



Finding a needle in a haystack might be easier than choosing the next class of astronaut candidates. Story on Page 3.



Systems furniture shown at a recent Bldg. 4 open house may be the wave of the future for JSC work stations. Photos on Page 4.

Space News Roundup

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September 8, 1989

No. 36

Galileo to 'rewrite' textbooks on Jupiter

STS-34 crew anticipates busy flight, scientific discoveries

By Linda Copley

The five-member crew of STS-34 expects a "busy flight" and believes the mission's primary payload will rewrite the textbooks on Jupiter, Commander Don Williams said Wednesday.

Williams, along with Pilot Mike McCulley and Mission Specialists Shannon Lucid, Ellen Baker and Franklin Chang-Diaz, met the international news media in the traditional T-30 briefings in Bldg. 2.

Williams said he hopes the discoveries made by Galileo's journey to Jupiter will rival those made from Voyager's recent flyby of Neptune.

"Whole textbooks will be rewritten with Galileo, just as they have been because of information Voyager has provided," Williams said.

He paraphrased Wernher Von Braun as having said that when asked why men should go to the Moon, he could give you a hundred reasons for going, but in a few years there would be a hundred different ones.

Chang-Diaz, a physicist, added that planets are laboratories, rich in information that is out there to be retrieved. "By learning more about Jupiter, we'll learn more about our own Earth—our own planet's environment," he said.

Williams said the crew has been engrossed in training for the past two months since the receipt of the real flight software, including

participating in joint integrated simulations of the Galileo spacecraft deployment.

"Within the next few weeks we'll be going down to the Cape for a practice countdown, participating with JPL and Sunnyvale in a joint integrated sim, and maybe even getting in a little flying time," he said.

Williams went on to thank the Shuttle Mission Simulator (SMS) Team 8 for its significant contribution to the crew's training, and crew members' families, "who don't get recognized often" for their part in the success of the mission.

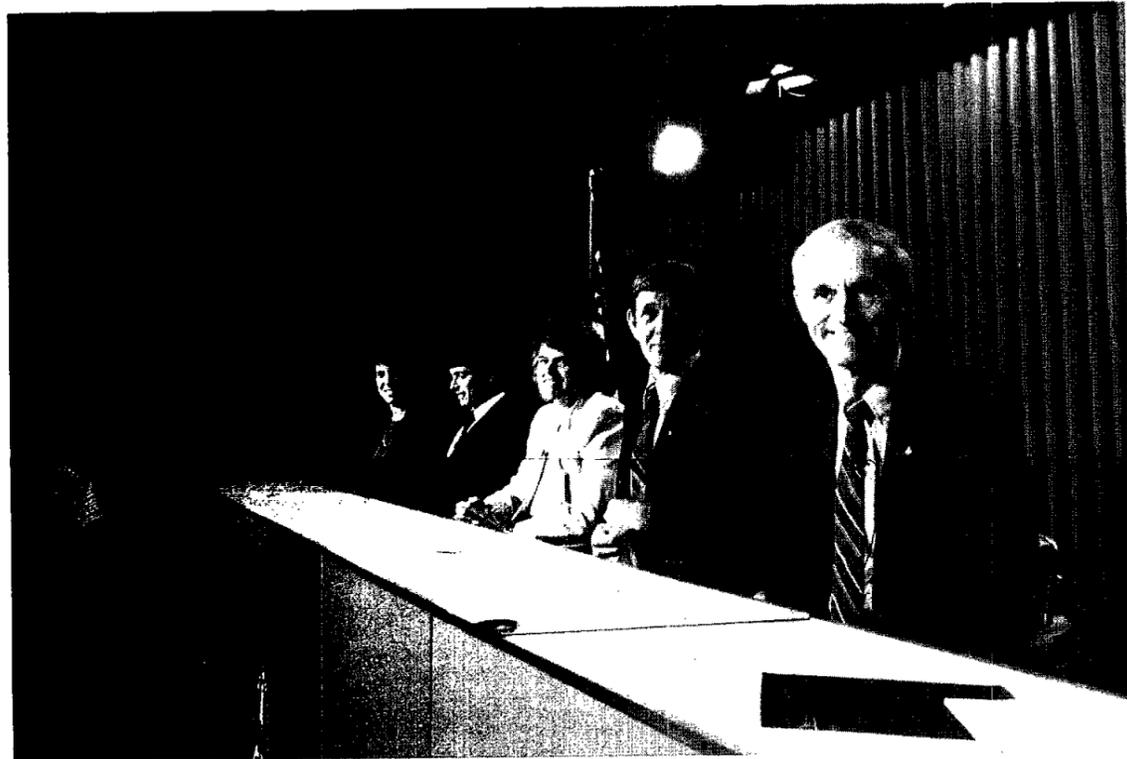
Williams listed each of the planned experiments for the flight, noting his special interest as a rural Midwesterner in the Growth Hormone Concentration and Distribution Experiment (GHCD), which will study the effects of gravity on plant growth, or as Williams put it, "what makes plants grow up rather than sideways."

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iments for the flight, noting his special interest as a rural Midwesterner in the Growth Hormone Concentration and Distribution Experiment (GHCD), which will study the effects of gravity on plant growth, or as Williams put it, "what makes plants grow up rather than sideways."

McCulley, commenting on the mission's purpose and how it is treated in the press and viewed by the public, said he feels an obligation "to go fly, to take photographs, to be able to articulate to a sixth grader or a third grader or even to my three year old at home what I see and how I feel as I look down on the Earth."

Williams added that he wants to explain to the American public "what's going on, what we're Please see STS-34, Page 4



JSC Photo

The crew of STS-34 prepares to meet the news media in Wednesday's traditional T-30 briefings. From left are Mission Specialists Ellen Baker, Franklin Chang-Diaz and Shannon Lucid, Pilot Mike McCulley and Commander Don Williams.

Lead flight director for Galileo mission confident of safety

By Linda Copley

Lead Flight Director for STS-34 Milt Heflin says the radioisotope thermoelectric generators (RTGs) that will power the Galileo probe on its mission to Jupiter are "pretty doggone tough" and he is "confident" of their safety.

Responding to reporters' questions about the use of the plutonium-powered systems, which convert the heat generated by the decay of radioisotopes to electrical energy, Heflin said he has held one of the devices in his hand after it had gone through three reheating tests.

"I am responsible for its (the Galileo payload) safety," he said. "And I have absolutely no qualms about this device. It's an incredibly well put-together piece of hardware."

Heflin and specialists representing the STS-34 payloads made their comments at the traditional T-30 news media briefings at JSC on Tuesday afternoon. Richard Spehalski, Galileo project manager, and Torrence Johnson, Galileo project scientist, both from NASA's Jet Propulsion Laboratory (JPL), and specialists representing other mission payloads answered questions on a variety of subjects related to the upcoming flight of *Atlantis*.

Spehalski is "very high on the

launch" taking place on Oct. 12, after experiencing a multitude of delays since the originally planned 1982 liftoff. The current launch period continues through Nov. 21 for the five-day mission. If the shuttle launch were not

to occur during that time, the proper criteria for a successful mission to Jupiter would not exist again until 1992.

Galileo's uniquely protracted journey to the giant planet was illustrated with an animated video. The spacecraft's path, named VEEGA for Venus-Earth-Earth-Gravity-Assist, will slingshot it past the planet Venus, past the Earth twice and through the asteroid belt to gain enough momentum to reach its final destination.

Johnson noted that these flybys would provide additional information, including possible Venusian lightning readings, asteroid observations, and, when passing by Earth, a new look at the Moon.

"We'll be looking at the dark side of the Moon for the first time, he said, "and, using infrared mapping spectrometry, be able to make remote observations of new areas, and observe the poles of the Moon, about which very little has been observed."

After three years of these "detours" Please see GALILEO, Page 4



Milt Heflin

Technicians check booster igniters

By Kyle Herring

Launch preparations continue at Kennedy Space Center's Launch Complex 39B for the flight of *Atlantis* carrying the Galileo planetary probe.

Wednesday, technicians conducted the payload interface verification test to check connections between the shuttle and Galileo and its two-stage, solid-fueled inertial upper stage (IUS).

Yesterday, one of the seals for the right solid rocket booster igniter was scheduled to be inspected. The left

booster igniter seal is to be inspected tomorrow. The pad will be cleared of all nonessential personnel during the inspection, which involves disconnecting explosive devices and handling the igniter.

Friday, the payload end-to-end test is scheduled to verify communications between the spacecraft and ground controllers.

Also completed last weekend was the installation of the high fidelity mockup of the radioisotope thermo-

electric generator (RTG).

Workers practiced installing and connecting the RTG model in the two positions aboard Galileo. This exercise was designed to verify procedures, provide training and ensure that access for the installation is sufficient. The flight RTGs, located at KSC, will be installed closer to launch.

The terminal countdown demonstration test (TCDT) with the STS-34 flight crew remains scheduled for next Thursday and Friday.

Asian Pacific Americans seek to share excitement

The co-chairman of this year's Asian Pacific American Heritage Day says those sharing his geographic background don't want special treatment, but they do want recognition for their contributions to America's space program.

According to Kumar Krishen, that's the whole idea behind the second annual JSC Asian Pacific American Heritage Day program, which begins with lectures at 8 a.m. today at the Gilruth Recreation Center, and continues at 12:30 p.m. in Teague Auditorium with a keynote address by Criminal Court Judge Hannah Chow and cultural performances.

The annual program is an invitation for colleagues to share the excitement felt by the Asian Pacific Americans involved in the space program, he says.

According to Shirley Price of the Equal Employment Opportunity Office, there are 111 civil servants of Asian Pacific descent at JSC.

"We're here, we're contributing to the space program and in the long run we want to be a part of it," says Krishen, who came to America from Kashmir, India, in 1964 to work on a microwave Moon relay system to remotely sense lunar surface properties.

Please see ASIAN, Page 4



Kumar Krishen

Ford Aerospace chosen for Mission Systems Contract

NASA has selected Ford Aerospace Corp., Houston, for final negotiations leading to a contract for technical and engineering services related to mission systems in support of the JSC's Mission Support Directorate.

Ron Berry, director of Mission Support, said the \$469 million Mission Systems Contract (MSC) covers development of major mission control facilities for all programs assigned to JSC, as well as associated major planning systems. The Mission Operations Directorate (MOD) will be the primary user of the facilities developed under the contract, he said. MSC will

also provide sustaining engineering support to MOD for non-National Space Transportation System (NSTS) facilities.

"MSC will not only support the major shuttle control center and planning system upgrades we already have in progress, but will also support the continued definition and early design work for the analogous space station systems," he said.

Clint Denny, Ford Aerospace's director of space information systems operation, said he expects the contract to create 200 to 300 new jobs in the Clear Lake area during the Please see FORD, Page 4

JSC

Ticket Window

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

General Cinema (valid for one year): \$3.50 each.
 AMC Theater (valid until May 1990): \$3 each.
 Sea-Arama Marineworld, Galveston (valid until Oct. 17, 1990): adults, \$8.15; children \$5.10.
 Sea World (San Antonio, year long): adults, \$17.25; children \$14.75.
 Palm Beach at Moody Gardens (valid until September 1989): adults \$2.75; children \$1.50.
 Astroworld (valid 1989): adults, \$14.12; children under 4, \$11.99; Waterworld (valid 1989): \$8.15.
 Six Flags (valid through 1989): \$14.12.
 Texas Renaissance Festival (open every weekend from September 30 through November 12): adults, \$8.95; children \$4.95.
 Radio Music Theater (Thursdays, 8:30 p.m. or Saturdays, 10:50 p.m. through September): free comedy for NASA employees. Call 522-7722 for reservations.

JSC

Gilruth Center News

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

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

Defensive driving—Course is offered from 8 a.m.-5 p.m., Sept. 16 and Oct. 14; cost is \$15.

Weight safety—Required for use of the Rec Center weight room. Classes will be 8-9:30 p.m. Sept. 6 and 21; cost is \$4.

Aerobics and exercise—Both classes are ongoing; cost is \$24.

Tennis lessons—Beginning tennis lessons, Mondays 5:15-6:45 p.m. starting Sept. 11; six-week course is \$32.

SCUBA lessons—Class starts Sept. 18 and runs for five weeks; cost is \$45 at sign-up, plus additional fees.

JSC

Swap Shop

Property

Rent: Friendswood, 3-2-2, ceiling fans, fenced backyard, near schools, \$575/mo. Tim, 996-9191.

Rent/Sale: Crystal Beach, cabin, sleeps 7, A/C, close to beach, \$200 dep., \$325/wk, \$195/wkd, or sell \$32,000. (409) 832-2582 or (409) 755-1638.

Sale: 60 acres, 3 mi. from Karnes City, TX, on Hwy. 80, 50 mi. from San Antonio; lg. 2-story house in El Campo, TX, on 1.5 acres, lots of fruit trees. 783-9164.

Sale: Friendswood/Regency Estates, 4-2-1, approx. 2000 sq. ft., new paint, 90' x 130' lot, fenced, FPL, 8.5% assum. FHA loan, \$96,000. Steve, 280-1114 or 482-3696.

Sale: Kemah lot, 111' x 180', some trees, \$7,400. 334-1883.

Lease: Fairmont townhouse, 4-3-2-CP, 1800 sq. ft. newly decor., pool, play area, W/D, ceiling fans, non-smoker only, small pet OK, \$600/mo. plus dep., avail. Oct. 1. Chuck or Gina, 487-2978.

Sale: Big Bend area, getaway, hunt, 160 acres, \$140/acre, CFD 20% down, 9% for 5 yrs. 337-4051.

Sale: Friendswood/Sun Meadow Estates, wooded lot, bordered by stream and golf course on 2 sides, approx. 245' deep and up to 86' wide, util. on site, \$29,500. Doug, x32860 or 486-7412.

Sale: Lake Livingston lot, 140' x 80', water, elec., trees, near pool and boat ramp, \$2,200, OBO. 488-5445.

Rent: Condo, Bay Area Blvd., 2-2, FPL, W/D connect, 2 parking spaces, avail. Sept. 30, \$450/mo. 528-1884 or 480-1340.

Trade houses: Custom canyon view, 6 yr. old, off 360 west of Austin, want similar age, quality, w/in 20 min. of JSC. 471-8795 or 333-6083.

Rent: League City, Newport Subdivision, 2BR in 3-2 house, bills split, nonsmokers only, small pets tolerated, \$250/mo. Russ, 554-5900.

Rent: El Lago, 4-2, lg. fenced lot, \$950/mo., negot. Pete, 532-4237.

Sale: El Lago, 3-2-5-2D, sunroom w/15' bar, pool, wooded lot. (719) 942-3627.

Sale or Lease: 10 acres, 1/2 mi. west of Hwy. 146 on FM 517, barn, ponds, util., more. Trey, 280-4381 or 484-7834.

Sale: Heritage Park, 3-2-2 home, freshly painted exterior, spa, lg. deck, FPL, 10.5% assum., near pool, tennis courts, elem. school, \$69,500. x36619 or 996-0289.

Sale: Heritage Park, 3-2-2 custom home, tile entry, custom kitchen, new deck and fence, both baths redone, new paint in and out, \$58,500. Tony or Lori Emmons, 482-5139.

Sale: Approx. 10 mi. from Crockett, TX, 5-yr.-old A-frame on 3 acres, furn., covered patio, metal bldg., fruit trees, \$19,000. 486-9760.

Lease: Nassau Bay, 4-2-5, exec. home, pool, spa, avail. immed., \$1350 + dep. 333-4623.

Rent: Pagosa Springs, CO, 2 BR house unit, 7 days, sleeps 8, extras, near Wolf Creek/Purgatory, pick week (Sat. to Sat.), 7 Oct. - 23 Dec. '89, \$350; 6 Jan. - 26 May '90, \$550. x34614 or 334-2278.

Sale: Seabrook, 3-2-2, new A/C, H, carpet, roof, many upgrades, approx. 1800 sq. ft., all brick w/FPL, never flooded, redwood deck w/ spa, \$69,900, assum. at 9 7/8%, must qualify, \$0 down, \$0 closing. Richard, x30271 or 474-9334.

Lease: Univ. Trace condo, 1 BR plus study, upstairs unit, W/D, microwave and security system, \$400/mo. 333-3925.

Rent: Piper's Meadow, 2-2-2, lg. yard, 3 mi. from NASA. 486-5659.

Sale: Friendswood, 3-2-2D, great floor plan, for sale by owner, \$65,900. 482-7102.

Lease: West Pearland/South Down, 3-2-1, PISD, recently remod./new appl., fenced back yard, near pool and tennis, no pets, \$600/mo., 1st + last + \$200 dep., ref. 485-0830.

Sale: Kirkwood South, lg. custom 2-story, approx. 2400 sq. ft., 4-2 1/2, formals, FPL, near high school, \$79,900. 488-5210.

Sale: Alvin/Pearland, brick 3-2-2 w/work-

shop area, 1800 sq. ft., FPL, C/AH, 3/4 acre, trees, fenced dog kennel, patio, beamed cath. ceiling, \$53,000. 977-0223.

Lease: Webster, 3-2-2 C/AH, FPL, new paint, new bath rooms, clean, large lot, \$950 OBO, + dep., avail. Oct. 1. 282-2619 or 333-2481.

Cars & Trucks

'87 Maxima GXE, fully loaded w/alarm system, jet black, 18K, ex. cond., \$14,000. Tammy, 282-4455.

'82 Chevette, auto., AC, 4-dr, approx. 65K, beige w/tint, new batt. and alt., \$1200 negot. 282-6716 or 280-9479.

'78 Datsun 280Z, 4-spd., clean, good cond., A/C, \$1995. x35180 or 326-3706.

'85, 35' Mailadr motor home, loaded, low mi., \$40,000. 337-4051.

'72 Olds Delta 88, rusty, runs very well, needs muffler, \$400. x35430 or 554-7504.

'77 Chevy Chevette, beige, runs well, auto., no A/C, \$400, OBO. Stephen, 973-3146 or 869-7202.

'86 T-Bird Turbo Coupe, red ext. w/red leather int., loaded, 10000 finan. to qualified buyer, OBO. Jeff, 280-7720 or 486-5422.

'85 Pontiac 6000 LE, V6, air, PS/PB, cruise, tilt, auto., w/OD, power windows, 33K. Matt, x34285 or 486-7260.

'84 Chevy Celebrity, 4-dr, auto., A/C, power windows/locks, cruise, tilt wheel, deluxe cloth upholstery, reclining bucket seats, AM/FM radio w/tape deck, metallic brown, \$5500. Edward, x36250 or 481-4889.

'85 Riviera, gun-metal gray, leather int., loaded, clean, low mi., \$6500. Linda, 333-2561 or 480-0513.

'84 Toyota P/U, AC, AM/FM/cass., new tires, blue, 49K, ex. cond., \$4,500, OBO. Roland, 481-5606 or 477-8841 ext. 273.

'84 Chrysler La Baron Convert., "Mark Cross Edition," white, leather uphol., stereo/cass., AC, AT, PS, PB, PV, power locks/ windows, 68K, \$5300. x31172 or 332-2089.

'84 Coachman 23' w/awning and tow dolly, 25K, ex. cond., \$18,500. (409) 925-4314.

'79 Chevrolet Impala SW, one owner, runs great, \$600. x35067 or 333-3544.

'64 Corvair Monza Coupe, reworked trans. and brakes, auto., A/C, needs eng. work and paint, \$800, OBO. (713) 333-3990.

'81 Blue T-bird, 87K, auto., A/C, P/S, P/B, AM/FM, V8, clean, \$2300. x36554, 892-6983 or 486-5207.

'72 Fiat Spyder Convert., runs great, many new parts, stereo, blue, \$2,250, negot. 488-2941 or 388-1924.

'81 Buick Regal, A/C, auto., 2-dr, stereo cass., dk. blue, over 100K, some rust, \$1000 OBO. Chris, x37796 or 480-0277.

'88 Chevy S10 Blazer, 2-tone, blue and metallic gray, ex. cond. 282-3873.

'80 Corvette, 46K, great interior and body, \$8000, 334-6275 or 554-6831.

'82 Honda Accord 4-dr, auto. A/C, cruise, stereo cass., \$3850 or '80 Toyota Corolla Liftback, A/C, 5-spd., sell one, not both, \$2350. x30092 or 481-3637.

'77 Toyota Corona station wagon, 5-spd., \$1100. Phil, x36166 or 326-1408.

Boats & Planes

Hobie 16, multi-colored sails, custom sail box, galv. trlr., many extras, stored indoors, like new, \$2500. 538-1148.

'84 Wellcraft 18' fisherman w/150 HP Yamaha, sportsman trlr., white line chart recorder, flash sounder, VHF radio, antenna, 2 batt., swim platform, SS prop + spare, live well, Bimini top, \$8500. Steve, x32460 or 482-3696.

22' "Columbia" sailboat, fix-keel, roomy cabin, head and sink, full sails, 6-HP motor, docked in Clear Lake, \$2500. x31588 or 488-1326.

16' Hobie Cat, 2 sets of sails, harnesses, traps and life jackets, trlr., optional, BO. John, x38988 or 482-6364.

16' Fiberglass tri-hull Chrysler boat w/100HP

Today

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

Saturday

Trek Fest '89—"The Overview Effect: Space Exploration and Human Evolution" will be presented at noon Saturday at the Medical Center Holiday Inn, in conjunction with the festival. Festival tickets are \$6. Contact Peter Lange, x30850, for more information.

Monday

Computer law—"Recent Trends in Computer-related Law" will be discussed at the next meeting of the Clear Lake Chapter of the Association for Computing Machinery at 5:30 p.m. Sept. 11 in the American Host Hotel Ballroom A. Michael Gemignani of the University of Houston-Clear Lake (UHCL) will deliver the keynote speech. Call Susan Porter, 480-4101, or George Widerquist, 480-1994, to make reservations; deadline is noon, Sept. 8.

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

Tuesday

Cafeteria menu—Special: fried

chicken. Entrees: Salisbury steak, shrimp Creole. Soup: split pea. Vegetables: mixed vegetables, beets, whipped potatoes.

Wednesday

PSI to meet—The Clear Lake/NASA area chapter of Professional Secretaries International will meet at 5:30 p.m. Sept. 13 at the Holiday Inn on NASA Road 1. Vera Allen and Dora Murders, vice president and secretary, respectively, of the Texas-Louisiana Division of PSI, will discuss "A PSI Chapter: How It Works and Relates to the Members." Dinner is \$9. Call Mary Todd, 282-3942, or any PSI member to make reservations. For more information, call Sheila Alban, 333-0910.

MAES luncheon—The monthly luncheon meeting for the Mexican American Engineering Society will be held at 11:30 A.M., Sept. 13, at Mamacita's restaurant, 18206 Egret Bay Blvd. For information, contact Jose Reyes, x38974.

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

Thursday

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

Spanish rice.

Sept. 15

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

Sept. 18

Human factors symposium—JSC and the American Astronautical Society (AAS) present the symposium, scheduled to be held at Gilruth Recreation Center Sept. 18, from 1-4 p.m., and a social hour and dinner beginning at 6 p.m. Events will be held from 8:30 a.m.-4:45 p.m. daily Sept. 19-21, at the Nassau Bay Hilton. Speakers and panel members include Ben Rich, general manager of Advanced Development Projects, Lockheed Aeronautical Systems Co., and former astronaut and U.S. Sen. Harrison Schmidt. For registration information, contact Nellie Curtiss, 333-6232, or JoAnn Bertrand, 333-7450.

Sept. 20

Computer security expo—The Data Processing Systems Division (DPSD) will host a User Workstation Security Exposition from 9:30 a.m.-4 p.m. Sept. 20-21 in the Product Demonstration Facility (PDF), Bldg. 12, Rm. 112. Exhibitors will display anti-viral, encryption, storage, access control, keystroke auditing and LAN security products. For details, call x37572.

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Sale: Alvin/Pearland, brick 3-2-2 w/work-

Ev'n. Sportsman galv. trlr., boat needs floor work, motor runs great, \$1650. Linda, x31168 or (409) 925-4862.

'78 Renken 19' Bowrider, 170HP fresh trlr. cooled Merc. I/O, galv. EZ loader trlr. depth finder, runs great, runs great, lots of room, \$4000. 532-3515.

Tri-Q experimental aircraft, 2-place, 140MPH, 75HP, 300HRT, based at Houston Gulf Airport, cost \$20K+, now \$12,500 or trade for fishing boat, motorhome, car, etc. Wood, x37007.

15' Thompson Bow Rider, w/60 Johnson, trlr., 2 new tires, equipped for fish and ski, \$1800. 554-7087.

Cycles

'86 Honda 700 Interceptor VFR, gear-driven cam V4, like new, red, white, blue, matching helmet, garage-kept, low mi., \$3300 nego. x31588 or 488-1326.

'84 Honda V56-Magna, black, 9K, \$1800 firm. Paul, 282-4098 or 554-6366.

'82 Honda Nighthawk 650, good cond., runs great, 11K, new tires and batt., \$1000 cash, OBO. Kevin, x36905 or 488-8173.

Yamaha YZ-125 dirt bike, basket case, complete, not wrecked, \$50. John, x38178 or 482-5837.

Audiovisual & Computer

Zenith computer, IBM compat., 640 K, 2-360 K floppy drives, graphics capability, internal modem, software and manuals, \$700, OBO. Daryle, 282-4863 or 532-1977.

Aston Tate's D-Base for Macintosh, \$100 OBO. 280-8006.

Mackintosh Plus, 1 MB, 20 MB Rodime HD, ImageWriter Printer, Macintosh manuals, games, Turbo Pascal, MacWrite, \$2500, OBO. Karen, x31827 or 326-2429.

PC/XT compat. 30 MB HD, 360 and 720 floppies, 640 KB RAM, 8087 coprocessor, mono flat screen, internal modem, keyboard, multi I/O and color card. Sarah, 282-3386 or Kevin, 282-4871.

Genuine IBM XT computer, 640K, 30 MB HD, 2 floppies, Premium 600 Series Taxan color monitor, AST 6-pack, clock, serial, parallel, printer incl., \$1450. x30092 or 481-3637.

Household

Couch and loveseat, not matching, contem. style, \$70 and \$50. Tim, 996-9191.

DR hutch, yellow pine/oak stain, cupboard in bottom, shelves on top, good cond., \$50; oak veneer TV cart w/doors/wheels, good cond., \$35. x58413.

Captain style twin bed, 2 drawers underneath, matt. ex. cond., \$1

ASTRONAUT SELEC

How do we pick future spac



By Jeff Carr

Finding a needle in a haystack might be a simpler proposition than that facing a team of NASA "talent scouts" whose job it is to scour the reams of SF 171s (Standard Forms 171) that flood the file drawers of Bldg. 259 this month.

These applications for federal employment all bear a common trademark. The entries at the top of each form in box number "1" (What kind of job are you applying for?) are the same—"Astronaut."

Screening of applications for the astronaut class of 1990 is under way in the first of what will become regular bi-annual selections. According to statistics compiled by the Astronaut Selection Office at JSC, nearly 2,500 applications were received prior to the June 30 deadline.

The two-year hiring cycle was adopted last year in order to assure NASA's ability to meet flight crew requirements while minimizing the impact on center resources, according to Donald Puddy, director of Flight Crew Operations. Those who are

needed to serve on the Astronaut Selection Board represent key manpower at JSC.

The selection board is chaired by Puddy, and its members include the director of Life Sciences, Carolyn Huntoon; the chief of Equal Opportunity Programs, Joseph Atkinson; chief of the Astronaut Selection Office, Duane Ross; and a number of senior representatives of the Astronaut Office.

"When you go to interview a hundred people or so, you tie up key personnel (from other areas) full-time for up to five weeks", says Puddy. "With the standardized two-year cycle, managers know what to expect and can plan for the increased workload."

Preliminary screening is done by the Astronaut Selection Office and has already been completed, with 1,945 applicants meeting the minimum qualifications for pilots or mission specialists.

The second screening phase consists of a more detailed review of applications by a JSC rating panel to determine which applicants are most exceptionally qualified, based on such factors as performance, acquired responsibility

and applicability of training. Highly qualified applicants are then turned over to the Astronaut Selection Board for a painstaking assessment of their academic and

'One of the biggest misconceptions is the extent to which it is a program support job. Most think that they'll be flying and in simulators a lot more than they will.'

**—Steve Hawley
Deputy Chief
Astronaut Office**

professional experience and references, plus a review by JSC flight surgeons of applicants' medical forms. The overall rating effort is expected to produce about 100 top candidates.

Beginning this month, the top-rated applicants will be invited to JSC in groups of about 20 for interviews and medical evaluations. In this final phase of screening leading to the selection, applicants will be evaluated for such qualities as adaptability, communication skills and teamwork.

In addition to being sized up by NASA flight surgeons and members of the selection board, applicants will have a chance to learn something more about the jobs they are seeking through orientation briefings and tours.

"We really want to pick people who know what they're signing up for," says Steve Hawley, deputy chief of the Astronaut Office and a member of the selection board. "We encourage them while they're here to meet and talk with as many current astronauts as they can."

The most common question, according to Hawley, seems to be how their time would be spent should they be selected.

"One of the biggest misconceptions is the extent to which it is a program support job. Most think that they'll be flying and in simulators a lot more than they will."

The opportunity to meet and talk

with potential new team members is welcomed by current astronauts, Hawley says. "Most people remember what it was like when they applied, and they want to help out."

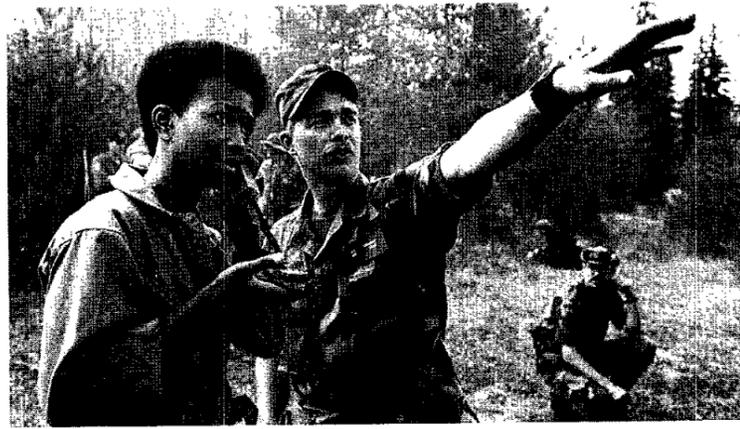
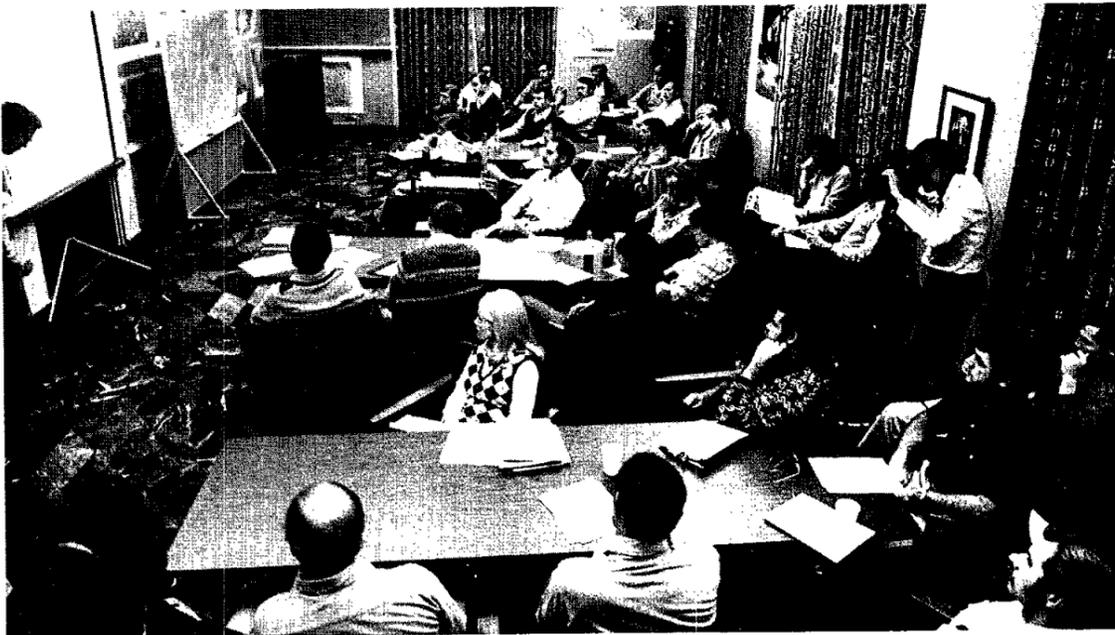
The first group of applicants is due to arrive at JSC for orientation and interviews the week of Sept. 18.

"We get a little bit smarter about the way we do this with each selection," says Duane Ross, who expects this year's selection task to be comparable to 1987. Statistical comparisons are very close.

The number of applications received for consideration in the 1987 selection was 2,062 with 1,846 meeting minimum qualifications. From 117 interviewees, 15 finally were selected as astronaut candidates.

Current plans are to announce the class of 1990 in January, with the new hires reporting here in July. Like their predecessors, they will be subject to one year of candidate training and evaluation before receiving technical assignments and full astronaut status.

Ross expects this year's effort to produce anywhere from 15 to 20 new top-notch JSC employees.



NASA Photos

Top left: Darlyne Anderson shows the accumulation of astronaut applications in the Bldg. 259 files. Top right: Duane Ross and Teresa Gomez of the Astronaut Selection Office go through some of the 2,500 astronaut applications received for this year's selection process. Far left: Class of '84 astronaut candidate Kathy Thornton undergoes parachute training. Above: Class of '78 candidates listen to one of many classroom lectures their training includes. Left: Class of '87 candidate Mae Jemison takes part in survival training in Washington State.

NASA selects 17 Space Grant colleges, groups

NASA has chosen 17 universities and consortia as Designated Space Grant Colleges/Consortia in the first element of the agency's new National Space Grant College and Fellowship Program.

The Designated Space Grant Colleges/Consortia will provide leadership and form partnerships with other universities, government and industry to better understand, develop and use space resources through research, education and public service functions.

"The National Space Grant College and Fellowship Program will help maintain America's leadership in aerospace research, training and education," NASA Administrator Richard H. Truly said in

announcing the selections Aug. 31. "The investment in these universities and consortia will greatly impact and nourish all levels of education."

The legislation for the program was authored and originally introduced by Sen. Lloyd Bentsen, D-Texas, and mandated by Congress in 1987. The program consists of three elements: 1) designation of Space Grant Colleges/Consortia already involved in space-related activities, which will receive grants and fellowships; 2) awards to support space grant programs at other institutions that have not been as extensively involved in aeronautics and space research and education; and 3) fellowships that will be made available to students at

institutions selected in the first two elements. The second and third elements of the program will begin in fiscal year 1990.

The designated colleges/consortia will receive funding for five years. In fiscal year 1989 each designee will receive \$75,000. In subsequent years, the institutions will receive up to \$225,000 per year and are expected to obtain, as a minimum, matching non-Federal funds. In addition, these designated institutions will receive \$100,000 funding to support fellowships for undergraduate and graduate students beginning in fiscal year 1990.

The 17 designated universities and consortia, listed in alphabetical order, are: Alabama Space Grant Consortium; Ariz-

ona Space Grant College Consortium; California Space Grant Consortium; Colorado Space Grant Consortium; Cornell Space Grant Consortium; Florida Space Grant Consortium; Georgia Institute of Technology; Aerospace Illinois Space Grant Consortium.

Additionally, The Johns Hopkins Space Grant Consortium; Massachusetts Institute of Technology; Michigan Space Grant College Program; Ohio Aerospace Institute; Pennsylvania State University; Rocky Mountain Space Grant Consortium; Texas Space Grant Consortium; Virginia Space Grant Consortium; and the University of Washington are included in the first element of the program.

STS-34 launch, landing passes now available

Requests for vehicle passes to the launch and landing of STS-34 are now being accepted by the Public Affairs Protocol Office.

Each launch pass will permit the occupants of one standard-sized passenger vehicle, including vans, to view the launch from the Causeway Viewing Site or the landing at Dryden Flight Research Facility.

All recreational vehicles, campers, trailers and buses will be directed to a designated area at the same site, but will require a special placard.

When submitting requests, send them to the Protocol Office, AP4, and include your name, complete mailing address, and type of pass requested (launch or landing). Also indicate whether your vehicle is standard or oversized.

Instructions to guests will be provided with the passes, which will begin being mailed from JSC about 30 days before launch. For more information, call the Protocol Office at x33276.

Ford gets contract

(Continued from Page 1) contract period, including those who work for subcontractors.

The proposed cost-plus-award-fee contract consists of a basic period of six years with priced options for four additional one-year periods. It is anticipated that the contract will be awarded in November. Ford's proposed cost and fee is approximately \$469 million for the 10-year period.

Major subcontractors include Unisys Inc., Federal Information Systems, Houston; IBM Corp., Houston; and Booz-Allen and Hamilton Inc., Bethesda, Md.



JSC Photo by Bob Walck

SYSTEMS FURNITURE—The coordinators of a Mission Operations Directorate's pilot project, above, meet with Center Operations leaders considering "systems furniture" use throughout JSC. From left are E.D. Carter, Rena Haldiman, Elsie Johnson, Linda Massey, Debbie Wager, Jeff Albright, Julia Watkins and Ken Glibreath. Below, Betsy Youmans tries out one of the Bldg. 2 work stations.



STS-34 crew anticipates busy mission

Important ozone measurements to be taken

(Continued from Page 1)

"We are, of course, interested in the amount of ozone in the environment," Chang-Diaz said. "We will be trying to measure a very small quantity and its changes will be even smaller," he explained. "Calibration, to get a very accurate measurement, is very important," he stressed.

Chang-Diaz, who plans to receive a call from the president of his native Costa Rica during the

mission, answered several questions posed in Spanish, noting his participation in plans to hold a Pan American conference early next year among Latin American countries, Canada, and the United States, to explore areas of mutual interest in space.

He joined with Lucid, a biochemist, and Williams in wishing well the Soviet cosmonauts, launched the day before to dock and man the Mir space station. "When we do that

(participate in space missions), we are no longer citizens of countries," Chang-Diaz said. "We are citizens of planet Earth."

"The universe is a big place," Lucid added. "Except for the language barrier, talking to the cosmonauts is like talking to one of us."

Physician Baker, who along with McCulley will be making her first space flight, explained the medical tests the astronauts would participate in on the flight.

Health related fitness sign-up deadline nears

The beginning of classes in the 1989-90 JSC Health Related Fitness Program (HRFP) is nearing, and employees who wish to sign up should do so as soon as possible.

The first session of the initial 12-week course (HRFP I) will begin meeting Sept. 25 at the Gilruth Recreation Center. The first session of the 10-week refresher course (HRFP II) will begin meeting Sept. 26. In 1990, there will be four more sessions of HRFP I and two more sessions of HRFP II.

The reason for the urgency is that all applicants must be declared healthy by medical examination and a maximal treadmill test if deemed necessary. Although the examination is furnished for civil servants at the JSC Clinic, contractors, dependents or retirees must obtain the examination at their own expense. Enrollment is limited to 40 students in each HRFP course.

According to Charles P. Bergtholdt, JSC's occupational health

officer, studies on the NASA/JSC program show that over the long term, the health risks for participants lessened while the health risks for non-participants increased.

The education components of the courses are designed to develop skills needed to exercise safely and effectively, promote an understanding of the role of exercise on health and induce improvements in the health-related fitness components of cardiorespiratory endurance, relative body fatness, muscular strength and flexibility.

To apply, complete JSC Form 1285 and mail it to Code AW or deliver it to the HRFP staff at the Gilruth between 8 a.m. and 5:30 p.m. After being medically cleared, applicants will be scheduled for a one-hour consultation where they will be given a scientifically designed exercise prescription and assigned to one of the education classes. For more information, call x30301 or x30302.

JSC Clinic will offer flu shots

The JSC Clinic will be offering flu vaccinations daily beginning Sept. 25.

Influenza vaccine inoculations will be available from 10 a.m.-noon and from 2-4 p.m. Sept. 25 at the clinic in Bldg. 8. Vaccinees will be asked to sign an informed consent form, and will have an opportunity

to ask questions.

High-risk individuals, those with heart disease of any type, chronic broncho-pulmonary disease such as asthma, chronic bronchitis and emphysema, and diabetes mellitus are urged to consider taking the vaccine.

For information, call x34111.

Galileo to follow winding path

(Continued from Page 1)

Galileo will finally be on a direct path to Jupiter. About five months before achieving its planned two-year orbit around the planet in late 1995, the Galileo entry probe will separate from the spacecraft for its special journey into Jupiter's atmosphere.

Measurements of the pressure, density, composition and electromagnetic emissions within the Jovian atmosphere will be taken for 75 minutes before the probe is eventually crushed by the intense pressure.

Except for the Sun, Jupiter is the Earth's strongest source of radio signals. At Tuesday's briefings, both JPL scientists expressed their excitement at the opportunity the 22-month orbit will allow for a further understanding of the planet's magnetosphere (the

region occupied by the planet's magnetic field and trapped charged particles that generate the radio waves.) "We'll be studying basic physics," Johnson said.

STS-34's secondary payload will include the Shuttle Solar Backscatter Ultraviolet (SSBUV), an experiment located in the *Atlantis'* payload bay that will measure the total amount and height distribution of ozone in the upper atmosphere with instruments identical to instruments on operational satellites which will be simultaneously measuring the same area.

In addition, the Growth Hormone Concentration and Distribution (GHCD) experiment will determine the effects of microgravity in the absence of light on plant growth and a student experiment (SE-82-15) will investigate ice crystal formation in zero gravity.

Asian Pacific Americans to celebrate heritage

(Continued from Page 1)

Krishen is now assistant to the director of Mission Support for technology and advanced programs, as well as the principal technologist representing JSC to the NASA Council on Science and Technology. He began his aerospace career working for Lockheed Electronics Co. as a staff scientist and engineer supporting JSC's Earth Observations Division in 1969, and went on to join NASA in 1976 as Microwave Program manager for Earth observations. Since then, his research has expanded to include various types of remote and robotic sensing and communications technology, as

well as developing strategies to support America's space exploration goals.

Krishen says Asian Pacific Americans have a special eagerness to become highly educated that is based on a cultural emphasis on knowledge as a power base. This cultural emphasis has led to increasing numbers of students in high technology fields, he says.

"There's a lot of recognition for knowledge," he says. "If you are knowledgeable in a community of Asian Pacifics, you're respected."

Richard Long, a project manager for Lockheed Engineering and Sciences Co., is now working on an orbital debris collision warning

sensor he hopes will be flown as a space shuttle flight experiment and later be applied on Space Station *Freedom*. Although of Chinese heritage, he was born in the U.S. as a natural citizen. Since 1964, he's been working for Lockheed in Clear Lake on systems used in the Gemini, Apollo and shuttle programs, and on Tracking and Data Relay Satellites.

He says that the ability of people from so many different Asian Pacific cultures to work together successfully on the space program is an accomplishment in itself that should be an example to others.

"Presenting to people the working together of all these people and

doing it peacefully—that's really something the world should look at," he says. "It can be done."

Avelino Casingal, co-chair of the program, says he enjoys sharing the Asian Pacific customs, traditions and clothing with his fellow NASA employees.

Casingal is an auditor for the NASA Office of the Inspector General at JSC. He is a native of the Philippines who came here as a visitor in 1971 and decided to stay.

This year's program begins this morning with discussions on dynamic leadership in meetings, community and political involvement, business and social manners and coping with discrimination.

This afternoon, Joseph Atkinson, chief of JSC's Equal Employment Opportunity Office, will welcome program participants in Teague Auditorium. Criminal Court Judge Hannah Chow will present the keynote address. Chern-Min Chow, a reporter for KTRK-TV Channel 13, also will speak.

Following the speakers, martial arts will be demonstrated by Mike Glynn. Junko Sato will present a traditional Japanese tea ceremony. Then, a fashion show and performances will be presented by representatives of Bangladesh, Burma, Cambodia, China, Hawaii, India, Japan, Korea, Philippines and Vietnam. Refreshments will follow.