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

Trip saver

JSC's new video teleconferencing facility should help reduce unwanted travel. Story on Page 3.

Space truckin'

Dallas trucker brings his mobile mosaic to JSC's rocket park. Photos on Page 4.

Space News Roundup

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Cheer echoes as *Discovery* sees daylight

By James Hartsfield

Greeted by a cheer that began at Kennedy Space Center and echoed throughout NASA, *Discovery* saw daylight Tuesday for the first time in almost two years.

NASA moved 400 yards closer to America's return to space as the Orbiter was rolled over to join the solid rocket motors (SRMs) and the external tank (ET). *Discovery* left its processing hangar at about noon to take the first step in its journeys.

Mating of the Orbiter to the already mated and bolted down SRMs and ET, about a 20-hour job once *Discovery* is hoisted skyward onto the mobile launch platform, should be completed today. After mechanical and electrical connection checks are finished, the Space Shuttle will roll out of the Vehicle Assembly Building (VAB) to make a four-mile march to Launch Pad 39B, possibly as early as Thursday.

For the crew, *Discovery's* move was a tangible sign of the impending flight, said STS-26 Commander Rick Hauck. "I think seeing *Discovery* all buttoned up and ready to go quickens the pulse a little bit more. It makes the mission seem closer — because it is closer," Hauck said.

"It's a great feeling to see it all put together back into a spacecraft," said Gary Coultas, assistant manager of the JSC Orbiter Project Office.

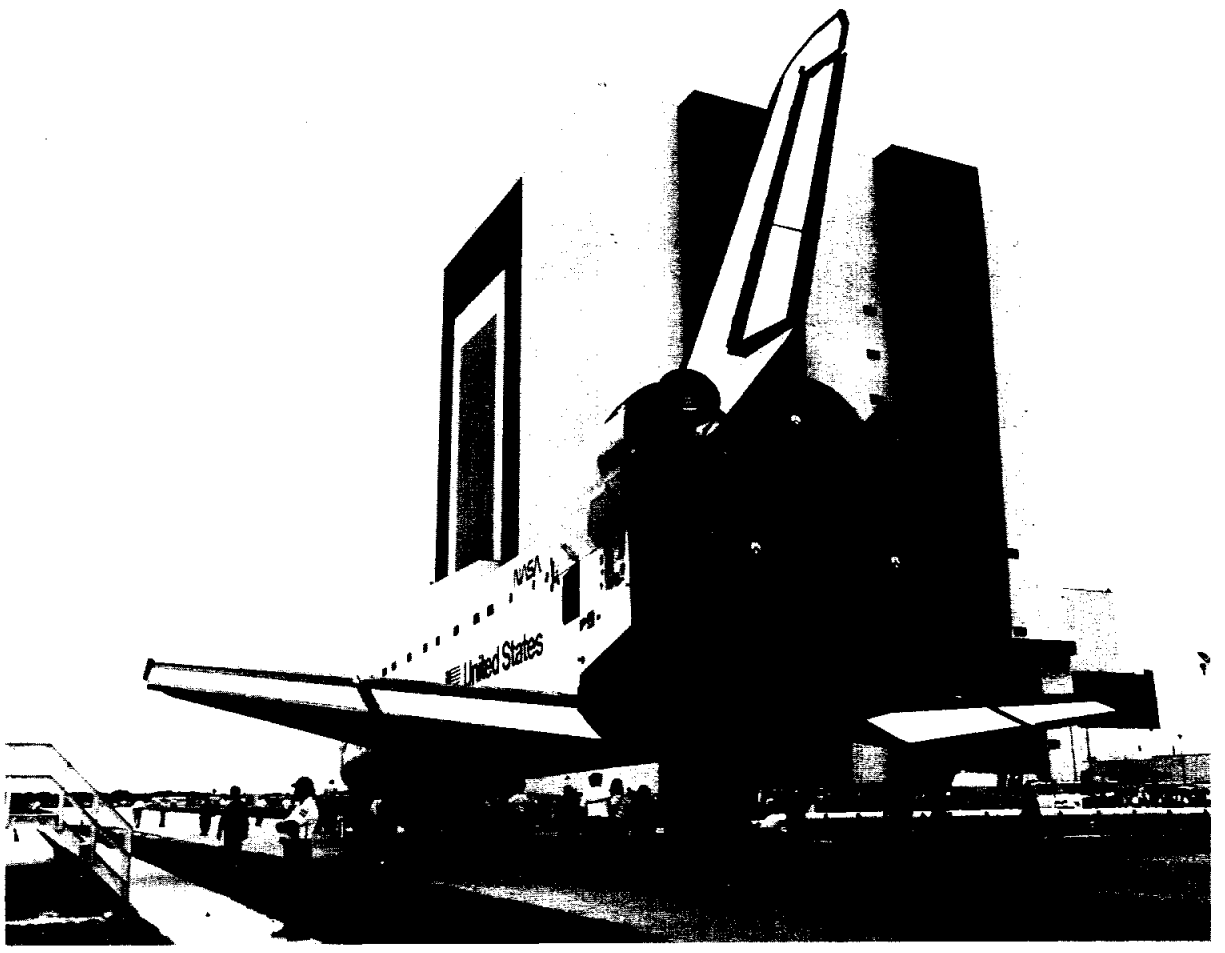
"It's the combination of a lot of activity and a lot of modifications we've put into it. It all had to get done before we could fly, and now we've got it all done. We're not still building the hardware; we're getting ready to fly it."

Rollover is a motivational boost, Coultas said. "It's given me an increasing feeling of anticipation. It's made me say, 'Hey, we're getting ready to fly. We're getting back to business.' Our program's all about getting into space, and we haven't been able to do that over the past two and a half years."

STS-26
The Return to Flight

Tuesday's rollover of the Orbiter was a highly visible major milestone in the processing of STS-26, and it gave the work teams at Kennedy and all of NASA a significant boost. Spontaneous applause and cheers broke out from a watching crowd as *Discovery* was towed to the VAB. Such high-visibility landmarks should come smoothly and rapidly

Please see **ROLLOVER,** Page 4



NASA Photo

Launch processing workers at Kennedy Space Center watch intently as *Discovery* is rolled out of the Orbiter Processing Facility and moved to the Vehicle Assembly Building. Tuesday marked the first time in 600 days that that *Discovery* had seen daylight.

Report two years in making

Council: Double life science efforts

An advisory council report on the future direction of the NASA Life Sciences Program recommends doubling efforts in that area and says increased life sciences studies are indispensable to the extension of human presence in space.

Almost two years in the making, the life sciences report was presented to NASA Administrator James C. Fletcher on Wednesday. It completes a series of NASA Advisory Council reports on future strategies for the agency's science disciplines. The report, prepared by a committee chaired by Nobel laureate Frederick C. Robbins, M.D., offers recommendations in the areas of human spaceflight, gravitational biology, planetary biosciences, flight programs and program administration.

Fletcher said it is a "key planning document for the years ahead."

Near-term and long-term projects called for by the National Space Policy, such as Space Station, a lunar base and manned exploration of the solar system, depend on advances in life sciences, Fletcher said. "Advances will be needed if people are to continue to live and work and, indeed survive for periods of long duration in space. The Space Station itself will be crucial to such advances," he added.

The report, entitled "Exploring the Living Universe: A Strategy for Space Life Sciences," deals extensively with plans for research in long-duration human spaceflight. Its recommendations to NASA include:

- Expand ground-based studies of physiological deconditioning, radiation exposure, potential psychological problems and life support needs that may limit stays in space.
- Build a suite of variable-gravity research facilities, among a variety of other new support facilities for life sciences work.
- Devote facilities aboard the Phase 1 Space Station suitable for continuous life sciences studies.
- Increase the number of Spacelab missions flown by the Shuttle and increase the amount of space devoted to life sciences experiments in flight.
- Establish a method for attracting promising young scientists to work on NASA life sciences projects.

The report also recommended increasing biosciences studies of Earth as well as the solar system, and it urged the development of robotic, round-trip probes to analyze and return samples from Mars, comets and asteroids.

"If indeed one of our priorities is to place man in outer space under conditions that are safe and yet permit an adequate quality of life and work, we see no alternative to a considerable expansion of the program directed to this end," he stated in a cover letter for the report.

Cohen establishes study committee on child care

JSC Director Aaron Cohen has appointed a committee to study the possibility of creating a center child care facility.

The creation of the nine-employee committee is in response to several recent inquiries about providing child care at JSC, Cohen said.

The group will survey the JSC work force to determine how great the need is for such a facility, and evaluate the child care services available locally and at other NASA centers. The feasibility study will include research into legal, financial and management issues.

The new Child Care Committee is expected to present its findings to Cohen by the end of September.

Members of the committee, chaired by Estella H. Gillette, include: Mary C. Ellen, Erma J. Cox, Randy K. Gish, Mary C. McLain, Ann L. Bufkin, Debra Adams, Carol A. Homan and Nitza M. Cintron. Richard U. Lea from the Legal Office and Richard E. Thompson from the Facilities Design Division will be advisers.

Patch honors crew escape systems teamwork

Unofficial 'Garfield' pole logo gets character creator's special touch

All of those who worked on the Shuttle crew escape system, a broad team spanning civil service, contractor and military personnel, will soon be presented with a patch honoring the excellence of their efforts.

Bill Chandler, Shuttle Egress/Crew Escape Systems manager, said more than 400 crew escape system team members will be presented with patches through the JSC awards office. The patch features a crew member parachuting from a flying orbiter as would be seen by an observer below. It is designed to commemorate all of the work on a variety of escape systems that were studied, including a tractor rocket system and the ultimate selection, the telescoping pole, Chandler said.

"What we wanted to signify was the successful escape from a disabled orbiter. It doesn't show an escape system," he explained. "This is a generic patch ... we elected not to show a system. If we had, we wouldn't be able to give it to everyone and all of them couldn't appreciate it."

While the pole is a valuable part of the crew escape system, it is a very small part, Chandler added. Development of the pole cost only about $2.3 million while more than $70 million has been spent on all escape systems work, he said.

Cartoonist Jim Davis, creator of "Garfield," donated the image of his feline character to another, unofficial logo designed by a JSC student co-op honoring the designers and builders of the emergency egress telescoping pole.

Julie Kramer, an aerospace engineering student at Purdue working at JSC, originally designed the "Pole Cats" emblem, which features a sunglassed, Hawaiian-outfitted Garfield surfing down the pole. The design caught on immediately, Kramer said.

"Originally, it started out as just an in-house, informal thing to give to people on paper," said Kramer, who works in the design and testing section of the Structural and Mechanics Branch. The "Pole Cats" design's popularity grew quickly, and soon it could be found in almost all JSC buildings and contractors' offices that housed members of the egress pole team. And requests for T-shirts emblazoned with the design poured in.

"But the printing shop said they couldn't do it without the approval of Davis because the character was copyrighted."

Kramer went to work tracking down Davis, and contacted his syndicate, United Media Licensing of New York. Her artwork was sent to Davis. "He really liked it," she said. "He wanted to stylize it himself and he waived the charges for a license to use Garfield. He wanted to be associated with NASA.

Kramer soon received Davis' work, and orders are now being taken for shirts.

The artwork was submitted for consideration as the official Shuttle Crew Escape System Team patch, but the more generalized patch was chosen, Chandler said. "I liked the Pole Cats patch, but it just wouldn't have symbolized the entire team effort," he explained.

The official patch should be presented to team members within two months.

JSC Photo

FOOD FOR THOUGHT—The crew of STS-27 is briefed on habitability equipment and procedures outside the Crew Compartment Trainer in Bldg. 9A. Clockwise from left are astronauts William Shepherd, Robert "Hoot" Gibson, Jerry Ross, Richard Mullane and Guy Gardner, and instructor George Rains.

Space Shorts

NASA Scout launches navigation satellite

The 111th flight of a Scout rocket, smallest of NASA's expendable launch vehicles, boosted an advanced Navy navigation satellite, NOVA-II, into polar orbit June 15. The launch originated from the Western Space and Missile Center (WSMC), California.

The flight was the third Scout success this year. The first two were March 25 from the San Marco Range in the Indian Ocean and April 25 from WSMC. A fourth launch is targeted for August from WSMC; the payload will be a Navy OSCAR navigation satellite.

Ariane-4 launch puts 3 satellites in orbit

The first successful launch of an Ariane-4 rocket took place June 15 from the second Ariane Launch Site at the French Guiana Space Centre in Kourou. The European Space Agency (ESA) launcher placed three satellites in orbit.

The launch, culminating a six-year development program, put ESA's weather satellite Meteosat P-2, communications satellite Pan American Satellite 1, and amateur radio satellite AMSAT III C in geostationary transfer orbit.

The Ariane-4 can be configured in six different ways. This version used two liquid and two solid propellant boosters.

Stennis Space Center is new name for NSTL

NASA's National Space Technology Laboratories (NSTL) has been officially renamed the John C. Stennis Space Center by executive order of the President.

President Reagan signed the order to rename the center for the distinguished Mississippi senator who is retiring after 41 years of service to the nation and the state.

The center, near Bay St. Louis, Miss., began as the Mississippi Test Facility in 1961 and tested the Saturn V first and second stages for the Apollo program. It became NSTL in 1974.

JSC

Dates & Data

Today

Teleconference room opens—The grand opening of the new Program Support Communications Network Video Teleconferencing System (ViTS) facility in Rm. 2026, Bldg. 17, will begin at 9 a.m. today with a VIP ribbon cutting and continue until 4:30 p.m. for all interested JSC personnel. The 28-person capacity ViTS room is part of a state-of-the-art audio and video conferencing system linking all NASA centers that provides full motion video and graphics.

Radio field exercise—The JSC Amateur Radio Club will begin a field day exercise in the park at the entrance to the Gilruth Recreation Center today through Sunday. Members and guests of the club will participate.

Cafeteria menu—Entrees: meat sauce and spaghetti (special), baked fish, liver and onions, fried shrimp, seafood gumbo. Vegetables: green beans, buttered broccoli, whipped potatoes.

Saturday

Bay Area Longhorn Fun Run—A 1-mile run will begin at 8 a.m. at the Rec Center, and a 5-kilometer run will start at 8:30 a.m. The first 150 entrants will receive T-shirts. Registration is $8 in advance and $10 late. Trophies will be presented to top overall male and female runners and to first, second and third in each age group. For more information, call Omar Holguin, 996-7516, or Jerry Willman, 532-1390.

Sunday

JSC-EAA Splash Day—The JSC-EAA will sponsor a Splash Day at WaterWorld from 10 a.m.-9 p.m. for $5.95 reduced admission.

Monday

EAA badging—Dependents and spouses may apply for photo ID badges from 6:30-8:30 p.m. at the Rec Center.

Cafeteria menu—Entrees: weiners with baked beans (special), grilled ham steak, beef chop suey, breaded cutlet with cream gravy, beef and barley soup. Vegetables: buttered rice, brussels sprouts, whipped potatoes.

Tuesday

BAPCO meeting—The Bay Area PC Organization (BAPCO) will hold its regular monthly meeting at 7:30 p.m. in the League City Bank and Trust Building. For information, call Earl Rubenstein, x34807, or Ron Waldbillig, 337-5074.

Cafeteria menu—Entrees: pepper steak (special), turkey a la king, pork chop with applesauce, fried shrimp. Vegetables: au gratin potatoes, breaded squash, buttered spinach.

Wednesday

Cafeteria menu—Entrees: Mexican dinner (special), fried catfish with hush puppies, braised beef ribs, seafood gumbo. Vegetables: Spanish rice, ranch beans, buttered peas.

Thursday

Cafeteria menu—Entrees: hamburger steak with onion gravy (special), tamales with chili, chicken and dumplings, corned beef with cabbage and new potatoes, split pea soup. Vegetables: navy beans, green beans, buttered cabbage.

July 1

Cafeteria menu—Entrees: barbecue link (special), liver and onions, broiled codfish, deviled crab, seafood gumbo. Vegetables: buttered corn, green beans, new potatoes.

July 4

Seabrook celebration—An Independence Day celebration will be held from 10 a.m. until dark at Pine Gully Park off of Toddville Rd. in Seabrook. Food, beverages, games, crafts, rides, a ski show, a sky diving show and other events and booths will be offered. A children's parade will begin at 9 a.m. at Baybrook Park. For more information, call 474-4015 or 474-3201.

July 5

Physical fitness class—Sessions begin meeting at 6:30 a.m. and continue every Monday, Wednesday and Friday through Sept. 23.

July 8

Oxychem 4x2 mile relay—Male, female and mixed teams will compete at the San Jacinto Monument at 7 p.m. July 26. Those who wish to sign on with a team must do so by July 8. Entry fee is $4. Call Patrick Chimes, x32397, for information.

July 11

Scuba class—A five-week class begins at the Rec Center and will meet from 6:30-9:30 p.m. each Monday and Wednesday. Initial fee is $45, and an additional $80 will be due at the first class.

July 16

Spaceweek banquet—The keynote speaker for the Spaceweek National Banquet at the Hobby Airport Holiday Inn will be Donald Fink, editor-in-chief of Aviation Week and Space Technology. For more information, call Spaceweek Headquarters, 480-0007.

JSC-EAA river raft trips—Ticket sales will continue through July 11 for two JSC-EAA trips to raft down the Guadalupe River July 16. A day trip for $27 and an overnight trip for $69 are offered. For more information, call x35350.

July 20

Men's Open C tourney—This is the final day of registration for a Men's Open C softball tournament planned July 23-24 at the Rec Center. Entry fee is $95.

Aug. 26

SEDS conference—The Texas area chapters of the Students for the Exploration and Development of Space will sponsor an international conference at the Nassau Bay Hilton through Aug. 28. The conference will feature JSC tours, a space career exposition and several well known speakers from the space industry. For more information, call Peter Lange, x30850.

Swap Shop

Property & Rentals

Sale: Friendswood, 1982 Windsor mobile home, 14x80, front kitchen, $26,000, $321/mo., lot rent $100/mo. Myron, x39419 or 482-8647.

Sale: Pasadena/So. Houston, 3-1.5-2 brick, carpet, miniblinds, drapes, appl., fenced, near schools, ex. cond., $47,900, assum. 8.5% loan, $338/mo., $18,900 equity, $5,000 down, owner finance remainder. 941-5908.

Trade: Kingwood, 4-2.5-2 house, 2450 sq. ft., for similar size in Clear Lake area. Mike, x32342 or 359-1726.

Lease: 1-1 condo, FPL, fan, refrig., W/D, jogging trail, swim in lake, pool, sec. gates, $325/mo. plus dep. 486-4466.

Lease: Friendswood, Heritage Park, 3-2-2, FPL, fans, 1600 sq. ft., cul-de-sac, near schools, 3 yrs. old, $600/mo. Rob, x32575 or 482-4588.

Lease: So. Pasadena, 3-1.5-2 brick, near Ellington, avail. July 9th, $425/mo. 487-1654.

Lease: Egret Bay condo, 2-2-2 CP, FPL, fans, W/D, $390/mo., $100 dep., ref. 486-8551.

Rent: Egret Bay, The Villas, 2-1.5-2 CP, FPL, large kitchen, all appl., microwave, fans, view of water, sec. gate, $500/mo. Mike, 333-4149 or 280-8566.

Lease: CLC, Baywind II condo, 2-2-2, FPL, wet bar, W/D, pool, tennis, $450/mo. C.W., 282-1871 or 280-8796.

Sale: Sweetwater/Lake Conroe, vacation timeshare, 2 BR, two accrued weeks, golf, boating, tennis, clear title, was $5,500, now $2,200. Art, x36370 or 541-4411.

Rent: Mobile home lot, $85/mo., $50 dep. Baker and Kinne, Bacliff. 488-1758.

Sale/Lease: Fondren SW, 4-2.5-2, 2400 sq. ft., formals, carpet, alarm, $850/mo. or $110,000. 729-4447.

Sale: Friendswood repossessed wooded lot, on cul-de-sac, near shopping and schools, $17,225. Frank, x30891.

Sale: Seabrook, 1 BR cottage, den, hardwood floors, FPL, carport, storage bldg., w/1 acre, $65,000, or w/3.29 acres, $97,000, own. finance. 532-4784.

Rent: University Trace condo, 1 BR, study, W/D, new carpet/paint, $375/mo. Russ, x34742.

Sale: Kirkwood South, 4-2.5-2, large custom 2-story, formals, study, FPL, intercom, cul-de-sac, $78,500. 488-5210.

Rent: Galveston Victorian Gulf-front condo, sleeps 6, fully furnished, 2 swimming pools, 3 whirlpools, 2 tennis courts. 480-5270.

Cars & Trucks

'74 Datsun 260Z, auto., A/C, AM/FM, 113K mi., good cond., $2,950, OBO. Tom, x39573 or 488-5134.

'74 Mercedes 450 SEL, green, sunroof, leather int., needs some mech. work, $5,900. J. Kinsey, x32271 or 486-0421.

'61 Chrylser Windsor, 4 dr., 383, auto., A/C, brown w/white top, new paint, seats, ex. cond; '63 Lincoln Continental, 4 dr., all power, 80K mi., $3,500 each. 486-4466.

'85 Honda LX 4 dr., auto., all power, cruise, Michelins, moon roof opt., rust prot., low mi., $8,950. x30092 or 481-3637.

'84 Ford F150 Super Cab XLT, pwr., blue/beige, AM/FM cass., rear slide windows, camper, bed mat, 46K mi., new radials, chrome bumpers, $7,000. George, x30889 or 480-9810.

'76 T-bird, cream & gold, good cond., $1,250, OBO. Moses, x35847 or 437-6727.

'80 Buick Regal, blue, AM/FM, int. ex. cond., some rust, 96K mi., $1,000. Susan or Kay, x34845 or 331-3379.

'70 TR6 Roadster, $1,500. Glenn, x30454 or 532-3013.

'78 20' Dodge motor home, bath w/shower, stove, refrig., good cond., $4,000. 486-9760 or 339-3633.

'72 Lincoln Continental Mark IV, green w/white vinyl top, loaded, sunroof, 8K mi. (713) 335-1278.

'67 Mustang, 289 V8, 3 spd., A/C, new batt. & cables, new starter, new exhaust, $2,995, OBO. Michael, x38169 or 482-8496.

'83 Capri GS, 302 5.0 liter, 4 spd., PS/PB, A/C, P/W, cruise, sunroof, ex. cond., $4,600. John, x36169 or 326-2105.

'87 Chrylser Conquest TSI. 13,500 mi., ext. 5 yr. warr./50,000 mi. warr., ex. cond., loaded, all leather, $12,750. Craig, 282-3731 or 485-5636.

'85 Nissan 300ZX, sports coupe, brown/tan int., AM/FM/cass., ex. cond., $11,500. Kim, x38117 or 480-9810.

'82 Chevy Citation, auto., V-6, AM/FM/cass., 90K mi., $1,850, OBO. Lorraine, 480-3377, x58.

'86 RX-7, sports model, white, maroon int., AM/FM/cass., ex. cond., $11,995, OBO. Jeff, x31470 or 996-7097.

'85 Ford F150 XLT Lariot Super Cab., 2 tone, ex. cond., $9,500. 280-9007.

'79 280ZX, 5 spd., A/C, rem. sunroof, Le bra, tinted, new clutch/brakes, AM/FM/cass., slight fender damage, will supply new fender, $2,500. Kay, x34845 or 331-3379.

'86 Monte Carlo SS, white w/maroon, tinted windows, 2 alarm sys., performance computer chip installed, w/hitch & lights, $10,600. 282-2522, 480-8737.

'85 Mallard, 35' motor home, loaded, low mi., $37,000, OBO. 337-4051.

'79 Chevy Monte Carlo, air, cruise, AM/FM, 87K mi., good cond. 488-5944.

'79 16' Champion "Galavan", mini-motor home, Datsun frame, sleeps 4, $6,200, OBO. 333-2322.

'29 Mercedes Replicar, still in kit, was $8,000, now $5,000, will consider trade for boat of equal or less value. 339-2817 or 280-2914.

Cycles

'83 Honda Shadow, low mi., tinted windshield, Honda cover, Fulmer helmet, ex. cond., $1,400, OBO. Moses, x35847 or 437-6727.

'80 Honda 750 custom, mags, always garaged, low mi., $1,250. x30092 or 481-3637.

Boats & Planes

19' Nacra 5.8 catamaran, galv. trailer, sails, boxes, barberhaulers, life jackets and butt buckets, $3,500. Wayne, x32435 or 337-3766.

Aqua glider water sport boat, 15hp motor, $1,750. Tony, x34404 or 334-2365.

16.5' ski boat, 75hp Johnson, pwr. tilt, tow bar, new paint, new seats, new carpet, AM/FM radio, galv. trailer, skis incl., $3,000. Ben, x31588 or 488-1326.

'78 16' Cajun bass boat, 70hp Evin. P.T.T. LCR, ex. cond. 484-4397.

Lease: Floating boat slip, Portofini Harbour, avail. now, up to 40', 5 min. from bay. Ritz, x38501 or 780-2391.

21' Venture sailboat, 2 jibs, motor, trailer, $3,000. x30217 or 484-0395.

14' Starfish sailboat, Sunfish class, galv. tilt trlr. w/winch, buddy bearings, dolly-jack, spare tire/wheel, extra sail w/booms, $700. 333-1054.

Household

GE single wall oven, 25 3/4" wide x 25 1/4" high, matching GE stove top, 21 1/4" x 30", turquoise, ex. cond. $65 each or $100 for pair. 941-5908.

Early American sofa w/wood trim, good cond., $50. 482-8827.

King size waterbed ensemble, solid oak, mirrored headboard, matching high boy chest, night stand, six drawers under bed, $900. 282-3972 ro 488-0151.

Queen size waterbed, dark stained pine, reduced motion mattress w/heater, mirrored headboard, rail pads, and 12 drawers, $400. 282-3972 or 488-0151.

Queen size sofa/sleeper, mauve, ex. cond., $250; glass end table, $5; antique night stand, $25. Lorraine, 480-3377, x58.

Antique oak double bookcase w/fold out desk secretary, $450. George, x30889 or 480-9810.

Full size washer and dryer, ex. cond., $300. Phil, x33640.

16.4 cu. ft. frostless refrig/freezer, almond, 2 yrs. old, ex. cond., $375. Ken, x32514 or Marie, 282-3947.

Solid oak bookcase, 6.5' x 3', 6 shelves, was $900, now $480; stereo, turntable, AM/FM radio, 2 lg. speakers, ex. cond., $75. Pat, 480-7406.

Double size semi-motionless waterbed, solid wood frame w/bookshelf headboard, heater, $75. 333-5373.

Lane cedar chest, about 40 years old, needs refinishing, $50. 280-0909.

GE portable 5" color TV, w/stereo, AM/FM rem. cass., $190. C.W., 282-1871 or 280-8796.

Simmons baby crib and mattress, $200. 870-0990.

Contour lounge chair, power adjust. w/vibrator; unique 'space age comfort' king size, contour adjust. bed, 80" x 76", incl. 2 sep. 80" x 38" twin mattresses, power adjust. w/vibrators. 326-2607.

Corningware, "Blue cornflower" cookware collection, approx. 30 pieces, will sell set or pieces, 488-2822.

Sofa and loveseat, like new cond. x30938.

5 cu. ft. freezer, 10 yrs. old, $65, includes old upright vacuum cleaner. Judy, 538-1854.

Maytag gas dryer, almond, three temps/four cycles, ex. cond., $175. 333-1054.

Audiovisual & Computer

Sansui 30W receiver, $80; Technics 70W speakers, $125; Technics turntable, $45, or all $220. Rob, x32575 or 482-4588.

Mac Plus with Image II printer, Apple external drive, access, $1,900. San Le, 484-5414.

Free computer, H89A 64K 2-drives, loads of S/W, all doc. w/purchase of MPI-99 printer, 100 cps, serial/parallel, graphics, tractor/friction, $250. 280-1747.

Wanted

Want 15" x 8" Corvette rally rims, steel, with or without centercaps and trim rings. Wyatt, x32545 or 488-2631.

Want to trade $10,000 electronic organ for land, car, truck, or boat of equal value, OBO. 337-4051.

Need riders for vanpool, West Loop "Park and Ride" to NASA. Richard, x37557.

Want to rent a RV for 4 or 5 days in July. Suzan, x34841.

Teenager wants to babysit for summer mos., reasonable rates. 280-9442.

Musical Instruments

Wurlitzer spinet piano, $500. 729-4447.

B flat clarinet w/case, for beginner, $50; slide trombone, used 1 year, case, ex. cond., $275. Mary, x36369 or 326-2731.

Pets & Livestock

AKC Doberman, 2 yrs. old, black & tan, pedigree, ears & tail cropped, completed cert. obedience training, $250. Tony, x34404 or 334-2365.

Beautiful gold male cat, 1.5 yrs., shots. Joan, x34618 or 486-1058.

Golden retriever puppies, AKC, $150. Mike, x32342 or 359-1726.

Stalls for rent on 15 acres, full board, $75/mo. 334-1221.

Free kittens, 5 wks. old. Bob, 480-1735.

Lost & Found

Found: Yellow Retriever/Lab cross, unspayed male, at Bay Area & Gulf Fwy., 5/31/88. Ken Jenks, x34368.

Personal

Retirement Party for C.E. Charlesworth, planned at the Gilruth Recreation Center, 5:00-7:00 p.m. Tickets are $6 and will be sold through July 8. No tickets will be sold at the door.

Miscellaneous

Super Blackhawk, 44 mag., 10.5 in. barrel, ex. cond., $250. 332-5057.

Chainlink fence, 5' x 150', posts, caps, top rails, gate. Jim, 228-4051.

Kingsize bedspread, "fake fur", brown/off-white, ex. cond., was $200, now $75, OBO. x30944.

Woman's 5 speed bike, Nishiki, good cond., $85. J. Kinsey, x32271 or 486-0421.

Radio Control, Eagle 63 trainer plane w/Futaba radio, $250; Dumas Atlas van lines hydroplane w/Futaba radio, $495. Wyatt, x32545 or 488-2631.

'79-'81 Honda new A/C car compressor, $200, OBO. Vincent, x30874 or 333-1316.

Enjoy the summer more by letting someone else do the housework, reliable, reasonable rates, ref. 559-1221.

Spa, 310 gal., 5 seats & recliner, 1.5hp pump, air compressor, gas pool heater, 250 BTU, $1,700. x36607 or 481-2854.

VW parts, doors, most engine parts, some performance carbs, engine service avail. Ray, x30823 or 554-5434.

Yardmaster lawnmower, ex. cond., 3 mos. usage, was $250, now $50. Dee, x36672.

Office credenza, black metal w/wood grained top, 60" x 20", sturdy, like new, $50. 280-0909.

Alum. camper for Toyota truck, w/wooden cabinets, bed liner & built in speakers, BO. Audra, x39174 or 534-3837.

Tow bar for VW Beetle, like new, $40. Glenn, x30454 or 532-3013.

'85 Ford 1910 tractor, 4x4, front loader, box blade, mower, post hole digger w/2 augers, 12" & 9", disc., only 350 hrs. on tractor. 339-2817 or 280-2914.

Trampoline for home or office. Mary, x36369 or 326-2731.

Twin bed frame, mattress, and box springs, $50; Hoover upright vacuum cleaner, $40; alum. crutches, $10; all ex. cond. 474-5601.

Winchester mod. 1500 XTR, 20 ga., auto., lightweight, modified, vent rib, like new, $250. 326-4613.

R/C airplane equipment, kits, engines & radios. Kent, 484-2411.

Space Shuttle mission medallions, sterling silver, set of 19, STS-4 thru STS-51-L, $35 ea. Woody, x32709 or 532-3408.

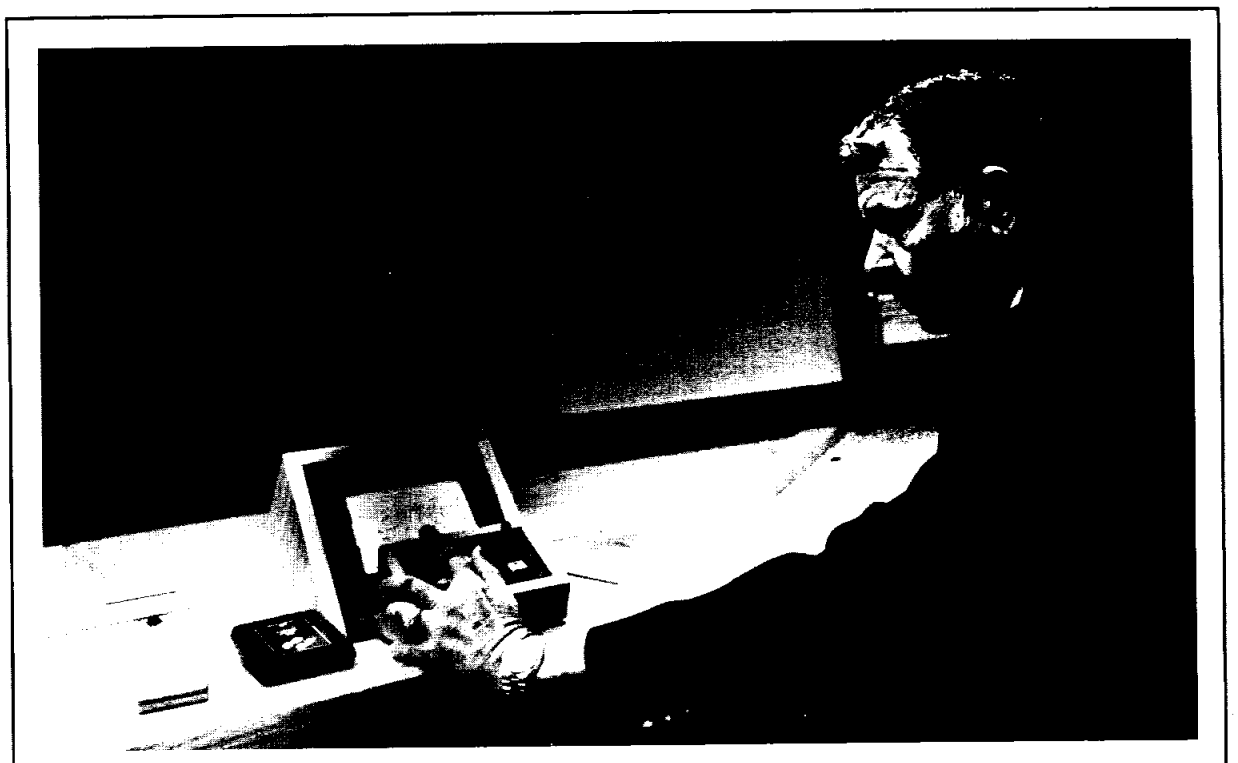
Post oak firewood delivered by the 1/2 cord, $50. x39491 or 991-2396.

Tennis racket, head graphite director, new Prince syn. strings, dust cover, pro carry bag, all ex. cond., $85. 280-1747.

30 Ike dollars dated 1972 to 1974. BO. 482-8827.

Trek 400 racing bicycle, red, good cond., $275. Steve, x35272.

VIDEO NETWORKING



New teleconferencing system keeps NASA centers in touch

By James Hartsfield

JSC is now part of a state-of-the-art Video Teleconferencing System (ViTS) that will be able to bring all of NASA face-to-face in under an hour, speeding up communications and cutting down travel.

In the near future, ViTS will be able to unite all of NASA at once through new large capacity rooms at 16 locations throughout the United States.

The digital, full-motion teleconferencing system is part of the agencywide Program Support Communications Network (PSCN), said Clyde Waters, ViTS project manager at JSC. "There have been partial networks around the agency, but nothing that fully connected all the centers like this one does," Waters said. "The reception's been very favorable across the agency."

JSC is the 12th NASA facility to have an operational ViTS room. Four more rooms at NASA Headquarters, Langley Research Center, Stennis Space Center and Lewis Research Center are expected to be finished by October to complete the system.

ViTS was authorized by NASA in October 1986, and, one year later, JSC requested a room. Construction began in February and was completed in May. The installation of equipment was finished June 10, and the room has been used since for system checks and operator training. The first full-fledged, working teleconference in the facility is scheduled next week.

The grand opening of the new ViTS room, Bldg. 17, Rm. 2026, will be today along with an open house from 10 a.m.-4:30 p.m. Anyone interested is welcome to visit.

Everyone who has been by to see the JSC room so far has been "quite impressed," Waters said. It can hold up to 28 active conference participants, much larger than any previous such facility. Conferences are controlled from a master room at Marshall Space Flight Center.

"I think it's going to give the center a lot of new capability because of the size of the room and the fact that we now have 11 other centers we can connect with," he said. "It's starting to come out of its infancy and be used at several of the centers."

ViTS can accommodate NASA-sensitive meetings, such as budgetary discussions and other matters that may be classified as company sensitive. "The major benefit I see is the ability to promote the productivity of some of our managers by precluding excessive travel," Waters said. "And we can put together an agencywide teleconference with it only taking us about an hour to get everyone on line. It will provide for rapid dissemination of information."

Travel expenses at JSC in 1987 totalled about $2.9 million, but the new ViTS room could reduce that figure and relieve the stress that travel puts on workers, said Marilyn Wells, manager of the JSC travel claims office. "Any time people can finish a project during normal working hours ... without having to fight with connecting flights, jet lag and late planes ... it's a boost," Wells said.

"I think it will be a real benefit because a lot of travel is for just one day, very short-term," said Debbie Weinand, also in the travel claims office. "Travelling can really be a burden on an employee." Weinand said the travel office processes between 900-1,200 travel orders each month, and the average cost of a three-day trip is about $450.

JSC has about 30 audio-only teleconference rooms, but only one other video teleconference room, Bldg. 1, Rm. 818. The Bldg. 1 room can be hooked up to other ViTS rooms on the PSCN, although it has a smaller capacity than the new ViTS room. Services for both JSC video teleconference facilities cannot be provided simultaneously.

The ViTS room is equipped with three television cameras located in front, in back and overhead of participants plus two 67-inch rear projection television screens. It has a complete voice teleconferencing system, a facsimile machine, two video recorders and a VideoShow graphics system with a color printer and provisions for displaying a variety of video and graphics from a personal computer or computer terminals.

The compressed digital signal allows for high quality, fully synchronized audio and video transmission. ViTS rooms agency-wide are linked together on the SATCOM satellite, the same satellite used for the Federal Telephone Service and data relay between centers, Waters said. "This room has larger capabilities than anything we've had in the past."

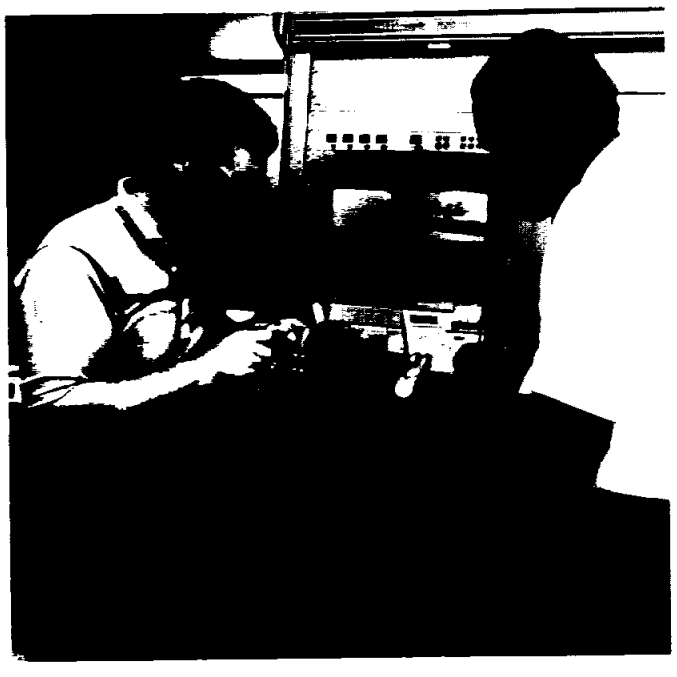
ViTS can link rooms point to point or it can combine all 12 locations into one conference, with one center acting as a primary room and the other participating rooms taking turns with their presentations. Only two conferences can operate simultaneously on the system, but that may be expanded in the future.

The feasibility of installing ViTS rooms at contractor facilities, in the Clear Lake area and elsewhere, is being studied, Waters said.

Users of the ViTS room may include senior management, program offices, design review groups and budgetary groups, among others. Conferences on the network must be coordinated with the traffic from 11 other locations, so requests to use the room should be made as early as possible.

"Of course, it could be that someone could call late and the room would be available. But as it catches on, the further in advance, the better," Waters said. "Really, anybody can request it. Give us a purpose, and we'll see whether or not we can put it on the network." Requests for the room will be evaluated for priority if they conflict.

This week, Waters has been giving demonstrations of the room to JSC managers to introduce them to its possibilities. To reserve the ViTS room, contact Donna Keith, x37568, in the Data Processing Systems Division.



Top: Clyde Waters, ViTS project manager, displays a viewgraph of the NASA-wide network in the new video teleconference room in Bldg. 17. Right: ViTS Room Operator Amy Berry learns how to run the room's controls. Above: Walt Lindbloom, left, a ViTS room design engineer from Marshall Space Flight Center, and RCA Technician Sam Albertie put the finishing touches on equipment.

JSC Photos by Benny Benavides

NASA hopes to help boost cancer patient survival odds

NASA and the American Cancer Society are working on a joint research project that may help boost survival odds for victims of the disease.

The project involves a search for ways to improve laboratory identification and monitoring of cancer cells. The project name is "Evolution in Flow Cytometry: Application, Design and Testing of a New Advanced System."

NASA will provide technical leadership for the research in conjunction with a "Space Station In-Flight Cytometry Project" at JSC. Dr. Gerald Taylor, JSC science manager for the Space Station Biology Project, developed the NASA cytometry project and is a co-investigator for the joint project. Both the NASA life sciences and technology utilization programs have planned a combined budget of $230,000 for the JSC cytometry project in fiscal 1989.

In the cytometry process, specimen cells are marked with a fluorescent dye, suspended in a liquid solution, and identified or measured with the use of sophisticated lasers and multiple photometers. Researchers hope to develop an advanced flow cytometry instrument that could support biomedical experiments aboard the Space Station while advancing medical knowledge in cancer detection and treatment.

The research is expected to lead to better monitoring of the effectiveness of a cancer patient's treatment by evaluating the specific change in cancer cells resulting from chemotherapy or bone marrow transplants, and selection of the most effective therapy for each patient by laboratory testing of diseased cells against various modes of treatment.

Overall management of the collaboration process will be provided by Kennedy Space Center's Technology Utilization Office. Robert L. Butterfield, manager, technology integration, will serve as project liaison with the cancer society.

Project co-investigators Dr. David S. Robinson and Dr. Awtar S. Krishan will lead research efforts at the University of Miami in Florida. Other researchers include Dr. Scott Cram and Dr. Tudor Buican at the Los Alamos Flow Cytometry National Laboratory in Los Alamos, N.M., and Dr. Mack Fulwyler at the University of California, San Francisco.

The cancer society's Florida Division is expected to provide approximately $88,000 in support funding for Phase I and Phase II of the project through 1989. Project review will be coordinated through a scientific committee headed by Dr. Woody York of Tampa, Fla. The committee selected this project from 19 others submitted for collaboration.

The joint project is one of many NASA-private sector efforts supported by NASA's technology utilization program. Such collaborations are intended to transfer knowledge acquired through the space program into diverse fields and thereby, stimulate "spinoff" applications leading to a wide range of benefits for everyday life.

Previous spinoffs from NASA research and technology have led to health care applications such as:

- A programmable insulin pump for diabetics,
- A vision screening program for children,
- New ways to help the hearing-impaired learn to speak,
- Progress in the fight against heart disease through use of an image processing system used to diagnose coronary artery problems, and
- A device that helps prevent hair loss in cancer patients undergoing chemotherapy.

Ground system tests check out space telescope

A five-day ground system test of the Hubble Space Telescope—one of the most comprehensive tests yet undertaken—began Monday morning at Goddard Space Flight Center.

GST-4 was a "full-up test" involving the spacecraft's systems and five of its scientific instruments, reported Ron Felice, Goddard's deputy project manager of flight operations for the Hubble Space Telescope.

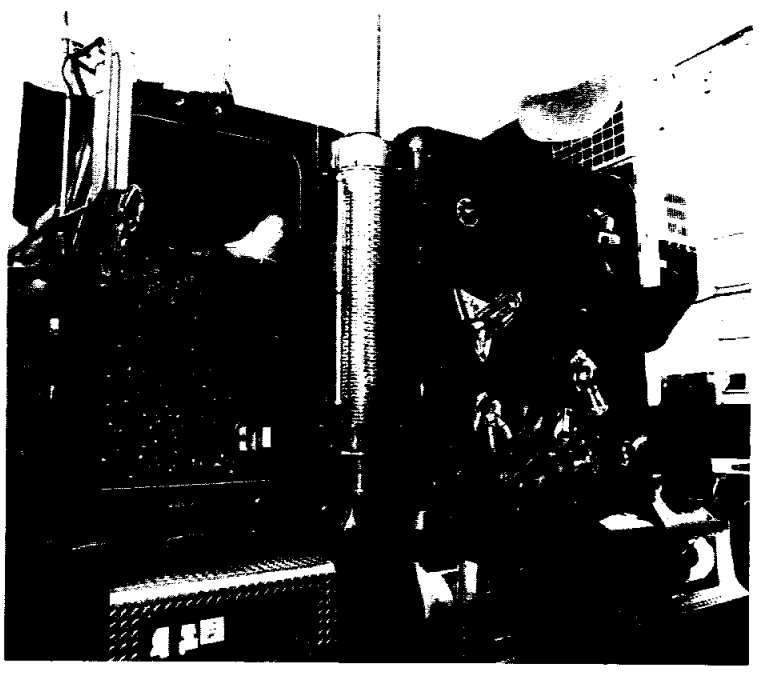
The fourth in a series of ground system tests (GST-4) simulated almost a week of spaceflight operations and involved direct communication with the space telescope, now in a clean room at the Lockheed Space and Missile Co., Sunnyvale, Calif.

"This is the first time we have operated the spacecraft for this period of time and at this level of sophistication," said Felice. "GST-4 is an important test for us. Operating each of its instruments in various operational modes will assure us that we are capable of conducting the science part of the mission."

From the moment controllers in the Space Telescope Operations Control Center (STOCC) at Goddard issue the first command, the facility will be in 24-hour contact with the spacecraft until the test is completed.

Using a science mission specification schedule developed by the Space Telescope Science Institute (STScI), Baltimore, Md., the STOCC will generate and transmit commands to the spacecraft over ground-based communication lines. Telemetry from instruments will be transmitted back to Goddard for processing and then forwarded to the STScI for science data interpretation.

The telescope is scheduled to be carried into space on board the Space Shuttle *Discovery* in 1989.



SPACE TRUCKIN'—The Space Shuttle has been called a "space truck," but it was another kind of space truck that visited JSC on Monday. Dallas trucking entrepreneur Bobby Whitfield, in the cab at right, brought his airbrushed space theme 18-wheeler to the Rocket Park in support of the space program. The truck sports Space Shuttles, astronauts on extravehicular maneuvers, assorted truck parts turned satellites and fanciful futuristic designs of rocket-powered trucks that look like current-day semi-tractor trailers without wheels. Whitfield said his artist, Von Otto, is now working on a truck that looks just like a Space Shuttle.

JSC Photos by Jack Jacob

Hercules gets contract to better nozzles

Program's objective is higher rocket success

NASA announced Tuesday it will negotiate a contract with the Hercules Aerospace Co., Magna, Utah, to improve the nozzles of solid-fueled rocket motors.

The work is part of the agency's Solid Propulsion Integrity Program. The objective of the program is to increase the success rate of solid rocket motors by improving basic engineering in such areas as material characteristics, design analysis, fabrication and assembly processes and production evaluation and verification.

The value of the contract at Marshall Space Flight Center is expected to be approximately $12.5 million.

The program originated from joint NASA-Department of Defense-industry studies that identified critical shortfalls in the U.S. engineering technology base for solid rocket motors. Proposals for a Solid Proplusion Intregrity Program bondline work package are being evaluated for award later this summer. This represents NASA's contribution to the tripartite effort.

NASA engineers managing the program expect to improve confidence in solid rocket motor launch systems by establishing urgently needed engineering tools, techniques and data bases specifically applicable to the current civil and military family of solid-fueled rocket motors.

Rollover cheers

(Continued from Page 1)

from now on, and STS-26 will spend at least two months poised on the launch pad awaiting its late August flight.

Discovery had occupied Bay 1 of the Orbiter Processing Facility since Oct. 30, 1986, a total of exactly 600 days, 10 days less than a record set by *Columbia* in preparation for STS-1. More than 200 modifications have been completed on *Discovery*, many of them during a power down period from February 1987 to August 1987. Processing of *Discovery* for STS-26 began in September 1987.

"Preparing Discovery for the upcoming mission has been an extraordinary challenge," said Tip Talone, *Discovery's* flow director at Kennedy. "Basically every component of *Discovery* has been recertified for flight, and the effort by the processing teams has been stupendous."

Many of those involved in processing and modifying *Discovery* characterize it as the most well-prepared Orbiter ever, Talone said. After the months of work implementing the modifications, the Orbiter's emergence Tuesday was a proud and gratifying moment, he added.

Industry eyes uses for jettisoned external tanks

NASA is inviting the U.S. private sector to express interest in commercially using the Space Shuttle's jettisoned external tanks.

An announcement published in Commerce Business Daily asked interested American companies and non-profit organizations to submit information concerning proposed uses for the tanks and associated technical and financial information by the end of August to NASA's Office of Commercial Programs, Washington, D.C.

The notice is the first step toward implementing one of the specific actions included in the President's recently announced Space Policy and Commercial Space initiative. The decision to make the tanks available for a period of five years is intended to help promote a strong U.S. commercial presence in space.

NASA is asking interested companies and organizations to identify their specific proposed use of an initial external tank, the expected government/private sector market to be served, the total number of tanks required to meet that market, and implications to ongoing NASA activities.

Those expressing an interest in use of a tank in orbit must also provide information concerning the planned approach to on-orbit safety and the safe disposition of the tank when it eventually reenters Earth's atmosphere.

NASA is offering to make the tanks available for uses that can be accommodated under the current flight profile, in which the tank is jettisoned into a sub-orbital trajectory that terminates in a safe ocean area. NASA also may, in certain cases, make the tanks available for use in low-Earth orbit, provided the user pays the costs associated with orbital insertion and the eventual safe disposition of the tanks. The agency has ruled out any plan that calls for external tanks to be "parked" in orbit for future undefined use.

NASA does not envision granting sole rights of all external tanks to any single entity and will consider only those interested parties willing to develop, at their own expense, a capability to commercially use the external tanks.

While there will be no charge to users for the external tank itself, all costs which are additional to NASA's basic mission costs must be borne by the user and must be paid in advance.

Space News Roundup

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Radar pictures suggest Venusian volcanoes

Newly processed radar pictures of the surface of planet Venus show what may be geologically recent volcanic activity and impact cratering, according to scientists at the Jet Propulsion Laboratory.

The pictures show possible volcanic mountains and broad lava flows and fields like those which make up the Hawaiian Islands.

Bright rings, seen in highland regions on Venus, are believed to be material thrown out from below the surface by volcanoes or meteor impacts.

The observations were published in Science magazine by Drs. Raymond F. Jurgens, Martin F. Slade, R. Stephen Saunders, radar and planetary scientists at JPL.

The areas of intense radar brightness or reflectivity, nearly four times brighter than most of Venus, could be extremely dense volcanic rocks or electrically conductive minerals, like iron pyrite which would reflect microwaves, or a combination of both. Dark spots, notably in the centers of craters, might be too mirror-smooth or too rough to scatter microwaves back to the angled radar.

The JPL radar images, with a resolution of less than a mile, are the latest and best in a long series taken using planetary radar antennas at the Goldstone, Calif., complex of NASA's Deep Space Network. The network is generally used to track and control planetary spacecraft such as Voyager.

The Goldstone radar was the first to make these high-resolution pictures near the equator of Venus, though similar radar observations around the planet's north pole were made by Soviet Venera spacecraft in 1983.

The Goldstone data were the first to link the bright crater halo rings with the lowland patches. The irregular bright patches are much larger than most craters, up to hundreds of miles across, and may be volcanic flows and lava fields.