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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

Spaceport working group gathers

Kennedy Space Center hosted the successful kick-off meeting of the Advanced Spaceport Technology Working Group (ASTWG) on May 15 in the Operations and Checkout Building briefing room.

The working group's visionary efforts are expected to help shape spaceports and spaceport technologies of the future.

About 150 leaders from NASA, other federal agencies, state agencies, state spaceports, commercial spaceports, industry and academia met to share information and address potential needs for next-generation spaceport technology.

The group, chaired by NASA/KSC's Randy Eastman, discussed how they could work together to identify, develop and demonstrate new spaceport technologies that will be required to provide ground systems for future vehicles.

They also discussed fundamental needs for spaceport master planning, environmental assessments and business management.

Ken Payne, acting director of Kennedy Space Center's Spaceport Engineering and Technology Directorate, outlines the technology development capabilities of his directorate at the kick-off meeting of the Advanced Spaceport Technology Working Group.

While the space industry market currently is not generating a demand for more spaceports, Eastman said, government and industry leaders must begin planning for the time when low-earth-orbit space tourism and suborbital business travel and commerce generate the need for multiple spaceports. "That way, you'll be that much farther ahead in making the most of the emerging markets," Eastman said.

Kennedy Space Center Director Roy Bridges applauded participants for taking a key role in fostering future spaceports.

"We are here to make sure we understand what our technology needs are and to be supportive of them," Bridges said. "If we want to move forward, we have to join together."

Because of KSC's unique history and expertise in developing spaceport technologies, KSC is in a position to help states plan and get ready for their own spaceports, Bridges said.

In turn, KSC values input from the states so that the Center can continue to create technologies that can be applied to a variety of changing spaceport needs.

ASTWG's companion working group is the Advanced Range Technology Working Group, which had its kick-off meeting March 1.

Phil Weber of Advanced Space

(See GROUP, Page 8)

Inside

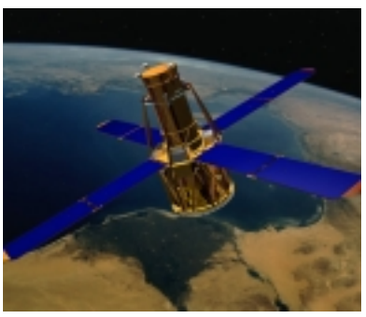
HESSI spacecraft to launch June 7

NASA's High Energy Solar Spectroscopic Imager (HESSI) spacecraft was scheduled at press-time to launch aboard Orbital Sciences Corp.'s Pegasus XL from Cape Canaveral Air Force Station (CCAFS) June 7 at 10:05 a.m. EDT. The spacecraft was set to arrive at the CCAFS skidstrip on June 1.

The primary mission objective for the HESSI spacecraft is to explore the basic physics of particle acceleration and energy release in solar flares.

The HESSI mission consists of a single spin-stabilized spacecraft in a low-altitude orbit inclined 38 degrees to the Earth's equator.

The only instrument on board is an imaging spectrometer with the ability to obtain high fidelity color movies of solar flares in X-rays and gamma rays.



An artist rendition of the HESSI spacecraft on orbit.

The instrument uses two new complementary technologies: fine grids to modulate the solar radiation, and germanium detectors to measure the energy of each photon very precisely.

HESSI will:

- Determine the frequency, location, and evolution of impulsive energy release in the corona,
- Study the acceleration of electrons, protons, and heavier ions in flares, and
- Study the heating of plasma to tens of millions of degrees and determine its relationship to particle acceleration.

A number of organizations are collaborating on the mission, including NASA Goddard Space Flight Center and University of Alabama in Huntsville.

The mission is led by University of California, Berkeley.

Recognizing Our People

Awards

You Make A Difference

Veronica Ramos, BA-D

Shirley Bumatay, GG-B-C

Ember Smith OP-AM

Edward Markowski, PH-E

Tamara Belk, UB-K

Silver Snoopy

Mark E. Beasley, Boeing Human Space Flight and Exploration

Danny Whittington, Boeing

David Powell, Boeing

Darryl Dziedzic, United Space Alliance

Louise M. Kleba, Boeing

Graduates

Leadership Brevard

Charles Bennardo, NASA; **Lisa Colloredo**, NASA: **Margaret Crockett**, United Space Alliance; **Valarie Franklin**, NASA; **Rose Johnson**, The Boeing Co.; **Ann Montgomery**, NASA; **Shirish Patel**, NASA; and **Peter Warren**, United Space Alliance

Brevard County Commission honors Bridges

Roy Bridges was honored May 8 with a resolution by the Brevard County Commission for his outstanding leadership and service to the citizens of Brevard County. Pictured is Bridges receiving the framed resolution from Commissioner Chairman Sue Carlson, District IV. Also pictured from left are Commissioner Randy O'Brien, District II, Commissioner Jackie Colon, District V, Commissioner Nancy Higgs, District III, and County Manager Tom Jenkins.

Bridges receives honorary doctorate

Kennedy Space Center Director Roy Bridges recently was awarded an honorary doctorate of engineering from Purdue University in recognition of his outstanding professional achievements and significant contributions to the inspiration of tomorrow's leaders.

The degree was awarded during commencement exercises May 12 at Purdue University in West Lafayette, Ind. Bridges earned a master's degree in astronautical engineering from Purdue in 1966.

"It is a great honor to be awarded a doctorate of engineering degree from my alma mater," said Bridges.

Bridges was named KSC Director in March 1997. As director, Bridges has created a roadmap to the future securing KSC's position as a world-class Spaceport Technology Center.

With the implementation of KSC 2000, he successfully improved the organizational structure of KSC by reducing the number of organizations reporting directly to him from 21 to 15. He has strengthened existing partnerships and created new partnerships with the 45th Space Wing, the State of Florida, public and private academic institutions, and private industry.

Bridges is a recipient of the NASA Space Flight medal, NASA Certificate of Commendation, and most recently, he became the second KSC director to receive the Dr. Kurt H. Debus Award.

"It is a great honor to be awarded a doctorate of engineering degree from my alma mater."

Roy Bridges
KSC director

Karl Sendler's contributions remembered

Former NASA Kennedy Space Center executive Karl Sendler, 86, died May 3 at Cape Canaveral Hospital, leaving a legacy of innovation in space program instrumentation.

He is remembered as having been an enlightened manager who brought out the best in his workers, enabling them to meet seemingly insurmountable technical challenges.

A member of the Wernher Von Braun rocket team who came to the United States from Germany after World War II, Sendler worked in the space program until 1974 when he retired as KSC's director of Instrumentation Systems.

His work led to the design and development of the Army's Doppler Velocity and Position system, which helped determined a rocket's position in space. He developed other important variations of the system, one of which determined the deviation of a missile from a predetermined flight path, thus providing vital information for range safety.

Sendler also made other major advancements in telemetry systems, instrument calibration and missile tracking. One of his greatest contributions was the development of launch processing systems for the Apollo program.

Sendler was born in Vienna, Austria, in 1914. After earning degrees in electrical engineering, in 1943 he was assigned to the Peenemunde Research Center. There he was instrumental in building the first missile tracking and automatic cut-off systems for the V-2.

After the war, Sendler began working with the U.S. Army. In 1945, he came to the United States to work as an electronic engineer for the Army at Fort Bliss, Texas, as part of the 119-member Von Braun team.

"I think one of the most important things responsible for our space program successes is that we started with a small team working together, and as we've grown, adding people along the way, we haven't lost that initial team concept."

Karl Sendler
Former KSC director of Instrumentation Systems

The team was transferred in 1950 to the Redstone Arsenal at Huntsville, Ala. There Sendler continued work in instrumentation and information systems. In 1960, he and many of the Von Braun team were permanently transferred to NASA.

Sendler is remembered fondly by those who worked with him at KSC. JoAnn Morgan, director of External Relations and Business Development, met him in 1958 when he came to Cape Canaveral for Redstone launches.

"He was a wonderful person, one of the greatest leaders I've ever worked for," Morgan said. "Not only was he highly intelligent, he was also warm and friendly. In later years I was always impressed at how he knew everyone who worked for him, even though there were hundreds of people in his directorate."

Sendler had a way of making his team members believe they could meet challenges, no matter how difficult, Morgan said. That vote of confidence was crucial in inspiring employees to develop new technologies needed to take humans to the moon.

He expressed his belief in teamwork this way: "I think one of the most important things responsible for our space program successes is that we started with a small team working together, and as we've grown, adding people along the way, we haven't lost that initial team concept."

May employees

NASA's employees of the month for May are Hamilton Fernandez, VA; Billy Wilson, TA; Leslie Ridgway, MK; Kandy Warren, XA; Gloria Johnson, YA; and Larry Third, OP. Not shown are Teddy Mosteller, PH, and Steve Brunelle, UB.

FEW awards scholarships

Federally Employed Women Inc., Space Coast Chapter, recently completed their 2001 Scholarship Campaign and will be awarding a total of $6,000 to six area high school graduates and one college student.

The scholarship committee received 30 applications which they judged on grade point average (minimum 3.0), essay, honors and awards, outside activities and recommendations.

The winners: Lindsay Parker (Astronaut High), Shivam Jadeja (Merritt Island High), Leslie Hutchinson (UCF), Meagan Quinn (Titusville High), William Snoddy (Titusville High), Nicole Bilias (Merritt Island High), and Dyan Middleton (Cocoa Beach High).

The chapter extends congratulations to these individuals and to all those who sent in applications.

Inside Life Scienc

Dr. Gary Stutte, Dynamac Corp. plant research group supervisor, monitors a KSC-designed wheat growth experiment being developed to fly on STS-110.

Steve Black, an environmental chemist, demonstrates a system used to take water samples on Center.

Plant physiologist Neil Yorio and research assistant Sharon Edney examine potato plants in the Bioma Sciences' Hangar L at Cape Canaveral Air Force Station. The plants are part of a tuber induction facto

Life Sciences, or the Biological Sciences Branch, as it is more formally known in the Spaceport Engineering and Technology Directorate, is a diverse branch responsible for environmental monitoring, advanced life support research and the processing of plant and animal experiment payloads for the Shuttle program.

The group – led by NASA KSC's Dr. Bill Knott – also provides medical support to astronauts while they are at Kennedy Space Center. Most of the group's 120 team members are employees of Dynamac Corp., the Life Sciences contractor for KSC, or Bionetics, the primary subcontractor..

Based primarily at Hangar L at Cape Canaveral Air Force Station, the Life Sciences team is gearing up to relocate to the Space Experiment Research and Processing Laboratory, a world-class facility being built through funding from the State of Florida.

The new facility effectively will triple lab space and will allow for permanent research locations for microbiology, molecular biology, plant physiology, developmental biology and animal physiology.

The research areas will be used by KSC scientists and technicians, visiting professors and their students, and visiting researchers with plant and animal experiments flying on the Space Shuttle and the Space Station.

"What the state is doing is unprecedented. It will enable us to create a world-class laboratory that will take Life Sciences to a new level of excellence and help us create research partnerships that will advance space program objectives and education," Dr. Knott said.

The Life Sciences group already is internationally renowned for its development of advance life support technologies to be used for the long-term habitation of humans in space.

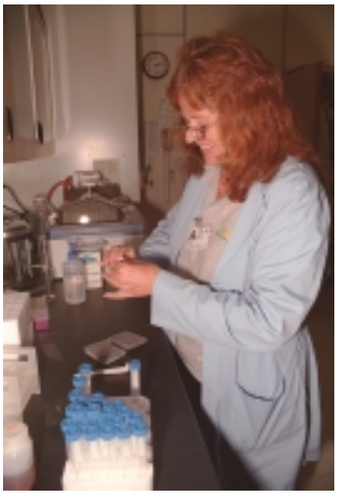
"What we have now, even with the International Space Station is a 'picnic' philosophy," said Dr. Knott. "We pack up food and water and we bring back the trash for disposal. For long-term habitation we will have a contained system and need to grow food and recycle waste products."

Thus Life Sciences' multiple research projects in growing plants, including wheat, potatoes, lettuce and radishes in a confined area using artificial lighting and recycled water and nutrients. The research, conducted on the ground and in the microgravity environment of space, has

es

ss Production Chamber in Life study.

Research scientist Michael Roberts sets up a pathogen reaction chain analysis in Life Sciences' molecular microbial ecology lab.



Research assistant Jan Bauer conducts a chemical analysis.

Research assistant Julie Simpson washes glassware. Using containers free of contaminants is essential in correctly conducting research experiments.

From left, senior geographical information system analyst Naresa Reddick, and earth system modeler Manny Gimond, both of whom work in the Earth systems modeling and data management lab, discuss an ecological monitoring area with Dr. Bill Knott. Knott heads the Biological Sciences Branch, better known as Life Sciences.

led to numerous spinoff technologies for recycling and agriculture.

The group's years of experience in advanced life support research is to be applied within the next few years to growing salad crops for the International Space Station astronauts.

Nearer term, the groups' research has led to a KSC-designed Life Sciences experiment payload that will fly on STS-110, now scheduled for early 2002.

The wheat-growing experiment is called Photosynthesis Experiment System Testing and Operation (PESTO), and it will be the first plant science experiment conducted aboard the Space Station.

In its payload processing role, Life Sciences assists researchers from other NASA Centers, academia and industry in designing and integrating plant and animal experiment payloads and associated flight hardware.

"What we offer, in addition to just processing the payload, is years and years of experience with the design of plant and animal microgravity experiments. We know what has a good chance of working and what doesn't in a microgravity environment," said Dynamac's Dr. Gary Stutte, supervisor of the plant research group and principal investigator for the PESTO experiment.

"Water, for example, doesn't behave the way it does on the ground and you have to create hardware that accounts for that."

Another major area for Life Sciences is environmental monitoring. The group provides a vast array of data on animal and plant species that is used by the Department of Fish and Wildlife to manage the Merritt Island National Wildlife Refuge, which shares borders with KSC.

Environmental monitoring also supplies information used to control and reduce pollution on Center.

"Environmental monitoring may not seem to have anything to do with the exploration of space, but it does," Dr. Knott said. "What we are learning about plant and animal species and how they work together as a system has direct application to our future in space. At some point, we'll colonize the moon and planets and we'll have to be able to thoroughly understand what ecological factors keep a system in balance and be able to control those things."

MarsPort competition yields ideas

How will NASA launch spacecraft from the Martian surface?

Students and faculty from universities around the country, hoping to make a real contribution in support of human exploration of Mars, converged on the Kennedy Space Center Visitor Complex for this year's NASA-KSC-sponsored MarsPort Engineering Design Student Competition 2001. The competition was organized by the Florida Space Grant Consortium.

Innovative design ideas were presented as part of a two-day conference May 7-8 at the Kurt H. Debus Conference Facility.

During the competition, six university teams presented their engineering trade study papers to a panel of judges comprised of engineers and scientists from KSC, the University of Florida, Science Applications International Corp. and The Boeing Co.

The papers included original design configurations for a MarsPort Cryogenics and Consumables Station (MCCS).

A winning team – The George Washington University's Joint Institute for Advancement of Flight Sciences Team – was selected and NASA plans to incorporate innovations from the work into its engineering trade studies and evaluate them against other leading concepts.

Alicia Dwyer, lead for the George Washington University's Joint Institute for Advancement of Flight Sciences Team, accepts the MarsPort Engineering Design Student Competition 2001 award for her team's design for a MarsPort Cryogenics and Consumables Station. The award was presented by Sam Durrance, director for the Florida Space Grant Consortium, at left, and Mike O'Neal, NASA-KSC's exploration lead.

The MCCS is a vital element of the complex infrastructure needed to launch spacecraft from the Martian surface.

The MarsPort competition actually began in the fall of 2000 when invitations were sent out to colleges and universities. Participating student teams were required to write and submit a proposal to the NASA MarsPort 2001 design review committee. From all entries, six teams were selected to investigate the MCCS issues and to design solutions addressing them.

All six teams received qualifying cash awards of up to $2,000 upon selection and subsequent design reviews. In addition to the winner, school teams participating in this year's competition were Cornell University's Odysseus Team, Embry Riddle Aeronautical University, Georgia Institute of Technology, University of Tennessee-Knoxville and the University of Wisconsin-Madison.

This year's MarsPort competition and conference featured presentations by Dr. Sam Durrance, former astronaut and director of the Florida Space Grant Consortium; Dr. Story Musgrave, former astronaut; and Dr. Nadine Barlow, an astronomer from the University of Central Florida.

The MarsPort competition is also sponsored by Science Applications International Corporation and Boeing, and jointly administered by the Florida Space Grant Consortium (FSGC) and the Texas Space Grant Consortium.

The FSGC was formed in 1989 when NASA implemented the National Space Grant College and Fellowship Program.

FSGC is a voluntary association of 17 universities and colleges along with KSC, Spaceport Florida Authority, Astronaut Memorial Foundation and Higher Education Consortium for Math and Sciences.

The FSGC represents Florida in NASA's Space Grant College and Education Program and serves more than 230,000 university students in Florida.

NSIP students present their research

Kennedy Space Center hosted 40 exceptional high school students as part of the 2001 NASA Student Involvement Program (NSIP) National Symposium.

The four-day event, held in Cocoa Beach, included students and educators. The students were first place winners of competitions that challenged them to

- design a mission to Mars,
- use space-based Earth observation data to better understand the changing planet,
- produce a space-related news story, or
- develop a space-based research experiment.

As part of the symposium, students shared their research approaches and results at special sessions chaired by NASA experts.

They also participated in special tours of KSC, visited Epcot Center, and attended an awards dinner with family and program supporters.

"I wish we could package the enthusiasm we experience here at the Symposium. . . . It's a wonderful opportunity for the students, the teachers, and for NASA" said NSIP Program Manager Lynn Marra.

Former KSC Director of Shuttle Processing Robert Seick spoke to the students during the May 7 Plenary Session.

Other highlights included The Thacher Scholarship – a $4,000 award provided to a student winner in the Watching Earth Change competition.

NSIP students chat during the NSIP National Symposium.

Asian-Pacific Islanders share culture

The Asian Americans and Pacific Islanders (AAPI) are celebrating the month of May as AAPI Heritage month, with the theme of "Asian Americans Emerging Together."

The special month's theme reflects Kennedy Space Center's efforts to ensure equality for everyone through excellence and empowerment of employees.

It also reflects the contributions of Asian Americans and the need for all cultures at KSC to work together to achieve the common goal of mission safety and success.

The AAPI group held an Asian Americans and Pacific Islanders Luncheon on May 16 at the KSC Training Auditorium as part of the month-long celebration.

Sharon Wong, diversity manager at Goddard Space Flight Center, was the keynote speaker for the luncheon event. She formerly worked at KSC as lead software integration engineer.

Wong highlighted a few of the many contributions of Asian Americans to this country over the years and said the diverse group had come a long way in achieving equality. However, negative stereotypes still exist, she said, and must be overcome.

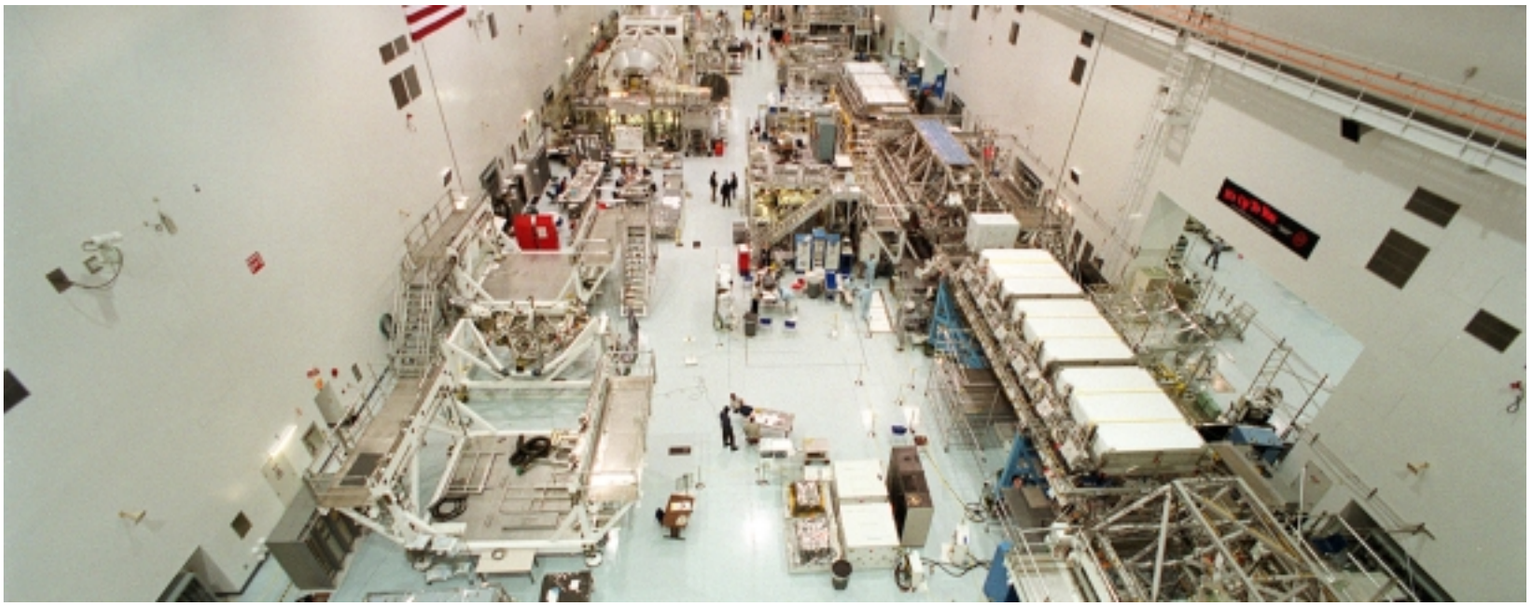
Above, the Junior Phillipine Dance Group performs in the Training Auditorium as part of the Asian Americans and Pacific Islanders Luncheon event. Below KSC team members are served lunch under a tent.

A cultural program was presented including performances by the Philippine Junior Dance Group. "Bharatnatyam," an Indian classical dance, was presented by Geeta Karkera and her students.

The luncheon following the program was held under a tent near the Training Auditorium. The menu included egg rolls, pot stickers, fried rice, chicken vegetables, beef and broccoli and fortune cookies.

VA Clinic presentation

Kennedy Space Center Director Roy Bridges on May 8 presented commemorative Saturn and Gemini posters to the Brevard VA Clinic to show appreciation for the more than 100,000 potential patients that the VA clinic will serve. Many potential patients have worked in the space program. The posters are now on display in the Gemini and Saturn Clinic. The VA Clinic's primary care teams – made up of doctors, nurses, technicians and support personnel – are named after historical space programs. Pictured from left to right are: Thomas Howard, M.D., chief medical officer; an unnamed visitor; Bridges; Charles 'Rick' Pugh, administrative officer; and Norris Gray. The presentation was facilitated by Gray, a former NASA employee who volunteers at the clinic.



Space Station processing

A view of the Space Station Processing Facility shows the lineup of elements in various stages of preparation for future flights to the Space Station. In the middle of the floor are white boxes housing storage gas tanks. Part of the STS-104 payload, the four tanks comprise the high pressure gas assembly that will be attached to the Joint Airlock Module during three spacewalks. The tanks will support future spacewalk operations from the Station and augment the Service Module gas resupply system. STS-104 is scheduled to launch no earlier than June 14 at about 4:11 p.m. EDT.

Health and Fitness

Kennedy Space Center participated in National Employee Health and Fitness day, May 15-16. A variety of fun and educational activities and displays, such as pictured above, were featured.

Savings Bond kick-off set for June 4

The Kennedy Space Center Savings Bonds Drive for 2001 will be held June 4-15.

Employees are invited to attend the kick-off event in the Training Auditorium on June 4 at 9:30 a.m.

Center Director Roy Bridges and Deputy Director Jim Jennings will lead the event with a representative from the U.S. Treasury Department.

Savings Bond canvassers will receive the bond forms and information packets covering the investment options available.

This is the first year that the inflation-protected I-bond will be offered to federal employees through payroll deduction.

Canvassers may contact Claudette Beggs at 867-7009.

GROUP ...

(Continued from Page 1)

Transportation Projects in KSC's Spaceport Engineering and Technology Directorate manages the two groups.

The major impetus for the KSC-based working groups came from findings of the Interagency Working Group (IWG) co-chaired by the Office of Science and Technology Policy and the National Security Council.

IWG's White House-sponsored study is titled "The Future Management and Uses of the U.S. Space Launch Bases and Ranges."

The IWG determined that more focus on the development of range technology to support next-generation reusable launch vehicles and expendable launch vehicles would be needed if the ground systems were to keep pace with the development of the flight systems.

"KSC understands the challenges of running a spaceport," Bridges said. "Our goal is to do what is right for future space transportation."

John F. Kennedy Space Center

Spaceport News

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