

A recent Space Shuttle Main Engine test at the John C. Stennis Space Center attracted officials from NASA Headquarters in Washington, D.C., and Marshall Space Flight Center in Huntsville, Ala. Among those viewing the Feb. 4 firing were, from left, Mark Craig, Stennis Space Center deputy director; Art Stephenson, Marshall Space Flight Center director; Dave Geiger, Boeing site director at Stennis; William Readdy, NASA deputy associate administrator; and Roy Estess, Stennis Space Center director.

## FY 2001 budget has first increase for NASA in seven years

NASA's budget for fiscal year 2001 would rise to \$14.03 billion under the federal budget submitted to Congress by President Clinton on Feb. 7. The President's request is \$435 million more than the current year budget and represents the first time in seven years that he has proposed an increase for NASA.

"With this budget we will take the next steps toward a permanent human presence in space. And, we will build on our exciting missions to understand our planet, our solar system and our universe," NASA Administrator Dan Goldin said.

"Over the past seven years, we were challenged to operate more safely, more efficiently and at high levels of performance. The NASA team delivered and will continue to improve," he said.

"Today, we take this next major step in decreasing our involvement in operations and increasing our investment in cutting-edge research and development," Goldin continued. "The best indicator of this change is how we balance our human space flight with our science and aerospace technology investments. Over the past decade our science and aerospace technology investment went from 31 to 41 percent of our budget. In the next five years, we will raise our investment to 51 percent.

"However, we will never compromise safety. . . . That's why I am proud to announce that our Space Shuttle safety program alone will jump from \$600 million to \$2.1 billion over the next six-year period. This allows us to fly the Space Shuttle for at least the next decade and roughly double its safety.

"We plan to invest \$6 billion between 2000 and 2005. . . . NASA will continue to do what it does best: develop breakthrough technologies.

"For the first time in almost a decade we intend to hire close to 2,000 new employees in the next two years — that's a gain of almost 550 after expected attrition."

## Agreement with state agencies makes I-10 Welcome Center new launch site for tours

When the redesigned John C. Stennis Space Center Visitors Center reopens Memorial Day weekend, visitors will board shuttle buses that will depart from the I-10 Welcome Center and take them to tour Stennis and its newly renovated 14,000-square-foot exhibit area.

This has all been made possible through an agreement among NASA's Stennis Space Center, the Mississippi Transportation Commission, and the Mississippi Department of Economic and Community Development, Division of Tourism. A new building to be constructed at the I-10 Welcome Center will serve as the point of origin for all Stennis tours.

"We consider NASA's use of the I-10 Welcome Center in Hancock County to be an

important step in increasing the volume and enhancing the value of Mississippi tourism efforts," J.C. Burns, executive director of the Mississippi Department of Economic and Community Development, said. "This will capitalize on the more than 700,000 tourists who visit this particular Welcome Center annually."

"This arrangement allows more extensive use of the Welcome Center facilities and a means to add additional parking that can be set aside for tour buses," Wayne Brown, Mississippi transportation commissioner for the Southern District, said.

## LAGNIAPPE Commentary

### *Gator turns over a new leaf . . .*

I thought there was a little something different about the Gator last month when he returned from the holidays. It was totally uncharacteristic of the old boy to get so involved with computers. He had never been so "high-tech" before. We didn't have time to discuss it with all the wrangling about his new Gatorway computer. The turning of the new year, the new century and the looming new millennium has affected the Gator.

He's not so rigid and old-fashioned in this thinking. In fact, if I didn't know him better, it seems like he's trying to turn over a new leaf. And, that's not easy for anyone, let alone an old-timer like Gator. He's been around since the beginning of Stennis Space Center and gracing this commentary for better than 20 years. So, if I detect any more clues to this momentous change in our beloved Gator, I'll pass them right along to you. Oh, there he comes up the sidewalk now, heading our way. What's that sack he's got slung around his shoulder?

"Well if it isn't old King Cake, himself. How's your history humming, ark, ark," Gator greeted me with his awful laugh.

"Hello, Gator, what's that in the sack around your neck, Mardi Gras throws?" I asked in a jovial tone.

"Nothing so trivial," Gator answered. "It's my laptop computer. I download all my briefcase files from my new Gatorway PC into this snazzy little laptop and bring them to work out here, so I'm always fully prepared with compatible data from home. It's the only way to go!"

"Gator, I was just telling our readers that you have really changed, and I guess this new computer business proves it," I said approvingly. "But tell me, why the big turnabout? I thought you were so set in your ways you were never going to get into the 20th century, let alone the 21st!"

"You better look around you, son, and make some changes yourself," Gator said knowingly.

"These young whippersnappers out here at Stennis are finding new ways of doing things every day. And, if you don't watch it, you'll be left at the proverbial starting gate for this new century."

"You got a good point, Gator, but what other changes are you making in this new year?" I asked, for our readers' sake.

"You gotta be sound all over — mind, body and spirit," Gator replied in an authoritative voice.

"Like, I don't see you upgrading that old 1983 HP computer or coming down to the Wellness Center to tighten up that flabby frame of yours."

"Gator, we've been pretty busy so far this year, doing history interviews, going through old pictures, and even helping out with the new Visitors Center," I answered.

"Yeah, yeah, I do see some good things happening around here," Gator retorted. "I was over at the new Visitors Center, and they are doing a great job in bringing the old tower into the 21st century. I can't wait to see it all finished this spring, especially the 'Swamp to Space' exhibit. It's even got a gator in it!"

"It's good to see you get your head out of that computer sometimes," I said.

"Remember," Gator said as he parted. "What's that old saying from the last century? Moss can't grow on a rolling stone. I gotta rock and roll right out of here!"

In some ways, I thought, the old boy hasn't changed a bit!

M.R.H.



## NEWSCLIPS

**NEAR makes historic Valentine's Day asteroid encounter** — The Near Earth Asteroid Rendezvous (NEAR) spacecraft straightened its orbit and put its best solar panels forward for a Valentine's Day rendezvous with a near-Earth asteroid named 433 Eros for the Greek god of love.

The NEAR mission, a NASA Discovery Program, is the first mission to orbit an asteroid. For a year, the spacecraft will use its instruments to scrutinize the potato-shaped space rock to learn about its chemical and physical features and evolutionary history. The asteroid is about twice the size of Manhattan Island.

Images can be found on the Internet at <http://near.jhuapl.edu>.

**Breast cancer screening aid cleared** — The war against breast cancer has a new weapon, thanks to an advanced sensor developed at NASA's Jet Propulsion Laboratory in Pasadena, Calif. The device, called the BioScan System™, was developed by OmniCorder Technologies Inc., of Stony Brook, N.Y. The Food and Drug Administration gave OmniCorder clearance in December to market the system.

The BioScan System™ is highly sensitive and can detect the minute temperature changes in blood flow caused by the nitric oxide exuded by cancer cells in tissue surrounding cancer. The BioScan System™ also uses technology that helps to image the target area and to provide the physician with immediate diagnostic information.

**SeaWinds makes valuable weather info available** — The first calibrated measurements from NASA's SeaWinds instrument on the Quikscat satellite recently became available opening up a valuable stream of meteorological and climate observations that could improve weather forecasting around the world.

Access to daily wind data and animations from the ocean-wind tracker, managed by NASA's Jet Propulsion Laboratory in Pasadena, Calif., is available on the Internet at URL: <http://haifung.jpl.nasa.gov/> and at <http://podaac.jpl.nasa.gov/quikscat/>.

## X-33 Linear Aerospike reaches milestone

The innovative aerospike engine that will power the X-33 Advanced Technology Demonstrator reached a significant milestone at John C. Stennis Space Center on Feb. 3 with its longest test to date and the first demonstration of the engine's full thrust vector control.

A NASA/Boeing Rocketdyne team tested the XRS-2200 Linear Aerospike Engine for 125 seconds. This test was the longest test run to date at 100 percent power, exceeding the previous test by 30 seconds. The successful test marked the first demonstration of plus or minus 15 percent thrust vector control. The test also demonstrated engine operation at varied power levels and tested different mixture ratios.

Lockheed Martin's X-33 vehicle will use thrust vector control to steer itself in flight. This capability allows vehicle designers to avoid the weight and complexity of engine gimbaling mechanisms, supporting the push for aircraft-like operations.

Initial test data indicates satisfactory engine

performance throughout the test.

"The Stennis and Boeing/Rocketdyne test team continues to produce outstanding results in yet another critical milestone in full-power, single-engine testing. This one test ran the engine longer than all previous seven tests combined," NASA's Dr. Donald Chenevert, X-33 project engineer at Stennis Space Center said.

The XRS-2200 engine was developed and assembled by Boeing Rocketdyne Propulsion & Power in Canoga Park, Calif. The engine will power the X-33, a half-scale, sub-orbital technology demonstrator of Lockheed Martin's proposed commercial reusable launch vehicle called VentureStar™. The X-33 is being developed in partnership with NASA and Lockheed Martin Aeronautics Company — "the Skunk Works" — Palmdale, Calif. Marshall Space Flight Center in Huntsville, Ala., manages the X-33 program for NASA.

Once testing of the first of the program's four engines has been successfully completed, two flight engines will be tested.

## New partnership will help 100,000 farmers with ag techniques

A government/industry partnership with the potential to benefit more than 100,000 U.S. farmers and involving NASA's Commercial Remote Sensing Program (CRSP) at John C. Stennis Space Center was publicly announced at a major agricultural conference in Orlando, Fla.

This initiative was unveiled during the Second International Conference on Geospatial Information in Agriculture and Forestry held Jan. 10-12 at Walt Disney World.

The conference was organized by the Environmental Research Institute of Michigan International, Inc. Sponsors included the EPCOT Strategic Partnership, NASA's CRSP, USDA-Agriculture Research Services, USDA-Natural Resources Conservation Services, and several other leaders in the agricultural, forestry and geospatial information technology communities.

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## NASA partners with Choctaws to promote education program

The Mississippi Band of Choctaw Indians is reaping a wealth of benefits from the only NASA Educator Resource Center (ERC) located on a Native American reservation.

A Space Act Agreement, signed several years ago between NASA's John C. Stennis Space Center and the Mississippi Band of Choctaw Indians, paved the way for establishing the ERC on the campus of Choctaw Central High School near Philadelphia.

This facility is part of the NASA Educator Resource Center Network, which was established to make information available to the educational community. The Choctaw center is one of two in Mississippi and the first in a partnership between NASA and a Native American Nation.

"Through all the resources we have in education, NASA has been able to provide hundreds of videos of NASA events such as activities in space. Other resources such as computer software are also available for teachers and for use by students in the classroom," Dr. David Powe, chief, Education and University Affairs Office



**Patricia Overstreet, coordinator of the NASA Educator Resource Center at Choctaw Central High School in Philadelphia, Miss., works with Choctaw students during a class on basic rocketry, while Tribal Chief, Mississippi Band of Choctaw Indians, Phillip Martin, looks on.**

at Stennis Space Center, said.

The center serves teachers in the tribal school and in the surrounding communities. Teachers receive resource materials, lesson plans and other assistance from the ERC.

The ERC stresses the importance of science and technology to students as well. Last year, three tribal school students were chosen to par-

ticipate in the Discover Junior Science competition. Two finished first and second in their category at the regional science fair. Four tribal school competitors advanced to the state science fair. In the past decade, only one tribal school project has reached the state level.

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## Stennis signs first Phase 2 contract for Tech Transfer program

NASA has selected eight promising research proposals for negotiation of Phase 2 contract awards for the Small Business Technology Transfer Research (STTR) Program.

John C. Stennis Space Center's project contract with Imlach Consulting Engineers of Anchorage, Alaska, in conjunction with Virginia Polytechnic Institute of Blacksburg, Va., is among the eight STTR awards, according to NASA's Ray Bryant, Small Business Innovation Research program manager at Stennis.

"This is Stennis' first Phase 2 STTR contract and NASA's first contractual STTR relationship with an Alaskan firm," Bryant said. "Phase 2 contracts continue the development of the most promising Phase 1 projects."

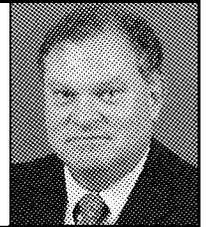
A total of 23 Phase 2 proposals were submitted by contractors completing Phase 1 projects as part of their 1998 awards. The proposals were peer-reviewed for both technical merit and commercial potential. The combined award total for the eight Phase 2 contracts is expected to be approximately \$4 million.

The program is designed to stimulate technological innovation, help small businesses become better-qualified to assist NASA in its research and development, and increase private commercialization of federally funded research. The program also requires small businesses to conduct cooperative research and development by partnering with a research institution.

The goals of the STTR program are to stimulate technological innovation, increase the use of small business in meeting federal research and development needs, and increase private-sector commercialization of federally funded research results. Two of the eight companies announced are either disadvantaged firms or women-owned firms.

## Director's Dialogue

from Deputy Director  
Mark Craig



### Gunpowder, A Great Teacher

Safety — of people, of assets and of the environment — is critical to our future. We will not ultimately be successful unless we are committed to the safety of our team and to protecting SSC's assets, our customers' assets and the environment. It's that simple.

Compared with U.S. industry as a whole NASA has a good safety record. Last year we had 0.21 lost time injuries/100 employees, compared with 3.5 for industry. We here at Stennis had 0.36. We do not have a good record, however, when compared to safety leaders like the DuPont Company. DuPont, with thousands of employees in complex and hazardous chemical plants around the world, had 0.03 lost time injuries/100 employees last year. They set a standard that we need to meet, and then beat.

DuPont has been working at safety for almost 200 years, since their founding as America's gunpowder maker. And it's easy to understand why...one mistake and no employees, no plant, no company. Sound familiar? In 200 years of working to improve safety, DuPont has learned that all injuries are preventable, all of them. We can learn from their vast experience.

In this column last summer Roy told you of our plans to engage DuPont to help us improve safety here at Stennis. At that time they conducted an audit which identified those things we are doing well and those things we need to improve. The first week in February they returned for three days to help us undertake the improvement. For example, because a key element of improvement is the effective use of safety audits, the DuPont trainers (each an experienced plant manager) conducted training audits. You may have seen us in the E complex, the gas house, the warehouse, and Bldg. 1100 offices learning how to better spot unsafe conditions. Over the three days, a number of improvements were identified and discussed that will be taken to the center's Safety Management Council in the near future.

As we improve our approach and tools, though, it's very important to remember the profoundly simple basis of DuPont's success, that safety is everyone's job: managers, co-ops, technicians, secretaries, engineers, everyone. Safety professionals are available to guide and advise, but it's our job. Safety is 24 hours a day, 7 days a week, off the job as well as on; it's an attitude, not a program.



STS-99 Mission Specialist Janet Lynn Kavandi adjusts her helmet during a recent suitup. After some delays, the Space Shuttle launched Feb. 11 on its 11-day mission to map the Earth. The Shuttle Radar Topography Mission is expected to produce unrivaled 3-D images of the Earth's surface using two antennae and a 200-foot-long section of space station-derived mast protruding from the payload bay. The result of the mission could be close to 1 trillion measurements of the Earth's topography. Besides contributing to the production of better maps, these measurements could lead to improved water drainage modeling, more realistic flight simulators, better locations for cell phone towers and enhanced navigation safety.

## Sullivan comes back home, likes progress Stennis is making

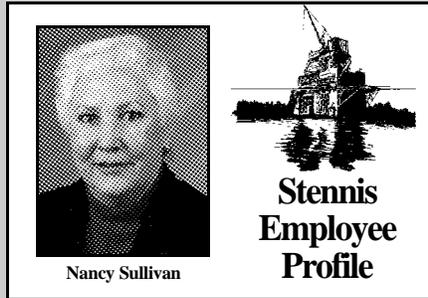
NASA's Nancy Sullivan graduated from high school in Pascagoula, attended Perkinson Junior College, and later received her degree from Northwestern State University of Louisiana. She married her high school sweetheart, Fred, and has lived everywhere from Omaha, Neb., to Taipei, Taiwan, before coming home to the coast.

"I was just a country girl from Mississippi," Sullivan said tongue-in-cheek. "My husband put shoes on me and took me around the world."

Sullivan, an education specialist for the Education and University Affairs Office at the John C. Stennis Space Center, said her own experience of seeing the world outside of the limited environment of her hometown has convinced her how necessary it is to expand one's environment in order to increase one's vision.

"NASA brings to the classroom an ever-expanding environment of learning," she said. "Students' visions are limited greatly by their environment. As their environment expands, so does their vision, and vision is the essential element to success in every aspect of life."

Sullivan, who worked for Rep. G. V. "Sonny" Montgomery in Washington, D.C., until her husband retired from the Army, joined NASA at Stennis in October 1989. She worked in the Public Affairs Office for six years before joining the education office. In the Public Affairs Office, one of her many responsibilities was launch guest operations,



hosting the center director's invited guests to the Space Shuttle launches in Florida. As a result of her efforts, Sullivan established standards now utilized as a model by other NASA centers.

Her work in the NASA education office includes working with minority universities on K-12 education research grants and implementing special projects involving Piney Woods Country Life School near Jackson and the Choctaw Indian Tribal School System near Philadelphia. She is collaterally assigned as the Native American program manager for Stennis and also works with the center's Federal Women's Program Advisory Council.

"Stennis is the only NASA center that has an Education Space Act Agreement with a Native American Nation," she said. "It is through that agreement that Stennis is able to provide educational opportunities and services that Choctaw students might never experience. We have seen students whose interest and confidence have been both kindled and bolstered

by their interaction with NASA programs. They have gone on to participate in science-related studies and in some cases, seek scientific or research-oriented careers."

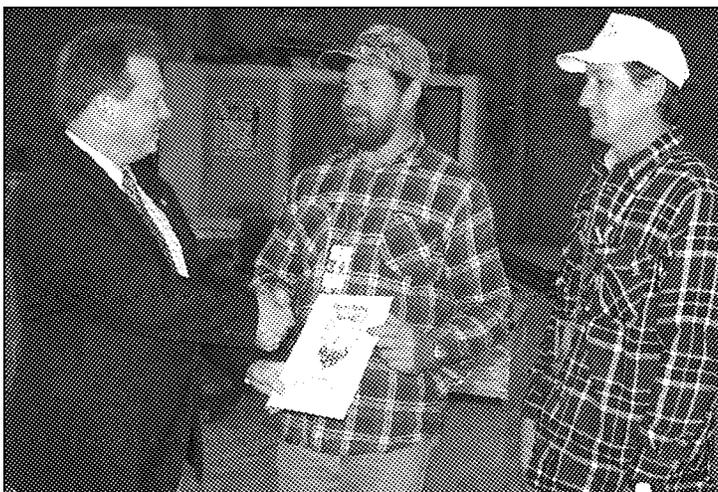
While she will readily admit NASA doesn't leave much time for hobbies, Nancy manages to find time to play a little golf with Fred, do a bit of cooking and knitting and, occasionally, make her way to her tole paints.

The Sullivans have a son, Freddie, and daughter-in-law, Natalyia, who live in Jackson. Their granddaughter, Alexis, lives in Tacoma, Wash.

"Natalyia is from Moscow and adds to the multi-cultural aspect of our lives," Sullivan said with a warm grin. "Alexis, who is very sophisticated and soon to be 6, loves to read and thinks that Miss Myron (Myron Webb, Stennis' public affairs chief) and Grandmother are personally responsible for making the Space Shuttles go."

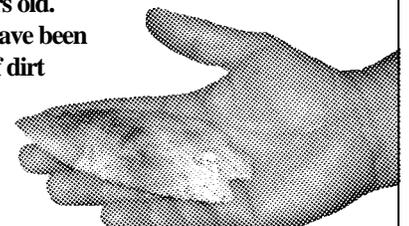
Sullivan has witnessed the numerous transitions Stennis has undergone in her 11 years here. She said, perhaps, the best of all changes she has seen is the center's move from support roles in propulsion testing and commercial remote sensing to lead center status.

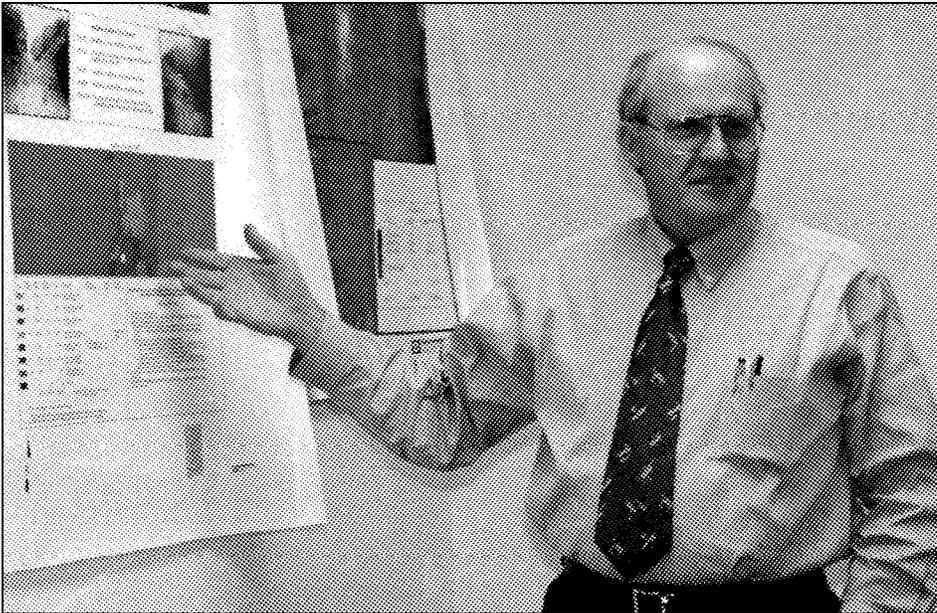
"It came with determination and hard work on the part of Roy Estess and our top administrators," she said. "The change I am most pleased with is the increased awareness of Stennis Space Center and the important role NASA plays in improving the quality of life in the global arena," Sullivan said.



Mississippi Space Services carpentry workers Joey Malley, center, and Phillip Mollere, right, got a pat on the back for turning in a historically significant spearpoint they found recently. NASA Environmental Officer Ron Magee, left, issues the men Frontline Award certificates of appreciation. Malley and Mollere found the spearpoint, below, while digging in the construction area behind Building 1200. The artifact is about 5 inches long and has been estimated to be about 6,000 to 7,000 years old.

Officials believe it may have been brought in with a load of dirt from one of the gravel pits outside the center's north gate.





DATASTAR's Project Manager Jimmie Ramsay shows examples of maps produced by the DATASTAR Image Processing Exploitation (DIPX) process, a user-friendly, Intel®-based desktop application, used to manipulate remotely sensed imagery data. The DIPX software program is a commercial application of NASA's Space Technology Hall of Fame award-winning Earth Resources Laboratory Applications Software package (ELAS) developed at Stennis Space Center. DATASTAR, in conjunction with the Stennis Office of Technology Transfer, has worked to prepare the software for commercial marketing.

## South Mississippi company takes NASA image processing software to new level

Tucked behind Donut Time Coffee Shop off U.S. Hwy. 11 in Picayune is an unassuming connection to some of NASA's most advanced technology.

DATASTAR Inc. is most readily recognized as a local Internet service provider. However, providing access to the World Wide Web is perhaps the smallest of DATASTAR's three core business areas.

DATASTAR has nearly 30 years' experience in data processing, computer sales and software development. DATASTAR Project Manager Jimmie Ramsay has steadily worked to develop a commercial application for NASA's Space Technology Hall of Fame award-winning Earth Resources Laboratory Applications Software package (ELAS) developed at the John C. Stennis Space Center.

Ramsay, who worked as a support member of the original ELAS development team, announced DATASTAR is ready to market DATASTAR Image Processing Exploitation (DIPX), a user-friendly, Intel®-based desktop application for the manipulation of remotely sensed imagery data.

"This is a textbook example of how NASA hopes businesses will use and expand upon those technologies designed for government use," Kirk Sharp, NASA's Technology Transfer Officer at Stennis, said. "Taxpayers' dollars went into the original development of ELAS, and it only makes sense that the taxpayers are the ones to reap the benefits of the program. I think DIPX will continue the legacy of ELAS."

Since the early 1980s, ELAS has been used worldwide for processing satellite and airborne sensor imagery data of the Earth's surface into readable and usable information. That information has been used to determine soil content, rainfall levels and numerous other variances of topographical information. However, end users have customarily had to depend on scientific or computer experts to provide the results because use of the imaging processing system was intricate and labor intensive.

DATASTAR's evolution into DIPX makes the previously difficult ELAS program simpler to use and more accessible to general end users.

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## International Space Station Status Report

The International Space Station (ISS) continues to operate in excellent shape on orbit with no systems problems of any significance. Meanwhile, station managers traveled to Moscow earlier this month to review the program and readiness of the Russian Aviation and Space Agency to support the launch of the station's next component, the Zvezda service module.

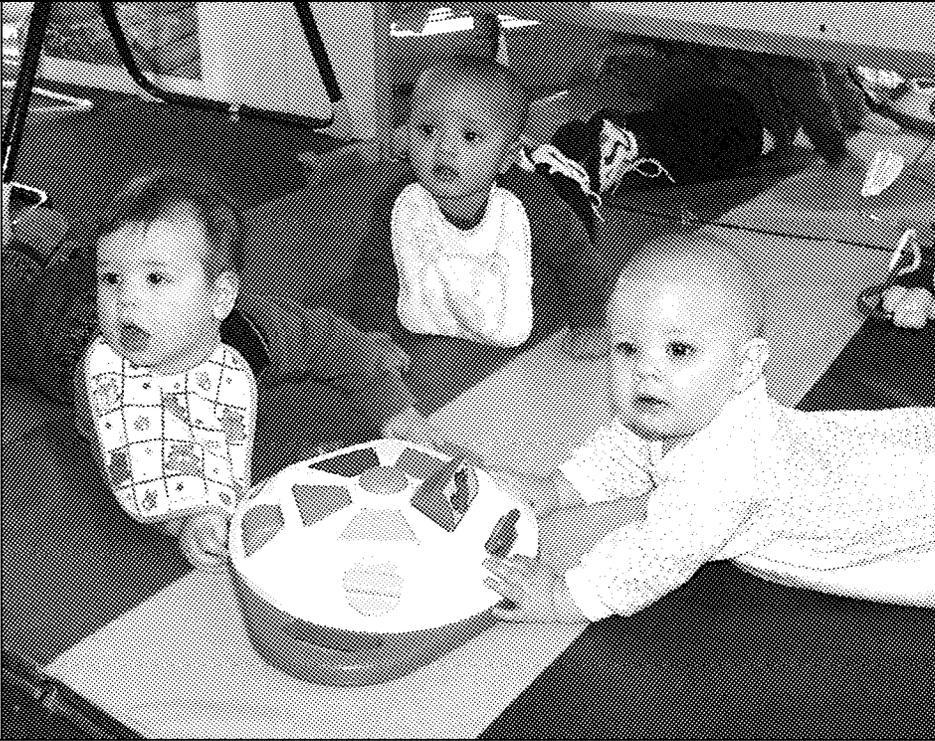
A Joint Program Review, followed by a General Designer's Review, assessed the readiness of the Zvezda module for flight to become the third pressurized piece of the station. Russia has announced a launch date for Zvezda between July 8-14.

Following the meetings in Moscow, NASA determined whether an early maintenance mission by the shuttle to the ISS is required as currently scheduled in mid-April.

On orbit, the station's power system remains in good shape with four batteries operating normally providing more than enough power for the systems onboard. Battery 2 remains disconnected from the electrical bus with Battery 1 available for short periods when necessary.

Meanwhile, post-flight photographic analysis of the STS-96 mission indicates that the Orbital Replacement Unit Transfer Device (OTD), installed on the outside of Zarya, may not be in its expected position. Analysis is under way to determine if there is any impact on operations. The OTD is a small crane used to assist astronauts conducting spacewalks in moving large pieces of equipment around the station.

The International Space Station is in an orbit of 244 by 229 statute miles. Since the launch of Zarya in 1998, the ISS has completed more than 6,885 orbits. Space station viewing opportunities worldwide are available on the Internet at <http://space-flight.nasa.gov/realdatasightings/realdata/sightings/>.



These three bright-eyed Stennis Child Development Center children may not have heard the news — that the center recently earned the prestigious accreditation from the National Association for the Education of Young Children (NAEYC). That doesn't mean they won't be affected by it, though. NAEYC accredits only those few child development programs that meet their rigorous standards. Shown above are, from left, Matthew Olszewski, 8 months, son of Dan and Karen Olszewski of Diamondhead; Loren Jackson, 6 months, son of Bertha and Darryl Jackson of Gulfport; and Brittany Johnson, 6 months, daughter of Jeff and Diane Johnson of Diamondhead.

## Stennis Child Development Center earns national group's prestigious accreditation

The Stennis Child Development Center has passed the scrutiny of a national early childhood education organization with flying colors.

The National Association for the Education of Young Children (NAEYC) recently accredited the Stennis child care center, making it one of just 7 percent of early childhood programs in the country to achieve the organization's standard of excellence.

NAEYC accreditation involves a rigorous, voluntary process. Programs seeking accreditation undergo an intensive self-study and collect information from parents, teachers, administrators and classroom observations.

An on-site visit by NAEYC-trained early childhood professionals validates the self-study data, and a team of national experts reviews the results. Accreditation is valid for three years.

Stennis Child Development Center acting

director Mary Carley said being accredited is important for the center to maintain the trust and confidence of the parents.

"This does a lot for the morale of the staff, but it means even more to the kids and their parents. It makes sure the staff is qualified," she said.

The Stennis Child Development Center provides day care and educational services for 76 children of Stennis employees. The children range from 6 weeks old to 5 years, or pre-kindergarten.

Officials are in the process of developing a curriculum. They already offer a wide range of educational activities, including art, math and numbers, reading, science and a computer room for the older children.

NAEYC is the nation's oldest and largest organization of early childhood professionals dedicated to improving the quality of early childhood education.

## NASA grant is ticket to robotics contest for Gulfport students

Gulfport High School is one of five Mississippi schools to receive a grant from NASA for a unique robotics competition.

More than 115 high schools across the nation were chosen to receive these grants for this program that was designed to inspire students to follow careers in science and technology.

Students at Gulfport High School will compete in the For Inspiration and Recognition of Science and Technology (FIRST) Robotics Competition in Houston March 16-18.

A total of 379 schools will take part in this competition.

The grant money was paid to the non-profit FIRST organization. In return, each school received a basic robot parts kit, remote control and other necessary items. FIRST will also arrange travel to the kickoff ceremony for one representative from each of the 80 grant-winning schools.

Since Jan. 10, students in Gulfport teacher David Fava's applied technology class have been working to construct a robot. The entry will compete with other robots in events such as dumping balls into a trough and pulling up on a bar. The deadline for completed robots is Feb. 21.

Engineers from John C. Stennis Space Center have helped the students build the robot.

Winning projects will compete in the finals April 6-8 in Orlando, Fla.

## Goldin announces merger of offices

NASA Administrator Daniel S. Goldin has announced that the Agency will merge the Chief Technologist's office with the Office of Aero-Space Technology to better focus the Agency's strategy for maintaining its long-term technology base.

Chief Technologist Samuel Venneri will retain that position while becoming Associate Administrator for Aero-Space Technology. Venneri will succeed Lt. Gen. Spence "Sam" Armstrong, USAF (Ret.), who will become Senior Advisor to the Administrator.

Armstrong's duties will involve spearheading a new initiative that will allow the Agency to create new synergies with universities, industry and other scientific and technical agencies.

## New exhibit will provide a chance to simulate shuttle engine test

An exhibit in the new wing of the John C. Stennis Space Center Visitors Center will give visitors an opportunity to simulate a test firing of a Space Shuttle Main Engine. The exhibit is a re-creation of one of NASA's test control centers and explains and portrays the "shake, rattle and roar" that happens during a real test firing.

The Test Control Center exhibit is one of many interactive exhibits that will be part of the newly renovated Visitors Center when it reopens Memorial Day weekend.

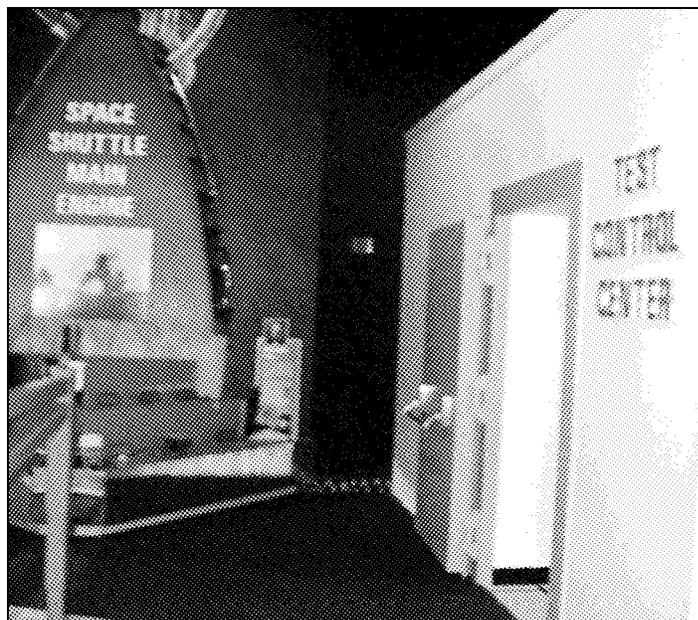
This authentically re-created test center includes a test conductor simulator designed and built by two NASA engineers.

"Engineers inside a real test control center can see, hear, feel, and most importantly, control what is actually happening on the test stand in a remote, safe environment," NASA's Joey Kirkpatrick, one of the Stennis engineers who created this exhibit, explained. "We've worked to duplicate such an environment in this exhibit."

The exhibit will give visitors the greatest understanding of NASA's primary mission at Stennis Space Center, which is the test firing of the Space Shuttle's main engines as well as future rocket propulsion systems. As America leads the world in space exploration and the quest to reach the stars, Stennis plays a major role in this epic journey. Stennis is NASA's lead center for rocket propulsion testing. From the Apollo era that took Americans to the Moon to the X-vehicles of the future, NASA has and will continue to test engines at Stennis.

Actual equipment and instruments used by NASA men and women re-create the experience of testing a rocket engine in this educational and entertaining test center—complete with thick walls and doors, blast-resistant windows and, surprisingly, a periscope.

A similar periscope is actually used to view and control a test firing from inside the Test Control Center. The periscope is equipped with controls that can be used to shut down a test if the operator sees a problem. Through the exhibit's periscope, visitors will view a video of an actual rocket engine test firing at Stennis.



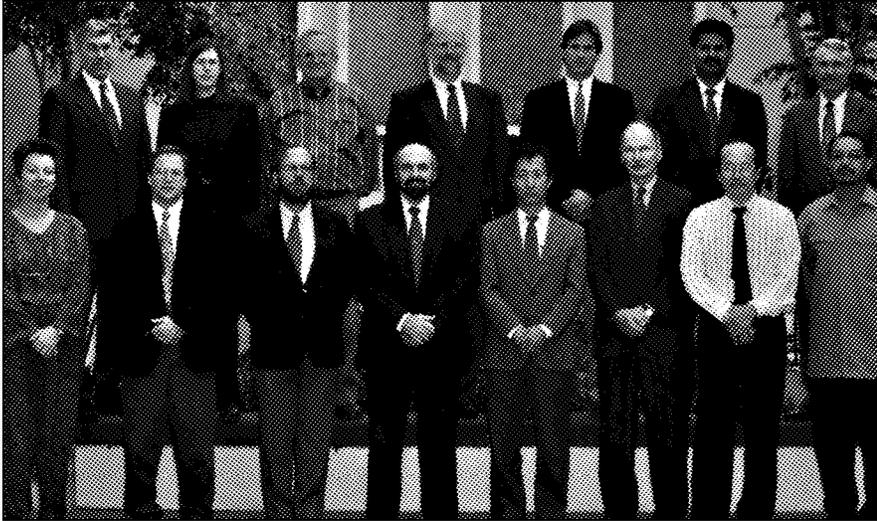
The new Test Control Center exhibit at the John C. Stennis Space Center Visitors Center is beginning to take shape. Now under construction, the Test Control Center, right, will allow visitors to operate interactive exhibits that replicate the sights and sounds of testing a Space Shuttle Main Engine. At the left, visitors will be able to view a descriptive cutaway of a shuttle main engine, as well as handle authentic engine parts that have helped launch shuttles into space.

To take exploration of the final frontier one step further, would-be rocket scientists can experience launching a miniature Space Shuttle. It's all part of the Rocket Fuel Factory, an exhibit that demonstrates how mixing hydrogen and oxygen creates the power to propel the Space Shuttle.

Visitors can also see a cutaway view of a Space Shuttle Main Engine that showcases the impressive size and dynamic complexities of the world's most efficient rocket engine. Visitors can also handle authentic engine components that have actually helped launch shuttles into space.



Both new and existing residents of Building 4010 celebrated the opening of a new addition to the building that will allow the NASA Engineering Division to work alongside Test Operations. Here, Robert Lightfoot, chief, Test Operations Division, left, and Dr. Rick Gilbrech, chief, Engineering Division, right, cut a ribbon as part of the celebration. The new addition was completed in December under the direction of the Center Operation's Directorate.



**Stennis Space Center hosted the seventh NASA Nondestructive Evaluation Working Group (NNWG) Workshop earlier this month. The NNWG supports NASA's Nondestructive Evaluation Program by reviewing proposals seeking funding and evaluating progress for ongoing projects. Each NASA center was represented at the workshop.**

## FARMERS . . .

(Continued from Page 3)

More than 500 attended the conference, which brought together a range of academia, researchers, government personnel, users and vendors. Representatives came from as far away as Europe, China and the Middle East.

The long-term effort, referred to as the AG 20/20 Initiative, involves a partnership among NASA, USDA and four national associations representing cotton, corn, soybean and wheat growers, according to NASA's Rodney McKellip, a geographer for CRSP at Stennis Space Center.

"The goal of this initiative is to develop remote sensing information products for farmers

that will increase efficiency in commodity production. Through the grower membership of the associations, this initiative will reach 100,000 farmers without us individually having to work on 100,000 farms," McKellip continued.

The announcement came during a standing room-only session where details concerning AG 20/20's approach and research agenda were presented.

"We also used this conference as a venue to conduct an AG 20/20 Management Council meeting to review plans for the upcoming growing season, including a series of between 15 and 20 large-scale field tests on farms selected by the associations," McKellip said. "The farms chosen will represent different geographic conditions and will include tests for all four crops."

## DATASTAR . . .

(Continued from Page 6)

Ramsay said the incorporation of ELAS into the smaller, faster environment of a PC will potentially increase the variety of applications and number of end users as well as open the door for users to take advantage of Internet capabilities.

"In addition to the ability to process large amounts of data sets, DIPX is designed to inter-

face easily with a Web server," Ramsay said. "As the remote sensing industry in America expands and workforce development projects in this arena continue, there is going to be greater demand for wider, more flexible applications. The Internet is a logical, economical forum."

The NASA Commercial Technology Program at Stennis Space Center made ELAS available to DATASTAR in 1992. Under the Freedom of Information Act, all federally developed technologies that are not patent protected can be transferred to U.S. companies.

## TOUR STOP . . .

(Continued from Page 1)

"With this agreement, the state will offer Stennis Space Center more visibility and our unique federal city will, in turn, foster a high-tech image of the state," NASA's Roy Estess, Stennis Space Center director, said. "The willingness of both the Mississippi Department of Economic and Community Development and the Mississippi Transportation Commission to work with Stennis to make this vision of expansion and growth become a reality is an example of the spirit of true cooperation that leads Mississippi today."

In addition to serving as a starting point for the tours, the new tour stop will be staffed and will feature exhibits and information about NASA and other agencies located at Stennis Space Center.

"The new tour stop is a logical place to start the tours because visitors will learn about Stennis' colorful history and its unique buffer zone and canal system before they enter and tour America's largest rocket test complex," NASA's Myron Webb, public affairs chief at Stennis, said.

## CHOCTAWS . . .

(Continued from Page 3)

Some projects and experiments conducted through the Choctaw ERC include demonstrations representing the vacuum of space, classes in basic rocketry and working with elements of weather through the Global Learning and Observations to Benefit the Environment (GLOBE) program.

While their teachers are gathering resources, the students can also participate in planned exercises taught by ERC personnel.

"Many times, the teachers will give us their objectives. That way, what we are teaching goes along with what the students are learning in their regular classes," Patricia Overstreet, coordinator of Choctaw ERC, said.

The success of the Space Act Agreement, demonstrated by the ERC, led to the recognition of Stennis Space Center and the Mississippi Band of Choctaw Indians by Vice President Al Gore's National Performance Review Office.

The partnership was honored with a Hammer Award, given to those who have made a notable contribution in support of National Performance Review ideas.

**Safety  
Corner**

## Boiling water in a microwave can be dangerous

Heating water in a microwave oven may be quicker than boiling it on a stovetop, but people trying to save a few minutes could get burned.

Safety expert Meredith Brown, ESH Lessons Learned Program Manager at Los Alamos National Laboratory, says bringing water to a boil in a microwave can superheat the water beyond the usual boiling point. If the water is then mechanically disturbed in this state, like inserting a spoon or adding cocoa mix, all of the stored energy can be released all at once. Only a small fraction of the water turns to steam, but it can throw the remaining hot water a significant distance.

Brown received a report of a young man scalded while trying to make a cup of instant coffee. The man removed a cup from the oven and noticed that the water was not boiling. Without warning, however, the buildup of energy caused the water to blow up in his face. The man's face was blistered, and he suffered first- and second-degree burns.

A doctor who attended him said that this is not uncommon. According to the doctor, water alone should never be heated in a microwave oven. If water is heated in this manner, the energy should be diffused by placing something in the cup, such as a wooden stir stick, tea bag, etc. It is however a much safer choice to boil the water in a tea kettle.

## QUICK LOOK

■ **Stennis will participate in the eighth annual Take Our Daughters to Work Day** on Thursday, April 27. The program is designed to help girls become acquainted with a variety of career options. This year's theme is "Free to be You and Me." For more information, contact Rhonda Foley at Ext. 1087.

■ **The Rotary Club of Stennis Space Center meets every Tuesday** at 11:30 a.m. in Room 103, Bldg. 1100. The club, in the organizational stages, serves the Coast, south Mississippi and south Louisiana communities and is looking for members and active Rotarians who want to participate. For information contact Rob Young, CNMOC, at Ext. 5867.

■ **The Stennis branch of Hancock Bank** is now accessible by e-mail at [stennisbranch@hancockbank.com](mailto:stennisbranch@hancockbank.com). For more information, call the new branch manager, Sherrell Johnson, at Ext. 3053.

■ **The Stennis Technology Transfer Office will exhibit** at the National Small Business Innovation Research (SBIR) Conference to be held at Grand Casino in Biloxi from Feb. 27-March 1. The SBIR program is the largest source of early-stage technology financing in the United States.

## BUDGET . . .

(Continued from Page 1)

Stennis Space Center Director Roy Estess said, "There is within the proposed budget adequate monies to accomplish our activities at Stennis Space Center and funds for us to acquire approximately 23 additional people."

The budget request includes a total \$5.5 billion for the Agency's Human Space Flight (HSF) activities, including \$3.1 billion to support the Space Shuttle program. The budget proposal includes about \$53 million for HSF activities at Stennis. It also provides for a consolidated project activity beginning in 2001 to ensure NASA's rocket propulsion test capabilities are properly managed and maintained in world-class condition. This consolidated investment will significantly enhance the Agency's ability to manage rocket testing activities and infrastructure at all four participating centers.

"For FY 2001, the requested funding levels for our center would enable Stennis to begin design of a test facility for NASA's newest approach to space flight, the rocket-based combined cycle concept of air-breathing rocket engines," Estess said.

Also, the proposed budget requests a total of \$5.9 billion for the Agency's science and technology programs, including approximately \$54 million to support Stennis activities in the areas of Earth science, education, technology transfer and the Commercial Remote Sensing Program.

"I am very optimistic at this time," Estess said. "Enactment of this proposed budget will mean an even bigger and brighter future for America's space program of which Stennis Space Center plays an integral part."

## LAGNIAPPE

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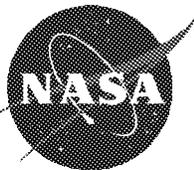
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