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Fortieth Anniversary
Pioneering the Future

Spaceport News

America's gateway to the universe. Leading the world in preparing and launching missions to Earth and beyond.

John F. Kennedy Space Center

Capabilities increase with an outstreched arm from Canada

The Canadian Space Agency's first contribution to the International Space Station (ISS), the 56-foot-long Space Station Remote Manipulator System (or arm), arrived at KSC on May 16.

The arm is the primary means of transferring payloads between the orbiter payload bay and the station for assembly.

The arm is scheduled for launch on STS-100, planned for July 2000.

Next month, the remote manipulator system will undergo a functional test in the Space Station Processing Facility.

Later, the arm will be electrically connected to Destiny (the U.S. Laboratory) for a Multi-Element Integrated Test. This will verify that the robotic work station controls aboard Destiny function so that the astronauts will use to control the arm.

Next, the segments of the arm will be attached to a launch support assembly structure, placing the arm into its final flight configuration.

Finally, the arm will be mated to the payload carrier and a launch configuration test will be performed.

This will be an integrated electrical test with the elements of the arm fully assembled and connected.

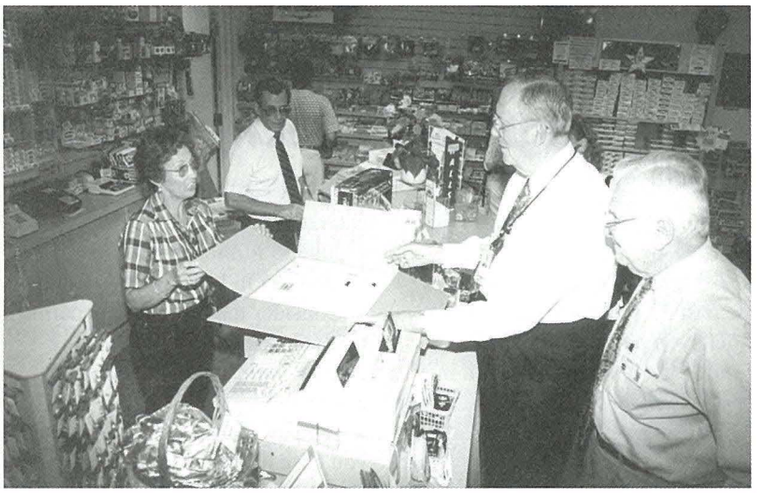
What's in store for KSC employees through NASA's Exchange Council

Do you need to buy a Father's Day card? Know someone who wants a tee-shirt with the latest mission logo? Or maybe the patch of the very first Shuttle mission?

At NASA's four Exchange stores at KSC, you can purchase these items tax-free, along with hundreds of other Shuttle- and space-related memorabilia, greeting cards, special occasion merchandise, giftware, clothing, sundries, magazines and newspapers.

All greeting cards are sold at a 10 percent discount off of retail prices, and you can turn in your photo negatives for next-day photo developing.

"The KSC Exchange stores provide employees with convenient and discounted shopping right on the center," said Maria Wilson, associate Exchange operations manager with NASA's Procurement Office. "Not only can employees purchase items tax-free, but the stores' proceeds go directly back into KSC programs and events."



Tonya Marks and Don Avery (left) with the NASA Exchange talk about packing a lot of space items into a little space with JSC workers Bill Prams and Ben Reina (far right).

Monies raised from sales at the Exchange store paid for the recent remodeling and equipment purchases at the Operations and Checkout (O&C) Building's Fitness Center.

"The KSC Fitness Center in the O&C Building is partly subsidized by the NASA Exchange," said Wilson. "All employees are encouraged to use the fitness centers in the O&C Building and the Operations Support Building, free of charge."

Echoing Wilson's sentiments was KSC Director Roy Bridges, who recently visited the newly renovated O&C Fitness Center to exercise and use the equipment.

"One of our guiding principles at KSC is Safety and Health First," Bridges noted. "With this expanded fitness center, we have taken a major stride toward abiding by our principle.

"Fitness has numerous benefits for employees," he continued. "It improves one's health and sense of well being, improves stamina, and can help reduce the incidence and severity of a number of illnesses."

(See Exchange, Page 4)

Taking the initiative for a safer Agency

Exploration involves risk, for without risk, there can be little discovery.

In a speech delivered Jan. 19, NASA Administrator Dan Goldin pointed out that "being an Agency and workforce willing to accept risk, but only in an informed manner, is consistent with our unwillingness to compromise the safety and health of people and property or do harm to the environment. In fact, your safety and health, both on and off the job, is and always will be our concern. As we move into the 21st Century, I have designated safety and health as our highest core value."

In Kennedy Space Center's guiding principles, Safety and Health First is listed as the number one item.

Recently, NASA set forth an Agency Safety Initiative (ASI) to become the nation's leader in the safety and occupational health of its workforce and the safety of the products and services it provides.

Safety plays an integral role in NASA's quest to expand frontiers in aeronautics and space.

The ASI is aimed at strengthening NASA's capabilities so that safety permeates every aspect of NASA work, and the Agency routinely incorporates safety and health principles and practices into daily decision-making processes.

The ASI establishes the NASA

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Safety ...

(Continued from Page 1)

'safety hierarchy'— the order NASA uses to prioritize safety efforts. The safety hierarchy is as follows:

First, safety for the public. NASA absolutely must protect the public from harm.

Second, safety for astronauts and pilots, because they expose themselves to risk in high hazard flight regimes.

Third, safety for employees, because the Agency owes it to employees to provide them with a safe and healthy workplace.

Fourth, safety for high value equipment, because the Agency is a steward of the public's trust.

To achieve the Agency Safety Initiative, actions required include the following items:

• ensuring that safety and mission success requirements are communicated, understood, implemented and are not compromised;

• identifying and assessing hazards and building appropriate safety measures, such as failsafe features, abort capabilities, and crew escape mechanisms into programs;

• improving the reliability and robustness of aerospace hardware and software;

• ensuring that safety-critical functions have redundancy;

• designing to minimize the probability of human error;

• employing formal risk management practices to drive prudent program/project decisions

• designing safety into the facilities and equipment used by our employees;

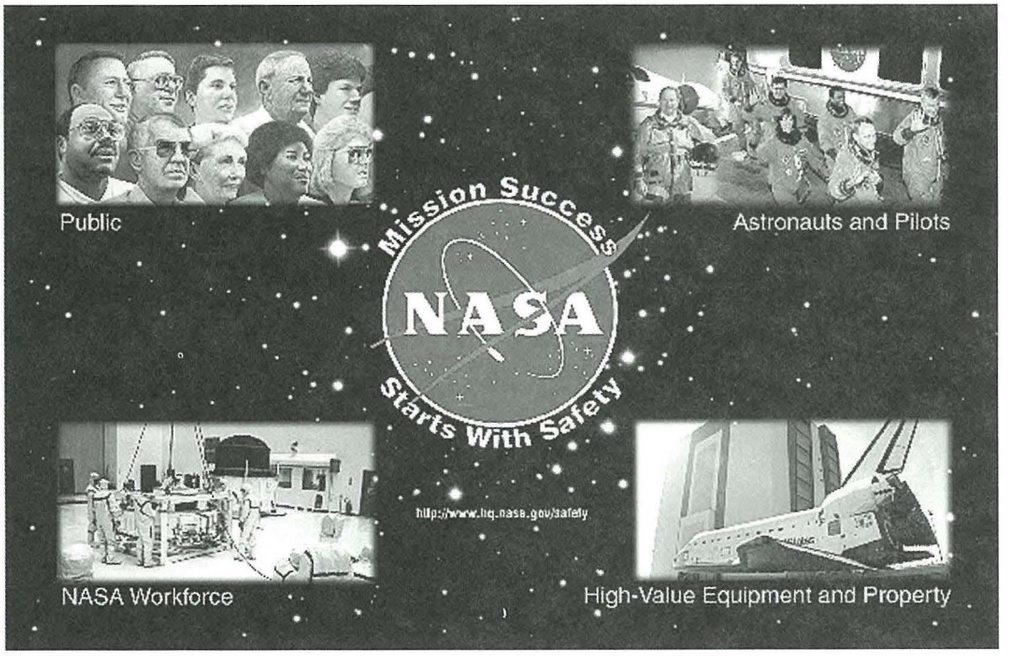
• making safe performance a condition of employment at NASA;

• setting a goal of zero human injury mishaps on the job;

• empowering employees to call "time out" when they spot something unsafe;

• ensuring both on- and off-the-job safety training for everyone;

• evaluating safety knowledge.



1999 Federal Savings Bonds Campaign kicks off June 1

The Kennedy Space Center 1999 Federal Savings Bonds Campaign will be held from June 1-June 18.

Center Director Roy Bridges will lead a discussion about investing in America at the 1999 campaign kickoff on Tuesday, June 1 at 9:30 a.m. in the Training Auditorium.

Bridges is chairman of this year's drive, and Maria Lopez-Tellado from the ELV and Payload Carriers Programs Office is co-chair.

"The Savings Bond Drive has been a source of great pride at KSC," said Bridges. "For each of the past 32 years, we have led the Agency in participation. I am confident we will do so again in 1999.

"The stars in the Minuteman flag in front of the Headquarters Building symbolize 30 years of high bond participation by the entire KSC team," he continued.

This year's national campaign theme "Fly with the Eagle" highlights the importance of investing for the future.

It is one of the safest and most widely held securities in the world.

"As federal employees, U.S. Savings Bonds are an investment in our own security as well as our country," Bridges added. "If you do not currently participate in the Savings Bond program, now is the time to start. If you already participate, I urge you to increase your allotment. These are our goals for this year's campaign. I know we can achieve them."

Join 55 million other Americans who invest in U.S. Savings Bonds.

Consider the following benefits.

• All savings begin with paying yourself first, and U.S. Savings Bonds make it easy.

• You pay federal taxes only when you cash in your bonds for payoff. Not paying taxes every year lets your savings take flight.

• U.S. Savings Bonds pay interest on interest already earned — not once but twice a year — so your account soars before you realize it. Interest paid on interest is what financial planners call the miracle of compounding.

• You can invest about $3 a day in Series EE bonds for 30 years and, at an average return of five percent, your nest egg grows to $83,000. At six percent, it's worth a $100,000. Financial planners call it a long-term investment. The rest of us call it a nest egg.

• The Treasury Department announces interest rates on U.S. Savings Bonds every six months. In fact, bonds currently earn 90 percent of what five-year Treasury bonds yield in the market.

• U.S. Savings bonds have no peers when it comes to safeguarding your investment. They are backed by the full faith and credit of the United States Government, and bonds can be replaced if lost, stolen or destroyed.

• You may be eligible for special tax benefits from bonds used for college or other higher education and training, and there may be tax savings in buying bonds in a child's name.

• Fifteen million Americans will buy U.S. Savings Bonds this year — 83 percent for retirement; 70 percent for education; 60 percent for financial security; and 43 percent for emergencies.

A full house leads to reshuffling the stack

When hail threw a wet blanket on the launch of STS-96 scheduled for May 20, it also brought out the stellar resolve and ingenuity of KSC workers.

The necessary move of Shuttle Discovery from Launch Pad 39B back into the Vehicle Assembly Building for repairs (see page 8) meant that the STS-93 stack of external tank (ET) already mated to two solid rocket boosters (SRBs) had to roll out of the Vehicle Assembly Building to make room for Discovery.

Also in the Vehicle Assembly Building (VAB) was the STS-99 partially completed stack, which could not be moved out of the building since one SRB was not yet completely assembled. Exposing an open SRB to the elements outdoors would bring unacceptable risks.

So if Shuttle Discovery (STS-96) and the STS-99 partially completed stack occupied the VAB, where was the STS-93 stack to go?

Could it be exposed outside during a week when mild to moderate storms were predicted?

"The need for a catenary system to protect the stack became clear when a team of KSC workers from just about every organiza-tion came together over the weekend to solve the dilemma," said Jeff White, deputy director, Ground Systems Support, United Space Alliance.

"I can't praise the team enough regarding how they came together to brainstorm solutions," he continued. "We had engineers, crane operators, riggers, instrumentation folks, technicians, weather crew, safety personnel, the J-BOSC survey team, lightning committee staff — you name it! These are the type of people to be in a tight corner with. With tremendous cooperation and with a can-do spirit, they made sure every angle was covered."

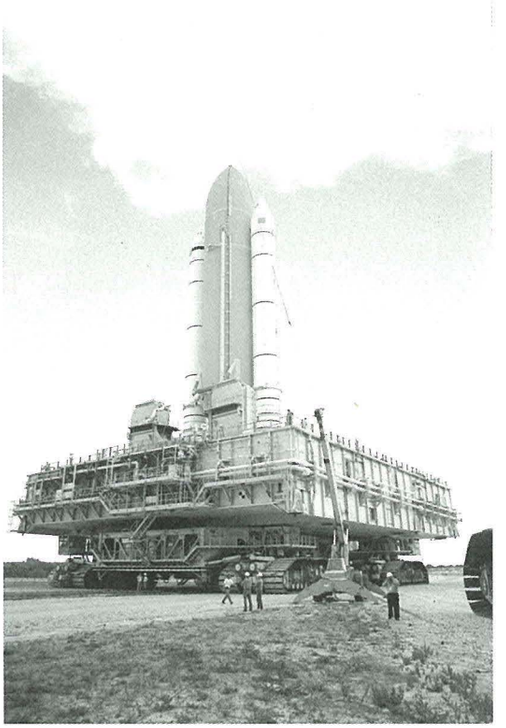
A Joint-Base Operations Support Contract (J-BOSC) survey crew assured the viability of correct placement near the building, and wind direction and speed calculations were made to assure that the stack would be safe.

According to Terry Willingham, chairman of the KSC Lightning Safety Assessment Committee, the catenary wire lightning protection system provided an overhead grounded shield to intercept a lightning strike that might head for the STS-93 stack and to conduct the potentially damaging lightning currents safely to ground.

The catenary system used the same wire that is used on the slide wire emergency egress system at the launch pads.

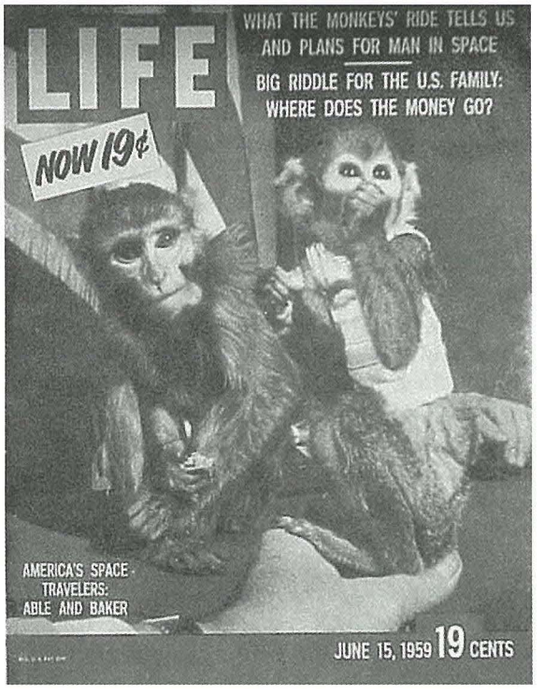
"This is the first time we have configured this type of system at the VAB to protect our national resource," said White. "We made use of what we had available and made it work. For example, we used two NASA cranes to string the wires to the ground, where they were tied into ground rods. The wires were run up to the VAB roof, where the entire set-up was tied into the VAB's own lightning protection system. It provided the stack with the same type of protection we have for vehicles at the launch pads."

Shuttle Discovery was rolled back out of the VAB on May 20 after three days of repairs, allowing the STS-93 stack to be safely returned to high bay 1 in the VAB — thanks to the KSC team that pulled together to weather the storm.



The STS-93 stack of solid rocket boosters and external tank moved toward the Vehicle Assembly Building (VAB), passing underneath one of its two lightning shield wires strung from the roof of the VAB for protection. The stack was temporarily stored outside beneath the wires to make room for the Shuttle Discovery (STS-96) inside the VAB for repairs to Discovery's hail-damaged external tank.

Primates' primary successful space launch and recovery remembered today



Life magazine honored the two primates on its cover in 1959.

Exactly 40 years ago, two young female monkeys were launched into space and recovered alive, opening a door for manned spaceflight.

The two primates, known as Able and Miss Baker, were the first to survive a trip into space and be successfully recovered.

It was said at the time that the mission flown by Able and Miss Baker yielded important data needed before this nation could ever risk sending a human astronaut into space.

The launch occurred from Cape Canaveral's pad "B" at Launch Complex 26 on May 28, 1959, at 3:35 a.m., when Able and Miss Baker rode atop a Jupiter rocket.

The pair reached speeds of 10,000 miles per hour and experienced nearly nine minutes of weightlessness.

Able was a reddish-brown American-born rhesus monkey. She was trained prior to the flight to tap a modified telegraph key every time a red light flashed.

Miss Baker was a one-pound, long-tailed squirrel monkey.

During the flight, Miss Baker was wired with numerous sensors to monitor and send back information on her heartbeat, respiration and body temperature.

When word broke of Able's and Miss Baker's flight into space, they became instant celebrities, and every major newspaper in the country ran front page headlines of their accomplishment.

Exchange ...

(Continued from Page 1)

Health-related programs available on center support KSC's commitment to health and wellness. Some of the programs are offered through the fitness centers.

"Our mission at the centers is to provide employees with a balanced program of physical fitness and health education services," said Amy Golden, supervisor of the fitness centers.

Both fitness centers are equipped with cardiovascular machines, strength training machines, free weights and stretching areas. Aerobics classes are available at the O&C.

The KSC fitness centers are located in Room 1108 of the O&C and Room 1301 of the Operations Support Building, and both fitness centers are open from 5:30 a.m. to 7 p.m. Call 867-7829 for more information.

Rehabilitation services available

The NASA Exchange Council also funds RehabWorks, a free on-site rehabilitation service. The program's primary focus is to treat musculoskeletal injuries, such as low back pain, carpal tunnel syndrome, tendonitis, bursitis and the traditional sports-related sprains and strains.

All badged KSC or Cape Canaveral Air Station (CCAS) employees may avail themselves of RehabWorks' services, provided in O&C Room 1103.

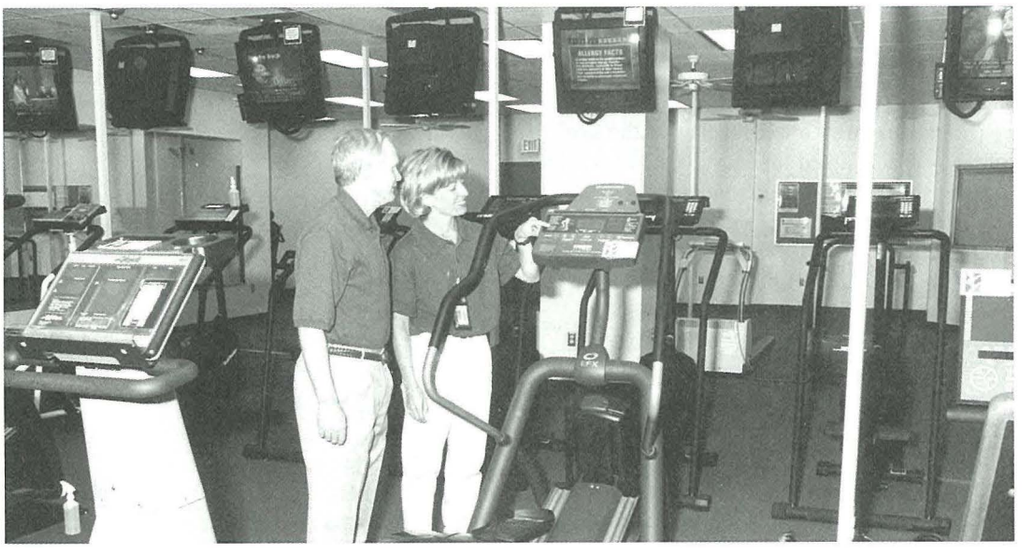
The RehabWorks staff of certified and licensed athletic trainers can provide injury assessment and rehabilitation services to employees in order to maximize long-term recovery and reduce lost work time.

Advantages of using RehabWorks include prompt treatment for injuries and diminished travel time to and from therapy. The unique combination of injury prevention, rehabilitation and education reduces workers' compensation costs while promoting a healthier workforce.

RehabWorks is open Monday through Friday from 8:30 a.m. to 5 p.m. For more information on RehabWorks, call 867-7497.

Kennedy Athletic Recreational and Social (KARS) Parks I and II provide venues for baseball, softball, picnics, camping, boating, tennis, rollerblading, fishing, volleyball, hiking, biking and lots more — all thanks to the money spent at the NASA Exchange stores.

The KSC Exchange administers the concession agreement for the recently remodeled Citgo gas station.



Above, Center Director Roy Bridges received a tour of the new fitness center in KSC's Operations and Checkout (O&C) Building by Fitness Center Supervisor Amy Golden. Bridges encouraged all employees to improve and maintain good health and fitness, as he made time to work out on the O&C's new equipment (below).

Annual passes to the parks may be purchased by KSC and CCAS employees at the NASA Exchange stores or at KARS Park I for $5 each. This allows employees and families access to the park for use of facilities and camping. The park office is open from 8 a.m. to 5 p.m. seven days a week and is open until 7 p.m. on summer weekends. The 258-acre KARS Park I is host to the KSC All-American Picnic each year, which is funded by the KSC Exchange Council.

Amuse the family with park discounts

You can also entertain your family with a day at the local amusement parks, such as Disney's Magic Kingdom, Disney-MGM Studios, Busch Gardens, Cypress Gardens, Sea World, Universal Studios, Wet and Wild, WaterMania, Church Street Station, and others. The KSC Exchange stores sell discounted tickets every day to these parks, as well as the Orlando dinner theaters and local miniature golf attractions.

The KSC Exchange Council oversees operation of the KSC Child Development Center. The center, located at A Avenue and 5th Street, offers child care services to children of KSC and CCAS employees. For more information about the center, call 867-KIDS.

The KSC Exchange Council oversees the barber shops, located in the Headquarters Building and the Operations Support Building. Both are open from 8 a.m. to 4 p.m.

The Exchange organizes the book sales on center throughout the year and the annual plant sale. It also funds the concession trailers and stands on the causeway during launches.

When special luncheons and gatherings are held — such as the ISO certification luncheon, engineering days lunches, Combined Federal Campaign celebratory lunch, Secretary's Day breakfast, Savings Bond drive recognition event, continuous improvement reception, and others — the Exchange provides the funds for the meals and special recognition awards.

Also, the NASA College Scholarship Fund, Inc., is managed locally by the KSC Exchange Council. The fund was established to award scholarships to qualified dependents of NASA and NASA retirees across the Agency.

For the 1999-2000 school year, there are six scholarships being offered in the amount of $2,000. The renewable scholarship is for a maximum of $8,000 over six calendar years.

Applicants must be pursuing a course of study in the science or engineering field that will lead to a recognized undergraduate degree at an accredited college or university in the United States. Applications are made available each year in February by Diane Holden. For additional information on the scholarship fund, contact Holden at 867-0510.

The Exchange Council also administers the concession agreement for the recently remodeled Citgo gas station and the KSC Federal Credit Union. The Citgo service station will soon be offering a credit card service, allowing customers to purchase gasoline during hours when the station is closed. The Exchange Council also is now working on a contract to manage a locksmith and wrecker/towing service for employees.

Straner remembered as enthusiastic supporter of space program

Al Straner, Orbiter Processing Facility (OPF) site test conductor, recently passed away from a sudden heart attack and has been remembered fondly over the past few weeks by USA and NASA colleagues.

"Al Straner was a good friend and a tremendous supporter of the Space Shuttle program," said Michael McCulley, USA vice president and deputy program manager. "I will miss him very much, both personally and professionally."

Straner was "the epitome of the 'can-do' attitude," said Straner's manager, Bill Carr. "His enthusiasm was contagious."

Straner's energetic spirit was so strong that it is his voice along with the voice of America's first female astronaut, Sally Ride, that graces the KSC bus tours; it was he who was selected to be on a Discovery Channel program alongside the director of the Space Station Hardware Integration Office, Tip Talone; and it was Straner who conducted tours for the government officials and VIPs through the OPF during the STS-95 launch that returned John Glenn to space. He also organized the OPF tours during KSC's Open House days.

"Al's competence in his work was merely a reflection of his energetic, positive approach to life," said Carr. "He did everything 110 percent, and his legacy will live on in the many lives he touched."

Al Straner, OPF site test conductor, recently sat in on orbiter's cockpit giving a thumbs-up to the space program that he loved. Straner has been remembered as a "good friend and a tremendous supporter of the Space Shuttle program." He organized OPF tours during KSC's Open House Days for five years.

Navigating an enterprising space agency

A 1998 policy directive in NASA's Strategic Plan states that "we boldly expand frontiers in air and space to inspire and serve America and to benefit the quality of life on Earth."

NASA's overall program to adhere to this policy comprises four strategic enterprises. Each covers a major area of the Agency's research and development efforts.

Do you know what the enterprises are and who heads each?

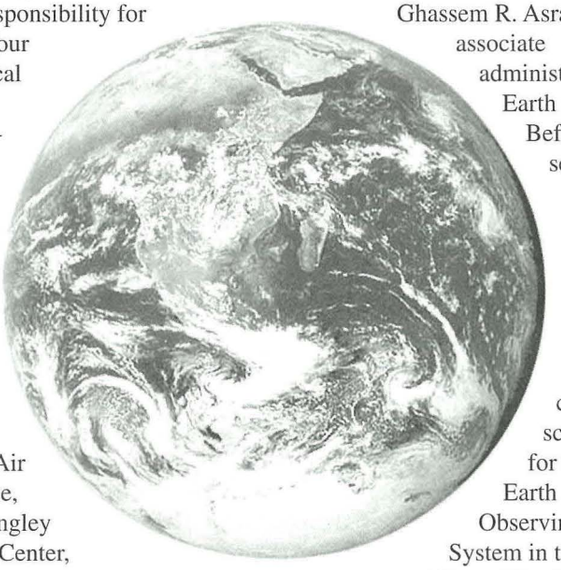
Aeronautics and Space Transportation Technology

The mission of this enterprise is to pioneer the development and commercialization of high-payoff aeronautics and space transportation technologies. Through research and technology, this enterprise promotes economic growth and national security through a safe, efficient national aviation system and affordable, reliable space transportation.

The enterprise is managed by the Office of Aerospace Technology. Lt. Gen. Spence M. "Sam" Armstrong (USAF, Ret.) heads NASA's Aeronautics and Space Transportation Technology Enterprise in Washington, D.C.

He had served as NASA's associate administrator for Human Resources and Education since Sept. 1991.

Armstrong's duties include overall responsibility for NASA's four aeronautical research centers — Ames Research Center, Moffett Field, Calif.; Dryden Flight Research Center, Edwards Air Force Base, Calif.; Langley Research Center, Hampton, Va.; and John H. Glenn Research Center at Lewis Field, Ohio.



Earth Science

Formerly the Mission to Planet Earth Enterprise, the mission of NASA's Earth Science is to use space to provide unique information about our own planet.

Scientific inquiry about Earth yields knowledge of substantial practical value to society—in weather and climate forecasting, in agriculture, in natural resource management, in urban and regional planning, and elsewhere.

The enterprise is headed up by Ghassem R. Asrar, associate administrator for Earth Science. Before his selection to lead this enterprise, Dr. Asrar was chief scientist for the Earth Observing System in the Office of Earth Science at NASA Headquarters.

In this position, he led an international team developing the scientific priorities and measurements to be obtained from a series of advanced Earth-orbiting satellites that promise fundamental new insights into the connections between Earth's land, oceans, atmosphere, ice, and life.

Asrar conducted research and trained undergraduate and post-graduate students for nine years in academia prior to joining NASA as a senior scientist in 1987.

He has continued his interest in developing the next generation of Earth scientists by establishing the NASA Earth System Science Fellowship Program, which has trained more than 400 young scientists to date.

Human Exploration and Development of Space

Imagine new products based on space research, such as high-quality protein crystals to allow the design of new drugs for treating disease. Envision school children learning their lessons by telepresence instruction from the Moon. Imagine commerce flourishing in space, with solar power satellites, or a Martian power plant to permit a permanent colony.

These images are part of the Human Exploration and Development of Space (HEDS) Enterprise.

The mission of the enterprise is to open the space frontier by exploring, using and enabling the development of space and to expand the human experience into the far reaches of space.

The enterprise is managed jointly by the Office of Space Flight and the Office of Life and Microgravity Sciences and Applications.

Robotic science missions survey and characterize other bodies as

(See Enterprise, Page 6)

Enterprise ...

(Continued from Page 5)

precursors to eventual human missions. The Space Shuttle and International Space Station (ISS) serve as research platforms, paving the way for sustained human presence in space through research on human adaptation. These programs also provide opportunities for research with applications on Earth.

Work performed under the HEDS enterprise serves as a catalyst for commercial space development, using breakthrough technologies to revolutionize human space flight.

Joseph Rothenberg is the associate administrator for the Office of Space Flight. As associate administrator, Rothenberg is responsible for all NASA human space flight programs, as well as a variety of expendable launch vehicle operations and tracking and communications functions.

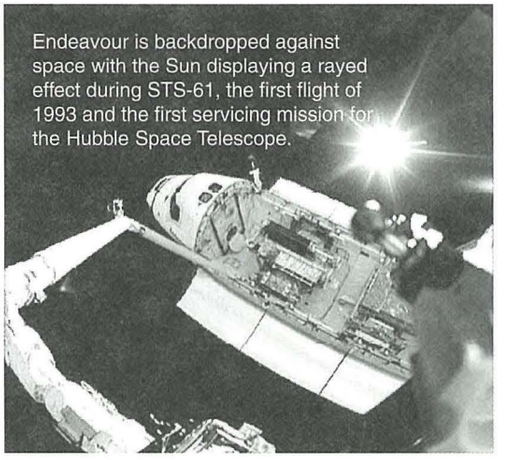
Formerly, Rothenberg was director of NASA's Goddard Space Flight Center, Greenbelt, Md.

Prior to that position, he was associate director of flight projects for the Hubble Space Telescope (HST) at Goddard from 1990 to 1994.

In this position, he directed the development and execution of the successful first servicing mission of the HST.

Rothenberg joined Goddard in 1983 as operations manager for the HST.

In that position he led the NASA team responsible for developing and conducting orbital operations of the telescope. In April 1987, he was appointed chief of Goddard's



Endeavour is backdropped against space with the Sun displaying a rayed effect during STS-61, the first flight of 1993 and the first servicing mission for the Hubble Space Telescope.

Mission Operations Division, and in September 1989, he was appointed deputy director of Mission Operations and Data Systems.

He was later appointed associate director for flight projects for the HST in 1990.

Space Science

This enterprise seeks to achieve an understanding of the origins and evolution of the solar system and the universe, including connections between the sun and the Earth, the beginnings of life and the question of whether life exists elsewhere beyond Earth.

The mission of the Space Science enterprise is to solve the mysteries of the universe; to explore the solar system; to discover planets around other stars; to search for life beyond Earth; and to chart the evolution of the universe and understand its galaxies, stars, planets and life.

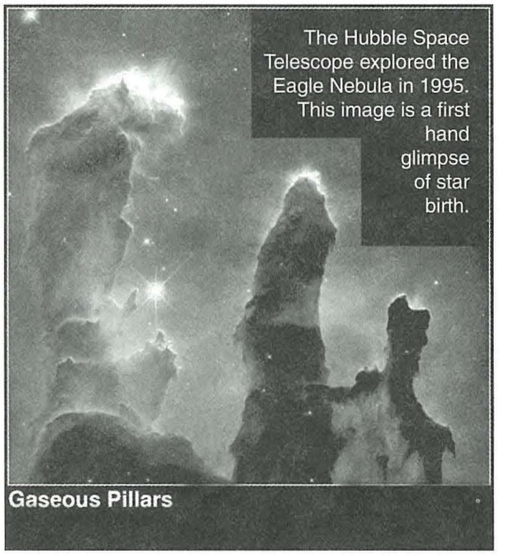
The Space Science enterprise is managed by the Office of Space Science.

In November 1998, Edward Weiler was appointed as NASA's associate administrator for Space Science.

Weiler was appointed as science director of the Astronomical Search for Origins and Planetary Systems group in the Office of Space Science in March 1996.

Weiler joined NASA in 1978 as a staff scientist.

Prior to that, Weiler was a member of the Princeton University research staff and was based at NASA's Goddard Space Flight Center, Greenbelt, Md., as the director of science operations of the Orbiting Astronomical Observatory-3 (COPERNICUS).



The Hubble Space Telescope explored the Eagle Nebula in 1995. This image is a first hand glimpse of star birth.

Gaseous Pillars

KSC will celebrate Take Our Sons to Work Day on June 8

Kennedy Space Center will celebrate Take Our Sons to Work Day on Tuesday, June 8. On this day, KSC employees are invited to bring sons or grandsons to work with them to share the work experience and encourage the boys to stay in school, study and set goals for their future.

Sponsors may bring more than one child, but only children nine years of age and older may participate.

Children may not be taken to any work area requiring a controlled access badge. Employees working in these areas may arrange for another person to take the child to an approved area.

Due to limited seating, only NASA employees may participate in the following program:
7:30 – 8 a.m. — KSC Visitor Complex (gather in the IMAX II Theatre);
8 – 9:30 a.m. — Special program for sons of NASA employees. KSC Director Roy Bridges, Jr. will open the program. Then, Jim Banke, manager of Space Online for *Florida Today* newspaper will speak. Following Banke, Ernestine Hendrix, Exploration Station Science Program, will present a science demonstration, followed by the For Inspiration and Recognition of Science and Technology (FIRST) national robotics competition presentation by James Fisher, science and math teacher at Cocoa Beach High School.

All contractor and NASA sponsors and their sons may attend the second program at the Visitor Complex. KSC contractor employees should contact their own companies' public relations offices to determine the level of participation available to them.

Beginning at 9:30 a.m., there will be the FIRST and/or KSC robotics demonstrations, which will take place between the Galaxy Center and the pond by the Astronauts Memorial.

The KSC Visitor Complex Spaceman will also be available at this location as a photo opportunity.

In addition, a special equipment display will be set up by SGS in the parking lot behind the Headquarters Building, and fingerprinting will take place in the Headquarters' lobby from 8:30 a.m. to noon.

Some of the equipment on display will be a fire truck, an ambulance, a helicopter and a SCAPE van. A patrol unit, the special response team and a K-9 unit will provide demonstrations.

Gate 1 at Cape Canaveral Air Force Station (CCAS) will be open to employees bringing boys to work with them, and staff working on CCAS may participate.

The Air Force Space and Missile Museum at CCAS will be open from 9 a.m. to 3 p.m. to visitors.

Special Take Our Sons to Work Day badges will be distributed, and NASA employees may pick up their badges on June 3, 4 and 7 between 10 a.m. and 2 p.m. in Headquarters Room 2331.

Contractor employees should contact their own representatives to obtain badges.

Children must wear their badges and be with a badged employee at all times while on the center. The sponsor is responsible for the children they bring. Although a child is permitted to go with another person to a different work site, ultimate responsibility for the children remains with the sponsor.

If you have questions regarding Take Our Sons to Work Day, contact Jean Rhodes, 867-2307, or Liz Wise, 867-8250.

TERRIERS satellite out of power; recovery team to be formed

The student-built TERRIERS satellite seems to have run out of battery power, according to Boston University team members, who have been unable to communicate with the satellite since May 17.

As of press time, the spacecraft had been losing power since its launch because it has not been able to orient itself so that its solar panels fully face the Sun.

The spacecraft was launched at 1:09 a.m. EDT Tuesday, May 18, from Vandenberg Air Force Base, Calif., aboard an Orbital Science Corp. Pegasus rocket.

A recovery team of spacecraft engineers and other experts will be formed to develop a plan to hopefully return the satellite to operation.

The team will be headed by the Universities Space Research Association (USRA) of Columbia, Md., which administers the Student Explorer Demonstration Initiative for NASA. TERRIERS was selected under the initiative and built by students at Boston University.

NASA will provide engineering support for the team.

"We remain hopeful that the solar panel will slowly charge the spacecraft and that, in time, the satellite will turn itself on," said Dan Cotton, principal investigator from Boston University. "Current data indicate that the spacecraft is in the correct orbit and spinning appropriately about the right axis."

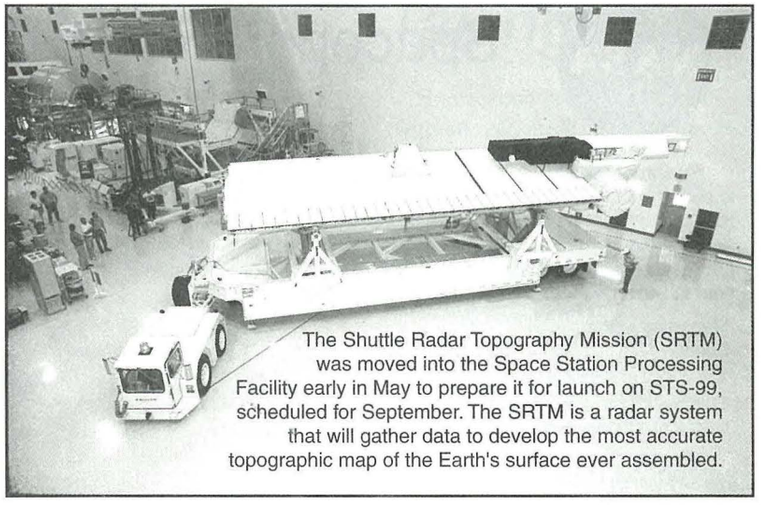
The project managers are reviewing the data for information on the status of the spacecraft and will continue attempting to contact the spacecraft and monitor its progress.

Bridges inducted into engineering honor society

KSC Director Roy Bridges was inducted into the Colorado Zeta chapter of Tau Beta Pi, the national engineering honor society, at the United States Air Force Academy on April 23. The Zeta chapter is the U.S. Air Force Academy.

An honor society is an association of primarily collegiate members and chapters whose purpose is to encourage and recognize superior scholarship and/or leadership achievement either in broad fields of education or in departmental fields at either undergraduate or graduate levels.

Bridges was inducted as an 'eminent engineer' for his lifetime achievements. As a United States Air Force Academy alumnus, Bridges was the keynote speaker for the banquet held April 24.



The Shuttle Radar Topography Mission (SRTM) was moved into the Space Station Processing Facility early in May to prepare it for launch on STS-99, scheduled for September. The SRTM is a radar system that will gather data to develop the most accurate topographic map of the Earth's surface ever assembled.

The X-34 rolls out the door

Participating in the April 30 rollout of the X-34 at Dryden Flight Research Center were KSC employees, left to right, Jose Perez, Ground Support Equipment/Facilities/Propellants; Warren Wiley, deputy director of Engineering Development/advanced programs manager; Barbara Naylor, environmental protection specialist; Mario Busacca, environmental protection lead; Steve Boyd, differential GPS team member; Rick Sweet, ground operations safety; and John Tinsley, KSC X-34 project manager. Not shown is Tom Palo with the 45th Space Wing Systems Safety organization.

NASA unveiled its new reusable robotic rocket plane, the X-34, at the Dryden Flight Research Center in Edwards, Calif., on April 30, opening up a new era of low-cost reusable space planes.

The X-34, a single-engine rocket plane, will fly itself using onboard computers. The vehicle is about 58 feet long, 28 feet wide at wing tip and 11 feet tall from the bottom of the fuselage to the top of the tail.

The X-34 will launch from an L-1011 airliner and reach altitudes of up to 250,000 feet, traveling up to eight times faster than the speed of sound. The X-34 has completed ground vibration tests, ensuring there will be no potentially hazardous vibrations during flight.

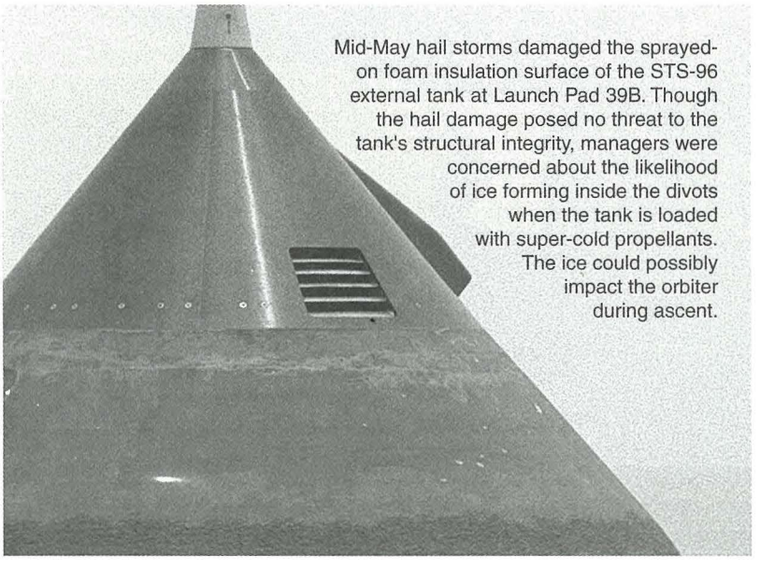
The X-34 will be mounted underneath an L-1011 airliner and flown on "captive-carry" flights.

When flights begin for the X-34, the demonstrator will be carried aloft and separate from the L-1011 before igniting its rocket engine.

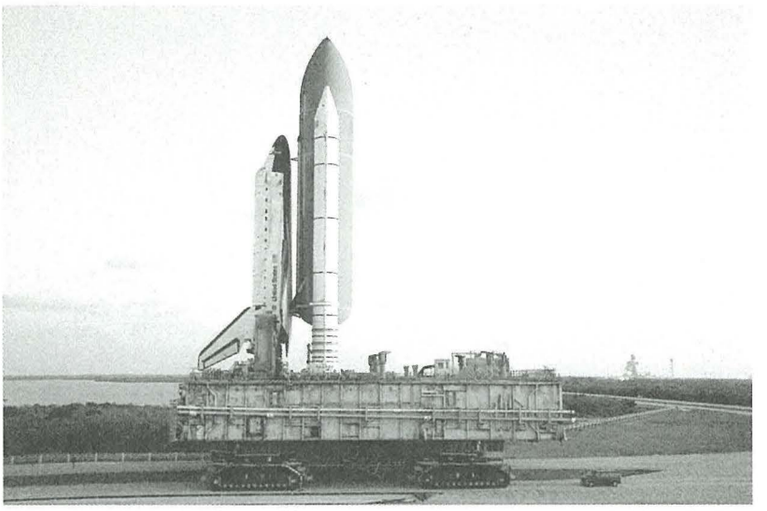
Following the powered portion of the flight, the unpiloted X-34 will land horizontally, initially on a dry lakebed and eventually on a runway.

NASA's first X-34 technology demonstration vehicle rolled out April 30 at Dryden Flight Research Center in California.

Hail tests the mettle of KSC workers

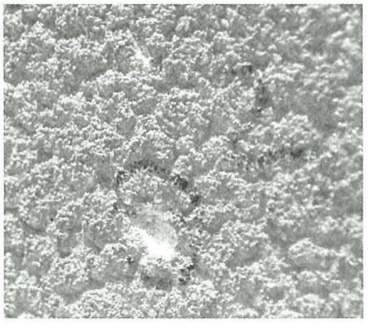


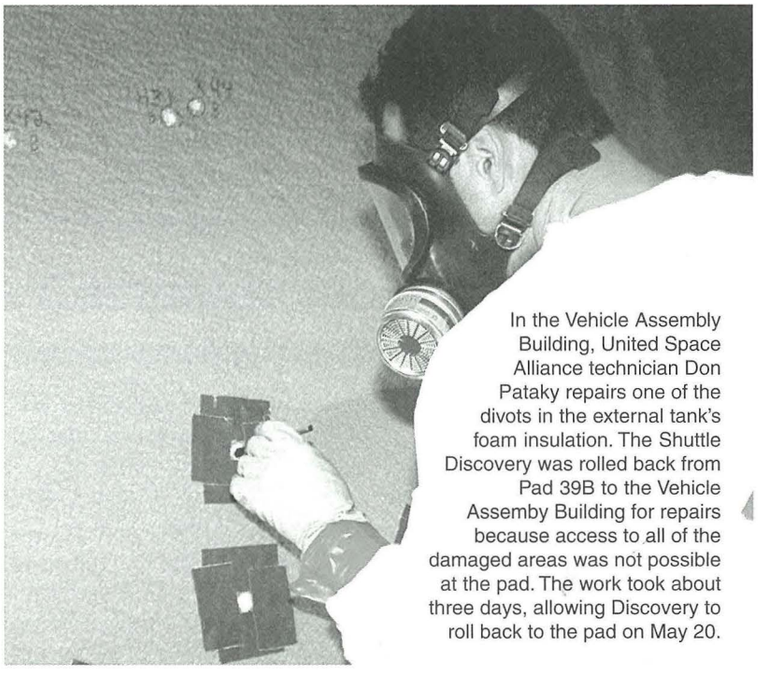
Mid-May hail storms damaged the sprayed-on foam insulation surface of the STS-96 external tank at Launch Pad 39B. Though the hail damage posed no threat to the tank's structural integrity, managers were concerned about the likelihood of ice forming inside the divots when the tank is loaded with super-cold propellants. The ice could possibly impact the orbiter during ascent.



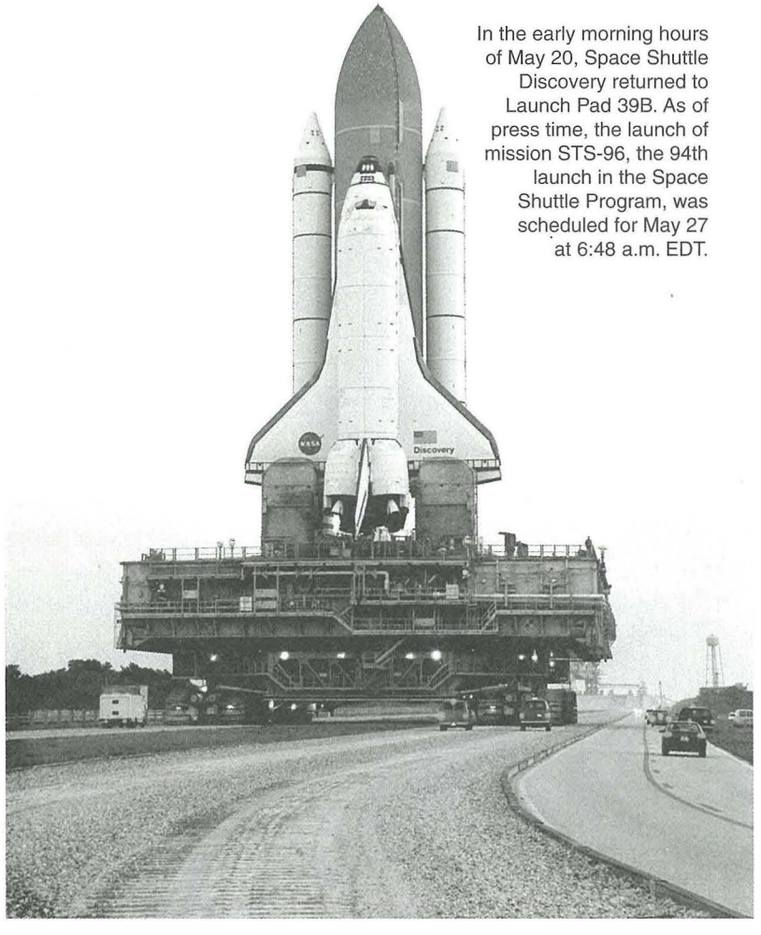
Lighted by a Florida sunrise on May 16, a crawler transporter moved the Space Shuttle Discovery from KSC's Launch Pad 39B (background right) back to the VAB for repair of damage to the external tank foam insulation. This was only the 13th time since 1981 that a Shuttle has had to roll back from the pad.

The hailstorm left nearly 700 divots in the outer foam. Evaluations revealed that repair work needed to be performed in the Vehicle Assembly Building (VAB), delaying the launch of STS-96 by one week. Platforms in the VAB provide workers with access to the tank not available at the pad. The average diameter of the divots was about 0.5 inches and the largest divot measured about 2 inches in diameter. The depth of the dings ranged from 0.1 to 0.34 inches deep.





In the Vehicle Assembly Building, United Space Alliance technician Don Pataky repairs one of the divots in the external tank's foam insulation. The Shuttle Discovery was rolled back from Pad 39B to the Vehicle Assemby Building for repairs because access to all of the damaged areas was not possible at the pad. The work took about three days, allowing Discovery to roll back to the pad on May 20.



In the early morning hours of May 20, Space Shuttle Discovery returned to Launch Pad 39B. As of press time, the launch of mission STS-96, the 94th launch in the Space Shuttle Program, was scheduled for May 27 at 6:48 a.m. EDT.

John F. Kennedy Space Center

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