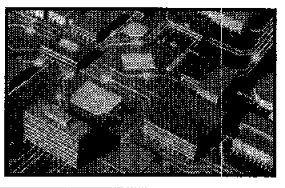
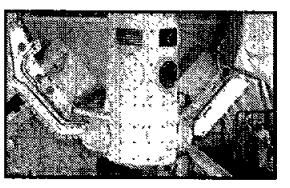
NASA
National Aeronautics and Space Administration
Lyndon B. Johnson Space Center
Houston, Texas



Big changes

JSC's Information Services Directorate is changing the way it does business. Story on Page 3.



Hoisting ATLAS

The Atmospheric Laboratory for Applications and Science is inside *Discovery*'s payload bay. Photo on Page 4.

Space News Roundup

Vol. 32 **February 22, 1993** No. 7

Cohen shakes up station brass

JSC Director Aaron Cohen has reassigned Space Station Projects Manager John Aaron as part of ongoing reviews as the program moves into the hardware-building phase.

Cohen said he and Aaron had agreed upon the reassignment in the interest of the space station program.

Until a permanent replacement is named, Deputy Project Manager Jack Boykin will serve as acting manager of the Work Package 2 portion of the Space Station Program at JSC.

"John has a long and distinguished career with NASA and will continue to support the U.S. space program as assistant director of Engineering," Cohen said.

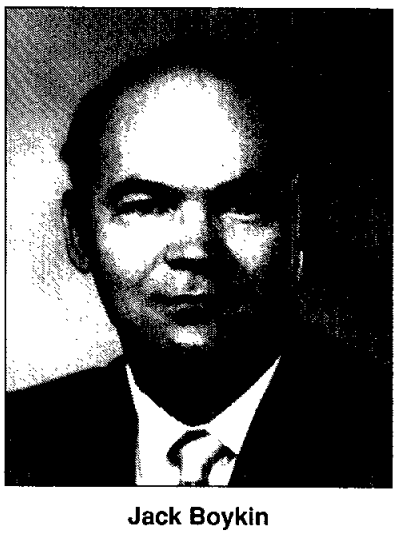
"I am reviewing additional steps which will be implemented in the near future to strengthen management oversight of the space station project and to provide an independent assessment of JSC and contractor performance on this vital project," he added. "I expect these actions to be defined within the next two weeks.

The move came in the wake of recent cost growth in the Space Station *Freedom* program and in advance of what is expected to be another tough battle over the fiscal 1994 budget.

Cohen vowed two weeks ago to find $10 million to put toward space station reserves in fiscal 1993, and has ordered senior managers to redouble their work with the rest of the NASA team to keep the orbiting laboratory on schedule and on budget.

A leading candidate in the search for efficiencies is a plan to use NASA employees to perform more of the Work Package 2 work, reducing the cost of the contract. JSC organizations that are deeply involved in space station work would be asked to dedicate a larger portion of their civil service staff's work to *Freedom*.

Associate Director Dan Nebrig is heading a review panel that will recommend to Cohen where any work shifts should be made. JSC still has the opportunity to hire about 60 more civil servants to fill anticipated vacancies from attrition this fiscal year, and all of those may be made available to perform space station work.



Jack Boykin

NASA to look at quick, cheap mission ideas

NASA will take a longer look at 11 new quick and cheap science mission concepts, including a Mercury polar flyby, a Venus mission that would place 14 small probes on the planet's surface and a comet nucleus penetrator, as part of its Discovery Program.

The Discovery program is intended to produce mission designs for less than $150 million that can proceed from development to flight in less than three years by combining well-defined objectives and proven instruments and flight systems.

The 11 concepts will receive further study this fiscal year by NASA's Solar System Exploration Division.

The mission candidates were selected from 73 concepts discussed at the Discovery Mission Workshop held at the San Juan Capistrano Research Institute in San Juan Capistrano, Calif., last November. The potential projects were those considered to have the highest scientific value and a reasonable chance of meeting strict budgetary guidelines.

"These missions represent a bold new way of doing business at NASA," said NASA Administrator Dan Goldin. "By accepting a greater level of risk, we can deliver high-return missions that are cost-effective, quicker from concept to launch, and responsive to the present budget climate. They promise to revolutionize the way we carry out planetary science in the next century."

"The Discovery Program is probably the most exciting new initiative in planetary exploration," said Dr. Wes Huntress, director of NASA's Solar System Exploration Division.

Pleases see **PROGRAM**, Page 4

JSC Photo by Robert Markowitz

Dick Meyer of JSC's New Initiatives Office demonstrates the concept of centrifugal force with the help of his son, Andy, and fellow student Amy Warrington at McWhirter Elementary. Meyer's visit was to Vicki Lowrey's second-grade class.

Sharing their occupation

Practitioners help students discover engineering

JSC engineers fanned out across the bay area this week, reaching some 20,000 students in their schools as part of the "Discover E Program" and National Engineers Week.

About 275 JSC engineers visited 75 schools and more than 450 classrooms as part of the local and nationwide effort to improve public understanding and appreciation of the profession.

Some engineers will visit their schools this week.

Coordinator Norma Rhoads of JSC's Public Services Branch said the engineers gave the teachers poster sets, and the students book covers and book marks to remember the visit.

The "Discover E Program" — "E" representing engineering — sends professionals to visit elementary, junior high and high school classrooms to show student how science, math and engineering relate to their world around them. It also shows students why their studies are important and stimulated interest in technology and technical careers.

April space walk will test Hubble servicing plans

By James Hartsfield

A space walk has been added to STS-57 aboard *Endeavour*, set for an April launch, as part of a series of space walk tests NASA will conduct during the next three years to prepare for the construction and maintenance of Space Station *Freedom*.

STS-57 crew members G. David Low and Jeff Wisoff will perform the EVAs.

The main objectives of the STS-57 mission are to retrieve the European Retrievable Carrier deployed during a Shuttle flight in August 1992 and to conduct research in the Spacehab module which more than doubles the amount of middeck research locker space aboard the orbiter.

In addition to accomplishing the general objectives of the space walk test series, the STS-57 extravehicular activity will allow some of the space walking procedures, using the shuttle's mechanical arm, planned for use in servicing the Hubble Space Telescope, to be tested. Those procedures involve work by astronauts on a platform at the end of the Shuttle's arm. The arm will be aboard *Endeavour* for grappling the EURECA satellite.

"The EVA will benefit us in two ways: first, we'll gather generic data on human performance capabilities and limitations in space and secondly, we'll perform some tasks similar to those required for the HST mission later this year," said Ron Farris, chief of the Extravehicular Section at JSC.

"We'll also demonstrate that the EVA community can plan, train and fly four missions this year and in that sense, it will be a banner year for EVA and will be somewhat representative of the EVA efforts required to build and maintain Space Station *Freedom*," Farris added.

The space walk tests, as performed during STS-54 in January, concentrate on defining the limits of space walking abilities, better understanding the differences

Please see **SPACE**, Page 4

Columbia's turbopumps replaced; launch target expected this week

Columbia's suspect high pressure oxidizer turbopumps were removed and Kennedy Space Center technicians began installing the new pumps this past week.

Processing for the Spacelab D-2 mission is marching toward a launch early next month.

Space Shuttle Program Director Tom Utsman said a firm launch date target for STS-55 will be set this week.

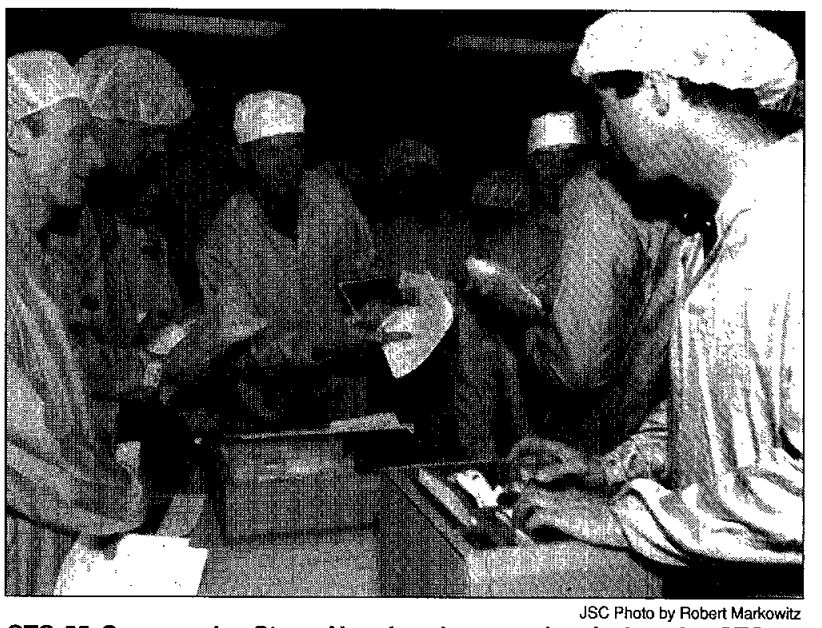
The turbopumps, which feed super cold oxygen to the shuttle's three main engines, were replaced at the launch pad as a precaution because a search of processing paperwork could not verify that the pumps were equipped with a newer version of turbine tip seal retainers. The tip seals minimize the flow of gas around the tips of the turbine blades to enhance pump performance and the retainers hold the seals in place.

After examining the pumps that were removed, inspectors reported that the correct seal retainers had been in place, as was expected.

KSC technicians working on Launch Pad 39A also cleaned the crew compartment after the successful terminal countdown demonstration test, which concluded Feb. 15, and prepared to install new refrigerator/freezer units on Tuesday.

The refrigerator/freezers will be used to store samples taken by the

Pleases see **SPACELAB**, Page 4



JSC Photo by Robert Markowitz

STS-55 Commander Steve Nagel makes a point during the STS-55 bench review. From left are backup Payload Specialist Gerhard Thiele, Payload Specialist Ulrich Walter, Mission Specialist Charlie Precourt, Nagel, Payload Specialist Hans Schlegel, Payload Commander Jerry Ross and Pilot Tom Henricks.

Second pedestrian accident reinforces need for caution

A 24-year-old JSC worker was injured Wednesday when he was hit by a privately owned automobile near Bldg. 2. It was the second such accident in as many months.

The victim was treated for bruises at St. John's Hospital and released.

The accident occurred about 8 a.m. Wednesday near a crosswalk on Avenue D just south of Bldg. 2. Witnesses said the northbound victim was not in the crosswalk when the eastbound vehicle hit and threw him about 15 feet, according to JSC security officials.

The driver reported that he did not see the pedestrian before hitting him.

"This again emphasizes the need for caution and alertness when crossing the street," said Dan Clem

Pleases see **ACCIDENT**, Page 4

JSC

Ticket Window

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

EAA Aspects of Love (2 p.m. Feb. 28, Music Hall); $28 each, limit four.

EAA Houston Livestock Show and Rodeo (Astrodome, upper level); $9, limit 4 tickets. Call x35350 for dates.

Space Center Houston — Discount tickets: adult, $7.50; child (3-11) $4.50; commemorative: $8.75.

Metro tickets — Passes, books and single tickets available.

Movie discounts — General Cinema, $4.50; AMC Theater, $3.75; Loews Theater, $4.

Entertainment '93 and Gold C coupon books, stamps, Walt Disney Club memberships, business cards, stamps and souvenirs also available.

JSC

Gilruth Center News

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

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

Defensive driving — Course is offered from 8 a.m.-4:30 p.m. March 6. Cost is $19.

Weight Safety — Required course for employees wishing to use the Gilruth weight room is offered from 8-9:30 p.m. Feb. 23 and March 10. Pre-registration is required; cost is $5.

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

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

Tennis — Beginner tennis class meet 5:15-6:45 Mondays starting March 1. Advanced beginner class meets 5:15-6:45 p.m. Wednesdays starting March 3. Cost is $32 for six weeks.

Scuba — Four-week session meets Tuesdays and Thursdays beginning March 25 at the Gilruth Center. Total cost is $190, with $50 paid at registration.

Country and western dance — Beginner class meets from 7-8:30 p.m. Mondays, beginning March 1. Intermediate classes meet from 8:30-10 p.m. Mondays. Six-week course costs $20 per couple.

Ballroom dance — Beginner, beginner-intermediate, intermediate and advanced classes will meet Thursdays for eight weeks beginning March 4. Cost is $60 per couple.

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

JSC

Dates & Data

Today

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

Tuesday

Blood drive — Bendix and Paramax will sponsor a blood drive from 8-11:30 a.m. Feb. 23 in the parking lot at 595 Gemini. Contact Heidi Riggs of Bendix at 283-7334, or Mike Gans of Paramax at 283-6671.

ATSC meets — The Bendix Allied Signal Technical Services Corp. Management Club will meet at 4:30 p.m. Feb. 23 at the Ramada Kings Inn. STS-53 Commander Dave Walker will speak. Cost is $8 for members, $12 for guests. For more information, call Cindy Jacobs at x39451 or Jerry Stoner at 282-3862.

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

Wednesday

AFCEA meets — The Armed Forces Communications and Electronics Association will meet at 11:30 a.m. Feb. 24 at the Lakewood Yacht Club. Dr. Frank Six, assistant associate director for science at Marshall Space Flight Center, will discuss the Hubble Space Telescope. Luncheon cost is $12 for members, $14 for non members. Reservations are due Feb. 22; call Linda Hinton, 282-7682.

***Freedom* Fighters meet** — The Space Station *Freedom* Fighters will meet at noon and 5 p.m. Feb. 24 in Rm. 160 of the McDonnell Douglas Tower, Space Center Blvd. and Bay Area Blvd. For more information, call David Cochran at 482-7005.

Astronomy seminar — The JSC Astronomy Seminar will feature an open discussion meeting at noon Feb. 24 in Bldg. 31, Rm. 129. For more information, call Al Jackson at 333-7679.

Toastmasters meet — The Spaceland Toastmasters Club will meet at 7:15 a.m. Feb. 24 at the House of Prayer Lutheran Church. For more information, call Jim Morrison at 480-9793.

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

Thursday

AIAA meets — The American Institute of Aeronautics and Astronautics will meet at 5:30 p.m. Feb. 25 in the Gilruth Center. Dr. John Lienhard, M. D. Anderson professor of mechanical engineering and history at the University of Houston, will discuss "The Engines of Our Ingenuity." Deadline for reservations is noon Feb. 22; cost is $10 for members, $11 for nonmembers and $9 for students. For more information, call 333-6064, 283-4214, x31350, or 282-3160.

SCS meets — The Society for Computer Simulation will meet at 11:45 a.m. Feb. 25 in the first floor PIC Rm. of Lockheed Plaza 3. Pat Aucoin of Lockheed will discuss a "Tool for Simulation Space Exploration Initiative Operations as a Means of Obtaining Intelligent Systems Requirements. For more information, call Robin Kirkham at 333-7345 or Margaret Klee at 333-6365.

Blood drive — Rockwell will host a blood drive from 8:15-11:30 a.m. and 1-4:30 p.m. Feb. 25 in civic rooms A and B at 600 Gemini. Contact Liz Sanders at 282-3418.

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

Friday

Black history — JSC's Black Employment Program Council will sponsor a Black History Observance at 1:30 p.m. Feb. 26 in Teague Auditorium. Keynote speaker will be Tony Brown, producer of the television program "Tony Brown's Journal." For more information, call Black Employment Manager Charles Hoskins at x30607.

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

JSC

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: Dickinson, 4-3-2D, study, game rm, screen porch, lg kit w/Jennaire, new ceramic tile, util rm inside, lot w/trees, pkg for boat/MH, $129.9K. Coy, x39282 or 335-0641.

Lease: LC, 4-2-2, formals, FPL, lg fenced yard, no pets, avail 4-15. x31440 or 333-5693.

Rent: Breckenridge, CO, ski house, sleeps 12. 303-482-9124.

Sale: Lake Livingston, Impala Woods at Onalaska, 30 X 70 lot, camp or build, util avail, paved roads, $3K. Teena, x37787 or 422-6369.

Sale: LC, 3-1.5-1, corner lot, fruit trees, ceramic tile, boat storage, owner will help with closing costs, $57.9K. 554-6234.

Rent: Lake Livingston, 2 BR TH, sleeps 6, pool, tennis, golf, all Cape Royale amenities incl, reasonable. 334-5818.

Rent: Arkansas cottage, furn, wooded, 4 acres, screened porch, antiques, $250/wk, $50/day. x33005 or 538-4141.

Rent/Sale: Baywind I condo, 1-1-1, ceiling fans, DW, range, refrig, gar disposal, private balcony, $360/mo or $28K. Bill, x39376 or 487-4537.

Sale: El Dorado Trace condo, 2-2-2, split, FPL, all appl, new washer, carpet, vinyl, paint, ceiling fans, patio, $35.9K. Jerry or Kathi, 486-6181.

Sale: Dickinson Bayou waterfront, 4-2.5-2, pool, sec sys, 100 yr old trees, .0738 acre, 2 story, $225K. x34354 or 337-1640.

Rent: Baywind I, 2-1, W/D, avail 3-1, $500/mo. 486-7471.

Lease: Heritage Park, 3-2-2, ceiling fans, W/D conn, microwave, refrig, $700/mo. x38875 or 538-1887.

Lease: CL condo, 2-2, W/D, refrig, FPL, cov parking, $550/mo. 482-5654.

Sale: South Shore Harbour, 3-2-2, island kit w/breakfast rm, lg living/dining rm, custom deck w/ceiling fan, marble jacuzzi, trees, $113.9K. Bob, x33057 or 538-3431.

Rent: Lake Travis cabin, private boat dock, CA/H, fully equipped, accommodates 8, fall/winter, $325/90 wk/daily. 474-4922.

Sale: Pearland/Dixie Hollow lot, concrete street, all util, medium density houses. x36101 or 482-5003.

Cars & Trucks

'86 Nissan Stanza wagon, lots of storage, new tires, $3K. Steve, x34593.

'85 Dodge Colt Vista, new tires, ex cond. x35159 or 486-5247.

'74 Firebird, custom wheels/tires, eng modifications, extras, $2.5K. Charlie, x34754 or 554-7116.

'85 Ford Escort, 3 DR, auto, air, pwr steering, $999. 333-5493.

'90 Porsche 911, Carrera 2, 5 spd, built-in front/rear radar, red/tan leater, 15K mi, one owner, ex cond, $50K. x38723 or 334-1455.

'87 Camara IROC Z, V6, auto PW, PDL, PHATCH, map lights, new tires, brakes, muffler, 126K mi, $4K OBO. x38785 or 409-945-3235.

'84 Nissan 300ZX, 2 + 2, auto, AC, stereo cass, cruise, elec mirrors, $3550. 488-7771.

Toyota Landcruiser 75' custom toy machine, 350 CID Chevy conver, 300 t auto in-line trans, fenderwell headers, custom roll cage, custom paint, $4K. 244-5223.

'85 Mercury Grand Marquis LS, V8, air, pwr, low mi., good cond, one owner, $3.5K. 488-7237.

'80 Lincoln Towncar, runs good, $800. Sharon, x36534 or 486-7428.

'68 Mustang, red, body/int need work, $1.3K. 337-4182.

'92 GEO Tracker, red/wht top, AC, AM/FM, 5 spd, 18K mi, $8K. Dave, x47577 or 474-5071.

'78 Chevy 4 WD PU, PS/PB, AC, camper top, spotlight, $2K. Bob, 480-1475.

'79 Pontiac Grand LeMans, 3.8l V6, good cond, $1150. x34205 or 488-8105.

'87 Ford Tempo, 4 DR, auto, cruise, good tires, AC, 71K mi, $2225 OBO. Glenn, x38673 or 480-2900.

'85 Ford Van, 4 captains chairs, rear sofa bed, dual air, window blinds, $2995. 326-1400.

'87 Grand Am, 2 DR, auto, AC, AM/FM, tape player, $3K. Brenda, x33690.

'91 Honda Accord EX, 4 DR sedan, sunroof, wht/blue int, 24K mi, ex cond, $14.6K. 280-0331.

'78 Ranchero GT, 351 V8, auto, under 127K mi, '93 state inspec, $1.5K. 482-7947.

'85 Chevy Silverado SWB PU, wht, V8, auto, loaded, ex cond, low mi, $5.8K OBO. Ed, 992-5467.

'89 Hyundai Sonata, auto, AC, PS/PB, AM/FM/cass, pwr moonroof, ex cond, $4.3K negotiable. 286-3686.

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

'82 F150 Ford PU, 3 spd, std trans, 300 eng, 6 cyl. Bobby, 534-2668 or Tammy, 212-1461.

Boats & Planes

Half interest in IFR P35 Beech Bonanza, $15K. Steve, 244-9625.

18.5' Wellcraft pwr boat, open bow, 110 hp Johnson O/B, good trlr, water skiis, $1K. Jerry, x38058.

'76 Hunter 30' sailboat, VHF, depth knot, 12 hp, clean, $24K negotiable. 534-2231.

Wind surfer, 2 sails, fiberglass hut, $375. Bill, 554-6242.

18' sailable canoe w/sail, flex ABS shell, mountable on top of car, $500. Minh, x30992 or 484-2456.

'85 31' Chris Craft Sportsman, twin Mercruiser engs, low hours, shower, toilet, refrig, sleeps 6, open back deck, ex cond. 339-1197.

'70 Coronado 25' sailboat, 7.5 hp motor, depth finder, VHF, mainsail, 2 jibs, $4.5K. John, x30217 or 484-0395.

'89 21' Maxxum, 230 hp, V8 Mercruiser, bow rider, matching trlr, life vests, skis, kneeboard, full canvas, ex cond, $11K. x35357 or 333-9197.

Cycles

'88 Honda Shadow, DT 800c, maroon/silver, 23K mi,, ex cond $2295 OBO. Julia, x30293 or Roger, 331-3304.

2 boys 12" bvikes, 1 huffy red, 1 Ninja Turtle green, $20/ea. x31990 or 486-4747.

'92 Cannondale M800 mtr bike, Deore LX, Ritchey V/Comp rims, was $815, now $650 OBO. Mark, x30062 or 480-2783.

'88 Honda Hurricane CBR600, 12K mi, new batt/tires, lower fairings gone, $2.2K OBO. Wally, x36440 or 326-2664.

'90 Moped, 38 mi, $600. 332-0365.

Audiovisual & Computers

Sanyo XT 10 MHz, mono monitor, 10 MB HD, $250. David, x37056 or 486-9751.

Stereo equip, Denon pullout, Fosgate/Balupunkt amps, spkrs, crossovers, $600; Carver 150 watt/channel receiver, $300. Dave, 929-7120 or 388-2992.

Tascam 32, 2 track recorder, ex cond, $875 OBO. Ron, 474-3612.

2400 baud ext modem, 100% Hayes comp, manuals, comm prgm, ser cable, $50. x33187 or 488-5162.

Nintendo, 16 games, 2 controllers, gun, pwr pad, $275. 333-9581 or 333-7180.

Apple II, monitor, software, 2 FD, $100; 13" color monitor, $100. Pam, 283-5871.

MacClassic, 40/4, kybd, programs, CD ROM, $1350. Richard, 333-7455.

Wizard OZ8000, elec organizer w/case, $200. David, x37056 or 486-9751.

Photographic

Dkrm equip, Bessler 23C enlarger, color head adapter, timer, bulk loader, extras, 35mm and 2-1/4 format, $350. Eileen, 282-3812 or 480-9818.

Enlarger, color analyzer, timer, print drums, motor agitator, ex cond, $535 OBO. Frank, x34933 or 532-3348.

Canon AE-1 program 35mm camera, Rokinon pwr winder, Canon 50mm 1:1.4 lens w/skylight, Vivitar SMS 70-210mm 1:4.5 macro zoom w/skylight, 28-85 mm 1:3.5-4.5 micro zoom 62mm, 188A flash, soft case, $375. 592-6328.

Pets &Livestock

2.5 yr old male mini Dachsund, red, AKC reg, $75. 335-0641.

Two 3 yr old indoor cats, male/female, neutered/spayed, both declawed, free. 996-8161.

Golden Retriever pups, AKC, first shots, dew claws removed, parents on site, born 12-11-92, $200. 486-0127.

Calico cat, 5 yrs old, in/outdoor, spayed, shots, free. Dick, x33161 or 481-1518.

Cat, outdoor, neutered, shots, needs home by 3-1. Neva, x31012.

Cockatiels, parakeets, hand fed babies, all colors, up to $65 for fancy ones, normal gray, $20. Trey, 280-2989 or 484-7834.

Musical Instruments

Yamaha classical guitar, $200. 283-5465.

Classic guitar, $375. 409-925-1942.

Tama drum set, 6 tams, bass drum, snare, 3 cymbals, hi-hat, color-black made of solid wood, $750. Richard, 333-7455.

Household

Sofa, loveseat, button-tufted, lg blue w/thin crisscross wht lines, $125; chair, button-tufted, blue, $40; pecan lamp tbl w/glass top, $30; wicker hanging chair, $15. 488-6724.

Panasonic "Genius" carousel microwave oven, ex cond, $100; 20 gal aquarium w/accessories, $40; glass/metal stereo/tv stand, $40; Kg sz waterbed w/solid oak hdbd/ftbd, waveless matt, liner and ultratherm heater, $300. 488-8931.

Kg sz bed, no hdbd, $115. Cynthia, 991-0533 or 486-7611.

Arrowback chairs, dk pine, 5 chairs, $50/ea or all for $200. x33187 or 488-5162.

Qn sz bed frame, $15. Shawn, x38340 or 472-7526.

Simmons crib w/matt/sheets, $200; Fisher price full sz playpen, $50; Snugli baby carrier, $15; high chair, $20. 286-3266.

Oak baby cradle, $55; baby stroller, $28; infant car seat, $10; microwave oven, $40. x36515 or 992-5541.

Kg sz waterbed w/12 drawer pedestal, mirror hdbd, lt oak, sheets incl, $600. 286-7516.

Sectional; bar stools, end coffee tbls; dining rm set; lamp, best offer. 286-4921.

Simmons baby bed, matt, ex cond, $225; Cal-King waterbed w/nite stands, $100. 332-0414.

Upright freezer, works good, $75. x34874.

Presto 6 qt pressure cooker, $25; Bissel heavy duty carpet sweeper, $15. 480-3424.

Dk solid wood dining rm tbl, 4 chairs, ex cond, $200. x31773 or 538-1478.

18 cu ft Kenmore deep chest freezer, ex cond, $250; 2 brwn plaid flip foam chairs, $20/ea; medium heavy duty plastic dog house, $35; medium sz pet carrier, $30. 486-4118.

Sofa, char w/ottoman, earth tones, $150. x31913 or 486-9488.

Qn sz waterbed, full motion, new heater, no leaks, $50 OBO. 474-5443.

Low back sofa, chair, floral print, blue bkgrd, $120. Chris, x39211 or 286-9438.

Mahogany credenza, $75; dbl/full bed frame, $5; O/B motor stand, $10; 25 gal aquarium w/heater, $50; 14" to 15" tire chains, $10; 19" color tv w/remote, $150, assorted lamps, $5/ea. 332-2453.

Wanted

Want old Schwinn heavy duty bicycle. 326-4316.

Want students to join a Russian language class taught by a Rice Univ prof, students should be at intermediate level w/ at least 2 yrs exp. Rick, x36042 or Keith, x38024.

Want Apollo era patches/decals, Command Module, LEM, Recovery ship, specialty patches, will buy or trade. Andrew, 280-0647.

Want Super 8 projector. Ann, 283-5426.

Want 2 or 3 person canoe. x32365 or 486-9760.

Want reliable childcare for infant, M-F, 7:30-5:30, begin Mar or Apr. Karen, 424-1450.

Want wheelchair in good cond. Dana, x30747 or 332-7074.

Want good quality weight bench w/leglift, curl, weights. 280-8608.

Want rectangular wood DR tbl, seats 8, chairs optional. 486-1177.

Want gasoline powered lawn edger. x33056 or 554-2233.

Want trampoline, boom vang, jib, tackle that will fit 18' '71 Gibbs catamaran sailboat. Bubba, 339-2083.

Want inexpensive tent, sleeps 4, good cond. Bret, 280-9722.

Want stairclimber, rowing machine for home use. Tammy, 212-1461.

Want working gas stove, under $75. 282-2586.

Want gas spa heater. 332-2453.

Miscellaneous

Scuba equipment, retired Divemaster, everything, $1K; hot tub, $1.1K. Dave, 929-7120 or 388-2992.

Chevy Blazer tires, Tiger Paw XTM/P195/75R15, 5/ea w/rims, $225; Tracker GEO tires, P205/75R15 M+S 97S, 4 ea/ w/rims, Unirol Paw, $200. Tommy Evans, x38204 or 271-5241.

'92-93 full sz Ford van trlr hitch, Class III, valley hitch, $60. Steve, 244-8618 or 488-5105.

Coffee tbl, $12; floor lamp, $20; trlr hitches, $25; stereo w/spkrs, $30; barbie dolls, ex cond, '82 Hawaiian, $20; '83 Sun Gold Malibu, $15. 488-6521.

HK-91 rifle, extras, $1.2K. Steve, 244-9625.

Soloflex-like workout machine, 30-in-1, $75; DP jogging tramoline, $15. Greg, 337-4078.

Concept II aerodynamic style bug deflector, for '82-86 Ford F Series PU, mounting hardware, $30. George, x30749 or 486-3968.

Sweetheart wedding gown, long sleeves, v-neck/backless, sz 6, $600. 337-4182.

Lg dog cushion, $12; glass/seashell lamp, $15; Barbie rollerskates, ex cond, $10; Barbie kneepads, $8; Barbie backpack, $5. 282-4078.

Rawson full sz steel crossbed tool box for PU, full width lid, sliding tool tray, dk brwn w/clear coat, $125. John, 333-6526 or 333-3659.

Gympac 2500 fitness sys, bench/wall unit for weight training, needs assembly, was $230, now $100 OBO. 244-8985.

Wedding dress, sz 8-9, full length, off-wht, candlelight color, $400. 409-925-1942.

4 Rodeo tickets, George Strait, Sun, Feb 28. x33481 or 996-8682.

Weedeater, 8" elec trimmer, $20; miniblinds for standard 6' wide windows, red/brwn, $30; mens 10 lb bowling ball, $20. Ed, x36250.

Wedding dress, gloves, hat, shoes, all sz 8, short sleeves, tea length, Southern Bell style, cream color, $150. Sheryl, 481-4889.

10 spd bike, $80; blackboard, $40; futon sofa/bed frame, $40; coffee maker, $15; 13" color tv, $75; metal desk, $35; microwave, $75. 225-4064.

Pentax 35mm w/zoom, $75; 23 gal boat tank, $30; apt sz dryer, $100. 332-0365.

High 5 prop, 13.5" x 23 pitch, fits all Mercury 150, 175, and 200 hp O/B w/4" hubs, $275; '85 Chev 305 eng w/3spd OD trans, $350. x33684 or 559-1226.

'79 Ford Pinto body parts. Trey, 280-2989 or 484-7834.

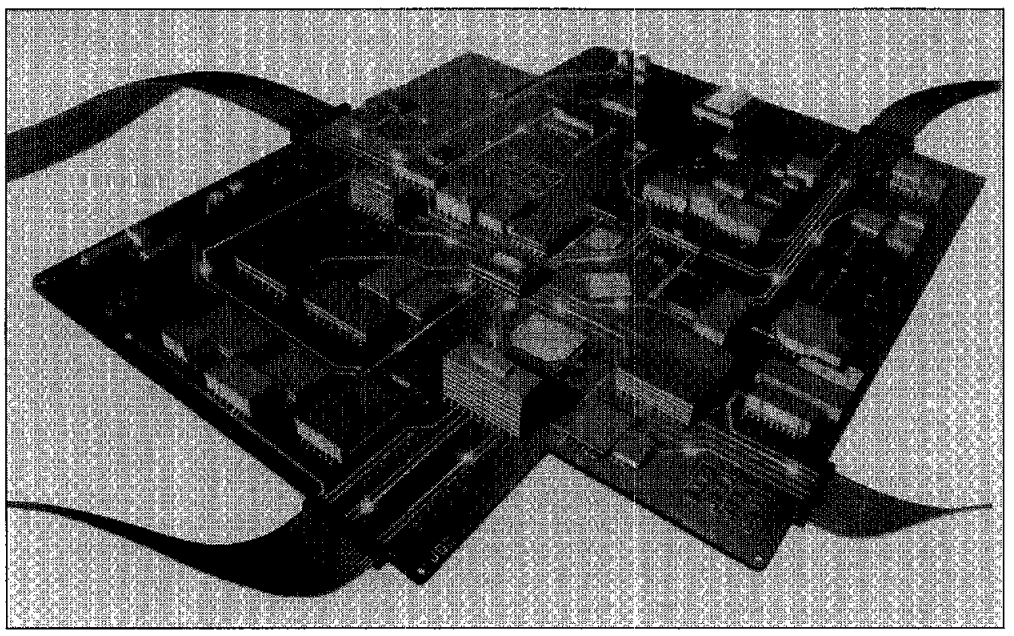
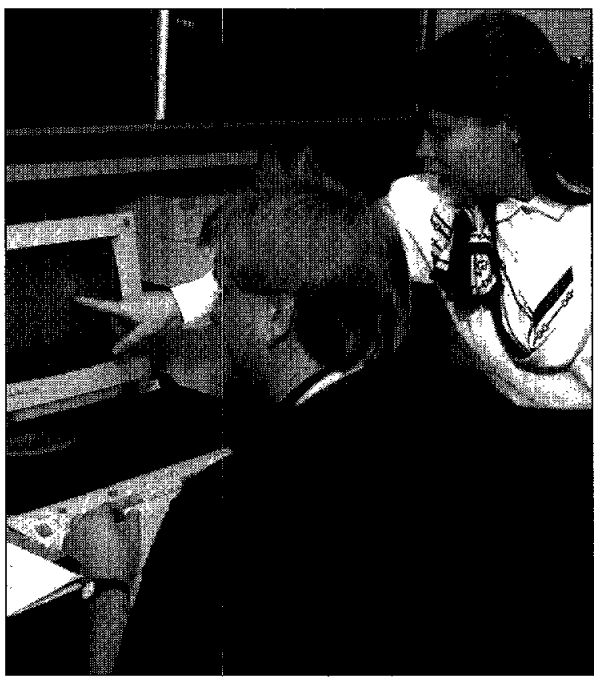
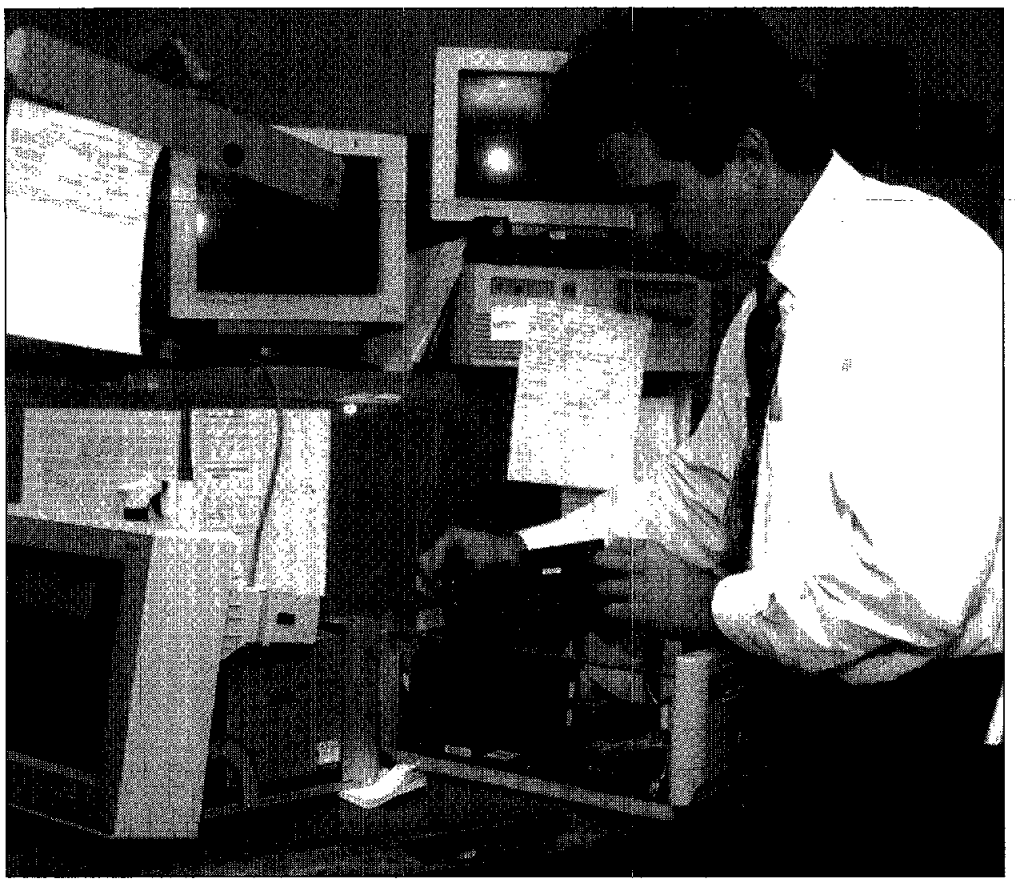


Illustration by Pat Rawlings ©SAIC



Top: An artist's rendition shows how information technology links JSC organizations. Right: Instructor Karen Battles teaches John Hicks a thing or two about computers in ISD's Regents Park II training facility. The classrooms will be move to Bldg. 12 in April. Below: ISC technician James Winand works on a computer in the Workstation Maintenance Depot in the ISC Bldg., formerly the CSC Bldg. The facility will be moved on-site this year. Bottom: Beatrice Young, left, and Tom Levy, director of the ISD Services and Operations Center keep their fingers on the pulse of JSC's information network in Bldg. 12. The ISOC is the nerve center for the ISD Help Desk and the JSC Information Network.

JSC Photos by Bob Walck



More Bytes for the Buck

Information Services Directorate's new philosophy aims to increase productivity throughout center

By Kelly Humphries

The Information Services Directorate is attempting to bring "world class" service integration to JSC information systems this year through a new contract, and new contractor and a new philosophy.

Since ISD provides data systems, networks, telecommunications, software development and other computer services used by virtually all of the center's workers, the changes are expected to affect the everyday work of just about all NASA and contractor employees.

"The center is under tremendous pressure these days to significantly improve overall efficiency so that it can meet its near-term commitments as well as make progress toward its longer term goals," said ISD Director Ron Berry. "I feel strongly that information technology — especially if it is well planned, deployed and maintained — can play a major role in providing that needed increase in productivity. One of our primary jobs in ISD is to help bring that about by continuously increasing information systems capacity and functionality while improving customer service and decreasing costs — in other words, by providing more (and higher quality) bang for the buck."

Return on information technology investment is a ratio, ISD Deputy Director Jack Garman said. Either you do what you're doing faster, better and cheaper by decreasing the investment for the same return, or you try to get a better return for the same amount of money.

"It doesn't matter whether we make it cheaper, make it better or do both; the idea is to get that ratio higher," he explained. "The real issue in terms of the whole center is that it becomes ever more productive."

On the other hand, one of the best ways to help the center get a better return on its computer investments is by providing good service to its customers -- the JSC people who use ISD's information technology to do their work.

"What we've tried to do is establish a focus on both our allies and customer satisfaction. If we can't please our customers, then we won't be able to help them because they won't want to use what we have to offer," Garman said.

The two most visible manifestations of this new focus are a new five-year, $341 million Information Systems Contract, which went into effect Jan. 1, and a major reorganization that among other things assigned at least one ISD person to every JSC organization.

The Information Systems Contract, with prime contractor, Grumman Corp., and subcontractors Boeing Aerospace, I-Net Corp. and Science Applications International Corp., will foster a top-down information resource management approach. The result of an 18-month effort to re-engineer the structure and process for providing improved information technology services, ISC is a consolidation of all or part of several previous contracts.

"Our mission is well defined," said ISC Program Manager Bud MacKenzie. "We must build upon the JSC platform services that have been put in place and provide our customer with technology growth, more automated operational facilities and improved service."

All of the Mission Support Directorate Operations and Support Contract and the Rolm contract for telecommunications were incorporated into ISC. Significant pieces of the Applications Analysis and Support Contract, as well as small portions of the Engineering Support Contract and STS Operations Contract were consolidated into ISC. Grumman contract support for the Engineering Computation Facility will be picked up by ISC in late fiscal 1994.

"Our new contract has incentives in it for the contractor to reduce costs while improving services," Garman said. "That means we don't pay them for the hours and materials they deliver, we pay them for the services. It's a different kind of contract than we've done in the past."

The other big change was a reorganization, formalized in October, of ISD's civil service staff. The number of people who manage or interface directly with the contractor has been cut significantly; instead, people have been assigned to work with each organization of the center on information planning.

These information resource management planning representatives, or IPRs as they are called, are dedicated to their adopted organizations and their performance is judged by how well they help the center, as well as their adopted organization, increase its return on investment whether or not ISD is involved. They facilitate centerwide planning, help define and plan organizational requirements, serve as a source of information regarding information technology standards, policies, procedures, products, services and trends and share ideas and information among organizations.

"That's already making a big difference," Garman said. "Interestingly enough, now our own people are every bit as critical about what needs to be fixed as their customers are. And that's great. The IPRs are now assuming the mantle of our customers and they have a much better chance of helping us improve."

Garman said that with the center's mainframe computers in place and functioning well, ISD is focusing its work on connecting more people to local area networks — which are linked through the JSC Information Network — and upgrading their work stations to graphically oriented Windows or Macintosh computers.

"Were convinced that is the technological key to really getting a higher return on investment, hooking it together in a constructive way," he said.

The changes in ISD's philosophy were an outgrowth of its involvement in Total Quality activities and Q+ Teams, which prompted ISD Director Ron Berry to do something unprecedented — interview every single employee in the directorate, about 125 people.

With the restructured organization on the table, he asked each one how they felt about their current situation, where they would like to go in their careers and where they would most like to work in the new organization. Some stuck with familiar jobs, but many wanted to try something different. Then, he asked the same questions of the managers, this time wanting to know who they would most want working for them. When ISD put together the responses from both groups, they matched in first or second choices 80 percent of the time.

"That gave ownership going into the new organization and that is an absolute key thing when you do as dramatic a change as we've tried to do," Garman said.

ISD is actively measuring its success in all areas through customer satisfaction surveys, performance metrics and continuous improvement activities.

In the area of data systems maintenance and operations, ISC is endeavoring to integrate problem identification, tracking and customer satisfaction. This approach is expected to provide customers with a single-point accountability for maintenance needs.

In work station installation and maintenance, ISC will provide JSC's distributed systems services from within a single organization. The goal is to handle most service requests with a single field engineer who is equipped to repair 90 percent of all expected failures in the field. Field engineers also will have access to problem reporting, service request and configuration databases through hand-held terminals.

Services through the Help Desk, Training and ISD Products Center will be integrated so that a single person will "own" each call to completion. Through cross training and job rotation, ISC expects to resolve 90 percent of all problems and questions on the first call.

In the area of networks and telecommunications, ISC will consolidate and standardize networks and telephone resources, building on the investments already made.

The contract also is striving to provide an integrated life-cycle process to choosing, using and upgrading applications software.

Everything is not total bliss, as might be expected with a new contract, contractor and organization all trying to gain their equilibrium at the same time.

"We're going through the chaos of change right now," Garman said, "but we've attempted to keep the transition, both organizationally and contractually, as transparent as possible to the services our customers see." ❑

NASA scientists solve 80-year-old stellar mystery

Space scientists at Ames Research Center believe they have solved an 80-year-old mystery: What unidentified matter in deep space is absorbing certain wavelengths of light from distant stars?

By mimicking realistic interstellar conditions in a laboratory, Drs. Farid Salama and Louis Allamandola have shown that the light is absorbed by unexpectedly large organic molecules spread throughout the vacuum of space. The carbon-based molecules, shaped like chicken wire, are called polycyclic aromatic hydrocarbons.

Their experiments may have resolved one of the longest standing mysteries of 20th century astronomy, according to Dr. David J. Helfand of Columbia University in New York.

For nearly a century, scientists have wondered what causes the unidentified absorption lines in the spectra (range of frequencies or color, for instance the band of color produced when sunlight is passed through a prism, such as a rainbow) of starlight reaching the Earth. The lines are called diffuse interstellar bands and now number more than a hundred.

An important breakthrough came a decade ago. Observations of infrared radiation obtained from Ames' Kuiper Airborne Observatory led Allamandola and others to believe that a form of PAHs might be the long-sought matter. "They could easily withstand the intense radiation environment of interstellar space," he said.

PAHs are stable carbon molecules formed at high temperatures. On Earth, they cause pollution and cancer. PAHs can be a by-product of cooking and combustion. They are found in burned pots, charcoaled hamburgers, bus exhaust and cigarette smoke. The oil fires in Kuwait produced large quantities of PAHs.

Although the Ames group suspected PAHs could be causing the mysterious spectroscopic "fingerprints," there was a catch. "In space, PAHs would be electrically charged (ionized) and very reactive. This form of matter is extremely difficult to study in the laboratory," Allamandola said.

Salama's experiments successfully reproduced the ionized molecules under the most authentic interstellar conditions possible. Because the molecules are highly reactive, isolating them from the subtle effects of their surrounding chemical environment was difficult. Studying them in a near vacuum, as they exist in space, was impossible. Salama used solid neon to isolate them at very low temperatures.

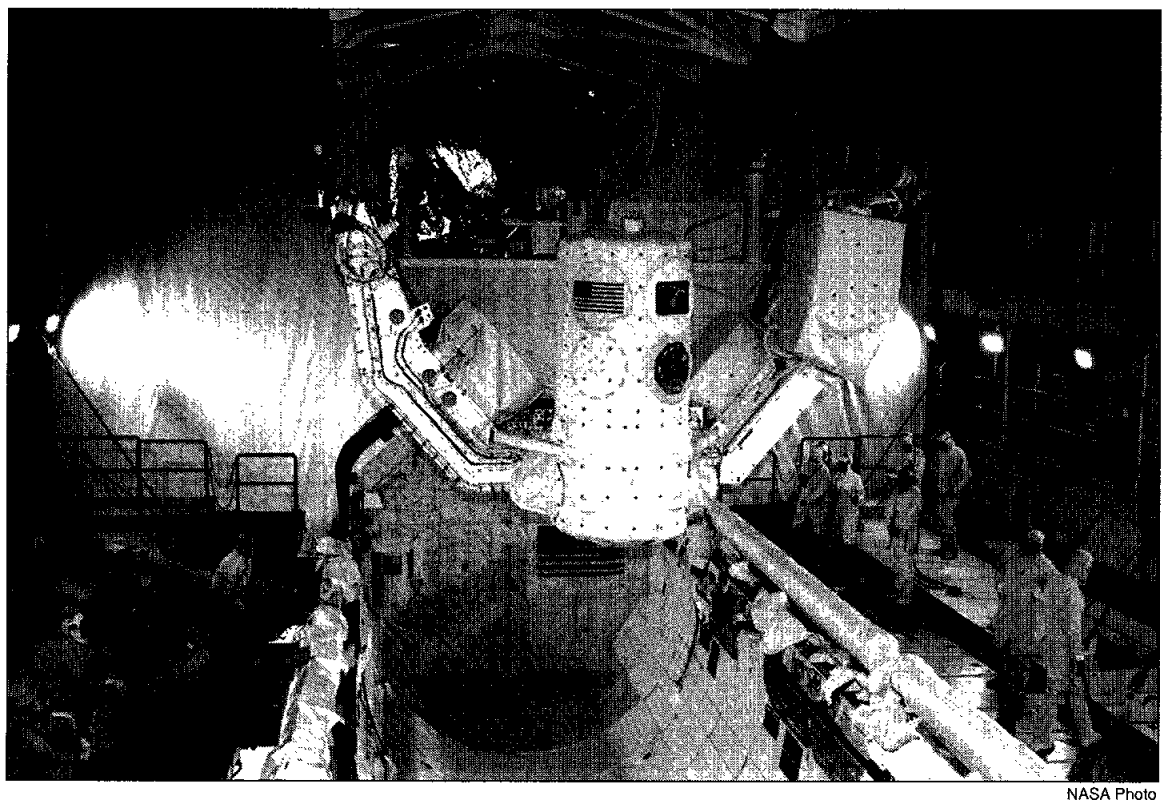
The PAHs' spectroscopic visible light fingerprint in Salama's experiments closely matched those from interstellar space. Independent observations by other scientists—now knowing what to look for—support his conclusions.

"These molecules are one of the largest sources of carbon-rich material in the vast distances between the stars. They account for 5 to 10 percent of all cosmic carbon," Salama said.

"Until a few years ago, we would not have imagined that molecules this complex existed in space. In the whole chemistry of the interstellar medium, we've been lucky to find several atoms bound together," Allamandola said. "Larger molecules, containing up to about 12 atoms have been found. The larger the molecules, usually the less abundant they are.

"Then suddenly we find these monstrous molecules, containing between 20-100 carbon atoms. Larger PAHs must be present as well. They are spread throughout space and, except for hydrogen and carbon monoxide, they're more abundant than all the known interstellar molecules taken together.

"We think PAHs are the by-product of old carbon-rich stars burning out. This challenges the traditional view of interstellar chemistry, which assumes that all interstellar molecules are produced in the interstellar medium," he said.



NASA Photo

PAYLOAD PAIR—Two major payloads for STS-56 are lowered into *Discovery*'s cargo bay in the Orbiter Processing Facility. At center, mounted on a Spacelab pallet, is the primary payload, Atmospheric Laboratory for Applications and Science-2. ATLAS-2 is the second in a series of missions designed to study interactions of the Earth's atmosphere with the Sun. The Shuttle Pointed Autonomous Research Tool for Astronomy, with a protective covering over its instruments, is mounted on a platform directly behind ATLAS-2. SPARTAN-201 is a free-flying platform carrying two science instruments to prove the physics of the solar wind.

Bldg. 4 satellite operation added

Printing Management reorganizes in effort to improve services

In a continuing effort to provide the best possible service to the center, the Management Services Division is announcing several changes involving its Printing Management Branch.

The Printing Services transformation was necessary to achieve its goal of total quality customer service and to coincide with new printing requirements. A complete evaluation of the branch's organizational structure and work processes made apparent the need for a total reorganization including implementation of a new operational mode and the acquisition of innovative printing equipment.

Effective March 8, the Printing Work Control operation, currently at Bldg. 227's door No. 1, will be merged with the operations of door No. 2. All "Request for Reproduction, and Pickup and Delivery" requirements will be processed at this single location. Printing service hours also have been extended, from 7 a.m. to 9 p.m., during which time "quick copy" service is available.

Effective March 15, the branch will open a satellite reproduction operation in Bldg. 4 South, Rm. 1728. It will be open from 7 a.m. to 9 p.m. Monday through Friday.

The operation is being established to expand printing customer service, provide quicker turnaround on most jobs and serve as a drop-off point for more complex jobs.

Questions about either operation should be directed to James Doyle at x36146, or Duane Emmons at x36145.

Program eyes quick, cheap concepts

(Continued from Page 1)

"We now will be able to more effectively take advantage of emerging technology and quickly — and relatively cheaply — undertake more new missions of discovery than at anytime since the beginning of the space age. Also, because of the shorter time frames and lower costs, these missions will allow greater participation from the academic and aerospace communities," he said.

The concepts to be studied are:

• Mercury Polar Flyby would study the polar caps and complete the photographic reconnaissance of the planet.

• Hermes Global Orbiter to Mercury involves remote sensing of the planet's surface, atmosphere and magnetosphere.

• Venus Multiprobe Mission would place 14 small entry probes over one hemisphere of Venus to measure winds, temperature and pressure.

• Venus Composition Probe enters Venus' atmosphere in daylight to measure atmospheric composition on a parachute descent.

• Cometary Coma Chemical Composition aims to rendezvous with a cometary nucleus and conduct 100 days of scientific operations.

• Mars Upper Atmosphere Dynamics, Energetics and Evolution Mission would study Mars' upper atmosphere and ionosphere.

• Comet Nucleus Tour involves study of three comets during a five-year mission, focusing on structure and composition of the nucleus.

• Small Missions to Asteroids and Comets involves four separate spacecraft launches to study distinct types of comets and asteroids.

• Near Earth Asteroid Returned Sample will acquire samples from six sites on a near-Earth asteroid and return them to Earth for study.

• Earth Orbital Ultraviolet Jovian Observer will study the Jovian system from Earth orbit with a spectroscopic imaging telescope.

• Solar Wind Sample Return mission aims at returning solar wind material to Earth for analysis.

In addition, three concepts also were targeted for further consideration this fiscal year:

• Mainbelt Asteroid Rendezvous Explorer would rendezvous and orbit the mainbelt asteroids Iris or Vesta.

• Comet Nucleus Penetrator would rendezvous with a comet and deploy a penetrator into its nucleus.

• Mars Polar Pathfinder involves a lander that will carry out subsurface exploration of the northern Martian polar cap by radar and a probe to measure ice quantities and temperature.

Brown to be keynote speaker at Black History Month program

Tony Brown, executive producer of the nationally televised PBS series "Tony Brown's Journal," will be the keynote speaker at the NASA-JSC Black History Month Program at 1:30 p.m. Friday in Teague Auditorium.

"Afro-American Scholars, Leaders, Activists and Writers" are the focus of this year's observance of Black History Month.

Brown, whose show is the country's longest running, top-ranked African Affairs series, also will attend a 5 p.m. reception at the Nassau Bay Hilton following the program.

Space walk added to STS-57 mission will involve use of shuttle's robot arm

(Continued from Page 1)

between true weightlessness and the ground training facilities that simulate weightlessness and gaining more insight into the times required for various tasks to be performed while space walking. The tests also expand the space walk experience levels among astronauts, shuttle flight controllers and space walk training instructors.

The specific tasks to be performed on STS-57 are still being evaluated by flight planners, however they will concentrate on these goals and be similar to the STS-54 tasks although they will feature use of the robot arm. The STS-57 walk will be done without any impact on the mission's main objectives and will carry a low priority among the mission's tasks.

With the newest planned space walk included, there will be a a total of four shuttle flights this year feature space walks, tying a NASA record set in 1984.

Spacelab studies will fortify data pools

(Continued from Page 1)

crew during nine days of scientific experiments devoted primarily to Germany.

The crew—Commander Steve Nagel, Pilot Tom Henricks, Payload Commander Jerry Ross, Mission Specialists Charles Precourt and Bernard Harris and German Payload Specialists Ulrich Walter and Hans Schlegel—will work around the clock in two teams on the 90 experiments planned.

Most of the experiments have been provided by the German Space Agency and the European Space Agency. Three experiments were furnished by NASA and a number of others by Japan.

In addition to developing the concept of Spacelab itself—this is the second German Spacelab mission—the mission will study fluid physics and human physiological changes in microgravity, the Earth's atmosphere and its topography, galactic astronomy and technology development.

D-2 experiments will be carried out in six major scientific disciplines: materials sciences, biological sciences, technology, earth observations, atmospheric physics and astronomy.

"Our scientific methods, like our everyday behavior, are governed by a natural condition—the effect of gravity," said Spacelab D2 Project Manager Hauke Dodeck. "Objects fall down, lighter materials float or are carried upward, heavier ones sink to the bottom.

"What happens to these processes when there is no gravitational force, in other words: no sedimentation, no thermal convection, no hydrostatic pressure? What new mixtures, structures and forms are possible? Concrete answers to such questions can be given only by space research," he said.

Space News Roundup

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

Accident reinforces need for caution by drivers, pedestrians

(Continued from Page 1)

of JSC's Test, Operations and Institutional Safety Branch.

"The first thing pedestrians should remember is to always use the crosswalks, and even then they should use caution," Clem said.

"This also shows that drivers need to be extra cautious when driving in areas with heavy pedestrian traffic," he added.

Clem said the incident is disturbing in that it is the second auto-pedestrian accident this year. There were none in all of 1992.