MARSHALL STAR

Serving the Marshall Space Flight Center Community **Sept. 5, 2002**

NASA lightning study achieves flight-duration milestone, monitoring four storms in single mission

by Sherrie Super

A NASA team flying an uninhabited aerial vehicle to study thunderstorms recently achieved a milestone, completing the study's longest-duration research flight — six hours and 32 minutes - and monitoring four thunderstorms in succession.

Based at the Naval Air Station Key West, Fla., researchers with the Altus Cumulus Electrification Study (ACES) used the Altus II remotely piloted aircraft to study a thunderstorm in the Atlantic Ocean off Key West, two storms at the western edge of the Everglades and a large storm over the northwestern corner of the Everglades.

We gathered an extensive amount of data and had the opportunity to observe a variety of storm conditions, such as when

*See **Lightning** on page 5*

Photo by Tom Tschida, NASA/Dryden

The Altus II twin turbo uninhabited aerial vehicle can soar up to 65,000 feet. It was used to study thunderstorms for the Altus Cumulus Electrification Study (ACES) in August near Key West, Fla. The ACES study is a collaboration between the Marshall Center, the University of Alabama in Huntsville, Goddard Space Flight Center, Pennsylvania State University and General Atomics Aeronautical Systems Inc.

Marshall scientist Sharon Cobb helps develop facility to study materials in out-of-this-world Space Station lab

by Tracy McMahan

As a young woman, Sharon Cobb became fascinated with materials when she watched molten metal being formed into huge shapes at a steel foundry in Birmingham, where her father worked.

Today, she is the lead scientist developing an important facility for studying materials in an out-of-this-world laboratory — the International Space Station.

"Materials science is an integral part of our everyday life," said Cobb, a materials scientist at the Marshall Center. "If you think about the things you use in your daily life, from your coffee cup to the car you drive, you realize that having the right material is key to how things work. As a materials scientist, I study the chemical and physical make up of materials and use what I learn to make new or improved materials."

During her 16 years at Marshall, Cobb has participated in several materials science experiments flown on the Space Shuttle. Cobb is using that experience as lead scientist for the Materials Science Research Rack — soon to be the main facility on the International Space Station for materials science investigations. She is working with Marshall engineers who are developing the materials science rack and integrating the first two experiment modules that will fit inside the rack. Scientists and engineers completed a critical design review of the research rack in June, which means NASA has approved the design phase and is ready

*See **Cobb** on page 4*

Marshall, Boeing sign facility use agreement

Marshall news release

The Marshall Center has signed a facility use agreement with Boeing in Huntsville, a business site of Boeing Integrated Defense Systems, St. Louis, for Boeing to use part of a large building at the Marshall Center.

Under the terms of the five-year agreement, Boeing will reimburse NASA for the use of approximately 18,000 square feet of an estimated 160,000 square feet of usable space in Bldg. 4708. The company plans to perform space-related work for NASA, other government agencies and some private companies.

Built in 1958, the facility includes high-bay areas for work on large structures, and clean-room facilities that provide contaminant free space for work on precision parts or systems.

A variety of work has been performed in the structure during the past 44 years. It was originally used as a missile assembly facility. During the Apollo days, Saturn I rockets were constructed there along with other components for the lunar missions. It served a variety of functions from the 1970s into the mid-1980s, including office space and an area housing displays for visitors. Since 1988, NASA has provided it to Boeing for assembly of modules and systems for the International Space Station — some of the most significant elements of the orbiting human outpost.

Boeing Integrated Defense Systems is one of the world's largest space and defense businesses. It provides systems solutions to global military, government and commercial customers. It is a leading provider of intelligence, surveillance and reconnaissance; the world's largest military aircraft manufacturer; the world's largest satellite manufacturer and a leading provider of space-based communications; the primary systems integrator for U.S. missile defense; NASA's largest contractor; and a global leader in launch services.

Photo by Doug Stoffer, NASA/Marshall Center

Oberth award recognition

Robert Sackheim, left, Marshall's assistant director and chief engineer for space propulsion, is presented with a print of Dr. Hermann Oberth by David Christensen of Lockheed Martin Space Systems Co. The print was in recognition of Sackheim winning the Hermann Oberth Award from the American Institute of Aeronautics and Astronautics, Alabama/Mississippi Section. Oberth, who died in 1989, is considered one of the founding fathers of rocketry and in the 1930s took on a young assistant named Wernher von Braun, who later became Marshall's first director. The original painting was commissioned by Christensen in 1964 as a gift to Oberth.

Financial document cutoff dates set

September cutoff dates and times for all financial documents, including Monthly Contractor Financial Reports (NASA Form 533), should be received in the Accounting Operations Office on the following dates: Interim Closing, 10 a.m. Sept. 30; Final Closing, noon Oct. 2. The anticipated "go-live" date for the new financial management system is Oct. 21. Financial cutoff dates will be strictly enforced to meet the conversion schedule.

Mainthia Technologies to provide administrative services at Marshall

Marshall news release

Mainthia Technologies, Inc., a small, minority-owned enterprise based in Cleveland, has been awarded a contract to provide a variety of administrative support services at the Marshall Center for a period of up to five years.

The contract begins Sept. 1 with a two-year base period, followed by three one-year options that may be exercised at NASA's discretion. It is a performance-based, firm-fixed-price, indefinite delivery/indefinite quantity (IDIQ) contract with a minimum value of $1.25 million and a maximum value of up to $25 million, if all options are exercised.

Work to be performed under the contract includes a variety of support services in areas that include office files and records maintenance, mail handling and distribution, desktop processing, data entry, temporary duty and travel, resume processing, security services, forms processing, technical writing, human resources and training, and educational analyst activities.

The procurement was handled under a Small Business Administration program which limits competition to small and disadvantaged businesses certified under the 8(a) program.

A total of 26 proposals were received and evaluated. These services were previously provided by Infinity Technology, Inc., of Huntsville.

Gene Goldman picked for NASA executive leadership program

Marshall news release

Arthur Eugene "Gene" Goldman, deputy manager of the Space Shuttle Main Engine Project at the Marshall Center, has been chosen to participate in a NASA executive leadership program.

Goldman will participate in the candidate development program for NASA's Senior Executive Service – an elite corps of men and women who administer public programs at top levels of federal government. He is one of five chosen at the Marshall Center to participate in the 18-month program.

Goldman assists in management of design, production and operation of the Space Shuttle Main Engines — a $300 million project with more than 1,000 employees in Alabama, Florida, Mississippi and California.

Photo by Dennis Olive, NASA/Marshall Center

Goldman

He joined NASA's Marshall Center in 1990 in the Space Shuttle Systems Management and Integration Office, where he became supervisor in 1992. In 1994, Goldman moved to the Shuttle Main Engine Project Office to oversee the manufacturing of main engine components. Over the years, he has held progressively challenging positions in the Main Engine Project Office, including technical assistant to the project manager and business manager. He was named deputy manager of the Main Engine Project in 1998.

He has received a number of NASA service awards, including a NASA Certificate of Appreciation and the Marshall Center Director's Commendation.

Teachers at NASA Marshall workshop learn 'rocket power' to enliven math, science for students

by Celeste Atkins

Twenty-five teachers from across the country have learned how to use space to enliven their classroom lessons.

During a two-week workshop at the Marshall Center, the teachers heard from rocket scientists, astronomers and other experts and learned how to put the fun of space travel into basic classroom lessons.

Every summer, teachers have the opportunity to attend these workshops, which are jam-packed with high-tech and hands-on learning opportunities.

"We want to give as many teachers as possible a chance to come to workshops at the Marshall Center and learn how space can become a part of their classroom lessons," said Wil Robertson, a Marshall education program development specialist.

To ensure topics are relevant to teachers' curriculums, education specialists like Robertson design the workshop topics to follow national standards for enhancing math, science, geography and technology lessons.

"We want to make it easy for teachers to take what they learn in the workshop and put it right into their everyday classroom lesson plans," Robertson said.

Teachers may apply to attend NASA educational workshops through the National Science Teachers ' Association in Arlington, Va. Participants, selected by an association committee, based on a teacher's desire for extra curricular science training, are assigned to a NASA field center workshop. Each teacher's travel expenses, housing and meals are funded by NASA's Education Program.

While at Marshall, teachers studied at the Discovery Lab – where hands-on educational materials for students are developed and evaluated. The workshop also included a briefing on the future of propulsion and launch vehicles, mission training preparations and dozens of other space science learning opportunities.

NASA Educational Workshops are held each summer at Marshall and other NASA field centers for teachers of kindergarten through grade 12. Applications are available by writing to the National Science Teachers' Association at: NASA Educational Workshops, 1840 Wilson Blvd., Arlington, Va., 22201-3000.

More information on educational opportunities with the Marshall Center can be found at: http://education.msfc.nasa.gov/

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

Policy on visitor access to Redsone updated

All visitors entering Redstone Arsenal must be on a visitor authorization list or be escorted by a badged sponsor. A Web-based Visitor Management System now allows on-site sponsors to enter the name of a U.S. citizen visiting the Marshall Center. The system allows the visitor to be processed at the gate and enter unescorted. Protective Services will review the list daily. Visitors' names must be entered no later than 2 p.m. at least one working day prior to the visit. For more information, go to http://ids12.msfc.nasa.gov/visitors/ or call Pat Echols at 544-4568 or Becky Hopson at 544-4541.

Cobb

Continued from page 1

to start building the facility.

Cobb and other scientists will use the rack's furnaces to melt and solidify many different types of materials. These materials will be processed in orbit, and returned to Earth for characterization.

"Forget science fiction images of huge factories in space," Cobb said. "Our goal is to use the low-gravity environment created inside a spacecraft — like the Space Station orbiting Earth — to learn how to control the way materials form. Then, scientists can bring that knowledge back to Earth to improve manufacturing processes."

Manufacturing represents 17 percent — or $1.2 trillion — of the U.S. gross domestic product. That means even modest improvements in materials and their production can have great economic impact. Better materials not only mean better spacecraft, but also can mean better computers, automobiles and buildings.

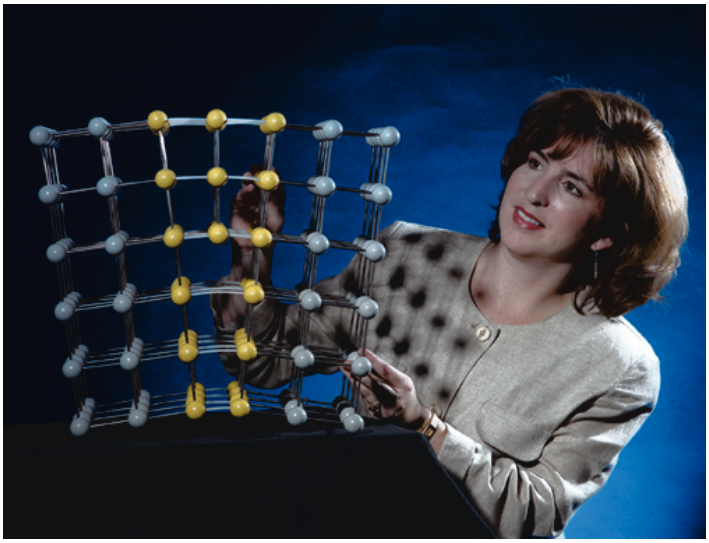

Photo by Emmett Given, NASA/Marshall Center

Sharon Cobb, a Marshall Science Research Facility scientist, with a crystal model used for astronaut training.

"The first two fundamental materials science experiments are just getting started on the Station inside the Microgravity Science Glovebox, a new facility that encloses small furnaces and uses gloves to enable the crew to change out samples," Cobb said. "These initial glovebox experiments will provide data that we can use as we develop more complex experiments in the larger furnaces inside the Materials Science Research Rack."

The Materials Science Research Rack is scheduled to be delivered to the Station in late 2004. The rack will accommodate two different experiment modules with exchangeable furnace inserts.

"When people ask me why you need different types of furnaces, I explain that for a simple building project, you usually need several different tools — drill bits, saws and screwdrivers," Cobb said. "To study materials in space, we need many types of equipment to provide a variety of processing conditions for various types of materials."

Cobb is conducting experiments with materials that may be processed in Space Station furnaces. She works with germanium, a semiconductor used in electronic devices, and mercury zinc selenide — a material that has the potential to be used in a new state-of-the art infrared detector which could be used to map temperature variations in everything from human bodies to rockets.

Engineers are using the Marshall Center Microgravity Development facility to help design, build and test the materials science rack and one of its furnace inserts. Marshall engineers are building a flight-like Quench Module Insert Furnace that will be tested at Marshall and then delivered to the European Space Agency, which is responsible for building the Materials Science Laboratory Experiment Module — the systems that will power, cool, and control the furnace.

The flight furnace is lighter and uses less energy to operate than most of the furnaces flown earlier on Shuttle missions.

The other experiment module that will initially be installed in the Materials Science Research Rack is being built by the Consortium for Materials Development in Space at the University of Alabama in Huntsville — one of 15 NASA Commercial Space Centers sponsored by NASA's Space Product Development Program at the Marshall Center. This experiment module has two exchangeable furnaces that will be available to commercial companies to process semiconductors, optical glass preforms, metals and composites in space. Both furnaces are modular and can be removed for repairs or replacement.

The Telescience Support Center, also located in the Microgravity Development facility, will be used to monitor and control experiments in the Materials Science Research Rack once it has been installed on the Station. Flight-like training models of the Materials Science Research Rack including its experiment modules will be delivered to the Johnson Space Center in Houston for astronaut training. To ensure astronauts know the importance of doing materials science experiments, Cobb teaches an introductory materials science class at the Johnson Center –- including hands-on laboratory experiments — to new astronaut candidates.

While a few of the astronaut candidates have advanced degrees in materials science, many are pilots, astrophysicists or from other unrelated fields. To perform these experiments aboard the International Space Station, it is important for the astronauts to understand how and why materials are studied in space.

"I always tell the astronauts that the goal of materials processing in space is to develop a better understanding of how processing affects materials' properties and structures," Cobb said. "With this knowledge, we can reliably predict conditions required on Earth to achieve improved materials.

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

Lightning

Continued from page 1

the second and third storms merged into one larger storm," said the study's principal investigator, Dr. Richard Blakeslee, a NASA atmospheric scientist at the Global Hydrology and Climate Center in Huntsville. "We were fortunate to have a front-row seat to this meteorological event."

One of the most exciting data sets was gleaned during the fourth and final thunderstorm of the day, according to Blakeslee. "With cloud tops at 50,000 feet, it would have been nearly impossible to study this storm without the technology we have today," he said. "But thanks to recent advances in aviation, we now have remotely piloted aircraft that can reach these altitudes."

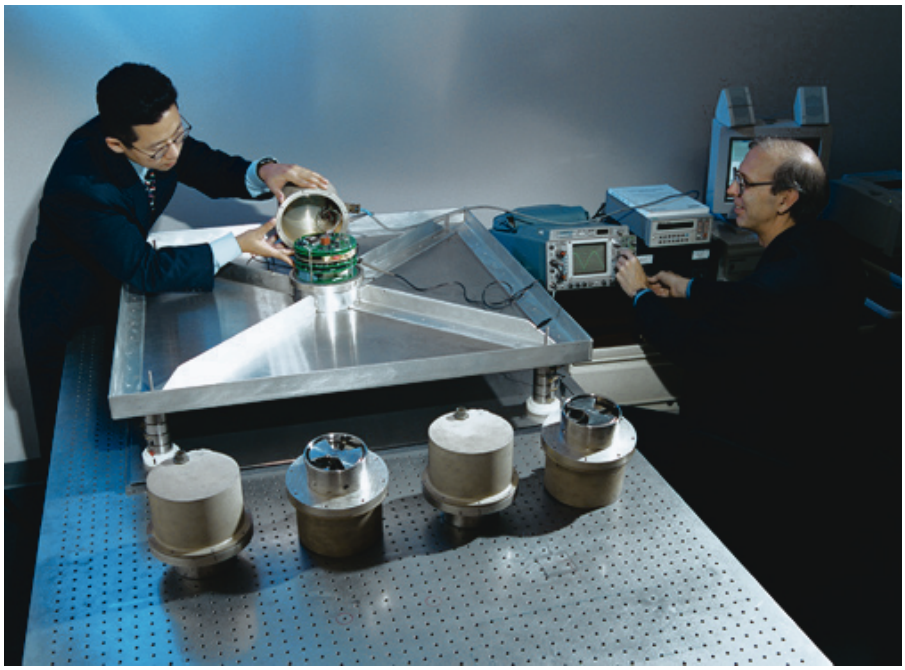

Photo by Doug Stoffer, NASA/Marshall Center

Tony Kim, left, and Dr. Richard Blakeslee of the Marshall Center test aircraft sensors used to measure electric fields produced by thunderstorms as part of the Altus Cumulus Electrification Study. Kim and Blakeslee are based at the National Space Science and Technology Center in Huntsville -- a partnership with Marshall, universities, industry and federal agencies.

The ACES lightning study uses the Altus II twin turbo uninhabited aerial vehicle, built by General Atomics Aeronautical Systems, Inc. of San Diego. Capable of high-altitude flight of up to 65,000 feet, the remotely piloted aircraft has the ability to fly near thunderstorms for long periods of time, allowing investigations to be conducted over the entire life cycle of storms.

Photo by Tom Tschida, NASA/Dryden

Marshall researcher Doug Mach, who is based at the National Space Science and Technology Center in Huntsville, performs diagnostic tests on the Altus flight vehicle.

The aircraft was able to stay over and around the final storm for one hour and 20 minutes, gathering a vast amount of scientific information," Blakeslee said. "For this one storm alone, we gathered data on more than 500 optical and electrical triggers produced by lightning flashes."

With dual goals of gathering weather data safely and testing the adaptability of the uninhabited aircraft, the ACES study is a collaboration among the Marshall Center, the University of Alabama in Huntsville, NASA's Goddard Space Flight Center in Greenbelt, Md., Pennsylvania State University in University Park and General Atomics Aeronautical Systems, Inc.

The Global Hydrology and Climate Center is one of seven science research centers at the National Space Science and Technology Center in Huntsville.

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

Courtesy photo

WHO AM I ?

I was born in Huntsville and was a member of the first graduating class at Lee High School. I have worked at the Marshall Center since I was 17 years old. At one time, I wrote speeches for Dr. Wernher Von Braun. I also worked for the U.S. Air Force at Eglin Air Force Base, Fla. To see who I am, go to page 6.

Photo by Emmett Given, NASA/Marshall Center

Special Service Award

Tim Baldridge, right, group lead for data systems in the Information Services Department, Center Operations Directorate, accepts a special service award from Marshall Director Art Stephenson. The award recognizes Baldridge's efforts in developing the "One NASA" smart card, which eventually will allow greater protection of, as well as access to, NASA resources for employees.

Photo by Emmett Given, NASA/Marshall Center

1 million hours without lost time

Lon Miller, left, of Sverdrup Technology Inc., accepts an award from Marshall Director Art Stephenson recognizing the company's 1,000,000 hours worked without a lost-time mishap.

Job opportunities

MS02C0212, AST, Aerospace Vehicle Propulsion Systems. GS-0861-14, Second Generation RLV Program Office, Propulsion Office, UP30. Competitive Placement Plan. Closes Sept. 6.

MS02C0213, AST, Aerospace Vehicle Propulsion Systems. GS-0861-14, Second Generation RLV Program Office, Propulsion Office, UP30. Competitive Placement Plan. Closes Sept. 6.

MS02C0215, Operations Support Specialist. GS-301-12, Flight Projects Directorate, Business Management Office. Competitive Placement Plan. Closes Sept. 10.

MS02D0216, AST, Structural Mechanics. GS-861-09 with promotion potential to GS-11, Engineering Directorate, Structures, Mechanics and Thermal Department, Strength Analysis Group. Delegated Examining Unit -- open to everyone. Closes Sept. 12.

MS02C0220, Program Analyst. GS-343-14, Center Operations Directorate, Facilities Engineering Department, Planning & Business Management Group. Competitive Placement Plan. Closes Sept. 12.

MS02C0221, Management Support Assistant. GS-303-07, Office of the Chief Financial Officer. Competitive Placement Plan. Closes Sept. 13.

Obituaries

White, Edwin, 79, of Huntsville, died Aug. 24. A charter member of the Marshall Center, he retired in 1994 as a mechanical engineering technician.

A graveside service was at Valhalla Memory Gardens with James Taylor officiating.

White was a U.S. Air Force veteran serving in New Guinea and the Philippines. He started to work for what is now NASA in 1956. He was a member of the Veterans of Foreign Wars and the Masonic Lodge.

He is survived by his wife, Betty Randolph White; one daughter, Marsha Green of Hazel Green; one brother, Elvin White of Lewisburg, Tenn.; one sister, Mrs. Guy N. Hardeman of Chattanooga; one grandchild; and one great-grandchild.

Who am I?

Gail Ralls, who retired Aug. 30, 2002, was an executive support assistant for Marshall Center Director Art Stephenson. Gail has received many awards,

including Launch Honoree and a Director's Commendation. She sings in the choir at Whitesburg Baptist Church, has two sons and a new granddaughter.

Center Announcements

Donations accepted for CFC silent auction

The Tennessee Valley Combined Federal Campaign office will conduct an online auction to raise funds for local charities during its fall campaign. The CFC office is looking for donations of paintings, flower arrangements, collectibles, antiques, etc. For more information, call Gay Money at 876-9143 or Phyllis Henley at 842-1037.

Free blood pressure check

The Marshall Center now has a self-checking blood pressure machine in the Wellness Center, Bldg. 4315. It is available to all Marshall team members.

MTC September Closed Hi-Lo Tournament set for Sept. 14

MARS Tennis Club members wanting to participate in the MTC September Closed Hi-Lo Tournament should call Bernice Bowling at 544-0453. Warm up begins at 8 a.m. with play beginning at 8:30. Only MARS Tennis Club members may participate. Partnerships will be announced prior to play. In the August tournament, results were: Jack Beasley and Betty Kilpatrick, first place; Bob Wolf and Nan Chase, second place; Maurice Wold and Carl Chase, third place; George Noel and Yvonne Hornbuckle, fourth place.

SOLAR Web site available for online learning and resources

The SOLAR Web site has 90 courses available to Marshall team members for online training and resources. The courses include ethics, export control, financial and resource management, information technology security, occupational health and many other topics. Other courses are in development and will become available during the fall. Mandatory courses, such ITS for Managers 2002, also are available. Visit the SOLAR Web site at https://solar.msfc.nasa.gov

Freeze on codes for stock withdrawals in effect

In conjunction with the conversion by the Marshall Center to the Integrated Financial Management Program SAP Core Financial System in fiscal year 2003, there will be no new codes, code changes or code deletions processed for the Stock Withdrawal Table Codes in MARTS until further notice. For more information, call Donna Jackson at 544-7305.

FY03 needs assessment online

The annual Center training, organization development and conference needs assessment will be available through Friday. Data collected by the tool will automatically generate Individual Development Plans for each participant; allow employees to influence Center-sponsored developmental activities; provide information to make strategic workforce development decisions; align developmental offerings with business and customer needs; help maximize the Center's investment in workforce development; and provide employees with advance notice or priority consideration for most scheduled programs. The tool and reference guide are at http://eodd.msfc.nasa.gov/TODC_Survey/index.html. For more information, call 544-2622.

Oktoberfest crafts vendors needed

Oktoberfest on Sept. 12-15 needs arts and crafts vendors. For more information, call Brandie DeRemer at 313-1202 or Diane Campbell at 876-5492 or go to www.redstonemwr.com

Soldatenstube offering take-out

Soldatenstube German Restaurant on Redstone Arsenal is offering take-out meals Thursdays-Saturdays after 4:30 p.m. For evening dining reservations, call 881-5181. Dinner hours are 5:30-9 p.m. Wednesdays-Saturdays with lunch on Thursdays only from 10:30 a.m.-1 p.m.

Hispanic Heritage Month celebration set for Sept. 16

To celebrate Hispanic Heritage Month, a "Fiesta in the Courtyard" will be from 11 a.m.-1 p.m. Sept. 16 in the Bldg. 4200 courtyard. The celebration will feature music by "The Latin Rhythms Band," special guest guitarist and vocalist Jose Cordereo and Mexican food. This year's theme is "Strength in Unity, Faith and Diversity." For more information, call Elia Ordonez at 544-6658 or Guadalupe Gonzalez-Hall at 961-4819. In case of rain, the celebration will be Sept. 19.

Redstone LabVIEW User Group meeting

All Marshall team members are invited to the Redstone LabVIEW User Group meeting from 11:30 a.m.-1 p.m. Sept. 12, Bldg. 4203, Room 4002. Please R.S.V.P. to attend to paul.anderson@msfc.nasa.gov by Sept. 11.

Marshall Continual Learning broadcasts conclude Oct. 1

The broadcasting of Marshall Continual Learning Channels 13 and 14 ends Oct. 1. All training materials will continue to be available at the Self-Study Learning Center, Bldg. 4200, Room G-13. For more information, call Denise McCaul at 544-8291 or e-mail self.study@msfc.nasa.gov

Shuttle Buddies to meet Sept. 23

The Shuttle Buddies will meet at 9 a.m. Sept. 23 at Mullins Restaurant on Andrew Jackson Way. For more information, call Deemer Self at 881-7757.

Classic car show Oct. 19

The U.S. Space & Rocket Center in Huntsville will host its third-annual classic car show from 8 a.m.-4 p.m. Oct. 19. Classic car owners who would like to participate should call 721-7183 to register for the event.

Employee Ads

Miscellaneous

★ Craftsman 21-inch self-propelled mower w/ bagger, excellent condition, used two seasons. $245. 353-5030
★ Troy-Bilt Econo-horse tiller, electric start. 881-6040
★ Alabama vs. North Texas, 9/14/02, in Tuscaloosa, 2 tickets at $30 each. 830-8435
★ Soft drink vending machine, 12 selection bottle, $200 obo. 880-9888
★ Engine/shop crane, 4 yrs. old, $150. 256-773-0109
★ Washer, $150; dryer, $100; or 225 for set; 27" floor model TV w/swivel base. 890-0569
★ Sears 22" Bushwacker, $5; Sony stereo receiver, 3 input sources, 2 speaker pairs outlets, $15. 881-8953
★ Contemporary couch, gray w/black trim, $50 obo. 325-5602
★Bach Stradiarius trumpet, $1,300; Dremel scroll saw, $60; Grumman, $275; Apple Quadra 605, make offer. 851-8085
★ PC software: Falcon 4.0, $10; Office97, $20; Frontpage98, $15; TNT2 AGP video card, $20. 828-9651
★ Oak table w/6 chairs, $75; couch, rust colors, $20; couch, tan, mauve/blue, $30. 777-8595
★ Maytag large capacity dryer, $100. 489-0106
★ Rotary reel mower, self-propelled, 2 clipping baskets, 1 yr. old, $300. 325-6000
★ Ram Accubar golf clubs, 1-3-5, right-handed, covers, $20. 536-8951
★ Home gym, already disassembled, $250. 489-1487
★ Snow Village, 31 houses, 6 accessories, $950 for all. 895-6916
★ Two Alabama vs. N. Texas tickets, Sec. S-8, Row 62, $30 ea. 851-9519
★ Sofa, Clayton Marcus, plaid, $300; floral pattern sofa, $200; Lazyboy wingback recliner, $150. 230-6846
★ Maternity clothes, size large: pants, tops, dresses, all items from Motherhood. 350-2927
★ NEC 32MB, 166MHz Pentium computer, monitor, other extras, $25. 830-1905
★ Folding wheelchair w/detachable swing-away footrests, InvaCare 2000LT, $275. 882-2447/961-7674
★ Motorcycle sidecar, Velorex Brand, new, $1,200 obo. 256-773-0194
★ Solid oak coffee and end table, glass tops, claw feet, $90. 971-0048/316-2902
★ Imoega external parallel port 250MB zip drive w/250MB zip-disk, used once, $95. 652-4338
★ Pneumatic picture frame nailer, Mitre-Mite VN2 1, nails and accessories, $1,500. 881-0533
★ Conn student trombone, Model 18H Director, $375 obo. 256-830-4846
★ Bedroom suite: bed, dresser, cabinet, tables, Pecan finish, $1,500. 256-586-7424
★ 1995 Suzuki 1400 Intruder motorcycle, blue, 14K miles, $4,500 obo. 256-586-8571
★ Step2 playground w/sand box, slide & 3 swings, $250 obo. 426-8700
★ Kenwood stereo system, receiver, CD player, dual cassette deck, equalizer, speakers, cabinet, $400. 325-7542
★ Twin bedroom suite; sham, comforter, bed pillows, curtains, $125. 837-2824
★ Bose 901 speakers, stands, amp, oak finish, $1,000. 922-1424
★ Weight bench, $30; free weights, $75; straight and curl bars, call for prices. 539-0123

Vehicles

★ 1999 Mitsubishi Mirage, 36K miles, AC/PW/PL, 5-speed, CD player, $6,750. 658-8231
★ 2000 Honda Accord EX, coupe, V6, leather, all-power, CS/cassette, 72K miles, alloy wheels, $14,000. 256-859-4833
★ 1995 Nissan Quest GXE, 104K miles, wrecked left front, repair/parts, must be towed, $1,800. 880-9888
★ 1997 Ford Explorer XLT, V8, AWD, PW/PL, white, tan leather, moonroof, running boards, $12,975. 895-8306
★ 1991 Toyota Corolla DX wagon, one-owner, AC, AT, AM/FM-CD, 28-31 mpg, $1,850. 837-2386
★ 1991 Mitsubishi Galant, 5-speed, 16vDOHC, 4-door, $1,800. 776-4889
★ 1992 Honda Accord LX, auto, 165K miles, champagne, well maintained, $3,950. 256-250-4900
★ 1994 Plymouth Voyager, one-owner, 147K miles, $1,375. 828-5077
★ 1998 Dodge Dakota Sport, ext. cab, V6, one-owner, maintenance records. 461-8369
★ 2002 Camry XLE, white, 4 cyl., auto, loaded, 9,8K miles, $19,000. 256-880-3703
★ 1998 Chevy S-10 5-speed, LE, 49K miles, a/c, alloy wheels, bedliner, $5,450. 256-753-2278
★ 1997 Ford F150 XLT, 4x2, Super Cab, 4.6L/V8, auto, 78K miles, green, $12,500. 881-5093
★ 2001 Taurus SES, V6, 4-door, CD, theft system, all-power, cruise, low mileage, $13,500. 651-9429
★ 1990 Volvo GL, 4-door, 150K miles, one-owner, auto, a/c, $3,000. 852-4362/603-4410
★ 1994 Jeep Grand Cherokee Limited, fully-loaded, $9,500 obo. 971-1511
★ 1994 Honda Civic, 168K miles, white, 2-door, a/c, cassette, $3,000 obo. 518-9023
★ 1996 Dodge Intrepid ES, loaded, leather, all-power, sunroof, CD, keyless entry/alarm, 112K miles, $4,200. 971-0507

Wanted

★ Schwinn exercise bike, Air-Dyne or Evolution. 971-0499
★ Bunk beds. 722-9989
★ Olympic weight bar and/or weights. 885-0729
★ Old fire hydrants, any condition. 830-0248
★ Pair of youth trainer water skis. 895-9520
★ Two tickets to Alabama vs. North Texas game. 883-2757

Free

★ Rescued black Lab, to good home. 722-7955

Found

★ Sunglasses inside Bldg. 4203. Call Chad, 4-2468, to identify/claim
★ Keys (6) near Bldg. 4200. 544-3623 to claim/identify

MARSHALL STAR
Vol. 42/No. 51

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 — Steven Durham
Editor — Jonathan Baggs

U.S. Government Printing Office 2002-733-060-60019

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