



Spaceport News

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John F. Kennedy Space Center

GOES-M set to launch

An advanced environmental satellite equipped with instruments to monitor Earth's weather and with a telescope that will be used to forecast geomagnetic storms in space, is being prepared for launch from Cape Canaveral Air Force Station.

GOES-M, or Geostationary Operational Environmental Satellite, will monitor hurricanes, severe thunderstorms, flash floods and other severe weather.

It is the first of the GOES satellites equipped with a Solar X-ray Imager to detect solar storms.

Liftoff of GOES-M was targeted at press time for launch July 15 during a launch window that opens at 2:59 a.m. from Pad A at Complex 36. GOES-M will be launched on an Atlas II rocket.

GOES satellites are the workhorses of weather forecasting in the United States. The real-time weather data gathered by GOES satellites, combined with data from Doppler radars and automated surface observing

The satellite GOES-M will monitor hurricanes, severe thunderstorms, flash floods and other severe weather.

systems, greatly aid weather forecasters in providing better warnings of severe weather.

The Solar X-ray Imager (SXI) will take a full-disk image of the Sun's atmosphere once every minute. The images will be used by NOAA and the U.S. Air Force to monitor and forecast solar flares, coronal mass ejections, coronal holes and active regions.

These features are the dominant sources of



Workers at Astrotech in Titusville open the solar panel on the GOES-M satellite.

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MAP begins voyage

Wrapped in billows of smoke and steam, the Boeing Delta II rocket lifts off Launch Complex 17-A, Cape Canaveral Air Force Station, carrying the Microwave Anisotropy Probe (MAP) spacecraft. The successful launch occurred at 3:46:46 p.m. on June 30. The launch will place MAP into a lunar-assisted trajectory to the Sun-Earth for a 27-month mission. The probe will measure small fluctuations in the temperature of the cosmic microwave background radiation to an accuracy of one millionth of a degree. These measurements should reveal the size, matter content, age, geometry and fate of the universe. They will also reveal the primordial structure that grew to form galaxies and will test ideas about the origins of these primordial structures. The MAP instrument will be continuously shaded from the Sun, Earth, and Moon by the spacecraft. The probe is a product of Goddard Space Flight Center in partnership with Princeton University.

Recognizing Our People

Awards

Prince of Asturias

The International Space Station has been honored with the 2001 Prince of Asturias Award for International Cooperation by the Prince of Asturias Foundation in Oviedo, Spain.

By selecting the Space Station for the award, the jury acknowledged the international cooperation necessary to create the enormous orbiting scientific research laboratory and turn the dream for a greater understanding of our planet into a reality.

The Prince of Asturias Award will be presented in fall at a ceremony in Oviedo, presided over by H.R.H. Don Felipe, the Prince of Asturias, Heir to the Spanish Crown, and the foundation's honorary president.

Silver Snoopy

Agnes Vargas

Boeing Human Space Flight & Exploration

Mark Guseman

Boeing Human Space Flight & Exploration

Rodney Olson

Boeing Human Space Flight & Exploration

Edward Carillion

United Space Alliance

Roy Uyematsu

United Space Alliance

Robert Dodier

United Space Alliance

Brian Monborne

United Space Alliance

Sheriff wins QASAR Award

United Space Alliance Corrective Action Engineer Dave Sheriff was recently presented NASA's prestigious QASAR (Quality and Safety Achievement Recognition) Award.

He was honored for leading the development and implementation of a calibration program that improved the efficiency of USA's tool tracking system at the Kennedy Space Center saving the Shuttle program approximately \$700,000 per year.

"The QASAR Award Program recognizes those individuals who step up to the challenge and display exemplary performance in contributing to safety and quality in products, services and processes for NASA," said Frederick Gregory, NASA associate administrator for Safety and Mission Assurance.

This effort, for which Sheriff was recognized, was initiated in preparation for the ISO 9001 Certification audit. Sheriff discovered that the existing process did not track where calibrated instruments were used and therefore would not meet the program requirements.

ISO 9001 is a set of international standards establishing requirements for quality management and quality assurance.

The ISO standards document operational and management practices to ensure established standards are met.

"We learned that many tools were being regularly calibrated, but were not used during the calibration recall period (the time when the calibration was considered valid)," Sheriff said.

"Resources were being spent calibrating tools that weren't being utilized," he said.

Sheriff and his team removed 6,950 of the tools – a 23 percent reduction – from the regular calibration cycle, but kept them on hand to be available when needed. Elimination of the unnecessary calibration steps resulted in a significant cost savings.

With a cost of \$100 per calibration, the new approach saves approximately \$700,000 per year, Sheriff said.

"Dave did an outstanding job on this project," said Donna Herring, USA manager of KSC Quality Systems.

"As with most successful programs, this cost reduction was achieved through the efforts of many people and organizations. However, there is no doubt this initiative would not have achieved this important goal without Dave's extraordinary efforts," she said.

A senior engineer, Sheriff is assigned to the Corrective Action Quality Engineering group.

His responsibilities are to investigate prob-



USA Corrective Action Engineer Dave Sheriff checks a digital thermometer, one of the instruments on Center that require periodic calibration. Sheriff was recently presented NASA's QASAR Award for leading the implementation of a calibration program that improved efficiency.

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lems, identify causes and implement actions to ensure the problems are not repeated. He is also responsible for the out-of-tolerance calibration review and reporting system.

Sheriff is a 1983 graduate of the University of Southwestern Louisiana. He is a life-long resident of Cocoa, where he lives with his wife, Carolyn.

Jim Heald named SE&T director

James R. "Jim" Heald was recently appointed Director of KSC's Spaceport Engineering and Technology (SE&T) organization.

Heald has an extensive background in the management, development, test and evaluation of science and technology research programs.

He joins NASA after serving 26 years in the U.S. Air Force.

His most recent assignment was as vice commander of the Air Force Research Laboratory at Wright-Patterson Air Force Base, Ohio, where he played a key role in directing the Air Force's science and technology program, supervising over 8,800 military, government civilian and contractor personnel.

Heald was appointed SE&T Director on June 11, and has spent the past few weeks meeting with his staff and touring various labs and facilities. "The employees of KSC are outstanding people who are excited about the job they do and their contribution to the nation," said Heald. "For me, being around the technology at KSC is

"The employees of KSC are outstanding people who are excited about the job they do and their contribution to the nation. For me, being around the technology at KSC is just like being a kid in a candy store. I am thrilled to be a part of such a high-tech agency."

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Director, SE&T



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As director of SE&T, Heald is responsible for leading the center's efforts for integrated engineering and spaceport technology development. He will also lead KSC's SE&T organizational efforts in building KSC into a premiere spaceport

science and engineering organization.

In addition, to meeting KSC's strategic goals, one of Heald's primary goals is to ensure customer satisfaction for both new and existing customers.

"KSC will find out that Jim Heald was certainly worth the wait," said KSC Director Roy Bridges. "I knew

Jim Heald when he was a test weapons officer at Edwards AFB and was very impressed with his performance then. I am pleased he agreed to join the KSC team."

Heald holds a bachelor's degree in computer science and mathematics from the U.S.A.F. Academy and a master's degree in computer science from UCLA. A distinguished graduate of the Academy, Heald taught computer science at his alma mater from 1982-1985.

Rated a master navigator, Heald is a distinguished graduate of the U.S. Air Force Test Pilot School at Edwards AFB, Calif. There, he served as the director of Student Training from 1989-1991.

Having been stationed at Homestead AFB and Eglin AFB, Heald and his wife, Pat, consider themselves Florida residents, and are excited to be back in the Sunshine State.

Heald viewed his first Shuttle launch from the NASA Causeway in 1994, and is looking forward to his first launch as a member of the KSC Team.

Toastmasters workshop set for July 18

KSC Toastmasters is sponsoring a leadership enhancement workshop on speech evaluation and mentoring.

The workshop will be held July 18 from 11 a.m. to 12:30 p.m. in the fourth floor conference room in the Kennedy Space Center Headquarters Building.

KSC Toastmasters meet once a week to practice interpersonal communications and speaking skills in a supportive and constructive environment. The group is open to all KSC badged employees.

The vision of the group is "to enhance leadership, communication and presentation skills, as well as improve critical thinking, self-motivation and management potential."

The July 18 workshop is open to all KSC employees, but seating is limited.

Contact Derwood McKinley at 867-0827 for more information.



Toastmaster Pete Carrion gives a persuasive speech on prepaid legal insurance during a weekly Toastmasters meeting at KSC Headquarters. The KSC Toastmasters chapter plans to host a leadership enhancement workshop July 18.

Inside Flight Operations

Hearing NASA helicopters buzzing overhead at Kennedy Space Center is a fairly common occurrence.

That's because the four UH-1H helicopters are used for a variety of NASA missions, from Shuttle operation support to environmental studies.

Before each Shuttle launch, the helicopters manned with SWAT team members help provide extra security for the astronauts. One is even equipped and staffed with medical personnel to provide life support to the astronauts if needed.

NASA helicopters also are used for wildlife population studies, including manatee and indigo snake counts, conducted by KSC Life Sciences environmental scientists.

The aircraft can be equipped with buckets to quench wildfires and are leased to the U.S. Fish and Wildlife Service for prescribed burns at the Merritt Island National Wildlife Refuge.

The four helicopters and NASA-4 – a G-1 aircraft used to transport Center executives and astronaut families – are included within the Flight Operations area of SGS Airfield Services. The NASA aircraft are maintained and housed at a hangar at Patrick Air Force Base.

The Flight Operations group includes four pilots, five mechanics, a facility manager and an administrative assistant.

"Flight Operations is a small, highly trained group of dedicated individuals who work extremely well together," said Bob Bryan, manager of SGS Airfield Services.

In addition to Flight Operations, Airfield Services also provides air traffic control and aircraft servicing support at the Shuttle Landing Facility and the Skid Strip at Cape Canaveral Air Force Station, as well as transient alert support at Patrick Air Force Base.

SGS provides Airfield Services as part of the Joint Base Operations and Support Contract.

Flight Operations is gearing up to trade out the old G-1 turboprop aircraft for a G-2 jet that will become the new NASA-4. The larger and faster aircraft will allow for traveling greater distances, such as to Vandenberg Air Force Base, Calif., without refueling.

"The Center's needs are changing and we're in the jet age, so upgrading to the G-2 just makes sense," Bryan said.

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Bob Bryan
Manager of SGS Airfield Services



Above, aircraft mechanic Mike Littrell adjusts equipment in the interior of a NASA helicopter. At right: An aerial view of the NASA Flight Operations hangar at Patrick Air Force Base. Aircraft mechanic Mark Smith inspects a NASA helicopter in the hangar at Patrick AFB. NASA-4 is housed in the hangar. Administrative assistant Loretta Woulard works at a white board.



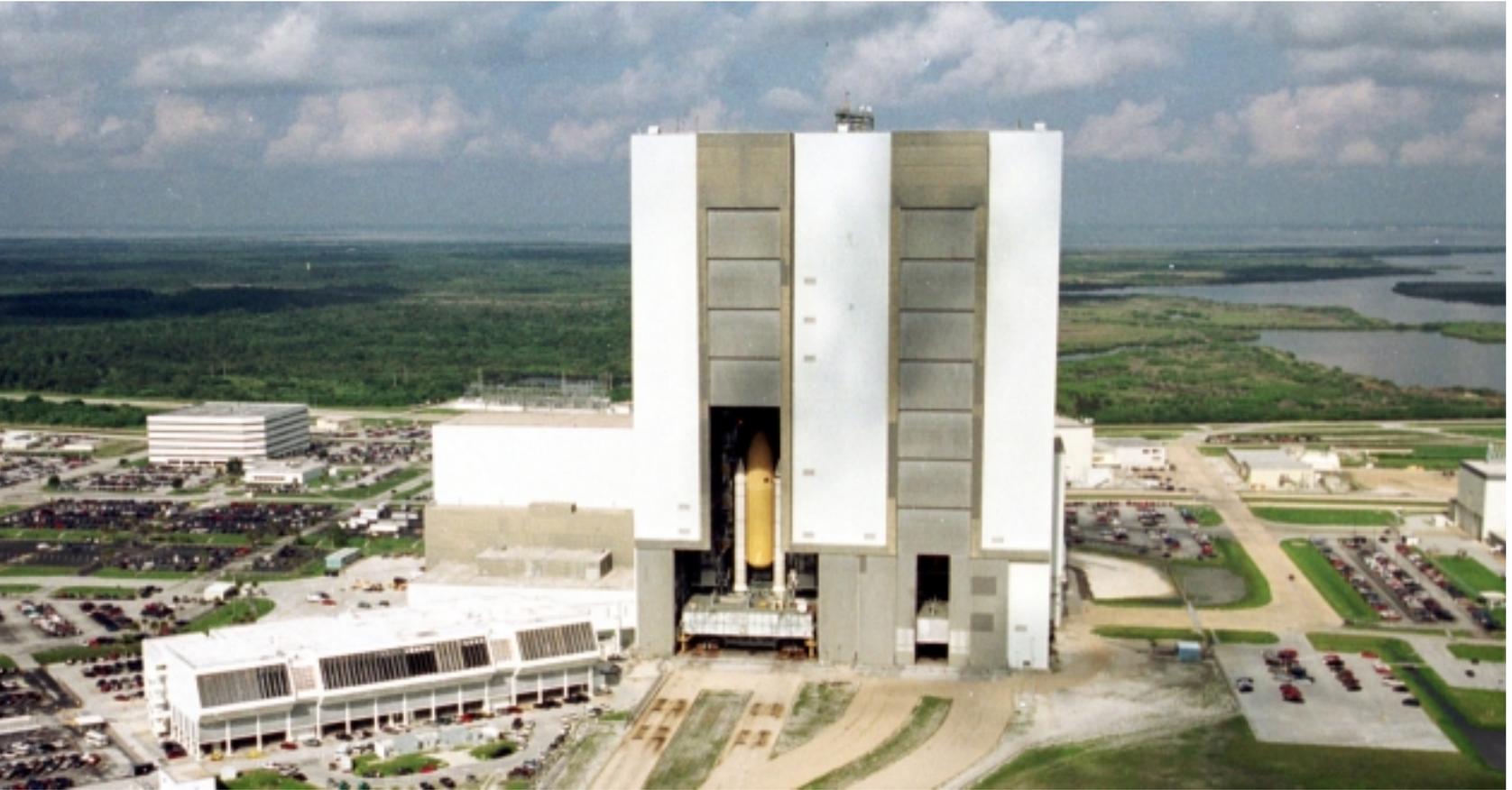
A view of the Vehicle Assem



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At left, Bob Parker pilots a NASA helicopter while KSC wildlife biologist Mike Legare, at far left, tries to detect indigo snakes equipped with transmitters.



Building from a NASA helicopter being used to perform a population study of indigo snakes at Kennedy Space Center.





High School High Tech

Two students in the High School High Tech program rehearse at the NASA News Center for their parts in a promotional video. The video will highlight the NASA education program. Romaine Murdaugh, seated left, and Meneisha Taylor are among eight students in the program this summer. Project leader Cheryl Bartoszek, standing at right, of the Space Coast Center for Independent Living, and video producer Jim Cain of Johnson Controls, work with the students while videographer Tony Gray looks on. The High School High Tech program, which encourages students with physical, sensory and learning disabilities to follow their interests in technology areas, is one of a number of summer education programs at Kennedy Space Center.

LC34 remediation tour draws observers

Several bus loads of environmental engineers and scientists recently toured Launch Complex 34 at Cape Canaveral Air Force Station for an update on the LC34 DNAPL Source Removal Demonstration.

The ongoing demonstration is testing three methods of removing a DNAPL (Dense Non-Aqueous Phase Liquid) called trichloroethylene (TCE), which is now known to pollute groundwater. The solvent was used in the early days of the space program for rocket engine flushing and the cleaning or degreasing of metal parts, electronics and heavy machinery.

The environmental group took the LC34 tour as part of the 2001 International Containment and Remediation Technology Conference and Exhibition in Orlando.

"I was pleased with the number of participants at the conference in Orlando and equally pleased at the diverse representation of participants at our tour and update," said Jacqueline Quinn, Ph.D., NASA environmental engineer and lead for the project. "Thirty eight countries were represented at the

tour. This makes over 500 professionals, including engineers, lawyers, site owners and environmental regulators who have visited the site in the last 13 months. That is quite a few people interested in the emerging DNAPL cleanup technologies being tested at Launch Complex 34."

The Interagency DNAPL Consortium (IDC) was formed in 1999 with the mission of demonstrating innovative DNAPL remediation and monitoring systems. Members of the consortium include NASA, 45th Space Wing, U.S. Navy, U.S. Department of Energy and the U.S. Environmental Protection Agency.

As part of the demonstration effort, the IDC is evaluating and comparing the cost and performance of three innovative remediation technologies. Early results indicate faster, less expensive alternatives exist for DNAPL remediation, in contrast to the costly and lengthy pump and treat systems traditionally used.

In side-by-side plots, this project demonstrates three new technolo-



William Heath, chief operating officer of Current Environmental Solutions, describes the DNAPL cleanup process his company performed on a plot at the LC34 DNAPL Source Removal Demonstration site. His discussion was part of a Launch Complex 34 site tour given to a group of environmental engineers and scientists from the 2001 International Containment and Remediation Technology Conference in Orlando.

gies for high concentration-levels of TCE. Testing in a side-by-side setting allows the consortium to evaluate and determine optimal site conditions for application of each

technology. Cost and performance data gathered during the demonstrations will be used to speed acceptance and use at other federal and private sites.

Cryogenics Testbed to the rescue

It was a typical day at the Dynacs Cryogenics Testbed, but then an important call came in from the United Space Alliance crawler transporter group.

USA had a problem: A steering cylinder had failed on the Solid Rocket Motor Transporter (SRM). The transporter is used to transfer Solid Rocket Booster segments between the Rotation/Processing Facility and the Vehicle Assembly Building.

While the vehicle was moving, one of the steering cylinders froze up, making it impossible to steer properly. Workers located the damaged cylinder and proceeded to try to remove it so that a new steering cylinder could be installed.

Two steel pins hold the cylinder in place and require a hydraulic press, or a similar device, to be applied for re-installation.

The transporter crew had removed the pins from the old cylinder using heat and a great deal of pressure.

Using heat on the new cylinder might damage the seals or possibly cause the pins to gall during installation, so workers decided an alternative was needed.

Enter the Cryogenics Testbed Team. Once called, the team sprung into action and arrived on the scene with hardware and equipment, ready to help install the pins in the new cylinder, said Dennis Lobmeyer, cryogenics and fluids supervisor for Dynacs Information and Applied Technology.

The team dropped the four-inch diameter pins into a special container filled with Liquid Nitrogen cooled to -320 degrees F.

All metals and similar materials expand and contract with tempera-



Jim Gibson, left, cryogenics and fluids technician, and Kevin "Bert" Cummings, senior electrical and controls technician, insert a pin into a vat of liquid nitrogen at the Cryogenics Testbed to demonstrate the technique used to cool two pins for the Solid Rocket Motor Transporter.

ture changes, Lobmeyer noted. The key is in knowing what liquid to use and how hot or cold it should be. In this case, the steel pins were sufficiently cooled in the liquid nitrogen and shrunk in diameter just enough to allow the team to slip them back into the rings of the

new cylinder.

The pins were then allowed to warm up and expand back to their original size creating a friction fit without damaging the hardware.

Within three hours the transporter was back in working condition and ready for the road.

"The Testbed group helped us get the job done in a timely manner," said Thurston Vickery, USA manager for the transporter group. "We appreciated their support."

This is just one of several success stories the Cryogenics Testbed has had since its doors opened in April 2000, Lobmeyer said. The team was successful in providing a power drive unit change-out for Orbiter Vehicle Atlantis before it launched on mission STS-101 May 19, 2000.

The team is currently involved in the design and testing processes for the Big Horn Valve Inc., Venturi Offset Technology for NASA and a related offshoot design for other commercial customers.

Recently, the facility added a Class 100 Clean Room. This clean room will allow teams to perform research and testing in an extremely clean environment, reducing the risk of contamination and incorrect test results.

The Cryogenics Testbed is a multi-function facility specializing in integrated product development, analysis, instrumentation, fabrication, engineering services and test operations.

"The long-term goal is to establish a cryogenics network of people and places and to expand the services beyond NASA, to include commercial customers," Lobmeyer said.

The Cryogenics Testbed is a joint operation between NASA and Dynacs Engineering, Inc. KSC's Engineering Development contractor. The Cryogenics Laboratory is located south of the Operations and Checkout Building in the Industrial Area.

GOES ...

(Continued from Page 1)

disturbances in space weather that lead to geomagnetic storms.

The ability to monitor and forecast such events is valuable to operators and users of military and civilian radio and satellite communications systems, navigation sys-

tems and power networks, as well as to astronauts, high-altitude aviators and scientists.

"The SXI will provide the kind of improvements in space weather forecasting that satellite imagery did for tracking hurricanes," said Steven Hill, SXI Program Manager for NOAA.

The images taken by the Solar X-ray Imager will be available in real

time to the general public via the World Wide Web.

The United States operates two GOES meteorological satellites in geostationary orbit 22,300 miles over the Equator. GOES-M will be stored on orbit until called upon to replace one of those satellites.

"NASA is excited about providing another fine tool for the NOAA to use in weather operations,

including space weather forecasts," said Martin A. Davis, GOES program manager at NASA's Goddard Space Flight Center in Greenbelt, Md. "The launch of the GOES-M is the continuation of a 25-year joint program between NASA and NOAA."

GOES information and imagery are available at www.goes.noaa.gov.

Remembering Our Heritage



Viking 1 observes the Martian terrain after landing July 20, 1976.

25 years ago: Viking 1 landing

NASA retiree John Neilon, who served as launch director for the Viking I launch, remembers the Viking I landing on July 20, 1976:

"It takes about twenty minutes for a signal to traverse the distance from Mars to Earth. A number of thoughts go through one's mind while waiting for confirmation of an event that has already occurred on Mars.

This was the situation I experienced in the early morning of July 20, 1976. As launch director of the Titan Centaur 4, carrying the Viking 1 Lander, and more importantly as the representative of the entire launch crew, I was one of the privileged few to be present in the prime control room at the Jet Propulsion Laboratory in Pasadena for the anticipated landing of Viking 1.

The Lander's separation from the Orbiter had occurred successfully about three hours before scheduled touchdown and all intervening events had occurred on schedule ...

I couldn't help reflecting on all the launch activity that had gone on at Kennedy Space Center since the Viking 1 launch and the difference between the missions of the various centers involved. While the mission and spacecraft people were able to concentrate on the Viking 1 mission, and that of its sister craft Viking 2 following it to Mars, our KSC teams had to turn to other tasks and actually accomplished sixteen launches between the Viking 1 launch and the its landing on Mars.

This total included two additional Titan Centaurs, two Atlas Centaurs and 12 Deltas. Another event in the interim had been the renaming of the KSC launch organization from Unmanned Launch Operations (ULO), which distinguished it from the manned Apollo launches, to Expendable Launch Vehicles (ELV), to distinguish it from the upcoming reusable Space Shuttle.

While all these things were revolving in my mind, the long awaited signals from Mars signifying a successful and survived landing came through. Shortly after, we were treated to the first pictures ever taken on the surface of another planet.

All that work had been worth it!

Not long after that, we were able to eavesdrop on a congratulatory phone call from President Gerald Ford to NASA Administrator James Fletcher and Project Manager Jim Martin.

All this activity had occurred between 5 and 6 in the morning, California time, so the traditional party did not follow immediately. Most of us who weren't locals opted to skip the festivities and instead returned to our hotels for a few hours sleep before heading back home on an afternoon flight.

I didn't appreciate it at the time but someone later pointed out that the first Mars landing occurred on July 20, 1976, seven years to the day after the first manned lunar landing on July 20, 1969."

Children invited to KSC

Kennedy Space Center (KSC) will celebrate Take Our Children to Work Day on July 19.

This is the ninth year the Center has opened its doors for the children of KSC employees to participate in this worthwhile day of recognition.

This special day targets children form 9 to 15.

On this day, KSC employees are invited to bring a son or daughter, grandchild, niece or nephew, or a neighbor's child to work with them to share the work experience.

The day serves as a chance to motivate children to set goals for the future, and to build on these goals, during their years in school.

Sponsors may bring more than one child, but only children 9 years and older may participate. As in the past, children may not be taken to any work area requiring a controlled access badge.

Gate 1 (the CCAFS gate) will be open to employees bringing children to work with them, and employees working on CCAFS property may participate and will be permitted to take the children to their work areas as long as they do not work in a controlled access area and their company is participating.

KSC Contractor employees should contact their Public Affairs Office or Human Resources Office to determine the level of participation available to them.

Beginning at 9:30 a.m. at the KSC Visitor Complex, IMAX Theater area, there will be a For Inspiration and Recognition of Science and



Technology (FIRST) robotics demonstration and the KSC Visitor Complex Spaceman will also be available for a photo opportunity.

All NASA and Contractor employees and their children are invited to take a KSC tour. Tickets must be purchased in person between July 16 through 19 at any window in the Ticket Pavilion at the KSC Visitor Complex.

Tickets for both adults and children will be \$9.92 and will be good for July 19 only.

Special Take our Children to Work Day badges will be distributed. Contractor employees should contact their own representatives to obtain badges.

Federal Women's Program Working Group (FWPWG) members will issue badges to NASA employees on July 16, 17, and 18, between 10 a.m. and 2 p.m. in the Headquarters Building Lobby and the Operations Support Building Lobby.

Children must wear their badge and be with a badged employee at all times.

For more information, contact Patti Phelps at 867-4843 or Pam Adams at 867-8222.



John F. Kennedy Space Center

Spaceport News

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