



MARSHALL STAR

Marshall Space Flight Center

June 21, 2001

Summer Education programs at the Marshall Center offer students, teachers keys to the future

by Jonathan Baggs

High school and college students participating in this year's summer education programs at the Marshall Center don't remember man's first steps on the Moon. The Marshall Center — the NASA facility where those first, historic Moon steps began, however — is helping these students explore high-tech and aerospace careers that could lead to footsteps on Mars, important research on the International Space Station or new rocket technology.

Marshall is one of several NASA Centers hosting summer education programs that match NASA scientists and engineers as mentors with high school

See *Summer programs* on page 6



Photo by Doug Stoffer, NASA/Marshall Space Flight Center

Shuttle Pilot Jim Kelly, of STS-102, visits with Ashley Adams, a student in the Future Assets Student Talent (FAST) program, following the mission highlights briefing June 14 in Morris Auditorium. See Silver Snoopy Awards on pages 4-5.

Marshall's space mirror technology helps Texas telescope improve its view

by Jonathan Baggs

NASA engineers in Alabama have been climbing a Texas mountain for the past year to help astronomers reach deeper into space with the world's third-largest telescope.

The McDonald Observatory on Mount Fowlkes near Fort Davis, Texas, is home to the Hobby-Eberly Telescope. When astronomers there needed expertise in how to handle temperature extremes that affect the telescope's viewing capability, they hired the Marshall Center's engineers.

With more than 30 years of experience developing sophisticated optical systems for space exploration, the Marshall Center is NASA's lead center for optics manufacturing and technology development.

The University of Texas at Austin, which owns and operates the McDonald Observatory, awarded the Marshall Center a

\$695,000 contract in November 1999 to design a Segment Alignment Maintenance System for the Hobby-Eberly Telescope.

John Rakoczy, lead engineer at Marshall working on the alignment system, said the project is a chance for Marshall's optics team to showcase its talents by working on ground-based telescopes in addition to those designed to operate in space. Other ground-based observatories could be potential customers of Marshall's optics facilities and team, Rakoczy said.

"By teaming our expertise with industries, not only do they benefit, but the space program benefits as well," Rakoczy said. "Working on the Hobby-Eberly Telescope gives the McDonald Observatory the benefit of our years of optics experience. At the same time, this project gives the Marshall team the opportunity to further our knowledge about working with segmented mirrors."

With a 36-foot (11-meter) primary mirror made up of 91

See *Mirror* on page 2

Mirror

Continued from page 1

hexagonal segments, the telescope is the third largest in the world.

As telescopes have become bigger, both on the ground and in space, the reflecting mirrors that make them work are increasingly being made in segments — that is, with smaller mirrors fitted together to make one large mirror. Since even small temperature fluctuations can cause these mirror segments to move out of alignment, and thus limit a telescope's focusing capability, one remedy is to incorporate a system that will automatically keep the segments aligned and in focus.

"Temperature changes are the great enemy of telescopes," Rakoczy said. "Even a fraction of a degree can affect alignment of large, segmented mirrors. When you've got something as big as the Hobby-Eberly Telescope, you're trying to keep the mirror segments aligned within tens of nanometers."

A nanometer is equal to one-billionth of a meter — a distance so small that it can't be seen with the human eye or even with a conventional optical microscope. For comparison, the head of a pin is about a million nanometers in diameter.

The alignment system uses electronic sensors to monitor the gaps between mirror segments. When the sensors detect any change in mirror alignment, the system compensates by sending computer-controlled directions to a series of small motors under each mirror segment. These directions are determined using highly



McDonald Observatory photo

Workers install the first three mirror segments in the Hobby-Eberly Telescope.

sophisticated mathematical algorithms. Three motors, or actuators, are under each mirror segment and move the segment back into correct alignment.

The Marshall Center is developing the control system and software and is responsible for overall system integration. The center is teamed with Blue Line Engineering of Colorado Springs, Colo., which is providing the sensors and electronics.

"Blue Line is responsible for defining the overall system architecture and developing the sensor assemblies, local electronics, and distributed system control processing — everything in the dome," said Edward "Sandy" Montgomery, manager of the program for the Marshall

Center. "Marshall is responsible for the part of the Segment Alignment Maintenance System residing in the control room."

A prototype system was successfully tested on a few of the mirrors between October 2000 and April 2001 with a design review completed in May. Final acceptance testing of the complete system will begin after fabrication and installation this fall.

The following Web link contains more information on the Hobby-Eberly Telescope:

<http://www.as.utexas.edu>

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

Dr. Michael Polites announces retirement

Dr. Michael Polites, deputy manager of the Avionics Department at Marshall, has accepted the position of associate professor of aerospace engineering and mechanics in the College of Engineering at the University of Alabama, effective Aug. 16. He will retire from NASA on June 30.

Polites began his career at Marshall in 1967 and has worked in the Astrionics Laboratory, the Systems Analysis and Integration Laboratory, the Structures and Dynamics Laboratory, and more recently in the Avionics Department.

He previously served as deputy director of the Astrionics Laboratory and chief of the Instrumentation and Control Division in the Astrionics Lab. He also served a one-year detail in the Advanced Projects Office of the Office of Space Flight at NASA Headquarters.

He has a bachelor's degree in systems and automatic controls from Washington University in St. Louis, a master's degree in electrical engineering from the University of Alabama, and a doctorate in electrical engineering from Vanderbilt University in Nashville.

Be careful when riding all-terrain vehicles

from Marshall's Safety Office

There were an estimated 2,470,000 all-terrain vehicles (ATV) in operation in the United States in 1993 with no distinction made between three- and four-wheeled models. It is estimated that 22.2 percent of the operators of ATVs are under the age of 18.

Children younger than 16 years accounted for about 40 percent of ATV-related injuries from 1985 through 1994.

The cost of ATV-related injuries among children seen in emergency rooms from 1992 to 1994 is estimated at \$643 million for 93,207 injuries. The average cost per injury is estimated at \$6,899. National injury statistics between 1985 and 1989 show four-wheeled ATV-related injuries and deaths more than doubled, while the use of four-wheeled ATVs nearly quadrupled.

A total of 2,414 deaths associated with three- and four-wheel all-terrain vehicles have occurred from 1982 to 1993. Fifty percent of the deaths have taken place in 12 states. The five states with the most fatalities associated with ATVs have been California, Pennsylvania, New York, Michigan and Texas.

From January through December 1993, there was a 15 percent decrease of ATV-related injuries treated in emergency rooms. Factors related to this decline include the cessation of sales of three-wheeled ATVs and lower overall ATV sales.

In 1994, four-wheeled ATVs accounted for 67 percent of all ATV-related fatal incidents. A review of fatalities indicated that 942 — 37 percent — victims were under 16 years and 406 — 16 percent — victims were under 12 years.

An increased risk of injury to children under 16 years of age is associated with recreational use of ATVs; ATVs with larger engines; ATVs not modified for engineering problems; and unsafe practices that the ATV manufacturer had specifically warned against, such as passengers, excessive speed and riding on pavement.

A nationwide sample of injured persons in 1985 found that the interaction of multiple factors contributed to ATV injury incidents. Driver related factors were involved in 59 percent, environment-related factors in 50 percent and ATV-related factors in 42 percent.

ATV operators under 16 years, with less than one month of operating experience, under five feet in height, and weighing under 100 pounds, have increased risk of injury and death on an ATV.

ATV injuries are six times more likely to result in hospitalization and 12 times more likely to result in a fatality when compared to bicycle data per 1,000 vehicles.

For drivers under 16 years, 12 percent of the ATV-related injuries treated in hospital emergency departments required hospitalization for one day or more. Only 4 percent of other consumer product-related injuries required a stay of one day or more.

In a comparison of risk factors associated with ATV-related injuries in 1985 and 1989, the risk of injury to youth operating an ATV is more than twice the risk to ATV operators over 35.

Safety Bowl 2001

from Marshall's Safety Office

The Safety Bowl will have some modifications this year. One key change will be the re-wording of the questions. The basic information will be drawn from the published questions, but the structure of the question will not necessarily be the same as that published. This is intended to promote greater dissemination of the information contained in the questions during the competition. Some of last year's contestants were so well-versed on the questions that the audience was denied the opportunity to hear the content of many questions.

1. What is the odorless, colorless gas that is produced by the incomplete combustion of fuels, and interferes with the delivery of oxygen in the blood to the rest of the body?
2. Fire extinguishers are labeled using standard symbols for the classes of fires they can put out. What is a class C fire?
3. True or False: The best time to stretch is when you are cold, as good stretches will warm up your body quickly.
4. True or False: The level of stress in one's life is controlled by one's environment.
5. True or False : Marshall's Safety Goal is to establish Marshall as No. one in safety with OSHA.
6. HAZTRAK is used to record/maintain:
 - A. Close calls
 - B. Mishap reports
 - C. Facility safety findings
 - D. SCRS metrics
7. Who is to ensure monthly inspections of their facilities and grounds have been conducted?
 - A. Building managers
 - B. Area managers
 - C. Assistant building managers
 - D. Director of the Safety and Mission Assurance Office
8. Management should use what to assure that all aspects of system safety are thoroughly analyzed?
 - A. Safety Office micro-management
 - B. Line-organization safety concurrence
 - C. Internal program analysis
 - D. Independent assessments
9. If a hazard cannot be eliminated, then it should be what?
 - A. Overlooked
 - B. Controlled
 - C. Re-labeled as a non-hazard
 - D. Designed out of the system, regardless of the cost
10. What is a safety critical operation?

See Answers on page 7

STS-102 astronauts present Silver Snoopy Awards to Marshall team

Fifteen members of the Marshall team received Silver Snoopy Awards from the Shuttle Mission STS-102 astronauts during their visit to the Marshall Center June 14.

Shuttle Commander James Weatherbee, Pilot Jim Kelly and Mission Specialists Andy Thomas and Paul Richards presented the awards to Marshall contractors who have made significant contributions to the space program.



Photo by Doug Stoffer, NASA/Marshall Space Flight Center

Commander James Weatherbee, center, presents Silver Snoopy Awards to Beverly Goodrich of Lockheed Martin, left, and Karen Fowler of New Technology Inc.



Photo by Doug Stoffer, NASA/Marshall Space Flight Center

Weatherbee, left, presents an award to Mantu Dey of AJT and Associates.



Photo by Jeff Wolfe, NASA/Marshall Space Flight Center

Pilot Jim Kelly, right, presents Ed Gollop of Pace & Waite with a Silver Snoopy Award.



Photo by Jeff Wolfe, NASA/Marshall Space Flight Center

Woodrow Bruce, left, of The Boeing Company, and Jeff Smith, right, of Rocketdyne, receive awards from Kelly.



Photo by Emmett Given, NASA/Marshall Space Flight Center

Mission Specialist Andy Thomas, right, presents a Silver Snoopy Award to Charlie Conway of The Boeing Company.



Photo by Emmett Given, NASA/Marshall Space Flight Center

At left: Boeing employees Mark Rockwell, left, and Lucy Ennis, right, receive Silver Snoopy Awards from Thomas.



Photo by Emmett Given, NASA/Marshall Space Flight Center

Thomas, right, presents a Silver Snoopy Award to Anna Whatley, left, of The Boeing Company.



Photo by Emmett Given, NASA/Marshall Space Flight Center

Kelly Bushue, left, and Vance Davis, right, of The Boeing Company, receive Silver Snoopy Awards from Thomas.



Photo by Dennis Olive, NASA/Marshall Space Flight Center

Rocketdyne's Tim Lovell, left, accepts a Silver Snoopy Award from Mission Specialist Paul Richards.

At left: Jeffrey Hixson, left, of United Space Alliance, and Robbie (Clementine) Holmes, right, also of United Space Alliance, receive Silver Snoopy Awards from Richards.



Photo by Dennis Olive, NASA/Marshall Space Flight Center

Obituaries

Allred, Paul J., 84, of Montgomery, Ala., died April 21. He retired from Marshall in 1972 where he worked as a special systems quality control representative.

Vinson, Charlotte M., 61, of Madison, died Feb. 5. She retired from Marshall in 1995 where she worked as a contract specialist. She is survived by her husband, Tommy Vinson.

Summer programs

Continued from page 1

and college students, as well as with college and university faculty. By fueling educational interest in science and math today, NASA hopes these students and educators will help build tomorrow's highway to space and strengthen and diversify the pool of future math, science and engineering professionals.

These students also are continuing a tradition at the Marshall Center of exploring the realm of possibilities. It was at Marshall where the Apollo Moon rockets were developed, and today it is NASA's lead center for managing all of the propulsion elements that carry the Space Shuttle from launch to orbit. In addition to exploring new rocket technology, Marshall also manages all of the science experiments conducted on the Space Station.

As Jim Pruitt, manager of Marshall's Education Programs Department, puts it, "We strive to help prepare students to make their dreams become a reality. And, we give them the tools to develop and optimally use technology that will push us beyond the boundaries defining our world today.

"I'm excited about the talent represented in our programs this summer and appreciate very much our employees who have volunteered to serve in the crucial roles of mentors and advisors," Pruitt added.

Willie Love, acting director of Marshall's Equal Opportunity Office, said, "There is no greater teacher than first-hand experience."

Three programs for high school and college students as well as a college and university faculty program are being held at the Marshall Center this year.

Summer Scholars Internships

Love is guiding the Equal Opportunity Summer Scholars Internship Program at Marshall that helps provide educational opportunities to minority college and university students. More than 50 minority and disabled students are participating at Marshall this year. Students are assigned a NASA mentor and participate in projects and experiments under mentor guidance. These students are furthering their education in chosen fields including engineering, mathematics, computer science, biology and physics.

"The program creates a win-win-win environment," Love added. "The students win, NASA wins, and the colleges and universities win."

Universities and colleges represented at Marshall include North Carolina Agricultural and Technical State University in Greensboro; Southern University and A&M College in Baton Rouge, La.; City College of New York; Florida A&M University in Tallahassee; New Mexico Highlands University in Las Vegas; Morehouse College, Spelman College, and Emory University, all in Atlanta; the University of Texas at San Antonio; University of North Alabama in Florence; University of Alabama in Tuscaloosa; and the University of Alabama in Huntsville,

Alabama A&M University, and Oakwood College, all in Huntsville.

FAST

Other students are participating in the Future Assets Student Talent (FAST) program. Targeted toward high school students with disabilities, the program encourages them to pursue their education in a chosen field. Ten students are involved this year as interns in engineering, Web site production, photography, video editing, administrative duties, television production and archival research.

The students are from Calhoun Community College near Decatur, Ala.; Faulkner State University and Grissom, Johnson, Lee and Huntsville high schools in Huntsville; the Alabama School for the Deaf in Talladega; and Hartselle, Ala., High School.

SHARP

Marshall also is one of several NASA centers hosting the Summer High School Apprenticeship Research Program (SHARP). In the Huntsville-Madison area, 26 students are participating this year. Designed for minority students, the SHARP program assigns NASA mentors from specific areas of science or technology. Students earn a salary while conducting research with their NASA mentors. This year's student participants are studying logistics engineering, flight systems, space science, nuclear propulsion, avionics, Shuttle integration, engineering systems, microgravity, environmental control and life support, system safety and quality assurance, and infrared measurement.

Summer Faculty

It's not only students who can take advantage of educational opportunities at Marshall. Each year, NASA awards fellowships to full-time engineering and science educators at U.S. colleges and universities for the Summer Faculty Fellowship Program. The program's participants spend 10 weeks conducting hands-on research into selected topics.

This year's participating educators represent colleges and universities from Alabama, Georgia, Kansas, New York, Missouri, Tennessee, Louisiana, South Dakota, Oklahoma, Pennsylvania, Maine, New Jersey, Michigan, Virginia, Wisconsin and Mississippi.

While furthering the knowledge of participating professors, the fellowships also stimulate an exchange of ideas between educators and NASA employees. In addition to their research activities, the faculty participants attend weekly seminars, courses and workshops.

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

Center Announcements

Honors Day ceremonies

Employees at the Marshall Center who have made exceptional contributions to America's space program will be recognized for their efforts during the Center's annual awards ceremonies. NASA Honor Awards will be presented at 10 a.m. in Morris Auditorium, followed by Marshall Center awards at 2 p.m. Awards will be given by NASA and the Marshall Center to 247 civil service and contractor employees. Joseph H. Rothenberg, NASA's Associate Administrator for Space Flight, and Marshall Center Director Art Stephenson will present the awards.

Marshall picnic

The Marshall Center's annual picnic — Family Fun Day — will be held from 10 a.m.-3 p.m. Aug. 25 at the Marshall picnic area.

CFC video

The 2001 Combined Federal Campaign is developing a video featuring stories of those who have been touched by the generosity of all who have given to the Combined Federal Campaign. If you have a story to share, e-mail your story to Rosa M. Kilpatrick by June 28.

Upcoming Classes

Coping, listening workshops

Two workshops will be held June 28 in Bldg. 4200, room G-13D. Coping with tough times will be from 8-11:30 a.m. Improve on-the-job listening and speaking skills will be from 12:30-4 p.m. Civil servants may register through AdminSTAR. For more information, call Chrissa Hall at 544-5468.

Clubs and Meetings

MESA meets

The Marshall Engineers and Scientists Association (MESA) will meet at 11:30 a.m. Thursday in the Union office, Bldg. 4471, room C-105.

Shuttle Buddies meet

The Shuttle Buddies will meet for breakfast at 9 a.m. June 25 at Mullins Restaurant on Andrew Jackson Way. For more information, call Deemer Self at 881-7757 or Gail Wynn at 852-8189.

Sports

SCUBA certification class

The MARS SCUBA Club will hold a two-weekend Open Water SCUBA Diving certification class starting July 28. Civil servants and on site contractors are invited. An information barbecue will be held at the Marshall picnic area from 4:30-8 p.m. July 13 for all club members, persons interested in the class, and persons interested in the club. Free food and beverages will be served. At the picnic we will discuss the upcoming class, as well as the club's functions, resources, annual trips, social events and our history as part of the Center. For more information, call Kurt B. Smalley at 544-6017.

Veterans' night out

In honor of Korean War veterans, free tickets are available to the Huntsville Stars baseball game June 23 for all veterans and their families. Tickets can be picked up at the Joe Davis Stadium gate beginning at 6 p.m. The patriotic program begins at 6:30. The game is sponsored by Lynn Layton Chevrolet of Decatur and WDRM radio.

NASA Ski Week

The 11th Annual NASA Ski Week will be hosted at Banff/Lake Louise on March 9-16, 2002. Skiers from six NASA Centers will gather at this British Columbian resort for camaraderie and winter sports at three different resorts constituting 7,500 skiable acres. All Marshall employees, on-site contractors, retirees, and dependents are eligible to participate. Interested persons are encouraged to call 1-233-0705 or e-mail Thomas.S.Dollman@msfc.nasa.gov to

request additional information.

Miscellaneous

American Music Concert

The Madison Community Chorus will present "An American Music Concert" at 7 p.m. July 4, at Bob Jones High School Auditorium. Tickets are \$12 for adults and \$8 for children 10 and under. For tickets, call 316-0521 or 461-0189, or send e-mail to: glparker01@msn.com

Job Opportunities

CPP-01-044-EB, AST, Data Systems (Team Leader), GS-855-14, Engineering Directorate, Avionics Department, Simulation Group. Closes June 27.

CPP-01-046-EB, AST, Data Systems (Team Leader), GS-854-14, Engineering Directorate, Avionics Department, Computers and Data Systems Group. Closes June 27.

CPP-01-047-EB, AST, Data Systems (Team Leader), GS-854-14, Engineering Directorate, Avionics Department, Computers and Data Systems Group. Closes June 27.

CPP-01-053-JB, AST, Project Management, GS-801-14, Space Transportation Directorate, Second Generation RLV Program. Closes June 27.

Answers

Continued from page 3

1. Carbon Monoxide
2. Energized electrical equipment fire
3. FALSE
4. FALSE
5. FALSE (within NASA)
6. C. Facility safety findings
7. B. Area managers
8. D. Independent assessments
9. B. Controlled
10. A potentially hazardous operation that must be performed in a predetermined sequence to prevent injury or damage to property or equipment

Employee Ads

Miscellaneous

- ★ Truck bed rails, triple chrome plated, 1-1/2" diameter, heavy duty, 4 stanchions, \$115. 883-5955
- ★ New vinyl ski vest, size 40-42, Coast Guard approved, \$25. 883-8257
- ★ Small white wooden desk, raised shelf for TV/computer, \$40 obo; fireplace poker set, wrought iron w/brass handles, \$30 obo. 830-5125
- ★ 1976 Alacraft 15' runabout w/trailer, 50HP Mercury motor, boathouse kept, \$1,500 obo. (256) 582-5210
- ★ 1996 Evinrude outboard motor, 6 HP, less than 20 hrs. use, \$700. (256) 739-9775/ Russ
- ★ Hot Point dryer, \$80; Sears washer, \$75. 837-6649
- ★ Purebred Australian Shepherd puppies, 6 weeks old, 1st shots, wormed, vet checked, \$75 each. (256) 561-2287
- ★ Coleman, 12' pop-up camper, sleeps 6-8, \$3,800. 653-3625/864-0221
- ★ Snapper riding lawnmower, 8 HP, \$475; Serta king-size pillow-top mattress, 1 yr. old, \$400. 461-6337
- ★ Three wooden desks; 50's modern student, \$150; executive-large, \$250; executive-grande, \$350. 233-0705
- ★ Nintendo 64 game console w/9 games and all accessories, \$200. 461-8680
- ★ GE Spacemaker double-oven range, \$150. 881-4601
- ★ 1999 Kawasaki jet-skis; Model 900STX, 3-seater, garage-kept, w/trailer/cover, \$4,800; Model 1100Zxi, 2-seater, garage-kept, w/trailer/cover, \$4,150. 350-2782
- ★ Fiberglass hard cover for Nissan/other short bed truck, 74"x55", \$325; automotive creeper, \$15. 864-0362
- ★ Queen-size platform waterbed w/12 large storage drawers, bookcase headboard, padded side and end rails, \$200. 533-4657
- ★ 1961 Sears tractor suburban, 6-speed, \$75; Tecumseh engine, 10 HP 4-cycle, horizontal shaft, new, \$250. 883-6284
- ★ Redwood patio furniture; rocker w/cushion, \$65; straight chair w/cushion, \$55; pine

- table 6' diameter, \$50. 881-6040
- ★ JD 21S string trimmer, \$95; Rubbermaid outside utility storage cabinet, can deliver and reassemble, \$150. 325-6000
- ★ "Dogloo" type doghouse, \$30; Pentium 100 MHz computer, \$40. 830-4304
- ★ Dutch Masters Cameron elite cigars, 3 boxes, 50 per box. 682-3158
- ★ First Alert escape ladder, never used, \$30. 464-6933
- ★ Radio controlled model airplane, OS 46 FX engine, 8-channel Futaba radio w/extra flight pack, \$475. 233-5247
- ★ Old albums, \$1 each. 882-1097
- ★ 1976 Challenger bass boat, 17', new carpet/floor, 12/24 Johnson trolling motor, EZ Trail trailer, 70HP Johnson motor, \$1,095. 828-5550
- ★ Queen-size Beauty Rest mattress/box springs/rails/sheets, \$75; Boy's clothes, Tommy H, Oshkosh, etc, size 4T. 971-0048

Vehicles

- ★ 1984 Ford Thunderbird, 5-speed turbo, A/C, PS, PB, CD player, 150K miles. \$700 obo. 883-5396
- ★ 1996 Ford F150, 65K miles, 300CID, 6-cyl., 5-speed, SWB, dual tanks, bedliner, Michelins, \$6,950 firm. (256) 753-2278
- ★ 1967 Ford Mustang, blue, automatic, A/C, new tires, new interior, 2nd owner, \$5,500 obo. 379-4921
- ★ 1990 Ford Bronco II, 4x4, 152K miles, auto, blue on white, \$2,500 obo. 721-9831
- ★ 2000 Malibu LS, 34K miles, 6-cyl., leather, auto, CD/Tape, cruise, dual airbags, \$14,000. 759-5242
- ★ 1997 Mercury Villager GS van, 73K miles, ext. warranty, \$12,799. 650-5375
- ★ 1992 Mitsubishi 3000 GT, white, 5-speed, AM/FM/CD, leather, sunroof, 73K miles, \$7,900 obo. 880-6086
- ★ 1999 Tahoe LT, pewter w/gray leather interior, 2WD, TG, RA, 19K miles, \$25,000. 653-6603/852-0799
- ★ 1997 Nissan Maxima SE, 5-speed, Bose sound, new Michelins, all power, \$12,500. 350-0682
- ★ 1987 Nissan 300ZX, auto, 156K miles, \$3,500; 1993 BMW 318i, 2-door, black w/

- tan interior, 126K miles, new tires, \$7,800 obo. 232-0246
- ★ 1993 Dodge Grand Caravan SE, one owner, many new parts, service records available, \$4,700 obo. 895-9520

Wanted

- ★ Carpool from Birmingham to Marshall Center, 2 or 3 times a week. (256) 874-1632
- ★ Kegarator, small fridge w/tap on top, holds a keg, goes under countertop. 931-937-6752
- ★ Free standing storage rack for cassette tapes. 882-2400
- ★ Stereo amplifier w/jacks to accept CD player input. 721-1462

Free

- ★ Fiberglass tri-hull boat, all gages and engine have been removed including out-drive. 351-1204

Lynyrd Skynyrd, .38 Special in concert at Redstone Aug. 25

The legendary southern rock bands Lynyrd Skynyrd and .38 Special will appear in concert Aug. 25 at the Redstone Arsenal Activity Field. Advance tickets — limit two at \$20 each — are available to the Redstone community through Thursday from 8 a.m.-4 p.m. at the Sparkman Complex cafeteria; from 1:30-8 p.m. at the Recreation Center's Information, Ticket and Registration Office in Bldg. 3711 on Patton Road; and from 9 a.m.-8 p.m. at the Post Exchange cashier's window. Regular advance ticket sales to the public — at \$25 each — begin June 25. Tickets at the gate on Aug. 25, if available, are \$30.

MARSHALL STAR

Vol. 41/No.40

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 2001-633-095-20053

PRE-SORT STANDARD
Postage & Fees PAID
NASA
Permit No. G-27