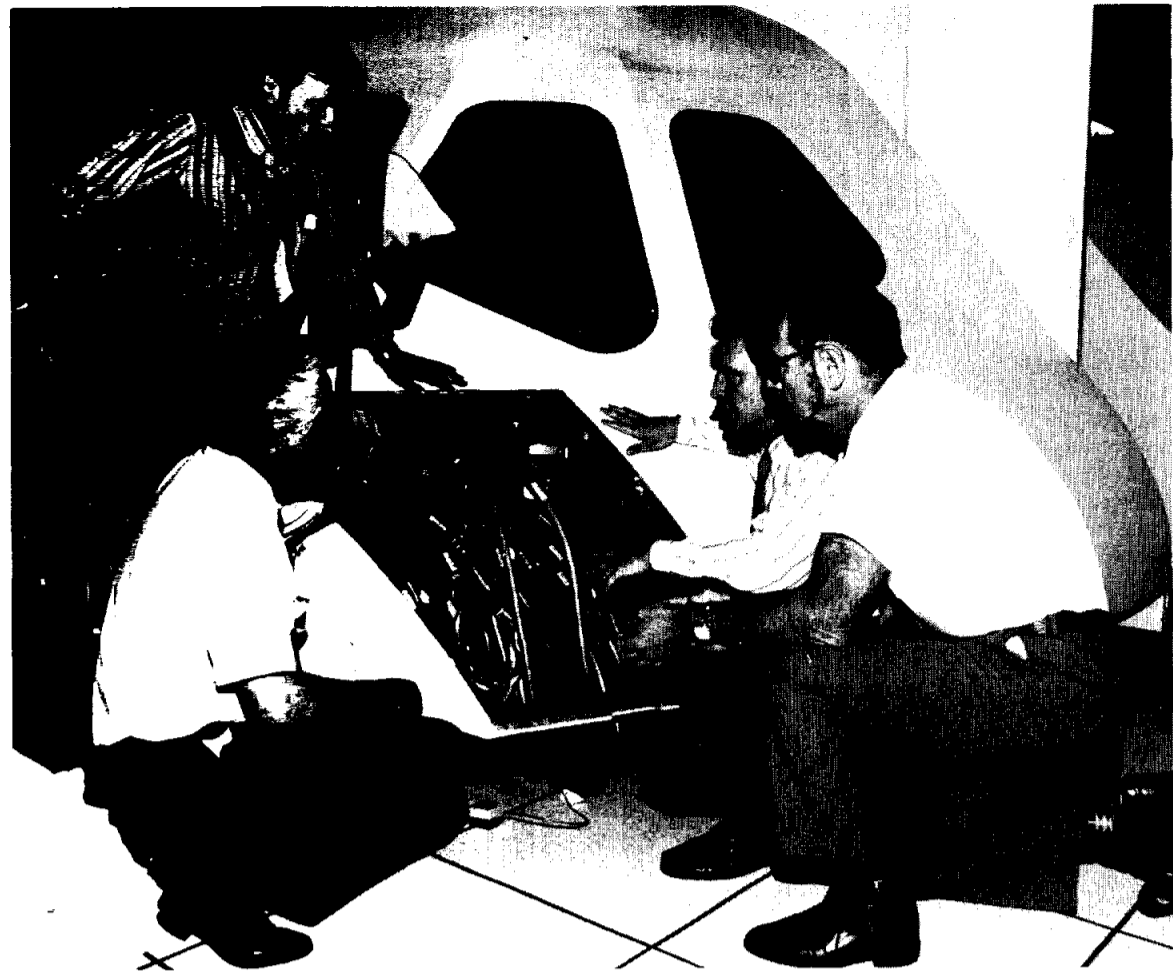
**Shuttle-C users' conference**—Marshall Space Flight Center and Shuttle-C contractors will host a free Shuttle-C Users' Conference May 25-26 in Huntsville, Ala. The program is designed to fully explain Shuttle-C and provide potential users an opportunity to help define needs and requirements for a heavy-lift launch system. For more information, call David Christensen, 205-721-5507.

# Swap Shop

- some clutch work, \$800, OBO. Scott, 485-4364.
- '84 Mustang convertible, Ltd. Edition, 20-yr. anniv. mod., GT 350, 5 liter 302, AM/FM/cass., auto/overdrive, P/B, P/S, air, new tires, \$7,000. Bill, x39378 or 487-4537.
- Cycles**
- '81 Yamaha 750 Seca, ex. cond., low mi., w/windshield, luggage rack, new tires, brakes, clutch and cables, two helmets, \$950. Paul, 282-3267.
- '84 Honda 1100cc, V-65, ex. cond., helmet, cover, garaged, \$2,300; Toyota 6-lug wheels, 4/50, chrome rear bumper, \$30. 997-2013.
- '87 Honda Elite 80 scooter, ex. cond., \$900. Tom, 282-3872 or 480-5702.
- Boats & Planes**
- 15' Tidecraft boat w/trailer, 50hp Mercury and Super Motorguide trolling motor, rigged w/dry storage, carpet, etc., front seat steering, \$2,000, OBO; 18' Hobbie Cat w/galv. trailer and racing access, ex. cond, BO or trade. 488-4453.
- 31' Chris Craft Sportsman, twin Mercuriser engines, engines have very low hrs., ex. cond., shower, toilet, sleeps 6, refrig. 339-1197.
- KR2 kitbuilt airplane or landing gear, airframe 80% comp., all wings 80% comp., no eng., instruments or canopy, \$1,200, OBO. Boyd, x36866.
- Audiovisual & Computers**
- Hayes 1200 Smartmodem, fac. refurb., in box, BO; Intel 386 computer sys., 8086/87 computer w/896K memory, 35M hard drive, 5 serial ports, RMX-86 real time OSO, comp. software support for multiple languages, comp. documentation w/ extras, for serious exp. developer of MULTIBUS system designs. 488-4453.
- VHF/UHF hand-held scanner, 8 channel, w/6 aircraft band crystals and space shuttle freq., charger, recharge. batt., \$50. 331-3954.
- Microsoft Serial Mouse with easy CAD, \$100; HP Color Pro Plotter, size A, \$600; Draw Applause Graphics software, \$100, BO. 486-5009 or 486-7814.
- Apple Macintosh computer monitor, keyboard, imagewriter printer, some software pkg. 280-2088 or 484-6261.
- Household**
- China cabinet, good cond., \$150; Oriental rug, 9x12, \$100. Tom, 282-3872 or 480-5702.
- Solid rattan dining w/4 chairs; rattan rocker, beige sofa w/fg. toss pillows, matching chair w/ottoman, \$550 or sell sep.; 2 queen size waterbeds, \$50/ea. Gail, 333-3431.
- 25" color TV, remote control, RCA, ex. cond., 3 mos. old, \$420. Ann, 483-1336 or 554-4551.
- Large 9 drawer dresser w/mirror and 2 nightstands, beige w/brown flecks. Lori Emmons, 482-5139.
- 2 bar stools, \$15/ea.; 2 brass lamps, \$15/ea.; end table, \$5; 3 rattan tables, \$25/all; dresser, \$50. 486-1039.
- Kingsize, full-motion waterbed w/lighted mirror, headboard, padded siderails, heater, liner, fill/drain kit. Ron, x34072 or 482-7607.

- Large white metal eight-light chandelier w/ metal shades, \$50; multicolor floral metal chandelier, \$40. 326-3370.
- Five colonial style kitchen chairs, solid maple, dk. brn., good cond., \$100; 7-pc. white w/rose design girl's BR furn., full size headboard and footboard, canopy top, double dresser, mirror, desk, chair, good cond., \$100. Eric, 480-5717.
- Sofa, 2 swivel rockers, coffee table, 2 end tables, 2 lamps, mirror, \$350. Kandy, x37256 or 482-2750.
- Design Registered Armoire, \$600; set of tables, \$15; 2 chairs, \$40; TV table/cabinet, \$20; micro. stand., \$45. 996-7750.
- Wanted**
- IBM/compatible 640K RAM, 20 plus Mb hard disk, monitor, and printer, prefer 1.2 Mb disc drive, will pay up to \$700. 486-4466.
- Want to buy 2 single garage folding drs., will pay \$30/ea. Elie, x35981 or 733-4123.
- Male and female test subjects needed, Altitudinal Chamber studies, must be 25 yrs. or older, no broken bones, pass an Air Force Class III physical. Mary P. Flores, x37284, Mon./Tues. from 8:30 a.m.-3:30 p.m.
- Keyboardist looking to form new rock band or join an existing one. Alan, x33382 or 333-5962.
- Want mature woman to babysit in our home, ref. req. plus own trans., Clear Lake area. Laura Emmons, 480-8326.
- Want one 17 cu. ft. refrig., good working cond.; queen size mattress and box springs, good cond., 480-1746.
- Want roommate, nonsmoker, to live in 4-2 Friendswood home, cable, W/D, micro., VCR, gas grill, and all house priv. incl., 15 min. to NASA, \$200/mo. ABP. Michael, x38169 or 482-8496.
- Riders needed, van pool, West Loop Park and Ride to NASA. Richard, x37557.
- Want 4- or 5-drawer file cabinet. Bill, 326-2187.
- Starwars spaceships, toys, figures, and books. Ron, 482-1385.
- Want to buy elec. trains. Don, x37832 or 996-1425.
- To trade \$8,000 elec. organ for land, car, truck, or boat of equal value, OBO. 337-4051.
- Pets & Livestock**
- Free adult male cat, affec., black, shorthair. Amanda, 480-1225 or 280-9956.
- Free kittens, white, and black w/white. Tom, 282-5183 or 532-2087.
- Free, two 1-yr.-old male mixed breed dogs, med. size, good health, ex. watch dogs, one is part collie, one is part bull w/shorthair. x31979.
- Lost & Found**
- Cat lost in Southshore Bay, \$100 reward, answers to Mota, gray/white, long hair. 480-1733.
- Lost in CLC, lg. Shelly, answers to Casey, reward. Matt, x34285 or 486-7260.
- Miscellaneous**
- Antique chicken incubator, good for kitchen

- island/cutting board, \$90. Ann, 333-2524.
- Head skis, 160's, poles, boots, solomon bind, carry bag, \$150; speakers, \$40. 996-7750.
- Lincoln 225 amp arc welder, \$110; torch w/gauges, \$100; Milwaukee chop saw, \$100; B&D Pro 7" grinder, \$85; 3 ton chain hoist, \$100. 997-2013.
- Fish tank w/stand, Oceanic 30-gal., plus all access., \$125. 282-3156 or 480-8470.
- Lawn mower, 3hp, Briggs & Stratton motor, very good cond., \$35; free side-loading grass bag. 480-9545.
- Sears garden tiller, ex. cond., \$250, OBO. 473-2505.
- Antique humpback steamer trunk, 34L x 21W x 28H, has 95% HDW/trim, \$195; elec. dust collector for furnace, H/P, "Edison", w/pressure switch, 800-1600 CFM, \$150; mirrors, gold-veined (2), 45 x 91 1/2, \$100/ea. Doug, x32860 or 486-7412.
- Crib bed, ex. cond., \$175; recliner, \$25; sleeper sofa, \$50; tricycle, \$10; 12" bicycle, \$20. 481-4190.
- Wedding dress, sz. 10, \$50; flower girls dress, sz. 7, \$35; two bridesmaid dresses, sz. 10, \$50/ea.; two full length formals, sz. 8, \$25/ea. Connie, 332-4405.
- Riding lawn mower, Gilson, '85 mod. RE11 w/rear bagger, ex. cond., \$700. Don, x39237 or 331-4059.
- Kirby Trad. vacuum cleaner, all attach., ex. cond., \$150; Ovation 6-string Celebrity accous. guitar w/Ovation hard shell case, ex. cond., \$300. 554-6701.
- 8,000 lb. Warren Weuch w/bumper and controls, \$350. 334-2379.
- 1-pc. Hein Gerick motorcycle rainsuit, sz. M, black w/white and red stripes, incl. black pullover rain boots, \$35. Jana, x31653 or 532-3008.
- White French Provincial full size canopy bed, matching chest and dresser, \$300; white cathedral length wedding gown, matching veil, never worn, sz. 10, \$225; oval sunburst window treatment for front door, \$100; Honda passport, 70cc helmet, \$400. Jarrell, x39800.
- Aggie season football tickets, 2 seats, avail. on 45 yd. line, 6th row, third deck of alumni side, 6 home games, LSU, So. Miss., UH, SMU, Ark, TU, \$298/seat. x31188 or x31237.
- Two one-way airline tickets to Columbus, OH., from Hobby via St. Louis, N. April 27, \$100/ea., OBO. 481-1824.
- Old-fashioned school desk, \$40. 482-1505.
- Side rails for full size P/U, chrome, hvy. duty, \$20; sliding window, screen, frame for camper side, 110, window frame for camper rear, free. 480-3110.
- '76 Mercury outboard parts, used, hwr. unit, starter, carbs., pwr. tilt and trim, \$250; alum. prop, \$50. 473-9180.
- Antiques: Wheelchair, wooden back, seat, handles, footrest, good cond.; 2 seed sowers; sewing machine, pedal, wooden; iron bed; big iron vice and lightning rods; Wonder Woman telephone, new, modular; new 1847 Wm. Rogers silver, plate set of 56, plus 7 ex. pieces, serving for 8; quilts and quilt tops. Ruby, 783-9164.



# SMOOTH SAILING

## New SAIL test station to ease Shuttle software verification workload

**By James Hartsfield**

A new test system will soon supplement the Shuttle software and hardware verification work done in the Shuttle Avionics and Integration Laboratory (SAIL), duplicating 80 percent of the SAIL functions with increased speed.

The Guidance, Navigation and Control Test Station (GTS) in the final stages of construction in Bldg. 16's west bay will be an indispensable addition, said Tommie Wheeler, GTS project manager in the Project Integration Office. The GTS will ease a workload that already keeps the SAIL operating 16 hours a day, seven days a week. Without its planned capabilities, software development for the Shuttle would fall behind schedule next year as the flight rate increases.

Shuttle software is run through anywhere from 60 to 130 simulated missions before it is verified for use, depending on the type of software and the mission for which it is being developed. Those test cases will be run through Shuttle data processing equipment and avionics mounted in flight deck mock-ups in both the SAIL and the GTS. The GTS uses the latest technology available.

"The GTS may triple the capability for software verification we have now," Wheeler said. "Its work will primarily be in software verification and hardware and software compatibility. The only real restriction will be on-orbit work because there's no aft station. But the GTS could be brought up to that capability in the future if needed."

The advantages of the GTS when compared to the SAIL come mainly from increased speed in running software test cases. Among the main reasons for the GTS's high-speed work is its use of electronic workstations to record data rather than mechanical recorders. Strip charts will be displayed on computer screens and stored on tape rather than printed on charts as is now done in the SAIL.

"We're now looking at replacing a lot of the SAIL equipment with GTS-type workstations, but it's still just being discussed," Wheeler said. The GTS has eight 27-inch diagonal computer monitors for its workstations. Each workstation is capable of processing 10 million instructions per second, and, on the large monitors, each can display up to 4,000 different measurements as they occur.

Only three major vendors supplied the hardware used in the GTS as compared to many more for the SAIL equipment. "That means you can get more vendor maintenance support, and it reduces your requirements for spare parts," he said. The GTS computers include telediagnostic modules, modules designed to allow the computers to self-diagnose their problems.

"It's a sort of self-maintenance," explained STSOC Project Manager Glen Shook. In fact, in a variety of areas, the GTS is more automated than the SAIL, decreasing the number of workers needed and increasing speed.

The GTS isn't a new concept. For STS-1, three SAIL-type labs worked on Shuttle soft-

ware verification. One of them was an early GTS, although the old GTS is almost unrecognizable as a forerunner of the new test station.

The need for the GTS is a result of changes in software verification made during the two and a half-year lapse in Shuttle flights. Modifications in the process led to increased testing of hardware and software, including the institution of regression testing—repeat testing of generic software that has already been used.

The GTS project started with an evaluation of reactivating the old lab, but the old equipment was out of date and the answer was a completely redesigned test station. "In the long run, it will benefit everybody. It allowed us to be state-of-the-art," Wheeler said. "We'll have less maintenance and be much more cost-effective."

Still, anything that could be used from the old test stand was revamped and worked into the new GTS. Originally, a flight deck was to be specially built for the GTS, but a suitable flight deck was found in storage at Rockwell-Downey, Rockwell-Downey Project Manager Stephen Wise said. The flight deck had formerly been the cockpit of Downey's Flight Systems Lab, but it was put in storage when that lab was dismantled in 1983, Wise said. The GTS's Cockpit Interface Console came from the same Downey lab.

The avionics racks were equipment from the old GTS, as were 360 cables that were modified and reused, Shook added.

All told, the cost-conscious construction

saved at least \$3 million in the projected GTS expenses, Wheeler said. And the GTS is designed with an eye toward the future.

"It was built for growth," Wheeler said.

Without any major undertaking in construction, the computing power of the GTS can be increased eight-fold if the need arises. "It can grow to meet many more requirements without taking up any more floor space," Wise explained.

The GTS is poised to accept other possibilities: a microwave link to Rockwell-Downey that could eliminate time and travel that is often a current requirement; and, in conjunction with the SAIL, the GTS could support mixed-fleet operations, such as verifying software for a glass-cockpit orbiter, a possible cockpit modification that could involve replacing many toggle switches and controls with computer-displayed controls, and the current configuration orbiter simultaneously.

When it becomes operational, scheduled for October, the GTS's first duties will be to support testing of the new Shuttle General Purpose Computers (GPCs). Now in the final stages of construction, the GTS will begin closed-loop integration testing in July and site acceptance testing in September.

When operational, the GTS will be working 16 hours a day, five days a week. The mounting burden on the SAIL will be reduced to the same operating hours.

"And that's with a small flight rate this year," Shook said. "Next year, if we didn't have the GTS, we just wouldn't be able to keep up."



**Top:** GTS Project Manager Tommie Wheeler, left, and Dan Marlowe of the Orbiter Projects Office look over some of the equipment used in the new test station. **Right:** GTS Unysis Operators, from left, Michael Cole, Julie Babineaux, Andy Engelbrecht and Loyd Smith work at control stations during checkouts of the new GTS test station in Bldg. 16. **Above:** from left, STSOC's Glenn Shook, Rockwell-Downey's Ray Hernandez and Steve Wise, and GTS Project Manager Tommie Wheeler discuss connections between the flight deck and the avionics equipment bays of the new test station.





# NASA to help build 'spacebridge' for quake victims

By Pam Alloway

A satellite medical assistance 'spacebridge' will enable physicians treating the victims of last year's earthquake in Soviet Armenia to consult with U.S. physicians, a U.S.-Soviet delegation said Monday.

The project also will enable NASA to test long distance telemedical conferences, a concept that will be needed as America moves into the space station era.

Sam Keller, deputy associate administrator of NASA's Office of Space Science and Applications, other NASA representatives, U.S. medical and telecommunications experts, and their Soviet counterparts announced the joint U.S.-U.S.S.R.

"telemedicine spacebridge" during a press conference in Washington, D.C.

The U.S.-U.S.S.R. Joint Working Group on Space Biology and Medicine, one of five joint working groups between the two nations, is coordinating the project under a 1987 agreement regarding the peaceful use of outer space.

Dr. James Logan, a JSC employee assigned last year to Headquarters as chief of NASA Aerospace Medicine, will receive the inquiries and requests for assistance from physicians working in Armenia, then direct them to the appropriate U.S. medical center.

"I think this is a fantastic opportunity for NASA," Logan said. "This repres-

ents a 360 degree spinoff. The satellite communications network was originally designed as a space oriented program, then it spun off to medicine and now it's back to space."

The project will address specific health problems, in addition to public health problems, psychiatric conditions, and rehabilitative surgery.

Participating medical centers will include the University of Texas Health Science Center at Houston, which will deal with trauma, reconstructive surgery, physical rehabilitation, and public health issues, as well as hospitals in Salt Lake City, Bethesda, Maryland, and Baltimore.

Satellite Transmission and Reception Specialists Inc. (STARS), a

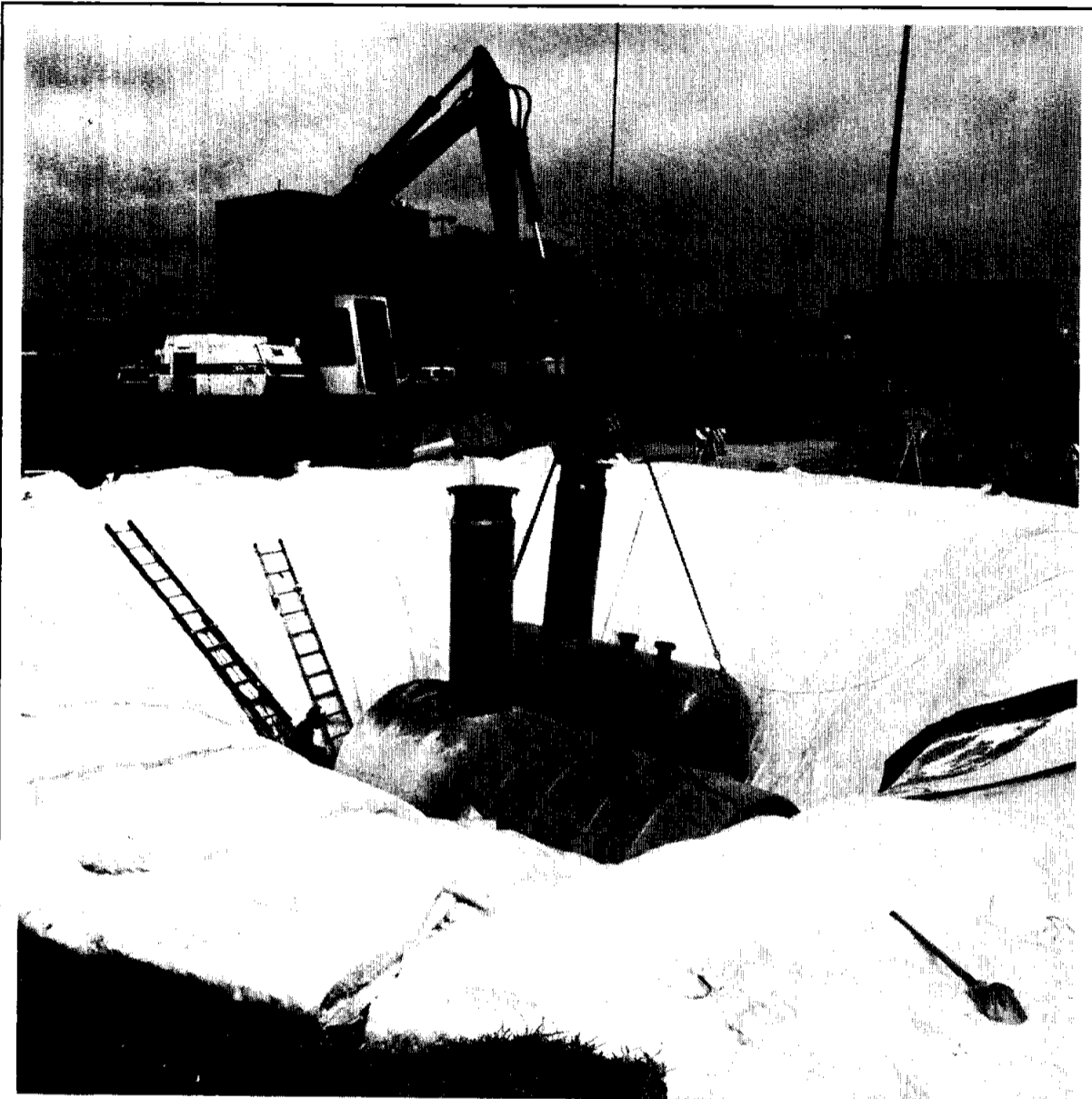
Houston-based company, will provide a satellite communications truck that will act as the ground based terminal in Yerevan, Armenia, and a two-man crew free of charge. A Soviet aircraft was to have transported the equipment and crew Thursday. Project planners hope to have the system operating by Tuesday.

A one-way television link will provide U.S. doctors with video of patients, and two-way audio and facsimile communication will provide the means for exchanging patient histories and other pertinent data. The university medical centers and Goddard Space Flight Center will receive the television signal.

The Dec. 7, 1988 earthquake left about 55,000 people dead and 135,000 injured, Logan said. More than half a million people were left homeless.

"This is a big experiment," Logan said. "If something like this works, I think it will revolutionize the way clinical medicine is done worldwide. Telemedicine doesn't take the place of the physician, it puts expertise in his hand that otherwise is not readily available."

Intelsat and Comsat are the U.S. satellite communications companies that are providing the satellite links. The companies, universities, medical centers, and NASA are donating the equipment and services.



**CHEMICAL COLLECTION**—A 2,500-gallon interim holding tank for spent photographic processing chemicals is lowered beside a 6,000-gallon tank near the Bldg. 8 Photographic Laboratory. The temporary tanks mark the first phase of construction to modify the photographic waste collection system and stay abreast of changing environmental regulations. The chemicals, used to process still and motion picture film and prints, are held in the tanks until they can be trucked off-site for disposal. Alpha Building Corp. was prime contractor for the collection system.

JSC Photo by Kim Murray

## Board announces senior promotions

JSC's Senior Promotion Board approved 32 nominees for dual career ladder promotions in April, based principally on expanding job responsibilities and scientific and engineering impact.

The promotions to the GS-14 and -15 levels were made separate from those selected through the Competitive Placement Plan in an effort to ensure that nominees in both paths receive consideration, said Greg Hayes, chief of the Human Resources Management Branch.

This was JSC's first board of the year, with another planned in August. Those receiving promotions are:

Human Resources Office: Duane L. Ross.

Mission Operations Directorate: Roger A. Burke and Robert C. Trevino.

Engineering Directorate: Charles S. Allton, Allan E. Brandli, James D. Dagen, Bernard C. Embrey Jr., Gene R. Grush, Clifford W. Hess, David B. Kanipe, Kenneth L. Lindsay, Billy G. Smith and Tommie L. Wheeler.

Mission Support Directorate: Christopher J. Culbert.

NSTS Program Office: Stanley B. Easterly, Arthur Reubens, Roy J. Smith and George F. Studor Jr.

New Initiatives Office: Lynda J.

Gordon-Winkler, Earl W. Tiedt and Charles T. Woolley.

Space Station Projects Office: Arthur C. Bond Jr., Karen M. Clark and Carlos G. Parra.

Safety, Reliability and Quality Assurance Directorate: Frederic C. Sponholz Jr.

White Sands Test Facility: Raymond F. Melton.

Space and Life Sciences Directorate: James L. Gooding, Laurence E. Nyquist, Duane L. Pierson, Marianne Rudisill and Howard J. Schneider.

Orbiter and GFE Projects Office: James E. Ratliff.

## Employee orientation to expand

(Continued from Page 1)

"I really enjoyed setting up the program," Swan said, "because the need was so great. After six months of hard work by committee members, we had a strong program that would tell our new employees 'We want you to stay with JSC.'"

"After all those long hours by the committee, I knew we were on the right track," Swan said. "But after the trial run, when employees who had been here over a year became so excited to hear of our plans future plans within New Initiatives, for

example, I knew how important this program will be to NASA's future."

Swan, currently acting section head for communications and payloads after returning to MOD, cites the overviews as one of the most important features of the program.

"Employees not only know where they fit in within their directorate," she says. "They learn where their directorate fits in within JSC, what goes on in each of the other directorates, and then, what JSC's role is in relation to the other NASA centers and with Headquarters. That

understanding can be vital to people as they shape their careers at JSC, and through our program, now they'll know right away, instead of having to figure it out."

The new employee orientation will take place the first two weeks of every month in Bldg. 45 for all new JSC civil service employees. New employees and their supervisors will be notified when they are scheduled for classes. Classes will be limited to 40 people each. For more information, contact training at x33078

## Computer graphics 'secret' to helping user interaction

More than 400 computer graphics devotees participated in technical sessions of last week's Graphics Technology in Space Applications Conference, and another 1,000 visited conference exhibits at JSC's Gilruth Recreation Center.

Jack Garman, associate director for information systems planning in the Mission Support Directorate, told participants that graphics are to computers what power steering is to cars, improving communication between people and machines and enhancing the ability of people to relate to the information they seek.

"Computer graphics can and do serve to actually reduce the amount of analysis and other forms of process that would otherwise take place in a given engineering or operations endeavor," Garman said. "Graphics is the 'secret' to a very fundamental axiom in the information processing world. We must stop forcing people to think like computers. We must instead force computers to 'think' like people!"

The conference, designed to facilitate communication between industry and government in graphics technology in space applications, was co-sponsored April 12-14 by JSC and the University of Houston-Clear Lake.

Mission Support Directorate sponsors also announced the formation of the new Information Systems Technology Lab (ISTL), which will provide a consolidated environment for Mis-

sion Support and Mission Operations prototyping activities in many areas of information technology, including computer graphics. The integrated lab is on the second floor of Bldg. 12. The ISTL is comprised of the Mission Operations Support Lab, the Workstation Prototype Lab, the Space Station Control Center Prototype Lab, a new Visual Prototyping Lab and soon will include the Advanced Projects Lab.

"We achieved both of our main goals," said technical chairman Frank Taylor, "which were to try to make the people who are researchers and developers in the field of computer graphics more aware of what each other are doing, and to make potential users of the technology aware that the technology is available and what we're working on."

Thirty-three papers were presented by some of the top experts in the graphics field and 20 exhibitors showed off their latest developments, focusing primarily on three-dimensional graphics.

Among the leading experts participating were Thomas Porter, developer of RenderMan, a 3-D scene description interface; Gunter Sabinski of JSC's Technology Development and Applications Branch and Tom Robinson, who discussed engineering visualization utilizing advanced animation; Erik Geisler and Gary Smith of IBM, and Andrew McClanahan of Ford Aerospace.

## Co-op job fair set May 2

The talents of many of JSC's bright young employees will be spotlighted on May 2 during the 1989 Co-op Job Fair.

The job fair, scheduled from 1:30 to 4 p.m. in the Gilruth Recreation Center ballroom, will feature the displays, videos, computer programs and hardware of more than 70 co-ops from 13 divisions.

This year, the co-op groups will compete with each other for recognition of the best presentations. Several JSC directors will judge the exhibits.

Gretchen Smith, chairwoman of the Co-op Job Fair Committee, said the original purpose of the Job Fair was to inform each of the co-op groups what the others were working on and of other opportunities for co-ops.

"We're trying to make it grow into

more than that," said Smith, a University of Houston student finishing her fourth co-op tour at JSC. Eventually, the committee hopes the Job Fair can become a recruiting tool for JSC and a way to show people throughout NASA and the general public what goes on in the co-op program.

"It's really open to all NASA people and contractors," she said. "It's a good overview on what NASA does because co-ops are an integral part of NASA. Everything we work on comes together to help make the whole program run."

Smith said the three other co-ops in the Crew and Thermal Systems Division, for example, will be displaying the work they've done on advanced space suit development for the space station era.

## Hispanic seminar set

JSC, IBM and the Society of Hispanic Professional Engineers (SHPE) will sponsor a symposium next Thursday and Friday to promote interest in science and engineering among students.

"The Challenge of Spaceflight: A Space Symposium" will be held at the Gilruth Recreation Center. NASA officials and Astronauts Sidney Gutierrez and Franklin Chang-Diaz will talk about career opportunities.

Educators and SHPE officers will discuss ways to develop interest in science and engineering and concerns over ensuring an adequate supply of trained professionals to meet future space program needs.

## Space News Roundup

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