



Spaceport News

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John F. Kennedy Space Center

NASA switches launch dates

NASA's Space Infrared Telescope Facility (SIRTF) will now take the launch opportunity originally scheduled for the Galaxy Evolution Explorer (GALEX). At press time, SIRTF was scheduled to launch April 27, with GALEX to follow approximately one week afterward.

Originally set for an April 18 launch, NASA has decided to use the additional week to complete internal readiness assessments on SIRTF.

The telescope will obtain images by detecting the infrared energy, or heat, radiated by objects in space. Consisting of a .85-meter telescope and three cryogenically cooled science instruments, SIRTF will launch aboard a Delta II rocket from Launch Complex 17-B at Cape Canaveral Air Force Station.

GALEX, originally set to launch in late March, was also delayed to enable protective covers to be added to the Optical Wheel Assembly (OWA).

(See SWITCH, Page 2)

Kroskey to lead Spaceport Management Office

Providing premier base support services is Susan Kroskey's main objective in her new role as executive director of the Cape Canaveral Spaceport Management Office (CCSMO).

On April 6, Kroskey assumed this Senior Executive Service position, managing the Joint Base Operations and Support Contract (J-BOSC) for Kennedy Space Center and the 45th Space Wing (CCAFS and PAFB). She reports to KSC Director Roy D. Bridges Jr. and to the 45th Space Wing Commander Brig. Gen. J. Gregory Pavlovich.

"One of the most exciting aspects of this position is the opportunity to enhance the partnership between the two agencies," Kroskey said. "I keep both agen-

cies well informed on the activities of the base support contract including technical, financial and contractual issues."

Kroskey is expecting to maximize her unique responsibility to the Cape Canaveral Spaceport. "I look forward to being a part of the senior leadership teams of both agencies to effect changes and build a more robust, performance-oriented spaceport for our future."

The Emory University summa cum laude graduate entered federal service in 1982 as a Presidential Management Intern. Kroskey, who also holds a Florida State University master's degree, previously served as the deputy director of Installation Operations and in numerous managerial positions under the Office of Chief Financial Of-



Susan Kroskey

ficer (CFO), including deputy CFO for resources.

She has received numerous awards and honors including the KSC Federal Woman of the Year in 1992, the NASA Exceptional Achievement Medal in 1993, the NASA CFO Special Services Award in 1997, the nomination for a National Rotary Pace Achievement Stellar Award in 2000 and a NASA Exceptional Service Medal in 2002.

Inside

Page 2 – "Spokesmannequin" debuts at technology conference

Pages 4-5 – Inside the chiller and heat plants.



Page 6 – Space Congress; Energy and Environmental Awareness Week

Page 8 – Remembering Our Heritage: TDRS-1



Adrian Laffitte (center), director of Atlas programs for Lockheed Martin Astronautics, was honored as the 2003 winner of the Dr. Kurt H. Debus Award from the National Space Club Florida Committee April 12 at the Debus Conference Center. A number of speakers, including NASA Deputy Administrator Frederick Gregory, honored Laffitte for his contributions to the space program. Past and current Debus Award honorees, from left, include Lee Solid, Bob Sieck, Laffitte, Roy Bridges Jr. and Dr. Maxwell King.

Recognizing Our People

KSC-developed technologies featured at conference

Kennedy Space Center's new "SpokesMannequin" made its debut at the National Manufacturing Week Technology Transfer Conference in Chicago last month. NASA and Arctic Slope Research Corp. (ASRC) Aerospace engineers from KSC were featured presenters at the conference, where several new technologies developed by the group were on display at the NASA Technology Partnership booth in the exhibition hall.

NASA and ASRC engineers gave presentations during the conference at which NASA Deputy Administrator Fred Gregory was keynote speaker.

The "SpokesMannequin" displayed at the booth was designed by PeopleVision in Roselle, N.J. According to Pamela Bookman, NASA commercialization manager, they built all the hardware and software.

The mannequin looks like an actual astronaut, complete with an authentic space suit manufactured by Guard Lee in Apopka, Fla. Lee also made the spacesuits for the KSC Visitor Complex and the Air and Space Museum in Washington, D.C.

The mannequin display is interactive, with a DVD player that projects three-dimensional images of several actors as they talk on a

variety of topics, including a KSC overview, Technology Commercialization, and the Small Business Innovation Research (SBIR) program. It was also recently on display at KSC Headquarters.

"It was a show stopper in Chicago," said Bookman. "We plan to use the 'SpokesMannequin' at other trade shows and conventions in which KSC is a participant."

Technology Commercialization Office team members who traveled to the conference were Jeff Kohler and Brian Sauser, both account managers with ASRC. Presenters joining them were Joe Perotti, NASA lead, transducers and sensors group; Chris Immer, ASRC physicist; Dick Deyoe, ASRC metrologist; and John Randazzo, ASRC mechanical design engineer.

Perotti gave a presentation on Wireless Sensor Networks, Immer presented on the Multisensor Array for Micro Electro Mechanical Systems Applications, and Deyoe on the Remote Pressure Transducer Health Check. These new technologies, plus the Photographic Scaling Device and the Non-intrusive Cable Tester, were also on display at the NASA Technology Transfer booth.

All were designed and developed at KSC. According to Kohler, the Technology Commercialization Office participates in three



Kneeling (from left) are Jeff Kohler and Brian Sauser, ASRC account managers. Standing from left to right are Richard Deyoe, ASRC metrologist; John Randazzo, ASRC mechanical design engineer; Jose Perotti, NASA lead, transducers and sensors group; and Chris Immer, ASRC physicist.

major shows during the year.

"While marketing our technologies and capabilities at shows like this, we attract business from across the nation to KSC's research and development facilities," said Kohler. "We support KSC's vision of the development of advanced spaceport systems through university research and technology outreach programs."

The conference in Chicago focused on engineering design and technology transfer, while the other two shows later in the year will focus on advanced materials and sensors.

Like other NASA Centers, KSC's Technology Commercialization Office seeks partners interested in pursuing the development and commercialization of technologies.

Marketing efforts at KSC (as well as the other NASA Centers' Technology Commercialization Offices) are supported by NASA's National Technology Transfer Center that works with other Centers to coordinate and promote partnerships.

NASA also sponsors its own technology workshops and symposiums.

SWITCH...

(Continued from Page 1)

In addition to performing many science firsts, GALEX is also equipped with some technological firsts: the first large (65 mm. diameter) Far UV (FUV) and Near UV (NUV) microchannel plate sealed detectors; innovative coatings for optical components, including the first UV dichroic beam splitter and the first NUV red light blocking filter; and the first FUV and NUV grism (spectroscopic grating on a prism).

Visit www-pao.ksc.nasa.gov/kscpao/schedule/mixfleet.htm for a current space launch schedule.

KSC readies for safety and health certification

Last month, the Kennedy Space Center submitted its Voluntary Protection Program (VPP) Star Recognition application to the Occupational Safety and Health Administration (OSHA). The Star level designates premier worksites where safety and health are major considerations in each operation, and programs are continually improved to go beyond normal OSHA regulations.

The OSHA team will review

KSC's safety and health programs on July 7-11.

The Center's goal for the program is to look at all levels of how it ensures the workforce's safety and health issues, as well as having the programs evaluated against an ideal model for these working environments. The initial study KSC performed identified 240 potential safety and health programs improvements, most of which have been implemented.

Center Director Roy Bridges Jr. has recognized this important certification and encourages employees to assess the safety and health aspects of their jobs and to question any activity they believe not to be safe.

During the VPP visit, OSHA will interview randomly selected employees about work and emergency procedures. Look for more information about how to prepare for the visit in an upcoming *Spaceport News*.

Maggie recognized for Shuttle safety contributions

NASA Quality Assurance Specialist Larry Maggie received Kennedy Space Center's Quality Assurance and Safety Achievement Recognition (QASAR) award for discovering two displaced four-inch upper aft thrust structure bearings on Orbiter Vehicle OV-104, Atlantis, in 2001.

What began as an unscheduled surveillance inspection resulted in several well-deserved recognitions. The first nod was an On-The-Spot Award accompanied by a monetary gift.

The next acknowledgment was his work's eventual designation as KSC's "Best of the Best" QASAR recipient. The final recognition was an Agency-wide acknowledgment. KSC Director Roy Bridges Jr. presented the Center honor at the biannual awards ceremony held at the KSC Visitor Complex.

"In July 2002, this award was nominated for the 2001 QASAR Agency Award in the category of

NASA Safety and Mission Assurance," said Maggie.

"The nomination won the NASA Agency award later that year. I was presented with a QASAR plaque and monetary award by NASA Deputy Administrator Fred Gregory at the 17th Annual Continual Improvement Conference in Virginia."

Finding the faults resulted in additional Structure Engineering inspections of all orbiters, and the fortunate discovery that the others were not defective. The two defective bearings were structurally modified, making OV-104 dependable again.

While NASA colleagues are inspired by his work and everybody benefits from the safety repairs, it's Maggie who is forever touched by the events. "I have received many awards in my 17 years here at KSC. This is by far the most prestigious," he said.

Ronnie Dale returns



Ronnie Dale (right) is welcomed back to KSC by Director Roy Bridges Jr. (center). At left is Andrew Thomas, deputy chief, Astronaut Office. Dale, with the NASA Safety and Process Assurance Branch at KSC, was aboard a helicopter that crashed while searching for debris from Columbia in East Texas in March. He was treated for nonlife-threatening injuries and recently released.

Florida Space Authority Director Gormel to retire



Executive Director Ed Gormel will retire from the Florida Space Authority (FSA) April 30. Gormel's successor will be chosen by the Board of Supervisors, who are conducting an open search for a replacement.

"I am proud of the accomplishments of the Authority team," said Gormel. "We have built on Governor Bush's original vision. The Authority's success as the world's first state space authority is a testimony to the team's dedication and professionalism. Our strong partnership with NASA, DoD and the private sector confirms that the opportunities for future growth are exciting."

Gormel was responsible for statewide, space-related industrial, economic and educational development and management of space transportation infrastructure for various commercial and government users. He also was involved with the State's development of space policies and programs.

Gormel joined FSA as director of Spaceport Development in June 2000, where he was responsible for planning and marketing activities, including the management of new business development and construction of Authority projects. His career spanned almost 40 years of involvement in the U.S. space and

launch business.

In 1988, Gormel became the Eastern Test Range director. He was then promoted to Director of Plans for Air Force Space Command's 45th Space Wing at Patrick AFB in 1992. In 1998, he was selected to become the executive director of the Joint Performance Management Office (JPMO) and promoted to the Senior Executive Service.

His awards include the Air Force Commendation Medal, the Navy Superior Civilian Service Award, the Air Force Meritorious Civilian Service Award, the NASA Exceptional Service Medal and the 10-Year Fleet Ballistic Missile Service Award. Ed is also the recipient of former Vice President Al Gore's Hammer Award for excellence in reinventing government.

"I have been fortunate to receive numerous awards in my career, but it is my wife who deserves all the credit for standing by me during some pretty long hours at the Cape. We are now looking forward to retirement divided between our home in Merritt Island and our summer home currently under construction in Vermont."



April Employees of the Month

April Employees of the month, from left, are Mark Gordon, Safety, Health and Independent Assessment; Carolyn Paquette, Spaceport Services; Connie Stallings, Workforce and Diversity Management Office; Ned Voska, Spaceport Engineering and Technology; Michael Demski, ISS/Payloads Processing. Not shown are Macel Pargeon, Chief Financial Office; Peter Nickolenko, Shuttle Processing; and Jack Payne, ELV and Payload Carriers Programs.

Inside the chiller

The spaceport's workforce enjoys a place of employment that can be considered a self-sufficient city. While employees work in labs, at launch pads and on laptops, continuous behind-the-scenes efforts at key facilities help to maintain the metropolis.

The complementary Industrial Area Chiller Plant (IACP) and Central Heat Plant (CHP) are two of those essential areas, as well as the Vertical Integration Facility (VIF) Chiller Plant.

The IACP supplies chilled water to all major Industrial Area (IA) facilities encompassing the Space Station Processing Facility (SSPF), Engineering Development Lab, Headquarters (HQ), Cargo Support, Operations & Checkout Facility (O&C), Occupational Health Facility (OHF), Central Instrumentation Facility (CIF) and the Training Auditorium.

Built in the early 1990s, the IACP operates continuously, making it the IA's highest energy consumer.

"In 1997, we underwent an expansion adding four chillers and two secondary pumps to supply the five buildings in the industrial area that we presently serve," said Kenneth Hughes, SGS lead chiller plant operator. "The Training Auditorium was added in 2000."

How They Work

The plant chillers are supplied with approximately 14,000 Gallons per Minute (GPM) of 80° to 85° F condenser water, which clears heat produced during refrigeration. This condenser water system comprises two IACP and three O&C cooling tower cells.

Fans cool the dropping water that is dispersed by spray nozzles.

Each tower has five pump



Left: This chiller unit circulates 4,500 Gallons per Minute (GPM) of chilled water.

Right: Lead chiller plant operator Ken Hughes stands next to a 2,500-ton chiller unit.



Left: Plant operator Gary Bittner looks over the equipment control panel.

Right: Lead electrician Paul Super looks over control panels for the IACP's west main building.

sets, and typical operation utilizes four to six pumps. The plant also houses three air compressors, which supplies the IA with clean, dry compressed air.

Roughly 10,000 GPM of

approximately 40° F water is furnished by each facility's pump set. Chillers 1 and 2 are 2,500-ton units, and chillers 3 through 6 are 1,875-ton units, each using different amounts of refrigerant. A primary

pump set pumps water at 6,000 GPM through chillers 1 and 2 and 4,500 GPM through chillers 3 through 6.

Designed for redundancy, the plant's typical peak load requires three chillers. The

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gas. It is manned constantly by boiler plant mechanics because of the HTHW generators' size and the quantity of fuel burned.

The plant was originally fired on fuel oil but shifted to natural gas in 1994.

"The boilers and KSC in general switched to natural gas because it is cheaper and burns cleaner than fuel oil," said George Broyles, SGS heat plant foreman.

What It Supplies

HQ and O&C plants are also used to provide the bulk of the domestic hot water, such as water used in bathrooms, showers and kitchens. Secondary hot water, which is lower temperature water (140°-180° F), is also supplied.

The VIF Air Conditioning Shelter (ACS) contains the central chiller plant for all VIF and Lockheed Martin's Atlas V launch vehicle Environmental Control Systems (ECS) air conditioning demands.

Primary ECS air processing equipment, including boilers, humidifiers and more, is located in the ACS and vehicle air channels to the VIF and through the Mobile Launch Platform (MLP) to the vehicle.

Outside air flows from the ACS to the VIF, providing facility ventilation and positive pressure capability. An outside fan delivers air to the payload ECS air handlers and de-humidifier reactivation air.

Three dual-cell, closed loop evaporative cooling towers provide heat rejection for chillers. An ACS double-ended 2,500 kVA (Kilovolt-ampere) substation provides power for the entire VIF complex.

All ECS heating, ventilating, and air conditioning is monitored through controllers using instrumentation for all critical vehicle measurements.

water supply is distributed to IA facilities by eight secondary pumps, of which five to six are required for normal operation.

The Central Heat Plant, M6-0595, provides High Tem-

perature Hot Water (HTHW) at 340° F and 215 pounds per square inch (psi) to IA facilities. It is primarily used in conjunction with the IACP to provide environmental control (temperature and humidity).

Built in 1964, the CHP is also used to provide HTHW to the Vertical Processing Facility. The plant includes three 40-million British Thermal Units (BTU)-per-hour HTHW generators fired by natural

40th Space Congress sets agenda

The 40th annual Space Congress set for April 29-May 1 at the Radisson Resort in Cape Canaveral has assembled panel sessions and guest speakers to complement its theme, "Linking the Past to the Future – a Celebration of Space."

NASA Administrator Sean O'Keefe will be this year's keynote speaker and will open the first day of panel and paper sessions. He will address the 40th anniversary of Kennedy Space Center and reflect on the accomplishments of the space program.

The scientific keynote speaker features Dr. Riccardo Giacconi, research professor for John Hopkins University, who will discuss the status and summarize breakthrough discoveries of the Hubble Space Telescope (HST). A panel

session chaired by NASA Chief Scientist Dr. Shannon Lucid follows and will give the status of current NASA earth, life and space science programs.

The morning sessions conclude with luncheon speaker Orlando Figueroa, director of the Mars Exploration Program Office. The afternoon panel session is dedicated to the discoveries of NASA's Great Telescopes – Hubble, Chandra and SIRTf – and will be chaired by Giacconi.

The first panel session April 30 features NASA Deputy Administrator Fred Gregory and the direction of future space flights. Luncheon speaker Gen. Michael Kostelnik, NASA deputy associate administrator, will talk about the International Space Station (ISS) and will host a conversation with the ISS

Expedition Six Crew.

The afternoon paper session covers three areas: "Learning About Life in Space"; "Spaceport and Range Technology" (with demonstrations); and the "Spaceport Ballistic Safety Program." The second day concludes with "A Celebration of Space and Reunion of Space Legends," where astronaut Barbara Morgan will talk about her exploits and the Educator in Space program.

The final day's first panel session, titled "Linking the Past to the Future," marks the 40 years of history at KSC, the 100 years of flight, and thoughts on what the next decade will bring. It will be chaired by NASA KSC Director of External Relations & Business Development JoAnn Morgan.



Three paper sessions follow, including "Education and History – 100th Anniversary of Flight"; "Building of a Spaceport – Space Business, Legal and Policy"; and "ISS Utilization."

"An Evening With The Astronauts" completes the day's events and is hosted by KSC Director Roy Bridges Jr. Science fair awards and astronaut interaction are part of the 7-8:30 p.m. event.

For information, contact (321) 868-1623 or go to www.spacecongress.org.

Two Mars landing sites chosen

NASA has determined the landing sites for its two Mars Exploration Rovers (MER) scheduled to launch from Cape Canaveral later this year.

The first rover, scheduled to launch May 30, will be targeted to land at Gusev Crater, south of Mars' equator. The second, set to launch June 25, will be targeted to land at Meridiani Planum, an area with deposits of an iron oxide mineral south of the equator and half-way around the planet from Gusev.

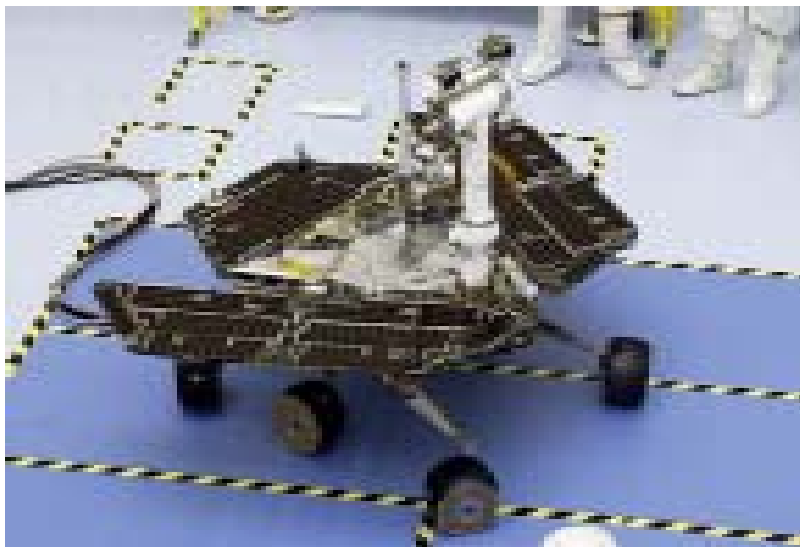
Which rover is targeted to a

specific site will be determined at a later date. NASA can change the order as late as one month after the launch of the first rover.

Each rover will examine its landing site for geological evidence of past liquid water activity and past environmental conditions hospitable to life. Once they reach their landing sites, each rover's prime mission will last at least 92 days.

The rovers are solar-powered, and after approximately 90 days, dust accumulating on the solar ar-

(See MARS, Page 7)



One of the two Mars rovers is tested for mobility and maneuverability.

Environmental and Energy Awareness Week kicks off

Learning about Earth-friendly personal and professional practices, and simultaneously celebrating Earth Day is more exciting than ever.

For example, opportunities to win an airboat or helicopter trip, play "The Good, The Bad & The Ugly" plant and animal game and tour the Solid Rocket Booster High Bay don't present themselves often.

To learn more about this year's theme, "Kennedy Space Center = Kilowatts Saved Count," employees can participate in the 2003 Environmental and Energy Awareness Week (EEAW) activities April 21-23.

The program, which includes countless presentations, tours, exhibits and more, will travel around the Center to ensure all employees have easy access.

EEAW's kickoff April 21 takes place at the Training Auditorium starting at 10 a.m. The activities on the 22nd will



occur at the O&C parking lot. The final installment will take place April 23 at the VAB area Parking Lot E. The last two days offer events from 9 a.m. – 3 p.m.

Some events planned are Energy 101, CHS Environment Health Booth, Ransom Road Tour, Ride the Segway, Amnesty Day, Win a Helicopter or Airboat Ride, and a Look at KSC Before the Space Age.

For additional information including activity specifics, visit <http://environmental.ksc.nasa.gov/eeaw/eeaw2003/index.htm>, or contact EEAW co-chair Barbara Naylor at Barbara.A.Naylor@nasa.gov or 867-8452.



Purchasing the first tickets for the 2003 KSC All-American Picnic, from left, are Picnic Co-Chair Patrick Breen, Center Director Roy Bridges Jr., ISS/Payloads Processing Director Tip Talone, and Picnic Co-Chair Roy Tharpe.

KSC All-American Picnic ushers in springtime

It's springtime in Florida, and with it comes the KSC All-American Picnic, being held April 26 from 10 a.m. to 4 p.m. at KARS I.

This year's picnic includes some exciting new additions: a visit from the Tuskegee Airmen, a Japanese candy artist (brought to us directly from Epcot) and a helicopter fly-in.

"The All-American picnic offers the KSC family a chance

to come together to enjoy friends, entertainment and more in a beautiful outdoor setting. Come out and enjoy the fun," said KSC Director Roy D. Bridges.

Contact Mark Biesack at 867-6288 or e-mail to Mark.C.Biesack@nasa.gov if you are interested in being a volunteer.

For more information about activities, see the KSC All-American Picnic web site at <http://kscpicnic.ksc.nasa.gov/>.

MARS... (Continued from Page 6)

rays likely will be diminishing the power supply.

"Landing on Mars is very difficult, and it's harder on some parts of the planet than others," said Dr. Ed Weiler, NASA associate administrator for space science in Washington. "In choosing where to go, we need to balance science value with engineering safety considerations at the landing sites."

According to scientists with the mission, both spots show evidence of water in the past but in different ways. The Gusev site shows signs of a dry riverbed flowing right into it, meaning there is a

chance a lake was once present.

Meridiani, with its abundant presence of gray hematite, may have contained water because it is needed to produce the mineral. Both sites complement each other because they're so different.

MER site selection began with identifying all areas on Mars. To qualify, candidate sites had to be near the equator, low in elevation and not too steep, among other criteria; 155 potential sites were studied. More than 100 scientists participated in the meetings.

The twin MER spacecraft are at KSC in preparation for launch. At left, the lander petals and attached airbags of the MER-2 are closed around the spacecraft during testing. NASA's Jet Propulsion Laboratory manages the project.

Information about the MER project is available online at <http://mars.jpl.nasa.gov/mer>.

Camp Kennedy Space Center spring lift-off March 31 to continue through summer

The sixth annual spring session of Camp Kennedy Space Center blasted off March 31 through April 4 with a wide variety of exciting new activities and free 12-month passes to the Visitor Complex for all campers.

The weeklong day camp educated children in second through ninth grades about the dynamic world of space exploration and the amazing accomplishments of America's space program.

Campers rode motion-based space simulators, operated a simulated Mars rover, met an astronaut, designed space exploration vehicles and much more. Specially trained and certified teachers and educators led the program, which is based at the Astronaut Hall of Fame, with periodic visits to the nearby main campus of the Visitor Complex for additional activities and programs.

For the first time, all camp participants received a complimentary 12-month pass to the Visitor Complex, inviting them to return for one full year to enjoy all exhibits,

attractions and IMAX® films.

Campers also received four tickets to bring family members to the Astronaut Hall of Fame.

A registration fee of \$260 per camper included all activities, transportation within KSC, hot lunches, afternoon snacks and an official Camp KSC T-shirt.

Discounts included a 10 percent reduction for a second child or 10 percent reduction for employees and contractors of KSC, Cape Canaveral Air Force Station, Patrick Air Force Base, and retired KSC personnel (some restrictions applied).

Summer sessions will run weekly from June 2 to August 8. Reservations are required; please call (321) 449-4400 or go to www.KennedySpaceCenter.com to register or for more information.

The Visitor Complex is open daily from 9 a.m. to dusk, except December 25 and certain launch days.

Maximum Access Admission is \$33 plus tax for adults and \$23 plus tax for children ages 3-11.



Students honor Columbia crew

Twenty-five eighth grade students from Cutler Ridge Middle School in Miami visited the KSC Visitor Complex March 27 to pay tribute to the crew of Columbia by presenting a plaque to astronaut Bill Pogue at the Astronaut Memorial. The students were selected by their science teachers based on academic achievement.



Remembering Our Heritage

TDRS-1 celebrates 20 years of service

NASA's first Tracking and Data Relay Satellite (TDRS-1), deployed from the Space Shuttle Challenger during STS-6 in April 1983, has exemplified the Agency's "can do, never quit" attitude in its 20 years of service.

Problems with leaks in Challenger's main engines made headlines and caused the launch date for its maiden voyage to be pushed back. However, processing of the TRW-built satellite went

smoothly.

Bert Grenville, Cargo Manager for TDRS-1, retired from KSC in 1985. From his home on Merritt Island, he recalled, "Although it was the most complex payload that we had processed to date, the checkout in the Vertical Processing Facility (VPF), transfer to the launch pad and integration into Challenger were accomplished with no outstanding difficulties."

In fact, TDRS-1 was moved to

Launch Pad 39A Dec. 27, 1982. Installation of the satellite and its Inertial Upper Stage (IUS) into Challenger's payload bay was completed Feb. 28. The Cargo Interface Test was finished on schedule that same day.

Later that day, however, the launch pad was subjected to a storm packing 60 to 70 miles per hour winds, and the satellite was contaminated by particulate matter. The inspection and clean-up process, and re-installation of the satellite into the orbiter, delayed the launch to April 4.

TDRS-1 opened a new era in NASA satellite communications. Uses for TDRS-1 include communications to very high latitude ground sites; support for KSC launches in the early 1990s, returning real time telemetry; closing the zone of communications exclusion over the Indian Ocean, providing 100 percent coverage of the Space Shuttle and low inclination orbiting satellites via the TDRS constellation.

NASA considered retiring the aging satellite in 1998, but allowed the National Science Foundation and others to use it for scientific and educational purposes instead.

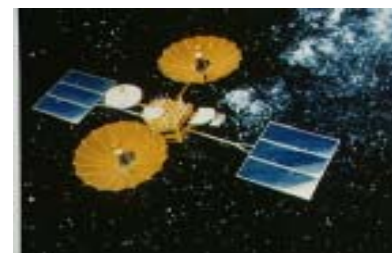
For example, TDRS-1 was used in 1998 for a medical emergency at McMurdo Station in Antarctica. Its



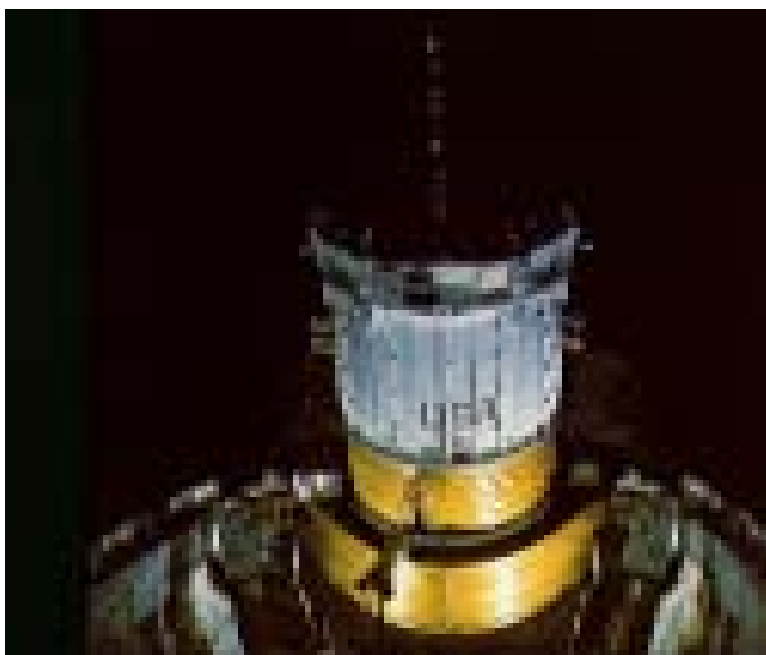
TDRS-1 is moved out of the payload canister on Launch Pad 39A for installation into Challenger's payload bay.

high-speed connectivity allowed scientists to conduct a medical teleconference, allowing doctors in the U.S. to guide a welder through a real operation on a woman diagnosed with breast cancer.

Since TDRS-1 entered service in 1983, NASA has placed nine TDRSs into specific geosynchronous orbits. Today, customers of the TDRS system include the Shuttle, the International Space Station and the Hubble Space Telescope.



Drawing of the TDRS-1 satellite with fully deployed solar panels.



The TDRS-1 satellite, attached to its Inertial Upper Stage (IUS), was deployed by the STS-6 crew from Challenger's payload bay by firing six explosive bolts, hurling it about a mile from the orbiter.

EnergyWhiz Olympics spotlights alternative-fueled vehicles

Florida middle school and high school students will demonstrate environmentally clean, alternative-fueled vehicles they designed and constructed at the debut of the EnergyWhiz Olympics on May 3 at the Florida Solar Energy Center (FSEC).

The event will spotlight the science and engineering

skills of the students as they undertake the real world topic of energy. Participants will work with the energy systems developed and used in this century and are limited in the day-long competition only by their imagination. Contact Susan Schleith at (321) 638-1017 or Penny Hall at (321) 638-1018 for information.



Spaceport News

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