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Space News Roundup

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No. 41

Weather delays, but can't stop *Columbia* launch

Columbia and crew got off to a late start at 12:09 p.m. CDT Thursday following an STS-52 countdown hindered only by winds.

The launch, originally scheduled for 10:16 a.m. CDT, was postponed for almost two hours because of concerns about crosswinds in the event of an abort landing at Kennedy Space Center's Shuttle Landing Facility or the trans-Atlantic abort sites.

After receiving word that weather at the Banjul, The Gambia, landing field was 'go,' the launch, flight control and mission management teams waited until noon before concluding that it was safe to launch *Columbia*. With Commander Jim Wetherbee concurring,

the teams picked up the countdown at T-minus 9 minutes.

Wetherbee, Pilot Mike Baker, Mission Specialists Lacy Veach, Bill Shepherd and Tammy Jernigan, and Canadian Payload Specialist Steve MacLean will work with three major cargoes on STS-52: the Laser Geodynamics Satellite-II, the Canadian Experiments package, and the United States Microgravity Payload, LAGEOS-II was to be deployed from *Columbia* at 8:56

a.m. CDT today and will be boosted by the Italian Research Interim Stage and an apogee



kick motor to a 3,666-mile circular orbit. Geologists on Earth will use LAGEOS as a reflector to bounce laser beams off of and gain precise measurements of movements of the Earth's crust, its gravity and wobbles in its rotation.

Columbia will then lower its orbit by about five miles for the Canadian Space Agency's CANEX operations. For CANEX, MacLean will evaluate the use of a new camera, or vision system, on *Columbia*'s robot arm by deploying a small target from the cargo bay and tracking it with the

arm. CANEX also includes experiments in the exposure of various materials to space, the manufacturing of materials in space, the effects of weightlessness on humans, and the Earth's upper atmosphere.

Throughout the flight, work with USMP will be under way under the supervision of controllers at Marshall Space Flight Center. USMP is a package of experiments investigating effects of space and weightlessness on various materials, many of which are used in semiconductors, and gases.

Atlantis completed a one-day ferry flight Sunday to Rockwell's Palmdale, Calif., factory to begin a year of inspections and upgrades.

Lambda-Point to test Nobel physics theory

Scientists will test a Nobel Prize-winning theory that may have applications ranging from hurricane dynamics to superconductivity during the STS-52 mission.

The Lambda-Point Experiment, part of NASA's first United States Microgravity Payload, will study the strange behavior of helium at its critical temperature of 2.177 degrees above absolute zero (minus 459 degrees F).

"Cryogenics and ultra-sensitive thermometry (measuring billionths of a degree) will be used to study the mysteries of changes in material properties during phase transitions," said Reuben Ruiz, LPE manager to NASA's Jet Propulsion Laboratory.

Phase transitions, such as those between water and steam or ice and water, are common in nature and technology and are well understood with certain exceptions. The transition between helium's liquid state and its rare superfluid state, in which the helium flows without friction, is the target of the LPE's investigation.

LPE was devised by Dr. John Lipa, Stanford University physicist and principal investigator.

Lipa's group developed a very precise thermometer and other experimental equipment to measure the unusual thermal properties predicted by Nobel Laureate Kenneth Wilson's "Renormalization Group Theory."

This theory is believed to apply to physics problems ranging from the flow of fluids (including the winds of hurricanes) to chemical bonding and superconductivity. It provides a mathematical explanation of how interactions at the atomic level can translate into large phenomena.

The theory can be tested more rigorously with helium at the transition temperature in microgravity.



JSC Photo by Scott Wickes

Members of the Texas congressional delegation wave their pieces of the Space Center Houston grand opening ribbon after helping the Manned Space Flight Education Foundation Inc. dedicate its facilities last Friday. From left are MSFEFI President Hal Stall, Rep. Tom DeLay, Houston Mayor Bob Lanier, Rep. Mike Andrews and Rep. Jack Brooks. The \$70 million "experience center" opened to the general public immediately after the ceremony.

Space Center Houston gets arrival fanfare

With the life-sized Space Shuttle *Adventure* in the background and the strains of "America the Beautiful" echoing across the plaza runway, the Manned Space Flight Education Foundation and its guests Friday cut the ribbon that officially opened Space Center Houston.

The board of the Manned Space Flight Education Foundation Inc. shared the honor of opening its brand new visitor center with local, state and national officials who praised both its educational goals and the exploration goals of the country's space program.

The ribbon cutting — which got off to a slightly late start when dark clouds threatening rain outside forced the pageant inside — was the culmination of years of hard work by thousands of people to build a world-class showcase for NASA's accomplishments and its dreams for the future.

"Some years ago, when his spacecraft arrived in orbit around the Moon, Apollo 10 Commander Tom Stafford radioed back to the Earth and said, 'Houston, you can tell the world we have arrived,' said MSFEFI President Hal Stall. "Well, this morning we bring a great labor of love to completion, and on behalf of the thousands of people who have dedicated themselves to this effort, I am pleased to tell the world that Space Center Houston has arrived."

"And although Space Center Houston opens its doors today, we find that all the hard work over the past several years is only a prelude to the job ahead," Stall added.

Please see **SPACE**, Page 3

Two JSC contractors win Low Trophy

JSC contractors IBM Federal Systems Co. of Houston, and Honeywell Inc. Space and Strategic Systems Operation of Clearwater, Fla., received NASA's coveted George M. Low Trophy for quality and excellence Tuesday night.

NASA Acting Deputy Administrator Aaron Cohen presented the awards to IBM General Manager Anthony J. Macina, General Manager and Honeywell Vice President

and Group Executive Carl L. Vignali at the 9th annual NASA/Contractors Conference on Quality and Productivity in Pasadena, Calif.

IBM designs, develops, integrates and supports both software and hardware for JSC, Marshall Space Flight Center and Kennedy Space Center. Its NASA contracts totaled \$17 million in 1991.

Honeywell, as a subcontractor to Rockwell's Space and Rocketdyne

Divisions, provides the main engine controllers and flight control systems for the space shuttle, and has important contracts in support of Space Station *Freedom*. Honeywell supports JSC, Marshall and NASA's Jet Propulsion Laboratory. Its 1991 contracts totaled \$84 million.

"These companies have made it clear that they aspire to world-class standards, and all of them are moving steadily toward that goal,"

Cohen said.

The award program began in 1985 and was renamed in honor of George Low in 1990. It is the most coveted productivity and quality award in the aerospace industry, with high standards and rigorous competition.

Over the past eight years, 231 contractors, subcontractors, and suppliers have self-nominated and

Please see **COHEN**, Page 4

Combined Federal Campaign begins

JSC kicked off its 22nd annual Combined Federal Campaign on Tuesday, establishing a goal of \$440,000 for 1992.

The theme of this year's 1992 Combined Federal campaign of the Texas Gulf Coast, of which JSC's efforts are a part, is "Get Into the Spirit!"

"I know that JSC employees care, and it is my sincere hope that you will contribute as liberally as possible to this deserving campaign," said Acting JSC Director Paul J. Weitz. "It is good to remember that you will not only be helping your community to help itself, you undoubtedly will be helping a neighbor or loved one when they need it most."

The CFC, which runs through

Nov. 10, is a once-a-year voluntary fund-raising effort that gives JSC employees a chance to contribute to local, national and international health and welfare charities.

Last year, JSC employees gave \$423,000 of the \$2.1 million contributed by federal employees throughout the Houston area. This year's community United Way goal is \$67 million, and the total CFC goal is \$2.2 million.

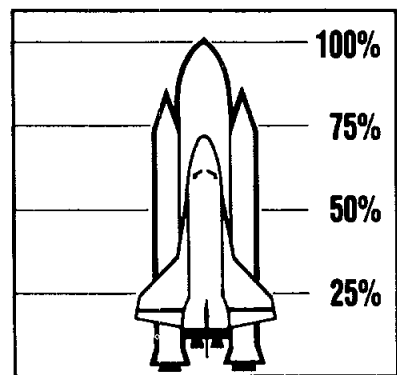
To learn more about the campaign and some of the needs in our community, JSC employees are invited to an open forum with representatives from the CFC at 1:30 p.m. Thursday in Teague Auditorium.

In addition, Steve Waldner, director of the United Way Service Center of the Bay Area, will discuss

some of the 19 different services — which range from drug rehabilitation to elder care — available in the Clear Lake area. Dr. Huey Barnett, director of the Bridgeport Communities in School, also will discuss the dropout prevention program for students and its plans for expansion.

JSC CFC Coordinator Teresa Sullivan said there are some additional incentives this year for employees who pledge 1 hour's pay or more. Those who pledge 1 hour's pay per month will receive a CFC eagle pin. Those who pledge 2 hours' pay will earn an eagle pin and a writing pen. Those who contribute \$300 or more per month will earn a coffee mug. Those who

Please see **CFC**, Page 4



1992 GOAL: \$440,000



Japanese, French payload specialists chosen for IML-2

NASA announced Monday the selection of a Japanese scientist as the prime payload specialist for the second International Microgravity Laboratory mission, and a French scientist as his backup.

Dr. Chiaki Mukai, Ph.D and M.D., of the Japanese National Space Development Agency, is to fly on the mission, scheduled for launch in July 1994.

Dr. Jean-Jacques Favier, a scientist with the French Atomic Energy Commission, will be the alternate payload specialist. Favier will be one of the principal communicators with the laboratory during

Please see **JAPANESE**, Page 4

Space Center Houston Arrives

Grand opening dignitaries praise educational goals, reaffirm exploration goals



(Continued from Page 1)

"If you listen closely today, you will hear distant trumpets in here, the roar of rocket engines, and the sounds of triumph and adventure. You will hear the long-past echoes of a young president, urging us on to explore a new frontier and driving us to fulfill our generation's destiny on the shores of the Moon. And you will see the artifacts of that adventure, and we hope you will come to appreciate the caring and the dedication that has gone into the space program over the years. And what you take with you, what we hope you and your children will remember when you leave, is that the people of NASA and the Johnson Space Center hear those distant trumpets every day."

The people of the space program from yesterday and today are the 20th Century's answer to the distant trumpets sounded by Columbus and Cabot, Drake and Magellan, Lewis and Clark, Stall said.

"To the extent that you hear the music, and understand their passion, to the extent that your children are inspired and future explorers are given new horizons to aim for, then the people of Space Center Houston will have done their jobs."

JSC Director Aaron Cohen said that visitors came from near and far to see the manned spacecraft center during its first 30 years, despite woefully inadequate facilities to show them the wonders of the space adventure.

"The facilities and services were limited to the extreme and we knew that our capability to showcase the agency was inadequate — and still, the people came," Cohen said. "That is why, today, I am so excited to witness the grand opening of Space Center Houston. Finally, today, as you can see, we have a world-class facility that allows us to depict the history of manned space flight, our current programs and our exciting plans for the future in a dynamic and awesome setting."

"I am indebted to the Manned Space Flight Education Foundation for this creation," he continued. "As the director of the Johnson Space Center, I pledge to you my commitment to make our labors worthy of your confidence and support."

NASA Administrator Daniel Goldin said Texas has always been a place for pioneers

and for people who think big.

"Houston is a great city and the site of a great adventure — home of the JSC, home of the astronauts, home of the professionals who train them and keep them safe as they venture off into the heavens," Goldin said. "Now, with Space Center Houston, we have a place where students can touch and hear and see what space is all about. They can look inside a space shuttle cockpit and then try to land it on a simulator. They can watch astronauts train, see historic spacecraft, touch a Moon rock and learn what the history of the future will look like."

"Every generation has had its world to explore. Humans have never possessed a technology for travel they've refused to use," Goldin said. "Exploration is not simply a pastime for the curious."

Exploration is a biological imperative that's wired right into our DNA and there's something intrinsic in life itself that says to grow is to live, to stop is to die. Exploration is part of what we live for.

It is how we grow as intelligent beings. Destiny is not what calls us to explore space. Humanity does.

"Space Center Houston was built for the benefit of future generations. People will come by the millions to learn and to have their faith renewed in the goodness and ingenuity of humankind and America. This living, breathing, growing facility shows the courage of men and women who ride chariots of fire across the sky and blaze new trails for our great nation to follow."

Houston Mayor Bob Lanier said Houston and NASA are made up of great people, and that Space Center Houston is the result of the work of many great people.

"I've always thought this city had a particular spirit — a spirit of adventure, a spirit of risk-taking, a spirit of progress," Lanier said. "But probably no single effort has captured or currently represents the spirit of this city more than the space effort, more than this space center today. Because,

I think, it represents a city that remains on the cutting edge of progress, that remains out in the field of risk-takers, remains among those that are curious to see what is just beyond that which we know."

Harris County Judge Jon Lindsay, who was instrumental in securing the tax-exempt bond issue that paid for construction of the \$70 million visitor center, congratulated the hard work of the project's developers and the construction workers who had some difficulty building the 183,000-square-foot experience center in the rain on a mud flat.

"This building is a place, really, a place of dreams that inspires dreams," Lindsay said.

"As I look to the future and see and know the children that are going to come in here and be inspired to get into the program, or just to improve their scientific knowledge, that's got to be inspiring to all of the 3 million present citizens of Harris County."

Rep. Jack Brooks, D-Texas, praised the Texas delegation for

working hard to build and maintain Johnson Space Center and its leadership and pledged to continue to work toward the goal of building Space Station *Freedom* in orbit.

"This is truly a great day, not only for the people of Houston, but also for Hal and also for the people throughout this nation who enthusiastically support the Johnson Space Center and manned exploration of outer space," Brooks said.

Rep. Mike Andrews, D-Texas, said there is no better place than Space Center Houston to tell millions of people from around the world where America's space program has been, where it is and where it is going.

"My generation thrilled to the triumph of Alan Shepard's ride," he said. "And the mission of John Glenn touched all of us with its daring and its courage. Those early victories have set a breathtaking pace over the last 30 years. We recognize that the cost and the risk of manned space exploration is great, but so are the rewards."

"As we celebrate the opening of this important center today its import that we of this generation recognize our responsibility and our duty," he added. "We can keep America No. 1 in space competition or we can step aside and follow. The choice is a clear one. These young people who are here with us this morning are here to learn about the space program, its history and what it means to them in their lives. Our challenge — yours and mine in the weeks and the months and the years ahead — is to make sure all Americans, these young people and others, can share in the dreams and promises of our country's space program."

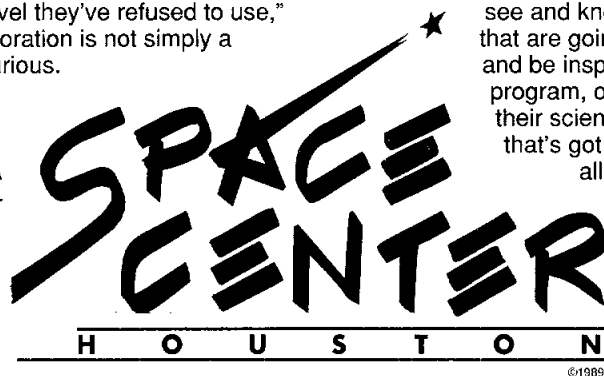
Rep. Tom DeLay, R-Texas, said he believes the future of America goes hand-in-hand with the development of space technology.

"Such technology means more than just jobs, it means a better quality of life here on Earth, a positive trade balance and the potential to replace depleting resources as well as the generation of new wealth from space," he said. "The ultimate legacy of American civilization will be our epic journey into space. I think we need places like Space Center Houston to get that important message out to the people of the United States."

In the midst of the grand opening, Goldin surprised Astronaut John Young — for the second time in two weeks — with a letter from President Bush commending him for his 30 years as an astronaut.

Reading from the letter, he quoted Bush: "The courage and skill with which you have met challenges at the various stages of America's space program reflect your own vitality and the genius of the American spirit. On behalf of a grateful nation, I salute you."

"We've had a great 30 years in this business," Young said. "We've accomplished many things. I was lucky enough to be associated with some incredibly talented, creative men and women that work over here at this space center and in the other NASA centers. In the next 30 years, if we can just turn these young people loose and take advantage of that talent and creativity the world will never imagine where we can be. They're going to do great things in space exploration in the next 30 years and it's going to be wonderful." □



JSC Photos by Robert Markowitz and Scott Wickes

Top: Scissors poised, Manned Space Flight Education Foundation President Hal Stall, Rep. Tom DeLay, Mayor Bob Lanier, Rep. Mike Andrews, Rep. Jack Brooks, JSC Director Aaron Cohen and NASA Administrator Daniel Goldin await the signal to snip. Left: hundreds of guests witness the grand opening ceremonies as DeLay's remarks are broadcast on the plaza's video wall. Bottom left: The Space Center Brass and the Space Center Chorus perform music for the ceremonies. Above: Goldin presents veteran Astronaut John Young with a commendation letter from President Bush.

NASA, JSC honor source evaluation board performances

Serving on a source evaluation board is sometimes seen as a thankless task, but a group of JSC employees received special recognition this week for their outstanding performance as SEB members.

JSC Procurement Director Gene Easley presented the monetary awards, which totaled about \$22,000, and were designed to focus attention on the importance

of the SEB process. SEB participants prepare requests for proposals, evaluate the proposals and present their findings to the source selection official for contractor selection.

The money came from a special NASA Headquarters allocation.

"Because of the conscientious dedication of these SEB participants, all of these SEB activities

were completed on an accelerated time schedule — without a compromise in the quality of work," Easley said. "Individually and collectively, each of these employees made a significant contribution to our acquisition process."

The award recipients, preceded by the SEB on which they participated, were:

Exploration Program Office

Engineering Support: Michael B. Duke, Beth D. Caplan, Izella M. Dornell, Lisa M. Rea, Dwayne P. Weary; Richard D. Whitlock, Rebecca L. Roach and Juanita G. Gibson.

Photo Support Services: Earl Rubenstein, Gary S. Cook, Barbara M. Gundermann, Susan K. Runco, James E. Townsend, Herbert Rocha and Virginia L. Gibson.

Instrument Calibration and Repair Services: David C. Dittmar, Krystine O. Bui, Frank A. Burgett, Jose M. Olivarez, Marie A. Prebilsky, Stephen C. Cleland and Chester P. Reno.

SEB Support Team: William D. Drastata; Betsy L. Hodges, John K. Lottinville, Richard W. McMinimy, Joyce R. Simmons and Julia R. Watkins.

New building means new phone digits

With the occupation of the new Bldg. 4S nearing, the Center Telecommunications System has been expanded — and that means there will be some new telephone numbers for employees to remember.

Since there were not enough numbers with a 483 prefix left to support Bldg. 4S, all occupants of that building will be assigned either a 244-7XXX or 244-8XXX number.

Calls between Bldg. 4S and any JSC or Ellington Field buildings can still be made by dialing the last five digits of the number. However, anyone who moves from Bldg. 4S to another on-site location will not be able to take their telephone number with them.

The expansion was accomplished by upgrading the current CBX 9000 system to include a CBX 9751 platform to support Bldg. 4S voice and data requirements. Acceptance testing was completed by ROLM and Information Systems Division personnel last month, and the new system is scheduled to become operational Nov. 1.

For more information, call your CTS coordinator (listed in the back of the JSC Telephone Directory).

Technical Services plans open house

The Technical Services Division will host an open house for all JSC and contractor employees from noon to 3 p.m. Nov. 5.

The 120,000-square-foot shop complex in Bldgs. 9 and 10 houses the latest in fabrication equipment and a staff of skilled mechanical, engineering and electronics technicians. Each section will have displays available and provide demonstrations of its unique equipment, and a self-guided tour will be marked off.

TSD is one of the original divisions organized when JSC was established in 1961, and has played an important role in the success of all of NASA's human space flight programs.

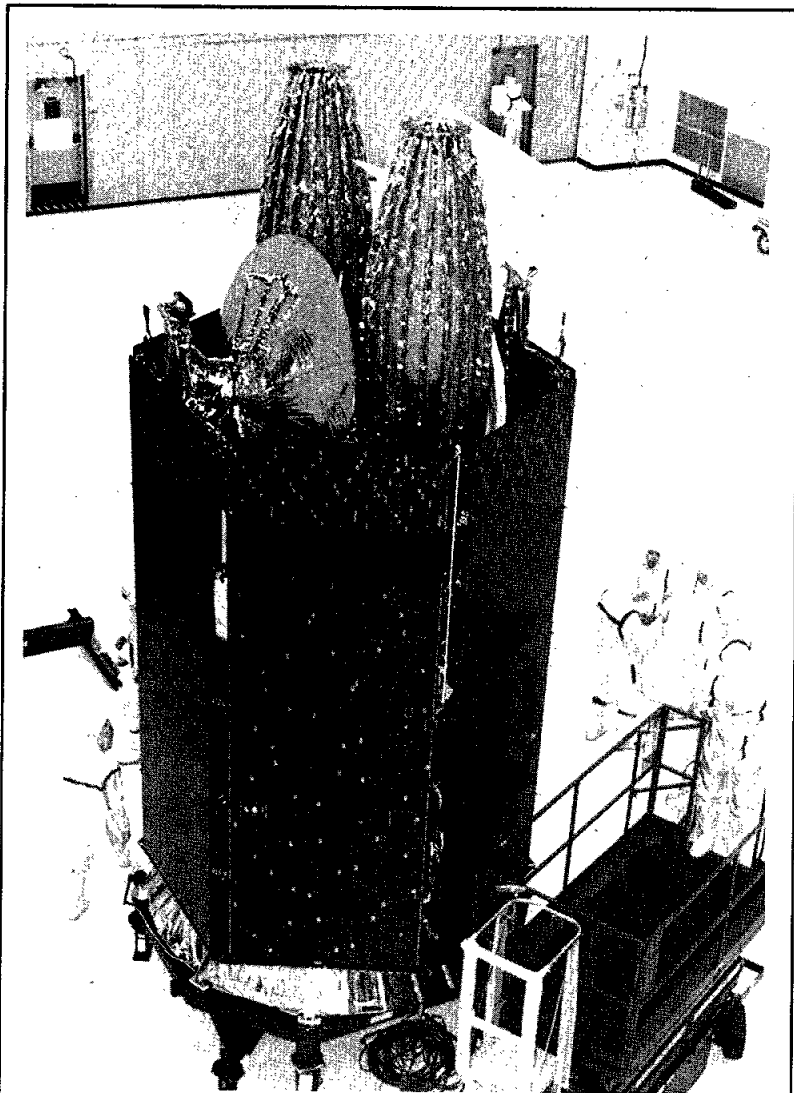
TSD is presenting the open house to provide its customers with a chance to view the facilities and to visit with the technicians who provide design and fabrication expertise in machining, sheet metal work, welding, model and plastics, fabrics and electronics.

Cohen lauds Low finalists

(Continued from Page 1)

176 have applied. Fifty-four finalists have been selected over the years, representing 31 separate companies, with some repeating three or four times. Eight recipients have been named, with two trophies awarded in 1987, 1990 and 1991.

Other finalist for the award were Cray Research Inc., Chippewa Falls, Wis.; McDonnell Douglas Space Systems Co., Kennedy Space Center Division, Florida; Paramax Systems Corp., Space Systems Operation, Houston; Olin Aerospace Division, Rocket Research Co., Redmond, Wash.; Stanford Telecommunications Inc., Systems Engineering Division, Reston, Va.; and Technical Analysis Inc., Houston.



PASSING GRADE — Tracking and Data Relay Satellite-F is unpacked from its shipping crate in Kennedy Space Center's Vertical Processing Facility. Scheduled to be launched on STS-54 early next year, TDRS-F this week passed its interface verification test with the inertial upper stage, and last week an all encompassing "end-to-end" test designed to reveal any problems between the shuttle communications satellite and its ground controlling stations.

NASA Photo

Center directors panel to highlight Space Exploration '92

A panel discussion featuring leaders from all eight NASA field centers will highlight the NASA Alumni League's Space Exploration '92 next week.

NASA Administrator Daniel Goldin will deliver the keynote address at the gala dinner at 8 p.m. Wednesday.

More than 4,000 people are expected to attend the third annual conference and exposition at the South Shore Harbour Resort and Conference Center.

Former NASA Administrator

James Beggs will be the keynote speaker on opening day, at 9 a.m. Tuesday. His speech will be followed by a 9:30 a.m. panel discussions on the space shuttle, moderated by Glynn Lunney, and a 1:30 p.m. discussion of Space Station *Freedom*, moderated by National Alumni League Director Robert Thompson.

The NASA center director's panel discussion begins at 9 a.m. Wednesday. It will be moderated by former JSC Director Gerald Griffin and feature Ames Research Center

Deputy Director Victor Peterson, Goddard Space Flight Center Director John M. Klineberg, JSC Director Aaron Cohen, Kennedy Space Center Director Bob Crippen, Langley Research Center Director Paul Holloway, Lewis Research Center Director Lawrence Ross, Marshall Space Flight Center Director Thomas Lee and Stennis Space Center Director Roy Estess.

A political panel discussion moderated by NAL Director H. Hollister Cantus will begin at 1:30 p.m. Wednesday.

A space technology panel discussion, moderated by NAL Director Jack Heberlig will begin at 9 a.m. Thursday. J.M. Vanderploeg, chairman of the American Astronomical Society's Southwest Section, will moderate a discussion of space exploration at 1:30 p.m. Thursday.

Employees of government agencies, and private firms and organizations actively involved in the aerospace industry may attend the exhibits only free with proper identifications during normal exhibit hours.

Japanese, French payload specialists to begin training

(Continued from Page 1)

the mission, and will train for the payload mission so that he could substitute for a flight payload crew member should one be unable to fly. Favier was selected by the French Space Agency as a candidate astronaut in 1985.

"The selection of Dr. Mukai and Dr. Favier to the crew of the IML-2 mission truly accents the international nature of the mission," said NASA Administrator Daniel Goldin.

"I was pleased to have the honor of informing both the Japanese and French space agencies of their selection."

The first mission in the series, IML-1, flew in January 1992 on the STS-42 flight of *Columbia*. For IML-2, an international team consisting of 80 principal investigators from more than 13 countries will focus on materials and life sciences, two disciplines needing crew participation and access to reduced gravity.

IML-2 will use the Spacelab long module and is a dedicated micro-gravity mission.

The overall objective of the IML-2 mission is to conduct investigations in applications, science and technology that require the low-gravity environment of Earth orbit flight and a stable vehicle attitude over an extended-duration mission.

The mission plan calls for *Columbia* to fly in a 160 nautical mile-high, 28.5 degree orbit for a

total of 13 days.

The orbiter will fly in a "gravity gradient" stabilized attitude (tail toward Earth), thereby producing the fewest gravitational disturbances on the Spacelab laboratory during the flight.

As previously announced, NASA astronaut Rick Hieb will serve as payload commander and mission specialist for IML-2. Other crew members will be named in the future.

Seminar tells how to build child self esteem

JSC's Employee Assistance Program will present a special noon seminar, "The ABC's of Building Self Esteem in Your Children" at 11:30 a.m. Monday in the Bldg. 30 Auditorium.

Sally Forehand, director of prevention services for the Bay Area Council on Drugs and Alcohol, will speak.

The EAP also is encouraging all employees to support the 1992

National Red Ribbon Campaign sponsored by the National Federation of Parents for Drug Free Youth. In the campaign, participants wear a red ribbon to show a commitment toward the creation of a drug-free America. Ribbons are available in the EAP office, Bldg. 32, Rm. 132, the JSC Clinic in Bldg. 8, and the lobbies of Bldgs. 1 and 45.

For more information, call x36130.

Space News Roundup

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

CFC opens

(Continued from Page 1)

pledge \$600 or more will receive an eagle statue.

In addition, three contributors will be selected from among those who have given at least 1 hour's pay per month to receive two round-trip Continental Airline tickets to anywhere in the United States. The drawing will be held once a week during the three-week campaign.