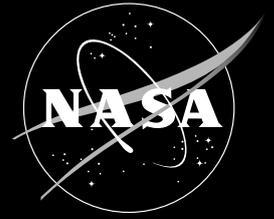


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The Next Generation Blue Marble

From the Earth Observatory

Everyone knows that NASA studies space; fewer people know that NASA also studies Earth. Since the agency's creation almost 50 years ago, NASA has been a world leader in space-based studies of our home planet. Our mission has always been to explore, to discover, and to understand the world in which we live from the unique vantage point of space, and to share our newly gained perspectives with the public. That spirit of sharing remains true today as NASA operates 18 of the most advanced Earth-observing satellites ever built, helping scientists make some of the most detailed observations ever made of our world.

In celebration of its 'great observatory in the sky,' NASA is pleased to share the newest in its series of stunning Earth images, affectionately named the 'Blue Marble.' This new Earth imagery enhances the Blue Marble legacy by providing a detailed look at an entire year in the life of our planet. In sharing these Blue Marble images, NASA hopes the public will join with the agency in its continuing exploration of our world from the unique perspective of space.

History of the "Blue Marble"

The Earth didn't appear blue in NASA's first satellite images; rather, the Television Infrared Observation Satellite, known as TIROS, beamed home images in black and white. Still, those earliest images showed that a yet-unproven method of observing the Earth from space would help improve weather forecasts.

Astronaut photographs taken during the Apollo missions provided full-color images of Earth, and fostered a greater awareness of the need to understand our home planet. In 1972, from a distance of about 45,000 km (28,000 mi), the crew of Apollo 17 took one of the most famous photographs ever made of the Earth. This original 'Blue Marble' inspired later images of the Earth compiled from satellite data. In 2000, NASA data visualizers compiled an image of the western hemisphere using data from the National Oceanic and Atmospheric Administration including GOES-8 imagery, the NOAA's Advanced Very High Resolution Radiometer, and NASA/Orbital Science's Sea-viewing Wide Field-of-view Sensor.

In 2002, NASA produced the Blue Marble, the most detailed true-color image of the Earth's surface ever produced. Using data from NASA's Terra satellite, scientists and data visualizers stitched together four months of observations of the land surface, coastal oceans, sea ice, and clouds into a seamless, photo-like mosaic of every square kilometer (.386 square mile) of our planet.

In October 2005, the creators of the Blue Marble released a new version of the spectacular image collection that provides a full year's worth of monthly observations with twice the level of detail as the original. The new collection is called the Blue Marble: Next Generation.

Like the original, the Blue Marble: Next Generation is a mosaic of satellite data taken mostly from a NASA sensor called the Moderate Resolution Imaging Spectroradiometer (MODIS) that flies aboard NASA's Terra and Aqua satellites. Also like its predecessor, the new Blue Marble is available free of charge to educators, scientists, museums, businesses, and the public. The collection includes images that are sized for different media, including Web and print. Users can download images of the entire globe, or just selected regions of interest.

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Cover: The Blue Marble: Next Generation is a series of images that show the color of the Earth's surface for each month of 2004 at very high resolution (500 meters/pixel) at a global scale. This image shows South America from September 2004.

Image Credit: NASA image courtesy Reto Stöckli and Robert Simmon

GoddardView Info

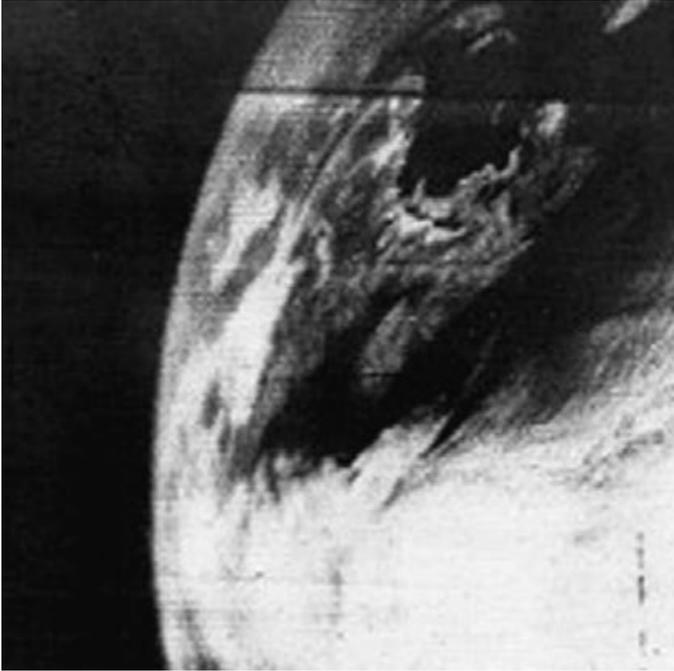
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Editor: Alana Little

Deadlines: News items and brief announcements for publication in the Goddard View must be received by noon of the 1st and 3rd Wednesday of the month. You may submit contributions to the editor via e-mail at alittle@pop100.gsfc.nasa.gov. Ideas for new stories are welcome but will be published as space allows. All submissions are subject to editing.

History of the Blue Marble



The first television image of the Earth from space, taken by the Television Infrared Observation Satellite (TIROS-1) on April 1, 1960. (Image by NASA)



On December 7, 1972, the crew of Apollo 17 changed the way we look at our home planet. This photograph illustrates the Earth as an isolated ecosystem, floating in space. (Astronaut photograph AS17-148-22727 courtesy NASA Johnson Space Center Gateway to Astronaut Photography of Earth)



The 2002 Blue Marble featured land surfaces, clouds, topography, and city lights at a maximum resolution of 1 kilometer per pixel. (NASA image by Robert Simmon and Reto Stöckli)



The Blue Marble: Next Generation is a series of images that show the color of the Earth's surface for each month of 2004 at very high resolution (500 meters/pixel) at a global scale. This image shows South America from September 2004. (NASA image courtesy Reto Stöckli and Robert Simmon)

Astro-E2, Now Named Suzaku, Begins Its Tenure

By Chris Wanjek

When Astro-E2 launched in July, the satellite carried with it the future of X-ray astronomy, an innovative Goddard-designed instrument called the X-Ray Spectrometer. Billed as the coolest object in space, this instrument would be chilled to just above absolute zero so that it could detect the heat of individual particles of X-ray light.

The launch was flawless. The Japanese-led mission was quickly renamed Suzaku, after a mythical vermilion bird who guards the southern skies. The satellite's three main instruments were slowly turned on over the next few weeks. And a pent-up sigh of relief blew down the corridors of Building 2.

This was a classic "we-can-rebuild-it" effort, a remarkable recovery after a faulty rocket failed to place Astro-E in orbit in 2000. In only five years, the Astro-E team sold a new mission idea to NASA and the Japan Aerospace Exploration Agency and then worked around the clock to rebuild not only the X-Ray Spectrometer but the 7,000 X-ray mirror foils needed for the mission.

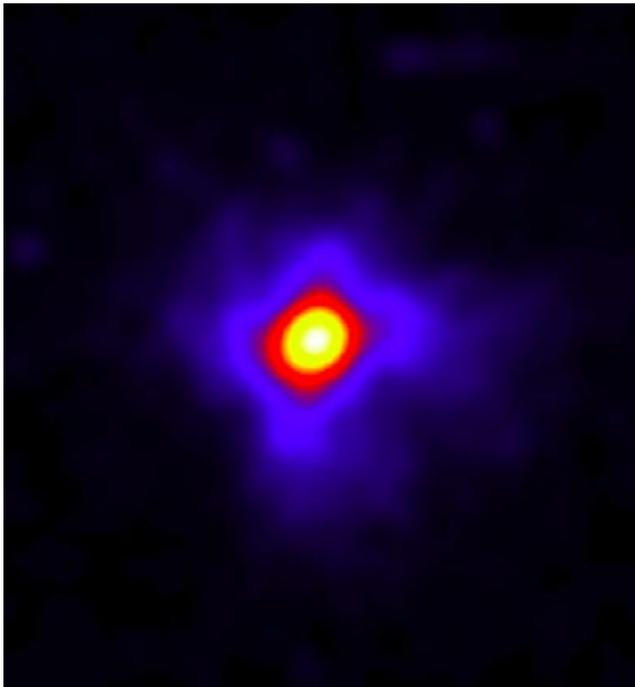


Image Credit: NASA

An image of supernova remnant E0102-72.3 in the Small Magellanic Cloud from Suzaku's X-ray Imaging Spectrometer, which uses Goddard-built telescopes. While NASA's Chandra observatory excels in imaging.

"Cheers went out when we saw the tight temperature control confirmation and then the first X-ray events," said Goddard's Rich Kelley, Suzaku's U.S. principal investigator, two weeks after the launch. "The data look great." It was particularly crushing, then, when the X-Ray Spectrometer was lost just short of a month in orbit. The Goddard hardware worked well, but a problem with venting of the cryogen gases on the spacecraft appears to have caused the X-Ray Spectrometer to lose its liquid helium.

The X-Ray Spectrometer would have enabled scientists to measure higher X-ray energies with a precision about ten times greater than with previous sensors. This is a major blow to the Suzaku mission, to be sure. But the mission lives on, and Goddard maintains a vital role. The remaining two sets of instruments—the Hard X-Ray Detector and a group of four X-Ray Imaging Spectrometers—have unique capabilities to study black holes and the creation of chemical elements in star explosions.

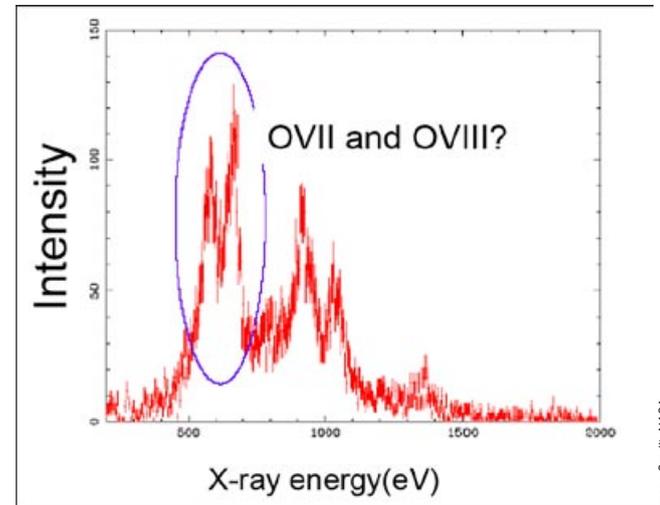


Image Credit: NASA

Suzaku can detect wider range of energies, revealing featured missed by other missions... exemplified by the fine detail in the oxygen lines shown on the right.

In October about a dozen Goddard scientists attended the Suzaku science working group meeting in Japan and returned surprisingly enthusiastic. The mission is at long last ramping up.

The group selected targets for observation for a proprietary period that extends until April and solicited proposals for observations thereafter. Goddard will host the U.S. Guest Observer Facility, with U.S. observers receiving 37.5% of the observing time and another 12.5% for joint observations.

The X-Ray Spectrometer still represents the future of X-ray astronomy, a 40-year-old field that is catching up to optical astronomy in its ability to produce high-resolution data. The instrument team remains determined to fly this kind of instrument, now over 20 years in the making. The mirror group, too, is hard at work preparing for the proposed Constellation-X mission, which (of course) will require bigger and better mirrors. ■

GSRP Symposium

By Amy Pruett

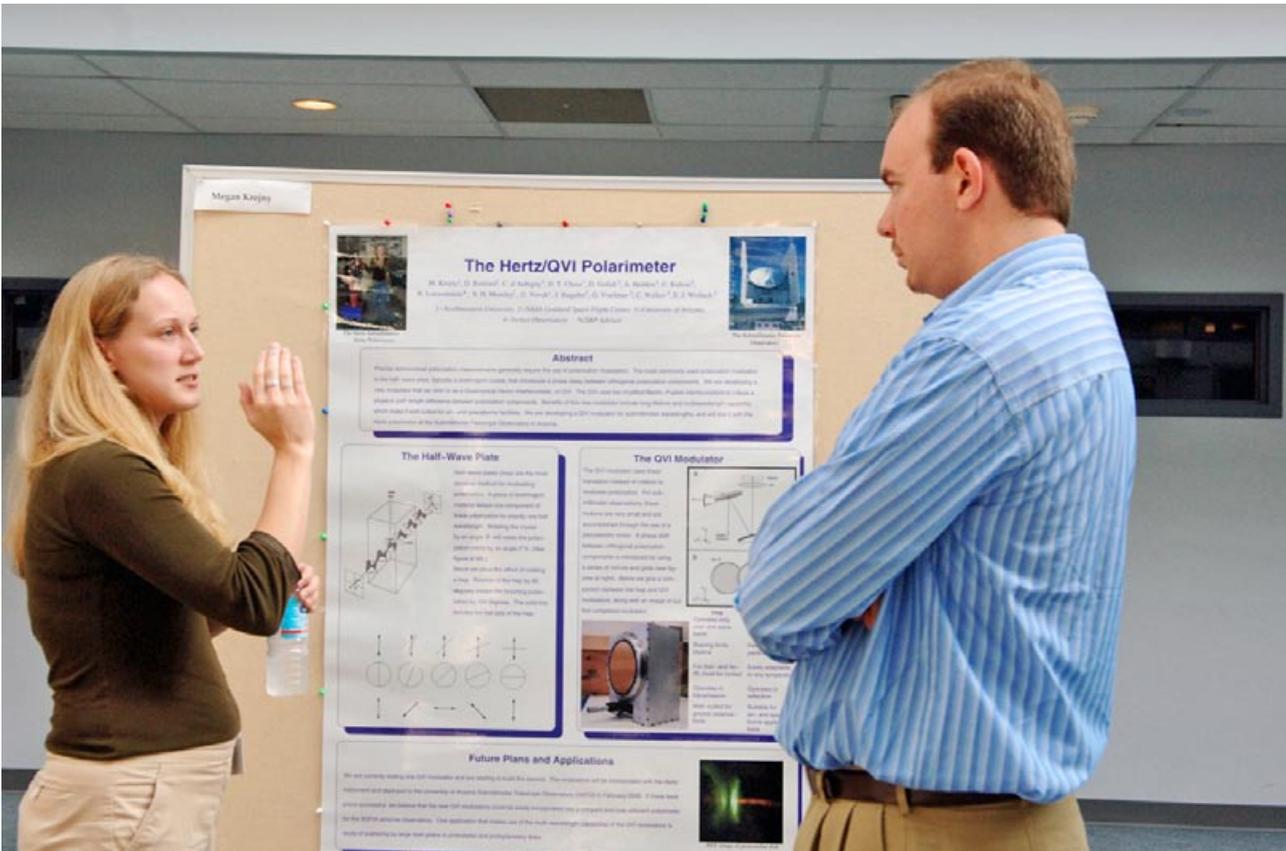
With the arrival of fall, it never hurts to take an automobile in for a tune-up, even if it is running as smoothly as the first day it was driven out of the dealership. A slight adjustment or top off of fluids extends the life of a car, ensuring that it is running at top efficiency. The 35 graduate students located at universities across the U.S. working at Goddard in the NASA Graduate Student Research Program (GSRP) are often like America's favorite mode of transportation. The talented, focused individuals that are in the process of earning their masters or doctoral degrees are running at top efficiency as they make valuable contributions to the Goddard community with their fresh perspectives and innovative research. However, the fellows meet annually as they participate in a three-day symposium that is meant to benefit the students, just like a tune-up perfects an automobile. At the event they present their research to their advisors and other fellows, as well as attend seminars on Goddard's current research projects. It redirects their focus, renews their energy, and presents them with additional insight into their projects.

Independent study is a major component of the GSRP. Fellows are required to work at Goddard for six consecutive weeks every year with their advisor(s) and to attend the annual three-day symposium, but the rest of their time is spent at their respective universities. Fellows schedule the Goddard lab work, so it is rare for all 35 students to be onsite at the same time. Therefore, the symposium allows them to introduce and discuss their project with other fellows of diverse backgrounds, meet with their advisors, and hear the latest research projects underway at Goddard.

To inspire discussions at the symposium between the GSRP participants, three-year fellows are required to give an oral presentation and two-year fellows are expected to construct a poster. The mandatory tasks help participants such as two-year GSRP student Jennifer White "clarify" her research. The participants' backgrounds range anywhere from mechanical engineering to astronomy to atmospheric and oceanic sciences. Fresh eyes from a scientist or engineer in a different field can introduce new viewpoints.

In addition, throughout the three days they receive information on the latest opportunities available to them at Goddard after their completion of the GSRP. "The experience provided good insight into the mission of Goddard Space Flight Center and the broad range of work that it manages," says Paul Griesemer, one-year fellow. The GSRP annually supports over 300 students nationwide, with 35 students selected to work at Goddard. Fellows are awarded up to \$24,000 a year for a maximum of three years. The program's objective is to support students as they pursue research and eventually employment in space science and aeronautics industries following completion of graduate studies.

The fellows of the GSRP benefited from their annual check-up. The students returned to their universities following the September 21-23 symposium rejuvenated, with a new outlook on their research projects, and a plan for their future. They are sure to continue to excel in their innovative research for many seasons to come. ■



Student Megan Krejny discusses her poster with a fellow student.

Photo Credit: Debora McCallum

2004-2005 NASA Leadership Development Program Graduates Honored

By Maureen Dale

On July 11, 2005, the 31 members of the 2004-2005 Leadership Development Program (LDP) celebrated the completion of their developmental year with a ceremony at NASA Headquarters. The program participants, who represented nine Centers, were the second graduating class of the NASA Leadership Development Program. The LDP replaced the NASA Professional Development Program in support of the Agency's emphasis on improving leadership skills and the ability of leaders to produce measurable results.

In his address to the graduates, Dr. Scott Pace thanked the participants for the contributions they made to the Agency as part of their developmental assignments. He also praised them on the completion of their class project, "Enabling Effective Collaboration and Competition".

This project involved the creation of an easy-to-understand business model that details how and where work is being done within programs and projects across the Agency and a set of tools to be used in developing a business case. The class also conducted a series of surveys and interviews to complete the collaboration study initiated by the 2003-2004 class, and created a NASA Collaboration Handbook. A link to the class' full report and Collaboration Handbook can be found on the Leadership Development Program home page at <http://ldp.nasa.gov/>.

Vicki Zanoni (SSC), Bill Green (MSFC), and Steve Craft (LaRC), from the class were elected to speak at the graduation to share their reflections of the year and their thoughts on leadership. All three spoke of how, through the LDP, they became aware of how their personal vision and values aligned with NASA's vision, mission and values and how this alignment was key in helping to strengthen their ability to be more effective leaders.

The vision of the LDP is to create powerful leaders who align with NASA's vision, mission and values and who create results that matter to the American people. Program elements include developmental assignments, a class project, individual coaching, training and briefings by NASA and outside leaders. Participants must be grades 13-15 and are competitively selected at the Agency level.

2004-2005 Leadership Development Program Graduates

- Thomas W. Berndt, ARC
- Bryan A. Biegel, ARC
- Beverly E. Girten, ARC
- Mark P. Loomis, ARC
- Timothy R. Moes, DFRC
- Robert D. Draper, GRC
- George C. Madzsar, GRC
- Jean M. Rogers, GRC
- Carmel A. Conaty, GSFC
- Gerard J. Daelemans, GSFC
- Craig J. Hegemann, GSFC
- Barbara B. Pfarr, GSFC
- Tonya West, GSFC
- Mabel Jones Matthews, EdD HQ
- Elizabeth Bauer, JSC
- Montgomery B. Goforth, JSC
- Clifton J. McCarra, JSC
- Natalie V. Saiz, JSC
- Kevin N. Window, JSC
- Stephen J. Craft, LaRC
- Vicki K. Crisp, LaRC
- Pravin K. Aggarwal, MSFC
- Cindy C. Campbell, MSFC
- Helen J. Cole, MSFC
- Stacy M. Counts, MSFC
- William D. Greene, MSFC
- Robbie E. Hood, MSFC
- Andrew S. Keys, MSFC
- Terry D. Jackson, SSC
- Kevin P. Power, SSC
- Vicki M. Zanoni, SSC



GSFC graduates pictured from left to right are: Craig Hegemann, Barb Pfarr, Dr. Scott Pace (Associate Administrator for Program Analysis and Evaluation), Tonya West, Carmel Conaty, and Gerry Daelemans.

Photo Credit: NASA

Goddard Library Hosts Annual Open House Event

By Ken Carps

"Information for the people, by the people," was the star-spangled theme for the Goddard Library's annual Open House held on October 6. This year's event featured information produced by a host of government agencies, most of which was available free of charge. Representatives from the Astrophysical Data System (ADS), Center for Aerospace Information (CASI), National Oceanic and Atmospheric Administration (NOAA), Defense Technical Information Center (DTIC), National Agricultural Library (NAL), National Technical Information Service (NTIS) and Goddard's Technical Information Services Branch (TISB) showcased their holdings, demonstrating databases, search tools and modes of digital access. In addition, the Goddard Library staff demonstrated its many capabilities, ranging from its expert reference services to its outstanding range of online materials, including full text journal access, the library catalog, Web of Science and IEEE Xplore. The Library also unveiled its newly redesigned Website. Valuable input gathered through user testing guided the Library's Website transition to the "One NASA" look and feel portal. The inspired Website retains and enhances the ease of use of the prior Website and takes advantages of new technologies to promote usability and interactivity.

Keynote speaker Dr. Paul Lowman highlighted the day's events with a lively talk sharing his interest and insights of his life-long study of tectonics. Entitled, "My Shuttle Imaging Radar Experiment: A Comedy of Errors", the noted geophysicist's speech is available in the Library's Streaming Media Center.

The Goddard Library, always striving to make new technologies available, remains at the forefront of science libraries. Focusing on the research and technology areas of interests to Goddard, the Library provides text and Web access to a wide range of leading journals and houses over 70,000 volumes in its collection of books.

Numerous reports, indices, search tools and research literature round out the cutting-edge services. Online access to many of the Library's tools and resources saves researchers at Goddard valuable time and effort. Staff librarians strengthen the entire system by assisting Library customers in locating materials, using Web resources and providing expert reference assistance.

Well over 400 people enjoyed the day's colorful event. This year's activities included a chance to play and win prizes in a 'Price is Right'-type game, designed to better educate the participants about the Library's extensive holdings of print and online journals in addition to their costs. As always, a festive display of food featuring fruit, cheese, home-baked cookies and other refreshments brightened an informative, fun-filled day. ■



Photo Credit: Debora McCallum

Participants enjoy the various displays offered at the Goddard Library Open House.

NASA Technology to Help Monitor Water Quality

By Nicole Quenelle

JMAR Technologies, Inc., of Carlsbad, California, has licensed NASA Goddard's Holographic Circle-to-Point Converter for use in its BioSentry product line. BioSentry is a real-time, online system for continuous monitoring of drinking water supplies for water utilities, bottled water and beverage processors, and homeland security.

BioSentry beta tests are currently ongoing at a water utility, on a cruise ship, and at a beverage facility. Goddard's technology is being used specifically in the beverage facility beta test and has enabled JMAR to take BioSentry to market much faster in this industry than otherwise would have been possible.

Benefits of Technology Transfer

- Faster introduction of BioSentry in the beverage facility market
- Reduced cost and complexity of continuous water-supply monitoring
- Safer, cleaner, more secure water supplies and bottled beverage supplies

About JMAR

Founded in 1987, JMAR is a leading innovator in the development of laser-based equipment for imaging, analysis, and fabrication at the nano scale, applying its technical and development expertise to create high-value equipment for growing markets.

JMAR develops, manufactures, and supports advanced laser, sensor, and custom systems for applications in the semiconductor, homeland security, biotech, water-quality technology, and nanotechnology markets.

Technology Origins

Goddard's technology was developed as an Apparatus and Method Using a Holographic Optical Element for Converting a Special Distribution to Image Points. Now known as the Holographic Circle-to-Point Converter, the technology resolves the circular fringe patterns of light generated by a Fabry-Perot interferometer into focused points. Each point represents a wavelength component of the fringe light and may be focused into a single plane or even into a single line, allowing for the use of certain linear detectors. When used in conjunction with solid-state optical detectors, the Holographic Circle-to-Point Converter overcomes the limitations of circular photomultiplier-type detectors. Developed by Goddard scientist

Matthew McGill, the technology does not require high voltages or a cooling system and is easily manufactured using standard holographic techniques. Reducing the cost, complexity, and size of Doppler lidar systems can create opportunities for a variety of commercial applications.

Other Applications for Goddard's Technology

- Commercial multispectral measurement systems
- Multifield-of-view telescopes
- Particle counting
- Contamination monitoring

Finding a New Use

JMAR's BioSentry system uses laser-based technology to provide automated monitoring of the quality of drinking water. The unique design of Goddard's technology was particularly applicable to BioSentry use in beverage facilities. The technology helped JMAR speed up the system architecture design, reducing the cost and complexity of entering this market.

The Transfer Process

Partnership between NASA Goddard's Office of Technology Transfer (OTT) and JMAR originated through demonstrations of the technology at the International Society for Optical Engineering (SPIE) Conference in 2001. The technology was discovered by JMAR's Alliance partner, the LXT Group, who got in touch with OTT's Joe Famiglietti to begin discussions of possible licensing of the invention. Famiglietti provided JMAR with a sample unit for evaluation and put the company in touch with inventor Matthew McGill to help answer any technical questions about the technology.

Looking Ahead

JMAR's BioSentry beverage facility beta test is slated to complete by the end of 2005. The company plans to extend the product to the larger beverage industry in 2006. JMAR is looking to several other industries for future potential use of the product line, including water utilities and municipalities, hospitals, pharmaceutical companies, semiconductor producers, and other food/beverage segments in addition to government agencies, including Homeland Security.

For more information about NASA Goddard's Holographic Circle-to-Point Converter, visit: <http://techtransfer.gsfc.nasa.gov> ■

Did You Know?

Disposable Diapers

Invented so astronauts could stay on space walks for extended periods, this super-absorbent fabric can hold up to 400 times its own weight.

Director Holds “Can We Talk” Session

By Trusilla Steele and Sharon Wong

“Reading a speech is not my style,” said Dr. Weiler. “Rather than go to lunches and dinners and give a speech that I had nothing to do with writing, I prefer you get to know me, thus creating an opportunity to have a true dialogue.”

Center Director, Dr. Ed Weiler was reiterating the objective of the “Can We Talk” sessions. “These sessions have been in place for about a year as an effort to improve communications on Center,” explained Special Assistant for Diversity, Sharon Wong. “It began as an effort to enhance the workplace culture and leverage the strength of the Agency’s workforce diversity.”

The casual discussions provide a forum to answer any existing concerns or questions and assist with creating an environment of improved communication within Goddard and NASA.

In addition, Dr. Weiler has incorporated the “Can We Talk” sessions for particular Advisory Committees and groups which are held during that group’s proclaimed month of recognition. The most recent “Can We Talk” session was held on September 19 in observance of Hispanic Heritage Month and included Orlando Figueroa, newly appointed director of the Applied Engineering and Technology Directorate.

The informal discussion focused on several topics which included: awareness of the Hispanic Advisory Committee (HACE); recruitment strategies for Hispanics; the Goddard Opportunity Bulletin Board (GOBBS); and career enhancing and visibility opportunities. This dialogue generated an action to the Executive Council to convey expectations regarding inclusion of younger/less experienced employees when teams (e.g., review panels, committees, investigation boards etc.) are developed.

A concern about labor charging for particular projects was also addressed during the session by the Associate Director of Goddard, Krista Paquin. She emphasized that time spent on activities which support Goddard’s mission, should be charged as direct cost.

The discussion concluded with Dr. Weiler highlighting upcoming Goddard missions and providing insight on potential new in-house projects.

The “Can We Talk” Sessions are held monthly and have no set agenda or prepared questions. These discussions are frank and inclusive to those in attendance. If you would like to meet with Dr. Weiler or if you would like to gain knowledge of what’s happening at the Center or Agency, plan to attend the next “Can We Talk” session on Monday, November. 21, 2005 at 1 P.M. Registration is required to ensure proper accommodations. You may register at <http://internal.gsfc.nasa.gov/canwetalk.cfm> ■

Proposal Opportunities

NASA Research Announcements (NRA)

For more information, please visit <https://nspires.nasaprs.com>

Research Opportunities in Space and Earth Science (ROSES)

Earth Space Science Fellowship/06

Solicitation: FELLOWSHIP06

Release Date: 2005-10-01

Proposal Due Date: 2006-02-01

Hubble Space Telescope – Cycle 15 Call for Proposals

Release Date: 2005-10-05

Proposal Due Date: 2006-01-27

NASA Astrobiology Institute – Cycle 4

Solicitation: NNH05ZDA001C

Release Date: 2005-07-25

Proposal Due Date: 2005-10-28

Radiation Belt Storm Probes Investigations and Geospace-Related Missions of Opportunity

Solicitation: NNH05ZDA0030

Release Date: 2005-08-23

Proposal Due Date: 2005-11-22

For more information contact the New Opportunities Office x6-5442

A Sustainable Goddard Begins With An Environmental Management System

By Lori Levin

Goddard is implementing an Environmental Management System (EMS) to identify and manage the Center's high-priority environmental impacts. The EMS provides a framework to identify and address the Center's immediate and long-term environmental impacts proactively, consistently, and effectively. Our EMS consists of the organizations that may impact the environment, the policies, procedures, and work practices that they follow, and the equipment and resources they have available to them.

The EMS will help employees understand how their jobs affect the environment. It encourages environmental accountability and ownership of actions and related impacts. The result is an environmentally aware and responsible organization, better environmental management, and informed decision-making.

From conserving energy, water, and paper to properly handling hazardous waste, everyone plays a role in protecting our environment and sustaining GSFC's mission.

3 THINGS EVERY GODDARD EMPLOYEE AND SUPPORT CONTRACTOR NEEDS TO KNOW:

1. The EMS is the management system we use to implement the Center's Environmental Policy
2. The basic contents of GSFC's Environmental Policy GPD 8500.1
 - Commitment to comply with environmental laws and regulations applicable to our operations
 - Commitment to prevent pollution
 - Commitment to continual improvement
3. The Environmental IMPACTS of your job.
 - Manage your activities using proper procedures to reduce significant environmental impacts
 - Incorporate environmental considerations into daily activities
 - Take environmental training appropriate to your job

To find out more information about Goddard's EMS and high-priority environmental impacts, visit the Environmental Team Web site at <http://environment.gsfc.nasa.gov> under "Environmental Management" or visit the dedicated EMS Web site at <http://ems> (currently open only to employees on the "GSFC" domain). ■

Safety Awareness Campaign

By Dr. Matthew Jarvis

At GSFC, mission success rests squarely on the shoulders of its single most important asset: You, the Goddard workforce. To meet GSFC's current and future challenges in science, engineering, business management, and other disciplines, the safety and health of each employee must be protected. With this in mind, the Center embarks on its first annual Safety Awareness Campaign, beginning in November.

To emphasize the role each employee plays in safety management, Directorates will design and carry out their own activities and events. Since all GSFC organizations are unique with regard to workplace hazards, mitigation strategies, inspection procedures, reporting tools, and other Safety Program elements, the Safety Awareness Campaign's decentralized approach to safety awareness will allow Directorate planning teams the freedom to address safety-related issues and topics most relevant to their organizations.

The Center Director, Executive Council, and Goddard Safety Council view this as a top priority and will participate in various activities. Furthermore, Dr. Weiler requests that all Civil Servant and Contractor personnel participate in the activities planned for their respective organizations. As recent mishaps and close calls have shown, we must be proactive when it comes to safety.

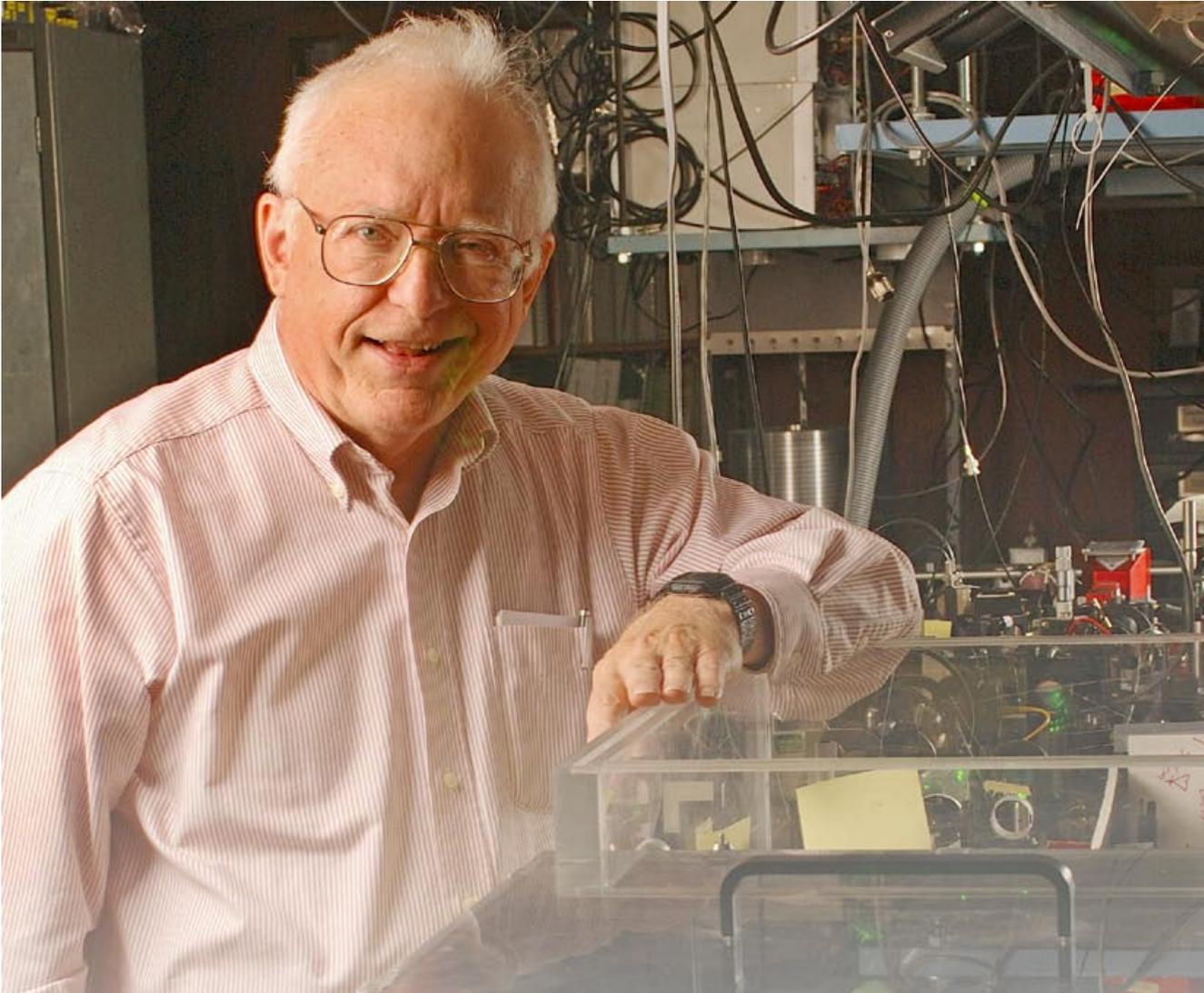
The Safety Awareness Campaign activities will help employees build safer, more productive work environments by providing current information on a variety of important topics: GSFC Safety Program architecture; roles and responsibilities; safety resources; procedures for conducting Job Hazard and Personal Protective Equipment analyses (JHA/PPE); hazardous waste storage and disposal; Safety, Health, and Environmental Training opportunities; etc. So, be aware and be safe! Participate in your Directorate's Safety Awareness Campaign...like your life depended on it!

For more information, visit:

<http://safetyfirst.gsfc.nasa.gov/awarecom>
or call Ken Segal at 6-2895. ■

LISA Mission Contributor Wins 2005 Nobel Prize

By Susan Hendrix



John (Jan) L. Hall of JILA, a joint institute of the University of Colorado, Boulder and the National Institute of Standards and Technology (NIST), Boulder, is one of three 2005 Nobel Prize winners in Physics. Hall won this prestigious award in conjunction with Roy Glauber of Harvard and Theodore Hänsch of the Max Planck Institute for Quantum Optics. Hall and Hänsch received the award for 'developing a way to make extremely precise measurements of time and distance using lasers,' while Glauber was recognized 'for showing how the particle nature of light affects its behavior.'

Hall was a seminal contributor to the Laser Interferometer Space Antenna (LISA), a planned 5-year mission that will detect gravitational waves from sources involving galactic binaries within the Milky Way and extra-galactic massive black holes outside our Galaxy. NASA Goddard Space Flight Center will manage the LISA mission and supply the three spacecraft.

"Jan has been an ardent and steadfast supporter of the project for a very long time," said Robin 'Tuck' Stebbins, U.S. LISA project scientist at NASA Goddard Space Flight Center. "He is one of five authors on the 1984 paper that laid out many of the core LISA concepts. Jan has brought his

keen technical insight and stimulating commentary to several LISA review panels, sustaining the critical technical dialogue so essential to a cutting edge enterprise such as LISA."

Hall currently has a NASA grant from the Beyond Einstein Foundation Science for his work on LISA laser stabilization. "Jan's work on laser metrology enables our exploration of the distant Universe. It is truly astounding that human understanding can penetrate so far beyond our everyday experience. This is the intrinsic excitement of LISA," Stebbins said.

Hall began his career at NIST as a National Research Council Postdoctoral Fellow in 1961. In 1962, Hall joined the NIST staff as a physicist. He became a Fellow of JILA in 1964 and was named a senior scientist in 1971. Hall has held his current part-time appointment with CU-Boulder since retiring from NIST in 2004. He has received many honors during his career, including the Department of Commerce Gold Medal (individually in 1969 and as part of a group in 1974 and 2002), and has been a member of the National Academy of Sciences since 1984. ■

Photo Credit: University of Colorado at Boulder, Office of News Services

The Next Generation Blue Marble

Continued from Pg 2

Enhancements

Blue Marble: Next Generation offers a year's worth of monthly composites at a spatial resolution of 500 meters.

These monthly images reveal seasonal changes to the land surface: the green-up and dying-back of vegetation in temperate regions such as North America and Europe; dry and wet seasons in the tropics, and advancing and retreating Northern Hemisphere snow cover.

From a computer processing standpoint, the major improvement is the development of a new technique for allowing the computer to automatically recognize and remove cloud-contaminated or otherwise bad data that were previously done manually.

Blue Marble: Next Generation improves the techniques for turning satellite data into digital images.

Among the key improvements is greater detail in areas that usually appear very dark to the satellite (because a large amount of sunlight is being absorbed), for example in dense tropical forests. The ability to create a digital image that provides great detail in darker regions without 'washing out' brighter regions, like glaciers, snow-covered areas, and deserts is one of the great challenges of visualizing satellite data. The new version also improves image clarity, and gives highly reflective bodies of water, such as salt lakes, a more realistic appearance.

To learn more about the development of NASA's imagery of the Earth as a whole, visit: http://earthobservatory.nasa.gov/Newsroom/BlueMarble/BlueMarble_history.html ■

Employee Spotlight

Theada (Sandy) Mooney

By Alana Little



You may have hit horrific traffic on your way in to work. The tardy MARC train may have caused you to miss your connecting bus in to work. It could be Monday. It doesn't matter, no one can stay in a bad mood after an encounter with Sandy Mooney, GEWA employee and an all around wonderful person whose winning personality has blessed the visitors of the Building 1 cafeteria since 1988.

When asked what keeps her working well after most folks would have thrown in the towel, Sandy says, "the customers are what keep me here." Sandy says every day is interesting. "It's never just a day of work, it's a day given to us by God."

So the next time you are tempted to let your bad mood get the better of you, walk into Building 1, visit the cafeteria, grab some breakfast and let the smile of Sandy Mooney wash over you and banish those grumpies away! ■