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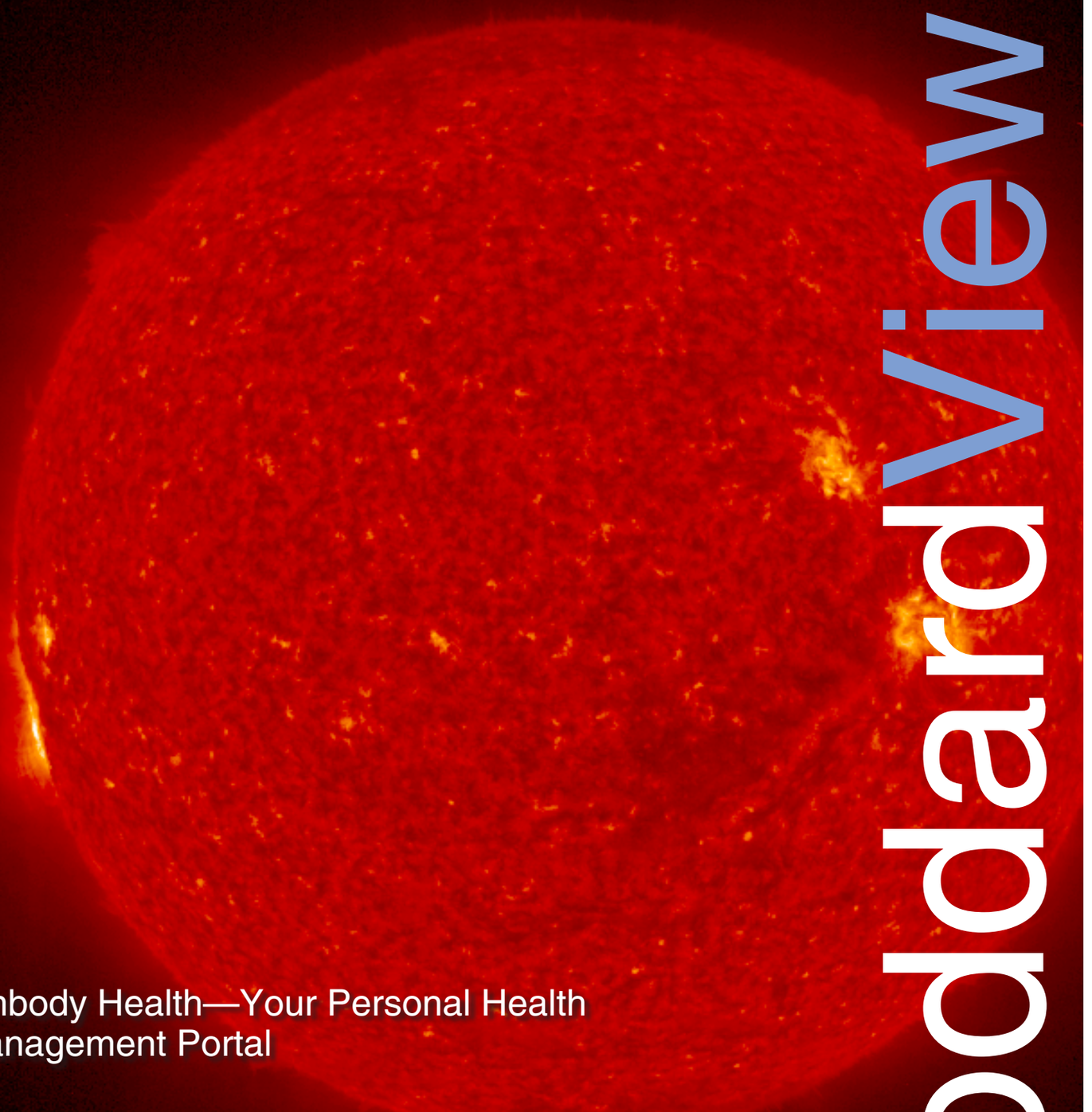
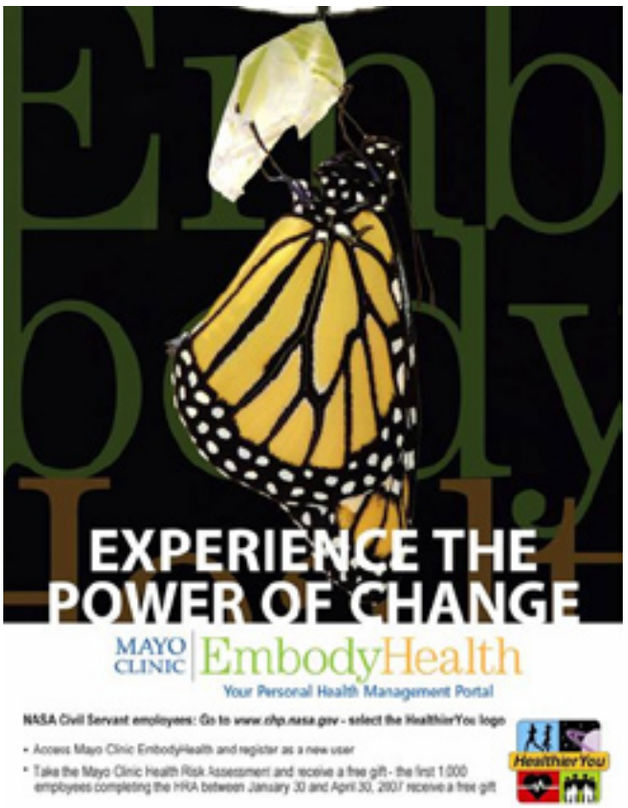


GoddardView

Embody Health—Your Personal Health Management Portal

Brought to you by the Occupational Health Office/NASA



An exciting new benefit for NASA civil servant employees is here! NASA civil servant employees are now able to access the health resources of the Mayo Clinic EmbodyHealth Web site, 24/7 by visiting: http://www.ohp.nasa.gov.

When you register on Mayo Clinic EmbodyHealth, take advantage of the Mayo Clinic Health Risk Assessment (HRA) to identify your health risks, and to link to resources and tools you can use to ensure a HealthierYou. For more information go to the NASA Occupational Health Web site http://www.ohp.nasa.gov and select the HealthierYou logo.

To access the Mayo Clinic EmbodyHealth Web portal and the Mayo Clinic Health Risk Assessment, go to http://www.ohp.nasa.gov and click on the Mayo Clinic EmbodyHealth icon. The unique ID you need to register is healthiernasa. For additional information or questions, please send an e-mail to Jennifer.R.Gerry@nasa.gov or Gail.a.bantugan@nasa.gov . ■

Table of Contents

Cover Caption: An image showing portions of the Sun's atmosphere at 60,000 to 80,000 C (shown in orange) taken on December 4 by STEREO's SECCHI/EUVI telescope.

Image Credit: NASA

GoddardView Info

Goddard View is an official publication of the Goddard Space Flight Center. It is published biweekly by the Office of Public Affairs in the interest of Goddard employees, contractors, and retirees. A PDF version is available online at:
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Managing Editor: Trusilla Steele
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.

STEREO Draws Gasps at April Unveiling

By Rob Garner

Hubbub has swirled around the Solar Terrestrial Relations Observatory (STEREO) 3-D image unveiling for weeks. Would the $550 million project meet expectations? Or would the 3-D images and video fall flat, so to speak.

Judging by the reactions of scientists, journalists, and museum audiences treated to a sneak-peak of the STEREO video on April 23, the investment paid off.

STEREO had been in the works for years before its October 2006 launch. The mission involves two nearly identical satellites launched away from Earth in opposite directions around the Sun.

The probes return pictures of the Sun observed at different perspectives to Earth, where they are combined to form 3-D images and video.

Scientists said the STEREO data will help them more accurately predict Earth-bound solar storms by triangulating on them as they move through space toward Earth.

There are some posters scattered around the Public Affairs Office hyping the new STEREO images. They depict a grayscale Sun, best viewed with blue–red 3-D glasses. Sans goggles, it looks like the underside of a blurry, gray pancake.

Put the glasses on, however, and the Sun comes into crisp focus and bulges like a balloon.

But that's nothing. Just wait until you see the video. Grabbing a set of goggles and sitting down in the Building 28 "theater" felt like a 1950s "House of Wax" 3-D movie throwback—at first. STEREO Project Scientist Michael Kaiser later said as much at the press conference following the premiere. There is so much more texture in the STEREO footage than you'd ever expect, and there's no easy analogue to describe it.

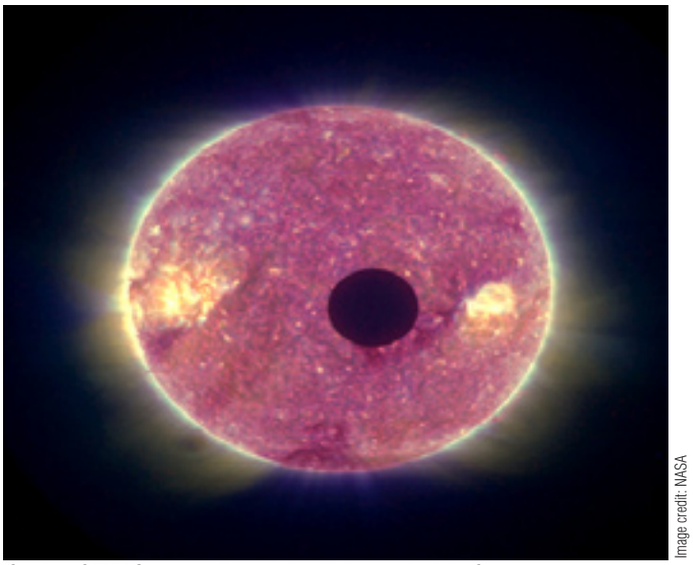

Image credit: NASA

Caption: STEREO spacecraft captures a lunar transit of the Sun.

Picture a cantaloupe. Imagine that cantaloupe has a radioactive glow. Imagine you're looking at it on an IMAX screen. Now you begin to get an idea of what the STEREO video looks like.

The Sun's surface crackles with color. The solar flares spin and spew, like twisted crosses between cyclones and volcanoes. When the magnetic field lines snap, much of the charged material is sucked back into the Sun like a string of spaghetti. Some ejecta fly outward and seem to dissolve as they spread out into space, like bits of marinara sauce on that string of spaghetti.

One of the people present said the Sun looked wavy, like you were looking at the film through the heat of a fire. Stick your thumb on an LCD monitor screen and you get an idea of what some of these solar prominences look like.

The Sun's halo looks almost like the fur on a long-haired cat waving in the breeze, or the solar wind, in this case.

Dr. Paulett Liewer, STEREO project co-investigator, said at the press briefing that close-ups of the blue image reminded her of flowing water. She's right. It looks just like what you'd see if you stared up at the sky from the bottom of a swimming pool.

You just have to see these tapes for yourself. To do that, e-mail Leslee Cork at: lcork@pop100.gsfc.nasa.gov to sign up for the STEREO open house on May 24.

To learn more, visit: http://www.nasa.gov/STEREO

To view images visit: http://www.nasa.gov/mission_pages/stereo/multimedia/index.html ■

Goddard Employees Among First NASA Technical Fellows

By Nancy Pekar

NASA Goddard employees have been selected as 3 of the first 12 NASA Technical Fellows. The employees, members of the NASA Engineering and Safety Center (NESC), were named in a ceremony on April 11 at the Virginia Air and Space Center, Hampton, Va.

They are Cornelius Dennehy, Guidance Navigation and Control; Mitchell Davis, Avionics; and Michael Aguilar, Software.

The NASA Technical Fellows Program was established to recognize technical excellence and provide Agency-wide leadership of their respective disciplines as members of the NESC in support of the Office of the Chief Engineer.

NASA Chief Engineer Chris Scolese said that the new designation was motivated by the success of NESC. Scolese presented each technical fellow with a plaque and his congratulations.

Consistent with NESC practice, the technical fellows will remain resident and actively engaged at their Centers.

Other technical fellows named on April 11 are Ames' Cynthia Null, Human Factors; Johnson's Curtis Larsen, Loads and Dynamics; John McManamen, Mechanical Systems; and Henry Rotter, Life Support/Active Thermal. Also named were Langley's Robert Piascik, Materials; William Prosser, Nondestructive Evaluation; Ivatury Raju, Structures; and David Schuster, Aerosciences; as well as Marshall's George Hopson, Propulsion.

NESC Director Ralph Roe said that the idea of NASA Technical Fellows arose as part of the NESC practice of benchmarking against industry. Elevating distinguished technical employees is a well-established practice at some major corporations.

"NASA Technical Fellows will be role models for all of our engineers," said Roe. Scolese added that NASA Technical Fellows would provide stewardship of their respective disciplines for the Agency.

One example of that stewardship will be to foster consistency of Agency-level standards and specifications, including those considered core standards. They will also promote discipline stewardship through workshops, conferences, and discipline-advancing activities.

Four additional technical fellows are expected to be named this fiscal year (FY), two more in FY 2008 and one more in FY 2009. Fellows are competitively selected. The need for additional technical fellows will be evaluated semi-annually. ■

Hubble Web Site Wins Top International Honor

By Susan Hendrix and Rob Garner

Anyone who surfs the Web knows there are countless sites. Some you visit once or twice and move on, others knock your socks off.

This year, the Webby Awards panel selected HubbleSite.org for Best Science Web site of 2007. Sponsored by the Space Science Telescope Institute's Office of Public Outreach in Baltimore, Md., HubbleSite.org produces pages upon pages of stunning *Hubble* Space Telescope images, history making science discoveries, and an incredible amount of information about the famed observatory.

What in the world is a "Webby" you ask? It is *the* leading international award honoring excellence on the Internet. Established in 1996 during the Web's infancy, the Webbys are presented annually by The International Academy of Digital Arts and Sciences, a 550-member committee of leading Web experts, business figures, luminaries, visionaries, and creative celebrities.

But wait, there's more! HubbleSite.org also received a 2007 "People's Voice Award." Sites in this category are chosen based on the total number of online votes from viewers around the world.

Congratulations to the many talented HubbleSite.org Web designers and writers for being selected for this prestigious award!

The 2007 Webby Awards will be presented during a ceremony in New York City on June 3–5.

Want to learn more about The Webby Awards? Go to:
http://www.webbyawards.com/about/

For more information about the *Hubble* Space Telescope, visit:
http://www.nasa.gov/hubble ■

NASA NFIRE Blasts Off from Wallops

By Keith Koehler

Photo credit: NASA/WFS

Caption: The Air Force Minotaur 1 rocket carrying the Missile Defense Agency's Near Field Infrared Experiment (NFIRE) satellite was launched at 2:48 a.m., Tuesday, April 24.

An Air Force Minotaur 1 rocket was successfully launched at 2:48 a.m. April 24, from the NASA Wallops Flight Facility, Wallops Island, Va.

The four-stage rocket carried the Defense Department, Missile Defense Agency's (MDA) Near Field Infrared Experiment (NFIRE) satellite.

This was the second Minotaur 1 launch from Wallops in just over four months. The previous mission on December 16, 2006, carried the Air Force Research Laboratory's TacSat-2 satellite.

This launch again demonstrates the unique capabilities of the Wallops Flight Facility, which includes the Mid-Atlantic Regional Spaceport, to efficiently support the placing of satellites into Earth orbit. NASA is particularly appreciative of the support provided by the Coast Guard, Fish & Wildlife, Virginia Marine Resource Commission, and state and county security and emergency preparedness organizations," said Dr. John Campbell, Director of the NASA Wallops Flight Facility.

"Working with the Air Force, MDA, and their contractors, the preparation for this launch and the launch itself went very smoothly," Campbell said. "We are pleased to have supported this mission."

The next Minotaur 1 rocket launch from Wallops is currently scheduled for December 2007. ■

GSFC's Earth Day 2007

By Darlene E. Squibb

Image credit: Dairan Robbins

Caption: Winning Earth Day Logo designed by Darian Robbins, Aerospace Engineer of Code 543.

Earth Day is officially April 22, however, the Center celebrated Earth Day on April 26, 2007. Earthday.gov defines this day as "a time to celebrate gains we have made and create new visions to accelerate environmental progress. Earth Day is a time to unite around new actions. Earth Day and every day is a time to act to protect our planet."

The planning for the event started with an Earth Day logo contest. After 27 submissions, a final design was selected. The winning design was created by Darian Robbins, Aerospace Engineer from Code 543. The second runner up was Adam Matuszeski, a Mechanical Engineer in the Electromechanical Engineering Branch, Code 544.

At 11 a.m., Judy Bruner, Assistant Director for Safety and Security, opened the celebration stating that, "This program is a good illustration of how scientists, engineers, architects, and all professions need to work together to better the Earth."

Our future leaders from the Goddard Child Development Center Kindergarten class helped open the event with Earth songs. Following the serenade, presentations were given from two Earth Observing Systems scientists: Dr. Jim Irons, Landsat Data Continuity Mission Project Scientist gave a historical accounting of the history of the Chesapeake Bay region and possible ways to protect it; and Dr. Claire Parkinson, the Aqua Satellite Project Scientist spoke about water observations and climate change.

Goddard's Facilities Management Division, along with the U.S. Green Building Council shared "green" building principles with participants. They showed how those principles will be incorporated into the design of the new Exploration Sciences Building under a rating system called Leadership in Energy and Environmental Design, or LEEDS. The presentations ended with Paul Richards, a Geostationary Operational Environmental Satellite (GOES-R) engineer, who has also spent some of his career as an astronaut and flew on mission STS-102 in March 2001. He shared some vivid photography of Earth from space.

Continued on Page 10

Landsat—Protecting the Price of Bread

By Laura Rocchio

Year-to-year we expect the price of bread to remain relatively stable, but rarely do we realize the complex interactions and activities that are responsible for that price stability. And even less often do we realize that Landsat satellite data are behind the accurate global crop production estimates that enable such price stability.

Let's back up. Stable food prices are the result of a delicate balance between food supply and demand. To drastically simplify: if agricultural supply is too high, prices fall to a level where farmers cannot afford to plant; if supply is too small, food prices can soar. So, an unstable agricultural commodities market can lead to wild food price fluctuations—much like the gas price fluctuations caused by recent oil market swings.

Market Intelligence and Why It Matters to You

Market intelligence about global crop production ensures that food supply is consistent with demand. If, for example, Australia has a bumper crop of wheat, U.S. farmers can avoid a wheat glut (and protect against a precipitous price drop) by not planting wheat, and vice versa. Accurate crop estimates thereby translate into dependable food prices by enabling producers to make wise planting decisions and by equipping U.S. agricultural commodity traders with the knowledge they need to set realistic and reasonable prices.

The Foreign Agricultural Service (FAS) of the U.S. Department of Agriculture (USDA) has the responsibility of providing this market intelligence in the form of timely, objective, unclassified, global crop condition and production estimates, for all major commodities, for all foreign countries. These estimates are an integral part of the World Agricultural Production and World Agricultural Supply & Demand numbers used by the U.S. Office of Management and Budget (OMB) as principal Federal economic indicators. To accomplish this Herculean task, FAS synthesizes information from its global network of marketing experts, agricultural economists, meteorologists, and remote sensing scientists.

While FAS attachés collect crop production information from foreign government reports and field visits, it is the comprehensive view afforded by space-based, Earth-observing satellites, such as Landsat, that provide the unbiased, global, farm-level observations necessary to objectively verify these reports. Unbiased report verification means food supply estimates can be used with confidence.

"Less confidence in the food supply translates into more volatile markets where food shortages and over-stocks are more likely to occur," says Dr. Bradley Doorn a Technical Remote Sensing Coordinator with FAS. It was a grain shortage 35 years ago that initially led FAS to use Landsat data.

The Great Grain Robbery

After a number of years with abnormal weather in the early 1970s, wheat crops in much of the world failed. At the same time, very successful wheat crops in the U.S. had led to large U.S. stockpiles of wheat. In only six weeks, and before the U.S. realized there was a global wheat shortage, shrewd Soviet traders were able to surreptitiously purchase $750 million worth of U.S. wheat at low subsidized prices.

By the time the U.S. became aware that there was a shortage of wheat on the global market, the Soviets had bought 15 million tons of U.S. wheat (up from 300,000 tons in years past). With the U.S. grain supply suddenly low, wheat prices soared (reported increases range from 200% to 350%) from June 1972 to February 1974.

"Food prices rose dramatically and the impact on the world grain markets and food availability was dramatic," Doorn explains. Steep price increases meant that many undeveloped nations could not afford to buy grain, and grain-producing nations were forced to pay a premium for the extra fuel and fertilizer needed to meet demand.

To put this in perspective, imagine that yesterday you bought a loaf of bread from your local grocery story for $2.89. Can you imagine paying between $5.78 and $10.12 for that same loaf of bread in 2009? That's what happened in the early 1970s in what has come to be known as the Great Grain Robbery.

Determined never to be blindsided on the commodities market again because of a lack of information, OMB instructed FAS to establish a global crop surveillance and reporting system.

"FAS has been mandated to provide a global crop reporting system, including a global crop surveillance program, since the mid-1970s starting with Landsat 1," Doorn says.

Coincidently, the first Landsat satellite was launched the same year as the Great Grain Robbery.

Continued on Page 7

Did You Know?

Landsat Data:

Did you know that Landsat data are used to monitor the sediment plumes created by shrimp trawlers? Commercial shrimp harvesting relies on huge nets that scrape along the sea floor; a conservation ecologist from Duke University is using Landsat data to help quantify the extent of sea-bottom ecosystem disturbance.

Landsat—Protecting the Price of Bread

Continued from Page 6

Data from Landsat 1 made it possible for FAS to meet OMB's mandate to monitor global crops.

Thirty Years and Counting

Over the past three decades, the objective global crop production estimates made with Landsat data have contributed to U.S. food security, economic security, national security, and more recently, homeland security. Post-9-11, the FAS mandate was expanded to include foreign crop supply estimates needed for critical response to any catastrophic crop failures, or bio-terrorist attacks (think of the recent E. coli spinach scare on a much larger scale).

Unfortunately, the FAS has become increasingly reliant on foreign Earth-observing satellites since 2004. Through 2003, FAS relied on about 3,000 Landsat scenes per year for global crop production estimates and support of domestic programs. In late May 2003, a hardware glitch aboard the Landsat 7 satellite reduced the amount of usable data per scene by about 25%, and forced FAS to look to foreign satellites for the data they required.

Today, FAS is almost completely reliant on data purchased from the India Remote Sensing Satellite (IRS). Additionally, FAS uses data from the French Satellite Probatoire d'Observation de la Terre * (SPOT), and they are investigating the use of data from the China-Brazil Earth Resources Satellite (CBERS).

With the current global coverage limitations of Landsat, data from Landsat 5 and Landsat 7 are only used for historical comparisons, domestic gap filling, and data validation and verification. And, after several changes in implementation strategy, the launch of the next U.S. Landsat-like satellite is still several years away.

While it is fortunate that foreign satellites have been able to fill the void left by the Landsat 7 instrument anomaly, the merit of depending on foreign data for matters of national, economic, and homeland security is debatable. "A loss in the Landsat coverage is equivalent to losing an irreplaceable, objective, timely, and reliable intelligence source," Doorn admits.

In 2005, the U.S. exported over $63B of agricultural products (approximately 10% of U.S. exports). But in this age of globalization, U.S. economic dominance in agriculture is being challenged and the marketing edge that FAS crop estimates give to U.S. producers has never been more important.

"The nature of how FAS uses Landsat imagery is most visible when problems, disagreements, or anomalies occur," Doorn says. Today, FAS must increasingly rely on foreign-based satellite information. It remains to be seen if FAS's reliance on foreign-based satellites will affect their ability to respond to events. ■

* French Remote Sensing Satellite

NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES)

Supporting research in science and technology is an important part of NASA's overall mission. NASA solicits this research through the release of various research announcements in a wide range of science and technology disciplines. NASA uses a peer-review process to evaluate and select research proposals submitted in response to these research announcements. Researchers can help NASA achieve national research objectives by submitting research proposals and conducting awarded research. This site facilitates the search for NASA research opportunities.

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

Solicitations:

Cooperative Agreement Notice (CAN) Dual Use Technology Development at NASA John C. Stennis Space Center
Released: 2007-04-30
Proposal Due: 2007-09-30

NASA ARMD Research Opportunities in Aeronautics (ROA) NRA
Released: 2006-05-24
Proposal Due: See Announcement

Observing at the NASA Infrared Telescope Facility—Call for Proposal
Released: 2007-02-20
Proposal Due: 2007-10-01

Research Opportunities in Space and Earth Sciences (ROSES)—2007
Released: 2007-02-16
Proposal Due: See Announcement

Research Opportunities in Space and Earth Sciences (ROSES)—2006
Released: 2006-01-23
Proposal Due: 2007-06-30
■

Texas Instruments Uses NASA Facility to Test Advanced Spaceflight Electronics

By Nicole Quenelle

As part of a 2006 Space Act Agreement (SAA), Texas Instruments (TI) will work with researchers at NASA Goddard Space Flight Center's Radiation Effects Facility (REF) to test and reengineer electronics that can withstand the effects of radiation in space. The agreement will enable TI to understand what would be required to engineer and market radiation-tolerant electronics to serve NASA and aerospace companies that manufacture spaceflight equipment. As the feature sizes of space electronics become smaller, the agreement will also help both organizations understand the radiation effects of scaling space electronics, as well as the impact on test methodology.

Benefits of Technology Transfer

TI will receive radiation test data from NASA researchers, enabling the company to reengineer and validate the radiation tolerance of its spaceflight electronics.

TI can gain a competitive advantage by choosing to market radiation-tolerant spacecraft equipment to NASA and other aerospace companies.

If testing results are positive, NASA will have access to improved radiation-tolerant spacecraft electronics produced by TI, benefiting current and future missions, as well as long-term satellite operations.

NASA will be able to apply test data to other space electronics to understand the impact of its current test methodologies on various sizes of instruments.

Both organizations, as well as other Government agencies, will benefit from understanding whether current test methodologies are adequate for testing current and future electronics.

About Texas Instruments

TI is a leading innovator of digital signal processing and analog technologies for semiconductors.

Headquartered in Dallas, Texas, the company has more than 30,000 employees worldwide with corporate, sales, and manufacturing facilities in more than 25 countries.

Founded more than 70 years ago, TI began making semiconductors for the signal processing markets in 1996.

About Goddard's Radiation Effects Facility

The REF was established in the 1960s to study ionization and displacement damage of electronics and materials, as well as instrument calibration requirements for devices in space. Functional and parametric performance changes occur at different ionization levels in space, making the REFs radiation-damage testing vital for a variety of aerospace equipment, including electronics, microcircuits, sensors, couplings, lenses, and filters as well as paints, coatings, and aircraft structural materials. The facility also produces and calibrates sensors, x-ray machines, and other radiation measurement instruments. Because space missions often expose materials and electronics to substantial degrees of radiation, precise measurement of their radiation tolerance is critical to help ensure the safety and longevity of long-term space operations (such as satellites on Mars).

The Transfer Process

The SAA between TI and NASA was negotiated and administered by Goddard's Innovative Partnerships Program (IPP) Office. Already a leading producer of semiconductors, TI was interested in designing electronics for space applications. Goddard's Ken LaBel approached TI researchers about evaluating the company's emerging technologies at the REF. The SAA gives TI access to not only Goddard's radiation testing and validation facilities but also the Center's on-site expertise.

Looking Ahead

Having entered into an agreement with NASA, TI is well positioned to successfully build and market spaceflight-ready electronics. The company plans to provide Goddard researchers with current models of its transistors, semiconductor parts, and other electronics with possible space application. Researchers at Goddard will radiate and electronically test these components at the REF to measure how much radiation they can withstand. In turn, TI will use this data to reengineer the parts to compensate for any failures, with the goal of demonstrating new models that will withstand expected radiation levels in space. The testing will also enable researchers to begin building a test database to record the impact of scaling technologies on radiation effects so that NASA and other organizations can develop appropriate testing methodologies for various device sizes. ■

STTR Company with Exploration-Related Technology Acquired by Microsoft

By Lee Ann Obringer

Vexcel Corp., a recipient of Small Business Technology Transfer (STTR) Program funding from NASA Goddard Space Flight Center, has been acquired by Microsoft Corporation as part of its Virtual Earth™ business unit. Vexcel's many technologies, including a wireless sensor network technology developed under the STTR funding, will help the computing giant produce rich, dynamic sets of imagery and data that will be integrated into the new Live™ Search: Maps service, which is driven by the Virtual Earth geospatial data platform.

Microsoft recognized the value of Vexcel's 20-year history in imagery, photogrammetry, and remote sensing technology and particularly its pool of talented and experienced employees. The wireless sensor network technology will aid in the high-speed handling of data that is critical to the project's success. Additionally, the new technology will have significant impact in many areas of Earth sciences field research.

Benefits of Technology Transfer

Scientists and researchers will be able to acquire and analyze data remotely using the STTR-funded wireless sensor network technology.

The technology will contribute real-time information to Microsoft's Live Search geographic search engine with many "information telepresence" applications. For example, firefighters could rapidly locate and track the spread of forest fires, and Air Traffic Control could divert trans-Pacific flights away from ash plumes emanating from erupting Aleutian volcanoes.

The technology's broad applications can contribute significantly toward NASA's efforts in both Earth sciences and interplanetary exploration.

About Vexcel Corporation

A worldwide leader in photogrammetry, imagery, and remote sensing technologies, Vexcel was founded in 1985 with headquarters in Boulder, Colo., and offices in Austria, Canada, the Netherlands, and the United Kingdom. Vexcel brings to Microsoft extensive experience in two-dimensional and three-dimensional imagery that will enable rich sets of aerial and street-side imagery to be delivered in a much easier and timely fashion. Vexcel's people and technology will also play a central role in enabling Microsoft's Virtual Earth platform to support dynamic contributions of information from consumers, businesses, governments, and others to strengthen the overall platform and its applications in the future.

Technology Origins

This technology takes NASA a step closer toward fulfilling needs for real-time recovery of remote sensor data.

The wireless sensor network nodes or microservers that Vexcel developed under the STTR contracts work similarly to a wireless office network, relaying information between devices. However, instead of linking computers down the hall, the interconnected microservers can be many kilometers from one another. These devices were originally designed for seismology on remote glaciers and ice streams in Alaska, Greenland, and Antarctica, acquiring, storing, and relaying data wirelessly between ground sensors.

This technology enables three deployment concepts. First, a researcher in the field can establish a "managed network" of microservers and rapidly see the data streams (recovered wirelessly) on a field computer. This rapid feedback would permit the researcher to reconfigure the network for different purposes over the course of a field campaign. Second, through careful power management, the microservers can dwell unsupervised in the field for up to two years, collecting tremendous amounts of data at a research location. The third concept is the exciting potential to deploy a microserver network that works in synchrony with robotic explorers (e.g., providing ground truth validation for satellites, supporting rovers as they traverse the local environment). Managed networks of remote "microservers" that relay data unsupervised for up to two years can drastically reduce the costs of field instrumentation and data recovery.

Finding a New Use

While they were originally developed to relay data from remote locations for NASA's Earth sciences research, these microservers will help enable Microsoft's Virtual Earth project to bring real-time imagery and other types of searchable data to the fingertips of Internet users everywhere. Microsoft needed the ability to gather real-time geospatial data (i.e., information connected to specific geographical locations) in order to provide users not only text data and maps from searches, but also imagery including a bird's-eye view and three-dimensional pictures. Vexcel's Dr. Robert Fatland says, "The Virtual Earth geospatial data platform is moving towards a vision expressed as 'browsing the physical Earth,' enabling people to better understand their environments."

The Transfer Process

STTR is a highly competitive three-phase program that reserves a specific percentage of Federal R&D funding for award to small businesses in

Continued on Page 10

Google for Goddard!

By Brian Thompson

As of April 14, 2007, Goddard is at your fingertips via an internal search engine. Based on the commercial Web-based Google application, Goddard's Google appliance includes all of the features and format of the public Google.

The search engine is only accessible through the Goddard intranet (http://google.gsfc.nasa.gov or http://search.gsfc.nasa.gov), but it searches both internal and external documents. The new Google search engine enables Goddard users to spend more of their time using the information they need rather than looking for it.

The Office of Knowledge Management, with the Office of the Chief Information Officer, worked together to acquire a Google appliance and support it for internal use. The goal of the Google project is to provide a comprehensive internal search capability.

In an increasingly competitive scientific research and development world, the availability of information is a matter of survival—even for NASA. Goddard is consistently heralded for its ability to manage and produce successful projects; now we can leverage more of our own knowledge for future successes. Try it! Search for your own name or your project.

Google at Goddard is an ongoing project, which means that more pages and documents are being indexed as you read this article. Some pages and documents are not included, particularly access-controlled Web sites and databases. If a site or database requires a separate login, it is not included at this time. Private indexes (those with access control) can be created, but only by request. These searchable indexes will remain separate from the main internal search. If you know of additional sites or databases that should be included or have other questions/comments, you can send feedback to: gsfc-search@lists.nasa.gov. ■

GSFC's Earth Day 2007

Continued from Page 5

Informational tables and exhibits were also on display in the Building 8 auditorium, and an alternatively fueled car show in the Building 8 parking lot showed how we all can help reduce our gasoline dependence. The car show displayed five cars from employees including a SUV that was run on 85% Ethanol (E85). Four vehicles from the Government fleet that run on compressed natural gas, E85, and biodiesel (20% soybeans) were on display as well.

Following the event, volunteers painted storm drains on Center highlighting the "Chesapeake Bay Drainage," to make sure everyone is aware that even here in Greenbelt we contribute to the Bay. ■

STTR Company with Exploration-Related Technology Acquired by Microsoft

Continued from Page 9

partnership with nonprofit research institutions to move ideas from the laboratory to the marketplace, to foster high-tech economic development, and to address the technological needs of the Federal Government.

Vexcel had partnered with The Pennsylvania State University to develop the microserver technology under STTR Program awards from NASA Goddard Space Flight Center in 2002 (Phase 1) and 2004 (Phase 2). A commercial version was then developed during Phase 3. Vexcel's acquisition by Microsoft Corp., was announced on May 3, 2006.

Looking Ahead

Beyond the original STTR-funded research and the Virtual Earth platform, the technology has much broader goals. As Dr. Fatland explains, "Data from the field has historically been hard won, but two revolutions during the past half century have shattered the coarse granularity of painstaking observation. First, remote sensing has broken the spatial sampling density barrier. Now, wireless sensor networks give us ground truth at any desired sampling frequency in near-real time. Commensurate with these technologies, the climate change crisis has arrived with a host of other needs for 'more and better' data delivered rapidly. My objective in working on smart sensor networks is to provide multiple real-time environmental information streams for a variety of uses, but primarily geoscience research and education. Other important applications include health monitoring, disaster mitigation, civil infrastructure support, and many more. In fact, sensor networks are important because they are applicable to any situation where we benefit from extension of our senses into a larger environment."

In addition to further internal R&D supported by Microsoft, the technology continues to be developed by Vexcel researchers under funding from NASA's Earth Science Technology Office's Advanced Information Systems Technology program. Working under the acronym SEAMONSTER (South East Alaska Monitoring Network for Science, Telecommunications, Education, and Research), the project supports collaborative environmental science with near-real time recovery of large volumes of environmental data. The initial geographic focus is at Alaska's Lemon Glacier and Lemon Creek Watershed near Juneau where the technology is being used to relay data about the glacier's effect on the hydrochemistry of Lemon Creek. Future expansion is planned in the Juneau Icefield and the coastal marine environment of the Alexander Archipelago.

This innovative sensor network technology may play a significant role in global climate research as well as many other Earth-science related monitoring projects. In addition to these applications, Vexcel researchers are designing SEAMONSTER to be a powerful learning and teaching tool both through its construction and in planning for its future operation. ■

Goddard Exceeded Its 2006 CFC Goal

By Natalie Simms

The 2006 Combined Federal Campaign (CFC) committee at Goddard has reason to celebrate. Of the many successes, one that stands out is our goal of $525K being met and exceeded. Over $565K contributions were tallied, all based on the caring spirit and generous giving of those who pledged.

The Combined Federal Campaign is about much more than just giving money. It is about making a difference. The theme "Be a Star in Someone's Life! Support the CFC," echoes generosity, diligence, and continuity. It also means volunteering time and effort, which many did by serving as a key worker, team captain, or even chairperson. The time involved in preparation, being a liaison throughout the campaign, and illuminating at the end, demonstrates the volunteer spirit and dedication needed to make a successful campaign. And the committee for the 2006 CFC at Goddard did just that and more.

Theresa Stevens, Contract Specialist in Code 200, led this year's campaign as Chair. It was a rewarding experience, but not without its challenges. "It was my job to make sure everything happened, while working with a constrained budget and keeping the team captains happy and motivated," Stevens commented. There were 9 directorate team captains and 75 key workers in support. "We worked well together. The campaign was a success not only because of the caring spirit of those who pledged, but also because we had good support with our team captains and key workers that followed up with people and promoted heavily for his or her organization. It was truly an outstanding example of team work."

Photo credit: Debora McCallum

Caption: Aneece Perry, Associate Director of CFC Headquarters presenting the Summit Award to Dr. Weiler on behalf of GSFC.

Over 80% of the pledges were submitted through WebTADS, NASA's electronic time and attendance system. This feature offered convenience and lessened the load of paperwork. Next year, pledging through WebTADS will be even more user-friendly.

Photo credit: Pat Izzo

Caption: 2006 CFC team captains.

As a result of the contributions and team work, each directorate was presented with a 100% goal award. Code 100, 400, and 600 received recognition for achieving 75% employee participation or $275 per capita gift. Code 300 was awarded the Chairman's Award for achieving 67% employee participation or $225 per capita gift. Code 500 and 700 both received an Honor Award for achieving 60% employee participation or $175 per capita gift. Code 110 received the merit award for achieving 50% employee participation or $125 per capita gift. On March 19, 2007, GSFC received the Summit Award, for the third consecutive year. This award recognizes a 3% increase in contributions over the previous year's results.

In closing the 2006 CFC and revving up for 2007, Stevens said, "Thanks to you who pledged to the campaign. We could not have made the goal without you. Key workers and team captains deserve accolades for his or her contribution, support, and team work. Thank you to the directors for your efforts and support and Margie Ott, in helping with the financial side of the campaign. It was truly a remarkable campaign, in which we all should rejoice." ■

In Memoriam: Joe Vitale

By Rob Gutro

Photo provided by the Vitale Family

Caption: Joe Vitale

Joe Vitale worked as an engineer at NASA Goddard, in Code 596 where he designed software used to support satellite missions since 1993. On February 2, 2006, Joe, 41, passed away from brain cancer in his Gambrills home. Joe's memories and his work continue to surround us, from the hearts of those he knew, to the engineering work he helped put into space.

I met Joe in 2004 when I lived in Odenton. Joe, his wife Debbie, and their daughter Emily, 3, and son Andrew, almost 2, were my neighbors who lived across the street and who became good friends. Joe always made it a point to wave, say hello, and give a smile whenever we saw each other. If he wasn't walking his dog Maggie, he and Debbie were with their children. Joe was the embodiment of a good neighbor and a good friend.

It was easy to see that Joe had a love of life, and that was evident when he was diagnosed with brain cancer. His brain cancer was diagnosed in 2001. Debbie said "He was very courageous during his battle with cancer. He was active with a cancer support group from Anne Arundel Medical Center and several online support groups."

During his illness, Joe made it a mission to work with cancer support groups, and used the Internet to communicate with many others around the U.S. sharing his story and encouragement. During his memorial service, his church, the Woods Memorial Presbyterian Church in Severna Park, posted a U.S. map with push pins marking more than 100 people in all corners of the U.S. that Joe touched.

Chuck Clagett, Joe's supervisor said "Joe was an extremely dedicated and conscientious individual, who always strived for excellence in his work. You could always be assured that any assignment given to Joe would be completed and be of the highest quality. As Joe's friend, I always had the highest respect for him because of his honesty and bluntness in any situation. When he saw someone or something being done wrong, he would always get involved to straighten it out. That's a rare quality in today's environment and one that I admire. We will forever be blessed for the time we had Joe with us. Joe was working on the flight software in the Lunar Reconnaissance Orbiter (LRO) reaction wheels. His efforts will be critical to mission success when it launches."

Russell Roder worked with Joe on his most recent projects. Russell said "I got to know Joe when we drove to work together (he was unable to drive for a while, so we met up in the mornings and I drove us to GSFC). It turns out that we had been working on the same project, the Global Precipitation Mission (GPM) reaction wheel. Joe was able to finish the reaction wheel software before he passed away. I feel fortunate for that, because I think we'd be in a real pickle if it was only partly done. There was a short time after the GPM delay and before LRO decided to use the in-house reaction wheel that Joe was working on something else.

Joe was born in Newark, N.J., and raised in Old Bridge and Brick, N.J. He graduated from high school in 1983 and received a bachelor's degree in electrical engineering from Stevens Institute of Technology in Hoboken, N.J., in 1987. He was a member of Sigma Nu fraternity. Before coming to NASA, he worked for Bendix Corp. in Towson, Md., from 1987 until 1991, when he took a similar position at MSI Inc. in Washington D.C.

Joe enjoyed playing computer games, riding roller coasters, and visiting the North Carolina's Outer Banks and Kona Village in Hawaii. "One of his greatest wishes was to take his family to Walt Disney World, a trip he made last September before his cancer returned," his wife said.

He was known to be funny and entertaining with stories and sayings that became part of every get-together, his family said.

Donations can be made to: Hospice of the Chesapeake, 445 Defense Highway, Annapolis, MD 21401 or the National Brain Tumor Foundation, 22 Battery St., Suite 612, San Francisco, CA 94111-5520.

It's obvious to me, that Joe didn't just touch those that he personally met at NASA, in Maryland, or New Jersey, or wherever life took him, he reached out to the world and into space. That's the mark of a very special person. ■