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# Spaceport News

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

http://www-pao.ksc.nasa.gov/kscpao/snews/snewstoc.htm John F. Kennedy Space Center

## SIRTF to launch April 18

The Space Infrared Telescope Facility is scheduled for launch from Cape Canaveral's Pad 17-B April 18.

The NASA observatory will use infrared technology to study celestial objects that are either too cold, dusty or far away to otherwise be seen, according to officials with the SIRTF Science Center. By studying the structure and composition of planet-forming discs around stars, SIRTF will aid the search for Earth-like planets that may harbor life.

Infrared detectors can see longer wavelengths than the red light visible to our eyes. As the universe expands, starlight from distant galaxies is shifted from

**(See SIRTF, Page 2)**

## Inside





# Debris collection develops under Leinbach's leadership

As the grid at KSC's collection hangar for Columbia continues to evolve, the challenging task of overseeing assessment of debris is handled by Shuttle Launch Director Mike Leinbach and his dedicated staff. The staff is a mix of technicians, quality assurance specialists, engineering talent and payload support who have worked on the assessment for the past seven weeks.

"It is still fairly early in the process, so most of the people that work here on a daily basis have gotten used to the idea that this is the wreckage from Columbia," said Leinbach. "We've gotten into the mode that this is our job now. We need to put the wreckage out on the floor and try to figure out what happened."

The 150 people who work in two shifts six days a week are familiar with the grid and can make that mental connection of different areas of the orbiter laid out. They continue to get in two trucks a week, each with approximately 3,000 pounds, and go through the same process for every truck that arrives.

Shuttle Launch Director Mike Leinbach (second from left) and his dedicated staff have worked the past seven weeks assessing Columbia debris.

**(See DEBRIS, Page 7)**

# NASA and contractor reservists help defend country

While orbiter processing and Columbia investigation work continues at Kennedy Space Center, world events have called some of our NASA and contractor workers away from the Space Coast. These dedicated men and women volunteered to serve and defend our country as reservists in our nation's armed services.

"We will miss the dedicated and professional service provided by these members of the KSC family, but respect their patriotism and wish them God's Speed as they leave home to serve our Country," said KSC Deputy Director James Kennedy.

The following is a list to date of those KSC employees currently serving overseas in support of the war effort.

### U.S. Air Force

- *Enrique Barnes,* NASA quality assurance specialist, Space Shuttle Program
- *Desmond Barnhill,* aerospace technician, United Space Alliance (USA)
- *John Barton,* packer and crater, USA
- *Jeoffrey Bispham*, production engineer, Boeing Florida Operations
- *Robert Briggs*, technician, Boeing Florida Operations
- *Gustavo Dias,* section manager, Space Gateway Support
- *Robert Drum,* security police officer, Space Gateway Support
- *Matthew English,* NASA quality assurance specialist, Space Shuttle Program
- *Glenn Fannin*, manager, USA
- *William Feller,* NASA quality assurance specialist, Space Shuttle Program
- *Dale Fletcher,* quality engineer, Boeing Florida Operations
- *Charles Floyd,* aircraft servicer, Space Gateway Support
- *Alonzo Gee,* computer science staff, USA
- *Albert Gibson,* NASA quality qssurance specialist, Space Shuttle Program
- *Jerry Gillman*, inspector, Boeing Florida Operations
- *Kerry Gouty,* technician, Boeing Florida Operations
- *Matthew Hearon,* security police officer, Space Gateway Support
- *Larry Jarrell,* technician, Boeing Florida Operations
- *Horace Johnson,* mechanical technician, Shuttle Systems, USA
- *Martin Jones,* NASA quality assurance specialist,

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# KSC team testifies to investigation board

Kennedy Space Center Director Roy Bridges Jr. opened testimony before Columbia Accident Investigation Board (CAIB) members, chaired by retired Navy Adm. Harold Gehman Jr., at the third session in a series of public hearings on the investigation held March 25-26 at the Radisson Resort at the Port in Cape Canaveral.

Bridges answered questions regarding KSC's role in the Shuttle program, Shuttle ISS and Payload Processing, Expendable Launch Vehicle management and Shuttle safety.

When asked about KSC's safety practices, Bridges said, "Our number one guiding principle at KSC is safety and health first. We have invested considerable resources into training a team. Everyone is very mindful of safety and health practices. We are very proactive."

William Higgins, chief of the Shuttle Processing Safety and Mission Assurance Division, testified on the roles and functions of the division. Steve Altemus, Shuttle test director at KSC and NASA reconstruction director, provided an overview of the debris layout, identification and analysis efforts at KSC.

Although there was no conclusive information presented regarding the cause of the Columbia accident, Altemus told the investigation board members they may have a report approximately 60 days after the recovery effort is terminated.

Others who testified were Mike Rudolphi, deputy director, Stennis Space Center; Dr. Gregory T.A. Kovacs, associate professor of electronics, Stanford University; Mark Tanner, vice president and senior consulting engineer, Mechanical and Materials Engineering; and retired USAF Lieutenant General Aloysius G. Casey.

"The CAIB members have respect and admiration for the hard work everyone here at KSC, in Texas and Louisiana are contributing in the recovery and investigation efforts," said Gehman at the end of the hearings.


Center Director Roy Bridges Jr. testifies at Columbia Accident Investigation hearing held March 25-26.

# KSC engineer, team earn Federal Lab award

A technology developed at Kennedy Space Center that may help prevent aircraft accidents by warning of cabin depressurization events recently earned the 2002 Excellence in Technology Transfer "Project of the Year" Award.

The award is sponsored by the Federal Laboratory Consortium-Southeast region. Jim Heald, NASA director of Spaceport Engineering and Technology, presented the award March 14 to the inventor, Jan Zysko, a NASA KSC research and development engineer, and the contractor technology development group.

The new technology that garnered the prestigious award is the Personal Cabin Pressure Monitor and Altitude Warning System, a personal, portable device that can be used in a variety of aviation, aerospace and non-aerospace applications where knowledge is important of exposure to low partial oxygen pressure.

Receiving the award along with Zysko were Jose Perotti, NASA lead, transducers & sensors group; and team members with ASRC Aerospace Corp. – Jeff Rees, engineering specialist; John Henderson, technician; John Taylor, senior integration engineer; Pedro Medelius, senior scientist; Tony Eckhoff, manager, Command and Control Monitoring Systems; and Dick Deyoe, engineer.

Also receiving the award were Justin and Lynn Kelly of Kelly Manufacturing Company, who recently licensed the technology and are commercially producing an aviation version of the product.

The first commercial units were unveiled last summer at AirVenture 2002.

Technology transfer awardees: (from left) Richard Deyoe, Anthony Eckhoff, Jose Perotti, Jan Zysko, Jeff Rees, John Taylor, Pedro Medelius, Justin Kelly and Lynn Kelly.

## SIRTF . . . *(Continued from Page 1)*

blue to red and, ultimately, into the infrared. Most radiation emitted by stars, galaxies and other objects in the early universe now lies in the infrared. The SIRTF will enable scientists to look farther back in space and time than was previously possible.

"The Space Infrared Telescope Facility will complete NASA's suite of Great Observatories, a program that includes three previous missions that studied the universe with visible light, X-rays and gamma rays," said Dr. Ed Weiler, NASA's associate administrator for space science.

"Many cosmic objects produce radiation over a wide range of wavelengths, so it's important to get the whole picture," he said.

The three previous Great Observatories are the Hubble Space Telescope, Compton Gamma Ray, and Chandra X-ray.

During its estimated five-year mission, the SIRTF will also study brown dwarfs, or cool 'failed stars.' Some scientists think brown dwarfs may account for some or all of the elusive dark matter thought to be prevalent in most of the universe.

The observatory's telescope has three science instruments. The infrared array camera is a general-purpose camera for near- to mid-infrared wavelengths.

The infrared spectrograph breaks light into its various wavelengths to help astronomers study the composition of cosmic objects.

The multi-band imaging photometer will gather pictures and limited spectroscopic data at far-infrared wavelengths to study cool, dusty objects.

For more information about SIRTF, visit **www.sirtf.caltech.edu.**

Delta II rocket buildup for SIRTF launch, Cape Canaveral AFS.

# Recognizing Our People

## Benik moves to Independent Program Assessment Office

Acquiring more professional responsibilities based on unyielding dedication is often the reward for outstanding leadership, and Michael Benik's career journey is no exception.

Benik, KSC's former director of Expendable Launch Vehicles (ELV) Launch Services, now serves as director of the Independent Program Assessment Office (IPAO) based at Langley Research Center. He is now responsible for Agency independent assessments, program evaluations and independent cost estimates. His office also frequently performs special assessments at Headquarter's request.

"Mike Benik's leadership, commitment and tireless work ethic will be greatly missed by the KSC team," KSC Director Roy Bridges said. He left a permanent mark on the Center as he helped establish the ELV program we know today and will continue to benefit from tomorrow."

Benik began his career at Glenn Research Center in 1982 as a contractor, converting to civil service in 1984. He served in the Space Transportation Engineering Division before being promoted to chief of the Space Transportation Analysis Branch in 1991.

As chief, he analyzed performance for the Mars Observer Mission, GOES weather satellites and the international Solar and

Michael Benik

Heliospheric Observatory.

In 1994, Benik became NASA's Denver Resident Office chief, which included overseeing production of the last Atlas I for NASA, the first Atlas IIAS and the Titan IV/Centaur vehicle for the Cassini Saturn mission.

He acquired all ELV engineering responsibility when he became Technical Management Branch chief.

To establish the engineering division of the ELV Launch Services Directorate at KSC, Benik moved to Florida in 1998. While at KSC, the Cleveland native managed NASA's engineering, integration, and safety and flight assurance for NASA procured launch services.

He received NASA's Outstanding Leadership Medal for building a highly capable engineering team supporting this endeavor. These outstanding achievements led to Benik's selection as ELV Launch Services Director in 1999.

Benik recognizes the value of a strong foundation.

"Thanks to all those who supported the ELV Program's transition to KSC. This was a huge undertaking and never would have been possible without the tremendous support of many organizations across the Center," he said.

"My time at KSC was the high point of my career. I've worked with truly outstanding people in the last five years and I will miss them dearly," Benik said. "I'm excited about the contribution I can make to Agency decision makers in my new position. NASA is a small Agency, so it's a good bet I'll be working with many KSC employees in the future."

His former assistant, Charlene Laferriere, explains the pleasures of working with Benik. "He cares greatly about the people within the organization, always concerned with the long hours some worked, while working until all-hours himself."

"I've most appreciated his willingness and patience in teaching me about launch vehicles and processes. He always explained matters in terms I understood, and also listened to my concerns and respected my input."

## *Aerial debris recovery team suffers losses in Texas*

The NASA family has expressed its sincere condolences when a Bell 407 helicopter involved in the search for Columbia debris went down March 27 in the Angelina National Forest in Texas. Pilot J. "Buzz" Mier of Arizona and Texas Forest Service Ranger Charles Krenek of Lufkin were killed in the accident.

Three other crew members were injured and treated for non-life-threatening injuries at Memorial Medical Center of East Texas, including Ronnie Dale, NASA Safety and Process Assurance Branch, KSC; Richard Lange, United Space Alliance, KSC; and Matt Tschacher, U.S. Forest Service.

The aerial search was temporarily halted until the cause of the accident was determined. The ground search efforts moved on, finding more key components..

"Our heartfelt condolences go out to the families of the crew members killed in the helicopter accident," said KSC Director Roy Bridges Jr. "The injured crew members are in our prayers as well. We pray for their speedy recovery."

Dale is a member of the NASA quality control program. Lange provides support for cold oxygen and hydrogen tanks for the Shuttle program.

Adrian Laffitte

## Laffitte to receive Debus award

Adrian Laffitte, director of Atlas Programs for Lockheed Martin Astronautics, will be honored as this year's winner of the Dr. Kurt H. Debus Award from the National Space Club Florida Committee April 12 at the Debus Conference Center in the KSC Visitor Complex. The event will begin with a reception at 6:30 p.m., followed by dinner at 7:30 p.m.

Former astronaut Frederick Gregory, a veteran of three shuttle missions and now NASA's associate administrator for the Office of Space Flight, will be the featured speaker at the black tie-optional dinner ceremony.

Laffitte is being recognized for his outstanding personal and professional efforts in supporting the U.S. space program throughout his career, and especially for his recent work directing launch operations of the historic Atlas rocket, including successful inaugural Atlas 3 and Atlas 5 satellite delivery missions.

First given in 1980, the award was created to recognize significant achievements and contributions made in Florida to the American aerospace effort. It is named for KSC's first Director, Dr. Kurt H. Debus.

Tickets are $75 for club members and $85 for non-members. Corporate tables seating 10 are available for $800 and education tables seating 10 are available for $500. Contact Sandy Andre (917-9192) or go to **www.nscfl.com** for reservations.

# FIRST Robotics competition inspires future high-tech workforce

One of NASA's main missions, "To inspire the next generation of explorers," was on display when the University of Central Florida's Arena was transformed March 20-22 into an atmosphere of futuristic robots, cheering teams complete with team colors and creative costumes, and music that kept the crowd on its feet.

NASA KSC and the university partnered to host the For Inspiration and Recognition of Science and Technology (FIRST) Robotics Central Florida Regional event.

The competition had been held at the KSC Visitor Complex for the past four years but made the move to UCF as part of NASA's goal to grow the competitions at the Centers, then have corporations and private funding take over. KSC was the last Center to make the transition.

"Kennedy was the last holdout and now we're very happy with the results," said Laurel Lichtenberger, director of the Space Flight & Life Sciences Program.

"The venue is beautiful and works great, and the partnership with UCF has been better than we could have ever hoped. We're very hopeful that the future will see it continue to be a cooperation between the two organizations."

FIRST provides the teams with a standard set of rules and a kit of assorted parts to assemble their creations.

The goal of the program is to enhance the pool of future workers in the high-tech workforce by pairing the students with engineers, mathematicians and mentors who are already in a specialized field to let the students know what it takes to be successful.

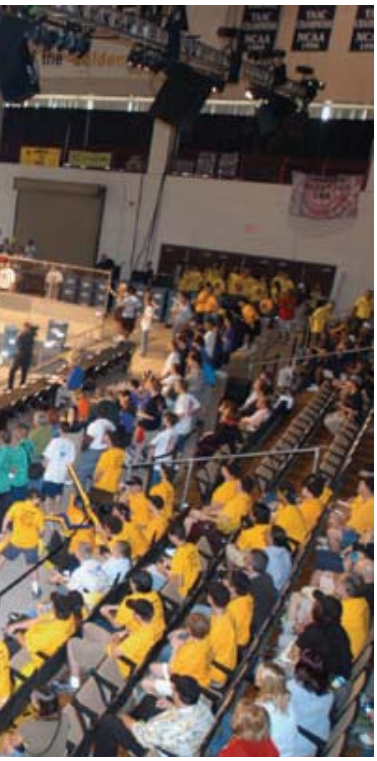
This year, 41 teams competed at the Regional, including Team # 21 from Astronaut and Titusville High Schools (mentored by The Boeing Company/Brevard Community College); Team #233 from Cocoa Beach and Rockledge (NASA KSC); Team #386 from Bayside, Brevard Christian, Eau Gallie, Melbourne, Palm Bay, Satellite, and West Shore (Harris/Intersil/GSMA/VX/bd Systems/Rockwell Collins); and Team #801 from Merritt Island and Edgewood Middle School (Lockheed Martin Space Operations/Mission Systems).

Event sponsors and selected competitors were treated to a VIP luncheon, where KSC Director Roy Bridges and Lt. Gov. Toni Jennings spoke about their careers and the impact it had on their lives, as well as how to prepare for the future.

"My chance to make something of my life was the Air Force Academy, where I learned to be a pilot and a test pilot," said Bridges. "Then with the space program I had the opportunity to be an astronaut. An engineering education was required for all of those things.

"I will tell you that without something to inspire you, all of those dreams of going into space seemed a long ways away.

"As I struggled through the first couple of years of engineering school with tough courses, it would have been helpful for me to have inspirational activities such as this FIRST competition. This would have helped me realize how interesting an engineering career could be…a preview to sustain me."



Top left: KSC NASA/Boeing team; top center: Team #233 members with Center Director Roy Bridges and Lockheed Martin Vice President/Associate Program Manager Brian Duffy. Upper right: KSC Support team, left to right, top row, Dr. Shannon Roberts, Laurel Lichtenberger, Anita Ott, Darryl Robertson, Chris Fairey, Vickie Hall, Roxie Bardella, Linda Bradley; bottom, Pamela Biegert, George Shelton. Center: Overview of UCF arena. Bottom, left and right: Lockheed team. Far left, Center Director Roy Bridges and Florida's Lt. Gov. Toni Jennings look at displays.

The approximately 1,800 students' challenge for the 2003 competition, titled Stack Attack, required robots to collect and stack plastic storage containers on their side of the playing field. The location of the robots, containers and the height of the stacks at the end of the two-minute match determined each team's score for the round.

Team #233 went to work after its first match as freshman Danielle Whales explained to judge Robert Jordan Jr. of United Space Alliance some of the engineering designs of its machine.

"We have custom circuits so that we can read certain outputs," said Whales. "Usually they would give us readings at intervals of 30 or 45 seconds, but this is actually reading the output instead of the actual magnetic sensor so you always have an actual reading."

Jordan was impressed with the team's knowledge for 'Roccobot' and explained what he looks for as a judge.

"We have the technical side and the teamwork, the touchy, feely part, where if these kids are being a team and trying to come up with a solution for things. We are also looking to see if they are being innovative in their design and if they really enjoy what they are doing.

"One of the things I'm seeing in all these teams is that they are very enthusiastic about this – we're in very good shape. I think we're in very good shape as far as our kids are concerned."

The competition will also award more than 100 merit-based scholarships amounting to more than $2.6 million to high school participants, up from $1.7 million last year. Visit the FIRST website at **www.usfirst.org/robotics/scholsh.htm** for a complete list as well as full details regarding each scholarship's specific criteria.

The local teams won a number of awards at the end of the competition: Team #233 won awards for Regional Finalist 2, GM Industrial Design and the Imagery Award; Team #21 won the DaimlerChrysler Team Spirit Award and the Johnson & Johnson Sportsmanship Award; and Team #386 was recognized for the Xerox Creativity Award.

KSC Engineer Andy Bradley and mentor for Team #233 was proud of his team's showing. "The Control Systems Group at Kennedy helped design this robot, and we have one that is a step above all the rest. We're able to knock boxes over and keep on course when others are not able to."

As Andy talked about his team's entry, other competitors ventured over to KSC's pit area. "The machine shop at KSC was the primary support for the competition when it was held at KSC's Visitors Center," said Bradley. "A lot of the teams associate the Kennedy team with the machine shop."

Regional winners move on to the FIRST Championship April 10-12 at Reliant Park in Houston. For more information about FIRST programs, contact (800) 871-8326 or **www.usfirst.org.**

# Successful Hubble servicing missions part of One NASA advantage

Editor's Note: This continues the series of stories from various NASA Centers on the One NASA concept.

"NASA works best when it works together." This is the One NASA philosophy, which emphasizes enhanced coordination, collaboration and communication among all Agency facilities to reach common goals. It also is the motto of a highly visible, cross-Enterprise, inter-Center group that serves as an excellent example of this concept's success for more than a decade – the Hubble Space Telescope (HST) team.

Since 1993, the HST team has successfully conducted four servicing missions plus a technology demonstration flight. The servicing, repair and upgrade of Hubble incorporates the Space Shuttle and astronaut Extra Vehicular Activities (EVAs) to accomplish some of NASA's most important program objectives.

Frank Cepollina, deputy associate director for the HST Development Office and a recent inductee into the National Inventors Hall of Fame, discusses the One NASA concept.

"All elements of the Agency are involved in HST and must work together on each mission – astronauts, scientists, engineers, EVA crew, hardware developers, launch teams, and finally, integrated operations teams. From a Center perspective, GSFC, JSC, KSC, MSFC and Glenn all come together to provide the best expertise, supported by contractors at every Center, as well as international partners. NASA works best when it works together."

This sort of experience did not flow automatically from the outset. Although the HST design was integrated with the Shuttle design and capability since its original concept, the team formed in the early days of HST development and deployment initially did not continue into the servicing mission.

When the high visibility of Hubble's original optical problem caused concern at the upper levels of NASA, multiple external review committees convened. One of these meetings produced the inevitable, "Who's in charge?" question, to which the top officials from every Center and program claimed some responsibility.

A mission director was appointed to arbitrate conflicts. Although this appointment satisfied the formal authority requirement, the real solution was closer to the engineers, planners, operators and flight crew, all of whom had very few issues stemming from authority.

The great bulk of the work for the mission preparation proceeded in a collegial fashion, where those who had the best capability to address and resolve technical issues formed joint action teams within and across several working groups. This manner of teamwork has become a model for other Shuttle users and customers over the years.

The Hubble Space Telescope (HST) team has successfully conducted four servicing missions plus a technology demonstration flight.

Due to the world-class scientific results produced by HST, the motivation for mission success and for safety is so high that the various team participants exercise all capabilities available without regard for Center or contractor affiliation. Team members maintain relationships with other NASA Centers, then come together in inter-Center coordination meetings and working groups.

Marshall Space Flight Center originally managed the design and build of Hubble. The Neutral Buoyancy Simulator (NBS) at Marshall served as a training facility for astronauts on Hubble's first two servicing missions.

The Space-Lab program at Marshall has provided structural pallets, in addition to the development of the Orbital Replacement Unit Carrier that protects delicate scientific instruments used successfully for consecutive missions.

Coordinated development teams, including JPL, universities, international partners and aerospace contractors, provided the instruments.

During launch preparations, a large contingent of HST servicing hardware managers, engineers and technicians resident at KSC work closely with the payload customer support staff and engineering teams for successful payload and Shuttle integration.

A major benefit of a One NASA team is shared technology, such as the development of crew aids and tools. Power tools originally developed for Hubble are also routinely used for the International Space Station.

To view the team's spectacular accomplishments, visit the archive of Hubble pictures on the Space Telescope Science Institute web site at: **www.stsci.edu.**

All elements of the Agency work on Hubble Space Telescope missions.

## Energy 101 to be presented at EEAW

Hear Kevin P. Riley, from the SGS Energy Management Office, speak about energy-related concepts, including the difference between energy and power.

Where: Environmental & Energy Awareness Tent

When: April 22-23
10-10:30 a.m.

# Deadline approaches for teachers

In support of the agency's education initiative, NASA has launched the Educator Astronaut Program (EAP) with the goal to motivate students and educators to study science, technology, engineering and mathematics.

"NASA has a responsibility to cultivate a new generation of scientists and engineers," said Administrator Sean O'Keefe.

"Education has always been a part of NASA's mission, but we have renewed our commitment to get students excited about science and mathematics.

"The Educator Astronaut Program will use our unique position in space to help advance our nation's education goals," said O'Keefe.

The nation needs more students interested in these fields now, considering 60 percent of the current NASA workforce is eligible for retirement.

Once selected, the astronauts will share their mission experiences with students and educators. Their experiences will be shared with kindergarten through 12th grade students via teleplay, the Internet, chat rooms, video and other media.

By exposing students to these activities, the program will encourage them to take the next step toward technical professions.

Anyone can nominate a teacher for this program, including the teachers themselves. The application deadline is **April 30**. For the most up-to-date information and application material, visit the program's web site, **www.edspace.nasa.gov.**

By the end of March, the EAP had received 6,677 nominations.

## DEBRIS. . . *(Continued from Page 1)*

Approximately 28 percent of the orbiter was delivered to the hangar as of the end of March. Since this is the first time an investigation of this type has taken place, the team has willingly worked long hours to find a cause.

"It started out at Barksdale Air Force Base and the first plane load of people I took out there," said Leinbach.

"People are doing menial labor and they're glad to do it because they're part of the team. The ones that are here are working long hours and are glad to do it. They're just a tremendous outfit."

Each piece of debris goes through an engineering assessment, then is placed preliminarily where the team thinks it goes. The debris then goes into detailed analysis and is placed on the floor if it is the outer surface of the orbiter, or on one of the shelves at the side of the hangar if it is a system component.

Leinbach, who joined NASA in 1984 in the Design Engineering Directorate and was named Launch Director in August 2000, likes the pace his team is working at and realizes there is much more to do. As of the last week of March, the ground search was more than halfway complete and will involve approximately one more month of physically walking the 555,000-acre search area.

"People who work at the Kennedy Space Center love the orbiters," said Leinbach. "They become part of our family. From our aspect, we felt we lost an orbiter that we've worked on, crawled through and sweated over. It is an unusual feeling and one that is hard to descibe."

The air search has covered 75 percent of 604 four-square-nautical-mile grids. On water, searchers have scanned approximately 81 percent of a planned 14.7-square-nautical-mile area.

"It has slowed down a little bit already," he said. "The 5,300 or so people out there, mostly U.S. Forest Service people, are doing a tremendous job, walking the fields. It is an enormous effort and we're so much indebted to the people that are doing that.

"Once we finish those grids, we're not going to declare success. We're going to declare that the intensive field work to recover debris is complete. I say in the next four to six weeks we're going to reach the point where the majority of the debris is going to be here."

## SERVICE. . . *(Continued from Page 1)*

Space Shuttle Program

- *Christopher McCombs,* mechanical technician, Shuttle Systems, USA
- *David McQuary,* field test technician, Boeing Florida Operations
- *Shaheed Mohammed,* production support technician, Boeing Florida Operations
- *Tammy Mygrant,* aerospace inspector, USA
- *Abraham Negron,* NASA IT specialist, Space Station Processing Program
- *Lisa Parada*, NASA program analyst, Cape Canaveral Spaceport Management Office
- *Larry Penland,* NASA Quality Assurance specialist, Space Shuttle Program
- *Ricardo Rodriguez,* NASA Quality Assurance specialist, Space Station Processing Program
- *Anthony Signore*, engineer/scientist specialist, Boeing Florida Operations
- *James Stout,* electrical technician, Shuttle Systems, USA
- *Kevin Zimmerman*, mechanical technician, Shuttle Systems, USA

### U.S. Army

- *James Capley*, duty officer, Space Gateway Support
- *Craig Fournier,* facility plant engineer, Boeing Florida Operations
- *Charles Gambaro,* NASA senior engineer, Cape Canaveral Spaceport Management Office
- *Bruce Hudecek*, aerospace technician, USA
- *Robert Kilgallon*, security police officer, Space Gateway Support
- *Donald Lovelace III,* manager, USA
- *Armando Maiz*, NASA facilities project manager
- *William McQuade*, NASA fluids system engineer, Space Shuttle Program
- *Robert Nagy*, NASA reliability & quality assurance engineer, Space Shuttle Program
- *Timothy Pirlo,* manager, JBOSC Technical Training
- *Alice Smith,* NASA KSC recycling program, Environmental Programs Branch

### U.S. Coast Guard

- *Mathew Bowling*, quality specialist 2, Boeing Florida Operations
- *Janice Everette,* NASA KSC recycling and environmental management, Environmental Programs Branch
- *Richard Kelley*, security police officer, Space Gateway Support
- *Todd Remusat*, environmental health specialist, Comprehensive Health Services

### U.S. Navy

- *Stacy Strickland*, engineer/scientist 2, Boeing Florida Operations
- *James Tulley Jr.*, computer science staff, USA
- *Claudette Wells*, master production scheduler 2, Boeing Florida Operations
- *Thomas West*, aerospace product technician, Boeing Florida Operations

# Remembering Our Heritage

The last message from Pioneer 11 was received in November 1995, shortly before the Earth's motion carried it out of view of the spacecraft's antenna. When last heard from by the missions operations center, Ames Research Center, the spacecraft was headed toward the constellation Aquila – The Eagle – and was predicted to pass near one of its stars about 4 million years from now.

April 5, 1973, marks the 30th anniversary of the launch of Pioneer 11, which holds the distinction of being the first spacecraft to visit the planet Saturn.

The Pioneer program began in 1958, and for the most part, featured missions conducted in pairs. Pioneers 10 and 11 were the only two interplanetary missions in the program. Both platforms were built by TRW Systems in Redondo Beach, Calif. The total weight of Pioneer 11 was 570 pounds, including 66 pounds of scientific instruments.

## Jupiter, then Saturn

Primary objectives for Pioneer 11 – the backup to Pioneer 10 launched on March 2, 1972 – were to investigate the interplanetary medium beyond the orbit of Mars, the Asteroid Belt, and the near-Jupiter environment, and secondarily, to advance the technology for long-duration flights to outer planets.

John Neilon was director of Unmanned Launch Operations and launch director for both missions. He recalls, "Since Pioneer 10 had made it through the asteroid belt, a spectacular first for any spacecraft, the goals set for Pioneer 11 were revisited.

"A closer approach to Jupiter and a flyby of Saturn were added bonuses."

Scientists got their closest view of Jupiter as the spacecraft passed within 26,600 miles of the cloud tops in December 1974. Only its extreme speed of 107,373 mph – the fastest speed ever traveled by a human-made object – saved its electronics from severe damage.

Five years later, it took the first close-up pictures of Saturn in 1979 as it flew to within 13,000 miles of the planet. Instruments located two previously undiscovered small moons and an additional ring, charted its magnetosphere and magnetic field, and found its planet-size moon, Titan, to be too cold to support life.

## Seeking heliopause

On Feb. 23, 1990, Pioneer 11 became the fourth spacecraft to leave the solar system. Although traveling in a different direction, it joined Pioneer 10 and the more sophisticated Voyager 1 and 2 spacecrafts in searching for the heliopause, the point at which the Sun's electromagnetic influence gives way to the galaxy's influence.

If Pioneer 11 – or Pioneer G as it was called before launch – should encounter intelligent beings in another star system during its travels, a pictorial plaque aboard the spacecraft will help pinpoint its exact place of origin. An identical plaque is carried on its sister spacecraft, Pioneer 10, as well.

The last signal from Pioneer 10 was received earlier this year, on Jan. 22. Its destiny is a rendezvous with the red star Aldebaran, which forms the eye of the constellation Taurus – The Bull – about 68 light-years away. Travel time is calculated to be a little more than two million years – a trip worth the taking for any die-hard pioneer.

Ready for its wraps, the Pioneer 11 spacecraft awaits the installation of its protective shroud. The nearly two-year mission took Pioneer 11 on an investigation of the asteroid belt, then to Jupiter.

## Cape Canaveral Spaceport team lobbies at State Capitol

A contingent of KSC personnel, led by Center Director Roy Bridges Jr. and other space-related companies, attended this year's annual Space Industry Day at the State Capitol Building in Tallahassee March 27.

The event helps keep Florida representatives informed of how the space program benefits its citizens through technology, research, education and economic value.

Five main topics were discussed with various legislators: Human Space Flight; the Space Experiment Research and Processing Laboratory (SERPL); exploring Mars; the Integrated Space Transportation (IST) Plan; and education and university partnerships.

The government team representing the Cape Canaveral Spaceport then hosted an evening reception for invited guests and legislators at the Challenger Learning Center, where Norm Thagard, with the Learning Center;Adrian Laffitte, with Lockheed; Bill Readdy, with NASA; and others talked about the current issues facing the Spaceport.

## *Spaceport News* names new editor

Beginning with the April 18 issue, *Spaceport News* will have a new editor. Any submissions, stories or photos should be directed to Stuckey at *Jeffery.Stuckey @ksc.nasa.gov*. He can also be reached at 867-2814.

John F. Kennedy Space Center

Spaceport News

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Contributions are welcome and should be submitted two weeks before publication to the Media Services Branch, XAE-1. E-mail submissions can be sent to Katharine.Hagood-1@ksc.nasa.gov

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