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Marshall Adopts New Quality Management System

Marshall is adopting a new quality management system that has proven to increase efficiency and quality in industry worldwide. NASA recently announced acceptance of this new system which is the International Organizations for Standards family of quality management system standards known as ISO 9000. ISO 9000 was started in the European nations and is being aggressively adopted by a large number of industrial and government agencies in the U.S.

ISO 9000 fosters an emphasis on common quality standards which enhances understanding and cooperation between customers and suppliers. The new system of quality standards will be applied to some existing projects and to all future contracts.

"ISO 9000 will enable Marshall and its contractors to apply one quality management system instead of the many used today. This will improve the consistency and efficiency in how we perform our tasks within NASA as well as with our contractors," said Jim Ehl, director of Marshall's Safety and Mission Assurance Office. "In addition, if

we are using the same system as industry, the time and resources necessary to evaluate a new or potential contractor is greatly reduced if the contractor is a compliant or certified ISO 9000 company."

ISO 9000 will impact the Marshall Center in two basic ways. First, it will change the quality system requirements that are placed on future contracts and how we verify that the products and contracts conform to our needs and requirements. Contractors will now be required to conform to world-wide ISO 9000 standards instead of previous standards that were specific only to NASA. Secondly, the new system will require Marshall in-house compliance which will transcend standards specific to organizations.

"The new standards will require a strong and active commitment from Marshall management, organizations and individual employees who are all stake holders in the products of an ISO 9000 compliant facility," said Ehl. "ISO 9000 has proven to be a very effective quality management system and emphasizes a common ground of quality stan-

dard. This enhances the relationship between customers and suppliers."

Marshall Center Director recently initiated action for Marshall to start the transition to the ISO 9000 systems. An ISO 9000 implementation team has been formed and has representatives from a broad cross section of Marshall's different project offices and laboratory divisions. The team is being chaired by Robert Schwinghamer who will be responsible for the overall implementation of the new system at Marshall. The teams activities will include initiation of procedure changes to coincide with the ISO 9000 format and orientation and training for future contracts. Marshall's goal is to implement the ISO 9000 system at the Center and with its contractors by mid-1997.

"It is a large task that will require everyone's participation, commitment and cooperation to be successful. After the transition, we expect that Marshall can work its tasks with more consistency, with fewer procedures and with greater efficiency," said Ehl.

Students To Test Engineering Skills in Third Moon Buggy Race

The Great Moon Buggy Race committee is putting the finishing touch on preparations for NASA's third annual moon buggy race Saturday at the Space and Rocket Center. The race begins at 10 a.m.; gates open at 9.

Nineteen university, college and high school teams from around the country will race their own version of a human-powered moon buggy through a specially designed course strewn with challenging lunar-type obstacles.

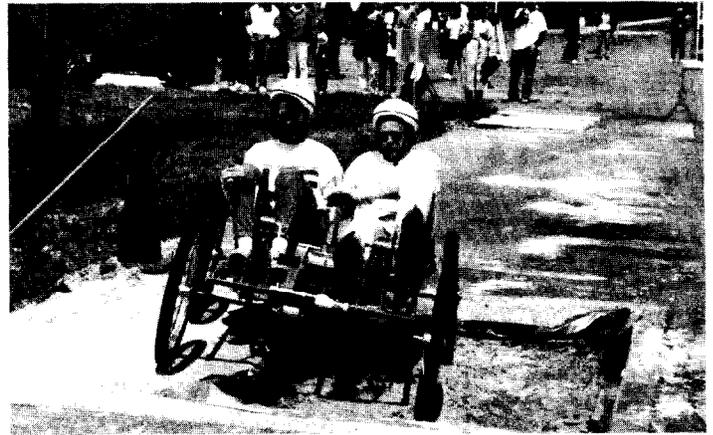
"These are engineering test models so expect to see plenty of duct tape, aluminum tubing and plywood," said Dr. Frank Six, Marshall's coordinator for the Great Moon Buggy Race.

After a safety inspection of each vehicle, the competition will begin when two crew members (one female; one male) from each team carry their moon buggy a distance of 20 feet and place it at the starting line. This ensures the design is lightweight. The crew will assemble or unfold their moon buggy from a storage volume no larger than 4 feet cubed. This ensures the vehicle's rocket portability. Once assembled, the clock starts again as the team races around the course. The event clock will stop when the vehicle and its two-member crew cross the finish line.

"This should prove to be an exciting event for the students who will be racing, as well as anyone watching on the sidelines," said Six. "It also kindles an excitement for the human exploration and development of space."

First place winners will receive a trip to the Kennedy Space Center in Florida to watch a Space Shuttle launch.

University and college teams scheduled to compete include: the



University of Evansville — The moon buggy team from the University of Evansville tackles the moon crater obstacle in the Great Moon Buggy race of 1995. They are scheduled to participate in the race again this year.

University of Alabama in Hdnstville (two buggies); Arizona State University, (two buggies); Florida Atlantic University; Florida Institute of Technology; University of Florida; Georgia Institute of Technology; University of Evansville (Ind.) (two buggies); Pittsburgh State University (Kansas); Northern Kentucky University; Trenton State College (New Jersey); University of Puerto Rico at Humacao; and the University of Vermont.

Discoveries, Possibilities Mark Space-Based Lightning Detector's First Year of Operation

by Steve Roy, Public Affairs Office

During its first year in orbit, a NASA lightning detection instrument, the Optical Transient Detector, has made numerous significant contributions to researchers' understanding of lightning and severe storms.

The instrument's accomplishments were reviewed by scientists at the Global Hydrology and Climate Center in Huntsville during observations marking the anniversary of the detector's first year of operation.

Launched on April 3, 1995, the orbiting detector produced the world's first high quality images of lightning on a global scale.

"Using the instrument we have determined that, in some cases, there are up to 20 times more lightning flashes within clouds than observed by the ground-based network," said principal investigator Dr. Hugh Christian of the Global Hydrology and Climate Center.

"This is significant because lightning flash rates offer the tantalizing possibility of assisting prediction of tornado formation," according to Christian. With its high detection efficiency and accuracy the instrument is the world's first space-based lightning sensor that can detect and locate most lightning flashes within its field of view.

Data from the instrument shows that severe thunderstorms tend to produce lightning within clouds while the storms are building and then more of a mixture of cloud and ground lightning as the storms dissipate. The quantity of cloud-to-ground lightning strikes, which can be detected by the present ground-based network, increase only after the storm has matured.

"This case study indicates that space-based observations may provide a more advanced warning of severe weather," said Christian.

The instrument also observed that more lightning is produced during the northern hemisphere summer than during the southern hemisphere summer.

The Optical Transient Detector is a pathfinder for a follow-on lightning detector called the Lightning Imaging Sensor, scheduled for launch in 1997 on the Japanese Tropical Rain Measuring Mission satellite.

"Looking to the future, this instrument is showing us that lightning observations from geostationary orbit could be very valuable for severe weather prediction and warnings," said Christian.

"The highly compact lightning detector represents a sophisticated new research tool in space," explained project manager Roger

Chassay of Marshall's Science and Applications Projects Office, the organization responsible for developing the instrument and managing its mission.

"The Marshall team placed the lightning detector design and development on a fast track when given the opportunity to fly the instrument on an Orbital Sciences Corp. satellite, Microlab-1. The detector was built, tested and delivered in less than a year. Our experience clearly shows for payloads involving small-to-medium size and complexity, we can definitely streamline the development process and provide flight hardware of high quality that produces valuable new science," said Chassay.

The Optical Transient Detector is a highly compact combination of optical and electronic elements. The optics and the electronics are a little bigger than a two-pound coffee can and a typewriter, respectively. In spite of its small size the detector is a major advance over previous technology, detecting lightning under bright, daytime conditions as well as at night.

Data from the lightning detector is ana-

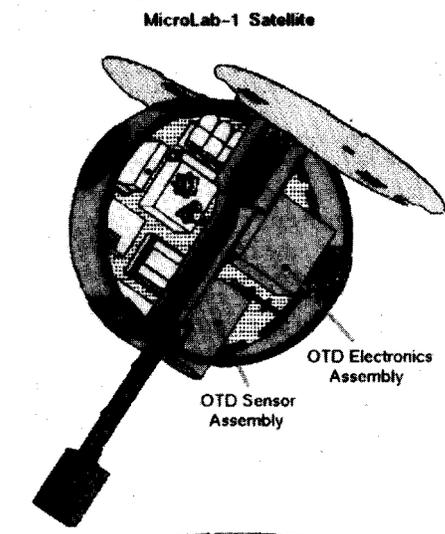
(See OTD on page 3)

Tether Reflight Investigation Board Continues

An investigation into the Feb. 26 tether break during deployment of a tethered satellite from the Space Shuttle Columbia is continuing to move forward, as it pursues an explanation for the unexpected separation and loss of the satellite.

"The board is roughly on schedule," said Chairman Kenneth Szalai. "We have not closed in on a single cause, but testing has provided clues to the cause, and we have narrowed down to four or five potential single or connected scenarios."

The fault-tree approach being used by



Microlab-1 Satellite — The Microlab-1 satellite houses the Marshall-managed and developed lightning detector, known as the Optical Transient Detector. The lightning detector and Microlab-1 satellite were carried into orbit last April, beginning a highly successful first year of science observations.

the board resulted in a large number of possible contributing factors or potential causes for the break being defined and examined. To date, roughly half of those fault tree blocks have been eliminated from further consideration, resulting in a major narrowing of the investigation's focus.

As an example of this elimination process, Szalai cited the board's assessment that neither the satellite itself, its component systems, nor operations which were being conducted with it, contributed to the separation.

(See Tether on page 3)

Space Shuttle Marks 15 Years of Flight Powered by Center Propulsion Elements

Friday marked the 15th anniversary of the first Space Shuttle launch which took place on April 12, 1981.

Counting all Shuttle missions to date, including Challenger, there have been 76 flights. That translates into the launch of 152 Solid Rocket Boosters, 228 Space Shuttle Main Engines, and 76 External Tanks all provided for the Shuttle system by Marshall. Now expanding its role as NASA's center of excellence for propulsion and the agency's lead center for space transportation systems development, Marshall continues to provide the propulsion it takes to get the Space Shuttle to orbit each and every flight.

Marshall's Space Shuttle Projects Office Manager Alex McCool was at Edwards AFB Force Base for the landing of STS-1 and remembers seeing how excited the astronauts were when they returned from the flight.

"There were many, many firsts that were done back then," said McCool. "A lot of

(See Anniversary on page 3)

Environmental Awareness Month Activities Planned

In an effort to make employees more aware of the importance of recycling, the Recycling committee is offering a "Spot an Environmentalist" activity. From now until the Earth Day celebration on April 22 employees who go out of their way to recycle or perform other environmentally conscious acts are eligible to receive a gift certificate to the Earth Friendly store in Huntsville. Winners of the activity will receive an "on-the-spot" award notice from a Marshall Recycling Committee member, and then receive their actual gift certificates at the Tree Planting ceremony.

Other activities planned for Environmental Awareness Month include:

Today: Lunch & Learn Seminar in Morris Auditorium from noon until 12:45 p.m. Featured speaker will be Pat Byington, executive director of the Alabama Environmental Council and Earth Day coordinator for Alabama.

April 15-22 -Trash sculptures from the Marshall Child Development Center on display in the lobby of Building 4200.

April 22: Earth Day Observance- Tree Planting at 9 a.m. on the north side of Building 4708: Dr. Rick Chappell will be the speaker. This year's tree will be an offspring of the "Moon Sycamore." Astronaut Stuart Roosa took a sycamore seed to the moon aboard Apollo 16 in 1971. Upon returning to earth, the seed was planted at Mississippi State University and is known as the Moon Sycamore. This is also the 25th anniversary of Apollo 16.

Public Comment Invited on Interim Cleanup Action of West Test Area

The Marshall Center invites public comments on an interim cleanup action to address contaminated groundwater in the vicinity of West Test Area Structures 4670 and 4696. NASA has prepared a Proposed Plan that summarizes the treatment alternatives considered and recommends that the cleanup alternative is packet-tower aeration to remove volatile organic compounds from groundwater.

The Proposed Plan is available for review at The Marshall Center Public Affairs Office; Redstone Scientific Information Center in Building 4484; Huntsville/Madison County Library Reference Department, 915 Monroe Street; and Triana Public Library, 280 Zierdt Road, Triana.

Comments may be submitted during the 30-day public comment period from April 29 until May 28 to Dominic Amatore, Public Affairs Office, Marshall Space Flight Center, 35812.

Tether *(From page 2)*

Tests and analyses using a variety of sophisticated apparatus and techniques have been underway at laboratories of the Marshall Center in support of the board's effort. The lab activities, beginning in mid-March and continuing, have been an indispensable source of physical evidence to shed light on the tether incident, according to Szalai.

Another round of tests is under way this week, with some 6,000 feet (1,800 meters) of tether which remained aboard Columbia after the break being examined in Marshall Center facilities.

The board was established almost immediately after the tethered satellite loss, during the STS-75 Space Shuttle mission. The panel's charter called for submitting, within 75 days, a draft report of findings and recommendations to NASA Associate Administrator for the Office of Space Flight Wil Trafton. The target completion date, based on that schedule, is May 13.

Center has New CPP Application Form

A new Competitive Placement Plan (CPP) application form has been developed that will simplify filing procedures for announced positions.

According to Personnel Management Specialist Sue Payne, the former Knowledge, Skills, Abilities and Other Characteristics (KSAOC) Form 3804, has been revised to include general applicant information and provides more space for describing experience relevant to each KSAOC. Although other forms such as the SF-171, Optional Form 612, resumes or other applications will continue to be accepted, the revised Form 3804 and the Supervisory Appraisal Form 3778, are preferred and will be the only forms needed to apply. Applicants are encouraged to read the form carefully and provide all requested data.

Forms are available in Supply, Room 124 of Building 4202, and are also available electronically in Centerwide Applications. The new procedures should reduce the time required to apply for Competitive Placement Plan announcements and will speed up the selection process.

Anniversary *(From page 2)*

technology we have today dates back in the early '70s. To take that and what we've been able to do, it's a technological marvel when you look at what we ask the Shuttle to do."

More than 400 crew members have flown on the Shuttle with more than 600 days of flight time accumulated by the fleet. The Shuttle has flown over 700 payloads for research efforts in astronomy and astrophysics, life and materials science, planetary science, communications, solar physics and national security. These payloads include a number of Spacelab missions and major facilities such, as the Hubble Space Telescope, managed by Marshall.

Space Shuttle crews have deployed 54 payloads including three interplanetary spacecraft and more than 30 satellites have been placed in geosynchronous Earth-orbit and several spacecraft in low Earth orbit.

OTD *(From page 2)*

lyzed by scientists at the Global Hydrology and Climate Center. The center is operated under cooperative agreement of NASA, the University of Alabama in Huntsville and the Universities Space Research Association.

The Optical Transient Detector was carried into orbit by an Orbital Sciences Pegasus rocket.

Receptions Planned for Ryan and Blair

Farewell receptions are being held to honor Bob Ryan, deputy director of the Structures and Dynamics Laboratory, on April 25, and Jim Blair, director of the Structures and Dynamics Laboratory, on May 2 in the cafeteria of Building 4610 from 2 until 4 p.m. All employees are invited.

How Much Do You Know About Recycling?

Did You Know? Used motoroil is collected by the Bama Waste Oil services company of Piedmont, Ala. Bama Waste Oil sells the dirty engine oil to asphalt factories that burn the oil to heat road paving equipment and mix.

Employee Ads

MISCELLANEOUS

Baseball bats, TPX, left hander glove, Taylor Made Pittsburg persimmon driver. 650-5229.

AKC Boxers, champion sired, fawn and brindle, puppies and adults, \$300. 420-8101.

Bicycle, 12-speed, Fuji, adult racing style, \$150. 539-0263.

MacIntosh LC, 10MB RAM, 170 HD, color monitor, imagewriter printer, 28.8 modem, \$1,100. 722-9801.

Longaberger Mother's Day baskets, Fathers Day baskets, Retired baskets and others. 353-5106.

7-diamond cluster ring, \$650; stereo cabinet, \$35; camper shell top/ladder rack, \$45; Lifestyler 2000 ski machine, \$90. 882-9785.

Master Craft 68" slalom ski, \$85. 232-1876.

Ladies 12 lb. bowling ball with bag, \$4. 883-5543.

Golden Retriever, female, \$175. 837-2461.

Canon PC10 copier with new cartridge, \$325. 551-0673.

Power washer, 1,300 P.S.I. with accessories, \$125, 881-8674.

External wood door assembly/side lights, 65" wide, \$50. 883-2653.

Diversified products, DPIOOO weight machine, best offer. 883-9107.

Chest type freezer, \$150. 828-6117.

VEHICLES

1980Toyota Celica GT liftback, 108K miles; 1988 Olds 98 Regency, 91K miles, \$5,500. 461-4816.

1986 VW Scirocco, 5-speed, anti-theft device, \$3,750. 379-5284.

1991 Jeep Cherokee Laredo, 4-door, 65K miles, \$11,500. 837-0085.

1972 Monte Carlo, restoration project, 300 HP, MAG wheels, auto trans., Alpine stereo, \$4,200. 722-0911.

1995 Honda Night Hawk motorcycle, \$500/take over payments. 837-2461.

1992 Ford Explorer XLT, 4-door, 2 WD, \$12,500. 461-7934.

1992 GSI Storm, AM/FM stereo, air, 96K miles, \$5,000. 852-7354.

1976 Buick Regal, 2-door, white, power, AM/FM, \$2,350. 883-6284.

1990 Pontiac Grand Prix LE, 4-door, cruise, AM/FM. 721-0078.

1965 Pontiac "GTO-Jr." Lemans, 4-speed, \$3,900; 1986 Acura Legend, 4-door, \$5,900; 1994 Nissan Pathfinder, \$18,200. 880-7168.

1989 VW convertible, 72K, miles, 5-speed, blue; 1989 Grand Prix Coupe, 79K miles. 461-0319.

1986 Toyota Celica GT hatchback, automatic. 883-8989.

1988 Honda Civic LX, 100K miles, asking \$3,500. 883-6827.

1985 S-10 Blazer, 5-speed, Tahoe package, \$3,500. 881-5642.

1991 Chrysler convertible LeBaron, 67K miles, \$8,500. 895-0148.

1993 Mazda MX-3 AT, AC, AM/FM, 36K miles, \$9,000. 883-9107.

WANTED

Name of very reputable, honest, careful person to clean large home in Decatur. 350- 1292.

Washer and dryer in good condition for good price. 890-0183.

FREE

Cellular phone, 3w Novatel, bag-type, phone for boats, automobiles or campers. 895-9592.

Two free puppies, half golden retriever, half lab. 837-2461.

Center Announcements

Mississippi State Alumni — The Miss. State University Huntsville/Decatur Alumni Chapter will host a spring shrimp boil on May 4 from 5-7 p.m. at the NASA picnic grounds. The cost is \$10 per person in advanceor \$12 at theevent. There will be hotdogs and chips free for children under 12. Reservations may be made by contacting the following until April 21: Rebecca Jones, 97 1-1929; Karen Dugard, 772-7081; Roy Stewart, 880-1823; and Hardy Smith 355-7690.

Spring Dance — Tickets for the April 27 dance sponsored by the MARS Ballroom Dance Club may be purchased from Ron Brock (544-0768), Ed Ogozalek (837-1486), John Sims (5441947), Pat Sage (544-5427), Hugo Berry (544-3525), Tamara Landers (544-6818), and Bob Williams (544-3998).

Redstone Toastmaster Club — The Redstone Toastmaster Club, a speech course club, meets every Tuesday at 6 p.m. at Morrison's Cafeteria in Madison Square Mall. The public is invited. Call 837-2 165 or 880- 1528 for more information.

MOO Retiree Breakfast — The Management Operations Office retirees will meet for breakfast/lunch at 10 a.m. on the fourth Thursday of each month at Cracker Barrel restaurant in Madison. All MOO retirees, former employees or present employees are invited to attend. Call Dee Perry at 852-6396 or Jan Zielinski at 539-0042 for more information.

NARFE — The National Association of Retired Federal Employees (NARFE) will meet Saturday at the Senior Center on Drake Ave. A program will be presented by Judge Frank Riddick of the Madison County Probate Court. Refreshments will be served at 9:30 a.m. and the program will follow at 10. For more information call 837-0382.

AZAA Luncheon — The AIAA April luncheon will be held at the Redstone Arsenal Officer's Club tomorrow at 11:30 a.m. Former Astronaut Bob Springer, now director of safety and mission assurance for the international Space Station at Boeing, will be the featured speaker.

Blue Cross/Blue Shield — A federal representative from Blue Cross/Blue Shield will be at the Center tomorrow from 9 to 11 a.m. in Building 4202, Room 108, to assist employees with claims and questions.

MESA Meeting — The April meeting of the Marshall Engineers and Scientists Association (MESA) is tomorrow at 11:30 a.m. in the MESA Office, Room C-105, in Building 447 1.

Earth Day T-Shirt Orders — Employees who ordered Earth Day T-shirts may pick them up at the NASA exchange between 8 a.m. and 4 p.m., Monday through Friday.

GSA Auction Planned — The General Services Administration will conduct an auction sale of surplus NASA property on April 24 in Building 8025. Interested buyers may inspect items and register to bid on April 23 from 9 a.m. to 3 p.m., and from 8 to 9 a.m. on April 24. For additional information call Johnny Shockley at 544-4788/4799.

Ads are published on a space available basis as a personal non-commercial service to Marshall Center employees. Ads must be submitted on Marshall Center form 3332 (dated 1978 or 1983), signed by the advertiserand addressedto CA10. The issue, available in Supply, must be turned in by Friday noon for publication in the next

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