



Success story

Pictures tell the story of the STS-29 mission, from payload deployment to Earth observation photography. Photos on Page 3.



What's in a name?

The state-level winners of the replacement Space Shuttle Orbiter naming contest are released. Story on Page 4.

Space News Roundup

Vol. 28

March 24, 1989

No. 12

Astronauts win Harmon trophies

Weitz, Brand receive honors for Space Shuttle flights

Two astronauts, JSC Deputy Director Paul J. Weitz and Vance Brand, assistant manager for space station integration and assembly, received the coveted Harmon International Aviation Trophy during Monday afternoon ceremonies at the White House in Washington, D.C.

Vice President Dan Quayle presented the trophies to Weitz and Brand, who attended the ceremony with their wives, Suzanne and Beverly.

Brand received the award for his role as commander of the STS-5 flight of the Space Shuttle *Columbia*

in 1982. Weitz, who first received the award in 1974 as part of the Skylab 2 crew, received his for commanding the STS-6 flight of *Challenger* in 1983.

The Harmon Trophy, a 3-foot-tall bronze sculpture depicting a helmeted aviator buoyed by an eagle as he launches a biplane replica, was established by Clifford B. Harmon in 1926. The awards originally were presented to the world's outstanding aviator, aviatrix and aeronaut or spherical balloonist, and in 1969, an astronaut category was established. The trophies are administered by the

Harmon Trust, but in recent years have not been presented regularly.

Harmon, a wealthy sportsman, was one of the first private airplane owners, holder of an American balloon record and winner of the Harvard Cup at the Boston Aviation Meet of 1910. He made the first flight across Long Island Sound.

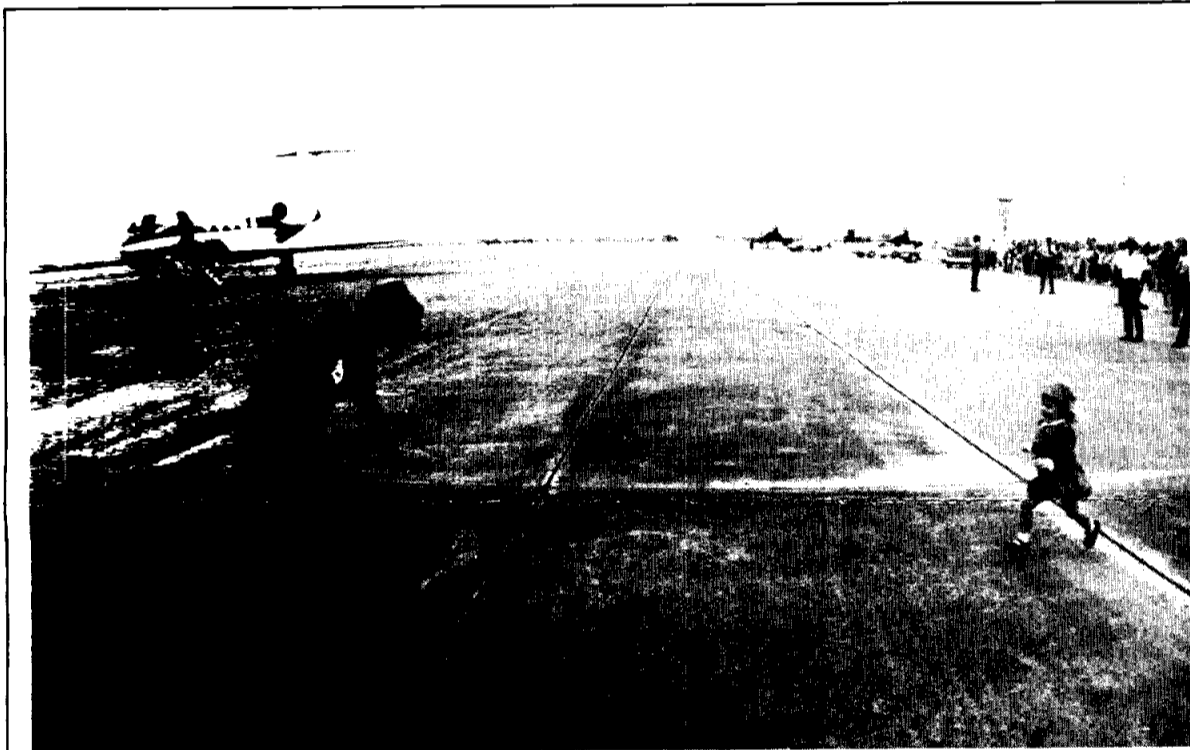
Previous astronaut winners include Gordon Cooper, Frank Borman, Thomas Stafford, Edwin "Buzz" Aldrin, James Lovell, William Anders, Neil Armstrong, Michael Collins, John Young, Robert Crippen, Joe Engle and Richard Truly.



Paul J. Weitz



Vance Brand



JSC Photo

STS-29 Mission Specialist Jim Bagian runs open-armed to greet his youngest daughter, Kimberly, at Ellington Field. *Discovery's* crew was greeted by about 500 family members, friends and coworkers.

'Always great to be back home'

An exuberant STS-29 crew returned to Houston on Saturday, capping a nearly flawless mission with thanks and congratulations to everyone who contributed to the achievement.

Discovery touched down on Edwards Air Force Base runway 22 about 8:35 a.m. Saturday. The nose wheel dipped to the pavement at precisely 8:36 a.m., and wheels stopped at 8:36:40 a.m., four days, 23 hours, 39 minutes and 40 seconds after launch.

"I'd like to take the opportunity to thank all the thousands of people that work on the space program around the country," Commander

Mike Coats told a crowd of about 450,000 who witnessed the landing at Edwards. "We have just concluded a five-day flight with essen-

tially zero problems, and that's really a credit to the people who work so hard to build and get these Shuttles ready to fly."

"Thank God for America!" echoed Pilot John Blaha. "We have a free country. We have a great educational system that produces an

engineering expertise that allows us to build something like this Space Shuttle and launch it, and we're one of the only countries in the world that can do that."

The successful mission was marked by a "clean as a whistle" launch, a smooth deployment of Tracking and Data Relay Satellite-D, and a busy stay on orbit working with the Chromex plant root development, Protein Crystal Growth Experiment, and two student experiments involving chicken eggs and rats.

The crew also shot miles of IMAX large-format film, documenting

Please see **STS-29**, Page 4



STS-29

JSC selects contractors to research Mars rovers

By Kari Fluegel

JSC has selected Martin Marietta and TRW to continue research toward possible robotic exploration of Mars that could culminate with a return of samples from the red planet within the next decade.

JSC recently awarded the Phase A parallel study contracts to Martin Marietta Astronautics Group, Space Systems, of Denver, and TRW, Space and Technology Group of Redondo Beach, Calif. Each 13-month study is valued at \$975,000.

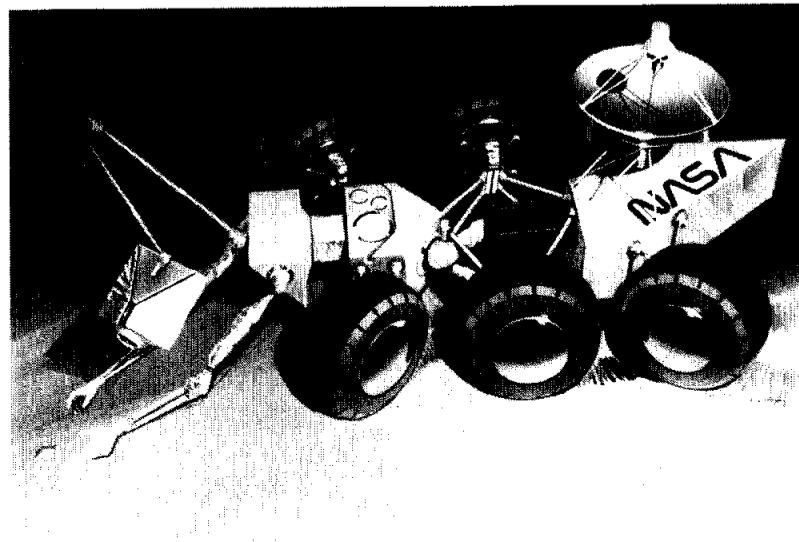
The Mars Rover Sample Return (MRSR) mission, a candidate for launch in the late-1990s, would incorporate a robotic rover traversing

the red planet's rocky terrain and a return vehicle to bring surface, subsurface and atmospheric samples back to Earth.

The mission could serve as a precursor step toward an eventual human mission to Mars in the next century.

The MRSR Program is managed by the Solar System Exploration Division of the Office of Space Science and Applications at NASA Headquarters in cooperation with the Office of Exploration.

The project is a joint undertaking involving JSC and NASA's Jet Propulsion Laboratory (JPL) in Pasadena, Please see **MARS**, Page 4



NASA Illustration

A Mars rover, one of several design concepts being studied, collects rock samples from the planet's surface in this artist's rendition.

Atlantis rolls to launch pad; Magellan ready

By Kyle Herring

Just days after *Discovery's* spotless landing, *Atlantis* and its interplanetary spacecraft Magellan already are at Kennedy Space Center's launch complex 39-B in preparation for next month's planned STS-30 launch.

The *Atlantis* stack was rolled slowly from the vehicle assembly building down the 4.2 mile gravel crawlerway to the pad Wednesday morning. Workers began processing the vehicle and its

payload for a planned April 28 launch. By 7 a.m. CST Wednesday, the STS-30 stack was perched on the launch pad. Mechanical and electrical connections between the vehicle and launch pad began soon afterward.

Work to install the spacecraft was scheduled to have begun Thursday as health checks were conducted on the spacecraft. Actual loading into *Atlantis* of the 45,700 pound Magellan/inertial upper stage was set to begin today.

In parallel with payload interface verification testing, the high pressure oxidizer turbopumps on the Orbiter's main engines will be removed and replaced. One of the pumps was replaced prior to rolling out of the Vehicle Assembly Building (VAB), leaving two to be swapped at the pad.

While one of the two remaining pumps to be replaced had to be shipped back to the Stennis Space Center in Bay St. Louis, Miss., for retest, it is not expected to delay the launch

because of the extra days built into the processing flow leading to the opening of the launch window on April 28.

After launch, the STS-30 crew—Commander Dave Walker, Pilot Ron Grabe and Mission Specialists Norman Thagard, Mary Cleave and Mark Lee—is scheduled to deploy Magellan 6 hours 18 minutes into the mission. The

inertial upper stage (IUS) will deliver the spacecraft to Venus where it will begin its 243-day mission of mapping the planet's surface using radar.

It will be the first planetary launch by the U.S. since 1978 and the first ever using the Shuttle.

The crew is scheduled to simulate launch day activities and practice pad emergency egress procedures during the Terminal Countdown Demonstration Test (TCDDT) on April 6 and 7.

As *Atlantis* and Magellan were being prepared for flight, *Discovery* was expected to arrive back at Kennedy today atop the 747 Shuttle Carrier Aircraft.

Once back in Florida, *Discovery's* number one main engine will be removed and sent back to Rocketdyne for refurbishment. Two tiny bondline leaks were discovered in the main combustion chamber. "We didn't see anything in flight" to cause concern and "the engine performed fine," said Terri Stowe, electrical engineer in the Mission Operations booster systems section.



Fletcher to resign officially April 8

NASA Administrator Dr. James C. Fletcher on Tuesday submitted his resignation, effective April 8, to President Bush.

Fletcher, who was brought back for a second term as administrator after the *Challenger* accident, said that with the successful conclusion of the third post-*Challenger* Space Shuttle mission, he feels that he can safely place the leadership of NASA in another's hands.

His letter to the president pledges to continue to work with his successor when appropriate.

"It has been a pleasure to serve you, both in your capacity as vice-president and in recent weeks as Please see **FLETCHER**, Page 4

JSC

Ticket Window

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

General Cinema (valid for one year): \$3.50 each.

AMC Theater (valid until May 31): \$2.95 each.

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

Easter Egg Hunt (March 25, includes hunt, photo with Easter Bunny, magic show, petting zoo, clowns, jugglers, refreshments): adults \$1; children \$0.50.

Disney on Ice—Pinocchio (April 8, noon, Summit, on sale March 20): \$7.

JSC Night at Astroworld (April 7, 6 p.m.-midnight): \$6.95 each for first 5,000, then \$8.95.

"Pericles, Prince of Tyre" (April 22-28, 8 p.m., Satellite Theatre, UHCL): \$4.

Listen!

The JSC Employee Information Service is updated every day at 11:30 a.m. The recorded announcement can be reached by calling:

483-6765

JSC

Dates & Data

Today

AIAA technical symposium—Today is the last day to submit abstracts for the Houston Section of the American Institute of Aeronautics and Astronautics' (AIAA) 14th annual Technical Symposium at the UHCL on May 18. The theme of the symposium is, "The Next Era in Space." Abstracts, along with a completed FF427, must be submitted to Bill Geissler, AIAA technical chairman, 333-6863.

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

Monday

Fitness program—The JSC Health Related Fitness Program is accepting applications for its upcoming sessions. Enrollments are being accepted for the April 3-June 23 session (Monday, Wednesday and Friday, 11 a.m. and 4 p.m.); the July 3-Sept. 22 session (Monday, Wednesday and Friday, 6:30 a.m.); and the Sept. 25-Dec. 15 session (Monday, Wednesday and Friday, 11 a.m. and 4 p.m.). All sessions meet at the Gilruth Recreation Center. Application and a comprehensive physical examination are required six weeks prior to enrollment. Call x30301 or x30302 for more information.

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

peas.

Tuesday

BAPCO meets—The Bay Area PC Organization (BAPCO) will meet at 7:30 p.m. March 28 at the League City Bank and Trust. For more information, call Earl Rubenstein, x34807, or Ron Waldbillig, 337-5074.

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

Wednesday

Secretary search—The Human Resources Office is accepting applications for GS-4 and 5 secretaries. Any secretary who currently is a permanent appointment federal employee or a former federal employee with reinstatement eligibility is encouraged to apply. For more information, call x32135.

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

Thursday

Robotics workshop—The AIAA Houston Section will host its second annual Workshop on Automation and Robotics (WAR '89) at 8:30 a.m. March 30 at the Gilruth Recreation Center. Dr. Al Haddad, manager of LMSC/RD&D for automation and robotics, will address a luncheon session costing \$7. Registration for the free workshop is required. Call Sharon Williams,

x31525, to register. For more information, call Dr. Zafar Taqvi, 333-6544, or Andre Sylvester, x31537.

AIAA dinner—The AIAA Houston Section will host its monthly dinner meeting at 5:30 p.m. March 30 at the Rec Center. Robert Rennie of Grumman Corp. will speak on the Strategic Defense Initiative Boost Surveillance Tracking System at 7:30 p.m. For reservations, call Judy at 282-3782. For more information, call Andre Sylvester, x31537.

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

April 1

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.

April 4

National space symposium—The U.S. Space Foundation will sponsor its fifth National Space Symposium April 4-7 at the Broadmoor Hotel in Colorado Springs, Colo. Among the participants will be JSC's Director of Space and Life Sciences Dr. Carolyn Huntoon and eight former astronauts. Registration is \$475 before March 3 and \$525 thereafter. For more information, call 719-550-1000.

April 6

IEEE video conference—The IEEE Education Committee will spon-

sor a video conference on "Robotics: Challenges in Motion Control, Planning and Vision," at 11 a.m. April 6 at the Rec Center. For more information, call Nancy Marshall, x30174, or Eddie Robinson, 333-7029.

April 7

Technical symposium—The Houston Chapter of the National Technical Association (NTA) will host its annual Technical Symposium April 7-8 at the Doubletree Hotel-Allen Center. The symposium theme is "Technology: The Roots of Our Future." For more information, call Donna Blackshear at x30574, or Rae Martel, x34160.

April 10

Laboratory week—The staff of JSC's Biomedical Laboratory, in conjunction with clinical laboratories across the country, will observe National Medical Laboratory Week, April 10-14. For more information, call Myron Johnson, Krug International, at x37194.

April 12

Library open house—The JSC Technical Library will hold an open house under the theme "Computer Capabilities in the Library" from 9 a.m.-4 p.m. April 12 in Bldg. 45. Demonstrations and displays will include CD-ROM search demonstration of the Applied Science and Technology Index, DIALOG, RECON and the Aerospace Research Information Network on-line public catalog. For more information, call the library at x34240.

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

Property

Sale: University Green patio home, 2-2-2D plus study, located 5 blks. from the JSC west gate, very low yard maint., extensive amenities, \$98,000, OBO. Bob, 488-0397.

Sale: 1982 14' x 72' Fleetwood Festival mobile home, 2-2 CA/H, appl., ex. cond., \$9,000, OBO. 474-4306 or 409-925-5554.

Sale: Big Bend area hunting land, 160 acres, \$150/acre, CFD 20% down, 9% for 5 years. 337-4051.

Sale: College Station, 3-1, 3 blks. from A&M campus, \$500/down, assume fixed FHA 9.5%, \$398/mo. 326-1278.

Sale: Cocoa Beach, FL ocean front time-sharing condo, rated five-star, take over payments. Kelly, x31356 or 488-4870.

Lease: Friendswood, 4-2-2, on the park, peach trees, fenced, FPL, \$600/mo., \$300 dep. 996-0981.

Lease: Baywind II townhome, 2-2.5, large two-story unit, FPL, W/D, ceiling fans, blinds, pool, tennis, etc., \$480/mo. 280-8608.

Sale: Friendswood/Forest Bend, 3-2-2, den, screened-in porch, ceiling fan, new paint, assume 9.5%, \$517/mo. Nick, x31920 or 996-7917.

Lease: Attractive roomy 2 BR apt. in Clear Lake, \$350/mo. Eric, x38420 or Herb, x38161.

Rent: Mobile home lot, \$85/mo., \$50/dep., 4421 4th St. and 4102 Kinne, Baciff. 488-1758.

Sale: League City, 2.06 acres, city water and sewer avail., near schools, 10 min. from NASA. 554-6695.

Lease: Friendswood 3-2-1, \$495/mo., no pets, avail. April 1, Friendswood school dist. Larry Turner, 485-4932.

Sale: Conroe area, corner 5 acres, county roads, high elevation, future owner can subdivide, \$2,950/acre, OBO. 488-2735.

Rent: West Galveston beach house, 2-2, beach 100 yds., boat landing, marina w/pool, \$500/wk., weekend rates avail. Fendell, x31206 or 538-1147.

Sale: Kemah, 111' by 180' lot, all set up for home building, several trees, \$7,400, 334-1883.

Sale: Friendswood/Sun Meadow Estates, wooded lot in estab. neighborhood, cul-de-sac, bordered by stream and golf course on 2 sides, approx. 245' deep and up to 86' wide, util. on site, \$31,500. Doug, x32860 or 486-7412.

Sale: Clear Lake Shores, 80' x 100' wooded fenced lot, ready to build on, \$24,800. Don, x31773 or 333-3313.

Rent: Cancun, 2, 2 BR villa, 5 star resort, sleeps 4, satellite TV, fully equipped kitchen, maid, ser., incl., \$86/night from Jul. 29 to Aug. 5. 729-0654.

Sale: 60 acres, 3 mi. from Karnes City, TX, on Hwy. 80, 50 mi. from San Antonio. 783-9164.

Cars & Trucks

'75 Scout II XLC 2WD, rebuilt 350 Chev. eng., new 350 turbo Dana Posi-Trac rear end, roll bar, new ATV tires, soft and bikini tops, very strong and dependable, \$2,800. Bill, 332-5057.

'71 Lemans Sport, one owner, 400 C.I.D., blueprinted, Positrac, 400 T.H., etc., needs some work, \$2,700, OBO. Ron K., x34713 or 333-2273.

'86 Toyota truck LB, bed liner, cruise, 5 spd., cloth seats, AM/FM stereo radio, dig. clock, wing vents, intermit. wipers, AL camper, P/S, P/B, A/C, 64K mi., ex. cond., \$4,900. Dan, 488-0946.

'86 Dodge Daytona, black, low mi., AM/FM stereo cass., sunroof, great cond., \$5,700, OBO. Dave, 282-3522 or 996-8402.

'77 Chevy Nova, auto., A/C, P/S, P/B, runs well, looks not so hot, 134K mi., BO. Ed, x32586.

'78 Ford Pinto, runs good, \$500. Wendy, 672-6746.

'85 Dodge Omni GLH turbo, full roll cage, spare roller, eight wheels, fun, fast, less than 1,000 mi. on rebuild, \$3,000, spares nego. x32949.

'88 Honda Accord LX, metallic gold w/t. chocolate int., fully loaded, power windows, tinted windows, immaculate, 11,650 mi., \$12,500. 409-762-7364.

'89 Dodge conversion van, 5,200 mi., SWB, AOD trans., cruise, Michelins, \$15,000. Call collect, 817-467-6913.

'77 1-ton truck, cube-van, V-8, 8' x 12' box w/double real doors, insulated alarm system, dual rear wheels, \$3,500. 713-326-1709.

Cycles

'86 Honda "interceptor VFR", gear driven cam V-4, like new, beautiful, red/white/blue, garage kept, 1,065 mi., \$3,800. Ben, x31588 or 488-1326.

Two new mopeds, pedal start, never used, street legal, top speed 30mph, was \$400, now \$240/ea. Patel, x32103 or 484-5149.

'81 Yamaha 750 Seca, ex. cond., low mi., w/ windshield, luggage rack, new tires, brakes, clutch and cables, \$1,050. Paul, 282-3267.

'81 Suzuki GS 450T, Mike, 488-5921.

'80 Honda 750, mags, good cond., low mi., \$950. x30092 or 481-3637.

Boats & Planes

16.5' bass boat, Ranger Trio, 85hp Johnson motor, 2 live wells, depth finder, trolling motor, large storage locker, Moody trailer, 2 gas tanks, 2 anchors, never been in salt water, \$2,000. 484-4899.

'75 25' Sea Ray hardtop cruiser, 188 Mercruiser, galley, dinette, electronics, equipped for offshore and cruising, tandem trailer, \$7,500. Don, 333-3313.

Audiovisual & Computers

Seagate ST-251 hard disk w/Western digital controller for AT computer, new, never used, \$375, OBO. 326-1007.

Apple IIc system, monitor, two disc drives, Imagewriter printer, mouse, integrated and financial software, reference manuals and more. McCreary, x34238 or 488-7636.

Orig. Compaq portable, 640K, 1-360K floppy drive, 2-20 MB shock mounted tandem drives, ports, 2-parallel, 1 serial, 1 game, external color monitor, \$1,500. Craig, 282-3731 or 485-5636.

Zenith computer, 100% IBM compatible, 640K memory, 2-360K floppy drives, graphics capability, internal modem, software and manuals, \$900, OBO. Daryle, 282-4863 or 532-1977.

Dove Macsnap 512K to 2 megs w/seusi, new, \$350; Jasmine 45 MB HD., new, \$650. Al, x30054.

Commodore 64, (1) 1541 disk drive, (1) MPS-801 Dot Matrix printer, books and software, \$250. Floyd, x34709 or 488-4821.

Anyone who can run IBM ISPF edit macro

from JCL, please call, x37671.

PC's Limited Turbo XT computer, 640KB Ram, 2-360KB floppy disks, 15 MB hard disk, math coprocessor, 1-serial port, 1-parallel port, EGA monitor with EGA display card (640x350 resolution), Star SG-10 printer and software, \$1,400, OBO. Robert, x35485 or 554-7768.

Household

Couch and loveseat, multi-colored green and gold stripe, good cond., \$100. Jan, 480-8190 or (409) 945-6894.

Mitsubishi (5221) 50" projection TV, \$1,495; McIntosh MA5100 amplifier, \$325; Sony ST4950 AM/FM tuner, \$125; IMF monitor II speakers, \$600 PV.; misc. other A/V components. Carl, 488-7373.

Single bed head and foot board w/side board, rails, \$50; couch, armless, 2 cushion, \$65; 16 cu. ft. refrig., \$60; lamps, hanging, (2), \$25/ea.; rugs, 11'x16', 11'x12', blue, \$60/ea., misc. kitchen items, alum. cots, 2 ea., \$10. x30550 or 333-2985.

Beige and gold sofa and loveseat, \$100 for both, very good cond. Estela, x31636 or 481-8595.

Antique walnut dresser, \$125; antique chicken incubator, good for kitchen island/cutting board, \$90. Ann, 333-2524.

Sensation water bed, w/tubes, looks like a standard mattress and box spring, 4 mos. old., was \$600, now \$400. David, 554-5514 or 282-3827.

Antique mirrored buffet, \$100; antique upright grand piano, \$150; large oak desk and chairs, \$150; queen size sleeper sofa, \$150; 55 gal. aquarium, complete, \$200; 1918 Victrola, \$200. 474-7432.

Queen size water bed, incl. headboard w/center mirror, 2 mattress and heater, \$115. 282-3368 or 996-6170.

Ethan Allan dining room furniture, antiqued pine, 48" W x 29" H round table on 4 legs, opens to 72" w/2 leaves, 25" W x 30" H Captain's chairs, 50" W x 33" H buffet, very good cond., was \$3,000, now \$1,500. x34008 or 482-9408.

Custom made sofa, 88" length, loose cushions, floral pattern, earthtones, very clean, \$150. x38380 or 482-6879.

Chrome/glass dinette set, 30" x 30", w/4 chairs, \$100. 486-8380.

GE washer, white, good cond., \$165. x37179 or 332-4780.

Beige tweed love seat and chair, good cond., \$75. Lorraine, x30276 or 486-4649.

King size mattress, box spring and frame, \$80; metal white eight light chandelier w/metal shades, \$50; multicolor floral metal chandelier, \$40. 326-3370.

La-Z-Boy rocker-recliner, wingback style, in ex. cond., covering in fair cond., \$70; RCA XL-100 19" color TV, great picture, \$100. x34614 or 334-2278.

GE white dishwasher, \$80, OBO; Sears sewing machine in wooden cabinet, recently serviced/good cond., \$125, OBO; GE 13" black and white TV, like new, \$35; baby clothes, all sizes, new cond.; sleeper sofa, \$75, OBO. Wendy, x37824 or 672-6746.

Two new elegant Swedish "Copenhagen" chairs, natural, laminated wood w/natural canvas, \$330/ea., OBO. Justin, x35336 or 474-9220.

Antique hump back steamer trunk, 34L x 21W x 28H, has 95% HDW/trim, \$195; elect. dust collector for furnace, H/P, "Edison", w/pressure switch, 800-1600 CFM, was \$380, now \$150;

mirrors, gold-veined (2), 45 x 91 1/2, \$100/ea. Doug, x32860 or 486-7412.

Wanted

Want NuSkin products. Tim, 996-9191.

Want VHS VCR for copying tapes, no frills, reasonable cost. Dean, 480-8190 or 474-4389.

Want white baby crib, baby swing and/or umbrella stroller, all in good cond. Estela, x31636 or 481-8595.

Want to trade \$8,000 elec. organ for land, car, truck, or boat of equal value, OBO. 337-4051.

Riders needed for West Loop Park and Ride to NASA van pool. Richard, x37557.

Want 1 roommate (non smoker) to live in my 4-2 Friendswood home, cable, W/D, microwave, VCR, gas grill, all household privileges, 15 min. to NASA, \$200/mo., all bills paid. Michael, x38169 or 482-8496.

Want Starwars, spaceships, toys, figures and books. Ron, 482-1385.

Want to buy a van seat w/seat belts. Myron, x39419 or 482-8647.

Individual wants to assume condo or house loan in Clear Lake, desire 10% APR or less. 666-8119.

Want to buy 1970-80 pickup truck in good cond. Mike, 480-2067 or 488-5921.

Want console/upright piano, ex./good cond., will consider up to 10 yrs. old. 996-0679.

Photographic

Minolta XG-7 camera w/four lenses (28mm/2.8, 50mm/1.4, 135mm/2.8 and 80-205/3.8 zoom), all in ex. cond., \$400. Wayne, x37389 or 335-1366.

Bell & Howell autolod 8/super 8mm movie projector, Yashica-U-Matic 8mm movie camera, Kalimar super 8mm movie camera and 8mm film editor, all for \$200. Wayne, x37389 or 335-1366.

49mm closeup lens set, incl. 1X, 2X and 4X lenses, fits most SLR cameras w/49mm filter size, \$20; 49mm UV haze filter, \$5. Bob, x32193 or 332-3817.

Pets & Livestock

1 yr. old flat coated black Retriever, male, free to good home. 337-1896.

Chinese Shar Pei male puppies, black, red & fawn, champion dam and sire, show quality, gentle personality, 10 wks. old, all shots. Donna, 488-9005.

Pick your own Easter bunny, \$10 for supply of food, bunny, and instructions. 554-6200.

Australian Shepherd puppy, blue mural, free to good home, good w/kids. 334-7521.

Boxer pups, AKC reg., shots, wormed, tails/dew claws docked, fawn/white, some flashy, \$250-\$300. 488-3211.

Free dogs to good home, rescued from abandonment and nursed back to health, many to choose from. x32949.

1 male and 1 female, beautiful puppies, 3 1/2 mo. old, medium sized, part Shepherd-Rottweiler-Beagle-Chow, etc. 482-5452.

Musical Instruments

Bundy clarinet w/case, ex. cond., 2 yrs., was \$375, now \$150. 996-9534.

Conn trumpet, good cond., \$100. Alan, x34360 or 480-6221.

Fender deluxe reverb II amp, Seiko quartz guitar tuner, Peavey guitar w/case, guitar stand, Ibanez tube screamer, \$400. 480-0024.

Miscellaneous

White wood crib w/new mattress, ex. cond., \$90; TV rabbit, \$40; truck tool box, new, \$50; brown wood crib w/mattress, doggie bumper pad, ex. cond., \$90. 996-9534.

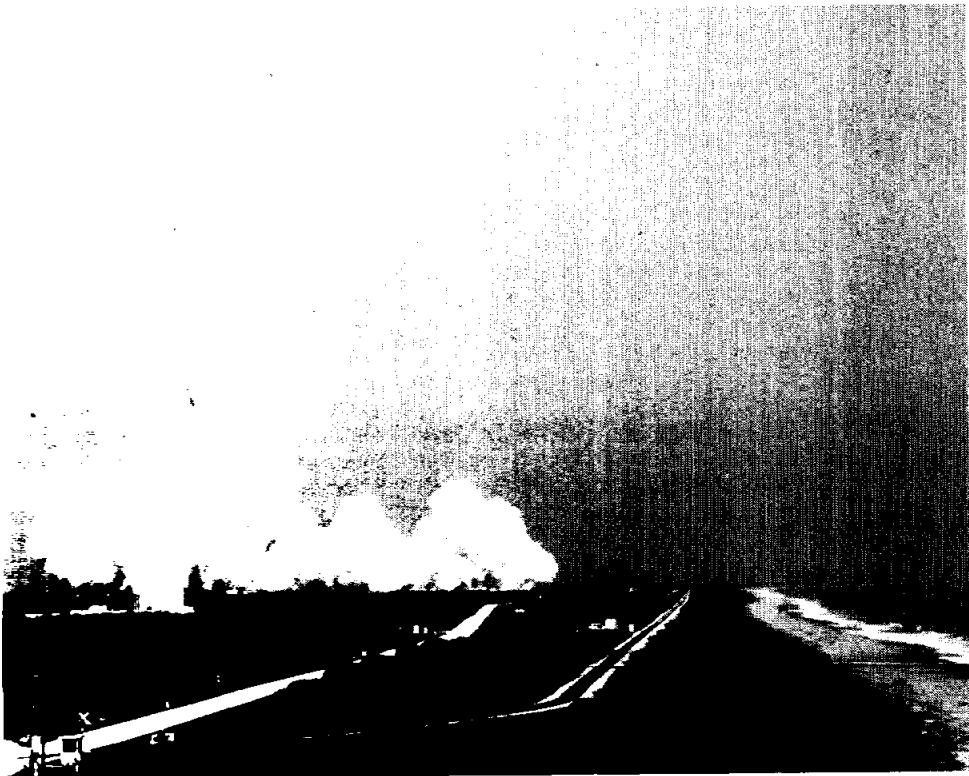
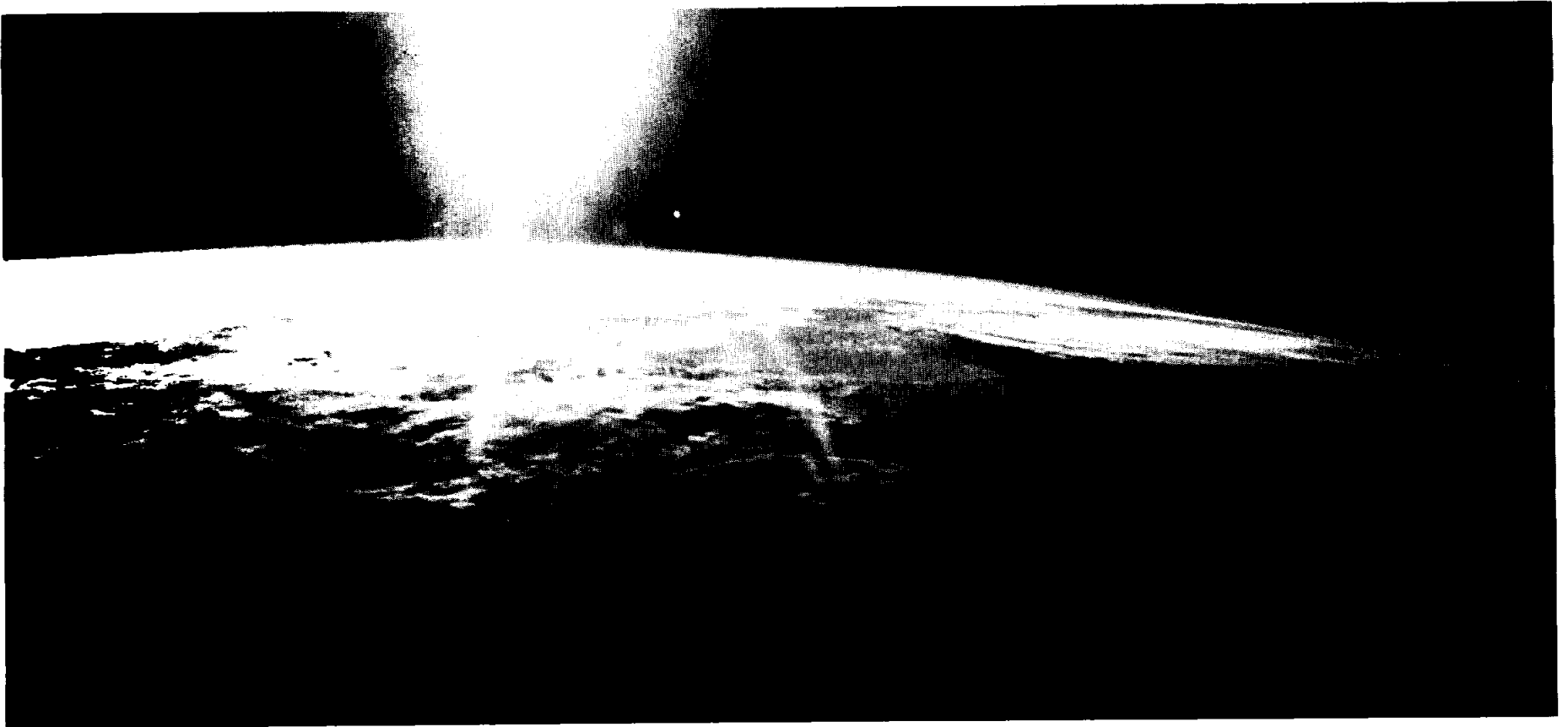
Remington Mod. 700 BDL, 30-06, carved stock, Pachmayr kick pad, Leupold 4X scope, \$495; Colt (Commanding Officers Model, 45 auto., 1 of 5000, \$775. Bill, 332-5057.

Mitsubishi tape deck, 3 yrs. old, Mod. DT15-C, single deck, Dolby noise reduction A.B.C., \$100, OBO. Scott, x38145 or 480-7917.

Ram Jr. golf clubs, woods 1 & 3, irons #3, 5, 6, 7, 9 w/golf bag, great starter set, good cond., \$50; DP exer. bike, okay cond., \$20. Beth Ann, 333-6191.

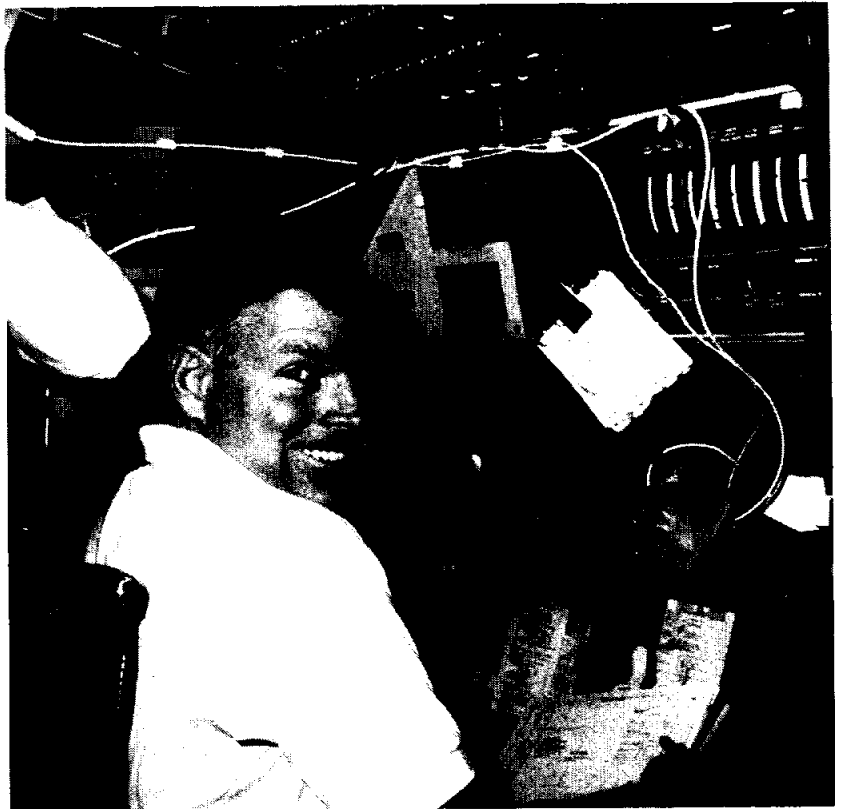
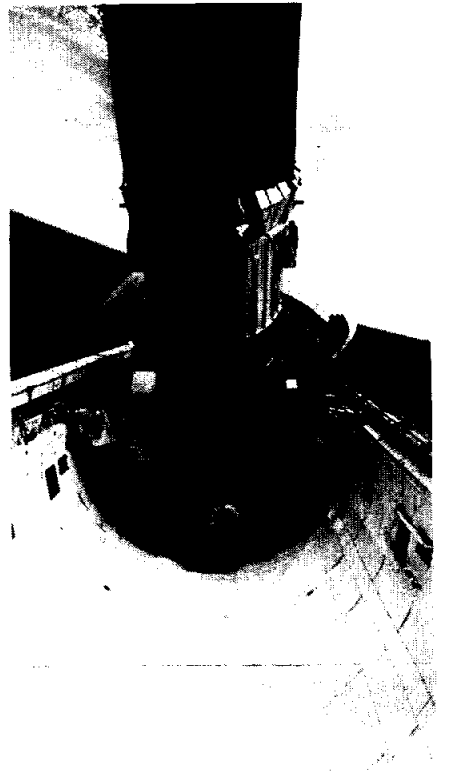
Teel Centrifugal pump, 1.5hp, 93' max. pressure, 6000 GPH, clog-resistant, self priming, water/mud/semi-solids, industrial, 115/230 VAC, was \$474, now \$150. 280-8796.

RCA 25" color TV, remote control, 2 mos. old,

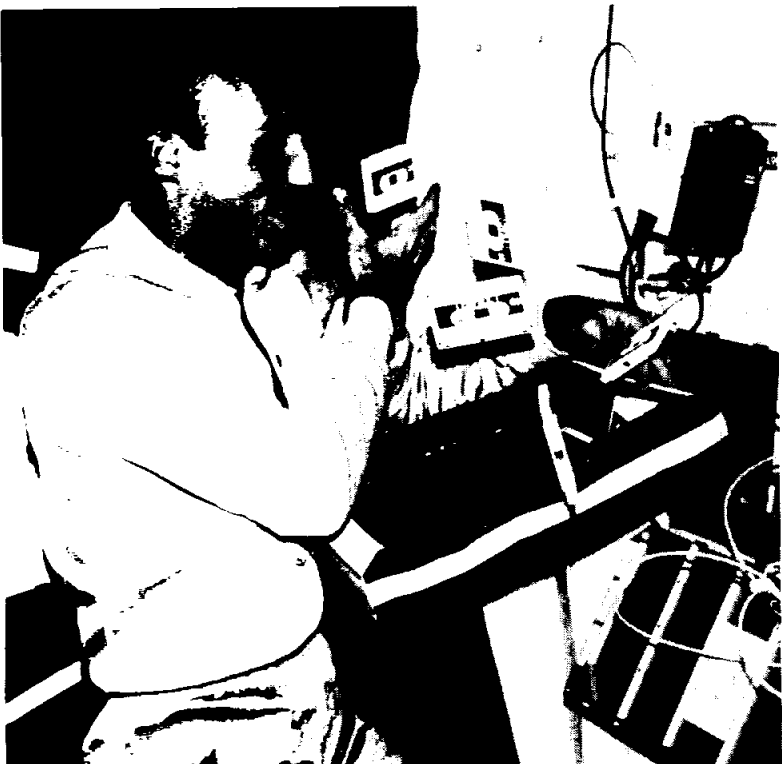


SUCCESS STORY

Clockwise from top: 1) Sunshine streams down on the Earth's atmosphere as *Discovery* orbits 160 nautical miles above; 2) Tracking Data Relay Satellite-D (TDRS-D) leaves the payload bay as its inertial upper stage (IUS) waits to boost the communications satellite into geosynchronous orbit; 3) Astronaut Michael Coats offers a big smile from his commander's seat on *Discovery's* flight deck; 4) The external tank is photographed by Mission Specialist James Bagian only 16 minutes and 7 seconds after liftoff—the left side shows the burn scar above the solid rocket booster's forward attach point; 5) Bagian tries to keep track of several audiotapes used to record data from medical experiments performed on the mission; 6) Pilot John Blaha has his blood flow checked by Bagian, a physician; and 7) *Discovery* and her crew lift off from Kennedy Space Center's Launch Pad 39-B.



 STS-29



Orbiter naming state-level winners to visit JSC

NASA, in cooperation with the Council of Chief State School Officers (CCSSO), announced Monday the state-level winners in the national student competition to name NASA's replacement Space Shuttle Orbiter.

JSC will play host on April 7 to the winners from its eight-state region, the Bureau of Indian Affairs and the Department of State. More than 100 state-level winners from Texas, Colorado, Kansas, Nebraska, New Mexico, North Dakota, South Dakota and Oklahoma are being invited to visit JSC in recognition for

their projects.

More than 71,650 U.S. students formed some 6,100 teams, each led by a school faculty member in kindergarten through 12th grade, and prepared and submitted educational research projects to support and justify their names. The name proposed had to be that of a sea vessel used in research or exploration. The interdisciplinary classroom projects were completed during the 1988 fall semester.

Texas winners were East Side Elementary in Palacios, which suggested the name Endurance, and

Irvin High School in El Paso, which recommended Endeavor.

The most frequently suggested name was Endeavor or Endeavour. Some of the other suggestions included Eagle, Resolution, Calypso, Nautilus, Rising Star and Victoria.

The classroom projects were reviewed by panels selected by state education agencies in all 50 states, the District of Columbia, four U.S. territories, the Bureau of Indian Affairs, the Department of Defense and the Department of State schools. Winners were selected from two divisions, kindergarten through

grade 6 and grades 7 through 12.

The state-level winning projects will be reviewed by a NASA panel. The final winner from each division and the name selected for the Orbiter will be announced in early May.

Each participant will receive recognition for the team's entry. The state-level winners will receive special recognition from the NASA field centers. NASA's Educational Affairs Division will conduct special programs at the two national-winning team schools. In addition, up to nine students and the team coordinator may represent each of

the two national winners to receive an expense-paid visit to a NASA educational event.

House Joint Resolution 559, introduced March 10, 1986, by Congressman Tom Lewis (R-Florida), called for the name of the replacement Orbiter to be selected from suggestions submitted by students.

The new orbiter, currently designated OV-105, is being built by Rockwell International to replace the Space Shuttle Orbiter lost in the *Challenger* accident. OV-105 is scheduled to be completed in 1991.



STS-29 Pilot John Blaha checks an incubator used in the "Chicken Embryo Development in Space" student experiment on *Discovery's* middeck during Flight Day 4.

Eggs-pert awaits results

By Linda Copley

John Vellinger, a mechanical engineering student at Purdue University and originator of one of two student experiments flown aboard STS-29, claims to have the answer to the age-old question of which came first, the chicken or the egg?

"The egg, of course—at least for this flight," Vellinger joked after spending Day 3 of the mission at JSC in the Bldg. 30 Customer Support Room observing the progress of his experiment.

Vellinger's been waiting more than nine years to find out. His "Chicken Embryo Development in Space" was first chosen as a participant in the Space Shuttle Student Involvement Program (SSIP) in 1980, while the Lafayette, Ind., native was still in high school. The experiment was designed to determine the effects of spaceflight on the development of a fertilized chicken embryo.

"It (the experiment) flew aboard 51-L, and, of course, was lost," he explained. "It took another three years to get it up there, but this morning, watching my experiment actually in flight, I can definitely say it was worth the wait!"

The STS-29 schedule had Vellinger granting press interviews and traveling to NASA centers from Kennedy to JSC to Dryden—and back again—just when he planned to be studying for exams. "It's been a little hectic," he admitted. "Ground central was established at Edwards, and our control experiment group of 32 fertilized eggs was set up there. The other half of the group, another 32 eggs, was flown on the Shuttle. At the time of launch, half of the eggs had been fertilized for four days and half for seven days, in both the flight group and the control group.

After watching the launch on Monday, Vellinger left for Edwards on Tuesday to check the control

group, then flew to JSC for a Thursday morning downlink conference with the crew. STS-29 Pilot John Blaha was responsible for checking the temperature and humidity readings while on orbit. "Everything went better than I expected," a tired but enthusiastic Vellinger said as he left JSC to return to Edwards.

John Jackson, JSC's payload engineer responsible for the SSIP's equipment hardware, said the eggs (half flown and half from the ground control group) were flown to Kentucky Fried Chicken's corporate headquarters in Louisville, Ky. Kentucky Fried Chicken is the experiment's corporate sponsor.

"Part of this group should hatch out the day before Easter," Vellinger said. "And the remainder the next week. They will be monitored and allowed to live out their lives normally—although they are some pretty special chickens!"

Scientists around globe attend 20th lunar conference

By Linda Copley

More than 700 scientists representing 20 nations, including most of Western Europe, Canada, Japan, the U.S.S.R. and the People's Republic of China, attended last week's 20th Annual Lunar and Planetary Conference at JSC.

More than 350 papers were presented during the 28 technical sessions of the week-long conference. Topics included cosmic dust, Mars geology, Venus geophysics and geology, the nature and effects of impact cratering, cosmic rays, planetary physics and the outer Solar System.

The conference welcomed Dr. David C. Black, internationally recognized research scientist in theoretical astrophysics and planetary science, as the new director of Lunar and Planetary Institute (LPI), which co-hosted the conference with JSC. Black and Dr. Michael Duke, chief of JSC's Solar System Exploration Division, co-chaired the conference.

The meetings began on a particularly appropriate note, coinciding as they did with the STS-29 mission, according to Rebecca Turner, assistant project administrator for LPI.

"We set up screens in the major meeting rooms on Monday to watch the launch," Turner said. "The unplanned feature of a mission-in-progress was a real bonus for our attendees, who are, by nature, all vitally interested in the space program."

At a March 13 "Science and Applications Topics in Lunar Base Planning" session timed to coincide with the

conference, Duke and others discussed the role of lunar bases in expanding the human presence in our Solar System and addressed the technological issues associated with them.

"The necessary equipment (for construction of lunar bases) could be in place by the turn of the century," Duke predicted before an audience of nearly 600 employees, public, and LPI conference attendees gathered in the Bldg. 2 Teague Auditorium.

University of New Mexico's Jeffrey Taylor called our nearest neighbor in space a "geologically fascinating place containing important information about the origin of the Earth—and the entire Solar System," as he discussed lunar geologic exploration objectives and strategies. Taylor cited a need for an extensive mapping of the Moon, and suggested a Moon base should be used to study the Sun.

Harlan Smith, University of Texas astronomer, predicted much, if not most 21st Century astronomy will be done from space, using the Hubble Space Telescope—scheduled for an October 1989 launch—and Space Station Freedom.

Other special conference sessions included a commemoration of the 20th anniversary of Apollo 11, which reviewed current understanding of the Moon as compared to 1969, on Wednesday, March 15. That evening, 550 guests joined JSC Center Director Aaron Cohen at a special Apollo 11 "reunion" banquet at South Shore Harbour Hotel.

STS-29 crew enjoys homecoming

(Continued from Page 1)

Earth's environmental changes from orbit, and wrestled with a balking Space Station Heat pipe Advanced Radiator Experiment (SHARE). SHARE, which did not perform as expected because of bubbles forming in its liquid ammonia, met with some success after the crew sent *Discovery* into five-somersaults to jostle the liquid.

At Ellington Field on Saturday afternoon, JSC Director Aaron Cohen led about 500 family members, friends and coworkers in welcoming the crew back to JSC.

"The crew of STS-29 deployed a very sophisticated communications satellite," he said. "But beyond that, the crew demonstrated their own outstanding capability at communication—to the President in a telephone conversation and to the American public. Throughout

the flight, the crew eloquently conveyed the magnificence of our planet and the marvel of the space program."

"It's an awful lot of fun being out in space and it's been a long wait for all of us to get a chance to do it, but it's always great to be back home," added Mission Specialist Bob Springer.

"I'm really thankful to have had the privilege to represent all your work," Mission Specialist Jim Bagian said. "We just get the privilege of having the fun and pleasure of flying, but you're the ones that make it possible and we really appreciate that."

"The crew that I've been with for the last five days has been outstanding," said Mission Specialist Jim Buchli. He thanked the many people at JSC who had helped the crew come together as a team, especially their training team, for jobs well done.

Fletcher leaves NASA

(Continued from Page 1)

president," Fletcher said in the letter. "I look forward to an eminently successful Bush presidency."

Fletcher first served as NASA administrator from April 1971 to May 1977. He was called back by President Reagan in May 1986 with a mandate to get the Space Shuttle flying again safely. By virtue of the two terms, Fletcher has served as NASA administrator longer than anyone.

Effective April 8, Deputy Administrator Dale Myers will become acting administrator pending a new presidential appointment.

NASA-JSC

Mars mission concept has three elements

(Continued from Page 1)

Calif. JPL has project management responsibilities, while JSC provides management and technical support through the MRSR Study Office in the New Initiatives Office.

Such a robotic mission has been recommended by the Solar System Exploration Committee of the NASA Advisory Council and has been studied in-house by NASA since 1980.

The one mission concept proposes the delivery of MRSR system elements during the 1996 and 1998 launch opportunities when the Earth and Mars are best aligned for minimum propulsive energy transfer.

The 1996 opportunity would see an Imaging Orbiter sent to Mars to develop high-resolution topographic maps of

several candidate landing sites and to certify suitable sites for subsequent landings on Mars. The Imaging Orbiter also would aid planning for the Rover's traverse of the planet.

During the 1998 opportunity, three separate vehicles could be delivered to Mars orbit: a communications orbiter to serve as the primary telecommunications link between Mars and Earth; another vehicle containing a lander with its rover payload; and a third vehicle containing a sample return orbiter and a lander with its ascent vehicle payload.

At Mars, while the communications orbiter circles the planet, the vehicle containing the lander and the rover would descend through the atmosphere to the surface. The rover then would be deployed and begin its

journey across the Martian landscape, selecting scientifically significant rock and soil samples. The rover, aided by information from the imaging orbiter, would locate a site for the second lander.

Once that site is located, the vehicle containing the second lander and the ascent vehicle would separate from the sample return orbiter and descend to the surface.

Over a period of about a year, the rover periodically would return to the ascent vehicle and transfer the collected samples. Once sufficient samples are collected, the ascent vehicle would lift the collected samples into Mars orbit where it would rendezvous with the sample return orbiter for the subsequent journey home.