



MARSHALL STAR

Serving the Marshall Space Flight Center Community

Oct. 2, 2008

Hubble anomaly delays space shuttle servicing mission

From Combined Reports

Space shuttle Atlantis' servicing mission to NASA's Hubble Space Telescope has been delayed due to a malfunction of the telescope's hardware, which affects the storage and transmittal of science data to Earth. The anomaly occurred Sept. 27 during ground testing at the Kennedy Space Center, Fla.

During a news conference Sept. 29 to announce the delay of the Hubble servicing mission, Shuttle Program Manager John Shannon said the Oct. 14 targeted launch date is "off the table."

"The Hubble team is troubleshooting the anomaly and they will determine when the servicing mission will be ready to fly," said Shannon, adding there's flexibility in rescheduling the mission.

Shannon said the program likely would decide to fly space shuttle Endeavour's STS-126 mission to the International Space Station, now targeted to fly Nov. 16, before STS-125. He said there were opportunities to fly STS-125 in February or April 2009.

The malfunctioning system is Hubble's control unit/science data formatter, known as Side A. On Sept. 27, the telescope's spacecraft computer issued commands to "safe" the payload computer and science instruments when errors were detected within the science data formatter. An attempt to reset the formatter and obtain a

dump of the payload computer's memory was unsuccessful.

Additional testing demonstrates Side A no longer supports the transfer of science data to the ground. A transition to the redundant Side B should restore full functionality to the science instruments and operations.

The transition is complex and requires that five other modules used in managing data also be switched to their B-Side systems. The B Sides of these modules were last activated during ground tests in the late 1980s and early 1990s.

The Hubble operations team has begun work on the Side B transition and believes it will be ready to reconfigure Hubble during the first week of October, after the team completes a readiness review.

Hubble could return to science operations in the immediate future if the reconfiguration is successful. Even so, the agency is investigating the possibility of flying a redundant replacement system, which could be installed during the servicing mission.

For more information about the Space Shuttle Program, visit <http://www.nasa.gov/shuttle>.

For more information about the Hubble Space Telescope servicing mission, visit http://www.nasa.gov/mission_pages/hubble/servicing/SM4/main/index.html.

Combined Federal Campaign begins Oct. 6

Marshall gears up for CFC

By Jessica Wallace

"Give Today...Change Tomorrow." That's the 2008 theme for the Marshall Space Flight Center's Combined Federal Campaign, which begins Oct. 6 and runs through Dec. 12.

The Combined Federal Campaign is an annual, global workplace charity effort, with more than 300 CFC campaigns around the country and across the globe. The goal is to raise money each year to help

See CFC on page 2



Happy 50th, NASA!

Celebrate NASA's 50th anniversary with the Marshall Star!

Beginning on page 3 of this issue, the keepsake edition devotes eight pages to the celebration of NASA throughout the decades. See historical photos and read about Marshall's ties to the agency as NASA carried out its mission.

To see this special Star in color, please visit <http://marshallstar.msfc.nasa.gov/>.



Continued from page 1

improve the quality of life for those in need. Pledges made by federal civilian, postal and military donors during CFC go to non-profit organizations that provide health and human service benefits throughout the world.

The Marshall Center has set this year's goal at \$600,000. The overall goal for the 2008 Tennessee Valley CFC effort is \$2 million. The Tennessee Valley campaign is a joint effort with the Army's Aviation and Missile Command, and other federal agencies at Redstone Arsenal and in surrounding Alabama and Tennessee counties.

"In the past, the center has gone well over our target," said Pat Benson, Marshall's CFC executive chairperson. "This year, we hope to do the same. We appreciate everyone's participation in this worthy cause. There are many people out there who will benefit from our help."

Marshall will host a CFC rally for all team members from 11 a.m. to noon, Oct. 23, in Morris Auditorium, Building 4200. Door prizes will be given away during the event, and refreshments will follow in the 4200 lobby.

The rally's keynote speaker will be Violet Parker Edwards, chief executive officer of Christmas Charities Year Round, a non-profit organization partially supported by CFC through donations. Founded in 1949, the organization provides food, clothes, toys and toiletries to those in need in Madison County.



David Higginbotham/MSFC

The Marshall Center's 2008 Combined Federal Campaign executive committee members are, from front left, Linda Gomez, executive vice chairperson for promotions; Pat Benson, executive chairperson; Rosalind Cylar, executive vice chairperson for community service days; and Baraka Truss, executive vice chairperson for bus tours. From back left are Kenneth King, finance and reports; Angela Storey, publicity; Rosa Kilpatrick, Local Federal Coordinating Committee member; David Percival, training/literature/materials; and Irene Taylor, loaned executive.

Also speaking will be Lindsey Jones, the 12-year-old daughter of Terry Jones, a Marshall management support assistant in the Engineering Directorate's Solid Propulsion Systems Division. One month before her fourth birthday, Lindsey was diagnosed with

rhabdomyosarcoma, a rare form of cancer. It is a fast-growing, highly malignant tumor that occurs mainly in teenage boys. After receiving chemotherapy for a year and six months of radiation, Lindsey has been in complete remission for seven years. Throughout this experience, she has been a beneficiary of CFC agencies, including the Make-A-Wish Foundation and Give Kids the World. Both organizations grant wishes to children with life-threatening medical conditions.

There are many ways for Marshall employees to help with CFC — including volunteering during Community Service Days with local organizations similar to those that helped Lindsey. Employees can spend the day putting their special

skills to work at local non-profit agencies, helping people across the Tennessee Valley. Marshall team members also can take bus tours to selected charitable organizations supported by CFC, to get a snapshot of their operations and the ways they aid those in need. For information on how to sign up for these two activities, go to "Inside Marshall."

For more information or to make a donation, visit <http://cfc.msfc.nasa.gov>.

Wallace, an AI Signal Research Inc. employee and the Marshall Star editor, supports the Office of Strategic Analysis & Communications.

Marshall team asked to observe handicapped parking policies

All Marshall Space Flight Center civil service and contractor personnel are asked to observe handicapped parking policies. Handicapped parking is designated at various locations throughout the center for individuals with disabilities authorized by the applicable state or Marshall-issued handicapped parking permit.

These reserved spaces are essential for physically challenged individuals to have uninhibited access to their assigned places of duty. "Employees who are not physically disabled but have authorization to use handicapped parking when the vehicle is occupied by a disabled

family member, friend or coworker should, of course, not park in a restricted handicapped space when the vehicle is not occupied by a disabled person," said Allan Day, Marshall's Disability Program manager in the Office of Diversity and Equal Opportunity.

NASA Protective Service officers will verify that an individual parking in a handicapped parking space is indeed the person to whom the handicapped parking permit was issued. Improperly parked vehicles will be subject to ticketing. Questions regarding the center's handicapped parking policies should be directed to Day at 544-4079.



Happy 50th, NASA

Glennan saw Army's Von Braun team as critical NASA asset

Plans for the establishment and expansion of a new government agency, NASA, in 1958 brought together a unique set of individuals who had never worked together.

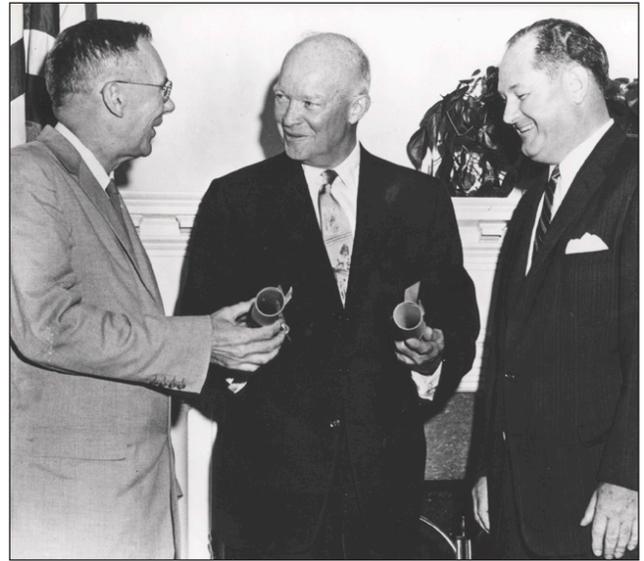
Dr. Wernher von Braun was one of those unique individuals. Another was T. Keith Glennan, who served as NASA's first administrator from 1958 to 1960.

Von Braun and his team of German scientists built the V-2 rocket for Germany during World War II. In 1945, the U.S. Army brought them to the United States, where they first worked on refurbishing and launching rockets at White Sands, N.M. In 1950, the von Braun team was transferred to Huntsville to work on the Army's ballistic missile program. When NASA decided to establish a field center in Huntsville in 1960, the new civilian space agency initiated plans to acquire the von Braun team from the Army.

Glennan held a unique set of credentials, including working for Case Institute of Technology in Ohio. Even before officially beginning work for NASA, Glennan recognized the von Braun team's unique capabilities. As administrator he knew the transfer would enable NASA to acquire 4,000 Army employees in Huntsville, including many who had been working on missiles and rockets since 1950.

One of Glennan's first visits to Huntsville came on Sept. 17, 1958. "I became convinced that the talents of this group, so dedicated to space exploration ... would be a useful part of NASA," he said. "We came to have considerable respect for Wernher von Braun and his team. I had never lost interest in bringing them into the NASA fold."

Above all, Glennan was impressed with von Braun's skill as a communicator. Referring to one presentation by the man who



In 1958, President Dwight D. Eisenhower, center, presents commissions to NASA's first administrator, T. Keith Glennan, right, and deputy administrator Hugh Dryden.

eventually would direct the Marshall Space Flight Center, Glennan said, "This was one of the most straightforward jobs I have heard von Braun do. He speaks clearly, with just the right emphasis and with an abundance of good humor. He turns a phrase every once in a while and certainly has control of his audience."

Von Braun soon let Glennan know the move from the Army to NASA would spur him to request additional personnel in Huntsville. "Von Braun has the bit in his teeth and is asking for a substantial increase in the number of employees at the Huntsville center," Glennan wrote. "Obviously, I am going to give in on this because of the manner in which von Braun can bring pressure to bear in Congress and elsewhere.

"What a personality!" he wrote.

NASA origins in 1958 connected with von Braun dreams

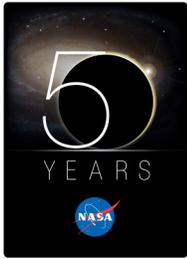
NASA is celebrating 50 years of service to the United States. NASA opened for business on Oct. 1, 1958. Of course, very few new government agencies are spun from whole cloth. And, when NASA was created, it brought together thousands of people from existing national organizations that had demonstrated involvement in aeronautics and spaceflight.

The new agency included employees who were alive in 1903 when the Wright Brothers made history and in 1917 when the United States entered World War I. NASA also included a generation that had witnessed and participated in World War II, either on the battlefield or on the home front.

See Origins on page 5

Celebrating 50 years

America's space program is a symbol of our greatest aspirations



October 1, 2008, marks fifty years since the creation of NASA and the beginning of America's space program.

NASA was born during the "Cold War." In November of 1956, Nikita Khrushchev pounded his fist on a table, labeled democracy weak compared to communism and

promised to bury us, and the Soviets' launch of Sputnik I and II in October and November of 1957 made some wonder if they could. They were beeps heard around the world.

For those of us born after Pearl Harbor, it was the first time we felt truly vulnerable. Many feared that if the Soviets could launch satellites into orbit, their missiles could strike anywhere, anytime. The race to the moon was more than an exercise in political one-upmanship. It was a statement about who we were, what we stood for and where we intended to stand with respect to the emerging space era. And that was anywhere but at the back of the pack.

President John F. Kennedy recognized the strategic importance of our space program in his historic remarks at Rice Stadium in September of '62:

"No nation which expects to be the leader of other nations can expect to stay behind in the race for space. Those who came before us made certain that this country rode the first waves of the industrial revolution, the first waves of modern invention, the first waves of nuclear power, and this generation does not intend to founder in the backwash of the coming age of space. We mean to be a part of it – we mean to lead it. For the eyes of the world now look into space, to the moon and to the planets and beyond, and we have vowed that we shall not see it governed by a hostile flag of conquest, but by a banner of freedom and peace. In short, our leadership in science and in industry, our hopes for peace and security, our obligations to ourselves as well as others, all require us to make this effort, to solve these mysteries, to solve

them for the good of all men, and to become the world's leading space-faring nation."

When our astronauts rode into space, the payloads they carried were the hopes and dreams of a spellbound nation, and when we brought them safely home, they were given a hero's welcome, and rightly so. America's space program was an affirmation of our very way of life and a symbol of our greatest aspirations.

The "Cold War" into which NASA was born is long over. But our leadership in space is as critical today as it was when NASA was formed. It's critical to our national security, our technological security, our industrial base and our global competitiveness.

Fifty years ago, our country stood at the threshold of a great new era and determined that we would become the world's leading space-faring nation. And that we did, through the hard work, dedication and heroism of the men and women of NASA and our many partners.

Today we stand at the threshold of a new era of space exploration. It is incumbent upon us, at this historic juncture, to reassert our role as the world's leading space-faring nation. In so doing, we'll honor well those who have walked before us and secure the future for those who follow in our footsteps.



David King

Director, Marshall Space Flight Center

Celebrating 50 years

Past Marshall Space Flight Center directors



Wernher von Braun
July 1, 1960-
Jan. 27, 1970



Eberhard Rees
March 1, 1970-
Jan. 19, 1973



Rocco Petrone
Jan. 26, 1973-
March 15, 1974



William Lucas
June 15, 1974-
July 3, 1986



James R. Thompson
Sept. 29, 1986-
July 6, 1989



Thomas J. Lee
July 6, 1989-
Jan. 6, 1994



G.P. (Porter) Bridwell
Jan. 6, 1994-
Feb. 3, 1996



J. Wayne Little
Feb. 3, 1996-
Jan. 1998



Carolyn Griner
Jan. 3, 1998-
Sept. 11, 1998
(acting)



Arthur G. Stephenson
September 11, 1998-
May 2003

Origins

Continued from page 3

After World War II, the employees and contractors who later would form the cadre of America's new civilian space agency joined millions of other Americans as they celebrated the end of direct military involvement overseas. All Americans confronted new tensions and apprehension, however, as the ideological gulf expanded between the United States and the Soviet Union. Both nations focused on protecting their interests through technology. Each tested the other's willingness to expand its military and technological resolve. As the Cold War expanded, the Soviets attempted to build long-range rockets. The Americans first focused on jet aircraft and smaller rockets.

Both nations hoped to learn from World War II technological achievements in rockets and missiles. Near the end of the war, the United States implemented Project Paperclip to employ German scientists and engineers and deny the Soviet Union their unique talents. In 1945, the U.S. Army brought Wernher von Braun and the German engineers who had created the wartime V-2 rockets to America. The German team was assigned to White Sands, N.M., where they refurbished and launched the captured V-2s. The Army later transferred the team to Redstone Arsenal, where the team eventually formed the core of the Army Ballistic Missile Agency,

known as ABMA. Von Braun focused his team on their military assignments. However, he also dreamed of human space exploration.

As part of its participation in the worldwide forthcoming International Geophysical Year, the United States, like the Soviet Union, planned to build a rocket with the capability to launch a satellite.

According to von Braun, the Army was capable of building a Redstone short-range, ballistic missile, adding an upper stage and then using the new vehicle, later named the Jupiter C, to launch a small satellite into orbit. As early as 1956, von Braun and his team asked for President Dwight D. Eisenhower and Congress to approve Huntsville's assignment to launch the satellite.

Unfortunately, the Huntsville team failed to receive approval to put a satellite into orbit before the Soviets launched Oct. 7, 1957. An initial American attempt to use a Navy Vanguard rocket to launch a satellite failed. The race for space was on. And, in early 1958, the Army team launched an American satellite heralding the eventual formation of a new United States space agency in October. The transfer two years later of more than 4,000 members of the Army team to Huntsville formed the nucleus of the new George C. Marshall Space Flight Center.

Celebrating 50 years



President Dwight D. Eisenhower dedicates the Marshall Center in 1960 with Mrs. George C. Marshall



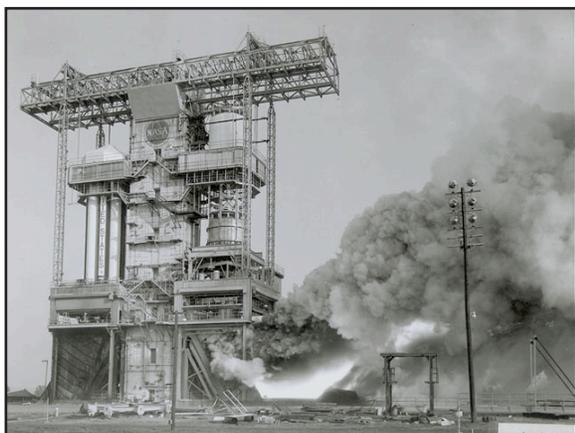
A Marshall-managed Redstone Rocket launches Alan Shepard in 1961



President John F. Kennedy with Dr. von Braun at Marshall in 1962



Technicians working on Marshall-managed Saturn in 1964

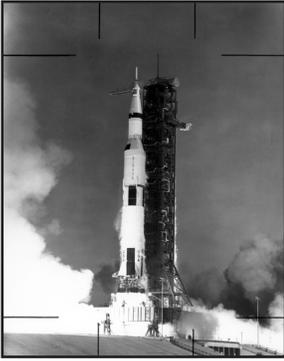


Saturn F-1 Engine is tested at Marshall in 1964

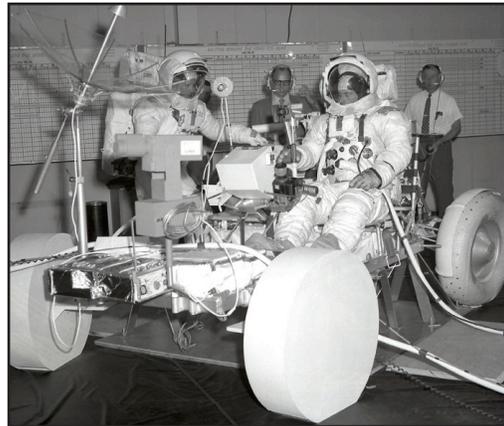


Saturn stand constructed at Marshall in 1964 to test first stage of the Saturn V rocket

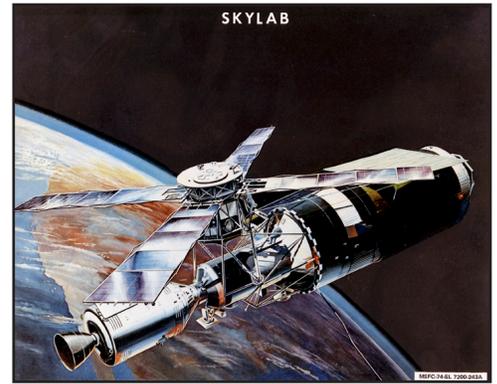
Celebrating 50 years



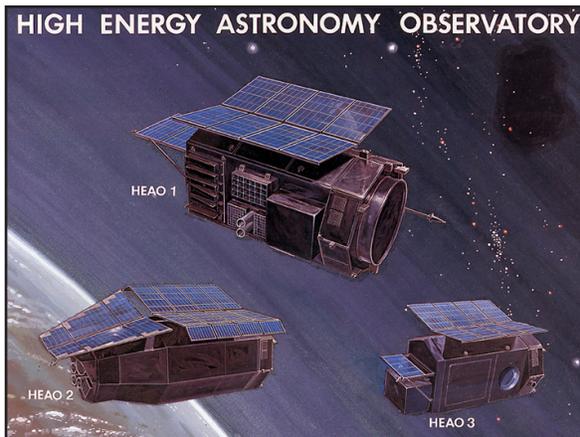
Marshall-managed Saturn V launches Apollo astronauts to the moon in 1969



Astronauts inspect Lunar Roving Vehicle in 1970



Skylab Space Station in 1973



High Energy Astronomy Observatories in the late 1970s



Saturn rocket launches Apollo Capsule for Apollo-Soyuz Mission in 1975



Orbiter Enterprise arrives at Marshall for testing in 1978



First space shuttle launch in 1981

Celebrating 50 years



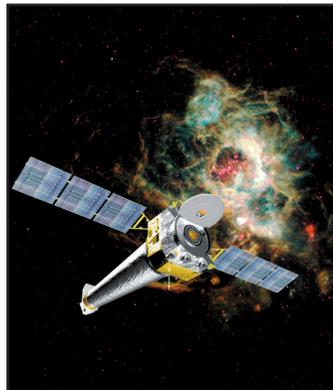
Hubble Space Telescope assembly in 1985



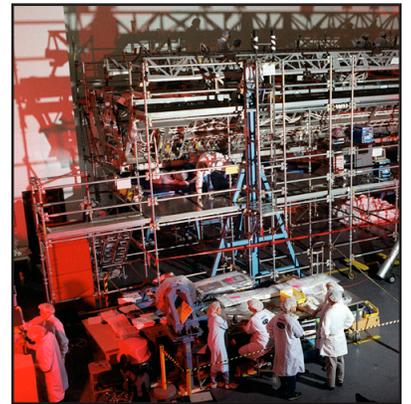
Shuttle transient pressure testing in 1987 at Marshall following the space shuttle Challenger accident



Marshall's Jan Davis working on Spacelab in 1992



Artist concept for Chandra X-ray Observatory launched in 1999



Space station work at Marshall in 1999



The National Space Science and Technology Center in Huntsville created in 2002



Gravity Probe B launched in 2004

Celebrating 50 years

A chronology of Marshall's role as a NASA field center

Since it was created in 1960, the Marshall Space Flight Center has been vital to NASA's mission related to space exploration. The following chronology lists only a few of the high points regarding NASA's assignments for Marshall.

1960: President Dwight D. Eisenhower visits Huntsville to formally dedicate the new NASA field center in honor of General George C. Marshall, the Army chief of staff during World War II, former U.S. secretary of state from 1947 to 1949, and 1953 Nobel Prize winner for his world-renowned "Marshall Plan," designed to aid European recovery after the war.

1961: Astronaut Alan Shepherd becomes America's first human in space. He rides the Freedom 7 Mercury spacecraft on a 15-minute suborbital flight, boosted by a Redstone rocket tested at the Marshall Center.

1961: President John F. Kennedy calls for the United States to land a human on the moon before the end of the decade. Marshall is assigned to manage the Saturn family of launch vehicles.

1969: Marshall uses a Saturn V rocket on four major Apollo missions including Apollo 11, which marks the first time humans set foot on the lunar surface.

1971: NASA launches two Saturn V moon missions, including Apollo 15, which features the Lunar Roving Vehicle developed by the Marshall Center.

1972: Marshall is assigned responsibility for developing the propulsion elements for the space shuttle: the external tank, solid rocket boosters and the space shuttle main engines.

1973: Saturn rockets launch Skylab, the first crewed, orbiting space station.

1975: A Saturn rocket lifts the Apollo spacecraft to Earth orbit for the historic linkup with the Russian-Soyuz spacecraft.

1977-78: Marshall develops and launches three high-energy astronomy observatories to study stars and star-like objects.

1978: The space shuttle orbiter Enterprise arrives at Marshall for vibration testing.

1981: Marshall propulsion elements lift the first space shuttle mission to orbit.

1983: NASA launches its first Spacelab mission, carried in the payload bay of the shuttle orbiter. More than 20 Spacelab missions are conducted over the next 15 years.

1987: Marshall redesigns the space shuttle solid rocket motor as part of the Return To Flight effort following the Challenger accident.

1990: NASA launches the 12-ton, Hubble Space Telescope. Developed by Marshall, the telescope is designed to see deeper into space than ever before.

1998: NASA launches the first U.S. space station element: the Unity node, built by the Boeing Company at Marshall.

1999: NASA launches the Chandra X-ray Observatory, the world's most powerful X-ray telescope.

2001: The Payload Operations Control Center at Marshall begins round-the-clock operations in support of science aboard the International Space Station.

2003: The Columbia Accident Investigation Board presents its final report on the causes of the space shuttle Columbia accident. The Marshall Center plays a key role in ensuring space shuttle propulsion elements will perform safely in the future.

2004: Gravity Probe B, designed to test two important predictions of Albert Einstein's Theory of General Relativity, lifts off from Vandenberg Air Force Base in California.

2004: President George W. Bush announces the Vision for Space Exploration. The Marshall Center takes on a significant role in NASA's exploration effort.

2005: NASA assigns the Marshall Center to manage the launch vehicle that will become the Ares I rocket. Together with the Ares V heavy cargo launch vehicle and the Orion spacecraft, Ares I will replace the space shuttle and take astronauts to the moon, Mars and beyond.

Celebrating 50 years

NACA served as NASA's foundation for aeronautical research

In 1958, the National Advisory Committee for Aeronautics and its employees were incorporated into NASA — providing the foundation for the new agency's subsequent achievements in aeronautics and aviation.

NACA was founded in 1915, prior to the United States' entry into World War I, to address the nation's growing aviation needs and the lack of a government laboratory devoted to the science of flight.

For 43 years, NACA excelled in carrying out its chartered mandate: "to supervise and direct the scientific study of the problems of flight, with a view of their practical solution." The committee reviewed the nation's stage of aircraft development and aeronautics research needs, and began to build the scientific staff and unique research facilities required to accomplish the country's goals.

In June 1920, NACA dedicated the first laboratory, the Langley Memorial Aeronautical Laboratory in Hampton, Va. Aerodynamics became the major research effort, and wind tunnels the chief tool. Within 10 years, the impressive results received worldwide recognition.

A second research center, the Ames Aeronautical Laboratory, was constructed near San Francisco in 1939, with a wind tunnel that dwarfed its predecessor at Langley. A third facility, later named the Lewis Flight Propulsion Laboratory, was built in Cleveland in 1940 to perform basic research, develop and test aircraft engines and study fuels.

By the end of World War II, NACA's research had led to rocket propulsion, and aviation and spaceflight had met. Development of



National Advisory Committee for Aeronautics pilot

the X-series of rocket-propelled research aircraft began in 1944. The X-1 was built specifically to investigate the transonic region — the previously unbroken "sound barrier" at Mach 1, or roughly 760 mph. A genuine breakthrough in airplane design, the X-1's immediate application permitted military aircraft to break the sound barrier in level flight.

Most famous of the X-series research planes was the X-15. First envisioned in 1952, it achieved its designed altitude and speed objectives, charting the edge of space, in 1968, and officially launched the transition from aeronautical research to the new Space Age.

Learning about NASA's 50 years of service

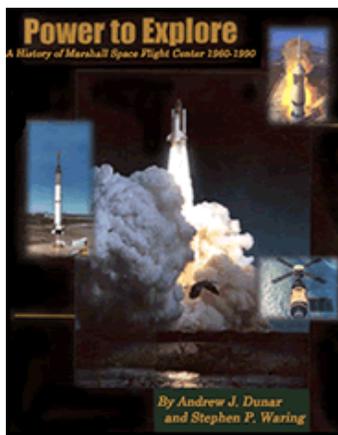
There are more opportunities today than ever before to learn about NASA's 50 years of service to the nation and about the Marshall Space Flight Center's role as a NASA field center.

For example, an extensive history of the Marshall Center book titled "Power to Explore" is available for download at <http://history.nasa.gov/series95.html>. The same site includes information on how to order bound books that may not be available online.

Other available titles include books about Marshall's role in the Saturn Program, the Mercury Redstone Project, the Skylab space station, the space shuttle and more.

Dr. Andrew Dunar and Dr. Stephen Waring authored "Power to Explore" for Marshall. Other Marshall Center histories were written by former center employees, including Dr. Ernst Stuhlinger, former associate

director of science at Marshall, and Leland Belew, manager of Marshall's Skylab Program.



One of the most popular histories about the center is a history of the Saturn launch vehicle program titled "Stages to Saturn," published in 1980 by NASA historian Roger Bilstein.

Bilstein also authored "Orders of Magnitude," a book about the history of NASA. The book is written for readers with general knowledge about NASA and can easily be read in a single evening. The NASA history Web site also features historical books and documents focused on particular aspects of space history, including a six-volume series on aeronautics. The series details how aeronautic science and technology evolved to forge the airplane into the revolutionary machine that it has become.

Classified Ads

To submit a classified ad to the Marshall Star, go to Inside Marshall, to "Employee Resources," and click on "Marshall Star Ad Form." Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue, Oct. 9, is 4:30 p.m. Thursday, Oct. 2.

Miscellaneous

Thomasville queen bedroom suite, wood, dove tailed, dresser, mirror, four-post bed, night stand, \$1,100. 352-8958

Canon Digital Rebel 6.3MP, charger, lense, strap, manual, box, \$325. 527-8116

Six tickets for Oct. 5 Talladega race, Birmingham Tower, regular price. 302-3162

Schwinn SC760 aluminum bike trailer/stroller, \$80; Kelty "Trek" backpack child carrier, \$50. 895-6640

Frigidaire deep freezer, 5 cubic feet, \$100. 684-9151

Antique 19th-century hand-hewn spinning wheel, from Cherokee County, Ala., \$300 obo. 776-7249

Sony Digital8 Handycam, all cables, batteries, documentation, \$100. 585-0500

CKC Yorkiepoo puppies, three females, two males, ready 10/15, \$400. 773-0660

Cherry toddler bed, mattress, \$35; jogging stroller, \$25. 721-1398

White iron day/trundle bed, two mattresses, \$150. 772-1989

Mirage speakers, two OM-7 towers, two Omnisat satellite speakers, stands, \$1,500. 679-2165

Apple LaserWriter Pro, envelope feeder, Hawking Ethernet adapter, works with PC/Mac, \$60. 882-0133

Double kitchen sink, almond porcelain, over mount, four hole, \$25. 882-3847

Cherry armoire, double push-in doors, bottom

doors, \$225; Bose Wave Radio, remote, black, \$185. 614-3190

Archery equipment, two bows, arrows, fletching equipment. 881-5897

Oak dining room set, \$325. 776-7399

Elliptical machine, high quality, like new. \$900 obo. 998-0089

Hot tub equipment, two 4BHP motors/pumps, 220V, heater/controller, new flow switch, price negotiable. 828-1234

Two glass top/wrought iron tables, \$650. 464-9408.

Garbage compactor, residential, brown, \$300 obo. 852-5595

Weimaraner Pups, AKC, Silver, 7 weeks, 1st shots, \$350. 256-347-2097 or 256-287-2488

AKC English Bulldogs, born Sept. 1, white, fawn, brindled, 1st shots included, pre-adoption appointments. 651-3802 or 423-6916

Vehicles

2008 Pontiac G6, white with tan interior, four doors, auto. 614-3190

2007 Camry LE, moonroof, electric windows/seats, 15,300 miles, \$19,000. 614-3190

2007 Starcraft SB21 TravelStar expandable trailer, make offer. 317-294-2766

2006 Trail Cruiser TT, 28-feet long, sleeps eight, loaded, \$11,900. 503-6695

2006 Pontiac G6, black, four door, automatic, 55k miles, \$11,000. 990-3561

2004 Suzuki Forenza, 62k miles, 100k mile warranty, 27 mpg, \$5,500. 334-524-7379

2004 Ford Expedition, silver, 90K miles, leather, power locks, windows, electric third row seating, CD/MP3 player, \$10,000. 426-2207

2003 Trail Blazer, pewter, luggage rack, 53k miles, new tires, \$9,200. 533-9356

2003 Club Car Gas Golf Cart, beige, buff seats, \$2,475. 682-6326

2002 Fleetwood Expedition 300hp cummins diesel, allison transmission, 2 slide outs, 3 TVs, stereo. 431-9898

2002 Toyota Tacoma, single cab, automatic, red, bed liner, Michelin tires, 70k miles. 759-1917

2002 Suzuki XL-7, seats seven, \$6,900 obo. 783-6278

2000 Ford Contour V6, auto, new tires, 155k miles, \$2,950 obo. 577-4002

2000 Jeep Grand Cherokee, black, V6, Thule racks, 112k miles, \$5,000. 658-8241

1999 Toyota 4-Runner Limited Edition, white, brown interior, sunroof, CD, A/C, \$7,000. 694-1260

1996 Nissan pickup, AC, CD player, new tires, 125k miles, \$3,500. 673-0041

1984 Toyota Cressida, five speed, leather, all power, factory shop manual. 233-0705

1978 Harley sportster, 75th anniversary model with less than 9,000 original miles, \$6,500. 351-2062. Leave message

1954 Plymouth Savoy Flathead 6 cylinder, two door, green \$1,800. 303-7123

Tractor, 35HP, 6-foot front-end loader, 6-foot box blade, three-cylinder diesel, \$6,200. 683-8409

Yamaha gas golf cart, canopy top, zippered enclosure, \$1,300. 325-2919

21-foot Shadow tunnel hull boat/trailer, 225 Johnson, \$3,500. 461-9841

Wanted

Tile work, 20 years of experience. 843-513-7939

Two Auburn vs. Georgia tickets, Nov. 15. 506-0081

Houses/offices to clean, available evenings and weekends. 777-8595

Free

Riprap, you load/haul. 603-0274

Lost

Diamond heart-shaped ring, lost 9/11, Building 4600 or 4201, highly sentimental. 881-4879

Found

Silver earring, ground-floor lobby, Building 4200, 9/16. 544-4680

Shuttle Discovery's engine installation complete at Kennedy



Installation of space shuttle Discovery's three main engines was completed Sept. 26 at the Orbiter Processing Facility at NASA's Kennedy Space Center, Fla. This marks the first time since 2002 that all three orbiters, including shuttles Atlantis and Endeavour, have been outfitted with engines at the same time. In coming weeks, Discovery's external tank and solid rocket boosters will be attached, and processing will begin to ready it for flight. Discovery is scheduled to fly the STS-119 mission to the International Space Station, which is now targeted to launch in February 2009. Meanwhile, on Launch Pads 39A and 39B, Atlantis and Endeavour are undergoing processing for their next missions.

Marshall to celebrate NASA's 50th on Oct. 28; details to come

The Marshall Space Flight Center will be celebrating NASA's 50th anniversary with Marshall civil service employees, contractors and civil service retirees Oct. 28. Watch Inside Marshall and upcoming issues of the Marshall Star for more information.

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