

# Space News Roundup

Vol. 29

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No. 16



Captain Jerry Regis 'takes aim' with his radar detector in a planned crackdown on speeding centerwide.

## Speeders beware

### JSC crackdown awaits the unwary

If you haven't already noticed—or been caught—JSC's security officers have begun a crackdown on speeders, especially those on Fifth Street.

There has been a significant increase in the number of "near misses" reported by pedestrians using crosswalks along Fifth Street, and by those using the crosswalk on Second Street near Bldg. 45, said Bob Gaffney, chief of JSC's Security Operations Branch.

"We have increased our enforcement activities on Fifth Street because of concern for pedestrians using the new parking lots," Gaffney said, "but you never know where we're going to hit."

During a normal workday, more than 15,000 vehicles use the center's roads; security officers normally write about three tickets a day.

In the first three days of this crackdown, officers issued between 25 and 440 tickets a day, Gaffney said.

Security is using radar detectors to catch speeders, which means violators are clocked long before being stopped by a security officer. Once the radar equipment has clocked a vehicle, the officer locks the speed on the digital display until the citation is served.

JSC's traffic safety enforcement is based on a point system. Two points are assessed for driving 1-5 miles an hour over the posted speed limit;

3 points are assessed for going 6-10 miles an hour over; and 5 points are assessed for traveling 11 miles an hour or more over the limit. Anyone with 10 or more points within 12 months faces temporary suspension of on-site driving privileges.

All employees should remember that the on-site speed limit is 25 miles an hour unless otherwise posted, Gaffney said.

Gaffney also wants drivers to be aware of new "SLOW" signs at JSC's Third Street and West Avenue B entry gates. The new signs are a reminder for drivers to slow down so they can be properly identified by the security officers on duty.

## Discovery liftoff set for Tuesday; HST batteries ready

Countdown to launch of *Discovery* carrying the Hubble Space Telescope begins tomorrow after replacement of a faulty auxiliary power unit and recharging the telescope's batteries proceeded ahead of schedule. The start of the count allows the STS-31 mission to begin with liftoff at 7:31 a.m. CDT Tuesday.

Originally scheduled for launch April 10, *Discovery's* launch count was halted four minutes before liftoff when Pilot Charlie Bolden and Commander Loren Shriver noticed fluctuations in APU 1 as it ran in normal speed. The launch scrub and subsequent replacement of the APU required recharging the HST batteries.

Early projections on a new launch date showed April 25 as the earliest chance to try again to lift the long-awaited HST into its 330 nautical mile altitude. But a quicker-than-expected removal of the batteries for recharge led managers to decide Wednesday to move the launch from the 25th to Tuesday, April 24.

The batteries are required to provide power to the telescope during a period when it is disconnected from Orbiter power and before its power-producing solar arrays are extended.

Once launched, *Discovery's* crew will begin a day and a half of preparation for releasing the telescope from the remote manipulator system (RMS) arm. Mission Specialist Steve Hawley, a veteran of two previous Shuttle missions, will maneuver the arm with the telescope attached to its release position. Actual release will

occur about 29 hours after launch on orbit 19.

Mission Specialists Bruce McCandless and Kathy Sullivan will be prepared to conduct a spacewalk in the event any problem arises during the appendage deployment phase prior to release from the robot arm.

Once released from *Discovery's* RMS, the telescope's aperture door, which protects the sensitive mirror, will open. *Discovery* and crew will station-keep with HST for about 48 hours to make sure no problems are encountered.

In the event a problem does occur, the crew will rendezvous with the telescope and perform a spacewalk to repair any malfunctioning part.

The five-day flight is scheduled to end with a landing of *Discovery* on the dry lakebed at Edwards Air Force Base, CA, Sunday morning.

The STS-31 crew will return to the Kennedy Space Center Sunday morning for their final two days of medical checks and flight data file review before the launch.

Meanwhile, *Columbia* was mated to its external tank and solid rocket boosters Monday in preparation for this Sunday's roll to launch pad 39A. It will be the first time since 1986 that two Space Shuttle vehicles have occupied both launch pads simultaneously.

The STS-35 nine day mission is currently scheduled for launch May 9, but managers would like a minimum of three weeks between flights in order to allow enough time to evaluate and understand the data from the previous mission.



## Challenge of '90s brings changes to New Initiatives

By Kari Fluegel

JSC faces countless tasks in the next decade, but the successful execution of those tasks will position NASA in the starting blocks for the long run into the solar system.

During its first 30 years, NASA has limbered up and run the sprints to position itself for the 21st century. The 1990s, however, will be the decade in which all the pieces fall together, completing the track for an expansive and integrated space program, said Bill Huffstetler, manager of the New Initiatives Office.

The days of living and working in a single program environment have come to an end. JSC must now ready

itself to work with a multitude of projects spanning a variety of programs.

"The center's future is really starting to come together," Huffstetler said.

As part of that coming together, the New Initiatives Office is reorganizing to manage a variety of projects that will enhance Space Shuttle and Space Station *Freedom* as well as prepare NASA for future trips to the moon and Mars.

Tallying up the JSC projects during the next 10 years is not an easy task. Besides providing integration and flight control for all shuttle missions, JSC sponsors at least one — many times more — payload on every flight.

JSC also has the responsibility as principal investigator mission manager for three Spacelab Life Sciences missions carried on the manifest. SLS-1 is currently set for later this year.

Construction of Space Station *Freedom* will begin later this decade and payloads already are being planned for the on-orbit laboratory.

The tally, however, is still far from complete.

Of primary importance for Space Station *Freedom* and JSC is the Assured Crew Return Vehicle, a rescue vehicle to be docked at station for medical, shuttle and station contingencies. Associate Administrator

for Space Flight William Lenoir says humans will not permanently man the space station until ACRV is available.

Particularly important to JSC, ACRV is the first manned spacecraft designed by JSC since the space shuttle in the 1970s.

LifeSat, a reusable, unmanned satellite used for life science experiments requires life support and flight control systems similar to a piloted spacecraft. It will become a frequent space voyager as it travels into high radiation orbits in 1994. The information the spacecraft returns could affect designs for long term space flight and will greatly expand the knowledge base of radiation exposure.

The current expendable launch vehicle manifest carries four LifeSat flights beginning in late 1994 and ending mid 1996. After that it will fly four times a year.

The Space Servicing System has three flight demonstrations to be manifested on the shuttle. These flight demonstrations will verify the capability for servicing satellites in locations not usually accessible to the shuttle or dangerous to humans. The system will use a variety of technologies including robotics.

The Commercial Middeck Augmentation Module, which could be used as early as 1992, represents the Please see **NEW INITIATIVES**, Page 4

## Flight control position reborn

STS-31 will mark the first mission since the early days of the shuttle program in which the responsibility for electrical and environmental systems will be divided into two console positions, called EECOM and EGIL.

The change has been considered since STS-9, when the heavy demands of monitoring the Spacelab and its interfaces with the space shuttle placed an excessively heavy workload on the EECOM position, said Jim Saultz, chief of the Mission Operations Directorate's Electrical and Environmental Systems Branch.

Starting with STS-31, the EGIL position—for Electrical Generation and Illumination—will have responsi-

bility for operation of the three fuel cells, liquid hydrogen and oxygen cryogenics, the DC poser buses and AC power inverters, and the overall electrical system aboard the orbiter. EGIL also will be responsible for the Master Caution and Warning System.

Ray Miessler, Robert Floyd and Charles Dingell will be the EGIL officers for STS-31.

On future missions, EGIL will be responsible for those systems aboard both the orbiter and the Spacelab systems—either module or pallet—when carried aloft.

The EECOM—for Environmental Engineer and Consumables Manager—will continue to have respon-

sibility for the life support systems, as well as atmospheric revitalization and pressure control, active and passive thermal control systems (such as the Flash Evaporator System), the smoke and fire detection system and the management of supply and waste water tanks.

Dave Herbek and Leonard Riche will be the EECOMs for STS-31.

"It's going to reduce the workload," Saultz said. "It will allow operators to be more efficient and have a better understanding and knowledge of the systems they're specifically responsible for. If we had stayed with the same set-up, there would have been a level Please see **EGIL**, Page 4

## Did You Know?



**That each ton of paper that is recycled saves about 17 trees and 3.3 cubic yards of landfill space?**

**Or that JSC consumes 120 tons of paper a month?**

## Galileo set for December flyby

The Galileo spacecraft last week completed a four-day maneuver sequence to begin shaping its course for a December gravity assist from the Earth to help it reach the planet Jupiter in late 1995.

Operating from computer programs written by the Galileo flight team at the Jet Propulsion Laboratory and transmitted by the Deep Space Network in four daily segments, the spacecraft pulsed its tiny lateral thrusters almost 1,600 times. The effect was to slow Galileo in its course by about 55 miles per hour.

Please see **GALILEO**, Page 4

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# Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Gift Store from 10 a.m. to 2 p.m. weekdays.

General Cinema (valid for one year): \$3.75 each.

AMC Theater (valid until May 1991): \$3.50 each.

Sea World (San Antonio, year long): adults, \$17.25; children (3-11) \$14.75.

Astroworld (valid 1990 season): season, \$39.95; regular, \$15.97; children, \$9.21.

The Bay Area Chorus (8 p.m. April 21, Clear Lake Presbyterian Church): \$7.50.

JSC EAA Picnic tickets (May 5, Rec Center): adults, \$4; children, \$2.50.

New Orleans Fling (June 23-24; \$25 deposit by May 15): \$125 each.

Cinderella, presented by Clear Lake Metropolitan Ballet (8 p.m. April 20, 2 p.m. April 22, Bayou Theater, UH-CL): \$9.

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# Gilruth Center News

**Sign up policy**—All classes and athletic activities are first come, first served. To enroll, you must sign up in person at the Gilruth Recreation Center and show a badge or EAA membership card. Payment must be made in full at the time of registration. Classes tend to fill up four weeks in advance. For more information, call x35789 or x30304.

**EAA badges**—Dependents and spouses may apply for a photo I.D. 6:30 p.m.-9:30 p.m. Monday-Friday.

**Defensive driving**—Course is offered from 8 a.m.-5 p.m. May 19 and June 16; cost is \$15.

**Weight safety**—Required course for those wishing to use the Rec Center weight room. The next classes will be from 8-9:30 p.m. May 2 and May 16; cost is \$4.

**Ballroom dance**—Beginning, intermediate and advanced ballroom dancing. Classes begin May 3 and meet every Thursday for eight weeks. Beginning and advanced classes meet 7-8:15 p.m. Intermediate class meets 8:15-9:30 p.m. Cost is \$60 per couple.

**Aerobics and exercise**—Both classes are ongoing. Sign up in the Gilruth Center.

**Tennis**—Beginning tennis lessons, meets Mondays from 5:15-6:45 p.m. for six weeks, beginning April 16. Cost is \$32.

**Almost Anything Goes**—Six teams of three men and three women are needed for JSC Picnic. Registration deadline is May 2. Cost is \$10 per team, includes T-shirt.

**Spring Intercenter Run**—The 10 kilometer and/or 2-mile races for the annual intercenter run will be held throughout April. Runners may submit their times at the Rec Center.

**Country and western dance**—Lessons begin June 4. This course will be held every Monday for 6 weeks, cost is \$20 per couple.

**Mixed volleyball sign-ups**—Registration will be May 2. This season will consist of Monday, Tuesday, and Friday night leagues. NASA badged teams will be signed up first.

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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: Lake Travis, 1/4 acre corner lot, Country Club Estates, lake view, \$100/mo. for 5 yrs. Ron D. Davis, x31959 or 482-5952.

Rent: Lake Livingston, 3-2, CA/H, furn., cov. decks, ex. cond., wknd. or wk. 482-1582.

Lease: 4-2-2, El Lago, all appls., avail. May 1, \$800/mo. 326-6811 or 488-8611.

Sale: Older house, 6 mi. from Crockett, 4-2, \$10,000. 486-9760.

Lease: Univ. Green patio home, 3-2-2, fans, gar. door opener, avail. May 15, \$725/mo. plus dep., refer. 486-8551.

Sale: Bay house on Caranchua Bay near Palacios, furn., \$40,000. (409) 543-2052.

Sale: Galv. w/frnt. home, 3-3-6, deck, spa. 334-1909.

Sale: 7 lots, 2 waterfront, Toledo Bend, heavily wooded. BO. 334-1909.

Sale: Santa Fe, 3.8 acres, 3 sep. sys., 2 wtr. wells, 14x72 mobile home. Kelly, x36169 or (409) 925-1819.

Sale/Lease: Galv. Victorian home, 3-1.5-2 deck. 798-6470 or 796-9485.

Sell/Trade: 2 sep. res. lots in Colorado City, CO, 26 mi. S of Pueblo, near lakes, skiing. 473-4433.

Lease: CLC, 1 BR cond. upstalls, FPL, W/D conn., appls., avail. April 1. Jim Briley, 488-7901.

Sale: 2 lots in La Porte, total sz. 75x220', \$5,000/ea. 944-5624.

Sale: 2 lake lots on Toledo Bend Lake, water, elec., septic tank, \$10,000. 944-5624.

Sale: 90 plus acres in Flatonia/Schulenburg area, 3-2-3D, rustic foreman's house w/barns, corral, \$225,000. Rick, 996-8961 or 283-1988.

Rent: W. Galv. beach house, 2-2, \$500/wk. Fendell, x31206 or 538-1147.

Sale: Egret Bay condo, 2-2-2 w/2 patios, 2 stor. closets, ex. cond., \$45,000. 486-9505.

Sale: Meadowgreen 3-2-2, \$75K. Francis, 892-6983 or 486-5207.

Sale: Middlebrook 3-2-2, FHA assum., \$82,500. 486-1888.

Sale: Mobile home, LC, 14x80 on 50x150 lot, \$23K. 334-1883.

**Cars & Trucks**

'84 Honda Civic, 4-dr. sedan, auto., AM/FM/cass., ex. cond., \$3,400. Vic, 334-2335 or 282-3216.

'78 Datsun 280Z, 5-spd., 82K mi., \$3,000. Dave, 333-6719.

'81 Cutlass Cruiser wagon, ex. cond., \$1,795. David, 282-3827 or 554-5514.

'82 Ford Tra-Tec van, AM/FM cass., dual air, ex. cond. 326-2895.

'88 Volvo 740 turbo, warr., \$17,700. Phil, 282-3600.

'71 VW dunebuggy w/Citation body, eng. needs to be installed, ex. cond., \$1,500. Jim, 328-1884.

'85 Plymouth Horizon, auto., ex. cond., \$2,200. 483-4355 or 532-1951 or 333-2717.

'86 Dodge Mini-Ram van, auto., AM/FM/cass., 67K mi., \$5,695. 992-1996.

'76 Monte Carlo, new eng. and trans., ex. cond., \$1,200. 332-4405.

'33 Landuc motor home, low mi., \$28,000. Stan, 339-1152.

'65 Olds Starfire sport coupe, 106K mi., orig. owner, \$2,500. OBO. Tom, x38298 or 488-4089.

'86 B2000 PU, 5-spd., AM/FM stereo, ex. cond., \$3,900. 482-8820.

'85 Silverado Suburban, auto., all pwr., AM/FM/cass., ex. cond., \$7,500. Nan, 283-6369 or 334-1508.

'85 Corvette, auto., all pwr., 40K mi., ex. cond., \$15,000. 488-8493 or 282-5325.

'85 Toyota MR2, loaded, ex. cond., 57K mi., \$5,900. Youm Nguyen, 483-2142.

'85 Cherokee jeep, 4-dr., 4 WD, 41K mi., ex. cond., \$8,500. x39382 or 331-6659.

'83 Fleetwood Brougham D-Elegance, loaded, \$5,900. 486-1812.

'76 Mercedes, 450 SEL, loaded, ex. cond., PW, 112K mi., \$5,800. 487-8876.

'81 Buick Regal Limited, 1 owner. David, x37771 or 326-2899.

'82 Porsche 924, ex. cond., 62K mi., adult only, 5-spd., \$6,500. 280-8796 or 283-5476.

'86 Toyota Sunland Express motor home, gen., roof AC, \$16,700. 437-5442.

'87 Volvo 245 GLA, ex. cond., loaded, 52K mi., warr., \$13,900. Scott, 283-5611 or 482-1809.

'82 Datsun 280 ZX turbo, T-tops, loaded, \$3,500. 483-1495 or 332-3536.

**Cycles**

'82 Honda, V45 Magna, wrecked from behind, \$175. 543-3649.

'84 Honda Nighthawk 650cc, good cond. 333-3080.

'81 Suzuki 850cc, vetter fairing/windscreen, low mi., ex. cond., \$1,400. Patrick, x32635 or 488-1079.

Honda 650 turbo, low mi. 334-1909.

'80 Suzuki GS 450L, 14.7K mi., needs some work, \$450. OBO. Neil, x34479 or 481-3549.

'86 Honda Shadow 500, 5,731 mi., ex. cond., \$1,800. OBO. Jana, x31653 or 326-4030.

'87 Suzuki GS 450L, 2,260 mi., \$1,200. 282-6682 or 480-9329.

'84 Honda Interstate, low mi., \$3,150. OBO. Bob, x38248 or 482-9773.

**Boats & Planes**

14' fiberglass Falcon, 18hp Evin., galv. triv. 326-2895.

Aircraft propeller, Sensenich 74DM6-0-58, fits some Beech, Piper PA-18, PA-22, PA-28, \$900. 538-2299.

19' Prindle catamaran, race rigged, triv. w/sail box, beach wheels, \$5,500. Mike T., 333-6246 or 474-7217.

26' Express Cruiser, ex. cond., gen., AC, camper, AC/DC refig., \$14.9K. OBO. 280-8796.

'81 G-Cat 18' catamaran, good cond., triv., \$1,250. Minh, x38495 or 484-4944.

'81 16' Ebbtide ski/fishing boat, 115hp, Merc. Shoreline Drive on triv., ex. cond., \$6,500. OBO. Luther or Scott, (409) 744-3464.

14' Sunfish w/triv., \$650. OBO. 474-3507.

14' Flying Fish sailboat, 23' mast, holds 3 people, \$450. 280-2510.

Hobie 12' Mono-Cat sailboat, triv., 2 sails, \$500. 333-1762 or 280-2523.

Sunfish sailboat, triv., prof. equipped, good cond., \$900. 483-8278 or 326-2995.

'73 Apollo 18', 150hp Merc. outboard, 48 mph, triv., \$1,700. John Stemerick, 996-0805.

JSC

# Dates & Data

## Today

**Earth photos** — The Houston Space Society will present an Earth Day lecture at 7:30 p.m., April 20, in University of Houston's Atlantic Room. William J. Daley, Lockheed scientist, will present space shuttle photography of the Earth. For more information call 639-4221.

**NCMS special meeting** — The Texas Gulfcoast Chapter of the National Classification Management Society (NCMS) will hold a luncheon meeting at 11:30 a.m. April 20 at the Ramada Kings Inn. Steven Garfinkel, director, Information Security Oversight Office, will speak.

**Co-op Job Fair**—The JSC co-ops will display projects April 20 from 10 a.m.-4 p.m. in the Gilruth Recreation Center. Contact Trang Le at x32449 for more information.

**HSCOUG meeting**—The Houston Space Center Oracle Users Group (HSCOUG) will hold its next quarterly meeting at 8:30 a.m. April 20 at Lockheed Engineering and Sciences Co., 2450 NASA Road 1. Contact Pat McMichael, 333-6156, for more information.

**Cafeteria menu**—Special: tuna and noodle casserole. Entrees: liver and onions, deviled crabs, roast beef with dressing. Soups: seafood gumbo. Vegetables: whipped potatoes, peas, cauliflower.

## Saturday

**Earth Day at Challenger Park**—A nature workshop conducted by Joseph Cornell, environmental educator and author, and a star gazing party at 8 p.m. April 21 with the JSC Astronomy Club will mark the weekend observance of Earth Day at Challenger Park. April 22 will feature a bird walk, canoe float and bike ramble. An Environmental Fair addressing the theme of "Grassroots Ecology: What Can I Do To Make a Difference?" will begin at noon. A NASA slide show on New Initiatives will be shown in the afternoon. For information, call 991-6881.

**Star party**—In observance of Earth Day, the public will be allowed to view

the heavens through telescopes provided by the JSC Astronomical Society at Challenger 7 Park from dusk-10 p.m., April 21. For more information call Bill at 339-1367.

## Sunday

**NASACOM meeting**—NASACOM (a Commodore users group) will meet at 7:30 p.m. April 22 at the Clear Lake Park Bldg., 5001 NASA Road 1. Contact Glenda Souliere, x31764, for more information.

## Monday

**Cafeteria menu**—Special: breaded cutlet. Entrees: beef chop suey, Polish sausage with potato salad. Soup: French onion. Vegetables: okra and tomatoes, green peas.

## Tuesday

**BAPCO meeting**—The Bay Area PC Organization (BAPCO) will meet at 7:30 p.m., April 24, at the League City Bank and Trust, 303 E. Main, League City. Contact Earl Rubenstein, x34807, or Tom Kelly, 996-5019, for information.

**Cafeteria menu**—Special: fried chicken. Entrees: Salisbury steak, shrimp Creole. Soup: split pea. Vegetables: mixed vegetables, beets, whipped potatoes.

## Wednesday

**JSC Astronomy Seminar** — An open discussion meeting will be held from noon-1 p.m. April 25 in the Bldg. 31 conference room; contact Al Jackson at x33709 for information.

**Cafeteria menu**—Special: stuffed bell pepper. Entrees: fried catfish, hush puppies, braised beef rib, barbecue plate, wieners and beans, shrimp salad. Soup: seafood gumbo. Vegetables: corn O'Brian, rice, Italian green beans.

## Thursday

**Partners in Space** — The annual Partners in Space symposium will be held April 26-27 at the Rec Center. The Partners in Space Banquet will be held at the Hobby Holiday Inn the evening of April 26. Price for the two-day symposium is \$150 each and includes continental breakfast and the keynote luncheon. For reservations and infor-

mation, call 486-5535.

**Space station power**—The American Institute of Aeronautics and Astronautics (AIAA) Houston Section will hold a dinner meeting at 6:30 p.m., April 26, in the Gilruth Recreation Center. Dr. Peter Glaser, vice president of Arthur D. Little, Inc., will speak on "Power for the Space Station and Beyond." For more information call Sarah Leggio at 282-3160.

**Space business banquet**—The Houston Space Business Roundtable will hold its third annual symposium and banquet, April 26 and 27 at NASA/JSC. For more information call 486-5535.

**Solar System Exploration seminar**—The Solar System Exploration Division Seminar Series will present Greg Ojakangas, Lockheed, speaking on "Coupled Thermal and Rotational Histories of Europa's Ice Shell" at 3:30 p.m. April 26 in Building 31, Room 129. Call Nadine Barlow, x35044, for more information.

**Cafeteria menu**—Special: barbecue smoked link. Entrees: beef stroganoff, turkey and dressing. Soup: chicken noodle. Vegetables: Lima beans, buttered squash, Spanish rice.

## April 27

**Cafeteria menu**—Special: meat sauce and spaghetti. Entrees: baked scrod, liver and onions, fried shrimp. Soup: seafood gumbo. Vegetables: green beans, buttered broccoli, whipped potatoes.

## May 1

**MPAD Wake and Reunion**—May 1 is the last day for all former civil service Mission Planning and Analysis Division employees to sign up for a wake and reunion. Please contact Gloria Martinez, x38092, to sign up.

**ABWA Event**—The American Business Women's Association (ABWA) will honor a member of the business community with its ABBY Award May 1 at the Rec Center. Dinner is \$13, and the guest speaker is Catherine Smith, Channel 2 News. Contact Carolyn Lowrimore for more information at 326-5327.

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'86 B2000 PU, 5-spd., AM/FM stereo, ex. cond., \$3,900. 482-8820.

'85 Silverado Suburban, auto., all pwr., AM/FM/cass., ex. cond., \$7,500. Nan, 283-6369 or 334-1508.

'85 Corvette, auto., all pwr., 40K mi., ex. cond., \$15,000. 488-8493 or 282-5325.

'85 Toyota MR2, loaded, ex. cond., 57K mi., \$5,900. Youm Nguyen, 483-2142.

'85 Cherokee jeep, 4-dr., 4 WD, 41K mi., ex. cond., \$8,500. x39382 or 331-6659.

'83 Fleetwood Brougham D-Elegance, loaded, \$5,900. 486-1812.

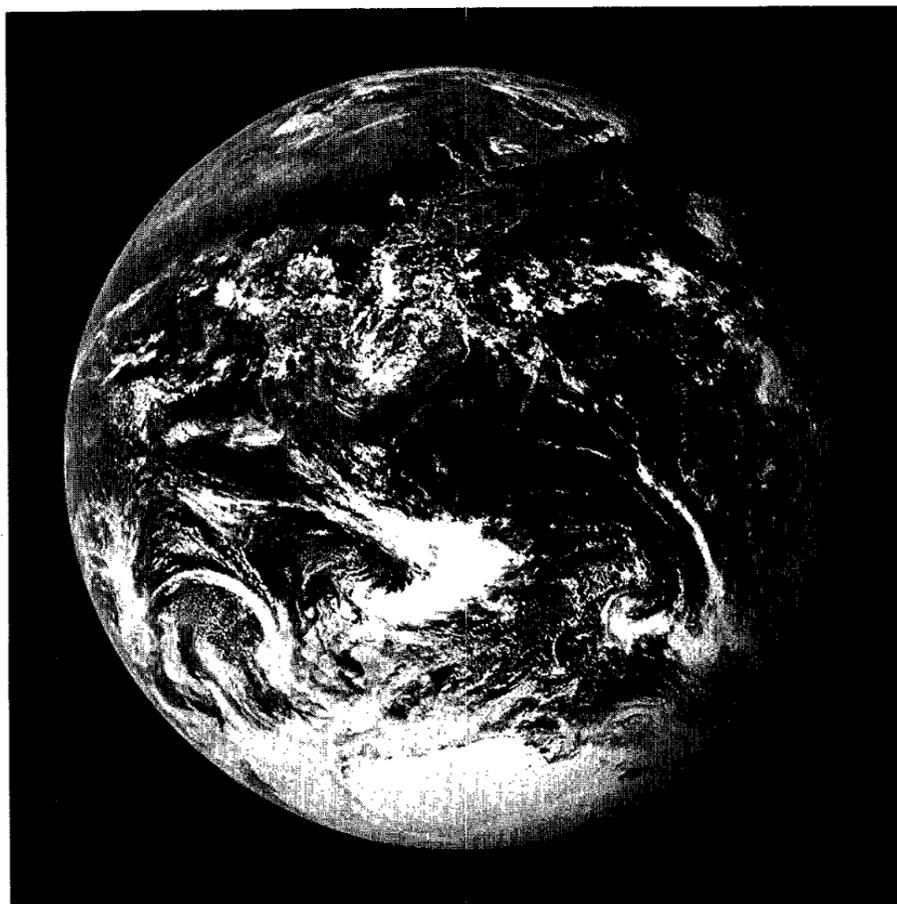
'76 Mercedes, 450 SEL, loaded, ex. cond., PW, 112K mi., \$5,800. 487-8876.

'81 Buick Regal Limited, 1 owner. David, x37771 or 326-2899.

'82 Porsche 924, ex. cond., 62K mi., adult only, 5-spd., \$6,500. 280-8796 or 283-5476.

# Earth Day 1990

## JSC, which helped create a visual global perspective, is putting that knowledge to practical use



By Brian Welch

They were on their hands and knees in the Armand Bayou Nature Center parking lot on the first Sunday of April, sorting through other people's recycled plastic beneath a rumbling gray canopy of East Texas overcast, while all about them a remarkable scene was unfolding.

While they worked, another Nature Center volunteer handed out free recycling brochures—printed on recycled paper—and patiently explained that different grades of plastic had to be separated before the recycling company would accept them. "Their profit margin has shrunk because of all the labor involved in properly separating the plastic," she explained, "so now we're trying to do it ourselves."

She looked at the growing piles of garbage bags filled with the effluvia of suburbia, then to the long line of cars loaded with people and their recyclables, and handed instructions for proper separation to another group of recyclers.

Nearby, a team of three worked feverishly on the back of a flatbed truck loaded with 55-gallon drums. The drums were overflowing with clear glass, colored glass and tin cans whose contents had once consisted of everything from Spaghetti-O's for the kids to Seafood Sampler for the cats, and more and more such materials were still arriving.

One mother made her way through all of the people and the growing mountains of plastic bags, holding a child's hand in each of hers, while the children themselves carried small bags full of recyclable materials. The children seemed excited and were eager to find the right pile for their contributions to the effort. Their

mother wore a T-shirt with a blue and white Planet Earth silk screened on it, and below that the words, "A Good Planet is Hard to Find."

People continued to come and go that afternoon while the piles of debris continued to grow, and even when it finally did begin to rain, the volunteers continued to sort plastic on their asphalt work surface and barely took notice. A good thing was happening, and the rain didn't seem to matter much.

It was a local demonstration of the growing environmental concern which many believe will become one of the most powerful issues of the coming decade. As TIME Magazine's Hugh Sidey observed in a recent column, "With the Berlin Wall down, the cold war over, the drug battle stuck in stalemate, almost everybody in the political world is waking up to the fact that the preservation and care of the land, air and water may rise and dominate all other issues. It links hearts and minds across continents, obliterates old barriers that kept people apart, banishes ideology. . . . The environmental political flood is about to break over us all."

If the predictions of Sidey and others are correct, one very visible reflection of that growing concern for the health of the planet should be evident this weekend, according to estimates released by the U.S. Environmental Protection Agency (EPA). That's when, according to the EPA, as many as 100 million people in 120 countries will gather to observe Earth Day 1990 on the 20th anniversary of the first Earth Day, when an estimated 20 million Americans demonstrated for a cleaner environment. This year, 50 million Americans are expected to partici-

pate, the EPA says.

Dennis Hayes, who coordinated the original Earth Day in 1970 and is repeating that role this year for Earth Day 1990, said, "Whereas Earth Day 1970 was the catalyst for the creation of the modern American environmental movement, Earth Day 1990 is designed to catalyze a truly global environmental movement—and to make the 1990s a decade of striking environmental achievements."

*It will be these kinds of small steps that will allow us to make the long journey to becoming a truly environmentally responsible global society.*

—JSC Director Aaron Cohen

The threads of history tie the two Earth Days together in other ways. In the late 1960s, environmental disasters such as the Santa Barbara oil spill and the spontaneous combustion of Cleveland's chemical-laden Cuyahoga River took place as new technologies were increasing the flow of information and the impact of such events. Color television was becoming more and more common in American living rooms and, according to William D. Ruckelshaus, the EPA's first Administrator, "the visible effect of a yellow outfall flowing into a blue river, or brown smog against a bright blue sky, was far more impressive than those same images in black and white."

Then, as now, similar environmental calamities have galvanized the public's awareness, such as the images of medical waste washing ashore on the East Coast, and the impact of the oil spill last March in Alaska's Prince William Sound. And at both points in history, the sights, sounds and knowledge returned from space exploration have played a role.

"On our newly colored TV screens," Ruckelshaus said, "we saw spaceships heading for the Moon, and the subsequent photographs of our planet—looking so small and vulnerable in the firmament—gave us a sense of our limits and a concern about exceeding them."

Today, the same sense of planetary vulnerability is fueled in part by the view from space, where remote sensing satellites have discovered holes in the ozone layer over both the north and south polar regions, and where shuttle astronauts return from orbit with photography of dense smoke clouds hovering over the Amazon due to the clearing and burning of the rain forests.

For JSC's John Young, special assistant to the director for engineering, operations and safety, the combination of six trips into space—including two to the Moon—and some briefings he received in 1989, led to a suggestion that the Center could do its part to help. "We were briefed (by JSC's Earth Observations Group) that in South America an area the size of Pennsylvania is being deforested every year," Young wrote in a May 1989 memo to Center Operations Director Ken Gilbreath. He added that figures presented to the senior staff estimated that JSC used more than 100 tons of paper each month. "Therefore, we are

directly contributing to this worldwide timber use situation, which will eventually affect our environment, if it has not already," Young wrote.

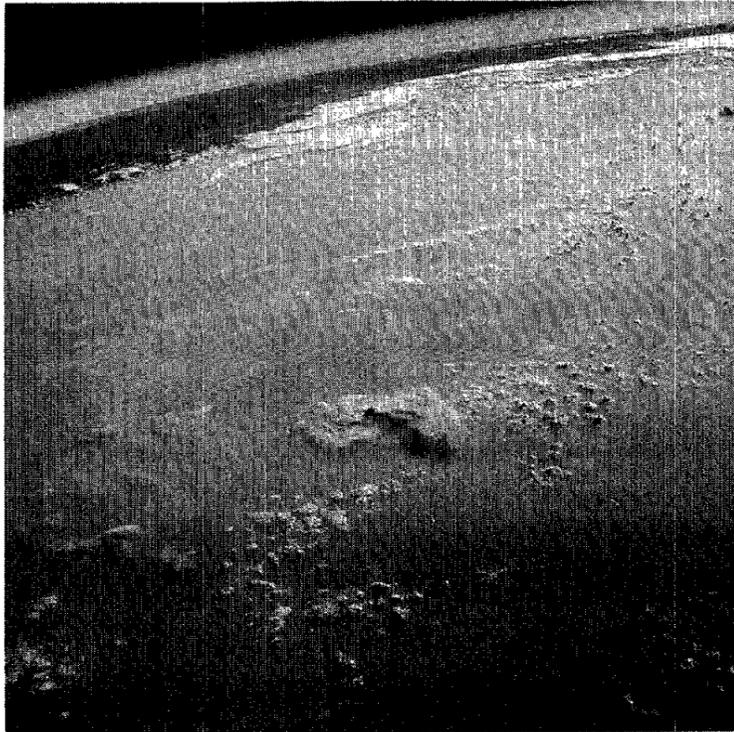
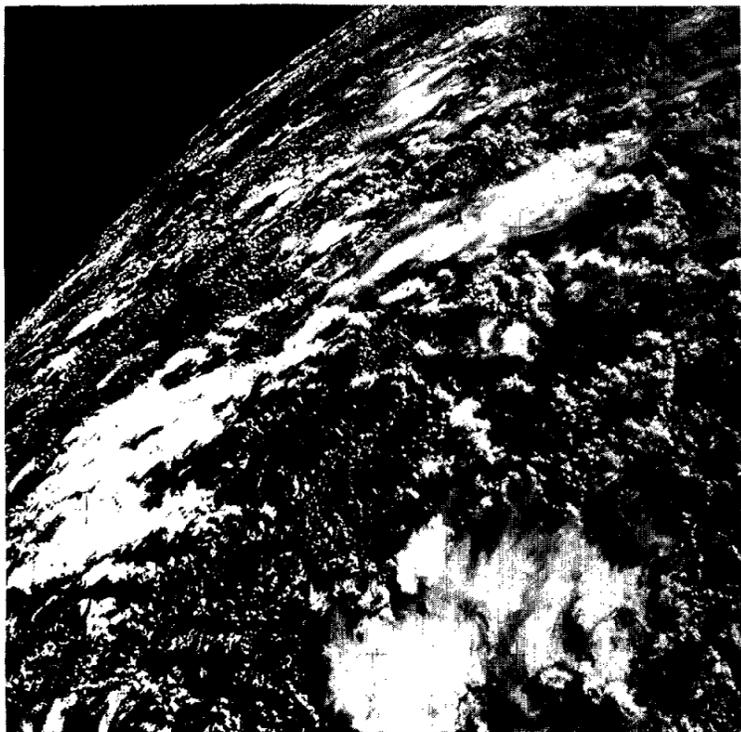
Gilbreath acted on Young's suggestion, and began a paper recycling effort at JSC which, after a pilot program in late 1989, has now gone into effect centerwide. While the program is new and exact figures are still being calibrated, the initial estimates of the savings involved are very positive, according to Ron Williams, a technical operations manager in Center Operations who has coordinated the program.

Williams estimates JSC is recycling about half of the average 120 tons of paper the center uses each month. That would amount to 720 tons of paper recycled each year, and for every ton of paper recycled, 17 trees are saved, according to the best estimates available from industry and environmental groups. Do a little simple math, and the figures estimate that over the coming year, JSC employees will be responsible for saving more than 12,000 trees.

Other figures demonstrate an even broader bonus from the center's recycling efforts. Each ton of paper recycled saves the emission of about 60 pounds of air-polluting material, 384 gallons of oil, 4,200 kilowatts of energy, 7,000 gallons of water, 3.3 cubic yards of landfill space and \$50 in landfill fees.

The figures add up, and as JSC Director Aaron Cohen wrote recently in a column for the Clear Lake Citizen, "It will be these kinds of small steps that will allow us to make the long journey to becoming a truly environmentally responsible global society. And as Thoreau said, 'What is the use of a house if you haven't got a tolerable planet to put it on?'"

NASA Photos



NASA's astronauts have helped increase awareness of how humans are having detrimental effects on the global environment. The first Apollo missions to leave Earth orbit gave citizens of the world a new perspective and a better understanding of how fragile our planet is. Top: This whole-Earth photograph, taken by the crew of Apollo 17, has become the most requested NASA photo. Far left: This Skylab photo shows South America's Amazon River basin on a cloudy day during the 1973 wet season. Left: This 1988 STS-26 photo shows how much smoke from dry season clearing and burning has changed the atmosphere above the Amazon basin.

# New Initiatives reorganizes for decade of change

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first major commercial endeavor NASA has undertaken. CMAM will provide extra middeck locker space for space shuttle missions to support private sector research.

Request for proposals for CMAM are due later this month.

"These are real projects, they are not just ideas anymore," Huffstetler said.

To cope with the maturation of ACRV, LifeSat, SSS and CMAM, New Initiatives has created four flight project offices which establishes a system in which ideas, once incubated past the conceptual stages, hatches into sustained projects.

The ACRV Project Office is managed by Jerry Craig. The LifeSat Project Office is headed by Bob

Spann, and SSS by Jim Moore. CMAM, the newest member of the JSC project family, is managed by Dan Bland.

The creation of a flight projects office signals the end of the "cartoon" phase of development and onset of real entities. As projects currently in the early stages of development enter later stages of development, additional flight project offices will be created.

"This makes the projects more visible and organizes them better," Huffstetler said. "We'll also get better support by organizing them this way."

The flight project offices will be kept small and will require support from the organizations throughout the center. This matrix management approach is essential for JSC to develop into a multiprogram and

multiproject center.

One area within New Initiatives expected to give birth to several project offices is the Exploration Projects Office. Headed by Harry Erwin, the Exploration Projects Office will coordinate a variety of activities connected with the Human Exploration Initiative.

The office is broken into two groups: the Surface Systems Office managed by Barney Roberts and the Human and Robotic Spacecraft Office managed by Ron Kahl.

The Surface Systems Office is developing plans for a variety of systems needed on the surface of the moon and Mars outposts, such as habitats, power systems and landers. Each system has the potential to translate into a separate flight project,

Huffstetler said.

The Human and Robotic Spacecraft Office will work with robotic missions in partnership with Jet Propulsion Laboratory such as the Mars Rover Sample Return and with manned systems such as the Personnel Launch System now under study, and likewise will produce several projects.

Ongoing coordination of payloads for the shuttle and *Freedom* will continue in the Space Shuttle and Space Station *Freedom* Payload Projects Office, headed by Curt LeBlanc. The office is composed of a Mission Management Office headed by Wayne Eaton and a Project System Engineering Office headed by Donald Smith.

The area of technology develop-

ment and commercial use of space also will receive attention in the future. Addressing those issues will be the Technology and Commercial Projects Office, headed by Mark Nolan. Those activities include technology utilization, Centers for the Commercial Development of Space, other commercial projects, and technology development and applications.

On the last arm of the NIO family resides the Project Planning and External Affairs Office, headed by Lynn Gordon-Winkler, which will be responsible for coordinating JSC's strategic and long range planning efforts as well as interfacing with entities outside JSC and NASA.

"This reorganization is a key commitment and response to the future," Huffstetler said.

## Management Experience Day set for April 25

Senior high school students and teachers from six local schools will participate next week in JSC's third annual Management Experience Day. Conducted by the center's chapter of the National Management Association, the event provides 24 participating seniors who are interested in management careers the opportunity to observe managers "in action" in the federal workplace.

The six visiting instructors will also be on hand to gain firsthand experience of how management operates in a government agency, knowledge they then plan to convey to interested students in other classes not participating in the event.

The students and teachers participating in this year's event represent Clear Lake, Clear Creek, Dobie, Friendswood, Pearland and Dickinson High Schools. Volunteer participation by managers who have agreed to give the young visitors the opportunity to join them on their normally scheduled workday afternoon appointment schedule next Wednesday is centerwide.



**CAPE VISIT—JSC Manned Flight Awareness honorees visiting Kennedy Space Center last week included (left to right): Ray Nuss, Engineering; George Womak, SR&QA; Mary Gavalas, Flight Crew Operations; Ruby Summers, Space Shuttle Integration and Operations; Vicki Nisbet, Human Resources; Bob Patterson, Space and Life Sciences; Cathey Lamb, Administration; Gayle Eickendorst, Orbiter and GFE Projects; Gloria Araiza and Jim West, Mission Operations; Welby Ward, Mission Support; Pete Gillette, Engineering; Joel Stoltzful, White Sands Text Facility; Scott Seyl, Mission Support; and Sharon Cordes and Johnny Salinas, Center Operations.**

## EGIL takes position for STS-31 flight

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of knowledge missing." STS-31 Lead Flight Director Bill Reeves said he supports the decision to separate the two console positions.

"The fewer people you have to interface with the better, but if you have too big a workload on one individual then you don't have as good a representation for any part of that system," Reeves said.

Saultz said the separate EECOM and EGIL consoles date back to the days of Gemini and Skylab missions, but that the positions didn't do exactly the same things they now do in the shuttle era. The two consoles weren't combined into one EECOM position until STS-4, at which time responsibility for in-flight maintenance also was added. Soon afterward, however, the decision began to be reconsidered.

"STS-9 was the one mission that really woke us up to what a large workload it was," Saultz said. "Even our experienced people, most of them going back to the Apollo days, had a very hard workout. It was very rare during the day that they got any type of a break at all."

The final impetus for the change came after the *Challenger* accident, when the branch lost most of its experienced console operators as they made career moves. Attrition in the branch hit nearly 40 percent and it became difficult to maintain EECOM experience levels while training new flight controllers, Saultz said.

One reason the split is being executed now is so that controllers will have an opportunity to become familiar with the new arrangement before the first Spacelab mission, the Astro-1 mission on STS-35, now scheduled for May.

Technicians from Bendix Engineering performed the physical separation of the consoles under the Space Transportation System Operations Contract (STSOC).

"A large amount of being able to accomplish this for STS-31 was due to the facilities personnel in Bldg. 30, who worked in between missions and integrated simulations to move the consoles and pull cabling and wires. I think they did an outstanding job on the installation," Saultz said.

Otherwise, flight control for STS-31 will follow the same procedures

and traditions common to all U.S. manned space flights since the Mission Control Center was first used in 1965.

Three teams of flight controllers will alternate shifts in the control center and in nearby analysis and support facilities.

The ascent phase will be conducted by Flight Director Ronald D. (Ron) Dittmore. Once *Discovery* is in orbit, this shift is known as Orbit 1 and will be headed by STS-31 Lead Flight Director William D. (Bill) Reeves. On the final day of the mission, Flight Director N. W. (Wayne) Hale will head the Entry team for *Discovery's* landing phase.

The Orbit 2 team will be led by Flight Director James M. (Milt) Heflin. The Orbit 2 team will be prime for EVA operations should a spacewalk by crew members Dr. Kathryn Sullivan and Bruce McCandless become necessary. The Orbit 1 team will be prime for Hubble Space Telescope deploy operations.

The Planning Team, which for the most part operates during the crew's sleep shift, will be led by Flight Director Alan L. (Lee) Briscoe.

## MCC visiting hours slated

The Mission Control Center (MCC) viewing room will be open to JSC and contractor badged employees and their families during the STS-31 mission from 2 to 5 p.m. on April 26, 27 and 28, based on an April 24 launch.

Employees must wear their badges and escort family members through the regular public entrance on the northeast side of Bldg. 30. Visitors should limit their stay during busy periods.

The viewing room will not be open to visitors during the Hubble deployment.

Since many variables are involved in mission operations, viewing times, and dates, may change with little notice. Employees are encouraged to call the Employee Information

Service at x36765 for the latest updated information.

The STS-31 crew and families are scheduled to arrive at Ellington Field approximately seven hours after landing at Edwards AFB on April 29, based on an April 24 launch. All JSC civil service and contract employees, together with their families and guests, are encouraged to join the center director in welcoming them home.

The ceremony will take place on the east side of Hangar 990. No identification will be necessary. Parking will be at the west side of the hangar. Gates will open about an hour before crew arrival.

Updates on the latest crew return ceremony information will be available on the Employee Information Service beginning launch day.

## Cafeteria hours for STS-31

Cafeteria hours for Bldg. 3 during the STS 31 mission will be from 6:30 a.m.-4:30 p.m. on launch day (weekday only) and 7 a.m.-4:30 p.m. on weekdays and weekends during the mission.

The cafeteria in Bldg. 11 will be open from 6:30 a.m.-2 p.m. on launch day, if it is a weekday, and on weekdays during the mission. The Bldg. 11 cafeteria will be closed Saturdays and Sundays.

## Child Care Center Opening April 29

The grand opening of the JSC Child Care Center will be held from 1-3 p.m., Sunday, April 29. Center Director Aaron Cohen will be present for the ribbon cutting, and all employees and their families are invited to attend. Refreshments will be served.

Enrollment openings for children in almost all age groups are still available with the Child Care Center. Availability is on a first-come, first-serve basis. Contact Lori Beauregard, x36600, for information.

## JSC Professional Secretaries Week observance noted

Suggestions to managers and supervisors to assist JSC's secretarial staff in enriching their knowledge, skills and abilities have been distributed centerwide in recognition of Professional Secretary's Week, April 22-28.

The suggestions, developed by Federal Woman's Program Manager Freda Marks, are meant as positive alternatives, or additions, to the more traditional activities associated with the annual observance, and are meant for discussion throughout the year. The suggestion list includes the following considerations:

- Discuss aspirations and encourage each secretary's professional growth.
- Support cross training within the clerical, administrative, and para-professional areas to allow the gain of meaningful experience and increased knowledge of the organization.

- Discuss present duties, solicit ideas for improvement, and create opportunities for increased responsibilities that result in improved efficiency and productivity.

- to supplement skills.

- Assure ergonomically designed work stations, chairs, desks, etc. that enhance comfortable working conditions and relieve possible adverse health effects.

- Consider the clarity of office communication and interaction between secretary and manager.

- Organize formal brainstorming sessions for secretaries to resolve problems with their areas of responsibility.

- Take advantage of incentive awards, formal letters, and other positive means of recognizing performance.

## Galileo scheduled for home planet flyby late this year

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This was the first of several maneuvers planned this year to shape the flight path for a flyby of Earth on December 8. Together with another Earth flyby in December 1992, then will have Galileo the precise energy needed to reach Jupiter in 1995, to carry out its two-year scientific observation of that planet and its satellites and to probe its atmosphere directly.

The maneuver was carried out well within design expectations, according to Galileo Project Manager William J. O'Neil. The next days and weeks of tracking will confirm details of the new flight path. The health of the Galileo spacecraft remains excellent.

Galileo was launched by the space shuttle *Atlantis* on October 18, 1989, and flew past Venus last February 9.

## Space News Roundup

The Roundup is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every Friday by the Public Affairs Office for all space center employees.

Editor ..... Kelly Humphries  
Assoc. Editor ..... Linda Copley

## Co-op Job Fair set for today

The fourth annual JSC Co-op Job Fair is being held from 10 a.m. to 4 p.m. today in the Gilruth Rec Center. Booths will be manned by many of the university-level students, 74 in all, participating in JSC's cooperative education program. Six directorates, including the new Information Systems Directorate (ISD), representing 14 division, will participate in the fair. The event is open to all employees.

The fair serves a dual purpose, according to Co-op Program Coordinator John Kochner, Human Resources. "It gives co-ops a chance

to share their work experience, and allows supervisors and managers to see kinds of things other directorates are assigning their co-ops to do," he said.

The JSC co-op program has existed since its foundation in 1961 by Jack Lister, the current director of Human Resources, Kochner says. Electrical, mechanical, and aerospace majors make up 85 percent of the program participants, he says, with the remainder representing mostly business and accounting students.