

## Marshall Technology At Heart of Vehicle Tracking System

by Steve Calatrello

A Marshall technology developed to help astronomers probe the depths of the universe is at work today helping municipalities and private businesses track the movements of vehicles in large fleet operations.

Researchers at Marshall first developed the technology — a software program — to handle the flow of enormous amounts of information. The challenge was posed by data generation of experiments conducted in orbit on Space Shuttle Spacelab missions.

The technology was later modified to help the Center test NASA's Advanced X-ray Astrophysics Facility, the world's most powerful X-ray observatory, planned for launch later this year.

Marshall engineers Walter Robinson and Larry Taormina worked alongside engineers from Quality Research of Huntsville to modify the original program so it would pull specific bits of temperature and vacuum information from the stream of information collected in tests of the observatory.

See *Vehicle Tracking System* on page 4



NASA photo by Emmett Given

### **Special Day at Marshall for Employees and Their Children**

Before touring the International Space Station mock-up in Bldg. 4755, children gather for a group photograph as part of the "Take Our Children to Work Day" activities June 25 at Marshall. Children of Marshall employees toured Center facilities and received a first-hand look at their parents on the job. Additional photos on page 5.

## Marshall Scientists, Sacramento Students Study 'What's Hot' in Sacramento

by Kelly McFalls

What's hot in Sacramento and what's not? That, literally, is the question Marshall scientists and local school kids tried to help answer this week when they took the city's "temperature." The answer ultimately could lead to lower air conditioning costs, improved air quality, and sustainable urban development in Sacramento and other major cities nationwide.

Researchers from Marshall collaborated with Sacramento school kids, the Environmental Protection Agency, the

City of Sacramento, the Sacramento Tree Foundation, the Sacramento Municipal Utility District and Lawrence Berkeley National Laboratory in Berkeley, Calif., to study how rapid urbanization has affected climate and air quality in the urban area.

A specially instrumented NASA plane flew over the city during the hottest part of the day to produce a thermal map of the area. And NASA researchers launched a weather balloon to measure atmospheric conditions over the city.

On the ground, the school students See *What's Hot in Sacramento* on page 2

**Mark Your Calendar  
The Picnic is  
Moving!**



Fortieth Anniversary  
Pioneering the Future

**August 22**

## Summer's High Heat Index Places Marshall Employees at Higher Risk of Illness

With the heat index around Marshall Center and the local area expected to reach 100 degrees or higher throughout this summer, employees are at a higher risk of heat-related illnesses. These heat-related illnesses include heat exhaustion, heat cramps and heat stroke. Employees whose jobs requires working outdoors should do the following to avoid a heat related illness:

- Wear loose-fitting, lightweight, light-colored clothing.
- Drink plenty of liquids, preferably water.
- Reduce your exposure time to the heat. Acclimate yourself by beginning with shorter heat exposure periods followed by gradual increases. A work-and-rest regiment may be alternated with longer rest periods in a cool area.
- Reduce strenuous activity. Workloads should be increased gradually.

Call 911 or report immediately to Marshall's Medical Center in Bldg. 4249, 544-2390, if you feel you are suffering from a heat-related illness. More information about heat stress may be found at the following Web site:

<http://www.msfc.nasa.gov/msfccwa/health/heattraining.html>

## Employee Express Offers Easy Access for Completing a Variety of Transactions

With the unique combination of an employee's Social Security and Employee Express personal identification numbers (PIN), Marshall employees can access Employee Express 24-hours-a-day and seven-days-a-week on the Internet. The following transactions can be completed:

- Financial allotments
- Health benefits
- Thrift Savings Plan
- Direct deposits
- Federal taxes
- Home address changes
- Personal identification number changes

To change or review current information, visit the Employee Express Web site:

[www.employeeexpress.gov](http://www.employeeexpress.gov)

More information about receiving a new PIN and access to frequently asked questions may be found at the following Web site:

<http://CaER.msfc.nasa.gov/EE/express.htm>

## Safety Videos Available to All Managers

Marshall's Industrial Safety Office encourages both Marshall and contractor managers and supervisors to use Safety Film Library videos during safety meetings. You may request a copy of the video or have it transmitted to a closed-circuit television in your area. Call 544-6155 for more information.



NASA Photo by Jack Ray

## 'BizTech' Receives Additional \$435,000 NASA Grant To Help Grow Technology-Based Businesses

**T**eresa Washington, director of Marshall's Customer and Employee Relations Directorate, presents a NASA check for \$435,000 to Richard Reeves, chairman of the board of Business Technology Development Center Inc., also known as BizTech. The NASA grant provides seed money for the new Huntsville/Madison County incubator for small businesses with a high technology orientation. This grant, provided through Marshall's Technology Transfer Office, brings NASA's total BizTech contribution to \$735,000 over the past year. Washington presented the check on behalf of Acting Center Director Carolyn Griner during BizTech's new headquarters grand opening at 102 Wynn Drive in Huntsville.

## New NASA Invention Disclosure Form Available on the Internet

**A** new NASA Form 1679 for reporting new technology items is now available electronically and on the World Wide Web.

NASA Form 1679 can be accessed and completed electronically using the PerForm Pro application in Centerwide Electronic Forms. Personal computer users can find the form located in the CWFORMS - Form Style [nasa] folder and Macintosh users can access the form through the MACFORMS - [nasa] folder. This form may be found at the following Web site: [http://www.hq.nasa.gov/help/form\\_nf.htm](http://www.hq.nasa.gov/help/form_nf.htm) and is listed in numeric order. Choose the second NF 1679 listed.

All disclosures of new technology reported by civil servants and contractor personnel should be submitted on this form to Marshall's Technology Transfer Office, CO30, attn.: Susan L. Whitfield. Call Whitfield at 544-1933 or Lisa Hughes at 544-0018 with any questions or concerns.

## What's Hot in Sacramento

*Continued from page 1*

took part in the experiment by taking temperature readings of different surfaces at their schools in conjunction with the flight. The students will compare and verify their measurements with those recorded by instruments on the jet.

Once the science team members have collected and analyzed the temperature data, they hope to work with the city to develop an urban planning tool that allows Sacramento to better plan for long-term sustainable development.

# Russian Space Officials Visit Science Control Center at Marshall Center

Russian space officials visited the International Space Station science operations control center at Marshall Center June 29.

The control center will coordinate all science payload operations for the Space Station international partners. With this tour by the Russian delegation, all of the Space Station partners have seen the new facility at Marshall.

The delegation met with managers of Marshall's Mission Operations Laboratory to plan how the Russian science operations will be incorporated into overall science activities aboard the Space Station.

The Marshall science operations center,

called the Payload Operations Integration Center, is responsible for coordinating payload operations across all of the Space Station partners to ensure safe and effective science is conducted. It will provide the single point of payload operations authority for the Space Station Program.

The science operations center will become operational in December 1999. The first element of the International Space Station — a permanent orbiting laboratory — is scheduled for launch in November 1998. The endeavor is the largest scientific, cooperative program in history, enlisting the resources of 16 nations.

# Novak and Sutton Named to Key NASA Roles

NASA Administrator Dan Goldin named Vicki Novak associate administrator for Human Resources and Education and Jeffrey Sutton associate administrator for Management Systems and Facilities, effective immediately.

Novak has 25 years of federal government service. Since coming to NASA in 1989, she served in several key

positions before her selection as director of Personnel in February 1993.

Sutton has over 27 years of federal service in which he has progressed through a series of increasingly responsible and varied positions at the Air Force and NASA. He has been acting in the associate administrator role since November.



Meg Carstens



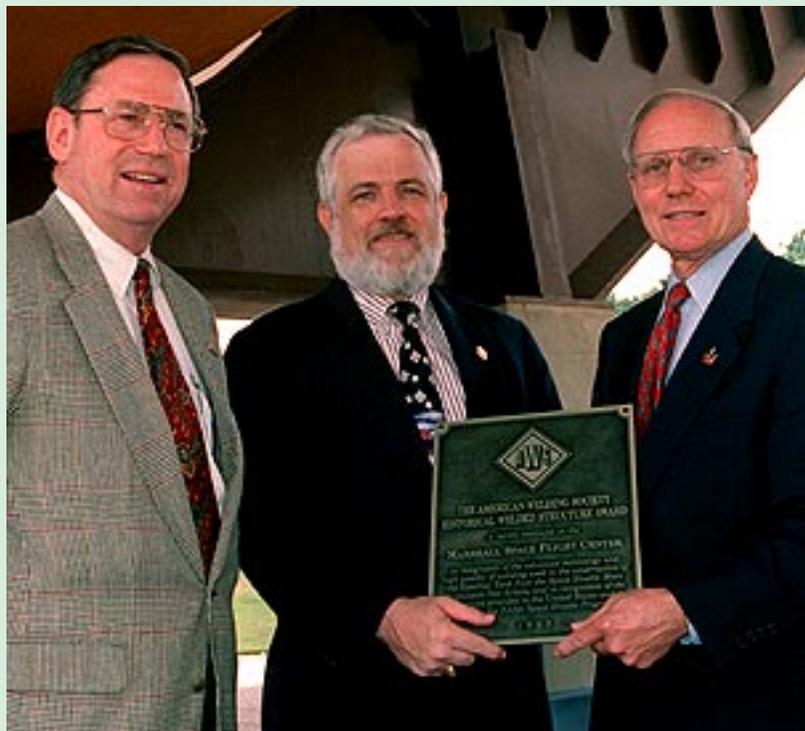
Jennifer Kiessling

# Marshall Association Awards Scholarships to Students

The Marshall Association, formerly known as the Marshall Management Association, awarded two scholarships to Meg Carstens and Jennifer Kiessling during a luncheon June 26 at Marshall in Bldg. 4203, cafeteria.

Carstens, daughter of Dave Carstens, Marshall's director of Engineer and Management Support Office, received a \$1,500 business scholarship. She will attend the University of North Carolina at Chapel Hill.

Kiessling, daughter of Edward Kiessling, Marshall's director of Systems Safety and Reliability Office, received a \$1,500 technical scholarship. She will attend the University of Alabama at Birmingham.



NASA photos by Adeline Byford

# Marshall Receives Award for External Tank

Marshall was honored by the American Welding Society June 16 at the U.S. Space & Rocket Center for its development of the Space Shuttle external tank. The American Welding Society selected the Center for the Historical Welded Structure Award because of the advanced technology and high quality of welding used in the construction of the external tank from the propulsion test article. Center Associate Director Sid Saucier, left, joins Lee Kvidahl, center, of the American Welding Society and Parker Counts, right, manager of the External Tank project at Marshall during the award presentation. Above, the external tank is on display with a full-scale mock-up of the Shuttle orbiter and solid rocket boosters at the Space & Rocket Center.



NASA photo by Emmett Givens

Charles Musitano, president of AVL Systems, inspects a commercial spinoff of Marshall-developed software for use in the tracking of fleet vehicles. Marshall researchers first developed the technology to handle the flow of enormous amounts of information. The challenge was posed by data generation of experiments conducted in orbit on Space Shuttle Spacelab missions.

## Vehicle Tracking System

*Continued from page 1*

“We were faced with trying to find specific data ‘needles’ in a vast information ‘haystack’ that was moving at the speed of light,” said Scott Johnson, a software architect with Quality Research.

As it does with many of the technologies NASA develops for space exploration, Marshall’s Technology Transfer Office offered the technology for commercial application, hoping it might improve the quality of life on

Earth. In a commercial spinoff of the Marshall-developed software, AVL Systems of Huntsville created the QR Track System—to track vehicles instead of information.

Charles M. Musitano, AVL Systems

president and chief executive officer, said the system is affordable and has many applications in the public and private sector.

“For between \$500 and \$1000 and a nominal annual maintenance fee,

municipalities can track police and fire vehicles, ambulances and public works vehicles,” said Musitano. “Each vehicle transmits a signal to the base station through one of several communications devices.”

Musitano said the city of Memphis, Tenn., uses the system to track sludge pumping trucks for maintaining the city’s sewer system. “A dispatcher monitors the location of all vehicles, determines when each vehicle operator’s task is completed,

***The system can monitor many types of vehicle fleet operations like delivery vans, armored cars and taxis. It can also help track vehicles carrying hazardous cargo.***

and reassigns the vehicle to new tasks,” said Musitano.

The system can monitor many types of vehicle fleet operations like delivery vans, armored cars and taxis. It can also help track vehicles carrying hazardous cargo.

When accidents occur, emergency response crews traveling with the equipment to handle the hazardous material can respond much quicker. If an evacuation of the area is necessary, that decision can be made much sooner.

The system can also be used to monitor railroad tank cars, ships and aircraft, Musitano pointed out.

Musitano also believes the technology has potential uses in vehicle theft prevention and recovery, locating school vehicles and as a tool to help emergency crews locate lost hikers.

“Using a two-way interchange of data, exact locations can be used to assist in emergency recovery,” Musitano said.

## Obituaries

**Gibson, Carl, 67**, Union Grove, Ala., died June 19. He retired from Marshall in 1987 where he worked in the Systems Analysis and Integration Laboratory. He is survived by his wife Patsy Gibson.

**Hayes, Evelyn, 64**, Huntsville, died May 22. She retired from Marshall in 1988 where she worked as an accounting clerk.

**Hochberger, Norman, 65**, Hazel Green, Ala., died June 6. He retired from Marshall in 1994 where he worked as a deputy personnel officer in the Human Resources and Administrative Support Office. He is survived by his wife Angelen Hochberger.

**Little, Clarence, 71**, Trenton, Ala., died June 8. He retired from Marshall in 1985 where he worked as an air conditioner equipment mechanic. He is survived by his wife Ophelia Little.

**Thompson, Leldon, 72**, Anderson, Ala., died May 26. He retired from Marshall in 1986 where he worked as a chemical engineer in the Materials and Processes Laboratory.

**Wells, Hubert, 75**, Huntsville, died June 21. He retired from Marshall in 1981 where he worked as an aerospace engineer in the Preliminary Design Office. He is survived by his wife Roberta Wells.

**West, George, 78**, Huntsville, died June 22. He retired from Marshall in 1993 where he worked in the Space Sciences Laboratory. He is survived by his wife Marie West.

## Upcoming Events

### Emergency Warning System Test Set for 3 p.m. Thursday

The monthly test of the Emergency Warning System at Marshall is scheduled for 3 p.m. Thursday. This is an audio test only, and employees should not evacuate to protective areas. If severe weather is occurring at this time, the test will be rescheduled to a later date. Safety coordinators and monitors should send reports of malfunctioning speakers to: AB11/ Emergency Preparedness Officer at 544-5187 as soon as possible.

### Motivation Techniques to be Discussed During Seminar Set for July 9 at Center

Marshall's Employee and Organizational Development Office will broadcast a live, interactive seminar featuring Bill Byham, author of the bestseller "ZAPP!! The Lightning of Empowerment" noon-2 p.m., Thursday, July 9 in Bldg. 4200, room G-13.

Discussions will be held on efficient and profitable methods to motivate employees and ignite their entrepreneurial spirit.

Participants may register via AdminSTAR. For more information, call Kimberly Davis at 544-3343.

### 'Federal Retirement Systems' Topic of Discussion July 22

The Employee & Organizational Development Office at Marshall will sponsor a seminar "Federal Employees Retirement System (FERS) or Civil Service Retirement System (CSRS), Which is Right For You" 8 a.m.-noon, Wednesday, July 22.

Through lecture and discussion, this four-hour seminar will compare information about both Federal retirement systems allowing each employee to select the system which is best for his or her needs.

Seminar enrollment deadline is 4:30 p.m. July 10. For more information, contact Francee Logston via e-mail.



NASA photos by Emmett Given



### Up Close and Personal

Children of Marshall employees received a first-hand look at space technology and their parents on the job when the Center celebrated "Take Our Children to Work Day" June 25.

Above, Dr. Rebecca McCaleb, director, Environmental Engineering and Management Office at Marshall, and daughter Rebecca tour the Space Station mock-up in Bldg. 4755.

Left, Ashley Adams with her stepfather Michael Prince of Marshall's Materials and Processes Laboratory, listen as Space Station Exhibit Specialist Joy Gehr explains the video monitoring inside the Space Station mock-up.

## Observations Reveal Neptune's Largest Moon is Warming Up

Observations obtained by the Marshall-developed Hubble Space Telescope and ground-based instruments reveal that Neptune's largest moon, Triton, seems to have heated up significantly since the Voyager spacecraft visited it in 1989.

"Since 1989, at least, Triton has been undergoing a period of global warming — percentage-wise, it's a very large increase," said James L. Elliot, an

astronomer at the Massachusetts Institute of Technology (MIT), Cambridge, Mass. The warming trend is causing part of Triton's frozen nitrogen surface to turn into gas, thus making its thin atmosphere denser. The scientists are basing a rise in Triton's surface temperature on the Hubble telescope's detection of an increase in the moon's atmospheric pressure, which has at least doubled in bulk since the time of the Voyager encounter.

## Employee Ads

### Miscellaneous

- ★ Comet Snapper riding mower, 8hp, \$400 o.b.o. 828-6158
- ★ GE under-counter dishwasher, \$80; basketball goal w/in-ground post, \$60; weight-lifting bench, \$20. 881-6040
- ★ AKC golden retriever puppies, 6 weeks old, \$225. 864-0675
- ★ Cardioglide exercise rider, \$40. 971-9710
- ★ Goldwin AVDP XL driver, 10 degree loft, ultralite graphite regular shaft, \$185. 971-9710
- ★ Callaway clone golf clubs, 3 through SW, Grafalloy Prolite ultralite graphite shafts, \$200. 337-8630
- ★ Mixed set golf clubs, \$35; Stereo w/ glass cabinet, \$50. 536-8951
- ★ Kenmore washer and dryer, white \$195; Sears 32" lawn sweeper, push-type, \$95. 881-6040
- ★ Swimming pool vacuum, Arneson w/ extras, \$200, call after 5 p.m. 881-7011

### Vehicles

- ★ 1996 Pontiac Transport van, \$12,500. 830-8339
- ★ 1990 Acura Legend LS, leather, auto, CD, all power, \$8,490. 880-7204
- ★ 1995 Lincoln Town Car, Signature Series, sage/grey leather, 46K miles, leave message. 880-3039
- ★ 1993 Toyota Camry XLE, V6, 65K miles, leather, sun roof, \$13,000. 534-3277
- ★ 1968 Buick LeSabre, 4-dr., 72K miles, collector's car, \$1,500. 534-8922
- ★ 1991 Ford Aerostar van, Eddie Bauer package, new trans., \$5,975 o.b.o. 852-6952
- ★ 1995 Acura Legend LS, emerald green, 41K miles, \$21,000. 518-9260
- ★ 1997 Pontiac Bonneville SSE, silver taupe, all power, spoiler, custom wheels, 12-way power seats, sunroof. 881-3139
- ★ 1982 Yamaha Vision 550, 12,500K miles, one owner, \$1,699 after 6 p.m. 233-7207

### Boats

- ★ Sailboat, 22' Catalina, three sails, late model, 9.9hp Mercury outboard, swing keel, \$6,000. 851-0893
- ★ 18' Inboard/outboard boat, 165hp Chevy II 6-cyl. engine, \$2,250. 232-4610

## Wanted

- ★ Winch, 8,000 to 12,000 pounds to put on a flatbed trailer, 12 V. 351-1204
- ★ Crimping tool for cable television F-connectors, prefer type that makes hexagon crimp. 881-6040

## Lost

- ★ Heart-shaped enamel brooch, Bldg. 4200, 4202 or 4203 area. 544-6394

## Center Announcements

- ☛ **AFGE** — The next monthly meeting for the AGFE-Local 3434 Union is set for 11:30 a.m.-noon July 14 in Bldg. 4200, room 815
- ☛ **Toastmasters** — The NASA Lunar Nooners Toastmasters Club will meet at 11:30 a.m. Tuesday, July 7, in the Bldg. 4610 cafeteria conference room. All Marshall employees, contractors and friends are invited. **Contact:** Lee Johns, 544-5142
- ☛ **Pepsi Product Sale** — The NASA Exchange will be selling Pepsi products left over from Marshall's Open House 1-3 p.m. or until supplies last today at the south loading dock of Bldg. 4471. Cases of 20-ounce Pepsi, Diet Pepsi and Mountain Dew will be available at \$11/case.
- ☛ **MARS Tennis Tournament** — The MARS Tennis Club is holding an open mixed doubles tournament starting at 8:30 a.m. Saturday, July 11. Club members can have non-club member partners. **Contact:** Mike Moore, 544-7176 or Bill Baker, 544-6686
- ☛ **Ski Week 1999** — The 8th annual NASA Ski Week will be hosted at Jackson Hole, Wyo., Jan. 30 - Feb 6, 1999. Over 250 skiers from seven NASA centers are expected at this 3,000-acre resort in western Wyoming. All Marshall employees, on-site contractors, retirees and family members are eligible to participate. **Contact:** 544-6568 or e-mail: Thomas.S.Dollman@msfc.nasa.gov
- ☛ **NASA Exchange** — The NASA Exchange will be accepting bids until July 10 on four AirDyne bikes. Bikes may be viewed 8 a.m.-4 p.m. Monday-Friday in Bldg. 4752 **Contact:** Teri Hassell, 544-3337
- ☛ **Sharps Containers Available** — A needlestick from a used syringe can lead to a variety of infections. It is the Center's goal

to eliminate this possibility for any on-site personnel by providing a personal needle collection bin, better known as a "sharps container," to any on-site civil service employee or contractor who needs one. Sharps containers are available from Marshall's Medical Center, Bldg. 4249. When the container is full, seal the top and exchange it for a new one. **Contact:** Medical Center, 544-2390

- ☛ **Laundry** — Marshall employees and on-site contractors who have outstanding claims or items of clothing, shoes, etc., that have not been returned from the former laundry/dry cleaning concessionaire, should notify the NASA Exchange at 544-7564. A final attempt will be made to claim these items.
- ☛ **Auto Service Shop** — The Auto Service Shop in Bldg. 4678 will close July 3-10. Regular hours of operation, 7:30 a.m.-5 p.m., will resume Monday, July 13. **Contact:** 881-7640

## Job Opportunities

- CPP 98-68-PL, Supv. AST, Mission Operations Integration, GS-801-15, S&E**, Mission Operations Laboratory, Operations Integration Office. Closes July 10.
- CPP 98-84-DC, AST, Technical Management, GS-801-15**, Microgravity Research Program Office, MSFC, Microgravity Science & Applications Projects Office. Closes today.
- CPP 98-85-JB, Community Relations Specialist, GS-301-12**, Customer & Employee Relations Directorate, Government & Community Relations Office, Closes July 13.
- CPP 98-87-JB, Supv. AST, Liquid Propulsion Systems, GS-861-15**, Space Shuttle Projects Office, Space Shuttle Main Engine Project. Closes July 2.
- CPP 98-88-RE, Supv. AST, Electric Propulsion Systems, GS-850-14, S&E**, Propulsion Laboratory, Propulsion Research & Tech Division, Space Propulsion Branch. Closes July 2.
- CPP 98-90-DC, AST, Aerospace Flight Systems, GS-861-14** (2 vacancies), Microgravity Research Program Office, MSFC, Microgravity Science & Applications Project Office. Closes July 9.
- CPP 98-91-JB, Strategic Planning Specialist, GS-301-13**, Customer & Employee Relations Directorate, Internal Relations & Communications Office. Closes July 9.

# MARSHALL STAR

Marshall Space Flight Center, Alabama 35812

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