National Aeronautics and Space Administration
Goddard Space Flight Center

Goddard News

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Hubble saves money

Goddard launches new Homepage

by Allen Kenitzer

The Goddard Space Flight Center is NASA's Center of Excellence in scientific research, Earth science, physics and astronomy. While its charter has changed and grown, Goddard's preeminence in space and Earth sciences, communications and tracking, data management, development of spacecraft and spacecraft-borne instruments and operations and management have been demonstrated throughout its 35-year history.

The story of Goddard is now more readily available to the general public, media and scientific and academic communities through the use of its recently launched Internet World-Wide-Web Homepage. Filled with colorful images and scientific information, the new Homepage brings together all the unique Goddard resources through a single Homepage.

Managed by the Goddard Office of Public Affairs, the main portions or "icons" of the World-Wide-Web Homepage include:

• **Goddard Missions,** features flight projects, observatories in orbit, upcoming flight missions, the sounding rockets and incredibly large balloons that carry payloads into the atmosphere;

• **Space Sciences,** with colorful images from spacecraft like the Hubble Space Telescope;

• **Earth Sciences,** with detailed information from those who monitor the health of planet Earth;

• **Goddard Organizations,** which is arranged by work units or directorates;

• **The Newsroom**, designed for reporters who need points of contact, status reports, fact sheets and updates on current missions;

• **Public Services and Information,** with information on speakers, exhibits for a local community event and model rocket launches at Goddard;

• Finally, an **Education Section** dedicated to teachers and faculty. Goddard is committed to provide superior outreach to enhance classroom instruction and offer special insights on applying mathematics and science to real world situations. This section will outline programs for teachers, schedule of the Teacher Resource Lab and points of contact for material.

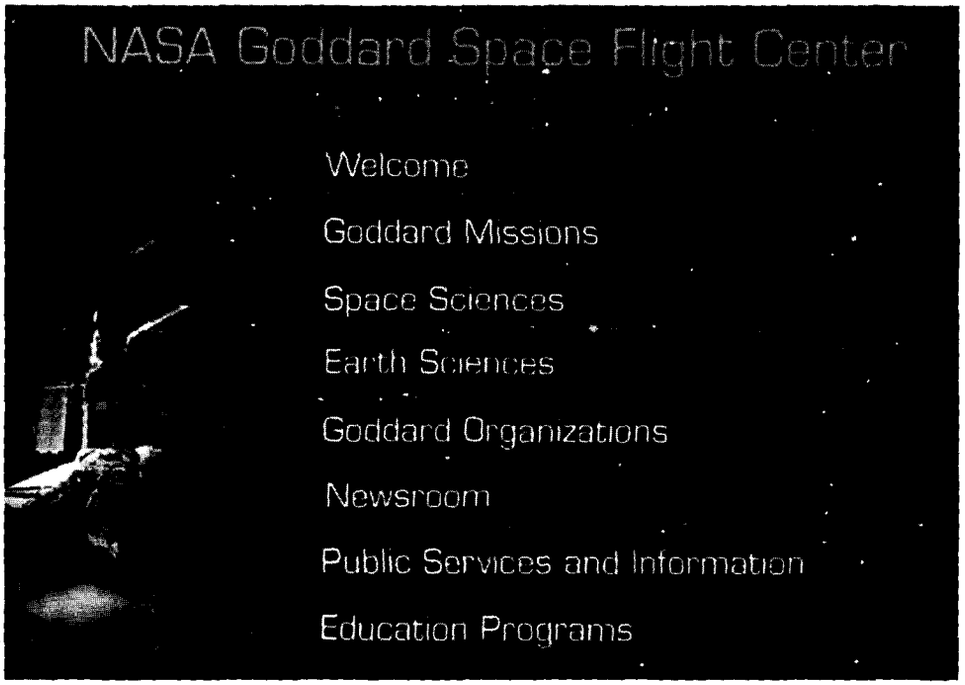


photo credit: NASA

The Goddard Homepage

The Goddard World-Wide-Web Homepage is available at URL:

http://pao.gsfc.nasa.gov/gsfc.html

An anonymous File Transfer Protocol (FTP) server also is available. It includes all 1995 press releases. They can be accessed at PAO.GSFC.NASA.GOV in the /pub/pao/releases/directory.

NASA's Strategic Plan—Foundation for implementing Agency programs

by Gary Steinberg, Director for Strategic Management, NASA Headquarters

NASA's Strategic Plan is critical to the Agency's ability to meet the challenges of a new era and deliver a vibrant and balanced program that strengthens and inspires the nation. The plan is NASA's top-level strategy. It articulates what we do, who our customers are, where we are going and how we will get there.

Last year, when Vice President Al Gore joined NASA to celebrate our many reinvention accomplishments, he singled out our Strategic Plan as our most significant accomplishment thus far in creating a new NASA with a customer - focused vision and mission. Over the past 12 months, the Vice President's assertion has been validated as Agency managers have used the Strategic Plan as the foundation for implementing programs, developing a balanced budget for 1996, conducting the Zero-Base Review and developing Centers of Excellence within NASA.

NASA senior management recently completed the first update of the Agency's Strategic Plan. The 1995 update builds on our tremendous successes of 1994 and takes us a step closer to a top-notch strategic management system for the Agency. New in this document are specific goals for each enterprise and more detailed strategies that describe how we will reach them. The following is an overview of NASA's Strategic Plan:

CONTRIBUTIONS TO AMERICA'S GOALS

The outcomes of NASA's activities contribute significantly to the achievement of America's goals in four key areas:

•Economic Growth and Security,
•Preserving the Environment,
•Educational Excellence and
•Peaceful Exploration and Discovery.

GOALS

We will be at the forefront of exploration and science. We will develop and transfer to industry cutting-edge technologies in aeronautics and space to fulfill our national needs. We will establish a permanent human presence in space.

As we pursue our mission, we will enrich our nation's society and economy. We will contribute to a better life for this and future generations.

In the longer term, it is our goal to undertake bold and noble challenges - exciting future programs, such as the return of humans to the Moon and human missions to Mars, which stir the imagination and fall within our and our international partners' technical and financial grasp.

THE NASA TEAM

The National Aeronautics and Space Administration is composed of the men and women of NASA Headquarters and the Agency's 10 field installations around the country. NASA, however, does not accomplish its missions alone, but in partnership with many other organizations.

Together, NASA and its partners form a successful team that is dedicated to providing high quality, technologically superior products and services to its customers. NASA's highly - skilled diverse workforce and world-class facilities represent the backbone of our nation's civil research and capabilities in aeronautics and space.

STRATEGIC FRAMEWORK

The framework of NASA's Strategic Plan is built around NASA's customers, strategic enterprises and strategic functions.

External Customers. The concept underlying the NASA Strategic Plan is our commitment to satisfying our external customers. As a government agency, we see the following groups as our external customers and stakeholders: the Administration and Congress which provides us the policy direction and financial resources to conduct our programs; the science and education communities, aerospace and nonaerospace industries and other federal agencies who receive our products directly and use them for purposes which yield public benefit; and the public, which is both our ultimate resource provider and the ultimate beneficiary of our products.

Strategic Enterprises. This NASA Strategic Plan establishes a framework for making management decisions by separating key Agency activities into the distinctly different categories of internally - focused strategic functions ends and means. We implement our mission and satisfy the needs of our external customers through five strategic enterprises:

•Mission to Planet Earth
•Aeronautics
•Human Exploration and Development of Space
•Space Science
•Space Technology

These enterprises are the heart of our strategy. They identify, at the most fundamental level, what we do and for whom.

Each of our strategic enterprises are analogous to strategic business units, employed by private sector companies to focus on and respond to its customers' needs. Each strategic enterprise has a unique set of strategic goals, objectives and concerns with a unique set of primary, external customers that are represented in their respective Strategic Plans.

Strategic Functions. NASA's Strategic Functions provide capabilities required by the Strategic Enterprises to meet their external customers' needs. Our three Strategic Functions are:

•Space Communications
•Human Resources
•Physical Resources

These are Agency-level capabilities, consolidated to serve multiple Enterprises and maximize efficiencies in service delivery. The Functions differ from the Enterprises in that their customers are primarily internal, not external. However, unlike other Agency activities with internal customers, the strategies and policies of the Strategic Functions are significantly driven by the Enterprise strategies and, therefore, require long-term planning.

Implementing Strategies. Our ability to respond to future opportunities under tight fiscal constraint requires NASA to achieve our effectiveness and efficiency while achieving significant cost reductions in current and future programs. Examples of the implementing approaches we will employ include:

•Increase institutional efficiency by consolidating programs and reducing functional overlap;
•Improve launch capabilities to reduce the fraction of NASA's budget allocated to space launch;
•Work with other agencies, nations and U.S. industry, relying on them to complement and support our activities; and
•Emphasize research and development; transfer operational activities, as feasible, to other agencies or commercial operators.

Goddard implements new electronic mail system

by Rita Kemp, Goddard Postmaster

While participating in the Agency-wide Electronic Messaging Implementation Group (EMIG), Goddard began implementing a standards-based electronic mail (E-Mail) infrastructure. The Information Resource Oversight Committee agreed to implement a solution to standardize E-Mail on an open systems approach based upon research and recommendations from the GSFC Mail Migration Study, the Electronic Mail Analysis Team, and the EMIG. Standards-based E-Mail is replacing existing proprietary electronic mail systems residing at GSFC and WFF.

The NASA Communications Division, Code 540, permanently deactivated GSFC Mail on July 1, GSFC Mail provided an institutional E-Mail service for on-Center and off-Center civil servant and contractor personnel since 1986. The GSFC Mail architecture consisted of Tandem Non-Stop hardware running U.S. Sprint's proprietary messaging software. Peak usage was reached in January 1993 with a total of 3,392 active users. From October 1987 to June 1995, GSFC Mail supported 6,546,661 log-in sessions.

The Agency Chief Information Officer has disbanded the EMIG and established the Postmaster's Working Group (PWG). It is the responsibility of the PWG to study and implement the goal of building a standards-based E-Mail architecture based on client-server technology throughout the Agency.

Goddard has made great strides in achieving this Agency goal. Agency standards-based E-Mail is consistent with the migration GSFC has already begun. The GSFC standards-based E-Mail infrastructure consists of mail servers utilizing the Post Office Protocol. After extensive testing by the EMIG, GSFC has obtained a site license for the recommended user agent, Eudora.

The Center Networking Environment, now part of Code 540, continues to educate electronic mail users by providing training through documentation, classes, quick reference guides, and self-paced interactive CD-ROMs. For information relating to services provided by the CNE, contact the help desk at X6-7251 or the World Wide Web Page at http://cne.gsfc.nasa.gov.

The CNE will continue to implement messaging standards and infrastructure at GSFC as the PWG pursues defining electronic messaging requirements and architecture Agency-wide.

What's Up? September 1995

International Ultraviolet Explorer (IUE)
On Sept.1 IUE marked its 6,428th day in orbit

During August IUE observed the peculiar barred spiral galaxy NGC 1512, which is at a distance of 13 megaparsecs. Thirteen megaparsecs (million parsecs) is equivalent to 42 million light years, the distance light would travel in 42 million years. The IUE data are therefore a snapshot of this galaxy as it was 42 million years ago — as a reference, the dinosaurs on Earth became extinct at the end of the Jurassic period about 65 million years ago. In this sense, telescopes are sometimes referred to as "time machines" because of their ability to look back further into the past as they look at more distant objects. Forty-two million light years is over 400 times the diameter of our Milky Way Galaxy and is about 20 times the distance to our nearest neighbor galaxy, Andromeda. At this distance we do not see motion due to gravitational interactions locally, but rather we see the overall expansion of the Universe, called the Hubble flow. Typically IUE observes very nearby stars within our Galaxy at distances a million times closer than NGC 1512. Because NGC 1512 is a galaxy, composed of billions of stars, many of which are very young and hot, IUE can still detect ultraviolet emission from it despite its great distance from Earth.

NGC 1512 has a companion galaxy called NGC 1510. Both galaxies have now been detected in the ultraviolet by IUE. Presumably they are interacting gravitationally. Many galaxies are seen to interact in this way, and when this happens gas in the interstellar medium of one or both of the galaxies is shocked and also redirected into the galactic nucleus. These processes trigger star formations, a "starburst," which forms many high mass, hot new stars which radiate most of their energy in the UV. NGC 1512 was also observed by the Ultraviolet Imaging Telescope instrument aboard the Space Shuttle this past March, so that data can be compared with the new IUE observations. Most of the UV emission seen by IUE appear concentrated in a small region at the nucleus of NGC 1512, no larger than about 40 parsecs (130 light years) in size. This scale is only around 1/150 of the diameter of NGC 1512! The resolution of whether this compactness is best described by a nuclear starburst, by the presence of a supermassive black hole at the heart of this galaxy, or both, will have to await further analysis of the observations.

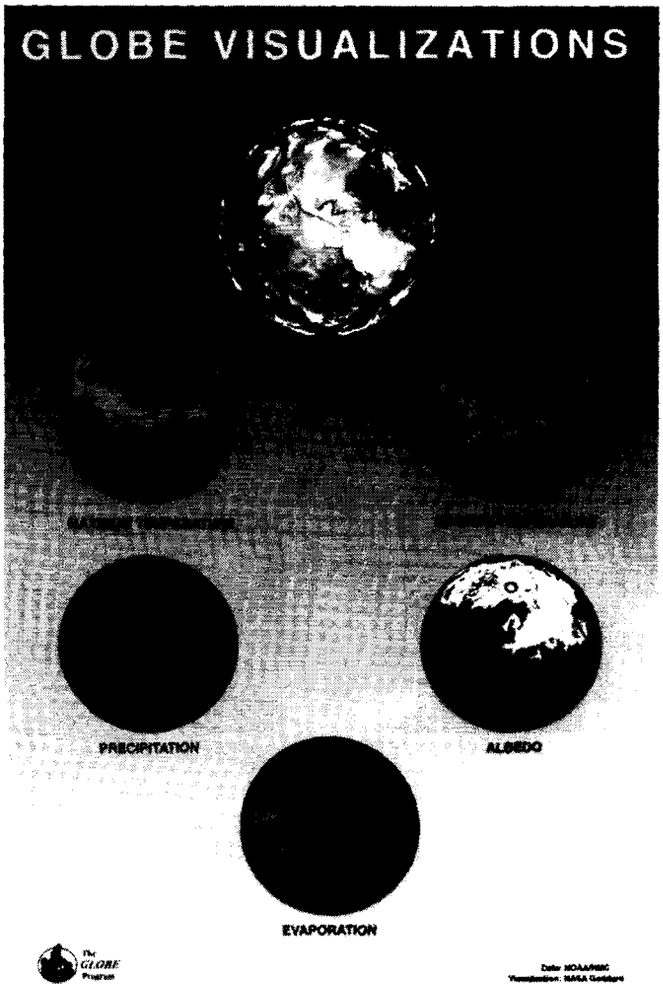
NASA's Mission to Planet Earth Project -- an overview

by Ernie J. Shannon

While global scientific research can create a mental image of scientists clad in white coats deep in a rain forest discovering new species or gazing on untamed wilderness, the reality is closer to this:

"All the bridges over the River Baydrag had been washed out during the unusual period of summer rains, and we were forced to find another crossing in the middle of the night. The air temperature was below freezing, ice was forming in the shallower pools, so it wasn't possible for one of us to walk in the water ahead of the car to keep it from plunging into deep water and being stranded.

"We tried crossing at what looked to be one of two well-used fords, but the water seemed too deep and we successfully backed out of the river. Finally, we decided to call on some of the local people, wake them up and ask directions."



These visualizations of the Earth represent the variety of subjects Mission to Planet Earth Program scientists look at when studying the Earth's environment. These images depict views taken from the Globe Program, an aspect of Mission to Planet Earth, which focuses on the Earth's climate.

Such was one of many experiences had by Goddard's Dr. Compton Tucker, Code 923, as he and a team of researchers fanned across the Gobi desert in Mongolia in late 1993. The research was part of an effort by Tucker to document the expansion and contraction of major deserts in Africa and Asia. In a larger sense, Tucker's studies are part of an overall effort at the Goddard Space Flight Center to look carefully at the Earth to understand the changes occurring thereon.

As Goddard approaches the 21st century, the global program called Mission to Planet Earth is evolving into one of the center's most important endeavors. In fact, as NASA's mission is scaled back to meet ever-tightening budgets, work like Tucker's 10-day journey into the Central Asian steppes could be a preview of what NASA will stand for in the next century.

NASA has been studying the Earth since 1958, but in 1991, the agency formalized its study with the inception of Mission to Planet Earth. The program is based on obtaining a global perspective needed to better understand how all Earth's environment — air, water, land and life — interact and make life possible. Such studies will yield improved weather forecasts, tools for managing agriculture and forests, information for fishermen and coastal planners and, eventually, an ability to predict how the climate will change in the future.

How Far Have We Come?

If the future seems ambitious, it is worth looking at past accomplishments. NASA launched the first weather satellite (TIROS) in 1960, beginning a successful series of spacecraft that revolutionized weather prediction and improved hurricane-tracking techniques and severe storm warnings. Goddard's latest contribution to accurate weather predictions was the launch of the Geostationary Operational Environmental Satellite-9 (GOES-9), which should be fully operational during the next year.

A NASA satellite instrument, the Total Ozone Mapping Spectrometer, confirmed the existence of the Antarctic ozone hole in 1985 and has monitored its growth until last year. Data from NASA aircraft, balloons, satellites and ground research helped confirm the link between human produced chemicals and ozone destruction. This research contributed significantly to the international treaties signed to protect the ozone layer.

Studying The Earth From Space

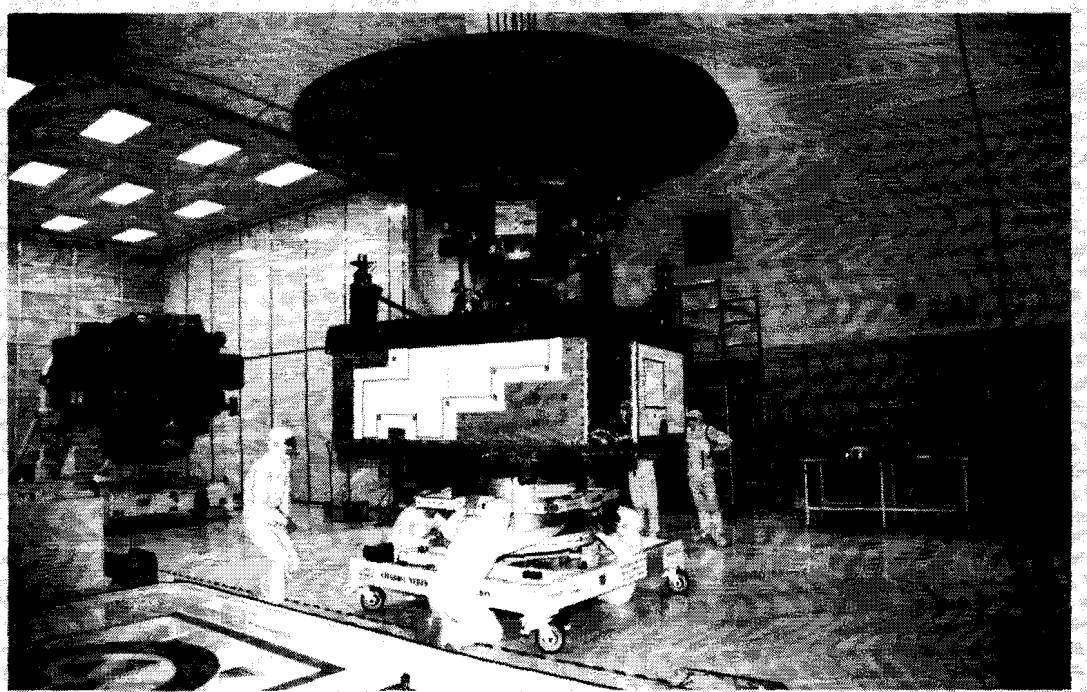
NASA ocean research provided the first precise measurements of ocean height and most precise data on ocean circulation to date. A NASA/French satellite helped determine the strength and duration of the 1994-95 El Niño, the latest episode of the climate shift that can bring devastating rains to the U. S. and drought to other parts of the world. From 1978-86, a NASA instrument first provided global measurements of plant life productivity in the world's oceans.

Studying the Earth's surface from space was pioneered by NASA, which has spawned a growing commercial sector. NASA analyses of data from Landsat first proved that satellites could be used to accurately estimate tropical deforestation. These analyses revealed that the extent of deforestation in Brazil, while significant, was less than expected.

Two NASA/Italian satellites have helped scientists precisely track movements of the Earth's surface for nearly 20 years, increasing our understanding of earthquakes. NASA researchers also developed low-cost ground receivers that enable precise determination of land motion.

Continued on page 5

Goddard's SOHO prepared for launch



Payload processing team members at the Kennedy Space Center secure the propulsion unit for Goddard's Solar and Heliospheric Observatory (SOHO) to a dolly in the Spacecraft Assembly and Encapsulation Facility-2. The 4,078-pound SOHO spacecraft, which can be seen in the background, is scheduled to be lofted into space from Launch Pad 36A at Cape Canaveral Air Station by an Atlas-II expendable launch vehicle in late Fall 1995.

NASA's Mission to Planet Earth

Continued from page 4

Where Are We Going?

Mission to Planet Earth has several phases, the first of which has been apart of the NASA mission since the mid-1980s. Primary missions focusing on the Earth's environment began in 1984 with the Earth Radiation Budget Satellite, which studied aerosols and ozone in the atmosphere. Those missions continue today with such missions as the Total Ozone Mapping Spectrometer which will have two satellites in orbit during the next two years; the Sea-viewing Wide-field of View Sensor instrument which will study the oceans; the Tropical Rainfall Measuring Mission which is designed to study rainfall in the tropics, an occurrence that is considered to be the engine behind the climate around the globe; and Landsat-7, scheduled for launch in 1998, which will continue detailed research of the Earth's land masses.

Project Evolution

As these missions unfold, Mission to Planet Earth evolves into the largest element in the program: the Earth Observation System (EOS). EOS satellites will make two dozen different measurements over at least 15 years to provide the first long-term, integrated observations of the global environment. These observations will help scientists understand how the Earth's land, air, water and life interact.

The first of the planned series of missions to is called the EOS-AM series. These satellites will study atmospheric, surface and solar processes that control fresh water resources as well as ecological processes that affect global climate. Next is the EOS-PM series which will provide more information on climate variations and serve as a basis for better weather/climate predictions.

The EOS-Chemistry series, slated for launch around the turn of the century, will further study ozone, various greenhouse gases and aerosols as well as their impact on global climate. The EOS-Altimetry series will look at the role of ocean winds in the climate system. More specifically, these satellites will study the oceans' interaction with the atmosphere.

The final EOS efforts include the EOS-ACRIM and EOS-SOLSTICE flights which study changes in total solar output and changes in ultraviolet radiation from the Sun.

EOSDIS

To process, archive and distribute data from the Phase One and EOS spacecraft, NASA has established an EOS Data and Information System located at Goddard and officially opened for business in late July. Much of the work with the data will take place at Distributed Active Archive Centers or DAACS located at major research centers around the United States. Of the currently selected DAACs, four are at NASA centers, two are at universities and one is operated by the U.S. Department of Interior's U.S. Geological Survey. Another is operated by the Department of Energy's Oak Ridge National Laboratory.

Data in the DAACs will be made readily available to all researchers who study global change at the marginal cost of filling their orders. In particular, these data will serve as the basis for studies by EOS interdisciplinary investigation teams established by NASA to develop a quantitative understanding of the processes which govern the climate of the Earth and to incorporate that knowledge into predictive models which can serve as the basis for policy decisions. These teams are being established at U.S. universities, NASA facilities and international research institutions.

The interdisciplinary teams will work with data provided by specialized instrument teams to develop integrated models to simulate the Earth system so that scientists can predict its future behavior. The knowledge gained through this process should help policy makers make informed decisions based firmly on improved scientific understanding of global change.

Hubble team saves time and money

by Ann Jenkins

HST team members inspect the Fine Guidance System Radial Bay Module in the Building 29 cleanroom prior to bake-out.

When Hubble Space Telescope (HST) is serviced in 1997, astronauts will fit it with two highly advanced new instruments—the Near Infrared Camera and Multi-Object Spectrometer (NICMOS) and the Space Telescope Imaging Spectrograph (STIS). They also will replace one of Hubble's three Fine Guidance Sensors (FGSs), which keep the telescope locked on its chosen targets and perform astrometry. To prepare for changeout of an FGS, a team from the HST Flight Systems and Servicing Project (FS&SP) recently "baked out"—or decontaminated through heating—the replacement Fine Guidance System Radial Bay Module (FGS/RBM) in an ambitious in-house effort that proved more efficient and cost-effective than performing the task elsewhere.

"We bring hardware in-house when it makes sense to let a contractor focus on another key part of the job," says George Morrow, Flight Systems & Servicing Project Deputy Project Manager, Code 442. Because Hubble's highly advanced new instruments are extremely sensitive to molecular contamination, the HST Flight Systems and Servicing Project meticulously baked out the FGS/RBM to protect STIS and NICMOS from molecular outgassing contamination on orbit.

Hubble's three FGSs allow it to point steadily at its targets. During observations, Hubble locates guide stars with at least two of the three FGSs, each tracking a separate guide star. By locking on to the guide stars, the FGSs allow Hubble to hold steadily on its target. "The FGSs on Hubble are the most precise fine guidance sensors ever built for any spacecraft," said HST FS&SP Project Manager Frank Cepollina, Code 442.

The newly baked-out FGS/RBM is part of an FGS initially designed as an engineering model during Hubble's conception. Upgraded in the 1980s to a flight unit, it now serves as a spare. In 1997, it will replace one of the three FGSs currently flying on Hubble.

Lee Feinberg, Science Instrument Optical Interface Manager, explains why baking out the FGS/RBM is so crucial: "When we brought back WFPC I [the first Wide Field Planetary Camera, replaced on the 1993 servicing mission], we found that its mirror out in front was contaminated. We think that one of the causes of that could have been the FGSs. So that's why we're spending a lot of time making sure the FGSs are clean."

"WFPC II [which replaced WFPC I on orbit in 1993] was a very, very clean instrument . . . but STIS probably is more sensitive and has a stricter error budget from the point of view of contamination." Essentially, what we're talking about is just a couple of little layers of molecules. According to Feinberg these molecules are oils . . . that can get on the optics. When you're an ultraviolet instrument, that cuts down your ability to see. It's like getting your glasses fogged up. [The contamination] comes from glue, lubricants, and graphite epoxy, so everything that flies is baked out.

When STIS is installed on Hubble in 1997, it will span the ultraviolet and visible wavelengths. STIS will simultaneously sample about 500 points on a celestial object, providing a color-coded description of the object's temperature, chemical composition, motion, and many other characteristics. Combining state-of-the-art detector technology with the latest in software, electronic, optical, and mechanical designs, STIS will provide us with a greater understanding of the origin and evolution of galaxies, black holes, and star formations.

"One of the unique characteristics of STIS is its capabilities in the ultraviolet, which is the shortest wavelength that HST can see," explains Feinberg. "Ultraviolet wavelengths don't get through the atmosphere, so you can't do that kind of science from the ground."

In late July, the FGS/RBM was transported to Goddard from the Hughes Danbury Optical Systems in Danbury, Conn. It was placed in a thermal vacuum chamber on July 28 and remained there for more than a month. During that time, it was "baked out" to remove contamination, reaching a maximum average bulk temperature of 32.75° C. On Aug. 29, having met NASA's goals for cleanliness, the FGS/RBM was removed from the vacuum chamber and returned to Hughes Danbury, where FGS preparation for the servicing mission continues.

"The team involved in the transport and bake-out of the FGS/RBM includes NSI, Hughes Danbury Optical Systems, Ball, Lockheed Martin, OSC, McDonnell Douglas, EER, and Mega Engineering," says Kevin Mathews, Lockheed Group Engineer and Hughes Danbury Optical Systems Subcontracts Technical Manager. "The team that's in place now has been developed since the HST was being prepared for launch."

"Many of the team members were involved before initial deployment," explains Mathews. "They have developed the expertise to understand what's going on with the Hubble Space Telescope. They also are familiar with the science objectives. Many have worked through the First Servicing Mission and the build-up of the first science instruments, WFPC II, and COSTAR. They know what needs to be done—what kind of contamination concerns we have—and understand standard operations too."

According to Matthews, the project has people who are efficient, have the knowledge and the background to work the Hubble Space Telescope and they really have the desire to work hard at the job. Cepollina explains his approach to effective teaming: "When a job is at the cutting edge of technology, we bring together the best personnel from all over to arrive at the optimum technical solution. We've used this concept extensively on HST. I call it the 'Arsenal Concept.' Also this enables effective technical knowledge transfer and cost efficiency. Everyone on the team is important, everyone is needed to get this critical mission accomplished."

Hispanic Heritage Month activities underway

Sept. 15 to Oct. 15 marks the nationwide observance of Hispanic Heritage Month. The third annual paella dinner, sponsored by the Goddard Hispanic Heritage Club, was the opening event in a schedule of commemorative events planned for the month. All events are open to Goddard employees and their families. The final event will be the keynote luncheon on Monday Oct. 16; Goddard's Dr. Mario Acuna, Code 695 will be the featured speaker. For scheduling information call Dan Krieger at X6-7913 and check Dateline daily.

Retirees

Congratulations to the following employees who recently retired!

Name	Code	Years
Charles White	404	50
Chris Stephanides	440	40
Walter Bell	683.1	29
Kermit Blaney	501	29
Robert Seiders	501	28
Stephen Bice	221	24

Contractor excellence award finalists announced

by Jim Sahli

Joseph H. Rothenberg, Center Director, has announced three finalists for the 1995 Goddard Contractor Excellence Award.

The three finalists are: Lockheed Missiles and Space NASA and Federal Systems and Research and Development Division of Sunnyvale, Calif.; McDonnell Douglas Aerospace - Space and Defense Systems, Engineering Services Division of Seabrook, Md.; and Space Systems/Loral of Palo Alto, Calif.

"I think we should stop and take note of those team members who really excel in their support to Goddard. This past year these corporations have stood out as exceptional members of Goddard's team," said Rothenberg.

The Excellence Award represents Goddard Space Flight Center's recognition of those companies who make a substantial contribution to the mission of the Center and are dedicated to a philosophy of continuous improvement to the extent that demonstrate accomplishments have been achieved.

This month, the three finalists will receive a visit from 10 Goddard award evaluators, and the winner will be announced on Dec. 5 at the Goddard Contractors Continuous Improvement Conference.

Goddard holds fall Community Day

The Goddard fall Community Day was held on Sept. 17. The Center opened its doors to thousands of visitors from 9 a.m. to 4 p.m. for a day of special events. Some kids who had seen the movie Apollo 13 said they were especially excited about the "living in space" demonstrations, because they could find out what it feels like to wear a spacesuit and learn what astronauts eat.

A special presentation, "Hubble Space Telescope Operations: Backstage to the Science" was given to standing room only crowds by Preston Burch of Goddard's HST Operations and Ground Systems Project, Code 441.

Also there was a unique exhibit of the Goddard X-ray Timing Explorer (XTE) on display. XTE is currently scheduled to launch from Cape Canaveral Air Station, Fla., early in November.

The Model Rocket Club displayed a terrific assortment of rockets inside the Visitor Center and then thrilled hundreds of guests with their model rocket launches. The Model Airplane Club treated visitors to a control-line model aircraft demonstration. In addition, the Amateur Radio Club set up radio systems and invited the public to participate in the fun.

According to Dale Hemke, the manager of the Visitor Center, the success of each Community Day is because of dedicated volunteers.

Summer blood drive results

The following donors reached the gallon donor mark during Goddard's June and August American Red Cross bloodmobile blood drive.

Name	# of Gallons
Sandra Austin	1
Wilbur Brigham	2
John Carey	1
John Christensen	2
Brendon Clark	1
Matthew Deland	1
Howard Dew	8
David Douds	8
Lisa Frazier	1
James Geiger	1
Catharine Gormley	6
Patrick Harris	1
Lenore Huffman	1
Joseph Iffrig	7
Vernon Krueger	5
Nancy Laubenthal	5
James Lookadoo	7
Ronald O'Leary	9
Debra Parsons	1
Arnold Rots	2
Mildred Walters	2
Donald M. Smith	3
James C. Smith	1

The next American Red Cross blood drive will be held on Oct. 4. To schedule an appointment, call Nita Curry at X6-2041.

SAC-B Environmental Tests Completed

(Photo courtesy of CONAE)

Shown here is the SAC-B(Satelite de Aplicaciones Cientificas) spacecraft undergoing environmental testing at a laboratory in Brazil. The spacecraft testing was completed late this summer. With the subsequent completion of some minor software modifications, the spacecraft now remains in storage in Brazil at the National Space Research Institute (INPE) Integration and Tests Laboratory (LIT) awaiting the announcement of a launch date. SAC-B, the first Argentine scientific spacecraft, is a joint collaboration between NASA and the Argentine Space Agency (CONAE). SAC-B is a 421-pound (191-kilogram) satellite that will be launched by NASA on a Pegasus rocket with a companion payload, HETE (High Energy Transient Experiment). The SAC-B spacecraft was designed and built in Argentina by CONAE and their contractor INVAP. Two months before launch, the spacecraft will be shipped to the Wallops Flight Facility where the Pegasus will be launched from an L-1011 aircraft by Orbital Sciences Corporation. NASA spacecraft management of SAC-B is being done by the International Projects group at the Goddard.

NASA provided two instruments, the Goddard (GSFC) X-Ray Experiment (GXRE) and the Cosmic Unresolved X-ray Background Instrument using CCDs (CUBIC) which was built by the Penn State University. Argentina provided the Hard X-Ray Spectrometer (HXRS) and the Italian Space Agency provided the ISENA instrument, an Energetic Neutral Atom detector.

NASA technology helps save lives

by Allen Kenitzer

An instrument that was conceptualized and originally developed at Goddard played a vital role in saving the lives of eight people during Hurricane Erin.

The Search and Rescue Satellite Aided Tracking (SARSAT) instrument is carried aboard the NOAA (TIROS) series of satellites and serves as part of an international satellite system for search and rescue.

When a radio transmitter beacon is activated by a marine vessel on the open sea or by an airplane crash, the SARSAT instrument receives the radio signal and transmits it to the U.S. Air Force or the U.S. Coast Guard, who undertake rescue operations.

On Aug. 2, at 10:37 a.m. EDT, the SARSAT system detected an emergency signal from a ship 84 nautical miles northeast of Cape Canaveral, Fla. The "Club Royale" casino ship was caught in bad weather, was sinking, and the crew had manually activated the beacon. The Seventh U.S. Coast Guard District in Miami responded with aircraft that located the beacon and sighted life rafts in the water. The U.S. Coast Guard then dispatched three cutters, two helicopters and a C-130 aircraft to the scene.

"The crew was very fortunate to have the beacon with them," said Goddard Search and Rescue Mission Manager, Ron Wallace, Code 480. "They apparently were unable to use other on-board communication devices and the beacon, designed as a 'last ditch' communications device, was the only way to call for help."

Goddard News

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