MARSHALL STAR

Marshall Space Flight Center July 29, 1999

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

Shuttle Columbia returns Tuesday after 4-day mission; Chandra X-ray Observatory deployment successful

by Mike Wright

"It has been a long hard road, but Chandra is now safely in space and activation is progressing extremely well," Marshall's Fred Wojtalik said Tuesday regarding NASA's Chandra X-Ray Observatory, the world's most powerful X-ray telescope.

Wojtalik is manager of NASA's Chandra X-ray Observatory Program and manager of the Observatory Projects Office at Marshall.

The observatory, developed by the Marshall Center, was the primary payload on Space Shuttle mission STS-93 launched July 23 at 12:31 a.m. EDT. The shuttle returned to Earth Tuesday at 11:20 p.m. EDT.

Chandra was deployed by the Space

*See **Operations** on page 2*

Photo by Dave Drachlis

At the Chandra Control Operations Center in Cambridge, Mass., from right, assistant flight director Gwen Artis, and flight directors Lewis Wooten and Steve Terry, all from Marshall, monitor liftoff Friday of Space Shuttle Columbia carrying the Chandra X-ray Observatory.

Dear Marshall employees and contractors,

The Annual Marshall Picnic and the 30th anniversary celebration of Apollo 11 were fantastic! That fun-filled exciting day was spent sharing recollections with our Marshall heroes who developed the Saturn V and with the Apollo astronauts who rode the Saturn rockets into space.

Thanks to all of you for the hard work that went into planning these events.

Special thanks go out to Dawn Cross and her team for putting together the picnic. Also, special thanks go to Sandra Turner and her team for putting together the 30th anniversary celebration. You made these events a great success.

You, the Marshall Team, continue to make us all proud. Keep up the good work.

Sincerely,
Art

—Center Director Art Stephenson

Stephenson, Cramer, others congratulate Chandra team

by Mike Wright

Accolades have been the order of the day for the Marshall-managed Chandra mission launched July 23.

Marshall Director Art Stephenson, who was at the Kennedy Space Center in Florida for the launch of STS-93, expressed his appreciation Friday morning to Marshall's Shuttle, Inertial Upper Stage and Chandra teams. Stephenson telephoned Marshall, and his remarks were broadcast Centerwide to all employees.

In another phone call to Marshall employees Tuesday afternoon Stephenson said, "The Chandra mission is going extremely well. Everything is on track." In addition, he predicted the opportunity to "see excellent science coming from Chandra" in the near future.

On July 23, Rep. Bud Cramer rose in the U.S. House of

*See **Praise** on page 7*

"Safety Pays"
— Safety slogan submitted by
Patsy Owens, CR20

Administrator calls cuts to NASA budget 'devastating'

"The NASA team just launched Chandra, the world's most powerful space telescope," NASA Administrator Dan Goldin said. "Now, we will have to turn it back on Washington to see what remains of the NASA budget."

On Monday, a U.S. House of Representatives subcommittee passed a funding bill that cuts NASA's budget about 11 percent below the President's request for Fiscal Year 2000.

"Year after year, NASA is touted for doing more and more with smaller budgets and held up as a model of good government," said Goldin. "The NASA employees get up every day to achieve what most think is impossible. They have risen to the challenge of smaller budgets. And this is the reward the NASA team gets? Not only is this cut devastating to NASA's programs, it is a knife in the heart of employee morale.

"It is a shame that in the same week that we are celebrating the legacy of the space program — and we are building on it by sending the first woman to command the Space Shuttle — we could be effectively smashing one of America's crown jewels," Goldin said. "NASA continues to deliver amazing scientific discoveries and reach new heights of exploration. To many Americans, NASA is a cornerstone of our national pride. But there is nothing to be proud of in this budget.

"Over the past five years, NASA has restructured the Agency, done more with less, reduced government employees by one-third without forced layoffs, and still significantly increased productivity. Up until now, NASA has always stepped up to the budgetary challenge. This time the NASA team plans to fight.

*See **Budget** on page 7*

Operations

Continued from page 1

Shuttle crew and boosted to a transfer orbit by an Inertial Upper Stage, supplied by the Marshall Center. It is being propelled toward its operating orbit by the observatory's own propulsion system.

Activation of Chandra's onboard computers occurred flawlessly July 23 at 3:25 a.m. EDT. Following a check to make sure the spacecraft's two antennas were providing communications, Chandra and its Inertial Upper Stage booster were perfectly deployed the same day at 7:47 a.m. EDT. After a separation maneuver, mission managers reported that two Inertial Upper stage firings performed as anticipated and the booster was jettisoned on schedule.

Two firings of Chandra's Integral Propulsion System have been successfully completed so far and three more are planned, to take the telescope to its final operational orbit. These burns are currently scheduled for Saturday, Monday and Wednesday.

Scientists expect Chandra to provide them with their first images by early September.

Photo by Dave Drachlis

Deana Nunley, above, and Jack Robertson, both contractors employed by Ai Signal Research Inc. supporting Marshall's Media Relations Department, delivered commentary for NASA Select TV, broadcast across the country, from the Chandra Operations Control Center in Cambridge, Mass.

With a combination of sensitive instruments and highly X-ray reflective mirrors, the observatory will allow scientists to study the origin, structure and evolution of our universe in greater detail than ever before.

Unlike other telescopes in NASA's "Great Observatories" series, Chandra will study X-rays rather than visible light or gamma rays.

Since X-rays are absorbed by the Earth's atmosphere, space-based observatories are necessary to study these phenomena. By capturing images created by these invisible rays, the observatory will allow scientists to analyze some of the greatest mysteries of the universe. Chandra will serve as a unique tool to study detailed physics in a laboratory that cannot be replicated here on Earth — the universe itself.

Scientists will use the Chandra X-ray Observatory to learn more about black holes, to study quasars at the edge of the observable universe and even to analyze comets in our own solar system. By mapping the location of X-ray energy throughout the universe, they hope to find clues to the identity of the missing mass — called "Dark Matter" — that must exist but cannot be seen.

The Chandra X-ray Observatory program is managed by the Marshall Center for NASA's Office of Space Science. The Smithsonian Astrophysical Observatory in Cambridge, Mass., was assigned responsibility for science and flight operations of Chandra under a contract to Marshall.

The writer is a historian in the Internal Relations and Communications Department.

Marshall's Summer Scholars Internship Program

Program pairs minority students with researchers, scientists

by Gay Watson

Students with summer jobs at Marshall are taking home more than a paycheck — they are absorbing knowledge of future, advanced space transportation programs; the International Space Station; and research conducted in space.

For 10 weeks each summer, the Summer Scholars Internship Program pairs minority college students with NASA researchers and engineers. The students, who are science and engineering majors, perform research and experiments, document their work and make presentations on their findings. Marshall's Equal Opportunity Office sponsors the program.

Thirty-nine students from eight universities from throughout the Southeast and Southwest United States were selected to participate in the program this summer. To be selected for the program, students must have earned a 3.0 or better grade point average and a 1200 or better on the Scholastic Aptitude Test. Other criteria, including financial need, are determined by the students' universities.

"These students will use what they have learned from this experience throughout their educational and professional careers," said Willie Love, assistant director of Marshall's Equal Opportunity Office. "There is no greater teacher than first-hand experience.

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

In addition to conducting research, students attend discussions with government and industry representatives to gain insight into NASA and the space program.

Colette Maser, Ross Knight III and Kennard Garrett are three of the 39 summer interns.

Maser, a biochemistry student at Smith College in Northampton, Mass., worked in the Laboratory for Structural Biology with Dr. Ewa Ciszak, the senior scientist in the Biotechnology group. Together they have been testing solutions for growing crystals of proteins.

"We started with some pre-mixed solutions," Maser said. "You have to determine what combination of solutions works. Once one of the prepared solutions works, you optimize crystallization conditions.

"It actually has worked very well," Maser said. "We got crystals. My mentor, Dr. Ciszak, has been working on this protein for a while. When I got here, she had already done the pre-screening and she knew where we were going to start. She wanted me to continue crystallization experiments."

The reason crystals are grown is to identify the three-dimensional structure of the protein. That structure shows how molecules bind together. Using that knowledge, drugs can be created to treat diseases and illnesses.

Photo by Emmett Given

Summer Scholars Internship Program participants Ross Knight III, left, and Kennard Garrett worked in the Flight Robotics Laboratory during the 10-week program.

Knight and Garrett, roommates at Morehouse College in Atlanta, are at Marshall working in the Flight Robotics Laboratory, teamed with Joe Gaines, an electrical engineer. This is their second year with the program.

Knight, an electrical engineering student, learned computer programming, worked with a machine called a small mobility base and designed a switch that operates a controlled moment gyro.

"The small mobility base is shaped like a triangle," Knight said. "It's located in the Flight Robotics Lab on an air bearing floor. The floor is used for several tests and simulations of spacecraft docking and maneuvering. The switch controls the gyros that move the mobility base. I drew the circuitry diagrams for that switch."

Garrett, who is studying applied physics and mechanical engineering, worked with precision estimation and verification testing.

"The tests were created for the Video Guidance System which is used in the Automated Rendezvous and Capture system to test the repeatability and accuracy of the instruments and of different sensors," Garrett said. "The Video Guidance System has flown on Shuttle missions STS-87 and STS-95, and could be used on X-37, X-33 and the International Space Station. "The system is designed for manned docking."

Garrett also helped aerospace engineer Richard Dabney plan and design a proposal for a different type of rendezvous and capture system, and furthered his knowledge of computer programming.

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

Southern Foods cooks picnic fare on-site, caters events

by Debra Valine

Employees who have breakfast or lunch in one of the cafeterias at Marshall may know about Southern Foods Service Management.

Southern Foods operates cafeterias in Bldgs. 4203, 4610 and 4471 at Marshall, and Bldg. 4663 during Space Shuttle missions. The company also provides special events catering.

Southern Foods has been in business over 40 years, according to George Fletcher, who has worked with Marshall food service contractors since 1964. "Southern Foods had the first Marshall cafeterias' contract," Fletcher said. Southern Foods has been operating as a subcontractor for Scientific & Commercial Systems Corp. to provide food service support at Marshall since 1997.

Besides everyday cafeteria operations, Southern Foods caters for special events such as the recent Marshall annual picnic and the "Marshall on the Move" conference at the Von Braun Center in May.

"For special events we can provide everything from cakes to full-service catering," said Steve Chrisman, the company's food service director, "from white tablecloths to simple buffets. We can fulfill just about any need."

For the Marshall annual picnic, Chrisman said Southern Foods cooked 860 hot dogs, 67 garden burgers and enough chicken and pork barbecue to feed 1,650 people. Other items served included more than 800 individual ice creams and 600 bags of chips.

"Everything was cooked on-site," Chrisman said. "We wanted to add to the picnic atmosphere rather than bringing in the food already cooked. For the first time in the history of the picnic, we had a vegetarian offering — the garden burger."

The 22 Southern Foods employees spent long hours supporting the reorganizational move, the "Marshall on the Move" conference and the reorganization celebration picnic that followed.

"We supported the "Marshall on the Move" events at the Von Braun Center by producing sandwiches and beverage service for the conference," Chrisman said. "We also prepared 6,500 sandwiches and served more than 9,000 canned drinks to the workers performing the physical move. To make 600 sandwiches takes eight employees four hours — just to give you an idea of the level of effort involved. And that is being very efficient."

For the picnic marking completion of the Marshall move, they cooked more than 4,000 hot dogs.

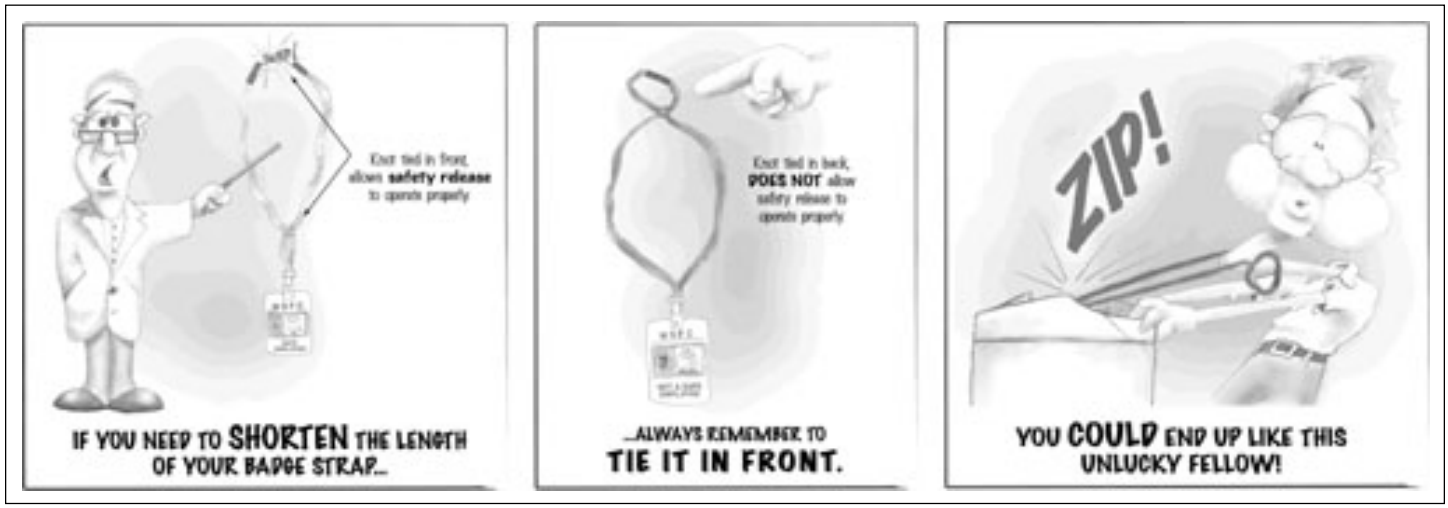
"We also do smaller events such as the annual community leaders breakfast and retirement parties," Chrisman said.

To discuss an upcoming event, call Chrisman at 544-5701.

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

Photo by Doug Stoffer

From left, Rex Davis, regional director of Southern Foods; Tommy Ford, grilling chicken; Steve Chrisman, food service director; and Joe Grant, manager of the Bldg. 4610 cafeteria, gather around the grill during Marshall's annual picnic July 17.



Upcoming Events

***Marshall Annual Honors Day Ceremony* —** Marshall's annual Honors Day Ceremony will be held Aug. 3 in Morris Auditorium. During a 40-minute ceremony beginning at 10 a.m., 105 NASA-level awards will be presented to recipients. A second 45-minute ceremony at 2 p.m. will honor 140 recipients with Center-level awards.

***Pre-retirement Planning Seminar* —** The 1999 Marshall annual Pre-retirement Planning Seminar will be held in Room 1201, Bldg. 4203, Aug. 3-5 beginning at 8:30 a.m. each day. All Marshall employees and their spouses are welcome to attend any or all of the sessions. MSFC Form 59 is not required for the seminar, but attendees should notify supervisors and register with administrative officers. For more information, call Edwina Bressette at 544-8115.

***ISO 9000 Follow-on Training* —** Three additional sessions of the Marshall Integrated Directive System Training required by ISO 9000 have been scheduled for Tues., Aug. 17. The sessions will be held from 8:30-10:30 a.m., noon-2 p.m., and 2:30-4:30 p.m. in Morris Auditorium. This training is mandatory for all NASA civil service employees and in-scope contractors. Contractors should ask their supervisors if uncertain about their scope. For more information, call Pat Schultz at 544-7559 or Laura Groce at 544-9154.

***ISO 9001 Lead Auditor/Assessor Course* —** An ISO 9001 Lead Auditor/Assessor course is scheduled Aug. 16-20, at Hagerstown, Md. NASA civil service employees should send a completed MSFC Form 59 to CD20/Laura Groce. Contractors should go through their normal channels. For more detailed course information, including contractor information and stipulations, please go to the following Web address:

http://www.hq.nasa.gov/iso/leadaud.htm

Federal agencies may reimburse income taxes incurred due to travel

In 1992, Congress eliminated the travel expense deduction for travel assignments lasting more than one year, which caused travel expense reimbursements to become taxable income.

On June 18, the General Services Administration amended the Federal Travel Regulations to add authority to implement the Travel and Transportation Reform Act signed by President Clinton on Oct. 19, 1998, which authorizes federal agencies to reimburse federal, state and local income taxes incurred as a result of long-term official travel. The amendment also allows for the reimbursement of penalty and interest payments due to incorrect withholding for tax years 1993 and 1994. The rule is retroactive to Jan. 1, 1993.

For more information, call the Office of Chief Counsel at 544-0010.

Marshall employees appear healthier than general public

by Dr. William Dye

Based on data from the most recent physical examinations and clinic visits at Marshall's Medical Center, Marshall employees appear to be healthier than the general population. From October 1998 through June 1999, clinic visits have averaged 142 per month. Clinic visits for May were 122 and 162 for June.

The predominant finding of the health screening exams at the Medical Center is hyperlipidemia (excessive quantity of fat in the blood). Early intervention/treatment has been shown to reduce the incidence of heart disease — the leading cause of death in our country.

Four of every five clinic visits have been for illnesses, mainly upper respiratory — allergic rhinitis, colds, sinusitis and occasionally streptococcal throat infections. During the summer months, an increase in poison ivy rashes, wasp or bee stings and tick bites are seen. Approximately one in five visits are for injuries, usually sprains and strains of muscles and joints. Some of the injuries potentially resulted from improper workstation positioning of computer keyboards and monitors. Minor lacerations from x-acto knives or scissors have numbered among the top five reasons for clinic visits.

Prevention is the key to avoiding health problems or injuries. Some helpful prevention tips are listed below:

- Keep your annual health screening examination appointment. Your health provider will consider your age, your personal and family medical history, your health habits, your risks of disease and guide you as to what you can do to reduce these risks.
- Maintain a well-balanced healthy diet, exercise regularly and get adequate rest.
- Avoid contact with individuals who have respiratory infections, and wash hands with soap and water before touching mucous membranes such as mouth, nose or eyes. If you have a fever, sore throat and cough, stay at home to avoid exposing co-workers.
- Protect your back on and off the job. Lift with your legs, not your back and keep the load close to your body. Use hand trucks or other alternate means of lifting and carrying when heavy or bulk items are involved.
- Reevaluate the positioning of your computer monitor, keyboard, and mouse if you experience pain or numbness of hands, arms, shoulders, or neck. Take frequent breaks to relax tense muscles and eyes and perform recommended exercises. Request an ergonomic survey from Environmental Health Services if you feel the arrangement of your workstation contributes to your physical discomfort.
- Review instructions/operating procedures, remain focused, and wear appropriate personal protective equipment when working with chemicals and potentially dangerous equipment.

The writer is the Marshall Medical Center director.

Marshall artist designs fountain representing Marshall's space transportation role

by Debra Valine

On July 17 as part of the Apollo 11 30th anniversary celebration and Marshall annual picnic, Center officials unveiled a fountain in the center of the von Braun Office Complex.

The fountain, designed by Marshall artist Jack Hood, represents Marshall's future role in space transportation. A rocket is depicted taking off from the top of the fountain with a water plume cascading down the mirrored sides of the base. To the side will be Moon boot prints of astronauts, leading the way to the future.

"The mirrored sides are very important," Hood said. "I wanted each person viewing the fountain to see his or her own reflection. Each person has played an important part in making space transportation possible."

The fountain is a work in progress. While it was ready for the unveiling on July 17, craftsmen are tweaking the design to ensure proper flow of the water from the fountain.

Hood, graphics coordinator, visual information specialist and team lead of Marshall's Art Department, worked with his son Raven, a sculptor, to design the fountain, develop the special water flow system and determine what compound would be best suited for casting the boot prints required for the monument.

"We borrowed the Moon boots from Johnson Space Center in Houston and the U.S. Space & Rocket Center in Huntsville, and we didn't think they would appreciate getting them back full of clay or some other substance used for castings," Hood said. "We decided to use a substance similar to that used by dentists to take impressions of teeth. It worked perfectly because it didn't stick to the boots."

The fountain isn't the first Marshall monument by Hood. For the 25th anniversary of Apollo 11, he designed the bust of Dr. Wernher von Braun, the Center's first director, that also is located in the von Braun complex.

Hood has a long career in designing exhibits with visual impact. He started at Marshall in 1961 as a contractor with Hayes International. His specialty is models, and he used his talent to create exhibits and displays for Skylab, other Marshall programs and a "Walk in Space" exhibit at the U.S. Space & Rocket Center.

His creative skills led to employment with Disney World in Orlando, Fla., and Disneyland in Anaheim, Calif. For Disney, Hood designed animated dioramas — windows — that illustrated scenes from popular Disney movies. "I really liked working on the window for 'Pinnochio'," he said. "That was my favorite. It was hard to have a window with a whale and Jiminy Cricket in the same frame and not lose the cricket or be overwhelmed by the whale."

Hood also worked on the original model for the Epcot Center at Walt Disney World. "In 1983, after Epcot was finished, Disney laid off all its artists," Hood said. "I moved to various places in New England to work briefly for Warner Brothers Leisure and Hasbro Toys, and do free-lance work."

Photo by Emmett Given

The new fountain was unveiled July 17 during the annual Marshall picnic and Apollo 11 30th anniversary celebration.

Hood was in Rhode Island only a couple of months when he got a call from Ross Rives of Marshall, who was the head of the Visual Information Division. That was in 1986. "He liked the work I had done on the 'Walk through Space' exhibit, and wanted me to come back to Marshall and bring the Art Department back to what it was in the Apollo days. I couldn't turn the job down," Hood said. "I love NASA, and I think it is a space in history where I belong."

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

Obituary

Broad, Robert L. Jr., chief patent counsel in the Office of Chief Counsel, died July 25. He began his career at NASA when he joined the staff in the Office of Chief Counsel in January 1991. He is survived by his wife Beth, daughter Susan and son Sherman.

Budget

Continued from page 2

These cuts would gut space exploration. They may force the closure of one to three NASA centers, and significant layoffs would most certainly follow," said Goldin.

The Administrator noted other implications for the budget as well:

• For the past seven years, the NASA budget has declined and, because of inflation, the Agency's buying power is already down by one-third.

• While the subcommittee's cuts total $1.325 billion, if these figures are projected out five years, the cuts would total approximately $5.3 billion.

• Over the past five years, NASA's streamlining efforts have saved the taxpayer $35 billion.

"This cut destroys the technology base built by NASA," Goldin said. "Our ability to further reduce costs and increase scientific productivity would end. NASA is one of only a few investments our nation makes to ensure a bright future, a strong economy and the technology base to achieve it. As a result of the cuts, we would be forced to eat our seed corn, and in the long-term it would weaken America's technological and defense sectors. Perhaps most sadly, we will lose the opportunity to inspire a future generation of children.

"I won't feel better until every nickel is restored," said Goldin.

Stephenson: budget talks with congressional delegation under way

Center Director Art Stephenson reacted Tuesday afternoon to the passage of a funding bill to cut NASA's budget about 11 percent below the President's request for Fiscal Year 2000.

Stephenson, who was at the Kennedy Space Center in Florida for the return of Space Shuttle Columbia, phoned the Marshall Center. "These are serious issues," Stephenson said during the call that was broadcast to all Marshall employees.

"I'm going to spend a lot of time visiting in Congress," Stephenson said. "We are going to do everything we can to turn this around. We will be talking to our congressional delegation. In fact, we already are."

Caution helps prevent slips, trips, falls

by Patsy Owens

Recently, several incidents of employees slipping, tripping and falling have been reported to the Safety and Mission Assurance Office.

These types of accidents are easy to prevent. All employees have to do is follow one simple piece of advice: Watch where you're going.

Some of the more common fall hazards include: hidden steps; oil and grease; smooth surfaces; unsafe stairs; wet spots; improper shoes; loose, irregular surfaces; moving too fast; and bad lighting.

Preventing slips and falls has to be a team effort. Walking around a spill or stepping over an open drawer might keep one individual safe, but what about the next person who walks by? By correcting the hazard or reporting it, each individual can keep him or herself safe, as well as co-workers.

The writer works in the Safety and Mission Assurance Office.

Praise

Continued from page 1

Representatives to "congratulate the Chandra team at Marshall Space Flight Center for their role in the successful launch of NASA's Chandra X-ray Observatory."

As part of his remarks, Cramer referred to critical Chandra components "which have been exhaustively tested at Marshall Space Flight Center by the talented people of North Alabama."

Cramer also told House members that "the technology and manufacturing expertise that went into constructing these instruments is no less riveting than the scientific observations that Chandra will make."

Chandra is the third in NASA's family of "Great Observatories." Complementing the Hubble Space Telescope and the Compton Gamma Ray Observatory, Chandra will study the universe in X-rays rather than visible light or gamma rays.

By making observations with these invisible rays, the telescope will allow scientists to analyze some of the greatest mysteries of the universe. "I wish I could go where Chandra is going, and see what Chandra will see," said STS-93 astronaut Cady Coleman.

Marshall's Dr. Martin C. Weisskopf, project scientist for Chandra, also expressed his excitement over the scientific discoveries that the observatory is expected to make. "It's hard not to be smiling," Weisskopf said following the launch of STS-93.

"Everything is going so well and all the scientists are keenly anticipating the first observation." Craig Staresinich, TRW Chandra program manager, said his team was "ecstatic" regarding the STS-93 mission. "But the real success will come when we receive our first picture."

Marshall's Fred S. Wojtalik, manager of NASA's Chandra X-ray Observatory Program, expressed pride in the observatory team. "A great number of people from NASA and industry, here and around the country, have put in a tremendous effort to get where we are."

Marshall's Jean R. Olivier, deputy manager of the program, said the most significant progress related to the Chandra mission came Saturday night with the "first firing of the Integral Propulsion System." He said the spacecraft system has "worked even better than expected."

The writer is a historian in the Internal Relations and Communications Department.

Employee Ads

Miscellaneous

★ Lab puppies, 7 females, 2 males; 4 yellow, 3 chocolate, 2 black; good bloodline, ready to go 8/7/99, $225. 259-5140
★ Water hyacinth plants, yellow color bloom, $10 each. 837-0085
★ Bunnies, 3 brown, 1 white, born end of June, non-lop, normal hair and size, $5 each. 351-8360
★ Aquarium, 20 gallon, complete system $50. 885-3767
★ Custom-made stained glass double French doors, cowboy scene, $2,000. 837-5035
★ Boy's and girl's 10-speed bike, $30 each; end tables and coffee table, $75. 464-5911
★ 19" color monitor, ViewSonic OptiquesV95, .26mmDP, 1600 X 1200 @ 75Hz, unopened box, factory reconditioned, 1 yr. warranty, $378. 880-2145
★ Purebred border collie puppies, primarily white, 4 females, 1 male, intelligent and friendly, $75 each. 561-2287
★ Satellite dish, 8', electronics not provided. 880-6335
★ Sofa, 7', and love seat, 5.5', Clayton Marcus, blue and white striped damask, $800. 539-3166
★ Craftmatic adjustable bed, queen, $350; entertainment center, $75; sofa, loveseat, ottoman, black overstuffed, $250. 776-6289
★ Oak bedroom suite, including four poster queen bed, mattress, boxspring, nightstand, dresser, mirror, $900. 534-3783
★ Running boards, bright aluminum, 76" long, heavy duty, dealer item, never installed, $150. 882-2076
★ Cream sofa and loveseat, $300; Limited and Open Edition Charles Bibbs prints, various prices. 837-3562
★ Singer sewing machine in almond cabinet plus extras, $650. 922-9387
★ Lift chair, excellent condition. 883-1686
★ Murray riding lawn mower, 12.5HP, 38" cut, $300. 828-6213
★ Golf shoes, Nike, man's size 8, never worn, all weather soles, $25. 881-1249
★ Fiberglass fishing boat, 12', w/trailer and older Johnson 5HP motor, $250 obo. 233-3773
★ Playstation dual shock controller system, 2 memory cards, 5 games, $150. 851-6425

Vehicles

★ 1987 Cimmaron, burgundy, $2,300. 582-5210
★ 1996 Lincoln Mark VIII, leather, loaded, low miles, warranty, JBL CD, ivory pearl, under NADA, $20,000. 351-0238
★ 1993 Ford F150 XLT, extended cab, $10,000. 961-1136/429-3805
★ 1993 Honda Accord wagon, white, 73K miles, PS/PB/AC, cruise, AM/FM cassette, $7,750. 883-2468
★ 1994 Toyota T100, towing package, bed liner, $7,650. 656-4617
★ 1994 Ford Ranger XLT SuperCab, white/red, 3.0L, V6 automatic, a/c, AM/FM/cassette, cap, bed liner, 38K miles, $9,950. 881-0551
★ 1977 Porsche 924, 4-cylinder, 4-speed, sunroof, 135K miles, $2,000 obo. 828-6213
★ Winnebago Brave 26' motor home, 45K miles, Dodge 440, $7,500; 1985 Isuzu 4X4, 155K miles, $2,200. 729-8020
★ 1996 Nissan Pathfinder XE, 4X4, all power, AM/FM CD, towing package, 77K miles, $15,500. 852-4907
★ 1999 Cadillac Sedan Deville, 15,700 miles, V-8 Northstar, silver, leather interior, $32,200. 828-3633
★ 1993 Ford Explorer XLT, automatic, 4-door, dark green, 93K miles, $8,300. 931-4409

Free

★ Crown tripod number 4, wooden, collapsible, for use with large format Graflex-type camera. 772-8401
★ Cocker spaniel, buff, male, age 11, neutered. 851-6661

Center Announcements

☞ ***Public Surplus Auction*** **—** On Saturday beginning at 9 a.m., a public surplus auction will be held at 1025 Jordan Road. Items to be auctioned include forklifts, a 24' trailer, air compressors, computer mainframes, test equipment, office furniture and office equipment. Viewing and inspection is scheduled for Thursday from noon-5 p.m., Friday from 8 a.m.-5 p.m., and Saturday from 7:30-9 a.m. For more information, call 1-800-841-4087 or download the catalog from the Internet at: www.bentleysauction.com

☞ ***Cinderella Tickets*** **—** A limited number of tickets for Rodgers & Hammerstein's "Cinderella" musical in the Von Braun Center Playhouse are available at the NASA Exchange. The performance dates are: Thursday, at 7:30 p.m., Friday, at 7:30 p.m., Saturday at 2 p.m. and 7:30 p.m., Sunday, at 2 p.m. and 7:30 p.m., Aug. 5, at 7:30 p.m., Aug. 6, at 7:30 p.m., and Aug. 7, at 2 p.m. and 7:30 p.m. Cost is $14 for evening adult tickets; $12 for students and seniors over 65; and matinee tickets are $10. A discount of 10 percent for 10 or more tickets paid by a single check made payable to: Huntsville Community Chorus Association is also available at the NASA Exchange. Ticket sales by Visa or MasterCard must be purchased through the association office by calling 533-6606. For more information, call Bill Stafford at 544-0252.

☞ ***MARS Coed Volleyball*** **—** The MARS Coed Volleyball Club will meet in the Bldg. 4752 all-purpose room at noon on Aug. 5. Team representatives and individual players are welcome. Indoor competitive and recreational divisions are available for coed teams. The season usually begins after Labor Day and lasts until Thanksgiving, with games usually one night each week. Given enough interest, skill and referee clinics will be offered. For more information, call Dennis Gallagher at 544-7587.

☞ ***Smoking Cessation Classes*** **—** The Marshall Fitness Center is offering Smoke Stoppers, a smoking cessation program that offers two programs to help smokers stop smoking. The August session will begin Aug. 9 or 10 from 1-2 p.m. in Bldg. 4752. Cost for the program is $30 for civil service employees and $40 for contractors, retirees or family members. For more information or to sign up by Aug. 4, call Pat Mirandy at 544-7570 or e-mail: Pat.Mirandy@msfc.nasa.gov

☞ ***NASA Ski Week*** — The 9th Annual NASA Ski Week will be hosted at Big Sky, Mont., Jan. 22-29, 2000. For information, call 1-233-0705 or e-mail Thomas.S.Dollman@msfc.nasa.gov

☞ ***MARS Luau*** **—** Tickets for the MARS Ballroom Dance Club's Aug. 14 luau are available. The semi-formal event will be held at the Von Braun Center, and will feature ballroom music by The Tradewinds. Socializing will begin at 6:30 p.m., and a buffet dinner will be served at 7 p.m., followed by dancing from 8 to 11:00 p.m. Tickets, at $19 per person with a $3 discount for members, can be purchased from Tamara Landers at 544-6818, Pat Sage at 544-5427, Ed Ogozalek at 837-1486, Linda Kinney at 544-0563, Bob Williams at 544-3998 or Hugo Berry at 544-3525. Reservations for a table of eight can be made by calling Woody Bombara at 650-0200.

☞ ***Photo Lab Retirees*** **—** Photo lab retirees meet Aug. 3 at 9:30 a.m. at Shoney's at University and Memorial Parkway. For more information, call Charles Allen at 852-0917.

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