



Spaceport News

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John F. Kennedy Space Center

Second phase of Station testing complete

In the year 2006, construction of the International Space Station is scheduled to be complete.

Spanning the length of a football field, the one-million-pound master-piece will be operating at full capacity. Stargazers around the world will watch as it gracefully orbits the Earth.

Perhaps some of the most passionate viewers will be those who work in KSC's Space Station Processing Facility (SSPF).

It is in the SSPF High Bay where most of the critical components of the International Space Station are being electrically connected and thoroughly evaluated in a series of prelaunch checks called Multi-Element Integrated Testing (MEIT).

The MEIT project, which is conducted by NASA and The Boeing Co. managers, engineers and technicians, has been methodically broken down into three separate phases, each lasting



Workers in the Space Station Processing Facility High Bay help conduct MEIT-II tests of Station software and hardware. Information from the testing is fed to the MEIT Control Room to be analyzed.

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Genesis to sample solar wind

NASA'S next robotic space explorer is ready to do a little sunbathing on a mission to catch a wisp of raw material from the luminous celestial body around which the Earth and other planets revolve.

The Genesis launch, set for launch July 30 at 12:36 p.m. from Cape Canaveral Air Force Station, is designed to collect tiny pieces of the Sun and return them to Earth.

The mission is expected to capture about 10 to 20 micrograms of the solar wind, which is made up of invisible charged particles expelled by the Sun.

The particles, about the weight of a few grains of salt, will be returned to Earth with a spectacular



A worker in the Payload Hazardous Servicing Facility at Kennedy Space Center installs an S-band medium gain antenna on Genesis.

mid-air helicopter capture.

Scientists will preserve this treasured smidgen of the Sun in a special laboratory for study.

The researchers hope to answer fundamental questions about the exact composition of our star and the birth of our solar system.

In October 2001, Genesis will arrive at a place in space well outside Earth's atmosphere and magnetic environment that will allow it to gather pristine samples of the solar wind. Sample collection will conclude in April 2004.

Genesis will be the first mission to return a sample of extraterrestrial material collected beyond the orbit of the Moon.

In September 2004, the solar samples will be returned in a dramatic mid-air helicopter capture of the Genesis return capsule as it parachutes toward the ground.

Recognizing Our People

Jim McKnight retires from NTD post

NASA test director Jim McKnight has retired after 40 years of Federal Service.

"I can only feel that I have been blessed to have been able to work with great individuals – and to have been involved with such great projects over the years," McKnight said.

McKnight joined the Air Force in 1957. After graduating from Auburn University in 1967, he began working at Marshall Space Flight Center as an engineer in an Apollo applications project.

He transferred to Kennedy Space Center in 1968 to become a site utilization engineer and was involved in the site activation of Launch Complex 34 for the Apollo 7 mission.

McKnight worked as a flight crew systems engineer through all the Apollo missions and the first of the Skylab flights. He then worked in the unmanned launch vehicle program. In the late 1970s, he became a ground facility support test manager for the emerging Shuttle program before becoming a NASA test director.

"He has been a tremendous asset to the NASA Test Director team by filling a critical need working second shift for the last 15 years," said Conrad Nagel, chief of the Shuttle Processing Office. "He is going to be greatly missed by our organization."



Jim McKnight at his familiar post in Firing Room 1 of the Launch Control Center. McKnight recently retired as a NASA Test Director. McKnight served 40 years in Federal service, beginning his career with the Air Force and then joining NASA in 1967.



July Employees of the Month

NASA Employees of the Month for July are, pictured left to right, Denise Catone, Workforce and Diversity Management; Scott Colloredo, Spaceport Engineering and Technology; Henry Yu, Spaceport Services; Jay Edelmann, Shuttle Processing; Cathy Parker, Safety, Health and Independent Assessment; and Grace Bell, Chief Financial Office. Not shown are Tim Honeycutt, ISS/Payloads Processing; Gina O'Shaughnessy, ELV and Payload Carriers Programs; and Sherry Gasaway, Procurement Office.



Summer faculty fellows research Kennedy Space Center history. KSC Library Archives staff members show the fellows some of the archival material available for their work. From left to right are Dr. Henry Dethloff, summer fellow; Elaine Liston, KSC archivist; Barbara Green, KSC archives assistant; and Dr. Lee Snaples, summer fellow.

Summer fellows research KSC history

3,2,1...Liftoff: A History of Kennedy Space Center is the working title for a proposed new history of KSC rolling out of the KSC History Project this summer.

The launch directors are authors Dr. Henry C. Dethloff, professor emeritus of history from Texas A&M University in College Station, Texas, and Dr. Lee Snaples, Jr., professor of history at Tarrant County College in Ft. Worth, Texas.

Dethloff has written more than 25 books, including *Suddenly, Tomorrow Came...A History of Johnson Space Center*, and is co-author of a history of the Voyager program which is nearing publication. He and Snaples worked together before coming to KSC and co-authored an unpublished monograph on Langley's Transonic

Dynamics Tunnel.

Accomplishing their mission to complete a chapter outline, brief narrative overview, and a working bibliography for the book before this summer is over has been made possible by the NASA/ASEE Summer Faculty Fellowship program.

The summer fellows are also preparing brief monographs on the history of KSC and safety at the Center.

"The historical resources and opportunities available here at KSC are simply incredible. It may take historians another forty years to fully understand what has happened at KSC over the last forty years and the impact it has had on American society or even the world," Snaples said.

Dr. C. Shannon Roberts, the associate director of External Relations and Business Development, oversees the KSC History Project. Roberts noted that in addition to producing a book-length history of KSC, another of the project's primary initiatives is to audiotape and videotape oral history interviews with prominent KSC managers.

"The people being interviewed played crucial roles in the early space program, and it is vital that we record their remembrances," said Roberts. "The oral history project reminds us that our people are the foundation of the space program."

Dr. Roger D. Launius, NASA's chief historian in Washington, D.C., recently spent a week at KSC

supporting the initiative to record the oral history interviews.

Among those interviewed were space program pioneers Forrest McCartney, Dick Smith, George Page, Lee Solid, Bob Sieck, Hugh Harris, Bobby Bruckner, Al Parrish, Terry Greenfield, Gene Thomas and Ike Rigell.

Present and former employees of KSC who are just now learning about the project will also be able to participate through a biographical database, which is being developed by Dynacs Engineering Co. Inc.

The biographical database will be accessible via the Internet from the KSC history Web page later this year and will allow users to fill out and submit a form with their work history and contact information.

Inside SRB



USA technicians prepare to apply closeout insulation to aft skirt booster separation motors.



Technician Jay Bonadio trims cork bond lines on an aft skirt.



Troy Taylor installls foam blocks over struts. The foam protects the main SRB parachutes from damage during deployment.



Barry Voight, senior mechanical technician, performs a fit check of SRB holddown hardware.



efurbishment



Af left, Dale Taglilatelo, manager of thrust vector control (TVC) operations, is pictured with TVC frames ready for installation in an aft skirt. Above right, senior electrical technician Lawrence Taylor visually inspects SRB cables prior to installation. The ARF High Bay is pictured above, looking west to east. In the foreground is an aft skirt, forward skirts, pilot and drogue parachutes. To the right are two nose caps. There are frustums and aft skirts in the background.



Technicians connect an SRB aft skirt dolly to a tractor before it is transported.

Some of the most intricate procedures in the refurbishment and recycling of the Shuttle's Solid Rocket Booster (SRB) components take place in the manufacturing area of the Solid Rocket Booster Assembly and Refurbishment Facility (ARF) at Kennedy Space Center.

Within the complex at Schwartz and Contractor Roads, the SRBs' aft and forward skirts, frustums, recovery systems, electronics and instrumentation components, and elements of the thrust vector control system are assembled and tested.

A team of United Space Alliance (USA) workers well-versed in specific assembly procedures painstakingly assemble and test hundreds of components.

"Most people have no concept of the number of procedures necessary for refurbishing and assembling the SRBs," said Michael Leppert, USA manager of assembly operations. "Although SRB recovery and refurbishment is costly and time consuming, it's still much more cost effective than buying new SRBs for each Shuttle launch."

Among the procedures performed at the manufacturing area:

- The SRB's thrust vector control system, its steering system, is rebuilt.
- SRB recovery parachutes, processed elsewhere, are integrated into the assembly.
- Thermal protection is applied to the aft and forward skirts and frustums.

The process includes the hand application of cork and robotic application of a special protective coating of ground cork, tiny glass beads and epoxy, which is then painted white.

- Ordnance is installed in various locations so that the SRBs may correctly detach from the Shuttle during launch and SRB segments separate on their fall to the ocean.

"It takes experience, skill and a lot of teamwork to process the SRBs. The reward is watching the SRBs we put back together launch successfully."

James Carleton

USA director of SRB element manufacturing operations

The manufacturing area is only one stop on the SRB's journey back to the pad.

Among others: SRB segments are disassembled and cleaned at Hangar AF at Cape Canaveral Air Force Station after their recovery at sea.

Recovery parachutes are cleaned and repaired in the Parachute Refurbishment Facility in the Industrial Area.

SRB segments are reloaded with propellant by the manufacturer in Utah and return to KSC via train. The reloaded segments are received in the Rotation/Processing Building and stored at two nearby SURGE buildings until they are transferred to the Vehicle Assembly Building for stacking.

"It takes experience, skill and a lot of teamwork to process the SRBs," said James Carleton, USA director of SRB element manufacturing operations. "The reward is watching the SRBs we put back together launch successfully."



Shuttle rising

Like a sun on a fast rise, Space Shuttle Atlantis arcs into the still-black sky over the Atlantic Ocean, casting a fiery glow on its way. Atlantis lifted off from Launch Pad 39B on time at 5:03:59 a.m. EDT. With a crew of five, it is heading on the 10th assembly flight to the International Space Station. The primary payload on the mission is the joint airlock module, which the crew will attach to the Space Station over the course of three spacewalks. The airlock will permit crews onboard the Station to conduct spacewalks without the presence of the orbiter.

USA leases hangar from State

United Space Alliance (USA) signed an agreement with Spaceport Florida Authority (SFA) July 6 to lease a hangar which was developed by the state as part of a joint NASA/SFA Reusable Launch Vehicle Support Complex at the Kennedy Space Center.

The agreement was signed in a public ceremony at the hangar.

USA plans to use the state-developed 50,000 square-foot hangar to store and maintain Space Shuttle ground support equipment.

The recently completed facility was originally constructed to accommodate proposed reusable launch vehicles (RLVs) such as NASA's X-34 winged rocket and the X-33.

"United Space Alliance is looking forward to putting this new facility into service in support of the world's only present RLV – the Space Shuttle," said Bill Pickavance, USA vice president and deputy program manager.



The Spaceport Florida Authority hangar adjacent to the Space Shuttle Landing Facility has been leased by United Space Alliance. USA will use the hangar to store and maintain Shuttle ground support equipment.

"The hangar will enhance our ongoing operations with additional space to store and protect critical ground support equipment used for processing the Shuttles for flight."

SFA and USA initiated discussions last year after RLV develop-

ment programs encountered significant new technical and schedule challenges. Those events coincided with an aggressive Space Shuttle launch schedule that generated a need for additional ground support facilities.

"Spaceport Florida is proud to support the Space Shuttle program," said Ed Gormel, SFA's executive director. "By building a general use facility, the State is able to adapt quickly to changing market forces while protecting the public investment and providing support to industry."

Located adjacent to the Space Shuttle Landing Facility, the Reusable Launch Vehicle Support Complex includes the hangar and two NASA-funded facilities.

Under the two-year lease agreement, USA will assume responsibility for rent, hangar operations and maintenance costs.

"This is another example of how the federal government, NASA, and the State of Florida have partnered with industry to support our nation's space programs and protect our state's high technology jobs," said Congressman Dave Weldon, R-Palm Bay, at the signing ceremony.

Web-based NASA recruitment planned

Applying for a NASA job can be a challenging process.

Job applicants must fill out knowledges, skills and abilities (KSAs), resumes, and other forms to be considered for a vacancy.

Hiring managers sift through these materials to determine which applicants are eligible and qualified, a time-consuming routine that can result in losing a potential employee to another employer.

But NASA STARS (STaffing And Recruitment System) promises to alleviate much of the pressure on applicants as well as those in hiring positions.

Part of the agencywide Integrated Financial Management Program (IFMP), this web-based resume management process will enable NASA to attract and retain a world-class workforce.

The system uses a commercial, off-the-shelf software system called Resumix, which uses advanced technology and artificial intelligence to "read" resumes "in context" and match skills in applicants' resumes to the requirements of specific jobs.

Vacancy announcements on the NASA Jobs Web site, <http://www.nasajobs.nasa.gov>, will link applicants to the new NASA STARS Web site, <http://nasastars.nasa.gov>, which provides an array of tools to aid those applying for NASA jobs:

- The Resume Guide contains detailed information on how to



NASA Co-op student Juan Gordon checks out the NASA STARS Web site being developed to serve as an easy-access NASA recruitment tool.

prepare and submit a properly formatted resume, and how to apply for vacancy announcements

- The Resume Builder promotes consistency among resume formats and replaces multiple forms. Submitted resumes will be stored in a secured database, enabling people to apply for multiple positions at different locations with one resume.
- The Quick-Apply form will submit the stored resume for any

position the applicant selects, eliminating the need to recreate the resume each time.

The technology behind NASA STARS will also allow selecting officials to quickly access lists and resumes, reducing the time it takes to fill positions with the best-qualified applicants.

"NASA employees and the general public will find the job application process simpler and

less time-consuming," said Jim Quinn, personnel staffing specialist and KSC representative for the agency-wide Resume Management Process Team. "Managers will love it, too, because the process is fast and totally paperless. This is a win-win for everyone."

NASA STARS is currently scheduled to roll out at KSC in mid-September, and is coming soon to all NASA centers.

KSC Web site expands launch coverage

The Kennedy Space Center Web site has expanded its launch coverage to include downloadable video of launch-related activities.

KSC Web site visitors can now view clips from NASA TV as well as video exclusive to the web.

Web site managers experimented with the process during the launch of STS-100 and officially instituted it during the STS-104 launch. It will be included as a permanent part of KSC's online launch coverage.

Using downloadable video clips rather than streaming video allows KSC web developers to archive the

clips, so that future visitors to the Web site can explore past footage.

The videos will be available in RealMedia format in three sizes for 28.8K modems, 56K modems, and Cable/broadband visitors.

Video coverage of each launch begins with the closure of the Shuttle's payload bay doors, typically a few days before launch.

On launch day, crew activities covered will include breakfast, suit-up, departure for the launch pad, entry into the Orbiter, and closure of the hatch.

Coverage will continue through

the final moments of the countdown, culminating with the launch of the Shuttle and the separation of the solid rocket boosters about two minutes into the flight.

Most of the video provided on the KSC Web site is taken directly from NASA TV. However, the KSC video team may also record events at the VIP viewing areas and inside the Launch Control Center.

Animations and other footage will be included when available.

"We're very pleased that we have the ability to make these videos available to those who follow our

online coverage," said KSC Internet Services Manager Dennis Armstrong. "We serve a global audience, and we're continuing to enhance the site for those who depend on it as their source for timely launch information."

KSC maintains the Shuttle Countdown Online, available at <http://www-pao.ksc.nasa.gov/kscpao/shuttle/countdown/>.

The site provides information about the current Shuttle mission. A real-time countdown clock is activated at T-43 hours prior to scheduled launch time.

MEIT-II ...

(Continued from Page 1)

six months to a year.

MEIT-I occurred last year, testing various ISS flight components associated with the U.S. Laboratory "Destiny" and the Canadian robotic arm.

Last month, MEIT-II wrapped up after four of five soon-to-be-launched ISS trusses were integrated with a large computer mock-up of the U.S. Lab.

When on orbit, each truss will support various ISS functions and provide the backbone for the Space Station.

The team will resume MEIT operations in October on a fifth and final truss.

The MEIT-II team has also rehearsed the Canadian Arm "walk-over," which will take place in orbit once the Mobile Base System is installed on mission STS-111 next year.

MEIT-III is scheduled to begin in May 2003 and will integrate the U.S. Lab with Node 2 and the Japanese Experiment Module.

After each of the Station elements are connected and powered up in the SSPF high bay, information gathered is sent upstairs to the MEIT Control Room where it is dissected and analyzed.

NASA's Dave Guibeau, a command and data handler, is one of those who looks at the data. Guibeau said, "You just can't send the pieces up and hope it all works. It is our job to find any software problems developers didn't catch."



NASA's Dave Guibeau, a command and data handler, looks at data from MEIT II prelaunch checks that has been sent to the MEIT Control Room. Multi-Element Integrated Testing (MEIT) of International Space Station elements is conducted periodically. The tests are conducted on Station components in the Space Station Processing Facility High Bay to detect any software or hardware problems before the components are launched.

While MEIT tests flight hardware – 32 hardware problems were detected during MEIT-I – the majority of anomalies so far have been found in the flight software.

Guibeau recalls many late nights on the phone with engineers at Johnson Space Center and various ISS partnering countries.

"One of the hard parts was sifting through thick complex manuals, some of which had to be translated from foreign languages," he said.

Scott Chandler, NASA's MEIT project manager, realized the worth

of MEIT early on during initial full-scale dry runs. "MEIT has paid for itself immensely," he said. "It has definitely been well worth the effort."

The success of the Multi-Element Integrated Test is a result of the hard work of hundreds of employees at KSC and Johnson Space Center and contributions of our international partners.

"The International Space Station is a work in progress," Chandler noted, "and the MEIT team is responsible for making sure it all works together."

The International Space Station is a work in progress and the MEIT team is responsible for making sure it all works together.

Scott Chandler
MEIT project manager

FSI courses offered on site

The Florida Space Institute (FSI) is offering engineering technology at Kennedy Space Center.

The University of Central Florida's engineering technology department on the Cocoa campus is moving to the Florida Space Institute facilities at the Center for Space Education next to the KSC Visitor Complex.

Courses in electronics, information, operations, and design engineering technology degree programs will be made available to KSC and Cape Canaveral Air Force

Station employees on site.

FSI's mission is to conduct research, develop and transfer technology, and provide service to the scientific community and the public. In addition, FSI assists the science and research community for access to infrastructure at NASA, the Air Force and the Spaceport Florida Authority at the space center.

For more information on engineering technology courses, contact the FSI Academic Office at (321)452-9834.



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