



Successful launch puts Zvezda on course for docking with ISS

The first major Russian component for the International Space Station (ISS) was successfully launched at 11:56 p.m. CDT on July 11 from the Baikonur Cosmodrome in Kazakhstan.

The service module will provide the early living quarters onboard the ISS.

The ISS and the Zvezda service module are scheduled to rendezvous and dock at 8:10 p.m. CDT on Tuesday, July 25. Zvezda will be the passive "target" vehicle for a rendezvous with the already-orbiting station, which is comprised of the Zarya control module and the Unity module.

As the passive target vehicle, Zvezda will maintain a station-keeping orbit as Zarya performs the rendezvous and docking under control from the ground using the Russian automated rendezvous and docking system, Kurs.

See ZVEZDA, Page 8

Annual Safety Day held at Stennis

Stennis Space Center observed the sixth annual Safety Day on June 22 in the StenniSphere auditorium. The program was designed to emphasize the center's safety goal: everyone working together creates our safe environment.

NASA astronauts Dominic Gorie and Barbara Morgan were on hand for presentations.

NASA selected Gorie, a Lake Charles, La., native, as an astronaut candidate in December 1994. He was a member of the STS-91 Discovery crew that participated in the final Shuttle-Mir docking mission, concluding the joint U.S./Russian Phase I Program. In February, he served as a member of the international crew aboard STS-99 Endeavour. The 11-day mission mapped more than 47 million miles of the Earth's land surface.

Morgan has been involved with NASA since 1985 when she was named backup candidate for the NASA Teacher in Space Program. In January 1998, she was



NASA astronaut Dominic Gorie speaks to employees during a presentation at the center's sixth annual Safety Day program. See related story on Page 5.

selected as the first Educator Mission Specialist. She is currently assigned to the Astronaut Office Space Station Operations Branch at Johnson Space Center in Houston.



The Launch Pad opened June 19 as the point of origin for all tours of Stennis Space Center and StenniSphere.

StenniSphere sees record crowds; Launch Pad becomes first tour stop

Since the doors to Stennis Space Center's newly expanded visitor center, StenniSphere, opened Memorial Day weekend, an average of more than 910 people per day have been educated and entertained at the Mississippi Gulf Coast's newest major attraction. These crowds represent more than twice the visitors seen during the same time last year. With the addition in June of a tour staging area called the Launch Pad at the Mississippi I-10 Welcome Center in Hancock County, StenniSphere is becoming one of the hottest summer destinations on the Coast —

allowing tourists to discover why America comes to Stennis Space Center before going into space.

This tour stop serves as a terminal for visitors to catch shuttles to begin their tour of the space center.

At the Launch Pad, visitors waiting to catch the shuttle buses are provided information and can see videos on StenniSphere exhibits and on the missions and programs of Stennis Space Center.

While at the Launch Pad, visitors can also take advantage of a unique photo opportunity.

See STENNISPHERE, Page 7

LAGNIAPPE *Commentary*

Stormy weather . . .

Me and Gator have lived here on the Gulf Coast now for some 37 years and have been in and around a lot of stormy weather. And, if you count being raised near Panama City, Fla., then you might say I have been in sight of a lot of rough seas all of my life. A few months ago, I read a page-turner of a book — “The Perfect Storm” — and just last weekend saw the movie version. With us now in hurricane season and that tragic book and movie still in mind, I’ve been thinking about our own waters here on the Gulf Coast.

Although today, the Gulf waters are as some say “slick as glass.” You would never think that the Gulf’s seemingly calm waters could be churning like a devil’s trough in the twinkle of an eye. You can go out on the rivers and bays around here, or out into the Gulf on any given weekend and see so many boats that you wonder if there’s room for one more. Nearly everybody living on this coast has some kind of boat, and when they have time, they get out there and enjoy the water. It’s also a safe bet that most, at one time or another, have had to confront rough seas on the briny deep on the sea’s own terms. Many can recount to you tales of sea ventures when they didn’t think they would ever see dry land again. We’re not about to get into a game of “can you top this” with a population of boating pros who have been on the water most of their entire lives for business or pleasure. But me and Gator do remember a couple of voyages that have taught us a very healthy respect for the sea when it gets all riled up.

One happened right here on the Gulf Coast shortly after we had moved down here from Huntsville. A local restaurateur had a 76-foot rebuilt Coast Guard cutter. He took several of us NASA people out for a relaxed Sunday ride to Ship Island. Seemingly, without warning, on our return trip, the Mississippi Sound turned ugly. The Gulf waters tossed us around like a toy. We lost an engine and started going into the sea broadside. We put all the women and kids down below and hobbled back with the waves washing over the top of the boat and tearing all of the rigging and anything else from the deck. When the owner’s wife knelt down and started reciting the Rosary, we all felt a little unnerved. That old Biloxi lighthouse never looked so good as it did when the weather finally broke, and we could see it majestically beckoning us home.

Another close call happened just a few years ago on a family fishing trip off the East Coast near Saint Augustine, Fla. My nephew took me and my brothers on a trip about 50 miles offshore to fish for King Mackerel. Again, on our trip in, we hit a famous late-evening Atlantic thunderstorm. It turned us every which way but loose. We couldn’t even see the bow of the boat, and the waves were washing over the top and falling past the stern. We thought that this was our last family outing, especially when my very steady nephew who had been at the helm started giving the Coast Guard our location in case we were lost. Somehow we made it, but that storm left us all with a renewed respect for the sea that me and Gator have not lost to this day.

M.R.H.



NEWSCLIPS

NASA’s virtual airport helps improve efficiency — A synthetic airport, created in the computer mind of a two-story NASA simulator, will help San Francisco’s airport, one of the country’s largest and most complex, plan changes to increase its efficiency. The San Francisco International Airport Commission has selected NASA’s FutureFlight Central, the world’s only walk-in, full-scale, 360-degree airport simulator, located at Ames Research Center in Moffett Field, Calif., to evaluate new tower positions, runway configuration and aircraft movements before new construction begins. The facility can house as many as a dozen air traffic controllers and can represent the busiest U.S. airport towers in size and capability.

Space Achievement Stamp issued — The United States Postal Service has begun issuing a new set of holographic stamps to honor American achievements in space exploration. The five stamps in the series commemorate space exploration, the Apollo moon landings, escaping Earth’s gravity, probing the vastness of space and traveling through the Solar System. For more information, check online at www.stampsonline.com or call toll-free 1-800-STAMP-24.

NASA sows seeds for planetary research — NASA scientists have gone back to the garden, “planting” wireless webs of small sensors in gardens here on Earth in preparation for missions to help monitor biological activity on planets. NASA’s Jet Propulsion Laboratory, Pasadena, Calif., and the Huntington Library, Art Collections, and Botanical Gardens, San Marino, Calif., have joined forces to study micro-climates by placing sensor webs in the various specialized gardens at the Huntington. This study will help make possible a key NASA goal to establish a virtual presence for exploration throughout the solar system.

NASA team to review shuttle engine test shutdown at Stennis

Robert Sackheim, assistant director and chief engineer for propulsion at NASA's Marshall Space Flight Center, Huntsville, Ala., has been appointed to lead a team to review the automatic shutdown of a recent Space Shuttle Main Engine test at Stennis Space Center.

At about five seconds into the planned 200-second test of a new high-pressure fuel turbopump configuration, higher than expected test temperatures caused the shuttle main engine to shut itself down using its own internal safety mechanisms.

The engine being tested was not a flight configuration. It is a development unit used to validate the engine's capability to operate at higher-than-normal temperature levels. The test used a main combustion chamber smaller than those currently flown on the shuttle, which increases temperatures in the pumps to test for different temperature limits.

Apollo-Soyuz marks golden age mission's silver anniversary

Twenty-five years ago this month, NASA embarked on the historic Apollo-Soyuz mission, the first international human spaceflight. It was designed to test the compatibility of rendezvous and docking systems for American and Soviet spacecraft, to open the way for international space rescue as well as future joint space flights.

The existing American Apollo and Soviet Soyuz spacecraft were used. The Apollo spacecraft was nearly identical to the one that orbited the Moon and later carried astronauts to Skylab. The Soyuz craft was the primary Soviet spacecraft used for human flight since its introduction in 1967.

A docking module was designed and constructed by NASA to serve as an airlock and transfer corridor between the two craft.

Apollo-Soyuz started with the Russian Soyuz launch July 15, 1975, followed by the U.S. Apollo launch on the same day. Docking in space of the two craft occurred July 17, and joint operations were conducted

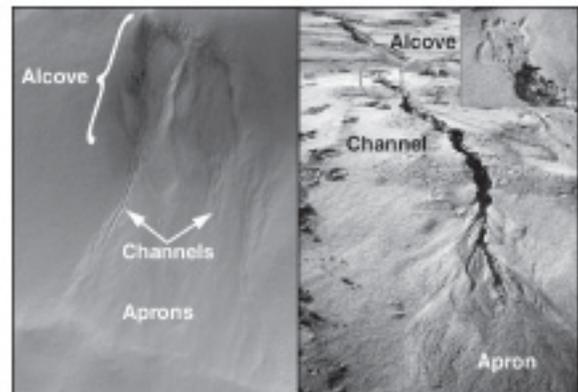
New satellite imagery suggest sources of present-day liquid water on Mars

In what could turn out to be a landmark discovery in the history of Mars exploration, imaging scientists using data from NASA's Mars Global Surveyor spacecraft have recently observed features that suggest there may be current sources of liquid water at or near the surface of the red planet.

The new images show the smallest features ever observed from martian orbit — the size of an average sports utility vehicle. NASA scientists compare the features to those left by flash floods on Earth.

"We see features that look like gullies formed by flowing water and

See MARS, Page 8



Above: The basic features of a martian gully. The figure on the left is an example from Mars; the figure on the right is a gully on Earth. In the Earth picture, rain water flowing under and seeping along the base of a recently-deposited volcanic ash layer has created the gully. For Mars, water is not actually seen but is inferred from the landforms and their similarity to examples on Earth.



Cosmonaut Valeriy N. Kubasov, left, Soviet ASTP engineer, and Astronaut Thomas P. Stafford, Apollo crew commander, are seen during one of four visits by American crewmen to the Soviet Soyuz Orbital Module.

for two full days.

Both spacecraft landed safely and on schedule; the Soyuz landed in the U.S.S.R. on July 21 and Apollo landed near Hawaii on July 24. The United States and the U.S.S.R. achieved a substantial degree of success in obtaining flight experience for rendezvous and docking of human spacecraft and developing a docking system that would be

suitable for use as a standard international system; demonstrating inflight intervehicular crew transfer; and conducting a series of science and applications experiments. Twenty-eight science investigations in the fields of Earth resources, Earth gravity, Earth atmosphere, astronomy, solar science, life sciences and space processing were conducted during the mission.

Stennis group tells the center's story at national conference

Stennis Space Center was well represented at a gathering of government and private industry aeronautics and astronautics experts during a major national convention and exhibition in Huntsville, Ala., in July.

The 36th Annual American Institute of Aeronautics and Astronautics (AIAA) Joint Propulsion Conference & Exhibit held July 16-19 at Huntsville's Von Braun Civic Center featured dozens of private-sector companies and government agencies. The Stennis contingent, which included members from all divisions of the Propulsion Test Directorate (PTD), not only fanned out for the numerous conferences, seminars and events, but also staffed a booth that contained displays and literature detailing Stennis' propulsion test activities.

In addition to staffing the booth, Stennis representatives helped host a National Rocket Propulsion Test Alliance (NRPTA) Panel Session at the AIAA, along with personnel from the other NASA centers and Department of Defense facilities involved in rocket propulsion testing.

Mike Dawson, of the Stennis PTD, said about a dozen members of the department participated in the conference. Dawson co-chaired one of the AIAA conference sessions and also was a co-chair for the NRPTA meeting at the conclusion of the conference.

The group effort helped tell the Stennis story, according to the PTD's Kevin Power, who with Lorna Ammond of Lockheed Martin Stennis Operations compiled and organized material for the display. Material for the display was designed and printed through MSS-InDyne Multimedia Services at Stennis.

"The display showcased current testing at Stennis on each test stand or facility," Power said. "Basically, we tried to sell Stennis and educate people on what we do. It's good for us to let people know we play a key role in the nation's space program."

Among the Stennis testing activities illustrated were the X-33 XRS-2200 Aerospike, X-34 MC-1 (formerly Fastrac), X-37 AR2-3, Delta IV EELV and the Space Shuttle Main Engine.

Director's Dialogue

from Center Director
Roy Estess



Thanks — And I am glad to be back

I want to thank you, the wonderful people here at Stennis Space Center, for the overwhelming outpouring of concern, encouragement and prayers during my recent "time-out" for repair. The great news is that the medical teams, starting with our own Stennis clinic, which first discovered my problem, are highly skilled and did a great job in getting me going again.

The not-so-great news is that I knew for several months before my surgery that I had some sort of a problem. The only exercise I was getting was walking through airports, and sometimes I had to stop and rest a moment to get the tightness in my chest to subside. Believing that it was indigestion ... after all, I was overweight, out of shape, and sometimes heavily stressed with the demands of life, I took various antacids, which sometimes seemed to help. Although the chest tightness went on for months, I told no one — not my wife, colleagues, family doctor, or the Stennis clinic — no one! Finally, my annual physical, which I had delayed a couple of months, had to be accomplished. I went to the clinic wondering if they would find anything. They did. Eva Cheng discovered a significant change in my EKG from my last test. Dr. Taquino arranged a stress test for me at the hospital as soon as possible. The stress test indicated problems, which led to other tests, which ultimately resulted in surgery by the outstanding medical team led by Dr. John Breaux. I left the Northshore Hospital six days later.

Why share this personal story with you? To tell you that I was stupid and lucky. Stupid for ignoring warning signs that I had a health problem and lucky that I work for an organization that looks after my health. If I had been retired, I likely would have kept going until I had a heart attack or worse. My behavior was not responsible. I should have gone to the doctor months earlier. Only I knew there may be a problem, and I guess I thought I could tough it out.

I encourage each of you to be personally responsible for your own health, on the job and in your private life, for the sake of yourself and those who care about you. We will do all we can to make sure you have a safe and healthy place to work.

Thanks again for your support and encouragement. I feel great and look forward to the bright future that is ahead for activities here at Stennis Space Center.

Entering
Stennis Space Center
Buffer Zone
*Surrounding America's Largest
Rocket Engine Test Complex*

Tours Begin at the Mississippi
Welcome Center - Exit 2

New signage marking boundaries of the Stennis Space Center buffer zone has been installed. According to NASA's Environmental Officer Ron Magee, the new signs were designed to be more informative by reflecting that the 125,000-acre buffer zone supports NASA's propulsion testing mission. The signs also indicate the new starting point for StenniSphere tours that begin at the Mississippi I-10 Welcome Center in Hancock County.

Snoopy Awards



Astronauts Barbara Morgan, far left, and Dominic Gorie, far right, presented Silver Snoopy Awards to The Boeing Company, Rocketdyne employees: Ralph Gonzalez of Gulfport, James Dingman of Slidell, and Diane Luxich of Lakeshore; Lockheed Martin Space Operations, Stennis Program (LSMSO) employee David Van Dyke of Wiggins; NASA's Connie Shuler of Picayune, and LSMSO's Rodney Wilkinson of Pearlington.

Nine Stennis Space Center employees were honored June 22 with the astronaut corps' own personal achievement award, the "Silver Snoopy." Among the recipients were NASA's Connie Shuler, and Matt Willis.

The Silver Snoopy Award recognizes individuals for professional dedication and outstanding support that greatly enhances flight safety and mission success in the Space Shuttle program.

Astronauts Dominic Gorie and Barbara Morgan were on hand to present the awards.

The Silver Snoopy Awards program was initiated 31 years ago and represents the astronauts' recognition of excellence. Each honoree received a silver pin flown aboard STS-99, a letter of commendation and a certificate.



Morgan, left, and NASA's Matt Willis of Slidell.



Mississippi Space Service's (MSS) Bonnie Nelson of Picayune, left, and Morgan.



Morgan, left, and MSS' Caroline Sundberg of Pass Christian.

Propulsion is the name of the game for Astro Campers

Area children are learning about the rich history and exciting future of space flight and the scientific principles that make it all happen at the John C. Stennis Space Center's Astro Camp 2000.

Astro Camp, an annual five-day series of day camps for 7- to 10-year-olds, is a fun and entertaining way for children to learn

about America's space program. The annual summer camp is based at StenniSphere, the space center's newly expanded visitor center, and averages 30 children each week in June and July.

When campers first arrive, they are grouped into teams, said Maria Lott, director of Astro Camp for the past three years. "It's amazing how quickly their rapport develops as a team," she said.

"Campers also learn about space travel from the bottom up. We base everything on Newton's three laws of motion and Bernoulli's theories of aerodynamics."

Throughout the weeklong curriculum, students work in teams to put theories into practice by building their own spacecraft from such simple materials as paper, cardboard, Popsicle sticks and aluminum foil.

The theme for this year's Astro Camp is "NASA's Generation X." Each camp



Children at John C. Stennis Space Center's Astro Camp launch rockets as one of their activities in the weeklong camp. Approximately 30 children from across Mississippi and Louisiana spend a week during June and July learning about space flight. This year's theme is Astro Camp 2000: NASA's Generation X, exploring the next generation of NASA spacecraft.

concludes with campers launching their own small rocket.

Camp is held in the Von Braun Tower, which was used as the observation deck by Dr. Wernher Von Braun to watch the rocket engine test firings in the 1960s. Learning about air rockets, rocket racers, sled kites, windsocks and various designs of gliders appeals to 10-year old camper Max Gove of Madison.

"It rocks so far," he said enthusiastically,

as he pondered a picture of the International Space Station. "I'm going to need a lot of Popsicle sticks," Max said, evaluating the section of the space station he was to build.

Savannah Rishel, 10, of Long Beach, said she enjoyed building her own rocket racer earlier in the week and particularly enjoyed launching her own rocket models.

For more information about Astro Camp or StenniSphere, call 1-800-237-1821 (select Option 1) in Mississippi and Louisiana.

2000 Educator Summer Workshops

■ The NASA Educator Resource Center summer workshops scheduled in July and August at Stennis Space Center are as follows:

July 27 — It's That Time Again! for teachers grades K-5.

Aug. 3 — Interdisciplinary Learning through Music,

Storytelling and Drama, for teachers grades K-5.

Aug. 10 — Let's Do Language Arts! for teachers grades K-5.

Aug. 11 — Preschool Portfolios! for teachers grades Pre-K-1.

Each workshop begins at 8:30 a.m. and is located in either

the TREND 2000 facility or the Little Red Schoolhouse.

Workshops are offered at no charge. Reservations are required due to limited seating.

For reservations, call the NASA Educator Resource Center at 1-800-237-1821 (Option 2) in Mississippi or Louisiana or (228) 688-3338.

Stennis just like home for propulsion team member Power

Kevin Power liked working for the Navy as a civilian engineer. He was right out of college back in the mid-'80s and was beginning his engineering career.

But that was in Annapolis, Md., home of the U.S. Naval Academy, not the New Orleans area, where Power had grown up and felt more at home.

After he got some experience, he took a first step toward returning to his old stomping grounds. A little after three years with the Navy, Power accepted a position at the Kennedy Space Center in Florida with Lockheed Space Operations Contractor (LSOC). Then, six months later, Stennis Space Center opened the door for him to complete his return.

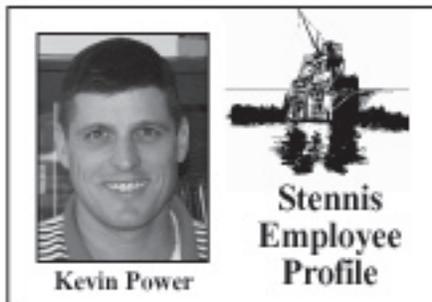
For the past 11 years, since the spring of 1989, Power has been a valuable utility player taking on a variety of assignments to help Stennis fulfill its role as NASA's lead center for rocket propulsion testing.

And the Navy's loss is Stennis' gain. "Maryland was a little too cold for me," he joked. "I knew I wanted to get back home, get back to the New Orleans area."

Power grew up in Harahan in suburban New Orleans. Like several other Power family members, he attended Jesuit High. He later majored in mechanical engineering at the University of New Orleans. He also has a Master of Science degree in Management from Florida Tech, which offered coursework at satellite classes in the New Orleans area.

After his stints with the Navy and LSOC at Kennedy, he made it back home moving to Mandeville, La., and working at Stennis.

Since he came to Stennis, Power has



tackled a variety of jobs on his way to becoming a project manager for the Propulsion Test Directorate.

Power now oversees the Combined Booster Core (CBC) Project on the B-2 test stand. The project is a reimbursable contract for Boeing/Huntington Beach, Calif., to complete stage testing of the flight vehicle for the Evolved Expendable Launch Vehicle (EELV) with the new RS-68 engine. He has been CBC project manager since February. The project will include five tests and run through the rest of 2000.

Power's first stop at Stennis was with the Component Test Facility, where he managed acquisition of high- and low-pressure vessels, pumps and vaporizers and various structural and mechanical designs and construction.

He also has worked with the Advanced Solid Rocket Motor project and the High Heat Flux Facility, which was a joint NASA/U.S. Air Force project.

Power then worked in the construction management division on various projects for Center Operations, including modifications to the A-1 test stand for the X-33 project.

In April 1999, he moved from Center

Operations to the Propulsion Test Directorate. Things haven't exactly slowed down since.

As well as serving as a project manager, he is involved in Stennis' affiliation with the Rocket Propulsion Test Management Board (RPTMB). The RPTMB manages NASA's test sites, not only at Stennis but at the Marshall Space Flight Center in Huntsville, Ala.; Johnson Space Center's White Sands Test Facility in Las Cruces, N.M.; and the Glenn Research Center's Plum Brook Station in Ohio.

"Each has rocket test facilities," Power noted. "We manage those assets and make test assignments and infrastructure upgrades. The bottom line is we try to make sure NASA's propulsion assets are maintained and properly utilized because they are national assets," he said.

Power also is part of Stennis' team that participates in the National Rocket Propulsion Test Alliance (NRPTA). The NRPTA involves both NASA and the Department of Defense to help guide decisions about developing and maintaining rocket test facilities, sharing test practices and developing a road map for strategy and upgrades.

All of this makes for a pretty busy schedule, but there's more. In his time off, Power is a lieutenant commander in the Naval Reserve Civil Engineer Corps.

Power also finds time for his family. He and his wife Susan have two children, Brandon, 5, and Madison, 4. In addition to being Brandon's dad, Power is his coach on a local coach-pitch youth baseball team. And on top of it all, Power enjoys home improvement projects.

STENNISPHERE . . .

(Continued from Page 1)

A 30-foot tall replica of a Lunar Lander trainer as used by Apollo astronauts is on display nearby. Visitors can also take photos of footprints made in concrete at the base of the exhibit by Apollo 13 astronaut and Biloxi native Fred Haise.

In January, the Mississippi Department of

Economic and Community Development (MDECD) announced approval of a unique agreement among NASA at Stennis, the Mississippi Transportation Commission and MDECD's Division of Tourism to allow the Mississippi I-10 Welcome Center to serve as the point of origin for all Stennis Space Center tours.

The opening of the Launch Pad on June 19 further solidified that agreement.

StenniSphere offers 14,000 square feet of

interactive exhibits representing NASA and other agencies at Stennis. StenniSphere is open daily from 9:30 a.m. to 6 p.m., and admission is free. Shuttles depart from the new Launch Pad at the Mississippi I-10 Welcome Center every 15 to 20 minutes beginning at 9:30 a.m.

The last shuttle departs from the Launch Pad to Stennis at 5 p.m.

For more information, see the Stennis Web Page at www.ssc.nasa.gov/public/visitors.

MARS...

(Continued from Page 3)

the deposits of soil and rocks transported by these flows," Dr. Michael Malin, principal investigator for the Mars Orbiter Camera on the Mars Global Surveyor spacecraft at Malin Space Science Systems in San Diego, Calif., said.

"The features appear to be so young that they might be forming today."

The gullies observed in the images are on cliffs — usually in crater or valley walls — and are made up of a deep channel with a collapsed region at its upper end and at the other end an area of accumulated debris that appears to have been transported down the slope. Relative to the rest of the martian surface, the gullies appear to be extremely young, meaning they may have formed in the recent past.

"They could be a few million years old, but we cannot rule out that some of them are so recent as to have formed yesterday," Malin said.

Because the atmospheric pressure at the surface of Mars is about 100 times less than it is at sea level on Earth, liquid water would immediately begin to boil when exposed at the martian surface. Investigators believe that this boiling would be violent and explosive.

So, how can these gullies form? Malin explained that the process must involve repeated outbursts of water and debris, similar to flash floods on Earth.

QUICK LOOK

■ **Mississippi Lt. Gov. Amy Tuck will be the keynote speaker** for the Women's Equality Day Program scheduled at 1 p.m. on Tuesday, Aug. 22 in the StennisSphere auditorium. All Stennis Space Center employees are invited. For more information, contact Janet Austill at Ext. 2121.

■ **The Federally Employed Women's Outreach program** at Stennis is collecting school supplies for Hope Haven in Bay St. Louis. Parents buying supplies for their children for the coming school year are encouraged to buy extra pens, pencils, crayons, paper, book bags, notebooks, tablets, etc., for the children at Hope Haven. Call Judy Cook at Ext. 2364 for more details.

■ **The states of Mississippi and Louisiana have created the Children's Health Insurance Program (CHIP)** in order to provide health insurance to children who are presently uninsured. CHIP offers a new opportunity for low-income families who are at higher income levels than those who are eligible for Medicare. See the CHIP Web Page: www.mschip.org for more information.

ZVEZDA...

(Continued from Page 1)

The automatic rendezvous system on the ISS Zarya module and a nearly identical system on Zvezda have been tested to be sure they could provide navigational data about the distance between the two spacecraft and the rate of closure during the final phase of rendezvous and docking.

Other key systems, including Zvezda's motion control system, its solar arrays and its various telemetry hardware have been thoroughly checked.

Once Zvezda is joined to the ISS, flight controllers will reconfigure the data processing path between the service module, Zarya and the Unity module, as Zvezda assumes control for the orientation of the station, any reboost which may be required and primary communication responsibility.

The station continues to operate well with no significant technical issues being worked. The International Space Station is in an orbit with a high point of 245 statute miles and a low point of 230 statute miles (394 x 371 kilometers), circling the Earth every 92 minutes.

The docking of Zvezda will set the stage for the arrival of the station's first permanent crew.

The three-member crew is scheduled to launch Oct. 30 and arrive at the station two days later.

LAGNIAPPE

Lagniappe is published monthly by the John C. Stennis Space Center, National Aeronautics and Space Administration. Roy Estess is the center director, Myron Webb is the public affairs chief, and Lane Cooksey is the news chief. Comments and suggestions should be forwarded to the Lagniappe Office, Building 1200, Room 208D, Stennis Space Center, MS 39529, or call (228) 688-2313.

EDITOR: David F. Smith

CONTRIBUTING WRITERS:

Judy Isbell B. R. Hawkins

CONTRIBUTING

PHOTOGRAPHER: ... Charles E. Jones

ARTIST: Douglass Mayberry



National Aeronautics and
Space Administration

John C. Stennis Space Center
Stennis Space Center, MS 39529

Official Business
Penalty for Private Use \$300

BULK RATE
U.S. POSTAGE PAID
Permit No. G-27