



'We bring people to space — We bring space to people'

Space Station science command post opens at Marshall Center

The command and control center for scientific research onboard the International Space Station is open for business.

The science command post linking Earth-bound researchers with their experiments and astronauts in orbit was commissioned Friday during ceremonies at the Marshall Center.

The Payload Operations Center will provide the heartbeat for Space Station science operations, the most ambitious research endeavor ever undertaken in space.

See Command post on page 8



Photo by Doug Stoffer, NASA/Marshall Space Flight Center

Center Director Art Stephenson, center, calls the International Space Station from the newly opened Payload Operations Center. Alan Johnston, left, the payload communicator manager, helps place the call. NASA Associate Deputy Administrator Dr. Daniel Mulville, right, listens in.

Marshall team responds

Increase in energy costs brings back energy conservation need

by Debra Valine

When energy bills hit mailboxes last month, most consumers were in for quite a shock. The average electric bill was nearly double the "normal," and natural gas prices have risen 61 percent.

Combine the higher energy costs with record cold temperatures in Northern Alabama in December and January and the result is consumers will have to pay more for energy in their homes.

It is no different at the Marshall Center. The energy bill here has gone up as well.

"Last month Marshall's energy bill was more than \$1.3 million, which is \$200,000 more than the average," said Cedreck Davis, Marshall's energy manager. "In years past, energy conservation was a buzz word. It now

See Energy on page 3

Atlantis set to deliver International Space Station's Destiny

NASA begins its 2001 science odyssey with the launch of Space Shuttle Atlantis, with liftoff set at 5:11 p.m. CST, Wednesday. The STS-98 mission will carry the first laboratory to the International Space Station.

The American-made Destiny module is the cornerstone for space-based research aboard the orbiting platform. Once the lab is in place, Destiny will also serve as the command and control center for the Space Station. Destiny was built by The Boeing Co. at the Marshall Center.

"We're looking forward to this next stage of the Space Station's construction," said W. Michael Hawes, NASA associate administrator for space development. "The foundation has been laid, the electrical lines and plumbing have been extended. We're ready to get the lab in place and go to work."

Destiny will draw its power from the giant solar arrays

See Atlantis on page 4

Black History Month Leadership forum

Education, mutual respect keys to success

by Debra Valine

Black History Month is not just a time set aside to recognize the accomplishments of the African-American community — it is truly a celebration at Marshall.

The celebration kicked off Feb. 1 with a leadership forum in Morris Auditorium. Area leaders served as panelists to discuss family, church, politics and culture in the African-American community.

Panelists included Dr. Fred Cason, division chief of surgery at the University of Alabama at Birmingham, Birmingham Mayor Bernard Kincaid; Russell Brown, president of DP Associates and past chairman of the Huntsville-Madison County Chamber of Commerce; District Court Judge M. Lynn Sherrod; and Marshall Center Deputy Director Jim Kennedy.

Robert Drake of Getronics and associate producer for NASA TV moderated the discussion.

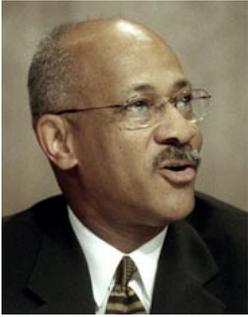
“Diversity is the key to our success and future,” said Center Director Art Stephenson. “Without embracing the qualities in everyone, we limit our thinking, prosperity and our appreciation for one another. Marshall enjoys the fruits of having a diverse workforce. Each person is needed to complete the talented circle.”

Each panelist discussed his or her road to success and agreed that the underlying key to success was education. Others keys included belief in what you are doing and being prepared; growing from the seeds planted by parents, seizing opportunities when they arise, and applying ambition, hard work and faith; and mentoring others.

Kennedy used three of the Marshall Center’s core values to illustrate his road to success: Excellence means continual learning, he said; people equates to mentoring other employees and helping them achieve success; and teamwork, with everyone working together, “makes it fun.”

Panelists were asked to discuss how they maintain a healthy balance between career and family, and whether or not they felt it was important to blend into the majority culture rather than expressing one’s own culture.

Maintaining a healthy balance between career and family is not always easy, but necessary. The panelists agreed that balance is needed between family, work and spirituality. How well each person is able to do that depends on how priorities are set and how much is demanded of them on-the-job, keeping in mind that priorities change from day-to-day.



Brown



Cason



Kennedy



Kincaid



Sherrod

“If you look at your family as the underpinning and support you need to be successful at work, then you need to spend time with your family,” Brown said. “Without family, one does not have a very balanced life at all.”

The panelists said whether or not someone feels it is important to blend into the “majority culture” rather than express one’s own culture depends on how “culture” is defined.

“The majority culture in America is changing rapidly,” Cason said. “I can only be who I am. But culture does not mean race. What is more important is that people put their best foot forward and be judged by that, and not their cultural component.”

“It is hard to teach ethnic pride,” Kincaid said, “because when people go to work, their leaders on the job expect everyone to be like them. It is hard to instill ethnic pride while at the same time trying to blend in at work to be a success.”

‘Diversity is the key to our success and future. Without embracing the qualities in everyone, we limit our thinking, prosperity and our appreciation for one another.’

— Center Director Art Stephenson

Sherrod added that differences in culture are not the only biases people have to face on the job. “Race is not the only factor when defining culture,” she said. “There is also beauty bias — even kindergarten students will select the better looking teacher — and gender bias. In Madison County there is also a big gap in educational levels.”

The key, Drake summarized, is to recognize differences between races and work together in an atmosphere of cooperation.

The writer, employed by ASRI, is the Marshall Star editor.

Black History Month Events

- **Thursday — Lunch and learn, 11-noon, Bldg. 4203, room 4002**
- **Feb. 21 — Science fair, 8:30 a.m., Bldg. 4203 cafeteria**
- **Feb. 22 — Jazz Café, 11:15 a.m.-12:15 p.m., Bldg. 4203 cafeteria**
- **Feb. 27 — Outreach program at Stone Middle School**
- **Feb. 28 — Closing ceremonies, 9 a.m., Morris auditorium**

Energy

Continued from page 1

seems to have gone out of style, but we need to get back on that.”

Cutting energy costs and usage at Marshall will be a team effort, with everyone doing their part to change the culture.

“If everybody at Marshall saved at least one penny’s worth of energy every day, that would be a lot of money,” he said. There are some 7,000 employees and contractors at Marshall.

And it’s not that hard. Employees can save Marshall at least a penny a day by turning off items they are not using, and turning everything off before they leave work to head home.

Some of the items to be turned off include office lights, desk and accent lamps, computers, radios, heaters and local printers.

Office lighting at Marshall — excluding lighting in industrial areas and parking lots — consumes approximately 6,000 kilowatts per hour at a cost of about \$300. “For every hour that office lights are turned off, we can save \$300,” Davis said, “not to mention the savings to our natural resources.” He said most lights could be off at least half the time.

A recent survey conducted by the Facilities Office at 3 a.m. at Marshall found more than 50 percent of the lights were on in several major office buildings, he said. Any extra costs for energy use eventually impacts mission funds. “The funds have to come from someplace.

“We want to encourage everyone to conserve energy,” Davis said. “If you see a light on, and want to turn it off but can’t for some reason, give me a call at 544-3221, or call Anthony Puckett at 544-5957. Sometimes as offices are reconfigured, the light switches get covered. It is our job to come in and reroute them to fix the problem.”

The writer, employed by ASRI, is the Marshall Star editor.

NASA Spacelink Team to receive Brewer Trophy

For the first time in 21 years, the Brewer Award for aerospace education will be given to a team instead of an individual when the National Aeronautic Association honors the NASA’s Spacelink Team at the Marshall Center.

Marshall has managed NASA Spacelink for the NASA Headquarters Education Division since Spacelink’s inception in 1988. Team members include Jeff Ehmen of Education Programs Department, who manages Spacelink; and the Computer Sciences Corporation Internet Delivery Services Team under the PrISMS contract. Staff include Jeff Cobb, Spacelink team lead; Charmein Johnson, Kathy Forsythe and Heather Deiss. Alan Cunningham of CSC is the Internet Services Team manager. He has provided engineering support for Spacelink since 1986.

The award — to be presented at the Brewer Award luncheon March 15 in Minneapolis — is in recognition of Spacelink contributions to the educational community for pioneering quick and easy electronic access to NASA information and educational materials.

In its 12-year history, Spacelink has had more than 7.5 million visitors to its site, delivering in excess of 192.8 million items of information.

Spacelink provides one of the most exhaustive and comprehensive search engines within NASA. Its search capability spans approximately 240,000 indexed Web pages, covering virtually the entire agency. The team that operates Spacelink updates material every day, assuring that researchers, teachers and students receive current information.

Kids count!

Marshall volunteer Peggy Williams gives NASA coloring books and stickers to children at the Kids Count Expo held last Saturday and Sunday at the Von Braun Center.



Photo by Emmett Given, NASA/Marshall Space Flight Center

Students' hands-on science experiments bound for International Space Station

by Tracy McMahan

Students from middle and high schools across America have prepared biological samples for an

experiment that this week astronauts will place aboard the International Space Station when the Space Shuttle Atlantis returns to that unique, orbiting laboratory.



Photo by Emmett Given, NASA/Marshall Space Flight Center

Anna Holmes, left, a Marshall scientist, shows Brett Haines, a Gatesville, Texas, High School student, how biological solutions are mixed to grow protein crystals on Earth.

Working side-by-side with university and NASA scientists, the students mixed and loaded about 200 of the 500 biological samples in small plastic tubes that were then frozen and placed in an experiment container. The crew will transfer the experiment from the Shuttle to the

Space Station during the STS-98 mission set for launch Wednesday.

The flight samples were prepared by 222 students and teachers from 89 schools in six states: Alabama, California, Florida, Michigan, Tennessee and Texas. Since the program began in 1999, students and teachers from 450 schools in states across the country have attended workshops where they grew crystals and learned about biological substances that carry out many important functions for humans, animals and plants. The Biotechnology Program at the Marshall Center sponsors this hands-on education program. The Marshall Center is NASA's lead center for flying payloads that take advantage of the low-gravity environment created as the Space Station orbits Earth.

"This opportunity opens the students' eyes to so much of the world beyond," said LaVonda Popp, who teaches chemistry, physics and biology at Gatesville, Texas, High School, one of schools participating in the program. "Many of

See Experiments on page 5

Atlantis

Continued from page 1

delivered by Endeavour in December. At the conclusion of STS-98, the 112-ton Space Station will be 171 feet long, 240 feet wide and 90 feet high, roughly the size of a three-bedroom house.

Atlantis and its five member crew, Commander Ken Cockrell, pilot Mark Polansky, and mission specialists Tom Jones, Marsha Ivins and Bob Curbeam, will use the Shuttle's robotic arm to attach Destiny to the Space Station. Astronauts Jones and Curbeam will make three space walks to complete the new laboratory's installation, connecting power cables and other hardware.

The last space walk of STS-98 will mark the 60th extravehicular activity (EVA) of the Shuttle program and the 100th space walk conducted by an American in space. "In 1962, astronaut Ed White made history by walking outside his Gemini 4 space craft for 21 minutes," added Hawes. "By 2003, we will have spent more than 550 EVA hours on the construction of the Space Station, alone."

Astronauts Jones, Curbeam and Ivins were all born in Baltimore, Md. Never before have so many crewmembers from

one mission hailed from the same hometown. Ivins brings the most space flight experience to STS-98. She has logged more than 1,000 hours in space on four previous Space Shuttle flights. Ivins is also the only astronaut on this mission to have experienced life on Russia's Mir space station. She was a visitor to Mir in 1997 as a member of the STS-81 crew.

Atlantis will be the second Shuttle to pay a visit to the Space Station's Expedition One crew. American commander Bill Shepherd and fellow crewmates Sergei Krikalev and Yuri Gidzenko have been in orbit for 11 weeks, assisting in Space Station assembly, performing systems maintenance, exercising and preparing for the arrival of STS-98 and the Destiny module.

Destiny is the first of six space science laboratories that will be launched during the assembly of the station. Additional information on the International Space Station and STS-98 is available at:

<http://www.spaceflight.nasa.gov/>

More information on how to track and see the Space Station can be found at:

<http://spaceflight.nasa.gov/realdata/tracking/>

<http://www.spaceflight.nasa.gov/realdata/sightings/index.html>

Experiments

Continued from page 4

the students didn't know much about space, and this educational opportunity exposes them to careers and different areas of science conducted in space."

The students and teachers mixed biological solutions and sealed the chemicals in small tubes or pipettes. The samples were frozen to -321 degrees Fahrenheit (-196 degrees Celsius or 77.3 degrees Kelvin).

Just before the Shuttle launch, scientists placed the samples in the Enhanced Gaseous Nitrogen Dewar — a vacuum-jacketed container, similar to a large thermos bottle, with an absorbent inner liner saturated with liquid nitrogen. Once in orbit, the liquid nitrogen will boil off inside the unpowered, unattended thermal enclosure, and the samples will begin to thaw.

Before thawing is complete, the crew will move the dewar to the Space Station where crystals will slowly form for several weeks. When the Shuttle returns to the Station in March, the dewar will be brought back to Earth where scientists will retrieve and analyze the crystals to determine the structure of biological molecules.

"It's really thrilling that even students can be part of one of the first experiments on the International Space Station," said Bobby Hill, a Gatesville freshman.

Some of the crystals will be returned to the students so that they can compare them to crystals grown in their classrooms and at the NASA workshops. The students can view photos of the crystals grown during NASA workshops on a special Web site designed by Dr. Anna Holmes, a NASA scientist who helps conduct the workshops.

The students can also monitor results as Dr. Alex McPherson — a biochemist at the University of California at Irvine and the lead scientist for the experiment — analyzes other crystals grown aboard the same flight. Often, higher quality crystals can be grown in the low-gravity environment created as the Space Station circles Earth.

"There are many ways to grow crystals," said McPherson. "The dewar allows us to fly hundreds of samples at once, so we can look at a variety of conditions and determine which ones produce the best crystals." McPherson has been a leader of NASA-sponsored crystallization projects since 1984 and received NASA's Exceptional Scientific Achievement Medal in 1999. He has published numerous journal articles describing crystals grown on the Space Shuttle and the Russian space station Mir.

His experiment sets the stage for more complex structural biology experiments to be flown in the U.S. Laboratory Destiny, which is being attached to the Space Station during this mission. The Boeing Corp. built Destiny at the Marshall Center in the same building where engineers assembled the Saturn V rockets that carried people to the Moon.

"The Space Station is a unique space laboratory where we will be able to perform experiments for longer periods than ever before, in sophisticated facilities and under conditions that are more controlled," said Ron Porter, manager of the Biotechnology

Program at the Marshall Center. "We are pleased that students — the scientists and engineers of the future — were able to have a hands-on role in one of the first biotechnology experiments on the Space Station."

This pilot education program has been supported by the NASA Headquarters Education Office, the Marshall Center Biotechnology Program, NASA's Kennedy Space Center, the University of California at Irvine, the University of Alabama in Huntsville, Alabama A&M University in Huntsville, the Alabama Space Grant Consortium, the Florida Space Grant Consortium, the Texas Space Grant Consortium, the Bell South Pioneers, Alabama Science in Motion, Sci-Quest, Bionetics Corp., the U.S. Air Force Civil Air Patrol, Raytheon Corp., Lockheed Martin Corp., United Space Alliance, Spaceport Florida Authority, Florida Space Research Institute, Area Center for Educational Enhancement in Florida and SAP America.

The writer, employed by ASRI, supports the Media Relations Department.

Getting personal: Web site shows human side of Space Station

Visit NASA's new "Personal Space" Web site and get up-close and personal with International Space Station team members like STS-98 astronaut Robert Curbeam.

Curbeam, called "Beamer" by his friends, and his crewmates were scheduled to launch Wednesday to deliver the U.S. Laboratory Destiny to the Space Station. As a young child, Curbeam's goal was to design rockets. Now he rides rockets into space.

During STS-98, Curbeam will be part of the second crew to visit the now-inhabited Space Station. Wearing a 300-pound spacesuit 220 miles up, Curbeam will take a walk on the wild side, attaching the U.S. laboratory to the ever-growing station. The site allows visitors to walk in Curbeam's shoes and learn what inspired him to pursue his career path.

Other featured Space Station team members include:

- Takayoshi Nishikawa, a triathlete who prepared and conducted the training program for station astronaut candidates at the Japanese Space Agency (NASDA);
- Alain Dubeau, manager of the Canadian Space Station Program, whose inch-worm-like "Canada Arm" robot arm will aid future station construction;
- The Expedition One crew — two Russians and an American — the first humans to take up long-term residence on the International Space Station.

"Personal Space" uses Flash technology to combine video vignettes, photos and other text and visual content into an interactive presentation. The site is located at: <http://spaceflight.nasa.gov/snapshots.html>

Procurement Office rewards employees for hard work

Annual winners will represent Marshall in HQ competition

Marshall's Procurement Office recently held an awards luncheon honoring several of its employees for outstanding accomplishments.

Eleven major awards were presented in various categories that included the Peer Honor Award recognizing an individual who has made an outstanding contribution to the Procurement Office as recognized by their peers.

Ten of the awardees also were nominated for the annual NASA-wide Procurement awards administered by the Office of Procurement at NASA Headquarters.

The following awards were presented:

- **Simplified Acquisition Specialist of the Year** — Victoria Dixon, for accomplishments in pre-award or post-award activities related to small purchases.

- **Mid-range/Commercial Person of the Year** — Betty Kilpatrick, for accomplishments in pre- or post-award areas relating to mid-range and/or commercial procurements, especially in expanding the use, or use of, innovative techniques.

- **Grants Specialist of the Year** — Glen Alexander, for accomplishments in pre-award or post-award activities related to grants.

- **Procurement Analyst of the Year** — Jane Maples, for accomplishments in contract review and other activities related to procurement operations not related to a specific contract or procurement action.

- **Procurement Support Person of the Year** — Elaine Kuespert and Gayla Warren, for contributions made to the achievement of the organization's procurement objectives. Personnel eligible for this award include contract price analysts, clerks, management support assistants, procurement assistants, computer specialists or any other professional or administrative position.

- **Contracting Officer's Technical Representative of the Year** — Jerry Smelser of Marshall's Space Shuttle Projects Office, for his outstanding efforts in managing contracts or cooperative agreements and embracing the Center Values in accomplishing his role as COTR. Receiving honorable mention in this category are Susan Turner, TD14; David Weeks, TD12; Rex Geveden, SD40; and Johnny Stephenson, ED02.

- **Contract Specialist of the Year** — Walt Melton, for accomplishments in pre-award and post-award activities, including competition advocacy, procurement planning, solicitation preparation, proposal evaluation, cost and price analysis, negotiation and contract preparation.

- **Contract Manager of the Year** — Sandy Presnell, for outstanding accomplishments in contract administration. These



Glen Alexander



Marlyce Alexander



Dixon



Kilpatrick



Kuespert



Maples



Melton



Presnell



Stiles



Warren

activities include post-award activities, including effective use of delegations, communication with COTR's, cost monitoring, subcontract management, performance evaluations, and funds obligation monitoring.

- **Procurement Supervisor of the Year** — Mark Stiles, for outstanding supervisory effort which directly resulted in achievement of procurement objectives in their procurement organization. This is the only award for which supervisory personnel are eligible.

- **Peer Honor Award** — Marlyce Alexander, for her outstanding contribution to the Procurement Office as recognized by peers. This award was presented only at the Marshall Center and was not nominated for a NASA-wide award.

"We also presented Procurement Office certificates to our employees for 'Going the Extra Mile,' 'Good Attitude,' and for 'Dangerous Display of Initiative,'" said Steve Beale, director of the Procurement Office.

The "Going the Extra Mile" certificates went to Sherry Landers, Carol Terrell, Betty McCown, Cynthia Hollingsworth, Jeff Jackson, Wayne Simmons and Ketela White. "Good Attitude" certificates went to Ron Haws, Vicki Willis, Teresa Foley and Steve Morris. Dwight Clark and Byron Butler received certificates for "Dangerous Display of Initiative."

NASCAR champ Jeff Gordon teams with NASA; new video promotes math and science education

by Jonathan Baggs

NASCAR racing champion Jeff Gordon knows it takes more than skilled driving to win an automobile race: It takes a team with knowledge in the fields of technology, engineering, physics and, yes — even basic math and science.

That's why he's making a guest appearance on an upcoming NASA-produced video for young students — to help demonstrate that these subjects are of vital importance in real-life situations, not just for school problems.

Gordon will appear in the video "Patterns, Functions and Algebra: Wired for Space" — the next episode of "NASA CONNECT," a series of free NASA instructional TV programs delivered to classrooms via satellite. The episode, produced by the Marshall Center, will be shown Feb. 15.

"NASA CONNECT," explains the Marshall Center's Jim Pruitt, "is an award-winning educational video series which enhances the teaching of math, science and technology concepts in grades 5-8." Pruitt, who is manager of the Education Programs Department at the Marshall Center, points out that "teachers also can register to receive corresponding standards-based lesson plans."

Registration for lesson plans is available on the NASA CONNECT Web site at: <http://connect.larc.nasa.gov>

The Web site also provides information on program air dates and times, how to receive it from a satellite or find it on a channel in a specific geographic area — even how to watch it on the Internet.

"The 'Wired for Space' show focuses on how we might travel in space without the use of traditional fuels, which is an ongoing research project here at Marshall," Pruitt said. "We involved students in Baton Rouge, La., and St. Louis, Mo., to help demonstrate experiments to their student peers across the country."

Istrouma Middle Magnet School students in Baton Rouge, La., will share NASA's designs for a satellite propulsion system that will use electromagnetic force to propel spacecraft without the use of propellants. They will show students how to construct, operate and collect data from a device that demonstrates electrodynamic propulsion.



Photo by Dennis Olive, NASA/Marshall Space Flight Center

Jose Perez, left, discusses the experimental magnetic levitation track system with Jennifer Pulley, center, and Van Hughes.

Compton-Drew Investigative Learning Center students visited the St. Louis Science Center in Missouri to demonstrate the Internet Plasma Physics Education eXperience (IPPEX) Web activity. The IPPEX site was developed by the Princeton University Plasma Physics Laboratory, Princeton, N.J. The site combines multimedia elements with built-in interactive exercises to help students better understand the concepts of magnetism and electricity. The Web site for the activity can be found at the following link, which will be active Feb. 12:

<http://connect.larc.nasa.gov/wired/lab.html>

NASA CONNECT, managed by NASA's Langley Research Center in Hampton, Va., provides five instructional videos to classrooms each year. More than 141,000 teachers are registered to receive the lesson plans, serving more than 7 million students in approximately 7,600 schools across the country. "Patterns, Functions and Algebra: Wired for Space" is the second NASA CONNECT episode produced by the Marshall Center.

The writer, employed by ASRI, supports the Media Relations Department.

2001 brings new exhibits, films to Space & Rocket Center

Moving cranes, forklifts, hammers and saws will be seen and heard at the U.S. Space & Rocket Center for several weeks — all in the name of progress.

Some old exhibits are coming out, and some new things are going in.

Leaving are the full-size Skylab trainer that has occupied a large area of the museum atrium since 1988, and the Discovery Wings simulator.

A display from the Army Aviation and Missile Command, located in the ticket lobby, is being replaced by AMCOM — a new 2,150 square foot exhibit. It's scheduled to open in May in the main museum and will showcase current weapons technology and AMCOM's role in a 20-year plan for national defense.

During peak construction times, admission prices will be lowered.

Through Feb. 11, ticket prices will drop

from \$14.95 to \$10 for adults, and from \$10.95 to \$6 for children ages 3-12. A ticket includes the museum, Rocket Park and Shuttle Park, one Spacedome IMAX movie, and a bus tour of the Marshall Center.

During the same timeframe, a museum-only ticket will drop from \$10 to \$5 for adults and from \$6 to \$3 for children.

Marshall Center has 40-year mission operations heritage

by Mike Wright

Forty years before the Marshall Center began managing payload operations on orbit, launch vehicle engineers in Huntsville struggled to find ways to instantaneously share their technical drawings and space-related documents with their NASA counterparts in Florida and Houston.

Installing a fax machine may not generate much excitement in 2001. But it did in Huntsville in 1961 when the Marshall Center's employee newspaper, the Marshall Star, ran the headline, "Exact copies of Documents sent to Cape in 4 minutes."

At the time, engineers in Huntsville were building the biggest and most intricate launch vehicle the world had ever known, the 363-foot tall Saturn V Moon rocket with more than 3 million parts ranging from micro-miniature switches to pumps as big as refrigerators.

But the same engineers had no way to quickly share any of their hundreds of technical drawings, photos or typed documents with NASA engineers at the launch site

See Heritage on page 9



File photo

The Huntsville Operation Support Center at Marshall prepare to provide support for the first Shuttle launch in April 1981.

Command post

Continued from page 1

"Today, we have taken another significant step toward realizing a long-held dream — a fully productive, permanent international research outpost in orbit," said Marshall Center Director Art Stephenson. "From this facility, we will manage fundamental scientific research that can only be done in space — research that will lead to knowledge to benefit all humanity here on Earth."

The new 13,300 square-foot facility is housed in a section of the Huntsville Operations Support Center, an historic two-story complex that provided engineering support for Apollo, Skylab and Space Shuttle launches, as well as Hubble Space Telescope and Chandra X-ray Observatory operations. The complex also houses the Spacelab Mission Operations Control Center from which more than 25 Shuttle-based science missions were controlled.

The Payload Operations Center will be staffed around the clock by three shifts of between 13 to 19 flight controllers.

Throughout the life of the Space

Station, the operations center will integrate research requirements, plan its science missions and ensure that they are safely executed. It will integrate crew and ground team training and research mission timelines. It will manage use of Space Station payload resources, handle science communications with the crew, and manage commanding and data transmissions to and from the orbiting research center.

To communicate with astronauts in orbit, Payload Operations Center flight controllers will use the call sign "Huntsville." The command center is linked with and integrates the activities of research control centers and universities in the United States and throughout the world.

With Friday's commissioning, the Payload Operation Center stands ready to support around-the-clock science research aboard the Space Station, once the new Destiny laboratory is in place and the Expedition Two crew is launched in March.

"Our team is trained and ready to go," said Jan Davis, former astronaut and

director of Marshall's Flight Projects Directorate — the organization that manages the new Space Station facility. "They bring years of experience supporting Spacelab missions with them to the console." Now, however, they will be called upon to routinely manage three to four times the number of experiments as were conducted aboard Spacelab, and also will be responsible for Station-wide payload safety, planning, execution and troubleshooting.

The opening comes just days before the Destiny lab is scheduled to be carried to the Space Station by the Shuttle Atlantis and its five-member crew. The launch of Atlantis was set for Feb. 6, at 5:11 p.m. CST. Destiny, built at Marshall by the Boeing Co., is the first laboratory to be delivered to the orbiting platform and will mark the beginning of a space science odyssey for NASA and its international partners.

Take a virtual tour of the science command post and get more information on the new Payload Operations Center at: <http://scipoc.msfc.nasa.gov>

Heritage

Continued from page 8

in Florida or in the mission control in Houston.

In fact, the Marshall Star pointed out that without the installation of the new fax machine at the Center, engineers had no way to rapidly transmit important documents back and forth other than by plane.

The new fax machine in Huntsville may have looked like a modern-day miracle in 1961. But more than likely Alice Schmidt, who operated that first data fax machine, and her boss, Dr. Wernher von Braun, the first director of the Marshall Center, knew that the race to build a Moon rocket demanded a much more sophisticated way for engineers at Marshall to exchange data with the Cape.

In the summer of 1965, von Braun established a Mission Operations Office at the Marshall Center. "The significance of the establishment of the new office is that MSFC is assuming a more active role in mission activities now that the Center is entering the launch and flight aspects of the Apollo program," the Marshall Star reported.

Among other functions, the new office was responsible for a new Launch Information Exchange Facility (LIEF) described as "an inter-center sophisticated communications network connecting the NASA-Kennedy Space Center, MSC [the Manned Spacecraft Center, later renamed the Johnson Space Center] and MSFC."

Part of the LIEF also included the Huntsville Operations Support Center (HOSC) where "launch data from KSC and flight data from MSC are relayed to computers and engineering consoles in the HOSC where specialists determine which of the hundreds of measurements being recorded are most worthy of special attention," the employee newspaper reported. The Marshall Star called LIEF, "the all hearing center during a Saturn launch."

Although the Saturn/Apollo program came to a close in the early 1970s, Marshall continued to expand its Mission Operations Office, an office that would play a vital role in the three Skylab space station missions.

Only moments after launch in May 1973, engineers knew the first Skylab mission was in serious trouble. A solar shield failed to deploy. Marshall responded immediately. For days, the Center focused every resource at its disposal on finding a way to fix the problem.

Prime attention focused on the HOSC where Marshall assembled a special troubleshooting team. That team and others like it at Marshall and throughout NASA played a vital role in identifying the procedures ultimately used to save Skylab.

In 1975, Marshall's HOSC supported Apollo-Soyuz, the first joint American-Soviet space mission. As part of the mission, engineers monitored plans for the launch of a Marshall-managed Saturn IB rocket carrying an Apollo spacecraft that rendezvoused with a Soviet Soyuz spacecraft.

By 1981, the Marshall Star reported that Center engineers were "working around-the clock-in the Huntsville Operations

Support Center" to support the Space Shuttle. "During pre-mission testing, countdown, launch and powered flight toward orbit, Marshall and contractor engineers and scientists man consoles in the support center to monitor real-time data being transmitted from the Shuttle. Their purpose is to evaluate and help solve problems that might occur with Marshall-developed Space Shuttle propulsion elements, including the Space Shuttle main engines, external tank and solid rocket boosters," said one report.

In the early 1980s, the HOSC began its vital role in supporting Shuttle launches. At about the same time, the facility also began supporting powered flight and payload operations. Spacelab was a multi-configuration, space-borne scientific laboratory designed to fit inside the payload bay of the Shuttle orbiter.

Throughout the 1980s and 1990s, Spacelab provided scientists on the Shuttle with workbench space, power, computer support, and racks and storage for experiment equipment.



Nate Bocclair manages the Huntsville Operations Support Center at Marshall.

In May 1990, Marshall announced that beginning with the STS-35/Astro-1 Space Shuttle mission, all NASA Spacelab missions would be controlled from NASA's new Spacelab Mission Operations Control Center at Marshall. That facility supported the science astronauts on Spacelab much the same that Mission Control in Houston supported the flight crew.

Teams of controllers and researchers at the Huntsville facility directed NASA science operations and sent commands directly to the spacecraft. Controllers also received and analyzed data from experiments aboard the vehicle.

One of the most historic dates in mission operations at the Marshall Center came early on Sunday, Dec. 2, 1990. That's when STS-35 mission specialist Robert Parker initiated the first ever communications between Huntsville and astronauts on orbit. "Huntsville, this is Astro-1," Parker reported to controllers in Huntsville.

By 1990, the Marshall Center had already expanded its Mission Operations Office into the Mission Operations Laboratory, which housed the HOSC. "The job the HOSC performs is diversified today compared to what we did back in the early Saturn period," said Fletcher Kurtz, then serving as director of the laboratory. "More lies ahead for the future," said Kurtz pointing to the role the HOSC would ultimately serve in the deployment and verification of the Hubble Space Telescope as well as other NASA space missions into the 21st Century.

The writer is the Marshall Center historian.

Employees need to pick up new key card readers for Bldg. 4200 complex

Entry into the buildings in the 4200 complex is taking on a new twist. Technicians are replacing the old touch pad key card readers with new proximity readers.

This is part of the effort to upgrade the Center's access control system. The upgrade to Bldg. 4200 is complete, and technicians are working in Bldg. 4201. Once Bldg. 4201 is completed, the touch readers will be replaced in Bldgs. 4202 and 4203, in that order. All four buildings should be completed by March 1.

Employees working in Bldg. 4201 may pick up their new key card/badge in the main entrance lobby area of Bldg. 4201 from 8 a.m.-1 p.m. After 1 p.m., employees may pick up badges at the badging station in the Bldg. 4200 lobby. Those who work in Bldgs. 4202 and 4203 will be notified when and where to pick up the new key card badge.

Many are already familiar with the proximity readers since more than 200 are already installed throughout the Center. The proximity readers require the key card to be placed in close proximity to the reader, about 1 to 2 inches away, instead of physically having to place the key card on the reader.

Employees who work in the 4200 complex and those who work in other buildings but require after-hours access to the 4200 complex are being issued new proximity key cards/picture badges.

If you are unsure whether you have a proximity key card/badge, check the back of the card. If you see small print that starts with HID and is followed by five numbers, you have the proximity key card.

If you do not have a proximity key card/badge, work in another building other than the 4200 complex and require frequent after-hours access to a building in the 4200 complex, call the badging section at 544-2090 or go to Bldg. 4312 between 7 a.m. and 4 p.m. to be issued a proximity key card/badge.

Since the proximity key card readers will not accept the old style key cards, some people will have two key cards/badges for a short period of time — primarily those who need after-hours access to multiple buildings. If you are one of these individuals, it is recommended that you keep both key cards/badges until all touch pad readers on Center have been replaced with proximity readers.

If you have any problems with your new key card/badge, call the Identification and Registration Section at 544-3107.

Eligible students should apply for NASA scholarships by March 31

Applications are being accepted for six scholarships to be awarded by the NASA College Scholarship Fund Inc. The fund, set up in 1982 through an endowment by author James Michener, provides college scholarships for qualified dependents of current or retired employees of NASA and dependents of current reimbursable detailees to NASA.

In addition, college scholarships may be awarded to full-time students who are dependents of former NASA employees or reimbursable detailees to NASA who died while employed by NASA.

Seven \$2,000 scholarships will be awarded for the 2001-2002 school year. The renewable scholarship is for a maximum of \$8,000 over six calendar years.

Applicants must be pursuing a course of study in the science and engineering fields that will lead to a recognized undergraduate degree at an accredited college or university in the United States.

Since 1984, 10 Marshall dependents have received NASA College Scholarship Fund scholarships. Recipients include Constantine Costes, Sandor Lehoczy, Darcie Reasoner, Jack Loose, Neelaksh Varshney, Katie Lynn Davis, Jennifer Kiessling, Yvonne Parisa, Justin Montenegro, and Karen Ruff.

Contributors to the NASA College Fund include the Freedom Forum, the Johnson space Center Chapter of the Alumni League and NASA employees through the Combined Federal Campaign.

Application forms and details are available on the Web at: http://jscpeople.jsc.nasa.gov/jsc-hro-2/special_programs/scholarship.htm

NFL star Ralph Malone to speak to Marshall Association Feb. 15

The next meeting of the Marshall Association will be 11:30 a.m. Feb. 15 in the Bldg. 4203 cafeteria. The featured speaker, in conjunction with Black History Month, is Ralph Malone.

Malone is a graduate of Bob Jones High School in Madison and holds a bachelor's degree in industrial and systems engineering from Georgia Institute of Technology in Atlanta. He is a former National Football League (NFL) player for the Cleveland Browns, L.A. Raiders and Miami Dolphins. Malone is the president of Triana Industries. Malone will discuss teamwork, one of Marshall's core values.

The cost of lunch is \$7 and will be collected at the door. Menu includes chicken teriyaki over rice, green beans, roll, apple cobbler and tea.

To attend, send an e-mail to Efreem Hanson by noon Feb. 14.

Center Announcements

FIRST Robotics Competition

The Marshall Center is sponsoring three high school teams in this year's For Inspiration and Recognition of Science and Technology (FIRST) robotics competition. Student teams from Arab High School, Lincoln County Tennessee High School and Lee High School in Huntsville will be in Bldg. 4619 at 2 p.m. Feb. 15 to see what the competition is really like.

Emergency 911 service

Marshall employees with a cell phone should dial "911" for emergency service. Please note that the 911 operator cannot determine the caller's location from the cell phone number. The person requesting emergency services must tell the 911 operator the specific location where help is needed. If you are calling from within the Huntsville area, the 911 operator will answer and then route the call to the appropriate emergency team at Huntsville or Marshall. If you are calling from outside the Huntsville area, your call will be routed to the assigned 911 center for the area from which the call originates.

Building manager class

A training class for new building managers and assistants will be 9 a.m.-noon Feb. 14 in Bldg. 4200, room G-13E.

Lunch and learn

A lunch and learn program — being held in conjunction with Black History Month — will be from 11 a.m.-noon, Thursday in Bldg. 4203, room 4002. The topic is short- and long-term investment strategies.

Reporting a safety concern

There are several ways to report a safety concern at Marshall.

1. Supervisor
2. Through the Safety Concerns Reporting System (SCRS) on the Web at: <http://msfcsma1.msfc.nasa.gov/dbwebs/apps/scrs/>;
3. SCRS forms posted on most bulletin

- boards throughout the Center
4. Safety Hotline at 544-0046
5. Call 544-HELP (Option 2)

CFC applications

The Tennessee Valley Combined Federal Campaign is accepting applications from non-profit organizations for participation in the 2001 fundraising campaign. Under federal law, an organization must have 501 (c) (3) status, proof of human health and welfare services, an annual audit/IRS 990 Form, and a board of directors. The open period for acceptance of application packages will be March 1-April 6. For more information, call Melinda Seigler at 536-0745, ext. 108.

Clubs and Meetings

Fireside chat videos available

Videotapes are available for a series of fireside chats on Huntsville's space exploration history held last year at the University of Alabama in Huntsville. Copies of the five-hour VHS tape are \$19.95, plus \$2 for postage and shipping. To order, call Ed Buckbee, president of the NASA-Marshall Retirees Association, at (256) 881-9622 or send e-mail to: buckbee@air-space.com

Soul food dinner

The Huntsville-Madison County Chapter of Blacks in Government will have a pot luck soul food dinner at 6 p.m. Feb. 23 at the Flagstone Apartment Clubhouse. Discussion will center on the culture, politics and family in the African-American community. Submit reservations by calling Arlene Erskine at 876-1101 or 837-1482. Attendees are asked to bring a "soul food" dish.

Foxtrot, bolero lessons

The MARS Ballroom Dance Club has scheduled foxtrot lessons on Feb. 12 and bolero lessons on Feb. 19

and 26 in the Parish Hall of St. Stephen's Episcopal Church at 8020 Whitesburg Dr. Intermediate classes will be from 7-8 p.m. and beginner classes from 8-9 p.m. Lessons cost \$6 per person per night. The instructor is Rick Jones who teaches at Rocket City Dance Club in Huntsville and is a certified ballroom dance instructor at the national level. For more information, call Woody Bombara at 650-0200.

NARFE meets

The National Association of Retired Federal Employees (NARFE) meets at 9:30 a.m. Saturday at the Senior Center on Drake Avenue. Sylvia Turner, Senior Center program director, will provide a comprehensive overview of the programs, services and support activities available at the center. For more information, call 881-4944 or 881-3168.

Breast cancer fashion show

The 6th Annual Designers Against Breast Cancer Fashion Show Extravaganza will be held Feb. 25 at the Von Braun Center. A reception begins at 2:30 p.m. The Fashion Show starts at 3:30 p.m. General admission is \$20. For tickets, call 880-2854 or 837-5678.

NASA Exchange

'Three Tall Women' tickets

Discount tickets for Marshall employees, contractors and retirees are available for "Three Tall Women" being presented by the Renaissance Theatre at 8 p.m. Feb. 8-10 at the Lincoln Center. Show your Marshall badge and get \$1 off the regular ticket price of \$12. For more information and to reserve tickets, call 536-3434 or 536-3117. Renaissance Theater is located in the historic Lincoln Center at 1216B Meridian St., just south of Oakwood Avenue.

Barber shop rates

The price for a regular haircut at S&H Barber Shop has increased to \$9.

Employee Ads

Miscellaneous

- ★ PowerMac 8100/80, 1.2GB HD, 270,336k memory, 7.5.SOS, 56k Modem, 17" monitor, touchpad keyboard, \$550 obo. 533-0444
- ★ Longaberger collectible baskets; Inaugural, all years and others. 883-1025
- ★ Armadillo truck vault, lockable, carpeted, custom made for 97 Ford Expedition, \$300. 355-3089
- ★ Siemens cell phone with charger & leather clip-on case, \$45 obo. 931-937-6752
- ★ 1989 Wellcraft 192 Classic, cuddly cabin, 4.3L V-6 Mercruiser, dry stored for life, \$7,500. 797-6173/880-8008
- ★ Ruger 10/22 w/scope and 3 mags., \$190. 851-8085
- ★ Adams Tight Lie, SC Series driver, 9 deg loft, firm flex shaft, \$200. 828-0801
- ★ Baldwin upright piano, light oak with bench, \$2,800. 922-0387
- ★ Kenmore microwave, 1400W, 1.4 cu. ft., temperature probe, removable shelf, \$40; Smith-Corona notebook word-processor w/ spreadsheet, Daisy wheel printer, \$40. 895-6722
- ★ Acc. for Nissan Frontier King-Cab truck; nerf steps; hitch; AM/FM/CD stereo. 461-9662
- ★ Sheltie puppies, 6 weeks old, AKC registered, de-wormed, first shots, champion bloodline. 461-9662
- ★ New Gingher embroidery scissors, \$15. 325-6000
- ★ Palm M100, paperwork & box included, not registered, \$125; books on tape, titles by Mary Higgins Clark, Robin Cook and others. 325-6000
- ★ White gold, 1/2 carat, marquis solitaire set, \$900 obo. 461-7154
- ★ Two children's desks, \$100 each; executive office chair, \$100; golf clubs w/bag, \$100. 881-9404
- ★ Pickett slide rule w/manual, \$20; coffee table w/2 side tables, \$60; Optimus 5-CD changer, \$80. 722-9483
- ★ Columbia men's ski jackets, large; black, \$120, gray shell, 35; women's blue bibs, medium, \$10. 882-3983
- ★ Kitchen table, round, glass top, with 4 chairs, \$50. 830-4304
- ★ 1991 American-Spectrum encyclopedia (1v, 1312p), \$40; 1990 Southwestern Volume Library, (3v), \$40; 1974 Thorndike Barnhart World-Book Dictionary (2v), \$20. 722-9483
- ★ Intel Celeron 700mhz complete system; 10GBhd, 64mem, 15" monitor, 50xcd, sound, modem, \$700. 851-0704/694-0708
- ★ Schwinn Worldsport 10-speed, with helmet and tire pump, \$100. 830-1060
- ★ Kitchen dinette set; table (heavy glass top); four cushioned chairs, \$100. 533-2287
- ★ Older Model Golden Ram, tour grind, 2-pw, sand wedge, new grips, \$100. 828-0801
- ★ Floor furnace, 49,000 btu, natural gas, \$90. 837-0625
- ★ Realfight radio controlled Flight Simulator w/FUTABA controller, works w/Windows 95/98, \$50. 837-9479
- ★ Palm Vx, handheld, new, never used, \$325. 852-2852

Vehicles

- ★ 1995 BMW 325ic, white/gray leather interior, alloy wheels, 70K miles, new tires, roll-over package, all automatic, \$20,500. 990-1633/837-2162
- ★ 1991 Mazda Protégé DX, blue, a/c, 5-speed, high miles, \$1,800 firm. 851-2929
- ★ 1998 Honda Civic LX sedan, silver, pw/pdls, cruise, automatic, new tires, 47K miles, \$10,900. 230-6846
- ★ 1989 Buick Park Avenue, 127K miles, all-power, \$4,250. 534-7791/656-8676
- ★ 1994 Jeep Cherokee Sport, 4WD, automatic, power windows/door locks, towing package, a/c, \$6,500 obo. 828-4211
- ★ 2000 Honda EX Accord coupe, 5-speed, a/c, tinted-glass, all-power, moonroof, am/fm CD, 10K miles, one owner, \$16,449. 922-1508
- ★ 1993 Chevrolet C20 conversion van, 59K miles, maroon, TV, \$7,950. 574-5185
- ★ 1994 Camaro, 6 cyl., auto, white, 115K miles, \$6,900. 551-2933
- ★ 1996 Chrysler Town & Country LX, white, cloth interior, non-smoker. 325-6000
- ★ 1986 Honda Accord LX, 4-door, well maintained, 35 mpg, 2nd owner, new tires.

830-4477

- ★ 1999 Geo Tracker, silver, 4WD, \$18,000. 355-6116
- ★ 1995 Dodge Ram 1500, 5.9L V-8, camper shell, bedliner, 101K miles, \$9,500. 337-7791/256-498-3229
- ★ 1997 Buick Park Avenue, white, 48K miles, one owner, all power, \$14,000 obo. 837-5113
- ★ 1995 Dodge Grand Caravan SE, 78K miles, V-6/3.3L, quad-seating, \$7,900. 881-0160
- ★ 1997 Ford F-250 XLT pickup, 4-wheel drive, automatic, 40K miles, \$16,150. 931-732-4742

Wanted

- ★ Professional series metal detector. 682-5181
- ★ Movie projector for 8mm and super 8mm home movies, sound capability not required. 881-0551
- ★ Motorized treadmill in good working order w/wider than 15" belt, reasonably priced.

Found

- ★ Men's watch, Bldg. 4200 area. Call 544-4758 to identify/claim

Obituaries

Elledge, Lloyd, 75, of Huntsville, died Jan. 18. He retired from Marshall in 1973 where he worked as an engineering technician. He is survived by his wife, Aileen Elledge.

Hudson, John T., 80, of Huntsville, died Jan. 22. He retired from Marshall in 1975 where he worked as an aerospace engineering technician. He is survived by his wife, Ann Hadaway Hudson.

Smith, James M.O., 69, of Huntsville, died Jan. 23. He retired from Marshall in 1995 where he worked as an aerospace engineer. He is survived by his wife, Jean G. Smith.

Leak, Betty W., 72, of Arab, died Jan. 27. She retired from Marshall in 1981 where she worked as a secretary.

Payne, William R., 71, of Guntersville, died Jan. 29. He retired from Marshall in 1995 where he worked as a program analyst. He is survived by his wife, Barbara B. Payne.

MARSHALL STAR

Vol. 41/No. 21

Marshall Space Flight Center, Alabama 35812
(256) 544-0030
<http://www1.msfc.nasa.gov>

The Marshall Star is published every Thursday by the Internal Relations and Communications Department at the George C. Marshall Space Flight Center, National Aeronautics and Space Administration. Contributions should be submitted no later than Monday noon to the Marshall Internal Relations and Communications Department (CD40), Bldg. 4200, room 101. Submissions should be written legibly and include the originator's name. Send electronic mail submissions to: intercom@msfc.nasa.gov The Marshall Star does not publish commercial advertising of any kind.

Manager of Internal Relations
and Communications — Robert Champion
Editor — Debra Valine

U.S. Government Printing Office 2001-633-095-20034

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