



Veep visit

Vice President Dan Quayle tells JSC employees that the future of the space program is in their hands. Story on Page 3.



Electronic library

JSC's Technical Library plans a Wednesday open house to show off its latest computer research capabilities. Story on Page 4.

Space News Roundup

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No. 14

Fletcher warns against space station cuts

'When the wolf is at the door ... it's prudent to sound an alarm'

In his final speech as NASA Administrator, Dr. James C. Fletcher on Wednesday called Space Station *Freedom* "a tempting target" for budget-cutters and warned that significant reductions in the program would have dire consequences for the nation's future in space.

"It's time this fact is understood," Dr. Fletcher said at the Fifth National Space Symposium in Colorado Springs. "If cut significantly, Space Station *Freedom* will be cancelled and we will deliver a clear message to our children and the rest of the

world: The United States intends to leave the business of space exploration to others." The symposium is sponsored by the U.S. Space Foundation.

Fletcher acknowledged he's been accused of "crying wolf" about NASA budget cuts. But "when the wolf is at the door, as it has been for the last three years," he said, "it's prudent to sound an alarm."

Reflecting on his service as NASA administrator, Fletcher said he would be "returning to private life with the deep satisfaction of having partici-

pated in a truly extraordinary reversal of our national fortunes." He was named to the position—his second appointment as head of NASA—four months after the *Challenger* accident.

"We have weathered severe setbacks. Chastened by the hard lessons of crisis, we have recovered and returned to the task ahead," he said. "Today, NASA is a strong and flexible instrument of national policy, an instrument I confidently hand over to my successor."

Fletcher called NASA a small

agency with an enormous strength rooted in the active good will and support of the American public.

"The promise of America's future is in our hands," he said. There is no end to tomorrow if only we, the people, hold fast to our vision of greatness. The Moon and Mars and the secrets of the stars are ours for the taking—if we dare.

"If we do not dare, then tomorrow offers only a drab horizon to our heirs, a gray horizon close to our feet and far from our hearts."



James C. Fletcher



JSC Photo by Jack Jacob

BENCH BUNCH—Members of the STS-30 crew go through their stowage bag and hygiene lockers during last Friday's bench review. From left, Mark Lee, Norman Thagard and Dave Walker check the bags they will use to contain objects not in use while in orbit, and Mary Cleave and Ron Grabe inspect the hygiene locker.

Countdown test rehearses crews

Connections verified between *Atlantis*, Magellan spacecraft

By Kyle Herring

STS-30 Commander Dave Walker, Pilot Ron Grabe and Mission Specialist Norman Thagard arrived at Kennedy Space Center Wednesday afternoon joining remaining crew members Mary Cleave and Mark Lee for a dress rehearsal of their upcoming mission.

The terminal countdown demonstration test (TCDT) for the STS-30 mission was scheduled to begin at 7 a.m. CDT Thursday, culminating in a terminal countdown to zero early this morning and a simulated cutoff of the Shuttle main engines prior to solid rocket booster ignition.

Connections between the Space Shuttle *Atlantis* and the Magellan interplanetary probe were officially completed Wednesday with a trouble-free interface verification test (IVT). Technicians experienced none of the usual routine problems and were able to complete the test ahead of schedule. Cleave and Lee were on *Atlantis'* flight deck to support the exercise from the payload console.

The IVT is a 24-hour test that verifies the connections between the interplanetary spacecraft and its attached inertial upper stage (IUS) booster with the Orbiter's electrical systems, power control panel and computer interface.

The electrical systems are turned on and are adjusted by the crew to verify connections and predeployment configurations. While the astronauts are on the flight deck they are in communication with the payload test team and can participate in

portions of the test where crew interface is needed.

Members of the astronaut support crew provided a continuous presence on the flight deck to assist the prime crew members when appropriate.

While the crew members are at KSC, they will all undergo the standard launch pad emergency exit training, which involves driving the armored

personnel carriers and participating in a briefing on the slide wire emergency egress system on the crew hatch

level of the launch tower. They will also have a fit check of their space-suits and other donable equipment and status briefings on the launch vehicle and the Magellan payload preparations.

The crew was scheduled to board *Atlantis* this morning to conduct the test countdown which concludes at 10 a.m. CDT when the clock reaches zero.

In other launch preparation work early this week, installation of the last main engine high pressure oxidizer turbopump began, but was halted when an unexpected noise was heard. An inspection revealed a nicked seal. The seal was removed and replaced allowing workers to bolt the pump in place and resume making the more than 30 connections necessary to complete the installation.

Shuttle managers plan to meet at the launch center late next week to assess vehicle readiness for the planned April 28 launch of *Atlantis*. The flight readiness review, scheduled for April 13 and 14, will establish

Please see **STS-30**, Page 4



STS-30
Magellan

Astronauts get space science flights

By Jeff Carr

Astronaut crew members have been named for two scientific Space Shuttle missions scheduled in 1990.

Commanding the Space Shuttle *Discovery* on mission STS-37 will be Air Force Col. Steven R. Nagel. Marine Lt. Col. Kenneth D. Cameron will serve as the pilot, and mission specialists will be Air Force Lt. Col. Jerry L. Ross, Jay Apt, Ph.D., and Linda M. Godwin, Ph.D.

Following a planned launch in April

1990, the crew will deploy the Gamma Ray Observatory (GRO) from the payload bay of *Discovery* using the Shuttle's robot arm. The GRO will explore gamma ray sources throughout the universe, studying the origin of our own galaxy and others, examining quasars, pulsars, and supernova remnants from 243 miles above the Earth.

Marine Col. Bryan D. O'Connor has been named to command STS-40, the space and life sciences-

dedicated mission, SLS-1. Serving as pilot aboard the Space Shuttle *Columbia* will be Air Force Col. John E. Blaha. Also named as a mission specialist is Tamara E. Jernigan.

SLS-1 mission specialists M. Rhea Seddon, M.D., and James P. Bagian, M.D., and payload specialists F. Drew Gaffney, Ph.D., and Robert W. Phillips, Ph.D., received their assignments previously.

Inside a pressurized laboratory Please see **SCIENCE**, Page 4

Small Explorer missions to examine big questions

Dr. Lennard A. Fisk, associate administrator for NASA's Office of Space Science and Applications (OSSA), announced Monday the selection of the first Small Explorer missions that will study some of the most important questions in space physics, astrophysics and upper atmosphere science.

The Small Explorer spacecraft weigh approximately 400 pounds each and can be launched from available Scout-class expendable launch vehicles.

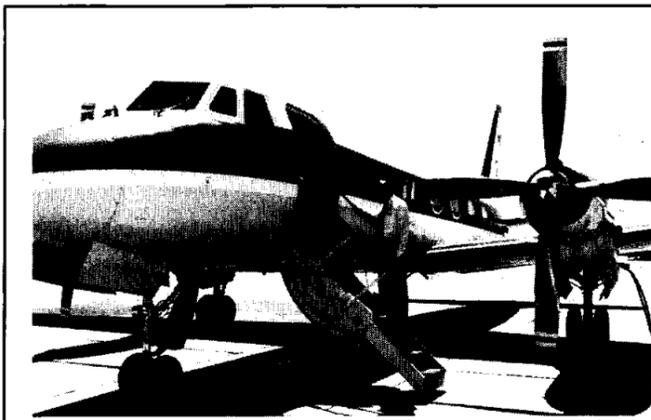
The Small Explorer Program, a vital element of the OSSA strategic plan,

provides frequent flight opportunities for highly focused and relatively inexpensive space science missions. These missions allow critical training opportunities for the next generation of scientists and engineers.

The selected studies, chosen from 51 submissions, propose the following:

- A study of solar energetic particles, anomalous cosmic rays, galactic cosmic rays and magnetospheric electrons would be launched in mid-1992. Called Solar, Anomalous and Magnetospheric Particle Explorer, this

Please see **SMALL**, Page 4



JSC photo by Sheri Dunnette

Joe Algranti, chief of JSC's Aircraft Operations Division, boards NASA 2 before flying it to El Paso International Airport, where it will be placed in storage.

Algranti begins, ends veteran plane's career

When Joe Algranti boarded NASA 2 on March 30, it was 26 years to the day that he had climbed into the cockpit to fly the plane here from Grumman's factory in Bethpage, Md.

But this time, Algranti was preparing to give the aircraft a rest rather than a workout—he was flying it to El Paso International Airport to be put into storage, replaced by the newer NASA 1.

The "nice old bird" had flown the most hours of any Gulfstream 159 turboprop in the world before it was retired Jan. 31. But its replacement was taken out of service for 10 days in March, forcing NASA 2 out of retirement and making the anniversary flight by Algranti possible.

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.

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

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

Ballroom dance (April 17, 7 p.m., Rec Center): \$11 per person.

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

"Blithe Spirit" (April 21, 22, 28 and May 5, 6, 12, 8:15 p.m., Clear Creek Country Theatre): \$5.

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

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.

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

Monday

Jazz Band To Perform—The San Jacinto College South jazz band will perform at 12:15 p.m. April 11 in the courtyard just north of the JSC Visitors Center. The 30-minute outdoor concert, under the direction of Robert Odneal, will include "It Don't Mean a Thing If It Ain't Got That Swing" by Duke Ellington, "Chameleon" by Herbie Hancock, and "Four" by Miles Davis. Employees and visitors are invited. For more information call Boyd Mounce, x38623.

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.

Recruitment of Test Subjects—Male and female test subjects are needed for altitude chamber studies. Volunteers should be 25 years or older, have no broken bones, and be in good physical health. Call Mary P. Flores at x37284 for information.

Fitness program—The JSC Health Related Fitness Program is accepting applications for its upcoming sessions. Enrollments are being accepted for 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: chili and macaroni. Entrees: BBQ sliced beef, parmesan steak, spare rib with/kraut. Soup: French onion. Vegetables: ranch beans, English peas, mustard greens.

Tuesday

CLASS meets—The Clear Lake Area Space Society will be at 7:30 p.m. April 11 at Mr. Gatti's on El Camino Real. For more information, call Chuck DiFalco, x31701.

Anything goes—Teams are being sought to participate in the "Anything Goes" competition at the 1989 JSC Employee Picnic May 6. Six teams of six people each (three men, three women) are needed.

Sign-up at the Rec Center by May 1. Cost is \$10 per team; each team member receives a T-shirt. For more information, call x35789.

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

Wednesday

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 34240.

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

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

Thursday

Cafeteria menu—Special: chick-

en fried steak. Entrees: roast beef with/dressing, fried perch, chopped sirloin. Soup: beef and barley soup. Vegetables: whipped potatoes, peas and carrots, buttered squash.

April 14

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

April 18

Internal control conference—JSC will host the second annual NASA Internal Controls Conference April 18-20 at the Gilruth Recreation Center. The conference will cover the internal control program process, corrective action requirements and audit follow-up. Sessions will be 8 a.m. to 5 p.m. each day. For reservations, call Grace Thornton, x32970 by April 4.

April 21

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

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

Sale: Friendswood, 3-2-1, near Westwood Elem., lots of trees, covered deck, assum. at 10%, \$56,900. Sam, x35602 or 482-9601.

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

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 486-07412.

Sale: Clear Lake Shores, 80' x 100' lot, trees, grass, fenced, \$24,800. Don, x38291 or 333-3313.

Rent: Lake Livingston, waterfront, 3-2, fully furnished, new cond., covered decks, pier, sleeps 6, ex. fishing/swimming/skiing. 482-1582.

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 yrs. 337-4051.

Rent/Lease: El Lago, 3-2-2 spacious house, large yard w/trees, ceiling fans, avail. Apr. 15, \$600/mo. Jack Boykin, x36136 or 326-2223.

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

Sale: Friendswood/Forest Bend, 3-2-2, den, screened in porch, ceiling fan, new paint, assume 9.5%, \$514/mo. Nick, x31920 or 996-7917.

Rent: Beach house near Galveston, front row, adjacent to San Luis Pass fishing pier, 2 BR, weekends or weekly. 894-0979.

Sale: Alvin, 3-2-2-2D on .67 acres, no city taxes, assum. x38456 or 388-1090.

Sale: League City, 2.06 acres, near schools, city water and sewer avail., 10 min. from NASA, \$39,950, OBO. 554-6695.

Lease: Bacliff, 2-1-3, gorgeous view of Galveston Bay, \$325/mo., plus dep. Kelly, x36168 or 409-925-1819.

Sale: Webster/Green Acres, residential lot, 1/2 acre, has all city util. avail., \$12,000, OBO. Boyd, x36866.

Sale: Patio home, 2 plus study 2-2D, fresh, modern, numerous features, extensive amenities, near JSC west gate, \$98,000, OBO. 282-1969 or 488-0397.

Rent: New Orleans condo, French Quarter, Jazz Festival week, Apr. 28-May 5, enjoy "Penthouse", private rooftop sundeck, great view, fully furnished, kitchen, linens. 282-6422 or 280-8927.

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

Cars & Trucks

'77 Chevy Nova, low mi., 6 cyl., ex. engine, needs some clutch work, \$800, OBO. Scott, 485-4364.

'71 Lemans Sport, one owner, 400 C.I.D., blueprinted, Positrac, 400 T.H., etc., needs some work, \$2,450, OBO. Ron K., x34713 or 333-2273.

'79 Triumph Spitfire, ex. cond., new eng. and int., new tires and battery, 3 tops, \$3,200, OBO. Phi, 669-8684 or 924-5340.

'88 Toyota Camry Lux Ed., sunroof, less than

10K mi., blue, 6 yr./60K mi. extended warr., zero deductible, \$16,500. 280-1500, ext. 3330 or 554-7496.

'85 Jeep CJ-7 Renegade, 4WD, 6 cyl., 5 spd., h/top, tilt, A/C, \$6,950, OBO. Keith, x33478 or 480-0950.

'82 Mercedes, 500 SEL, sunroof, Euro. w/papers, 101K mi., Navy blue velour, \$16,000. x34341 or 534-4501.

'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.

'86 Firebird, 10K mi., V-8, P/S, P/B, A/C, always kept in garage, like new cond., has anti-theft device. 486-0111.

'85 Pontiac Fiero SE, good cond., new tires, sunroof, custom paint, silver/blue, bra, auto., A/C, P/W, tilt, cruise, AM/FM/cass., alarm, 70K mi., \$5,400, OBO. 474-2153 or 282-5337.

'85 Grand Am LE Edition, black, \$4,795. 480-4241.

'80 AMC Spirit, 6 cyl., minor body repair and possible oil pump, BO. 326-1299.

Cycles

'82 Yamaha 650 Special, midnight black, good cond., low mi., \$900. Jim, x31670 or 334-3069.

'82 Yamaha Maximax 1100, shaft drive, air shocks, computerized, black, very clean, \$1,800. David, 280-8164.

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

Honda CR125 dirt bike, good cond., \$195. 474-2200.

'77 Honda 750, luggage rack, fairing, CB, \$600. Tim, 996-9191.

'86 Honda "Interceptor VFR", gear driven cam V4, like new, beautiful, red/white/blue, garage kept, 1,065 mi., \$3,800. Ben, x31588 or 488-1326.

Boats & Planes

Bic windsurfer, great beginner board, ex. cond., \$295. 474-2200.

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

'77 16.5' "Sidewinder" ski boat, 75hp Johnson "Stinger", galv. trailer, ski's incl., good cond., \$3,000. 559-1072.

KR2 kit built airplane on landing gear w/all flying surfaces, no engine, instruments or canopy, airframe, 80% complete, \$1,200, OBO. Boyd, x36866.

'15' Tidecraft boat w/trailer, 50hp Mercury and Super Motorguide trolling motor, rigged w/dry storage, carpet, etc., front seat steering, \$2,000, OBO; 16' "Hobie Cat" sailboat w/galv. trailer and racing access, good shape, will consider any reasonable offer or trade. 488-4453.

'78 Cajun, 70hp Evin., PT/T, full instrumentation, bass boat, new trailer. Larry, x39421.

Audiovisual & Computers

Eagle PC-2 personal computer and keyboard, monitor not incl., incl. MS-DOS 1.25, GW Basic, PFS File, PFS Write, and PFS Report, \$200. 488-0712.

Hayes 1200 Smartmodem, factory refurbished and in box, BO; Intel 380 computer system, 8086/87 computer w/896K memory, 35M hard drive and 5 serial ports, RMX-86 real time operating system, complete software support for multiple languages, complete documentation w/extras, this system is for the serious experienced developer of MULTIBUS system designs. 488-4453.

Mitsubishi (522R) 50" projection TV, \$1,495; McIntosh MA5100 amplifier, \$325; Sony

ST4950 AM/FM tuner, \$125; IMF Monitor II speakers, \$600/pr., misc. other A/V components. Carl, 488-7373.

HP color pro plotter, model 7440A, 8 pens, cable and pens incl., 6 mos. old, new cond., \$640, OBO. 486-5009.

Household

Duncan Phyte sofa, green velvet, good cond., \$250, OBO. Tony, x35966.

Sensation water bed, 4 mos., old, was \$600, now \$400, looks like a regular mattress and has the tubes for the water. 554-5514.

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

Kenmore 20 cu. ft. side-by-side refrig./freezer, almond, water on tap, icemaker, \$290, RCA 25" remote TV, \$225. 332-0365.

Norge refrig., copertone, manual defrost, runs good, \$40. 488-5580.

King size, full motion water bed w/lighted mirrored headboard, padded siderails, 6 drawer pedestal, heater, liner, and fill/drain hardware. Jerry, x33585 or 480-9711.

'7 contemporary sofa, white/taupe Herculon, \$100; antique brass/black fireplace screen and tools, \$50; earthenware ceramic sofa lamp, \$25. Ross, 282-3666 or 488-7572.

Royal Doulton china, "Old Country Roses", 8-piece setting, platter, 2-tier dessert server, bowl, sugar and cream, 2 candle holders, was \$800, now \$400. x35744.

Pedestal dining table w/leaves, 6 Captain's chairs, hutch, \$450; child's bedroom turn., bed w/mattress, chest of drawers, nightstand, \$250. Steve, x33440 or 486-8330.

Frigidaire laundry center, small capacity single unit W/D, less than 2 yrs. old, will deliver, \$250. Bob, x32193 or 332-3817.

Wards dryer, white, elec., lg. capacity, good cond., \$100, OBO. Pepper, 339-1337.

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 1950's bicycle, any make. Tom, x35488 or 482-9172.

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

Babysitting in my home, located in San Joaquin subdivision, FM 528 area in Friendswood, ref. avail. upon request. 482-0622.

Want small pop-top camper trailer in good cond., reasonable price, also want galv. trailer for 14' or larger Jon boat. Gene, x38020 or 334-1505.

Roommate wanted for 3 BR house in League City, \$250/mo. plus 1/2 util. Will, x36050 or 332-6986.

Want parts for early model Bronco ('71) and H.P. small block Ford parts. Scotty, x34661 or 334-2287.

Want 1 roommate, non smoker, to live in my 4-2 Friendswood home, cable, W/D, microwave, VCR, gas grill and 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 Cannon SLR "FD" lenses and other equip. Charlie, x33146.

Need carpool riders for year old operating car pool from Katy Fwy./Hwy. 6 to NASA, working hours, 7:30 a.m. to 4:00 p.m. Sam, x33196 or Dinesh, 333-4743.

Want Nintendo game paks. Steve, 482-6730.

Want to buy elec. trains. Don, x37832 or 996-1425.

Want 2 WD Chevy Blazer, must be mech. sound and reasonably rust-free, full-sized model, will pay up to book value depending on age, cond. and mileage. Joe, 280-7329 or 334-1628.

2 or 3 riders needed for van pool, West Loop Park and Ride to NASA. Richard, x37557.

Photographic

Complete color darkroom system, Phillips PCS 2000 tri-color enlarger, w/50mm-2.8 lens, Beseler PM2 color analyzer, Cibachrome drum processing system, Easel, 3 B/W developing trays, and tank, other items incl., \$850 for all. Wayne, x37389 or 335-1366.

Gossen Luna Pro light meter w/carrying case, very good cond., BO. Mike, x38169 or 482-8494.

Mamiya RB-67 camera w/90 and 50mm lenses, 2-120 and 1-polaroid film backs, waist level, sports, and CDS 4X viewfinders, #1 ext. tube, pistol grip, alum. case, ex. cond., \$850. Randy, 326-1775.

Antique camera, Graflex, Series B, 2 1/4 x 3 1/4, revolving back, 1930 vintage, mint cond. John, 326-02461.

Pets & Livestock

Pure bred Doberman puppies, born 1/20/89, wormed, 2nd shots, declaws and tails removed, \$100/ea., Sire and Dam on premises, reds and blacks. Merrell, x37570 or 559-2017.

Free to good home, adorable, loyal, Cocker-Spaniel mix, 1 yr. old, female, spayed, all shots, ex. health, blonde. x37797 or 333-1293.

Free female black Lab, 1 1/3 yrs. old and house trained. Eric, 554-6170.

Personal

The University of Houston-Clear Lake is offering noncredit evening classes in French, German, Russian, and Spanish. 488-9277.

Miscellaneous

Orig. windsurfer w/standard sail, \$475. Carl, 488-7373.

Old Corvette engine and trans., 350 Chevy 4-bolt, steel crank, TRW pistons, 2.02 heads, solid lift cam, Torquer intake, close ratio muncie 4 spd., and more, \$1,000, OBO or trade for early model Bronco ('71), parts or small block Ford parts. Scotty, x34661 or 334-2287.

Queen size sleeper couch, good cond., \$150; wet suit set (long-John, long-sleeve beaver top, booties, hood), \$150. Ralph, x32513 or 474-4752.

Raccoon figurine by Andrea, #5619, \$25. Linda, x34044 or 280-0909.

I will buy your coins or sell you mine, proofs, mint 1800's to present date, all United States coins. 488-4859 or 282-3824.

White full length bridal gown and veil, \$275. 554-2728.

Wedding ring set, white gold, Marquis cut, 37 point engagement ring w/matching wedding band, \$950. Earl Rubenstein, x34807 or 326-2354.

2 Schwinn Varsity 10-speeds, 24" frame and 26" frame, both in very good cond., good tires, \$65/ea. or \$115 for both. x34749 or 641-2442.

Soloflex weight machine, 2 yrs. old, ex. cond. w/access. and workout guide, was \$650, now \$300. Brian, x38650 or 480-5194.

4 Chevy Rally wheels for '88-'89 pick-up, complete w/beauty rings and center caps, \$125. Ron, 280-7657.

Baby bed and mens 10-spd. bicycle, BO. 280-8178.

Radio controlled airplane (Aerobatic) w/motor (S.T. 60) and radio (Kraft 7 channel - 76 series), \$275, OBO. Carlos, x38879 or 554-7727.

Garage sale, Apr. 8, 107 Bayou View, El Lago, household items, vacuum, stereo, luggage, etc. 326-3772.

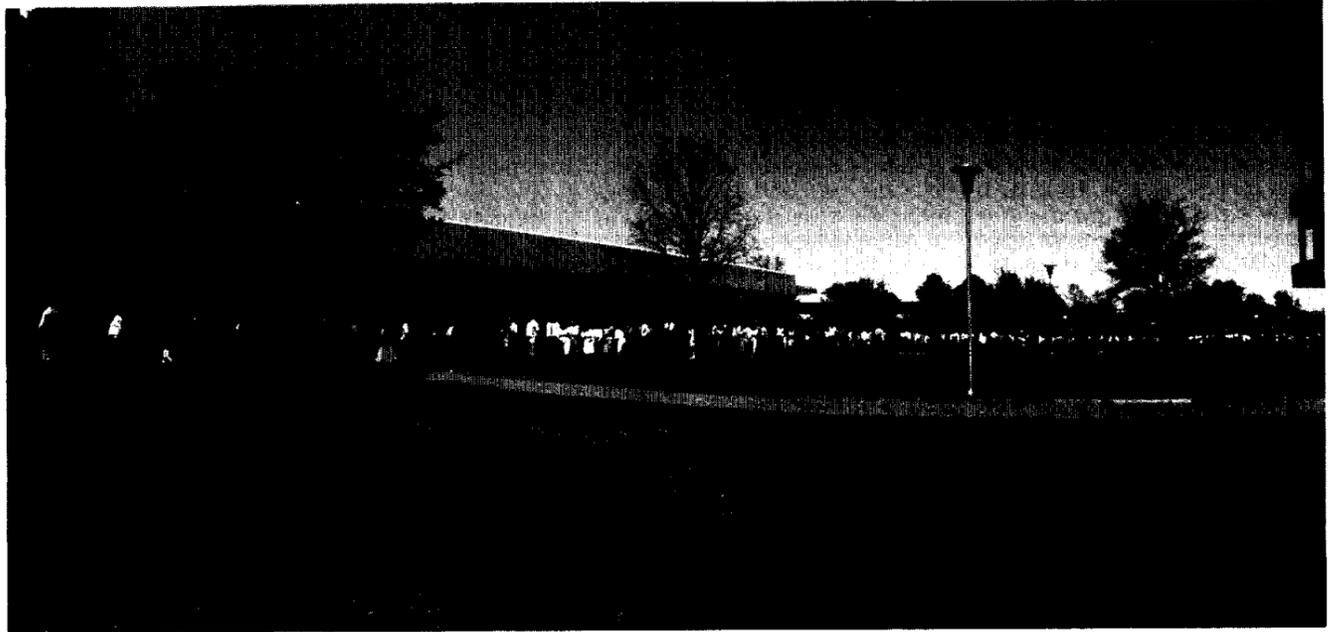
Black and white film enlarger, \$49; film developer, \$10; 5 pans, \$10; 5 jugs, \$15, buy all and get free chemicals; color slide enlarger and printer, \$100; 3 story cat house, \$39, large back pack, \$30; 2 man backpack tent, \$50; Cockatoo cage, \$15. x32949.

Golf clubs, Ram irons 2-9, plus PW, registered, \$50. Steve, x34657.

10hp riding mower, 36" cutting deck, 3 spd., elec. start, good cond., \$425. Kelly, x36168 or 409-925-1819.

Parting out 1981 Oldsmobile, 5.7L diesel eng., metric TH200 trans. Kyle, x33927.

'More in your hands than mine'



Quayle launches Space Council with JSC visit

By Linda Copley

Vice President Dan Quayle visited JSC March 31 in his first official act as head of the newly re-established National Space Council.

"I couldn't think of a better place to begin than in the President's hometown," Quayle told reporters outside the space station mock-up in Bldg. 9B.

"I don't profess to be an expert on space, but I can promise that I will be," he said. Quayle was escorted by JSC Director Aaron Cohen and NASA Administrator James Fletcher as he toured the center. He also met privately with Rear Adm. Richard Truly, associate administrator for space flight, and attended a round of management briefings.

James Odom, associate administrator for space station and Dr. Lennard Fisk, associate administrator for space science and applications, briefed the vice president on the Space Station *Freedom* Program and space science plans,

respectively. The STS-30 crew also met Quayle and discussed its upcoming mission.

Director of Mission Operations Gene Kranz escorted Quayle on a tour of the Mission Control Center and Flight Control Room 1. "I sat in the flight director's seat," Quayle told JSC employees later in the day. "And I want to tell you—we're in good shape."

Quayle dropped in on the lunch crowd in the Bldg. 11 cafeteria to grab a chopped barbecue sandwich and french fries. "President Bush told me three things I was going to love about Houston," Quayle said, "the weather, the barbecue and the Johnson Space Center."

Quayle paused for a short press conference in 9B before touring the space station mock-up with Clarke Covington, technical assistant to the director, as a guide. He spent several minutes with Dr. Carolyn Huntoon, director of space and life sciences, touring exhibits set up outside the mock-

up covering subjects ranging from orbital debris to studies of space adaptation syndrome to lunar bases. He was given several samples of candy packaged for space flight as souvenirs.

Quayle restated his commitment to the United States' leadership role in space exploration and mentioned his recent pivotal work in obtaining emergency funding to keep the Landsat satellites operating.

"Without my involvement, Landsat would've been shut down," he said.

He emphasized the 22 percent increase in NASA's budget proposed by President Bush as an indication of the high regard the current administration has for the space program.

"It would be nice to have more money, of course. But in these days of Gramm-Rudman-Hollings, when all federal agencies are in constraints, a 22 percent increase shows definite positive support," Quayle said.

The vice president said he will be involved in formulating policy regarding the privatization of space, and he emphasized the need for educational opportunities to ensure an abundant supply of qualified scientists and aerospace engineers. NASA will continue to be provided with the "the best and the brightest" in the years to come, he said.

During a series of demonstrations of space suits by Astronauts Jim Bagian and Jerry Ross and engineer Susan Schentrup in Bldg. 9A, Quayle was briefed by Henry Pohl, director of engineering. He then toured the Full Fuselage Trainer. Following his 9A and 9B visit, Quayle gave his 20-minute address to employees, who formed a line that twisted out of sight behind Bldg. 1 as they entered Teague auditorium.

The crowd of more than 800 constantly interrupted Quayle's remarks with applause, and he was met with a standing ovation as he took the stage. Quayle intro-

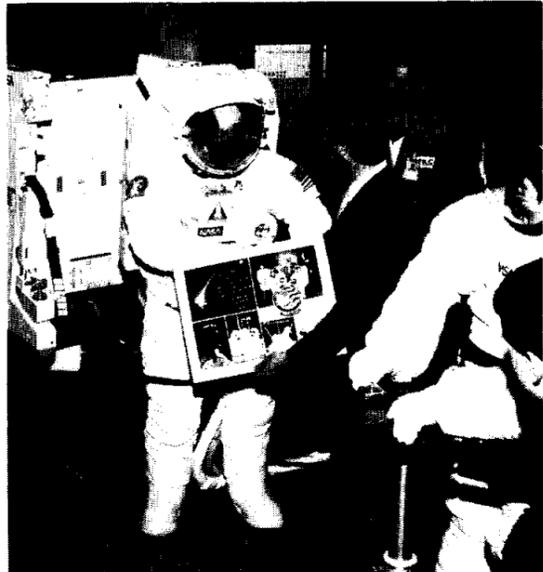
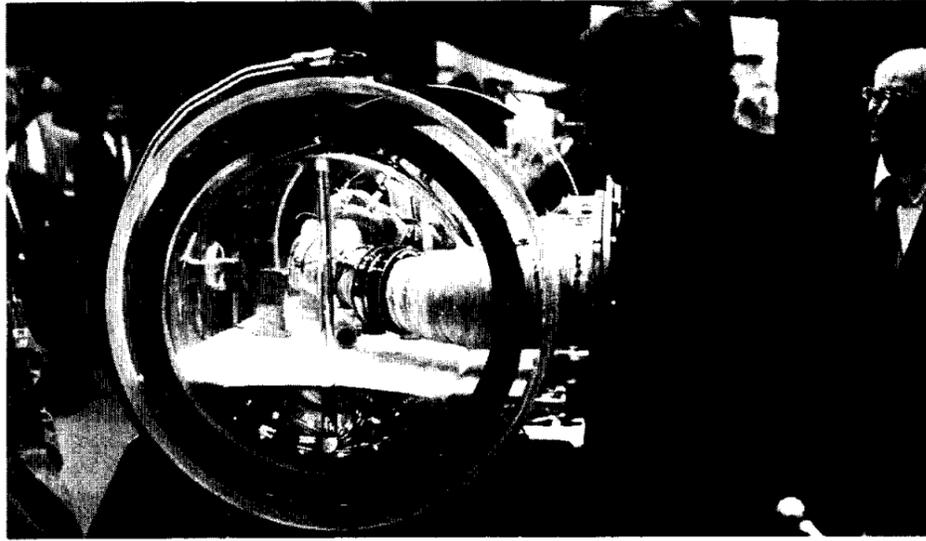
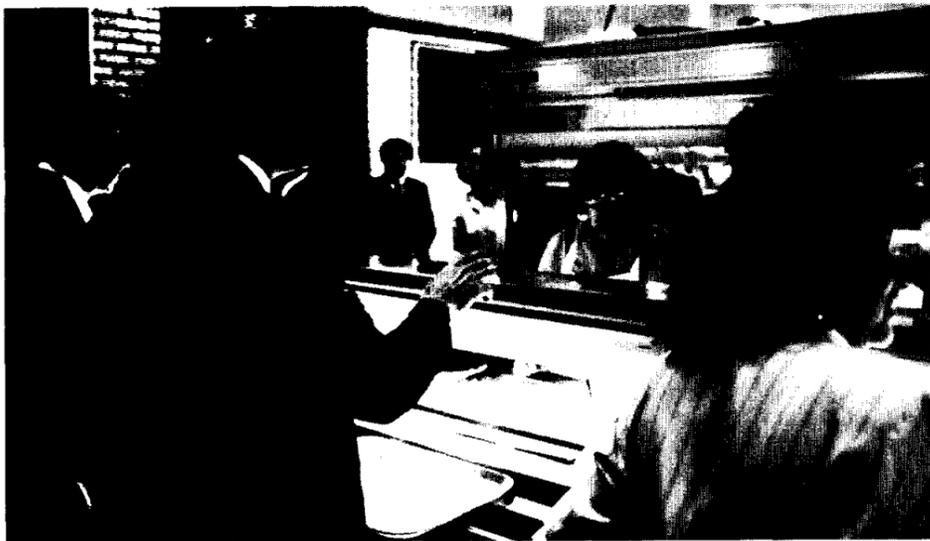
duced himself as a native of Indiana.

"Back home, we Hoosiers were raised on the words, "Gentlemen, start your engines,"" he said. "But the world has been raised on some more important words—"This is Mission Control, Houston.""

"And after being here today, I can see those words stand for efficiency, dedication and success," he said.

Quayle said his three children, aged 14, 12, and 10, had uncharacteristically volunteered to accompany him on this trip. He was later presented with toy models of the shuttle to take back to them, as well as a full-size American flag flown on STS-29 presented by Fletcher.

"The future of the space program is more in your hands than in mine," Quayle told employees. "And with people like yourselves, America will continue to lead the world in space exploration."



Clockwise from top: 1) Vice President Dan Quayle speaks to a packed house in JSC's Teague Auditorium last Friday; 2) The line of JSC employees waiting to get into the auditorium stretches back to Bldg. 1; 3) Quayle joins JSC Director Aaron Cohen in line at the Bldg. 11 cafeteria; 4) Quayle tries out space suit gloves in a pressure chamber as JSC Engineering Director Henry Pohl looks on; 5) Rear Adm. Richard Truly and Quayle visit the Mission Control station of CAPCOMs Mike Baker, left, and Ken Cameron; and 6) A suited Astronaut Jerry Ross presents Quayle with memorabilia from one of his missions.

NASA, universities work together to help diabetics

An implantable device that would mark a major advance for insulin-dependent diabetics is now being developed in a collaborative effort by NASA and two universities.

Currently known as rechargeable physiologic sensor (RePS), the device would eliminate the numerous daily finger pricks required of the estimated 1 million Type 1, insulin-dependent patients in the U.S., for proper monitoring of glucose level. The device also would provide a more accurate analysis of glucose level than is possible with finger-prick techniques.

The device is being developed by the Johns Hopkins University Applied Physics Laboratory (APL) in Laurel, Md., the University of New Mexico (UNM) in Albuquerque, and Goddard Space Flight Center.

APL's Program Manager for RePS, Wade Radford, said the proposed unit will determine the glucose level using a sensor designed by Dr. Ebtisam Wilkins at UNM. Electronics, designed by engineers at APL, will amplify the electronic signal identified by the sensor and send the signal to a receiving unit outside the body, using technology similar to that used

by orbiting satellites to telemeter data back to Earth, according to Donald S. Friedman, chief of the office of commercial programs at Goddard. The external, hand-held unit then would display the numerical glucose reading necessary for accurate insulin dosage, said Friedman, who also is Goddard program manager for the RePS.

The telemetry system operates on a lithium battery similar in power and size to those used in hearing aids. Because the unit does not need to contact the blood directly, but instead monitors the electrical charge pro-

duced when glucose in the body tissue is in proximity to a compound present in the device, it can be placed just under the skin in the abdominal area.

RePS brings to the field of glucose sensor development a quicker, more accurate way of monitoring while eliminating the discomfort of repeated finger pricking. Such accurate monitoring and subsequent control of blood glucose should greatly decrease the severity of diabetes complications, according to the developers. RePS also is designed to be rechargeable in one step, unlike most other glucose

sensors currently being designed.

RePS is being developed as part of a Goddard/APL collaborative program for the development of biomedical implantable devices. As a part of NASA's technology transfer program to find practical applications for technology designed for space programs, APL receives approximately \$300,000 a year for research and development of biomedical implantable devices.

Researchers expect that a prototype RePS will be completed by the end of 1989 and that a unit could be on the market in about four years.

Satellite servicing talks set

By Kari Fluegel

JSC will host a three-day workshop to exchange information and discuss key issues regarding the on-orbit servicing of satellites June 21-23.

The Satellite Services System workshop, supported by the Advanced Program Development Division of NASA's Office of Space Flight, will be a joint effort by government and industrial entities to discuss satellite design, servicing operations, tools and equipment, and future opportunities.

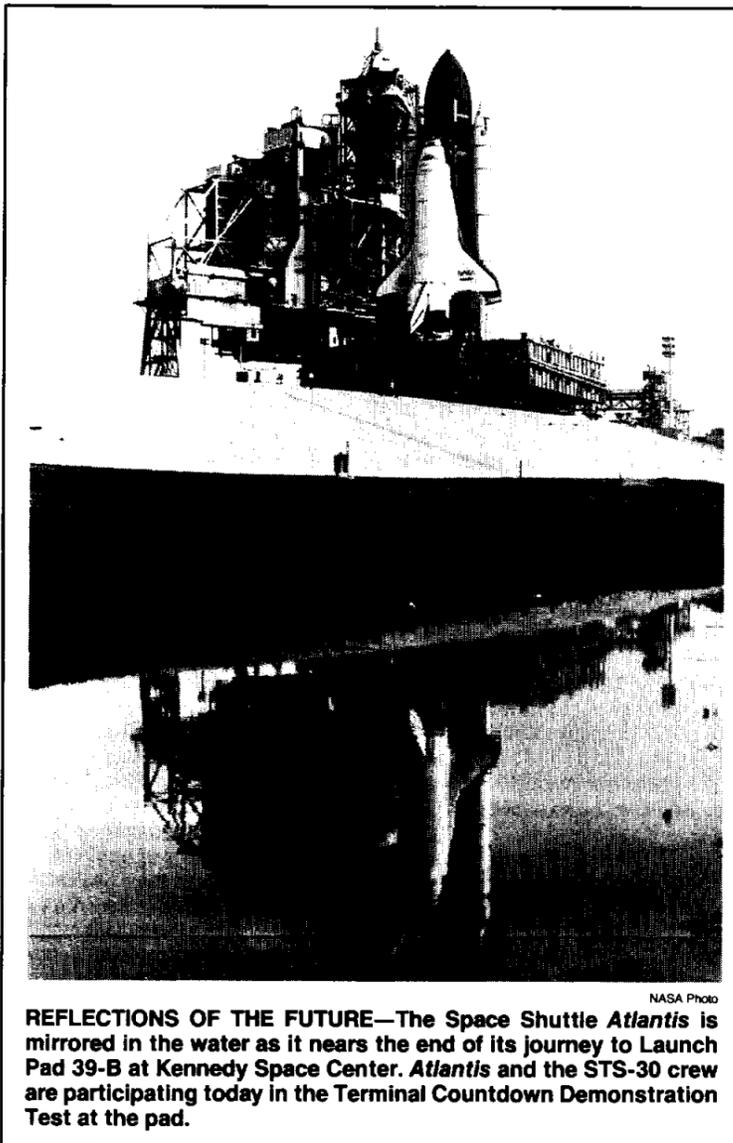
The biennial workshop is unclassified and open to the public. All sessions will be in Teague Auditorium.

Preregistration is not required, but to assist in prebadging and the arranging of tours contact Lana Arnold, Lockheed Engineering and Sciences Co., 333-7112.

For more information about the workshop, contact Charles T. Woolley in the Advanced Projects Definition Office of the New Initiatives Office, 282-1962.

Correction

The Space News Roundup incorrectly reported the political party affiliation of visiting Sen. Phil Gramm in its March 31 edition. Gramm is a Texas Republican.



NASA Photo
REFLECTIONS OF THE FUTURE—The Space Shuttle Atlantis is mirrored in the water as it nears the end of its journey to Launch Pad 39-B at Kennedy Space Center. Atlantis and the STS-30 crew are participating today in the Terminal Countdown Demonstration Test at the pad.

Library to open doors, keyboards

The JSC Technical Library will open its doors and its computerized files to center employees during a Wednesday open house in Bldg. 45.

JSC Librarian Donna McAllister said the open house—from 9 a.m. to 4 p.m. in Bldg. 45, Rm. 100—is designed to acquaint employees with the new research tools the Tech Library is developing in an effort to be more responsive to the needs of the center.

"We have recently acquired a wealth of electronic information systems," she said. "We've added several capabilities in the library that we think are significant."

The additions put JSC documents, technical reports, commercially published information and the holdings of the NASA library system literally at the fingertips of employees.

The open house will showcase the abilities of the Aerospace Research Information Network (ARIN), which replaces the Tech Library's old card catalog and makes available the entire NASA library system catalog.

ARIN contains about 60,000 JSC entries and a total of more than 2 million records of NASA publications.

The Tech Library also has signed on to the commercial Dialog on-line information retrieval system, which makes 300 new databases covering all science and technology disciplines available, McAllister said. Dialog features full-text search capability. Because of the cost of the database subscription, users will have to work through library staffers to search Dialog.

There's also a new Applied Science and Technology database available on a personal computer CD-ROM (compact disc-read only memory) system. That system, available to all employees, contains five years of citations totalling more than 100,000 entries, she said.

On-line search capability of JSC internal documents—by subject, title, document number and other parameters—also has been added, McAllister said.

JSC to host technology transfer seminar

JSC and the Houston Section of the American Institute of Aeronautics and Astronautics will cosponsor an April 20 seminar on the exchange of technical information between countries.

The seminar, designed to explain what technology information is res-

tricted or regulated and what can and cannot be transferred, will be from 8:15 a.m. to 5 p.m. in Teague Auditorium.

Registration is required by April 14. Contact Andre Sylvester, x31537, or Walt Lueke, x35939, for information.

Financing set for solid oxidizer plant

Western Electrochemical Co., Cedar City, Utah, has completed arrangements to privately finance construction of an ammonium perchlorate production plant to be located in Cedar City.

Ammonium perchlorate is an oxidizing chemical used in virtually all solid propellant rocket motors, including the Space Shuttle's solid

rocket motor. NASA and the Department of Defense have agreed to combined purchases of 20 million pounds a year of ammonium perchlorate for seven years from Western Electrochemical.

A May 4, 1988, explosion destroyed the American Pacific Corp. ammonium perchlorate production plant in Henderson, Nev., one of

only two in the United States. The loss of the plant cut in half the U.S. capability to produce ammonium perchlorate for all of its solid rocket manufacturing needs.

Western Electrochemical is a subsidiary of Pacific Engineering and Production Co. (PEPCON) and an ammonium perchlorate subcontractor to Morton Thiokol Inc.,

manufacturer of the Space Shuttle solid rocket motor.

Construction of the Cedar City plant is under way and production is expected to begin in the summer of 1989. Western Electrochemical plans to repay Security Pacific Bank Washington, Seattle, provider of the private capital, within seven years.

Small Explorer missions to study important questions

(Continued from Page 1)

study was proposed by Dr. Glenn M. Mason, University of Maryland, College Park, and 10 co-investigators from American and German institutions.

• A study of how molecular clouds collapse to form stars and planetary systems, called the Submillimeter Wave Astronomy Satellite, would be launched in mid-1993. The principal investigator is Dr. Gary J. Melnick, Harvard-Smithsonian Center for Astrophysics, Cambridge, Mass., heading a team of 11 co-investigators

from institutions across the U.S. and Cologne, Germany.

• An investigation of the processes operating within the auroral region, called Fast Auroral Snapshot Explorer, would be launched in late 1993. Dr. Charles Carlson, University of California, Berkeley, is the principal investigator. The co-investigators are from Lockheed Palo Alto Research Laboratory, Calif., and the University of California at Berkeley and Los Angeles.

• A study of stratospheric ozone is the mission of the Total Ozone

Mapping Spectrometer (TOMS). It will provide daily mapping of global ozone and detect global ozone trends. TOMS was proposed by Dr. Charles E. Cote and nine co-investigators, all from NASA's Goddard Space Flight Center, Greenbelt, Md. This investigation is a high-priority Earth observing mission that is critical to monitoring long-term stratospheric ozone depletion trends.

The Small Explorer Program is managed by Goddard's Special Payloads Division. Costs for developing such spacecraft and instrument pay-

loads are expected to average \$30 million.

The Explorer Program is a long-standing NASA program for launching small and moderate-sized space science mission payloads. More than 75 U.S. and cooperative-international scientific space missions have been part of the Explorer Program. For example, the International Ultraviolet Explorer, which produced astronomical data for more than 1,400 articles in scientific journals, continues to operate after more than 10 years in Earth orbit.



The newest in a series of Team Excellence posters by artist Al Chinchar focuses on the need for excellence. "Our pursuit of excellence is a refusal to settle for less than the very best. It requires a sustained determination to excel at each of our tasks." The posters were commissioned by JSC's Management Analysis Office.

Science missions get crews

(Continued from Page 1)

fixed in *Columbia's* payload bay, the SLS-1 crew will conduct more than two dozen life sciences investigations in the microgravity environment. Launch is currently set for June 1990.

Nagel has flown in space twice, once as a mission specialist on STS 51-G in June 1985, and as pilot on STS 61-A in October 1985.

Ross has flown on two Shuttle missions, STS 61-B in November

1985 and STS-27 in December of last year.

O'Connor flew as pilot on STS 61-B in November 1985. After the *Challenger* accident, he was named chairman of NASA's Space Flight Safety Panel.

Blaha made his first space flight last month as pilot of STS-29.

Apt, Cameron, Godwin and Jernigan will be making their first flights in space.

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Editor Kelly Humphries

STS-30 processing progresses

(Continued from Page 1)

the actual target date for the mission which must be launched within a one-month window because of the necessary alignment of Earth and Venus for Magellan.

Once deployed from *Atlantis'* payload bay, Magellan will be propelled by its IUS toward Venus. Away from Earth's gravitational pull, the spacecraft will coast for several months before reaching Venus in August of 1990. There, it will map the

surface with a synthetic aperture radar instrument to create high-resolution images. Computer processing on Earth will simulate an antenna hundreds of meters long when the actual spacecraft antenna is 3.7 meters in diameter.

The Magellan spacecraft will orbit the planet every 189 minutes during its 243-day mission to acquire imagery, radiometry, altimetry and gravitational data.