

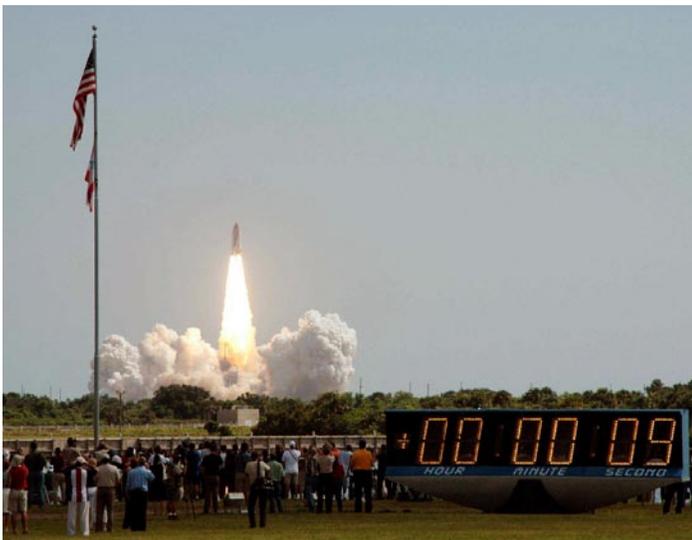


MARSHALL STAR

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July 28, 2005

Discovery launches on 12-day mission



NASA/KSC

The thunderous sound of rocket engines erupted across Kennedy Space Center, Fla., as Space Shuttle Discovery lifted off Tuesday at 9:39 a.m. CDT from Launch Pad 39B for NASA's Return to Flight mission.

At Marshall Center hundreds of employees, gathered in the Activities Building to observe the launch, cheered and applauded as Discovery lifted off. Its launch was the result of two-and-a-half years of intense effort here and at NASA and contractor sites throughout the nation.

Discovery, commanded by Eileen Collins and carrying an international crew of seven astronauts, is on a 12-day flight to deliver equipment and supplies to the International Space Station.

Two days after their successful launch to space, the crew of Discovery were preparing early Thursday to become the first Shuttle astronauts since November 2002 to dock with and board the International Space Station.

Space Shuttle Discovery lifts off Tuesday at 9:39 a.m. CDT.

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Marshall's Engineering Directorate ready for Discovery

By Lori Johnston Meggs

For Marshall's Engineering Directorate, literally thousands of items have been checked off a "things-to-do" list for STS 114: Return to Flight. From going back and closing unfinished business on normal flight hardware, to redesigns, to preparing the International Space Station for new supplies and hardware, change is the best way to describe the past two-and-a half years.

A majority of the work in both the Propulsion Systems and Vehicle and Spacecraft Systems Departments has been divided into two major efforts: redesigns on the External Tank and understanding

how debris can damage the Space Shuttle.

"Bringing all of this work to closure was a very big task," says Preston Jones, manager of the Propulsion Systems Department in Marshall's Engineering Directorate. "It's been an intense effort of long hours and stellar dedication by a large number of people to ensure we are all comfortable, proud and ready for launch."

The Materials and Processes Laboratory is responsible for the foam formulation and how it's applied. The materials teams performed the testing to understand why the External Tank loses foam. They concentrated mainly on voids, or spaces, from manual spray operations and

redesigning the inter-tank area – between the liquid hydrogen and liquid oxygen tanks – to remove defects that could cause foam to come off the External Tank. This included the development of new, non-destructive evaluation techniques to examine the foam for internal voids.

They also supported design and testing aimed to keep ice from forming on the tank and coming off in-flight. They supported testing of the heaters that were placed in the bellows, or joints in the liquid oxygen feedline, that were judged as a potential debris source due to ice forming on them during the Shuttle's climb to orbit.

See *ED* on page 6

Marshall, NASA storm scientists 'amazed' by power, resilience of Hurricane Dennis

By Rick Smith

Even as Hurricane Emily gained strength last week in the Atlantic, storm hunters from NASA and the Marshall Center were still shaking their heads in wonder over the late Dennis — the largest hurricane ever recorded so early in the June-to-November hurricane season.

The team, conducting NASA's Tropical Cloud Systems and Processes (TCSP) mission this month in Costa Rica, hopes information gleaned during Dennis' rampage will explain some of the mysteries of hurricane formation, including why only a small number of tropical weather systems grow into such violent storms.

Researchers from NASA and the National Oceanic and Atmospheric Administration (NOAA) sent coordinated flights over Dennis on July 6 — the date it was upgraded from a tropical storm to a hurricane — and again July 9. They also tracked Dennis from the ground, watching as it sped northwest from its unusual birthplace in the typically calm waters of the Caribbean.

NASA's ER-2 and NOAA's P3-Orion research aircraft flew above Dennis' developing eye, recording data as the hurricane increased in intensity. At one point, the storm's pressure dropped 12 millibars in a two-hour period — equivalent to the amount a garden-variety, low pressure system over the United



NASA/Bill Ingalls

Members of NASA's Tropical Cloud Systems and Processes science team crowd around computer workstations to review data gleaned from flyover missions of Tropical Storm Dennis — which would shortly build into a Category 4 hurricane before dying out on the southern U.S. coast.

States might intensify in about 24 hours.

But it was on July 8-9 that the team watched a truly awesome display. Late the night of July 8, Dennis struck Cuba as a powerful Category 4 hurricane. The country's mountainous terrain disrupted the eye of the storm, reducing Dennis to Category 2. When it left Cuba on July 9, however, it regained its former energy so quickly that even veteran storm hunters — including Marshall Center atmospheric researchers Robbie Hood

and Rich Blakeslee — were amazed.

Dennis made landfall near Pensacola, Fla., on July 10, and quickly fell apart. TCSP team members hope data gained from Dennis will help explain storm phenomena such as "rapid deepening," in which the sea-level pressure of a tropical cyclone abruptly plummets — behavior that is not captured well by current forecasting techniques. They also hope to learn whether tropical cyclones develop in isolation in the eastern Pacific, or require a wave disturbance, or "seedling," to enter from the western Atlantic.

The TCSP mission, continuing through July 30, is sponsored by NASA's Science Mission Directorate. Participants include NOAA, five NASA centers, 10 American universities and partner agencies in Costa Rica. For more information, visit:

<http://tcsp.nsstc.nasa.gov/tcsp>

The writer, an ASRI employee, supports the Public and Employee Communications Office.



NASA/Bill Ingalls

NASA's ER-2 airplane prepares for takeoff. The high-altitude research plane enables NASA weather and climate researchers to fly above severe storms.



Photo by NASA/MSFC

Marshall team and industry partner deploy 20-meter solar sail system

Marshall's Solar Sail propulsion team and industry partner L'Garde Inc. of Tustin, Calif., recently completed testing of a 20-meter solar sail system. The tests were conducted at NASA Glenn Research Center's Plum Brook Station in Sandusky, Ohio. NASA officials and project managers were invited to Plum Brook July 19 to view the fully deployed sail system. The deployment, part of a series of tests on the system that began in June, is a critical milestone in the development of solar sail propulsion technology that could lead to more ambitious inner Solar System robotic exploration.

Discovery

Continued from page 1

During the mission, Discovery's crew will continue assembly of the Space Station, and will demonstrate techniques for inspecting and protecting the Shuttle's thermal protection system.

Discovery achieved orbit Tuesday. On board, in addition to Commander Collins, are Pilot Jim Kelly and Mission Specialists Charlie Camarda, Wendy Lawrence, Soichi Noguchi of the Japanese Aerospace Exploration Agency, Steve Robinson and Andy Thomas.

The Shuttle was to dock with the Space Station Thursday at 6:18 a.m. CDT. Discovery is delivering 15 tons of hardware and

supplies to Expedition 11 Commander Sergei Krikalev and Flight Engineer John Phillips, the Station's current crew. The shipment of supplies made the journey to space stowed in the "Raffaello" Multi-Purpose Logistics Module in Discovery's cargo bay.

As Discovery neared the Station, Krikalev and Phillips planned to use digital cameras and high-powered 800MM and 400MM lenses to photograph the Shuttle's thermal protective tiles and key areas around its main and nose landing gear doors.

The STS-114 crew will perform three spacewalks, including tasks to continue assembly of the Space Station.

On Wednesday, July 27, the crew used cameras and a special boom on the Orbiter's

robotic arm to inspect Discovery's heat shield, wings, nose cap and crew cabin. Crewmembers also were to use handheld cameras to inspect tiles on the Orbital Maneuvering System pods.

Engineers on the ground are using the imagery and data from the inspections and from launch videos to determine the health of Discovery's heat shield. Engineers are evaluating two debris events that were captured by video as Discovery climbed into space.

Discovery and its crew are scheduled to return to Earth Aug. 7 at 4:46 a.m. CDT.

For the latest information about STS-114 and Discovery's Return to Flight, visit: <http://www.nasa.gov/returntoflight>

Marshall provided Saturn IB and research data

July marks 30th anniversary of Apollo-Soyuz

By Mike Wright

The United States and the former Soviet Union marked the first international exchange between astronauts and cosmonauts in space 30 years ago this month.

The Apollo-Soyuz Test Project (ASTP) in 1975 was the first joint American-Soviet space mission. The Marshall Center provided the Saturn IB launch vehicle for the Apollo portion of the mission. In addition, Marshall scientists gathered data from the results of experiments and demonstrations conducted in the unique environment of space.

The principal objective of the Apollo-Soyuz Test Project was to test compatible rendezvous and docking systems that were being developed for future U.S. and Soviet manned spacecraft and stations.

Five years of technical cooperation among engineers in the United States and the Soviet Union led to the development of the international docking module, and agreements on mission operations, flight control, life support, communications, tracking, safety and crew procedures.

On July 15, 1975, the Russian Soyuz spacecraft lifted off from its launch pad at a Soviet launch site. The spacecraft carried cosmonauts Alexey Leonov and Valeriy Kubosov. Seven-and-one-half hours after the Soyuz launch, the Apollo spacecraft was launched with its crew of Thomas Stafford, Vance Brand and Donald "Duke" Slayton. Rendezvous and docking of the two ships were accomplished on July 17. The ships remained docked for two days, conducting joint experiments and exchanging national mementos.

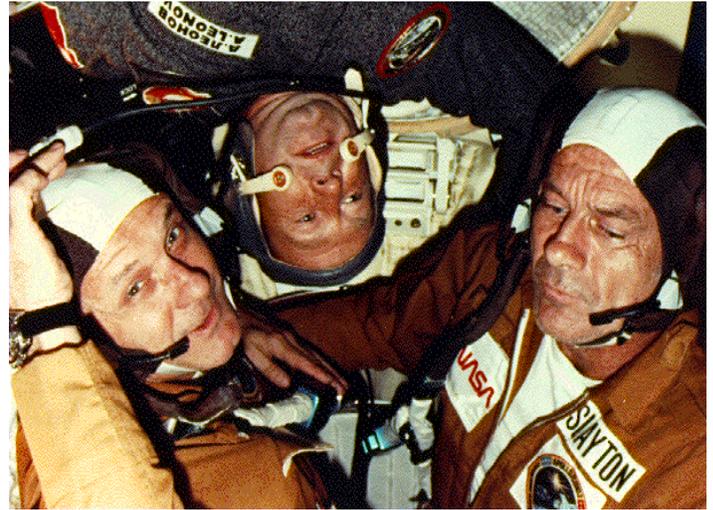
Stafford, Leonov and Kubosov came to the Marshall Center in 1990 during the 15th anniversary of ASTP. "When we saw the giant Saturn rocket, we could see it was built very well," Leonov told Marshall employees. Stafford added, "We were successful because, despite different languages, different units of measurements and different political philosophies, we worked together and reached a goal."

The Saturn IB for the mission was the last Saturn to be launched. The first and second stages of the vehicle had been built in 1967

For more details

For more pictures and information about Marshall's role in Apollo-Soyuz, go to the Marshall history Web site at <http://history.msfc.nasa.gov>. Visitors to the site may also download a copy of the official Apollo-Soyuz Test Project (ASTP) press kit.

In addition, a model of the ASTP spacecraft is on display in the Marshall Heritage Gallery in Building 4200. The Gallery is also featuring playbacks of a NASA video produced in 1978 about ASTP and of the ASTP crew visit to Marshall in 1990.



NASA photo

The final launch of a Saturn rocket came on July 15, 1975, as part of the Apollo-Soyuz Test Project. Earlier that day, a Russian Soyuz spacecraft lifted off its launchpad at a Soviet launch site carrying three cosmonauts. Seven and one-half hours later, the U.S. Apollo spacecraft was launched with its crew of American astronauts. Rendezvous and docking of the two ships were accomplished on July 17. The two ships remained docked for two days, conducting joint experiments and exchanging national mementos.

and were taken out of storage for the mission for continuous preflight checkouts and monitoring prior to the actual launch.

Marshall had responsibility for 10 experiments, as well as the three science demonstrations, which were carried out as programmed during the historic joint U.S.-Soviet manned space mission, with only minor difficulties being reported.

Three of the principal investigators — Arthur Boese, Dr. Robert Allen and Dr. Lewis Lacy — were Marshall employees. The others, connected with industry or education, were under contract to Marshall for their experiments.

A Marshall-managed Multi-purpose Electric Furnace for ASTP performed perfectly after resolution of an early cool-down problem. Seven materials processing experiments were conducted in the electric furnace.

To prepare for the Marshall experiments on Apollo-Soyuz, Yuri Malkov, a Soviet scientist, spent several days in Huntsville in March 1975 witnessing ground-based testing of a multiple metals melting experiment.

Two Marshall scientists — Dr. Ann Whitaker and Barbara Facemire — were principal investigators or co-investigators for the science demonstrations. "A number of Marshall scientists participated in developing science demonstrations that related to positioning fluids in microgravity and were operated by astronaut Deke Slayton," Whitaker recalled.

The writer, Mike Wright, is the Marshall historian in the Public Employee and Communications Office.

From Alabama, to Florida, to space

Two Marshall engineers partner across state lines

By Sherrie Super

They work in Florida, report to a NASA center in Alabama, and help send experiments and hardware to space. They're Emmett Crooks and Tom Erdman, two Marshall engineers located at the Kennedy Space Center in Florida.

As engineering liaisons between the two NASA centers, they've worked on space-bound hardware ranging from rocket-launched experiments to racks that carry supplies to the International Space Station.

For Crooks and Erdman, their recent focus has been preparing an Italian-built cargo module named Raffaello for launch aboard STS-114: Space Shuttle Return to Flight. Raffaello is one of three multipurpose logistics modules managed by Marshall. The modules act as the Space Station's "moving vans" for transporting supplies and science equipment from the Shuttle to the Space Station.

On the fourth day of the Return to Flight Shuttle mission, crew members will use the Station's robotic arm to lift Raffaello out of the Shuttle cargo bay and attach it to the Station. They then will transfer several tons of supplies and equipment to the Station. This is the third trip for Raffaello, the second of three such cargo carriers to be put into service.

But before Raffaello left Earth the first time, Crooks and Erdman were part of the team that helped ensure it was ready for the rigors of space travel. Extensive cooperation among the two NASA centers was critical, say the two engineers.

"Since Marshall is responsible for the design of the modules, and Kennedy is responsible for their launch into space, it makes sense to have a Marshall team in Florida acting as a liaison," said Crooks, who is manager of the Marshall office at Kennedy.

Shorter response times and reduced travel costs are just two factors in the unconventional arrangement that separates employee and employer by more than 700 miles. Without a Marshall team on-site in Florida, frequent, long-duration state-to-state travel would be required to complete critical on-site reviews, repairs or changes.



Emmett Crooks, left, and Tom Erdman with one of three multipurpose logistics modules managed by the Marshall Center.

Their jobs, both engineers agree, are made more interesting by the myriad issues that must be resolved before any hardware makes it to the launch pad. "It's enjoyable because it's always a different challenge," said Crooks. "Whether we're dealing with hardware or software, mechanics or fluids, integration or testing, we're able to join firsthand in the solution. I guess you could say that in the heat of the kitchen is where we thrive."

The writer, an ASRI employee, supports the Public and Employee Communications Office.

'We'll support any payload that launches'

By Sherrie Super

Over the years, Emmett Crooks and Tom Erdman — two Marshall engineers based at the Kennedy Space Center — have supported their share of high-flying initiatives.

These include Spacelab, the focal point for experiments conducted from 1982 through 1998 by Americans in space, and experiments aboard the Space Shuttle, including several investigations on the influence of low gravity on physical and chemical processes.

The team also has supported numerous missions launched aboard expendable launch vehicles, such as the transfer orbital stage — the rocket that in 1992 boosted the Mars Observer craft

into space after its initial launch aboard a Titan III rocket.

"From Marshall, we deliver hardware to Kennedy, provide engineering drawings and test requirements, and make sure it's ready to fly," Crooks said. "At Kennedy, they assemble and test it, and ultimately launch it into space. Working together, we find any problems on the ground before we get into orbit. That's what testing is for."

"We want to be closer to the people we interact with, and closer to the hardware," said Erdman. "We'll support any payload that launches, whether it's on the Space Shuttle or an expendable launch vehicle."

The writer, an ASRI employee, supports the Public and Employee Communications Office.

Continued from page 1

The Engineering Directorate's materials and processes team also played a major role in the development and testing of a new bolt catcher where the Solid Rocket Boosters attach to the External Tank. Those efforts have led to a stronger aluminum bolt catcher that is now one solid piece, eliminating the potential debris source from the previous welded design.

Previously, if the Shuttle were damaged by debris on ascent, there was no way to repair it. The Materials and Processes and Test Laboratories worked to change that. They supported development of materials and processes for on-orbit repairs. Marshall developed a putty-like material that could be applied with a tool similar to a caulk gun developed by the Johnson Space Center in Houston. The material can be applied to the damaged area, and on re-entry it becomes ceramic, protecting that area.

This material will be tested for the first time on-orbit on STS-114. The material was mixed at Marshall and sent to Kennedy Space Center for launch. It will be tested during a spacewalk on Flight Day 5 by Discovery's astronauts Soichi Noguchi and Stephen Robinson. The test pieces of tile will be brought back to Marshall for evaluation.

"We feel really good about how far we've come and the work we've accomplished in two-and-a-half-years," says Ralph Carruth, manager of the Materials and Processes Laboratory. "We have gained so much knowledge and we're ready to go fly."

The Engineering Test Laboratory focused on an in-depth understanding of debris formation and shedding. Testing ranged from high speed air flow across scaled models of Shuttle elements in an aerodynamic research facility, to flowing liquid hydrogen through components of the Space Shuttle Main Engine to assess the formation of liquid air.

The Main Propulsion System feedline

bellows assembly ice liberation test, the Shuttle rudder speed brake cyclical test and the External Tank Bipod heater qualification test required many hours of dedication. The test team stood ready to respond whatever the task. External Tank panel designs and processes were anchored through load testing in the Gilmore load fixture, and ascent profile testing within thermal vacuum chambers. "Testing is pivotal, and it is a key element for our confidence in the safe operation of the complex Shuttle elements," says Dr. Pete Rodriguez, director of Marshall's Test Laboratory.

For another part of the Engineering Directorate, the focus has been a bit



STS-114 astronaut Stephen Robinson practices repair work on Shuttle reinforced carbon-carbon during training for the mission inside a vacuum chamber at Marshall's Test Laboratory.

different. The team of flight controllers inside the Payload Operations Center – responsible for day-to-day science activities on board the International Space Station – is awaiting new visitors, supplies and experiments with the arrival of Discovery and its seven-member crew.

"It's up to us to ensure the crews in space and on the ground are trained, and that we have prioritized what needs to come home," said Pat Patterson, Payload Operations Manager for Expedition 11. "It's been a while since we've conducted a joint mission with a Shuttle crew, and we want everything to be smooth."

For the past two-and-a-half years, many experiments and equipment have been stowed on board the Station until a Space Shuttle could return them to

Earth. Planners at the Payload Operations Center have consulted with the Station crewmembers, who are filling Cargo Transfer Bags with payload hardware and science samples, such as the Protein Crystal Growth-Single-locker Thermal Enclosure System, or PCG-STES payload, which has been on board since November 2002. The unit is an incubator/refrigerator module that grows high-quality protein crystals. The samples cannot be studied until they are returned to Earth via Discovery. "These extended operations speak to the robust design of the science hardware," Patterson said.

The Marshall team also is responsible for the coordination of operations products for the joint mission. These include written instructions to the crew on how to operate and transfer payloads, information about handling various issues and situations, and flight rules and payload regulations that protect the safety of the crew, vehicles, payload hardware and science objectives. All items are reviewed by the Payload Operations Center flight control team at Marshall and the Mission Operations Directorate at the Johnson Space Center, to verify their readiness to support the STS-114 mission.

Marshall's engineering community has demonstrated during the last two-and-a-half years both its capability and dependability," says Chris Singer, co-deputy director of the Engineering Directorate. "We have been in the critical path for delivering a broad range of Return to Flight testing, analysis and other products across all Shuttle elements, not just the Marshall-managed propulsion projects.

"This team has stepped up and delivered hundreds of specific, complex and diverse products. I am so proud of the entire team."

The writer, an ASRI employee, supports the Public and Employee Communications Office.

Classified Ads

To submit a classified ad to the Marshall Star, go to Inside Marshall, then go to "Employee Resources," and click on "Employee Ads — Submit Ad." Ads are limited to 15 words, including contact numbers. No sales pitch, i.e., "like new" or "excellent condition." Deadline for submissions for the next issue is 4:30 p.m. Thursday.

Miscellaneous

Glass table top, 42" round, 3/8" thick, \$40. 489-1933
Pennsylvania House video cabinet, Cherry, holds up to 30" TV, VCR/DVD, \$750. 931-427-2059
Longaberger baskets, 1994 May basket with L&P, \$130, 1993 Inaugural, with L&P, \$70. 509-2536
Pilates performer bench w/stand, \$225. 828-9099
Trailer, 6.5'x16', tandem axle, wood bed, good tires, \$750. 683-9364
Factory drop-in under-rail bedliner, from 2005 new Ford F-250, crew-cab, short bed, make offer. 351-6992
Two tickets to BTL's production, "Evita", Sunday, Feb. 5, 2006, row H, center, \$48 each. 881-0755
Loading ramp, top & bottom kit, \$15; Pachmayr prefit recoil pad for Savage syn., \$18. 379-3606
Baby Grand piano, Maple, \$1,200. 603-3698
H&R single shot rifle w/rings, .308 caliber, \$180. 256-723-3803
Antique Oak pedastal table, 42" square, w/6 matching T-back chairs, \$390. 830-5039
Pair of McIntosh Laboratories LX10 stereo speakers w/original boxes, \$400. 233-8595
Sofa, solid Oak frame, blue multi-color, \$200; antique silver-plated ornate tea set w/legs, \$350. 353-0370
Ring, 14K, .50 carat pear cut diamond & 10 - .025 round diamonds, \$1,000. 552-0998
Sony cordless phone w/digital voice mail, speakerphone, intercom, \$49. 694-0116
Ping golf clubs, 3-SW, black dot, new Lamkin grips, \$175. 714-4826
Refrigerator, 21 cu. ft., approximately 4 yrs. old, \$300. 883-1003

Craftsman workbench w/power & lights, new in box, \$300; wedding dress w/veil, size 8, \$100. 776-9165
Antique dining room table & 6-chairs, Mahogany, \$500. 922-1980
Madam Alexander dolls, Wizard of Oz, set of 6, \$400. 533-9683
Large wooden chest/trunk, padded seat, \$25. 890-0755
Two interior doors for mobile home, 2' and 2'4", \$10 each. 931-427-8205
Diamond cluster heart-shaped ring, \$80. 683-1279
Kenwood 440 SAT HF amateur radio w/built-in antenna tuner & matching Kenwood power supply, \$525. 656-2951
Wood & glass 5-tier curio shelf & 2-tier sofa table, \$135 each. 922-9311
Rattan wicker pedestal square rounded corner glass-top table w/4 chairs, blush, make offer. 772-7262
Upright freezer, white, self-defrosting, 6 yrs. old, 17 cu. ft., \$150. 772-5823

1997 Ford Contour, V6, auto, power windows/locks/seats, non-smoker, 99K miles, \$3,000. 325-6000
1995 Chevrolet extended cab, towing package, 350CI, power, air, fiberglass bedcover/liner, \$7,000. 256-773-0194
1973 Corvette, 350CID, auto, air, T-tops, matching numbers, white w/black leather, \$11,500. 964-5312
1984 Honda Goldwing GL1200 Limited Edition Gold package, garage kept, all-chrome, \$4,850. 337-9211
1998 BMW 740IL, hunter green, tan leather, 106K miles, new tires. 256-682-0888
2002 Ford F250 Super-duty crew-cab, Lariat, 7.3 diesel, 4x4, 136.5K miles, white, \$21,000. 256-497-3518
1998 Camry, white/gray, 101K miles, power doors/windows, cold air, good tires, \$7,000. 256-574-1542
1995 Baja Island 170 ski-boat, Suzuki 115, garaged, new stereo, cover, tube, skis, accessories, \$5,500. 325-2070

Wanted

Pocket knife collections or single collectable knives, Case brand or German made only. 256-784-5717
Aquarium, 10 gallon. 883-1961/Ken

Free

Kenmore freezer, 10 cu. ft., works, needs cleaning, come and get it. 772-2061

Vehicles

1964 Chevy Biscayne, 327/V8, runs, some body rust, \$2,000. 256-990-1842
2000 Nissan Frontier crew cab, automatic, all-power, 95K miles, silver, bedliner, am/fm, cassette/CD, \$10,700. 880-9025
1999 Ford Explorer, 4-door, 4X4, towing package, 79,000 miles. \$8,195. 353-3229
2001 Chevrolet Suburban LT, burgundy, leather interior, warranty, new Michelin tires, 59K miles, \$10,500. 883-1693

Obituaries

Donald Miles Bryan, 45, of Huntsville died July 15. He was an engineer in the Engineering Directorate at the Marshall Center at the time of his death. Survivors include his wife, Susan Bryan; two sons, Donny Bryan of Huntsville and Josh Bryan of North Carolina; his parents, Don and Joan Bryan of Hazel Green; three brothers Robert Bryan, Jim Bryan and Bill Bryan; and two sisters, April Schanz and Melissa Cook.

Donald R. "Don" Smith, 63, of Gurley died July 16. He was a heavy equipment supervisor for Greenway Enterprises, Inc., at the Marshall Center at the time of his death. Survivors include

his wife, Ruth Dedmon Smith; daughter, Amy Smith Vaughn of Maysville; son, Stephen Smith of Hazel Green; sister, Ann Miles of Gurley; and two brothers, Johnny Smith and Jimmy Smith of Grant.

Lisa Fay Roberts, 43, of Madison died July 17. She was employed by NASA at the Marshall Center as a senior engineer with the Space Shuttle Program at the time of her death. She is survived by her companion, Gary Wentz of Madison; two sons, Tyler and Ryan Roberts of Madison; father, Doyce Mitchell Sr. of Huntsville; and one brother, Sonny Mitchell of Huntsville.

Marshall briefs

History collaborator seeks information on Navy radio training

NASA retiree Robert Simpson is working on a history of the Navy's Radio Materiel Training Program during World War II and is seeking information from anyone who was trained in this area. He asks that those trained between 1942 and 1945 who received a rating of radio technician or aviation radio technician (changed to electronics technician's mate and aviations electronics technician's mate in 1945) to contact him. Simpson may be reached at (256) 539-4574; by e-mail at: rsimpson38@comcast.net; or at 4322 Panorama Drive, Huntsville, AL 35801.

Volunteer opportunities available for Huntsville bicentennial

Marshall Center team members are invited to participate in Huntsville bicentennial events Thursday, July 28 through Saturday, Aug. 6. Volunteers will work two-hour shifts at Marshall exhibits throughout the city. Team members also may volunteer for the "Unity Day" parade Aug. 6. To volunteer, go to "Inside Marshall" and click on the "Huntsville Bicentennial" logo.

MARS Tennis Club hosting open mixed-doubles tournament Aug. 6

The MARS Tennis Club will host an open mixed-doubles tournament on Saturday, Aug. 6, at the Marshall tennis courts on Gemini Road. An open tournament allows club members to invite a non-club member to play for a \$3 fee. Mixed teams consist of one man and one woman. Warm-up starts at 8 a.m., with tournament play beginning at 8:30 a.m. To participate, call Amy Hemken at 544-7097.



Photo by NASA/MSFC

Japanese space agency head visits Marshall

Tina Melton, left, a Payload Operations Director in the Mission Operations Laboratory, talks with Dr. Keiji Tachikawa, president of the Japan Aerospace Exploration Agency (JAXA), about work performed at the Payload Operations Center at Marshall. Tachikawa toured the Marshall Center July 14. His agency is working closely with flight controllers at the Payload Operations Center to develop processes and procedures for the Japanese Experiment Module, scheduled for launch to the International Space Station in 2007.

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