



*"We bring people to space — We bring space to people"*



Photo by Doug Stoffer, NASA/Marshall Space Flight Center

Center Director Art Stephenson, seated left, and Gerald Smith, vice president and general manager for space operations at Thiokol Propulsion, seated right, sign an agreement allowing Thiokol to produce a flare to destroy land mines. Standing from left are Marshall employees Fred Schramm of the Technology Transfer Department and Ben Goldberg of the Space Shuttle Projects Office.

## Thiokol, Marshall Center sign agreement that fuels land mine removal efforts

by Sherrie Super

The same rocket fuel that helps power the Space Shuttle as it thunders into orbit will now be taking on a new — perhaps surprising — role, with the potential to benefit millions of people worldwide.

Leftover rocket fuel from NASA is being used to make a new flare that destroys land mines where they were buried, without using explosives. The flare was developed by Thiokol Propulsion in Brigham City, Utah, the NASA contractor that designs and builds rocket motors for the Space Shuttle.

Thiokol is using the surplus propellant through an agreement with the Marshall Center. "Clearly, this project has the potential to save lives worldwide," said Center Director Art Stephenson. "Marshall is happy to help in this humanitarian endeavor."

The flare is safe to handle and easy to use. People working to deactivate the mines — usually members of a military or humanitarian organization — simply place the flare next to the uncovered land mine and ignite it from a safe distance using a battery-triggered electric match. The flare burns a hole in the

See *Thiokol* on page 6

## Mars orbiter investigation board releases findings

The Mars climate orbiter failure board released its initial findings Wednesday at NASA Headquarters in Washington, D.C.

The failure board's first report identified eight contributing factors that led directly or indirectly to the loss of the spacecraft. These contributing causes include inadequate consideration of the entire mission and its post-launch operation as a total system, inconsistent communications and training within the project, and lack of complete end-to-end verification of navigation software and related computer models.

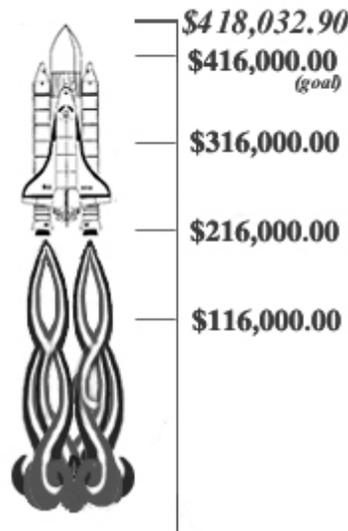
"The 'root cause' of the loss of the spacecraft was the failed

See *Mars* on page 6

## Employee, contractor donations surpass CFC campaign goal

As of Nov. 4, Marshall employees and contractors had contributed \$418,033 to the Combined Federal Campaign (CFC). This amount surpasses the Center's goal of \$416,000. The campaign ends Friday.

**CFC** Oct. 4 - Nov. 12



The following offices have reached 100 percent participation: AD01, AD02, AD20, AD31, AD41, CD02, CD40, CD70, DA01, DD01, DE01, ED01, ED03, ED10, ED20, ED30, ED38, ED40, ED41, FD01, FD02, FD10, FD22, FD30, FD31, FD32, LS01, MP01, MP31, MP71, OS01, PS01, PS50, SD10, SD30, TD50, TD70, VS01, VS10, VS20, WS01, XP01, XP10, XP20, XP30, XP40 and YS01.

**"Safety — The Best Thing to Happen to You"**

— Safety slogan submitted by David Harvey, EG&G

# Health issues face work force in the new millennium

*Message from the Administrator  
Dan Goldin*

Cardiovascular disease is the leading cause of death in the United States today and will likely remain so through 2020.

This is a major concern for all of us at NASA, our families and friends. Though the death rate from cardiovascular disease has declined over the past decade through aggressive treatment, it is still a leading cause of illness and disability. The costs, both human and financial, are staggering.

Some of the ancillary effects of cardiovascular disease on the work force include increased employee absenteeism, increased health care costs, declining performance and decreased productivity. Many of the risk factors associated with cardiovascular disease, such as hypertension and obesity, can be reduced significantly by lifestyle changes. Simple changes like increasing exercise, improving diet and having regular medical check-ups can dramatically improve your level of risk.

Over the next decade, the demographics of the work force will continue to

change. By the year 2005, 20 percent of the national work force will be over the age of 55. At NASA, our aging work force may lead to increased healthcare costs, incidence of illness and time lost from work.

Many of us have seen this trend already. As the expected life span increases and the work force ages, there will be an increased demand for employees to make decisions for the care of elder family members. In 1998, it was estimated that 25 percent of employees were providing elder care assistance. The impact on the workplace can be significant in terms of time lost from work, missed work days, unscheduled leaves and decreased efficiency and productivity due to emotional stress.

Workplace programs and policies to improve employee health and support work and family issues can potentially reduce absenteeism, alleviate stress, and increase employee morale, loyalty and productivity. For NASA's future, it will help us attract and retain high quality employees. We, NASA, need to address the behavioral and environmental risk

factors and make positive steps toward improving each and every employee's quality of life.

## NASA Actions

*Principal Center, Kennedy Space Center, Fla.*

- Develop a Technical Bulletin to provide Centers with guidelines for promoting good nutrition in the workplace
- Submit NASA Procedures and Guidelines for Smoking Cessation
- Provide health resources on Web site
- Send out books on providing for Aging Parents
- Distribute information on how to reverse heart disease to all NASA employees

## NASA Centers

- Provide an Employee Assistance Program counselor for employees experiencing parental support and other home and work issues
- Provide a fitness center
- Provide a variety of health promotion and education programs

*See Health on page 6*



Photo by Dennis Olive, NASA/Marshall Space Flight Center

## Open House

Marshall employees and contractors attended the Structures, Mechanics and Thermal Department's Open House the afternoon of Nov. 3. The event featured tours of facilities in Bldgs. 4610 and 4619, displays, activities and refreshment.

## Job Opportunities

- CPP 00-1-JB, Facilities Support Specialist, GS-301-5**, Center Operations Directorate, Facilities Engineering Department, Design and Construction Group. Closes Nov. 16.
- CPP 00-9-JB, Contract Specialist, GS-1102-14**, Procurement Office, Space Transportation Support Department. Closes Nov. 16.
- CPP 00-10-RE, Supervisory AST, Aerothermodynamics, GS-861-15**, Space Transportation Directorate, Subsystem and Component Development Department, Fluid Physics and Dynamics Group. Closes Nov. 17.
- CPP 00-11-RE, Supervisory AST, Navigation, Guidance and Control Systems, GS-861-15**, Space Transportation Directorate, Vehicle and Systems Development Department, Control Systems Group. Closes Nov. 17.
- Reassignment Bulletin 00-2-CV, AST, Mission Operations Integration, GS-801-13**, Flight Projects Directorate, Payload Operations and Integration Department, Payload Operations Directors Group. Closes Nov. 23.
- Reassignment Bulletin 00-3-CV, AST, Mission Operations Integration, GS-801-14**, Flight Projects Directorate, Payload Operations and Integration Department, Payload Operations Directors Group. Closes Nov. 23.

# Marshall engineers to monitor Leonids shower; scientists to launch balloon for clear view of meteors

by Tracy McMahan

To keep their satellites operating smoothly, the Marshall Center, the U.S. Air Force and the University of Western Ontario in London, Ontario, will soon open and operate the first center for monitoring the annual Leonids meteor shower around the clock.

In a separate effort to learn more about these dazzling fireballs, Marshall scientists will launch a balloon to record meteor images and sounds.

A Leonids shower happens every year when Earth passes close to the orbit of the comet Tempel-Tuttle and the debris left in the comet's path. As Earth travels through the comet dust, the debris burns up in Earth's atmosphere, and observers typically see about 10 to 20 shooting stars an hour. But some experts predict this year's annual shower may turn into a "storm" — a spectacular display of 1,000 meteors per hour or more.

To monitor any increases in meteor activity, the Leonid Environment Operations Center at Marshall will be staffed 24-hours a day from the afternoon of Nov. 15 until the shower has passed on Nov. 19.

Marshall engineers will coordinate and distribute pre-Leonid storm information and real-time observations about Leonid

activity, intensity and potential threat to NASA and U.S. Air Force spacecraft.

"NASA, the Air Force, the University of Western Ontario and several other organizations have teamed together to provide these space weather updates to keep spacecraft operators well informed so they can best protect our satellites," said Dr. Jeff Anderson of Marshall's Engineering Directorate. "Monitoring the Leonid meteor stream also provides a rare look at a natural phenomenon that will continue to grow in importance as more and more satellites orbit our planet, and we venture deeper into space."

In another activity, Marshall scientists will work to give the public a clearer view of the streaking fireballs. Weather permitting, they will launch a 10-foot (3-meter) diameter weather balloon from Marshall's Atmospheric Research Facility at

approximately 12:30 a.m. CST, Nov. 18. The balloon will ascend approximately 20 miles (32 kilometers), carrying a sensitive camera for capturing pictures of the meteors. During the flight from around 12:30-3:30 a.m. CST, images from the onboard camera can be viewed online at the Science Directorate's Web site at: <http://www.leonidslive.com>

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



Photo by Emmett Given, NASA/Marshall Space Flight Center

**From left, Marshall engineers Dr. Bill Cooke, Dr. Jeff Anderson and Dr. Rob Suggs discuss the meteoroid approach angles at the Leonid Environment Operations Center at Marshall.**

## X-33 liquid hydrogen tank damaged in testing

A joint NASA-Lockheed Martin team is convening at Marshall to analyze the nature and extent of the damage to an X-33 hydrogen tank that was discovered last week, and determine its probable cause.

The damage to one wall of the X-33's composite liquid hydrogen tank was discovered Nov. 3 during cryogenic and structural loads testing at Marshall. Impact to the X-33 program is not known at this time.

Long considered the major technology challenge for X-33, the tank's test crews discovered the damage while viewing the tank over video monitors, approximately two hours after the completion of a test cycle which appeared to be nominal. At the time, crews were preparing to use a gaseous helium purge in order to secure — or safe — the tank for the evening.

Earlier in the day, the tank had passed a pressure test with a full load of liquid hydrogen, and also a structural loads test to

simulate the force of the X-33's fully loaded liquid oxygen tank sitting atop the liquid hydrogen tank. The X-33's internal structure will experience these same loads prior to test flight as the vehicle is fueled while standing vertically on its launch pad.

It was the fifth test in a series of validation tests being conducted on the tank.

NASA is committed to developing advanced space transportation, a commitment which includes looking at alternative technologies to ensure the success of the X-33.

The Lockheed Martin Skunk Works in Palmdale, Calif., is developing the X-33 technology demonstrator under a cooperative agreement with NASA. Alliant TechSystems in Clearfield, Utah, and Lockheed Martin Skunk Works, fabricated components for the vehicle's hydrogen tanks while a joint Lockheed Martin-Alliant team working in Sunnyvale, Calif., completed the assembly.

# Marshall celebrates American Education Week Nov. 14-20

(Editor's note: On Nov. 1, Center Deputy Director Carolyn Griner signed the following proclamation proclaiming Nov.14-20 as American Education Week at Marshall.)

## A PROCLAMATION

WHEREAS, The U. S. Department of Education and 12 national organizations have declared November 14-20, 1999, American Education Week; and

WHEREAS, the theme of American Education Week 1999 is "Students Today, Leaders Tomorrow"; and

WHEREAS, the Marshall Space Flight Center is a leading national resource for all levels of American education in the advancement of scientific and technical information and expertise; and

WHEREAS, the Marshall Space Flight Center supports America's teachers and faculty as suppliers of NASA's human talent through the use of the NASA mission, facilities, and resources to enhance knowledge and skills in science, mathematics, engineering, and technology; and

WHEREAS, the Marshall Space Flight Center inspires America's students at K-12 and higher education levels through experiences, internships, and exposure to NASA's mission in science, mathematics, engineering, and technology; and

WHEREAS, the Marshall Space Flight Center facilitates development of instructional products based on NASA's unique mission to create learning opportunities that enlighten and inspire inquisitive minds and promote science literacy among the general public; and

WHEREAS, the Marshall Space Flight Center seeks creative and innovative ways to enhance the communication capabilities of the educational community in a time of exploding technology through collaborative efforts with educational institutions, industry, and other government agencies; and

WHEREAS, the Marshall Space Flight Center strives to improve services continuously to under-served communities, to those with disabilities, and to the Nation as a whole;

NOW, THEREFORE, I, A.G. STEPHENSON, DIRECTOR of the George C. Marshall Space Flight Center, do hereby proclaim the week of November 14-20, 1999, to be American Education Week at the Marshall Space Flight Center and do hereby encourage all employees to continue to support our educational community in "Students Today, Leaders Tomorrow."

Dated this first day of November, Nineteen Hundred and Ninety Nine

—Carolyn Griner

For Art Stephenson, Marshall Center director



Photo by Terry Leibold, NASA/Marshall Space Flight Center

Jim Pruitt, left, manager of the Education Programs Department, and Pamala Heard, right, an education specialist, look on as Center Deputy Director Carolyn Griner signs the Education Week proclamation.

## Events honor educators during American Education Week

Dr. Frank A. Franz, president of the University of Alabama in Huntsville (UAH), will give the keynote address at the American Education Week luncheon at 11 a.m. Monday at the Huntsville Hilton.

The 78<sup>th</sup> annual observance of education week is Nov. 14-20. The National Education Association theme is "Students Today, Leaders Tomorrow."

Honored at the luncheon will be two teachers each from Madison, Morgan and Limestone County School Systems; two teachers each from Huntsville, Madison, Decatur and Athens City School Systems; and one educator from the Florence area.

Activities during American Education Week include student poster and essay contests, and a professional development workshop for teachers, administrators and other education personnel.

The posters and essays were judged Nov. 3 at Marshall, and the winners in each category will be announced at the luncheon.

The workshop will be presented in two parts on Tuesday in the Pei Ling Chan Auditorium at UAH. "The Potentially Violent Student: Recognition, Intervention and Prevention," will be presented from 8:50-11:50 a.m. Attorneys and counselors of the education law firm of Lange, Simpson, Robinson & Somerville of Birmingham will present the afternoon session, "What You Need to Know About Education Law," beginning at 1:15 p.m. The workshop is free, but registration is required.

For more information about the workshop or tickets to the luncheon, call Samuel Whitaker of the Army Continuing Education System at (256) 876-9761.

At the U.S. Space & Rocket Center, Marshall's Educator Resource Center will present "The Sun in Times" to grades 5-12 from 9 a.m.-noon on Tuesday, a Microgravity Workshop from 2-5 p.m. Thursday, and a reception for educators from 3-5 p.m. Wednesday.

# As drought-ravaged '99 harvest proceeds, farmers turn to Marshall researchers for 21<sup>st</sup> century solutions

by Rick Smith

As drought-stricken farms limp through the last harvest of the 20<sup>th</sup> century, researchers at Marshall are using remote sensing technology developed for the space program to improve crop management and increase profitability.

The availability of inexpensive agricultural products for consumers in the next century could depend on such capabilities, meaning the difference between boom and bust for farmers — and feast or famine for the 6 billion residents of planet Earth.

At the Marshall-managed Global Hydrology and Climate Center in Huntsville, NASA scientists are collaborating with university researchers in Alabama and Georgia to apply remote sensing technology to a sophisticated agricultural technique called precision farming.

In precision farming, growers break fields down into regions, or cells, analyzing growth characteristics of each cell and improving crop health and yield by applying precise amounts of seed, fertilizer and pesticides as needed.

Traditionally, farmers have lacked the ability to make those close analyses of specific cells. When they fertilized their crops, they simply spread the fertilizer uniformly across the entire field.

“Now, using remote sensing feedback, we can tailor that input more precisely,” said Doug Rickman, lead researcher for the Global Hydrology and Climate Center.

Remote sensing involves the gathering of information for analysis via planes or orbiting satellites. It measures electromagnetic radiation, including thermal energy reflected or emitted by all natural and synthetic objects.

That makes remote sensing ideal for Rickman’s research. “We

can fly over an area and precisely map its plant quality and soil makeup — including mineral variation and organic carbon content — in approximately 6-foot increments,” he said. “Farmers have sought this ability for 30 years.”

The Space Grant Consortiums of Alabama and Georgia and the Agriculture Extension program in each state provide funding. NASA’s Stennis Space Center, Miss., is also participating, providing researchers with the equipment and aircraft to accomplish their remote-sensing test flights.

Among the most important players are the half-dozen farmers in Alabama and Georgia who provide their fields for precision farming test sites.

“This is applied research,” said Dr. J.M. Wersinger of Auburn University. “We could have done our experiments in an antiseptic laboratory environment, but we understood from the beginning that we needed to involve real farmers in the program. They are full partners in this endeavor.”

NASA and its partners recognize that the research is still in its infancy. Rickman and his colleagues are still exploring “the breadth of potential understanding yet to be gained from the new technology,” he said.

“With current technology, nations can show the estimated yield of Kansas or Kazakhstan,” Rickman said. “But that doesn’t help the individual farmer. We’re seeking to provide a system that will help farmers improve the efficiency of their fields and their crop management techniques. In the end, that will benefit everyone.”

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

## Chandra X-ray Observatory chosen among ‘Best of What’s New’ by ‘Popular Science’

NASA’s Chandra X-ray Observatory, the world’s largest and most powerful X-ray telescope, has been chosen as one of the “Best of What’s New” items by Popular Science magazine. The Chandra Observatory is managed by Marshall.

Each year, the editors of Popular Science review thousands of new products, technology developments and scientific achievements to select the top 100 “Best of What’s New.” The December issue of the magazine highlights Chandra and all the winners. They are also featured on the magazine’s Web site at: <http://www.popsci.com>

For more about Chandra, visit the Web site:

<http://chandra.nasa.gov>

TRW Space and Electronics Group, Redondo Beach, Calif., is leader of the industry team that built Chandra. That team includes Raytheon Optical Systems in Danbury, Conn., Optical Coating Laboratory in Santa Rosa, Calif., Eastman Kodak in Rochester, N.Y., and Ball Aerospace and Technologies Corporation in Boulder, Colo.

The Smithsonian Astrophysical Observatory in Cambridge, Mass., manages the Chandra science program and controls the observatory for NASA.

### Countdown to Y2K 50 Days Left

Get directions for testing your home PC at the ISD Y2K home page located at:  
<http://www1.msfc.nasa.gov/Y2K/>

Get additional Y2K information from the President’s Council on Y2K located at:  
[www.y2k.gov](http://www.y2k.gov)

1-888-USA-4-Y2K offers free information for consumers

Courtesy of Information Services Department

## Mars

*Continued from page 1*

translation of English units into metric units in a segment of ground-based, navigation-related mission software, as NASA has previously announced," said Marshall Center Director Art Stephenson, chairman of the Mars Climate Orbiter Mission Failure Investigation Board. "The failure review board has identified other significant factors that allowed this error to be born, and then let it linger and propagate to the point where it resulted in a major error in our understanding of the spacecraft's path as it approached Mars.

"Based on these findings, we have communicated a range of recommendations and associated observations to the team planning the landing of the Polar Lander, and the team has given these recommendations some serious attention," Stephenson said.

The failure board will now proceed with its work on a second report due by Feb. 1, which will address broader lessons learned and recommendations to improve NASA processes to reduce the probability of similar incidents in the future.

The report is available on-line at: [ftp://ftp.hq.nasa.gov/pub/pao/reports/1999/MCO\\_report.pdf](ftp://ftp.hq.nasa.gov/pub/pao/reports/1999/MCO_report.pdf)

## Thiokol

*Continued from page 1*

land mine's case and ignites its explosive contents. The explosive burns away, disabling the mine and rendering it harmless.

Occasionally, the mine detonates before the explosive is fully consumed. When this occurs, the explosion is more controlled and minimized, causing less damage than other mine-disposal methods, according to Charles Zisette, program manager with Thiokol. Other methods include deactivation by hand or deliberate detonation, both highly dangerous processes.

An estimated 80 million or more active land mines are scattered around the world in at least 70 countries. Land mines kill or maim 26,000 people a year, most of them women or children, and usually after military hostilities have ended. Worldwide, there is one casualty every 22 minutes.

Using leftover rocket fuel to help destroy land mines incurs no additional costs to taxpayers. To ensure enough propellant is on-hand for each Shuttle mission, NASA allows for a small percentage of extra propellant in each



Photo by Doug Stoffer, NASA/Marshall Space Flight Center

**New de-mining flare will use surplus Space Shuttle rocket fuel to save lives worldwide.**

batch. Once mixed, surplus fuel solidifies and cannot be saved for use in another launch. In its solid form, however, it is an ideal ingredient for Thiokol's new flare.

Thiokol Propulsion is a division of Cordant Technologies Inc. The flare was conceived in collaboration with DE Technologies Inc., King of Prussia, Pa. Marshall is NASA's lead center for developing space transportation and propulsion systems.

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

## Health

*Continued from page 2*

- Provide quality health maintenance programs through physical examinations and interventions

### Background

One of the best ways to lower the risk of developing cardiovascular disease is by exercising. Only 22 percent of the U.S. population exercises the recommended 30 minutes, five days a week. Physical inactivity contributes to the development of obesity, high blood pressure and reduced levels of high density lipoprotein (HDL) cholesterol — all risk factors in the development of cardiovascular disease (heart attacks and stroke) and diabetes.

Over the past decade, the intake of dietary fat and cholesterol has decreased, but it still remains above the recommended levels. Approximately 20 to 30 percent of the U.S. population is at least 30 pounds overweight as compared to only 15 percent in 1965 when the population was generally more physically active.

Through nutritional and fitness awareness, we may be able to reinforce or make changes to improve nutrition and fitness at home.

Data from the National Institute on Aging show that by the year 2005, 20 percent of the work force will be over the age of 55. In the years of 2000 to 2010, 55 to 64 years of age will be the fastest growing age group in the workplace.

Statistics from the Families and Work Institute show that in 1998, 25 percent of employees provided some level of elder care. An estimated 11 hours per week was spent on issues of elder care and only one in four employees had access to resources and referrals at work.

Weekly health topics will be available on the NASA Web site at:

<http://www.nasa.gov>

as well as the Occupational Health Web site at:

<http://ohp.ksc.nasa.gov/>

For more information, call (407) 867-6341.

# Marshall engineer wins bronze medal at Senior Olympics

by Debra Valine

Not many people half his age would attempt to do what Roger Chassay does — or do it as well. At 61, the Marshall engineer won a bronze medal in the pole vault competition at the U.S. National Senior Olympics in Orlando, Fla., last month.

Chassay, assistant manager of Gravity Probe B in the Science Directorate, was born in Chicago and raised in Louisiana and Mississippi. He has been an aeronautical engineer at Marshall 35 years. Gravity Probe B is an experiment to test portions of Einstein's General Theory of Relativity.

Chassay said he started pole vaulting 3 1/2 years ago when he was age 57.

"I've loved sports my whole life," Chassay said. "But I did not get to play organized sports in high school. Instead, I was the drum major in the band and played saxophone and clarinet."

Some of his best friends, who are runners, "encouraged me to run in Huntsville Track Club events about six years ago," Chassay said. "That led to a combination of running, swimming and biking events — triathlons."

In 1995 he earned a sixth-place ribbon at the U.S. National Senior Olympics Triathlon in San Antonio. "While I was there, I watched the pole vaulters and thought I'd like to try it," said Chassay, who also snow skis, rides a bike, swims and plays softball.

"I was searching for a sport I could excel at. To explore my capability for vaulting, I teamed up with another local, but experienced, pole vaulter six months after the meet in San Antonio, and we decided to try to become competitive at the national level. We train together mostly year round, and have a coach in Arkansas that we visit about every four to six months to get lessons."

Since he started competing in track and field and swimming events, Chassay has won more than 100 medals and 30-40 trophies. He is proudest of a trophy featuring legendary Olympic runner Jesse Owens, he said. To earn that trophy, he finished in first place in his age group in a 10-kilometer race in Moulton, Ala.,



Courtesy photo

**Roger Chassay, the assistant manager for Gravity Probe B in the Science Directorate, clears the bar in a practice vault.**

the birthplace of Jesse Owens.

He has learned a lot about successfully competing. "In Tucson two years ago at the U.S. National Senior Olympics, I had qualified for 18 events, signed up for 12 of the 18, and actually competed in nine," Chassay said. "I didn't do very well there because I was in too many events. It's hard to train thoroughly for that many events. For this year's Senior Olympics, I just entered the two events I thought I could be competitive in at the national level."

A broken ankle while vaulting in 1998 kept him out of vaulting for four months, with another four months to get back to his previous capability; but he came back stronger than ever and won the national bronze medal in pole vaulting. He also finished sixth again in the national triathlon competition in Orlando.

He attributes his success to exercise and the attitude that he really did want to make his dream of excelling in at least one sport come true. His workout includes practicing sprints to improve speed and twice-a-week floor exercise workouts with Pat Mirandy at the Marshall Fitness Center. "The floor exercises with Pat's class for the last three years have given me a lot of

strength in my torso. I need a lot of speed for getting to the vault pit, but I also need the strength to get upside down during the vault. I work some with weights, too."

At the recent Senior Olympics, the top three finishers in a field of 16 who qualified for the event tied with a vault of 9 feet, 6 inches. Chassay ended up with the third place bronze medal due to tiebreaker rules. Ironically, the second place finisher was using a pole that Chassay had loaned him. However, he was so excited to win the bronze medal that he slept with it around his neck the first night, he said.

"Pole vaulting is a combination of a lot of factors. It's both athletic and scientific," Chassay said. "I'm working on some new techniques, and hope to successfully clear 10 feet by the end of the year so I can consider going to Boston in March to compete in the National Indoor Track and Field Meet."

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

## Obituary

**Greer, Aubrey T.**, 70, of Huntsville, died Oct. 20. He retired from Marshall in 1997 where he worked as a technical manager in the Plant Management Division of the Facilities Office. He is survived by his wife, Joyce M. Greer.

## Employee Ads

## Miscellaneous

- ★ Solid teak bar w/formica inlay, 2 small drawers and cabinet w/doors, \$200. 883-5396
- ★ Men's Schwinn 10-speed road bike, Volare model, \$150. 539-0263
- ★ Satellite dish w/all accessories, 10', \$300. 586-7424
- ★ Odyssey Rossie II putter, like new \$45. 883-5114/Jim Holmes
- ★ Antique brass bed, full size w/rails, \$625; obo; cedar chest, cherry finish, \$250. 881-8648
- ★ Maytag washer, dryer, \$300; freezer, \$50; seven rolls fescue hay, \$15. 259-5140
- ★ Kirby vacuum w/attachments, \$40; wood display cabinet w/glass top, \$75. 883-2125
- ★ Propane hot water heater, 30 gallon, used 3 months, \$80. 828-4564
- ★ Satellite dish, 8', electronics not provided. 880-6335
- ★ Oak and hickory firewood, cut to any length, will deliver. 931-433-6642
- ★ Department 56 Snow Village, many pieces, most retired, selling at below green book prices. 837-0037
- ★ Dooney & Bourke medium-sized handbag and wallet, hunter green, \$150 for set. 881-7000
- ★ Thirteen House Plan magazines, \$2 each obo; two Mr. Coffees, white or tan, clean, \$13 each. 461-8369
- ★ Matching couch and chaise lounge chair, flame stitch w/green, burgundy, tan, \$295 for both. 883-9278
- ★ Silent Flame wood stove, 2-speed automatic fan, glass doors, approx. 30' triple wall pipe. 498-3491
- ★ Road bicycles, two Trek 400's, \$100 each; Trek 1400, \$300. 232-1940
- ★ Buck stove insert, \$75; dishwasher, \$25; electric cooktop, \$25; pinkish beige lavatory sink. 778-9149/Dave
- ★ Three Smith-Corona typewriters, \$25 each; Women's cross-country skis w/poles, \$75; home spa, \$25. 881-7821
- ★ Sailboat, Classic Morgan 22, 1970, disp 3500#, draft 22", long cockpit, 16HP obo, sleeps 4, \$2,400. 883-4177
- ★ Sears Lifestyler treadmill, \$250; four maple Tell City dining chairs w/new rush seats, \$400. 586-2852
- ★ Walnuts, \$4 per 50 lb. bag. 880-2290
- ★ Kenmore built-in dishwasher, new pump, motor,

spray arm, \$125. 828-1657/leave message.

## Vehicles

- ★ 1978 Ford LTD station wagon, a/c, good tires, new tune up, \$500 cash. 536-2629
- ★ 1995 Ford Taurus GL, \$5,750; Dodge D50 pickup, \$1,950. 776-3040
- ★ 1989 Dodge Caravan SE, 80K miles, original owner, blue, 6-cylinder, \$37,900. 650-4652
- ★ 1990 Ford Centurion 4-D Dually, turbo diesel, auto, loaded, 90K miles, \$12,500. 353-0455
- ★ 1998 Jeep Cherokee SE, 19K miles, 4-dr., 2wd, 6-cylinder, 5-speed, air, CD, cruise, \$15,950. 880-2454
- ★ 1997 Jeep Wrangler, red w/black soft top, 6-cylinder, 5-speed, 4.0L, a/c, aluminum wheels, 72K miles. 355-1353
- ★ 1995 Toyota Camry LE, 45K miles, red, a/c, AM/FM cassette, auto transmission, \$11,900. 539-7855
- ★ 1997 Cadillac, maroon, power leather seats, windows and locks, new a/c and tires, \$2,300 obo. 582-5210
- ★ 1996 Saturn SL2 sedan, a/c, pw, auto, 43,350 miles, one owner, red, tape player, \$9,100. 837-1992
- ★ 1977 Porsche 924, silver w/black interior, 4-speed, sunroof, 138K miles, \$2,200 obo. 828-6213
- ★ 1995 Jeep Grand Cherokee Limited, leather, fully loaded, 46K miles, \$16,200 obo. 757-9261

## Wanted

- ★ Used croquet set and shuffleboard equipment. 882-6100
- ★ Tickets for Alabama/Auburn game. 461-7154 after 5 p.m.
- ★ Hot tub in good condition. 828-3169
- ★ Tickets for Alabama/Auburn football game on 11/20. 772-1969 after 6 p.m.

## Found

- ★ Two keychain store discount cards in south parking lot of Bldg. 4203. 544-1199 to identify
- ★ Surgical or technician precision needle nose pliers, Bldg. 4727 on 11/2/99. 544-6066 to identify

## Lost

- ★ Gold men's initial ring, sentimental value. 544-5577 or 772-6609

## Center Announcements

- ☛ **MARS Fishing Club** — Results of the Wheeler Lake, First Creek tournament on Nov. 6 are: first place — Don McQueen and Charlie Nola; second place — Joe Glover and Charles Kilgore; third place — Charlie Cothran and Ross Evans. Big fish honors went to Charlie Nola with a 2.02-pound bass. The next tournament is the Sauger Tournament on Dec. 11 on Wheeler Lake out of Ditto Landing. For more information, call Charles Kilgore at 544-9437; Don McQueen at 544-9073 or Charlie Nola at 544-6367.
- ☛ **MESA Meets** — The Marshall Engineers and Scientists Association MESA will meet at 11:30 a.m. Nov. 18 in Bldg. 4471, room C-105.
- ☛ **Shuttle Buddies Breakfast** — The Shuttle Buddies will meet for breakfast at 9 a.m. Nov. 22 at Mullins Restaurant on Andrew Jackson Way. For more information, call Deemer Self at 881-7757 or Gail Wynn at 852-8189.
- ☛ **Association of Government Accountants Meet** — The North Alabama Chapter of the Association of Government Accountants will hold its monthly meeting at 11 a.m. Nov. 18 at the Holiday Inn at Madison Square Mall. Patti Muller, who serves on the Federal Retirement Thrift Investment Board, will speak. The cost for lunch is \$13. For reservations, call Rick Angle at 544-0070.
- ☛ **MARS Ballroom Dance Club** — The MARS Ballroom Dance Club will offer swing and foxtrot lessons on Nov. 15, 22 and 29 in the Parish Hall of St. Stephen's Episcopal Church at 8020 Whitesburg Drive. Intermediate classes will start at 7 p.m. and beginner classes at 8 p.m. The lessons cost \$4 per person per night. For more information, call Linda Kinney at 544-0563.
- ☛ **Property Managers Seminar** — The Rocket City Chapter of the National Property Management Association (NPMA) will present a seminar from 8:30 a.m.-4 p.m. Nov. 22 at the Sparkman Auditorium, Sparkman Center, on Redstone Arsenal. Cost is \$75 for members of the NPMA and sister associations, and \$100 for non-members, or \$125 for attendees receiving automatic new NPMA membership status. Pre-register via e-mail at: [william.r.demarco@boeing.com](mailto:william.r.demarco@boeing.com) or fax to 256-461-3699, attn: Bill DeMarco.
- ☛ **Genealogical Society Meets** — The Huntsville Genealogical Computing Society will meet at 7 p.m. on Nov. 15 in the auditorium of the Huntsville-Madison County Library.

## MARSHALL STAR

Vol. 40/No. 11

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](mailto:intercom@msfc.nasa.gov) The Marshall Star does not publish commercial advertising of any kind.

Manager of Internal Relations  
and Communications — Norman Brown  
Editor — Debra Valine

U.S. Government Printing Office 1999-533-127-80086

BULK RATE  
Postage & Fees PAID  
NASA  
Permit No. G-27