

## Goddard Memorial Symposium Attendees ‘Explore the Possibilities’

By Susan Hendrix

Photos by Chris Gunn/293

The 43<sup>rd</sup> Annual Robert H. Goddard Memorial Symposium was held March 29 and 30 at the Greenbelt Marriott. Center Director Ed Weiler kicked off the first day by welcoming attendees and introducing a very enthusiastic Jim Garvin, NASA's Chief Scientist. Garvin captivated the audience with his discussion on the importance of using NASA's return to the Moon as a test bed for future travels to the Mars and beyond.

Five technical sessions and one student session rounded out the two-day event.

Guest speaker, Vice Admiral Conrad C. Lautenbacher, U.S. Navy (Ret.) undersecretary of Commerce for Oceans and Atmosphere (NOAA Administrator) provided opening remarks on the second day. Lautenbacher stressed that we need to

figure out how we can improve our understanding of how the Earth works. "Space is the foundation for global Earth observing," said Lautenbacher. "I'm a cup half-full observer. We can figure out how to sustain the Earth if we just put on our thinking caps." The Undersecretary said that although there are tens of thousands of sensors around the world today, there is really little integration. He said that this important issue as well as others were recently discussed at length at the third World Summit in Tokyo. "It was gratifying to see world-wide participation that got attention at the political level."

The first day of the symposium was filled with technical sessions covering lunar exploration, Mars Exploration, Cassini, detector technologies, nanotechnology and sensor webs.

Congressman Steny Hoyer (D, Md) addressed the lunch attendees, touting his endorsement of NASA and the Vision for Space Exploration and stressed that America needs to reduce its fiscal deficit to ensure success of the Vision.



Center Director, Dr. Ed Weiler offers a warm welcome to attendees on day one of the symposium

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### NASA's Mission:

- \*To understand and protect our home planet
- \*To explore the Universe and search for life
- \*To inspire the next generation of explorers as only NASA can

For further detail of the NASA mission, go to:  
[http://www.nasa.gov/missions/solarsystem/explore\\_main.html](http://www.nasa.gov/missions/solarsystem/explore_main.html)

Editor: Trusilla Steele  
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## Memorial Symposium (cont'd from front page)

Photos by Chris Gunn/293

Technical sessions on the second day covered the Earth-Sun System, climate change, NASA/NOAA programs, the Hubble and James Webb Space Telescopes, precipitation from space, and space interferometers.

Wednesday's lunch speaker E.C. "Pete" Aldridge, Jr., shared with attendees his endorsement of the Vision for Space Exploration. Aldridge told the audience, "We'll get there from here with clear messages, sustainability, and credibility. We know from past experience the value of exploration and the benefits to Americans. Ask the children – they want to go into space and visit other worlds."

American Astronautical Society President Jon Malay bestowed Aldridge with the AAS Lifetime Achievement Award for leading the President's Commission on the Implementation of United States Space Exploration Policy, and for more than 42 years in aerospace leadership positions. The AAS also presented a second award, the Space Flight Award, to Harold W. Gehman, Jr., for his outstanding contributions as Chairman of the Columbia Accident Investigation Board.

Goddard also coordinated a student session and career fair for high school, undergraduate and graduate students on Wednesday. About 50 students from more than a dozen high schools and universities participated – some as far away as Illinois. Two Goddard electronic engineers, a Goddard astrophysicist and the Chief of Staff of NASA's Space Shuttle Program Office provided the students with information about NASA careers, and conducted a mini recruiting session afterwards. During the second day lunch, five students gave one-minute presentations on what inspired them to pursue curriculums in math, science, engineering and careers in the space program. ■



AAS President Jon Malay presents E.C. "Pete" Aldridge, Jr., with their AAS Lifetime Achievement Award



Malay addresses more than 200 attendees.

## NASA's Science Mission Directorate Exhibits at the 2005 Washington Home and Garden Show

By Steve Graham, Earth-Sun Exploration Division

Photos courtesy of Steve Graham

This year's Washington Home and Garden Show featured more than 800 exhibitors, including one you normally wouldn't expect to find at such an event, NASA's Science Mission Directorate. The show, which ran March 17-20 at the Washington Convention Center, attracted more than 60,000 people. Visitors of the new 400 square feet of NASA exhibit were treated to complimentary educational and outreach materials on topics ranging from Saturn and Mars to how NASA uses the latest in remote sensing to study our home planet.

Roughly half of the exhibit was dedicated to multimedia presentations. Visitors watched as the latest images and science discoveries from the Hubble Space Telescope, Mars Rovers, Cassini-Huygens, and a wide range of other intriguing astronomical subjects looped in full color on a 50-inch plasma screen.



Deputy ICESat Project Scientist Dr. Chris Shuman presents NASA's Earth Science Electronic Theatre to an attentive group of visitors.

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# Local Teams Battle for 2005 Chesapeake Regional Trophy

By Dewayne Washington

Photos by Chris Gunn/293

Team #53 known as Area 53 from Eleanor Roosevelt High School, Greenbelt, Md. led an alliance with team #173 from East Harford, Conn., and team #1027 the Mechatronic Maniacs, West Springfield, Mass., to capture the championship trophy for the 2005 FIRST Robotics Chesapeake Regional Competition held March 17-19 at the historic U.S. Naval Academy's Halsey Field House in Annapolis, Md.

Miss Daisy, team #341 of Ambler, Pa., captured the coveted 2005 Chesapeake Regional Chairman's Award. The Chairman's Award is presented to the team judged to have created the best partnership effort among team participants and to have best exemplified the true meaning of FIRST. In 2005, 30 teams will be selected for this prestigious award. From these 30 teams, one will be selected to win the Chairman's Award at the Championship, on April 23, in Atlanta, Ga. 'When it's our turn, we'll let you burn,' is the motto for the Area #53 team, an eight year FIRST veteran and located right down the street from Goddard. Hazmat, the name given to their robot, was the top performing local entry for the two day competition. Area #53 will be competing at the 2005 FIRST Championship in the Georgia Dome in Atlanta, April 21-23.

Another alliance formed by another Maryland team, #007 from Baltimore, joined with team #175 of Enfield, Connecticut and team #122 of Hampton, Va. made it to the finals before being ousted by the Area #53 alliance. Team #007 was the most experienced at this regional. They have been competing in FIRST regionals since 1997.

The third annual Chesapeake Regional saw its largest gathering with 256 parents accompanying their teams, 283 mentors, and 1025 student participants plus a spectator crowd of more than 3,000 for the event. "This was our most successful regional and I am grateful to everyone that participated in some way," said John Murdock, chairperson of the Chesapeake Regional Steering Committee, sponsors of the regional. "I look forward to continued success as we move towards a 2006 regional here."

Fifty-five teams competed this year; 30 from across the country, 13 from throughout the state of Maryland, a team from the



The D.C. team, from Friendship Edison Collegiate Academy, at the controls during a match at the regional competition.

District of Columbia, and one from Great Britain. NASA is a major supporter of the Chesapeake Regional, which is endorsed by the state of Maryland and is a part of the continuing effort to inspire the next generation of explorers to take on the challenge of NASA's Vision for Space Exploration.

FIRST (For Inspiration and Recognition of Science and Technology) was founded in 1989 by accomplished inventor

Dean Kamen to inspire an appreciation of science and technology in young people, their schools and their communities. Based in Manchester, N.H., the non-profit organization designs accessible, innovative programs to build self-confidence, knowledge and life skills while motivating young people to pursue academic opportunities.

"The FIRST Robotics Competition is not just about the design and building of sophisticated robots. These students also develop maturity,

professionalism, teamwork and mentoring skills that enrich their lives," said Kamen. "Many of our students develop an affinity for their science and math courses, go on to study engineering, technology or science in college, and also to pursue employment opportunities with sponsoring companies," added Kamen.



The playing field for 'Triple Play,' the game of the 2005 FIRST Robotics competition.

# Goddard in the News

By Rob Gutro

NASA's Earth Science News Team, a part of NASA Goddard Public Affairs generates research-oriented news releases and web features about NASA-funded Earth science research. Below are examples of stories and some of the media coverage they generated during the month of March, 2005.

## NASA Study Finds Soot May be Changing the Arctic Environment, 3/23/05

New findings show soot may be contributing to changes happening near the North Pole, such as accelerating melting of sea ice and snow and changing atmospheric temperatures. Full story, portal: [http://www.nasa.gov/vision/earth/environment/arctic\\_soot.html](http://www.nasa.gov/vision/earth/environment/arctic_soot.html)

Release: [http://www.nasa.gov/home/hqnews/2005/mar/HQ\\_05084\\_arctic\\_soot.html](http://www.nasa.gov/home/hqnews/2005/mar/HQ_05084_arctic_soot.html)

**News outlets carrying the story:** Bloomberg News, Innovations Report (Germany): L.A. Times, Mysan.de (Germany), Physics.Org, and other sources.

## NASA Announces Sun-Earth Day Activities, 3/16/05

This year's Sun-Earth Day on March 20 focuses on "Ancient Observatories: Timeless Knowledge" and falls on the vernal equinox when day and night are the same length. Appropriately, NASA and the Exploratorium in San Francisco are focusing on ancient peoples and their fascination with the Sun, which played a major role in most Native American religious practices and social events.

**Full story:** [http://www.nasa.gov/vision/universe/solarsystem/sun\\_earthday.html](http://www.nasa.gov/vision/universe/solarsystem/sun_earthday.html)

**News outlets carrying the story:** Contra Costa Times (CA), Denver Post (CO), Gis User.Com, I-Newswire.Com, Mysan.De (Germany), Science Blog, Spaceref

## Canada's Shrinking Ice Caps, 3/6/05

Waleed Abdalati, Head of the Cryospheric Sciences Branch at NASA's Goddard Space Flight Center (GSFC), Greenbelt, Md. published research recently in the Journal of Geophysical Research showing that Canada's Arctic ice is one of the more significant and immediate sources of world-wide changes in sea levels.

**Full stories, portal:** [http://www.nasa.gov/vision/earth/lookingatearth/Canada\\_Ice.html](http://www.nasa.gov/vision/earth/lookingatearth/Canada_Ice.html)



Credit: NASA

This is a conceptual image from an animation showing how polar ice reflects light from the sun. As this ice begins to melt, less sunlight gets reflected into space.

**Feature:** [http://www.nasa.gov/centers/goddard/news/topstory/2005/Canada\\_Ice.html](http://www.nasa.gov/centers/goddard/news/topstory/2005/Canada_Ice.html)

**News outlets carrying the story:** Blackvault (Largest online military and gov't research center), ClimateChange.com, Innovations Report (Germany), Keralanext (India), RedNova, ScienceDaily, Zinken/Worldwide Archeology and more.

## NASA Finds Lightning Clears Safe Zone in Earth's Radiation Belt, 3/8/05

Lightning in clouds, only a few miles above the ground, clears a safe zone in the radiation belts thousands of miles above the Earth, according to NASA-funded researchers. The unexpected result resolves a forty-year-old debate as to how the safe zone is formed, and it illuminates how the region is cleared after it is filled with radiation during magnetic storms.

**Full story:** [http://www.nasa.gov/home/hqnews/2005/mar/HQ\\_05070\\_radiation\\_belt.html](http://www.nasa.gov/home/hqnews/2005/mar/HQ_05070_radiation_belt.html)

**News outlets carrying the story:** Florida Today, Live Science, MSNBC, New Scientist, SpaceFlight Now, Yahoo News, and others.

## Satellites See Ocean Plants Increase, Coasts Greening, 3/2/05

A few years ago, NASA researcher Watson Gregg published a study showing that tiny free-floating ocean plants called phytoplankton had declined in abundance globally by 6 percent between the 1980s and 1990s. A new study by Gregg and his co-authors suggests that trend may not be continuing, and new patterns are taking place.

**Full story:** <http://www.nasa.gov/centers/goddard/news/topstory/chlorophyll.html>

**This Story Generated Huge International Interest:** The Australian, China View (China), Discovery.com, Hindustan Times (India), Indo-Asian News Service, Innovations Report (Germany), Navhind Times (India), Net India (India), New Kerala (India), Niburu (Netherlands): Roland Piquepaille's Technology Trends (France), Vista Verda (Germany), Terradaily and more.

## NASA Research Aids UNESCO Global Conservation Efforts, 3/1/05

NASA signed a Memorandum of Agreement (MOA) today with the United Nations Educational, Scientific and Cultural Organization (UNESCO). The purpose of the MOA is to foster improved global conservation through increased use of NASA Earth science research and remote sensing data.

**Full story:** [http://www.nasa.gov/home/hqnews/2005/mar/HQ\\_05061\\_unesco-global.html](http://www.nasa.gov/home/hqnews/2005/mar/HQ_05061_unesco-global.html)

**News outlets carrying the story:** The Economist, Energy for the Environment, Federation Of Earth Science Information Partners, Hindustan Times (India), Press Trust (India), SpaceWire, United Nations, U.S. Policy and more. ■

## Safety Alerts

The Center receives information from the Government-Industry Data Exchange Program (GIDEP) concerning product recalls. In an effort to keep employees informed of recalls that may affect you at work and at home, Code 300 will provide alerts or recalls that have been issued by the Consumer Product Safety Commission (CPSC) along with web site links for retrieving further information on the recalls or alerts.

New Federal Web Site for Agency Recalls: <http://www.recalls.gov>

CPSC, Lithonia Lighting Announce Recall of Indoor HID Light Fixture Cords.  
<http://www.cpsc.gov/cpscpub/prereel/prhtml05/05133.html>

**In the  
Safety  
Corner**

**Be  
Cautious  
With  
Compressed  
Gases**

Use compressed gas cylinders the right way. Here are a few tips:

**Handle with care.** When working around compressed gas cylinders, handle them carefully as if each one were "full." Do not drop them. If you are wearing gloves, they must not contain oil or grease which may come in contact with the cylinder valve. Never use oil or grease on the cylinder caps. These cylinders are usually too heavy to carry by hand, but should never be rolled. Secure them upright in a handtruck and transport them safely.

**Transport with caution.** If the compressed gas cylinders must travel by vehicle, securely fasten them in an upright position and keep them from rolling and striking each other.

Never use a magnet or sling when lifting cylinders with a crane; use the recommended box cradle or holder. Lift, don't slide, each cylinder from the truck. Do not be rough when loading and unloading them. Prevent them from dropping or striking together.

**Store safely.** Your cylinders should be stored carefully in a dry, well-ventilated, unheated area. They should be away from flammable materials, salt, corrosive chemicals and fumes to avoid an explosion. Store them upright, away from stairs and elevators, on a level fire-proof floor where they won't be banged or knocked over. Secure them by chain cable or something similar. Valves must be closed and valve protection caps screwed down to the last thread.

Mark the contents of each cylinder clearly. Empty cylinders should be marked "Empty" (some use MT). Organize the storage area so the cylinders that have been there the longest are used first; put the newest ones in the back.

**Use cautiously.** Use your cylinders in a ventilated area. Standing to the side rather than in the front of the outlet, open valves by hand, not with a wrench or tool. Open and close

quickly, then open the valve again slowly. If you can't open the valve, notify the supplier - don't tamper with it yourself.

Do not mix gases in a cylinder or refill one yourself. If a cylinder leaks, close the valve, take it outside away from any ignition sources, empty it and mark it 'MT'. Be sure a person who is trained or equipped in firefighting is with you. Don't try to fix a cylinder leak or valve yourself. Mark any leaking cylinders indicating they must be kept away from heat, sparks and open flames.

*Remember - "Caution" is the key word when handling, transporting, storing or using compressed gas cylinders.*

### Occupational Health Assessment

As part of NASA's safety and health initiative, the Office of the Chief Health and Medical Officer (OCHMO) assesses each NASA facility's Occupational Health Program (OHP) activities at least every other year. The assessment for the Greenbelt campus is scheduled for **April 11-15, 2005**.

The OHP components assessed at GSFC will include medical care provided at the Occupational Medicine Clinic; preventive health activities; the employee assistance program; fitness facilities; industrial hygiene; health physics (including ionizing and nonionizing radiation sources/devices); sanitation and food safety programs; and interactions with other programs (training, emergency preparedness, etc.).

Some locations we anticipate the audit team visiting include:

- Cafeterias
- Bldg 97 (Health unit and fitness center)
- The Child Development Center
- Radioactive materials use locations
- Laser use locations
- Laboratories
- Bldg 24
- 7/10/15/29 complex

This list is not all inclusive, and other areas could be visited. Please assist the auditors in any way possible.

# FIRST (cont'd from page 3)

This year's game, "Triple Play," was introduced during the kickoff event in January. Triple Play is designed to be sophisticated yet accessible for rookie and veteran teams alike. It involves several new features, such as a 3-team alliance, new game objects and goals call tetrahedrons, or "tetras," and vision technology. Robots have to place game tetras in one or more goals to claim ownership and score points in 2 minutes and 15 second matches.

Teams compete for honors and recognition that reward design excellence, competitive play, sportsmanship and high-impact partnerships between schools, businesses and communities. For 2005, FIRST is offering eligible high school participants more than 180 merit-based scholarship opportunities amounting to more than \$4 million from leading colleges, universities, corporations, businesses and individuals.

Volunteering engineers again experience many of the thrills that inspired their choice of engineering as a profession. This also provides an opportunity for the companies they work for to contribute to the community while mentoring a future workforce. The competition is designed to give students a better understanding of how the basic concepts of science, math, engineering and technology can be exciting, interesting and fun.

Currently in its fourteenth year, the FIRST Robotics Competition anticipates its largest season ever with almost 1,000 teams, including 180 rookie teams, representing Brazil, Canada, Mexico, Great Britain, and nearly every state in the United States.

The FIRST Robotics Competition is an exciting, multinational competition that teams professionals and young people to solve an engineering design problem in an intense and competitive way. Many participants have testified that the program is a life-changing, career-molding experience—and a lot of fun. The competitions are high-tech spectator sporting events, the result of lots of focused brainstorming, real-world teamwork, dedicated mentoring, project timelines, and deadlines.

"I believe that this program has the capability to change the whole outlook students have on science, technology, and engineering," Kimdra Payton, a member of team #49, Buena Vista Robotics Knights, Saginaw, Mich.

If you are interested in becoming a mentor for a team or starting your own team, contact Mike Wade 301-286-9101.

For more information about FIRST or the 2005 competition visit: [www.usfirst.org](http://www.usfirst.org) or [www.mitc.org](http://www.mitc.org). ■

Photos by Chris Gunn/293



Team #49 from Saginaw, Mich., won the 2005 Team Spirit Award at the Chesapeake Regional.



Team #1446, a rookie team from Washington, D.C., were provided hands-on support by members of other teams.



Members of team #768 from Woodland High School, stand with their robot before another competition round.

# Employee Spotlight



By Dewayne Washington

FIRST Volunteer Coordinator  
A Key Position To A Successful Regional

"We just need to do more for our kids in math and science. This may not cover everyone but it is a start," said Desiree Taminelli about her involvement with FIRST (For Inspiration and Recognition of Science and Technology) Robotics competition. For the past two years she has served as a key committee member of the Chesapeake Steering Committee and as the volunteer coordinator for the Chesapeake Regional.

Last year, Taminelli was presented the 2004 Volunteer of the Year award at the Chesapeake Regional for her untiring efforts. She has been volunteering for FIRST for six years and has been responsible for staffing the Chesapeake Regional for the past two.

In her position as volunteer coordinator she must work closely with other FIRST representatives such as the regional director, ensuring that all positions are filled with qualified personnel for the Chesapeake regional. Taminelli recruitment efforts, begin about seven months prior to a regional and are not limited to Goddard, but extend to local companies, organizations, and universities.

"I got involved with FIRST about six year ago because of my brother," said Taminelli. "He asked me to check out an event and I thought it was cool to see so many diverse kids involved in this program. I think it is pretty amazing to see how the kids all start with the same kit and within a few weeks construct so many different robots."

Since accepting the position as volunteer coordinator, Taminelli has seen an increase in volunteer participation. "I think it is a great opportunity for Goddard community members to mentor kids and a great opportunity for parents to spend quality time with their kids." Taminelli said she really gets excited because all of her volunteers enjoy participating and are willing to return for another year. "I think it is because of the excitement and enthusiasm they feel from the kids," said Taminelli.

For months, Taminelli plans and coordinates to ensure that the Chesapeake Regional Volunteers are successful and the event is fulfilling for each. The year begins with the kickoff event held in January. There teams gather to learn about that year's game and to accept their kit. Taminelli is responsible for team sign-in, setting up classes, coordinating breakfast and lunch for all, and insuring that the robot kits are available.

About seven weeks later, the Chesapeake Regional begins. Before the start, she must have more than a dozen key positions filled with scorekeepers, special assistants, inspectors, referees and more. Then there are another 50 or 60 volunteer positions that must be filled to ensure all logistics and personnel matters are situated. Filling these slots is key to a successful regional.

During competition week, Taminelli spends more than 100 hours on site working to insure that all the volunteer requirements are fulfilled. Before the start of the first match, assignments must be confirmed, assistance is needed for set up and working the volunteer's booth. Working with a team of

volunteers, Taminelli is responsible to sign-in more than 100 volunteers to fulfill these duties. She is also responsible for any last minute adjustments that may be need to the volunteer schedule.

Taminelli also r coordinates the Volunteer Meeting the night prior to the start of the event. She is always watchful that from start to finish, that every volunteer is aware of his or her responsibility. For visiting team members and their families, she ensures that there is available information

about what to do while visiting the Annapolis area.

Following three days of actual robot play, Taminelli then helps packing up, cleaning up and coordinating and tallying data for the next regional in 12 months.

Taminelli admits that there are very few weeks during the year that she is not working on some aspect of her coordinator position for FIRST. She also has her regular responsibilities at Goddard, where she has worked for 16 years in the Institutional Support Office, Code 201.

According to Taminelli, Code 201 is a customer service based organization. She is responsible for creating presentations and is an active member of the Goddard safety and emergency management team committees. "And other duties as assigned", Taminelli said with a smile. "If it needs to be organized, it is usually given to me."

"I think something like this [robotics competition] should be pushed in all schools," said Taminelli. "It just inspires me to see the enthusiasm at an event and I believe it is a great way to inspire kids to embrace math, science and technology. I know it has me excited."

If you are interested in becoming a volunteer for the Chesapeake Regional contact Desiree Taminelli at 301-286-8593. For more information about FIRST check out the web site at: [www.usfirst.org](http://www.usfirst.org) or [www.mitc.org/first/](http://www.mitc.org/first/).



Photo by Chris Gunn/293

Desiree Taminelli winne of the 2004  
Volunteer of the Year Award for the FIRST  
Chesapeake Regional

# The Secret in Area 200

By Ronald Toland

The woods of south-central Maryland, where the Goddard Space Flight Center begins to blend into the Agricultural Research Facility, hold a secret. No, it's not an FBI training center, nor a hidden crop of alien corn growing up purple and wild. This secret, held in three small buildings connected by a 10-inch diameter pipe that stretches over six football fields in length, is as puzzling as the mysteries of the universe it is meant to probe.

The emerging secret is the X-ray interferometry testbed developed by Dr. Keith Gendreau and others on the Micro-Arcsecond X-Ray Imaging Mission (MAXIM) project team. Built last fall in "Area 200," a remote section of NASA/GSFC, the testbed is but one step towards MAXIM's goal: to take an image of matter just before it falls into a black hole.

Black holes are excellent tools for astrophysicists to study. Not only are they fascinating in their own right—what object could be stranger than something so massive that not even light can escape the pull of its gravity?—but they offer a chance to test Einstein's theory of general relativity. General relativity gives us a way to predict how the extreme gravity of a black hole would affect the universe around it. For example, how close an object has to come before it cannot escape the pull of the black hole's gravity. If we could see how real matter falls into a black hole—what kind of light it emits before taking that final plunge, how it moves around the black hole as it spirals inward—we could check our predictions, and thus how well general relativity works in describing the universe.

Currently, we know that matter emits light in the X-ray portion of the spectrum before falling into the black hole's "event horizon," the point of no return. Existing data from current X-ray observatories suggest that the stuff falling into a black hole has to be orbiting it at tremendous speeds. But how fast, and in what kind of orbit? These are some of the questions MAXIM seeks to answer.

Because black holes are both incredibly small and far away, MAXIM needs a resolution of 0.05 micro-arcseconds—2 million times the capability of the Hubble Space Telescope. This is beyond the capability of any single modern telescope, so MAXIM will use not one, but 25. These 25 telescopes will fly through space in a set formation, their light combined using interferometry to make a single giant telescope.

With such lofty aspirations, the three Amish buildings housing Goddard's testbed seem doubly strange. The abandoned radio telescopes and miscellaneous debris scattered about the area only add to the bizarre appearance of the place.

But the area is ideal for Dr. Gendreau's purposes. He needs to test out different X-ray interferometry techniques—different ways of combining the energetic light beams to produce a series of black and white stripes, or fringes, on a detector. He needs a stable environment, and plenty of room to work with. Area 200 has both.

"We got all these satellite and aerial photographs of the base, and went looking for the longest, straightest clearing we could find," Dr. Gendreau says about how he and his team decided upon the site. "It's nearly ideal—little traffic, no roads nearby—and much better than the roof we were crammed into on base."

Why the need for so much room? It turns out that the farther the X-rays are allowed to travel before they interfere on the detector, the wider the fringes are. Wider fringes are much easier to see—

think of trying to make out a narrow bar code at a hundred feet, versus someone wearing a referee's jersey—and with X-rays, getting fringes wide enough means having a good 600m (1800 feet) long pipe for the X-rays to traverse.

Photos by NASA/Code 662



View along pipe towards source building.



View of middle (optics) building. The source building is about 150 m (450 feet) to the left along the pipe. The detector building lies about 450 m (1350 feet) down the pipe to the right.

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# Goddard Researchers Help Begin A New Age of Planetary Science

By Bill Steigerwald

Goddard researchers played a major role in the first direct detection of light from extrasolar planets (planets orbiting stars other than our sun). The detection, made using the Spitzer Space Telescope, was announced March 22 during a NASA Science Update. The findings mark the beginning of a new age in planetary science, in which extrasolar planets can be directly measured and compared.

All confirmed extrasolar planets, including the two recently observed by Spitzer, have been indirectly discovered. They were discovered mainly by the “wobble” technique and more recently, the “transit” technique. In the first method, a planet is detected by the gravitational tug it exerts on its parent star, which makes the star wobble. In the second, a planet’s presence is inferred when it passes in front of its star, causing the star to dim, or blink. Both strategies use visible-light telescopes and reveal the mass and size of planets.

In the new studies, Spitzer directly observed the warm infrared glows of two previously detected “Hot Jupiter” planets, designated HD 209458b and TrES-1. Infrared light is invisible to the human eye, but detectable by special instruments. We perceive some infrared light as heat. Hot Jupiter planets are extrasolar gas giants that zip closely around their parent stars. From their toasty orbits, they soak up ample starlight and shine brightly in infrared wavelengths.

“Spitzer has provided us with a powerful new tool for learning about the temperatures, atmospheres, and orbits of planets hundreds of light-years from Earth,” said Goddard’s Dr. Drake Deming, lead author of a new study on one of the planets, HD 209458b.

To distinguish the planet’s glow from its fiery hot parent star, the astronomers used an elegant trick. First, they used Spitzer to collect the total infrared light from both the star and its planet. Then, when the planet dipped behind the star as part of its regular orbit, the astronomers measured the infrared light coming from just the star. This pinpointed exactly how much infrared light belonged to the planet.

Deming expressed satisfaction at finally being able to directly measure the light from HD 209458b, “This planet was starting to get on my nerves,” said Deming. “I had calculated that we should be able to measure its light, and we had been trying to do so with ground-based observatories for

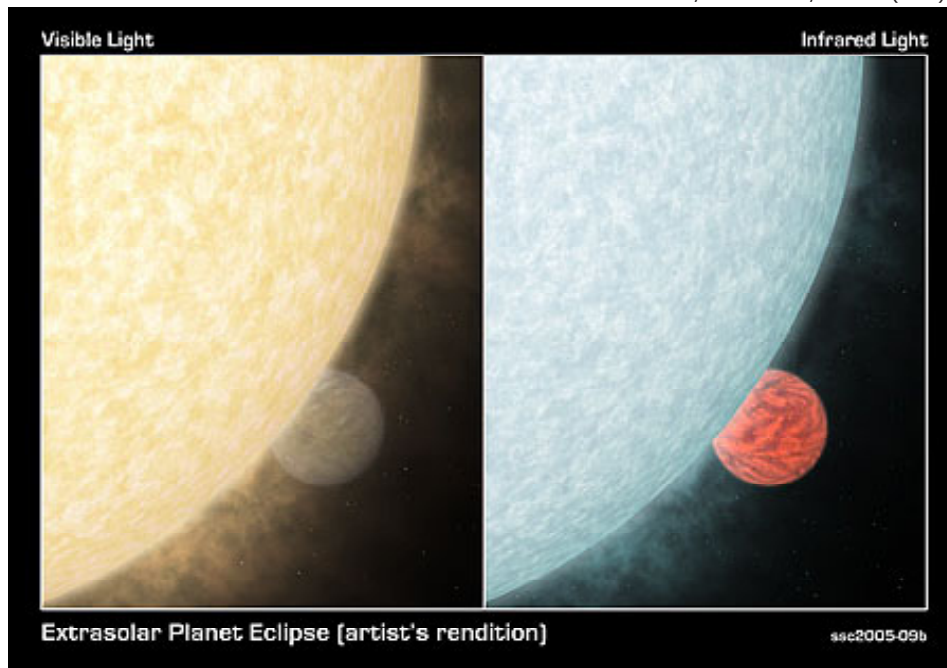
about six or seven years. Goddard’s Dr. Jeremy Richardson had done a lot of that work under the Grad Student Research Program.”

Deming’s observation revealed that HD 209458b roasts at about 1,520 degrees Fahrenheit (818 degrees Celsius). This is not surprising considering its proximity to its parent star, just 4.3 million miles (6.9 million km), less than five percent of the distance between the Earth and the sun. It races around its star in about three and a half days, making its year less than our week.

The star, HD 209458, is slightly more massive and hotter than the Sun. It is relatively nearby, about 153 light years from Earth in the direction of the constellation Pegasus. (One light year is the distance light travels in a year, almost six trillion miles or 9.5 trillion km.) At about four billion years old, it is slightly younger than our sun.

Deming’s observation also revealed that the planet has a circular orbit around its star. This generated a new mystery because while the planet is about 70 percent the mass of Jupiter, it is some 35 percent larger. Astronomers expected that an egg-shaped, or elliptical, orbit could account for this. Such an orbit would alternately take the planet close to the star and somewhat farther away. This would give an uneven gravitational pull on the planet from the star, and the planet would flex under the strain. The flexing would generate internal heat from friction, which could puff out its atmosphere, making it appear larger than Jupiter. Now that an elliptical orbit has been ruled out as the culprit, other more

Credit: NASA/JPL-Caltech/R. Hurt (SSC)



## New Age Planetary Science (cont'd from page 9)

speculative explanations have been proposed. The planet might have been involved in a massive collision, and is in the process of reassembling itself under its own gravity. Or, like Saturn, it may have rings that are tilted toward us by chance, making it seem larger than it really is. Finally, previous research revealed that the planet is boiling off massive amounts of hydrogen from its atmosphere due to the extreme heat. This is giving it an extended coma, like the cloud that surrounds the nucleus of a comet. If this coma is somehow opaque, perhaps due to unusual chemistry, it could make the planet appear larger.

Spitzer's Infrared Array Camera (IRAC) was used to observe light from the other planet, TrES-1, in a study led by Dr. David Charbonneau of the Harvard-Smithsonian Center for Astrophysics, Cambridge, Mass. The IRAC was built by a consortium of institutions, with Goddard being a major contributor. Goddard's effort was under the direction of Dr. Harvey Moseley.

Deming has proposed to follow-up his observations of HD 209458b by obtaining an analysis, or spectrum, of the planet's light with the Infrared Spectrograph (IRS) instrument on Spitzer. This could reveal if there are clouds of steam in the planet's atmosphere, which would absorb some of the infrared light and leave telltale features in the spectrum. Other new observations could give information on the planet's winds.

Additionally, Deming believes Goddard can play a major role in future efforts to observe planets of this type. "Demonstrating that Hot Jupiters are indeed hot and that their infrared light can be directly measured is fantastic for Goddard, because these observations fit nicely with what our proposed Fourier Kelvin Stellar Interferometer mission can do."

The Fourier Kelvin Stellar Interferometer (FKSI) mission, led by Dr. William Danchi, will be an array of infrared telescopes in space. FKSI will combine light from the telescopes in such a way as to make an artificial eclipse. By blocking direct light from a star, the much dimmer light from planets that may be orbiting it can be seen. FKSI could observe dozens of Hot Jupiters within a distance of about 300 light years. Depending on the distance and size of the planet, FKSI could get information about its atmospheric composition and winds.

Deming's research team includes Dr. Jeremy Richardson (NRC postdoctoral associate at Goddard, in the Exoplanets and Stellar Astrophysics Laboratory) Dr. Sara Seager (Carnegie Institution of Washington), and Dr. Joseph Harrington (Cornell University).

This article incorporated some material from the NASA headquarters press release, written by the Jet Propulsion Laboratory. For more information, refer to: <http://www.nasa.gov/vision/universe/newworlds/spitzer-032205.html> ■

## Space Chats with Dr. John Haberman and Dr. Amy Simon Miller

On March 30, NASA Goddard Space Flight Center (GSFC) scientists Dr. John Haberman and Dr. Amy Simon Miller presented results from the Cassini-Huygens Mission to Saturn during Space Chats. Space Chats is a series of free interactive presentations for the public held at the NASA GSFC Visitor's Center in Greenbelt, Md. to inform the community of the latest findings in space and Earth research at Goddard.



Photo by Chris Gunn/293

Scientific results from Cassini's probe at last week's Space Chats was presented by Dr. Amy Simon Miller

Cassini, the NASA spacecraft in orbit around Saturn, has been returning spectacular data about the planet, its rings and its moons, especially Titan, Saturn's largest moon. The international ESA-NASA-ASI Huygens Probe Mission landed on the surface of Titan after 147 minutes of in-situ (direct) atmosphere measurements. The probe transmitted data for another 70 minutes while on the surface of Titan. All of this data was radioed to the Cassini Spacecraft, and from there was returned to Earth.

Dr. John Haberman reviewed the results from the Huygens probe's Goddard instrument, the Gas Chromatograph Mass Spectrometer (GCMS), and addressed what this data might tell us about the satellite Titan. This instrument passed through the thick atmospheric clouds of Titan to perform in-situ chemical and molecular analysis of Titan's atmosphere and surface. Dr. Amy Simon Miller discussed some of the scientific results from the Cassini probe's Composite Infrared Spectrometer (CIRS), an instrument that was built and operated by GSFC. Dr. Miller's CIRS instrument performed infrared analysis of Saturn, Titan, and many other surrounding satellites.

For more information and images about NASA's Cassini-Huygens Mission to Saturn visit: <http://saturn.jpl.nasa.gov> or <http://www.nasa.gov/cassini> ■

# Space Age Success for First Accelerated Leadership Program Graduates

By Trusilla Steele

A graduation ceremony for the first class of Goddard's Accelerated Leadership Program (ALP) was held on March 8 at Martin's Crosswind in Greenbelt, Md. The ceremony was adorned with a gallery of artwork created by the ALP participants, conveying their symbolic expression of leadership.

NASA Associate Administrator for the Science Mission Directorate, Al Diaz and Dr. Ed Weiler, Director of Goddard Space Flight Center (GSFC) provided remarks. Dr. Julian Earls, Director of NASA Glenn Research Center delivered the keynote address.

The 24-month ALP program provides educational, action learning, mentoring and coaching experiences that will help selected individuals develop competencies and skills more rapidly than they might otherwise develop without participation in ALP.



Attendees viewed ALP graduates artistic expression of leadership

ALP is designed to augment the GSFC/NASA management candidate pipeline by identifying and preparing individuals from diverse populations and providing systematic and sustained long term approaches to developing "bench strength" for Goddard so that future management vacancies can be filled with prepared candidates in an expedited and effective manner.

Sheri Brown, Chief Strategic Consulting and Transformation Office and former coordinator of the

ALP gave further details, "The program is truly rigorous and rewarding. Participants receive extensive coaching, training, the chance to interview NASA executives and an opportunity to shadow high-ranking Goddard officials and those in the private sector. Participants keep a journal of their experiences, submit book reviews on leadership subjects, produce a program-impact paper and complete an 'Action-Learning Project' that helps them implement their newly developed skills and

knowledge. In addition, management and public policy graduate courses from John Hopkins University School of Business are included in the program."

Dr. Earls commended the 19 ALP graduates for their persistence and integrity. As leadership graduates, he stressed the need for humility, emphasizing that although completion of the leadership program is a mark of success, the road of success is always under construction. Earls characterized a wise leader as someone who doesn't look down on anyone, but someone who recognizes the skills and talents in all. He answered questions from the graduates and concluded by giving them tips to be successful.

Photos by Pat Izzo/293



The need for good leaders and continued support for the ALP, Weiler said at the ceremony.



Dr. Jean-Perre encouraged fellow graduates to contribute to the Agency's mission

ALP graduate Dr. Jean-Marie Jean-Pierre took to the podium to express his gratitude to Goddard for this wonderful gift that he has received from participating in ALP. Dr. Jean-Pierre addressed his fellow ALP cohort members by imploring them to be resolute in taking full advantage of the unique opportunity that Goddard's investment has offered them. "As Goddard contributes to your professional development, you must in turn do something for Goddard. You do not

need to have a formal title and a leadership position; there are various ways that you can help

## X-ray Interferometry Testbed (cont'd from page 8)

Vibration is another problem. To return to the bar code analogy, even it were only a few feet away, if someone waved it fast enough it would still appear to be a just a blur. Similarly, if the pipe or the detector or some other component were to jiggle around it would wash out the fringes. Dr. Gendreau's team is trying to detect.

To combat this, the critical systems: source, optics, and detector, sit on special concrete slabs in each of the three buildings. The pipe is raised off the ground by steel support posts that are literally screwed into the ground—the same technique currently used to secure lampposts on base.

Temperature changes between morning and night also cause the pipe to expand or contract up to a few inches. To compensate for this, the pipe, the source, and the detector are all mounted so that they can slide back and forth with the pipe's motions. In addition, the movement of the source and

detector platforms is monitored by a number of surprisingly sensitive optical computer mice.

Dr. Gendreau insists it could not have been built without the assistance of our own Facilities Management Division (FMD). "They were really great, really came through for us," he says, "Compared to what we would have paid for someone else to do

Photo by NASA/Code 662



View halfway along the pipe, looking towards the detector building. Note the names visible on the taller supports.

the work, they saved us about \$200,000. They worked hard, they did not overcharge us, and they did an excellent job."

As a token of thanks, the names of those who helped build the testbed can be found on the taller support poles holding up the pipe. Each pipe has a name, from Dr. Gendreau to the FMD personnel to anyone who gave money or time to the project.

The expanded testbed has turned out to be a good investment. "From about \$140,000 of IRAD funds," says Dr. Gendreau, "we've seen three new proposals won to use the testbed. These proposals should bring in about half a million dollars to Goddard this year alone." The testbed's unique characteristics

should ensure a steady stream of work to come. ■

## Home and Garden (cont'd from page 2)

A few of Goddard's top Earth and Solar scientists presented the NASA Earth Science Electronic Theatre Earth observations and visualizations in true high-definition (HD) format. The crowds were educated with spectacular images and visualizations from several of NASA's remote sensing missions, such as the Tropical Rainforest Measuring Mission, Landsat 7, Total Ozone Measuring Mission, Terra, Aqua, and others, which were all narrated to the theme of global climate change.

The Science Mission Directorate wishes to recognize the important contributions of our fellow Goddard and Headquarters colleagues in making this years show a renowned success: Winnie Humberson, Steve Graham, Mark Malanoski, Sterling Spangler, Rob Gutro, Philip Larkin, Ron Vogel, Jim Tucker, Chris Shuman, Steele Hill, Ezinne Uzo-Okoro, Ann Melton, Terese Kucera, Lynn Chandler, Jennifer Brill, Julia Barsi, Dan Woods, Diane Schweizer, Shelia Brown, Ed Sheffner, Ann Delo,



Photo courtesy of Steve Graham

Goddard Senior Scientist Dr. Jim Tucker addresses questions from the audience about NASA's presence at the Home and Garden Show.

Bryan Biegel, Lawrence Freidl, Keya Chatterjee, Francis Lindsay, Renee Leck, and Hashima Hasan.

For more information about current and future NASA missions, visit: <http://www.nasa.gov> ■

## Women In Science Visit Goddard

By John Leck

On Tuesday, March 29, a group of young women from one of our NASA Explorer Schools, Greencastle-Antrim High School in Pennsylvania, spent the day at Goddard. The young ladies are members of the Women In Science program at Greencastle-Antrim. This program is designed specifically for young women interested in pursuing careers in science after high school. In addition to this course, which is completed outside of their normal school work, they are also involved in many other NASA Explorer School activities at their high school.

Earlier this year, at one of the Explorer School activities, they had the opportunity to meet with Dolly Perkins, GSFC Deputy Director, and Kris Brown, Special Assistant to the Director for Strategy and Development. The young ladies had dinner with Perkins and Brown, who instilled in them an enthusiasm for NASA's mission and the desire to visit Goddard.

On March 29, they were given the opportunity to learn more about NASA as they toured and explored many aspects of Goddard. In support of Women's History month, the day's agenda began with presentations given by several women scientists and engineers with the goal of inspiring the next generation. It started off with a presentation given by Dr. Claire Parkinson, Project Scientist for AQUA, who shared her research with the group. The young women of science were fascinated by Dr. Parkinson's work and in awe of her passion for her research. They had an opportunity to hear what is required of woman scientists and what her life is like at Goddard. Following the presentation they received a copy of Dr. Parkinson's book, *Earth From Above*.

Commenting on the presentation, one of the girls said, "I really enjoyed meeting Claire Parkinson. She explained in depth the role she plays at Goddard and how much she loves being a Climatologist. I was very interested in her research in the Earth's atmosphere. Meeting Dr. Parkinson opened my career options for the nearby future and allowed me to better understand what is out there for all women."

Some would say the most exciting part of their trip was what came next. They met with Jill Holz, Robotics Manager for the HST Servicing and De-orbit Mission (HRSDM), Amani Ginyard, Contamination and Coatings Engineer, Sharon Cooper, Lead Mechanical Engineer for Widefield Camera, and John Gainsborough, HST Operations Manager, who took them into the Building 29 clean room. They found it enjoyable to go

Photos by Debbie McCallum/293



Young women from the Greencastle-Antrim High School are given a tour of the clean room in building 29.

through the air shower and get into the 'Bunny' suits. Then, the young women explored the clean room where Holz showed them the parts of the Hubble Space Telescope (HST) and the testing devices that are housed inside the clean room. They also learned about the extreme clean conditions necessary for such sensitive instruments.

After climbing out of their bunny suits, the girls visited the area where the HST robotic arm is being tested. After Cooper did a demonstration of the tools that had to be engineered, modified, and manufactured for the robot to do its work. She and Holz showed the girls the models of the instruments that will have to be replaced. It was there that the girls learned about the enormous challenge that NASA engineers encountered when they

had to alter the repair mission from one that would be lead by humans to one that will be conducted by a robot, all in an extremely short amount of time.



Bob Dutilly, SOHO Mission Director, explains the workings of the SOHO mission operations room to the Women in Science students.

Panels of computers then helped the girls understand how much thought and preparation is required when programming a robot to do even the most seemingly simply set

of tasks. Afterwards, they watched the robotic arm complete a maneuver. At the end of the day, the girls agreed that these experiences were both exciting and enlightening and among the highlights of their trip.

Continued on page 14

**Women In Science** (cont'd from page 13)

Their lunch hour was spent enjoying good food and good conversation as they ate with a number of Goddard's female employees, and even got to see TETwalker robot animations, given by Dr. Cynthia Cheung, Distributed Spacecraft Lead. Following the meal, the girls shadowed some of Goddard's female professionals. It gave the young women another opportunity to see firsthand what life at NASA is really like.

The day ended with a visit to some of the operation centers in Building 3. John Gainsborough explained many of the functions of Hubble using the model in the auditorium lobby of Building 3. He then took the group through the operations center and explained what goes on behind the scenes of running a mission such as Hubble. The girls didn't realize the work that is involved to keep a mission running, especially during a repair mission. Bob Dutilly, SOHO Mission Director, took the girls through a number of other control rooms, including the Solar and Heliospheric Observatory (SOHO) and Small Explorer (SMEX) Program. This gave them an idea of what is involved in supporting these scientific missions at Goddard.

It was clear that the young women found their visit to be extremely educational and informative. It provided them with fresh perspectives of possible career paths that they may follow as they begin to plan their post-high school education choices.

Photos by Debbie McCallum/293



Jill Holz, robotics manager for the (HRSDM) demonstrates a tool that was invented just for the Hubble Robotic servicing mission

They certainly will not forget their day at Goddard, celebrating women in science, anytime soon.

Special thanks go to Dolly Perkins and Kris Brown who got this ball rolling back at the Explorer Schools kickoff in October and helped keep it going throughout the last few months. Also to Ed Ruitberg for organizing the tour of the clean room and robotic arm and all those who worked with him

behind the scenes to make this a success. Thank you as well to the shadowees: Maureen Madden, Terry Arvidson, Tara Holby, Kris Brown, Ann Parsons, Stephanie Stockman, and Debbie McCallum. Finally, thanks to all of those who showed interest in this event and in future activities. ■

**Accerlerated Leadership Program** (cont'd from page 11)

in fulfilling the goals of the Agency. Ask yourself this question, 'What can I do to make Goddard better and stronger?' asked Dr. Jean-Perre.

'Scaling the Heights' is the theme of the ALP and graduate Chuck Brodell believes the program has empowered him to do just that. "After working as an engineer for over 10 years, the ALP program helped me realize the value of people skills. It's all about relationship building, communication awareness, and creating positive interaction with others."

For more information on the Accelerated Leadership Program visit: <http://ohr.gsfc.nasa.gov/DevGuide/DevPrograms/ALP/alpindex.htm> ■

Photo by Pat Izzo/293



ALP graduates from left front row, Evette Brown-Conwell, Dr. Aprille Ericsson, Donya Douglas, Tina Frizzell-Jenkins, Felecia Donnell, Dr. Jean-Marie Jean-Pierre, Ashok Desai, Nipa Shah, Sue Fields. Second row from left; Jean-Marie Denis, Dan Krieger, Chuck Brodell, Reggie Eason, Phillina Peete-Tookes, Scott Schwinger and Dennis Small. Not pictured are Mark Branch, Gary Davis and Pete Laurin



## GEWA Activities

### Annual Shrimp Feast

The Goddard Sea Ventures (SCUBA) club will be hosting their annual Shrimp Feast and Party this **Friday, April 8**, from 4:30 to 10:30 p.m. at the Goddard Barney and Bea Recreation Center. All are welcome. The menu will include: large shrimp, salads, beef, pasta, dessert, beer and soda. There will also be a DJ, many door prizes, slides and videos, information about upcoming trips, training and fun for all. Tickets are \$25/adults and \$10/children and those not eating shrimp. To purchase tickets, contact John Godfrey at x6-7566, Steve Sirotzky at x6-9259, Scott Glubke at x6-6433, Russ Harisson at x6-8693 or Al Fleig at 867-2186.

### Goddard Bible Club

The Goddard Bible Club meets on Tuesdays at noon in building 21, room 242. We have both speakers and videos, details may be found in Dateline. You are welcome to eat your lunch during the meeting. If you have questions, please call Bill 6-7756.

### GEWA Art of Living Club Offers Free Guided Meditation Every Monday and Wednesday at Noon

Come and feel more peaceful and less stressed; be more focused and energetic - no training required! Our mental and emotional state affects those around us, and by culturing a state of mental stillness we bring that peacefulness into our environment, one mind at a time. There are some things that effort alone cannot accomplish. Meditation is the delicate art of doing nothing - letting go of everything and being who you are. It gives your mind such a wonderful rest. Come get a charge, and help make Goddard a better place to work. We meet in Bldg. 23, Rm S300. On Monday we meet at 12:15 pm, and on Wednesday we meet at 12:00 noon. Please call Bill Hayden at 6-4267 or Chris Smythe-Macaulay at 6-2490 if you have any questions. For new folks, we will be there 5 minutes early for a quick orientation. Annual Shrimp Feast and Party

### Goddard Slow Pitch Softball Association (GSPSA) New Teams and New Players Welcome!

The softball leagues are preparing for the upcoming season, and would like to extend an invitation to any new teams or players to join the GSPSA. The leagues are open to all civil servants

and contractors working on a NASA contract, and/or their immediate family members (spouse, siblings, or children, in-laws).

The games are played at the old Antenna Test Facility, located off of Beaver Dam Road, on Monday through Wednesday evenings, immediately after work. The games are officiated by Goddard umpires. All skill levels are represented on the various teams, and the games are competitive, but fun. The GSPSA is interested in any new teams that would like to join, or individuals who might want to play as the existing teams may need a few players. Interested new team representatives, or individuals, should contact Bill Guit (GSPSA President) or Walt Moleski (GSPSA Treasurer),

Bill Guit 301-614-5188 or [William.J.Guit@nasa.gov](mailto:William.J.Guit@nasa.gov)  
Walt Moleski 301-286-7633 or [Walter.F.Moleski@nasa.gov](mailto:Walter.F.Moleski@nasa.gov)

So, whether you imagine yourself to be a Barry Bonds-like star, or just someone who likes to play softball, this is your opportunity to get back on the fields in organized games. Whether you've dreamed of hitting that walk-off home run or making the great defensive play to end the game, or just want some fun/entertainment and a chance to run and play like you did as a kid, please contact either Bill or Walt.

### Wanted: Slow-pitch Softball Umpires

The Goddard Slow Pitch Association (GSPSA) is looking for new umpires to fill out our existing roster. Even if you have never officiated before, if you are willing to learn, I can teach you the rules and how to umpire. If you are experienced - all the better. League play starts in late April and goes thru August. You need to be able to commit to either a Monday/Tuesday/Wednesday night for most of the season. The games are played at the Beaver Dam complex off Soil Conservation Road starting at 5:30 p.m. Pay is \$18/game payable at the end of each month. If you are interested, contact:

Frank Stocklin 301 286 6339 or [Frank.J.Stocklin@nasa.gov](mailto:Frank.J.Stocklin@nasa.gov).

Please go to <http://gewa.gsfc.nasa.gov/SpecEvents/> for more information.

# Announcements

## Wallops Flight Facility Intranet Now Available

The NASA's Wallops Flight Facility (WFF) has an internal Web site available for all employees' use. This Web site is designed to provide a "one-stop portal" that includes many professional and administrative references throughout the government, agency, and facility for employees. It includes quick links, internal facility and employee news, as well as links to employee services, a facility event calendar and other NASA intranets, among the many other informational links. Also available at this site are very useful search tools for acronyms and for employee/organizational information (both NASA-wide and internal to Wallops). The WFF Intranet should allow users to reduce those long lists of bookmarks, and you can access this throughout the agency internally at: <http://internal.wff.nasa.gov/> Visit the site today!

Feedback is welcome and may be directed to any of the following: Sandy Kleckner, x7-1929, Lisa Bass, x7-1202, or Rayce Shelton, x7-1757

### Looking for Goddard's Internal Page?

The Goddard internal page still exists and can be found at <http://internal.gsfc.nasa.gov>. The internal page is a good source of the latest happenings at Goddard. Links are accessible to colloquia's, seminars and events. In addition, there are useful links to Goddard's organizational chart, employee services, NASA Initiatives and much more. Bookmark this site for easy access in the future.

### Dateline Newsletter

The Dateline Newsletter is a daily bulletin that highlights current GSFC events and announcements. The newsletter is e-mailed daily to subscribers only. To subscribe to Dateline send an e-mail message to [Majordomo@listserv.gsfc.nasa.gov](mailto:Majordomo@listserv.gsfc.nasa.gov) in the text area type subscribe dateline\_daily\_copy and within a few days you should start receiving dateline. To submit announcements direct e-mails to [dateline@listserv.gsfc.nasa.gov](mailto:dateline@listserv.gsfc.nasa.gov) For more information, contact Natalie Simms at x6-8955.

Image of new Wallops Intranet

## Want To Challenge Students to Focus On Their Futures?

The Maryland Business Roundtable for Education needs volunteers from the working world to participate in its nationally renowned Speakers Bureau. The Bureau is part of a comprehensive program that informs and motivates middle and high school students about the rigorous coursework they will need to take and complete while in high school in order to succeed in the future, whether they go on to college or directly Chapel Hill Elementary School, located in the northeastern part of Baltimore County. I sent you an email last week, but thought I would try again this week. I would like to ask if you have anyone there who is willing to volunteer to serve as a science fair judge at our Second Annual Science Fair this year. The fair is to be held on March 18th, from 9:00 a.m. -- 12:00 p.m. We

Volunteer speakers are asked to commit to making 3-5 classroom presentations. Before entering the classroom, they are equipped with a lesson plan and receive 3 hours of training on facilitating the Achievement Counts presentation. The messages they deliver are based on their own personal and work experiences, with each speaker bringing his or her own unique perspective. If you are interested please contact Charles Mercer at 301-286-7478 or by email at [cmercer@pop100.gsfc.nasa.gov](mailto:cmercer@pop100.gsfc.nasa.gov) so we can set-up a training session for employees here at Goddard.

To sign up to be a speaker visit our website: <http://www.mbrt.org/speak> or contact LaTara Harris at 410/727-0448 or [latara@mbrt.org](mailto:latara@mbrt.org).



## Highlighting Technology Transfer at GSFC - Awards

The Office of Technology Transfer (OTT) manages several awards available to innovators here at Goddard. To be eligible for these awards individuals must first report them by completing the NASA Form 1679 - Disclosure of Invention and New Technology (Including Software). Individuals reporting new technology developments are eligible for the following awards that are exclusive of one another:

**NASA Software of the Year Award** (Annual Award - Spring - Up to \$100,000) is awarded for software that has significantly enhanced the Agency's performance and helped American industry maintain its world-class technology status. Software must be innovative, user friendly and must have made an impact on the NASA program.

**NASA Invention of the Year Award** (Annual Award - Winter - Up to \$100,000) is awarded for inventions that have been worked on by at least one NASA employee, issued United States Patent, reduced to practice and a NASA owned invention.

**NASA Space Act Board Award** (Ongoing Award - Up to \$100,000) recognizes inventions and other significant scientific and technical contributions that have helped NASA achieve mission goals through efficient means and have had an impact on NASA's scientific and technical business practices.

The coordination and recommendations for these awards vary, but the process starts with technology being reported to the OTT. The reporting of new technology can be done online by accessing "eNTRe" at the Office of Technology Transfer website <http://techtransfer.gsfc.nasa.gov>.

## Science Fair Judges Needed

Science Fair Speaker wanted at Barrie School on **April 29, 2005**. Located at 1300 Layhill Road; Silver Spring, Md. For further information contact Velma Anderson at 301-805-3442 or by email at [Velma.Anderson@Honeywell-TSI.com](mailto:Velma.Anderson@Honeywell-TSI.com)

Career Day and Career Expo for Greencastle Schools. On **April 19, 2005** for the High School. Also they looking for a luncheon speaker as well on April 19th after the Expo. If interested please contact Kate White-Deater at [kedeater@greencastle.k12.pa.us](mailto:kedeater@greencastle.k12.pa.us).

## Goddard Referral Service

Looking for information on issues such as adult care, child care, legal or financial assistance, health & wellness, or education, but don't know where to start? Let Goddard's Referral Service do the work for you! This service includes a website as well as specialists available 24 hours a day/7 days a week - whenever the need arises. Check it out at: [www.worklife4you.com](http://www.worklife4you.com), and enter the following information: Agency Code: GSFC; password: last name + last 4 digits of SSN. Don't worry - the site is very secure & you're information remains confidential. Please contact Khrista White at X6-9059, [khrista.n.white@nasa.gov](mailto:khrista.n.white@nasa.gov), or <http://ohr.gsfc.nasa.gov/family/home.htm> for assistance.

# Events

## Can We Talk

Have something on your mind? Want to know more about the changes at NASA, plan to attend the next "Can We Talk" discussion **rescheduled** for **Mon., April 18** at 11:30 a.m. in Bldg. 32, Room N202. These informal dialogue sessions are held each month with the Center Director Ed Weiler. There's no agenda, no set topics, no notes, just an opportunity to tell the Center's leadership what is on your mind. Sessions are on a first-come, first-serve basis. To register, visit <http://internal.gsfc.nasa.gov/canwetalk.cfm> or call the Office of Public Affairs at x6-8955.

## Scientific Colloquia

All colloquia are held on Fridays in building 3 Goett Auditorium at 3:30 p.m. unless otherwise noted.

**Who:** Volker Bromm, Univ. of Texas will examine *The First Sources of Light*. Bromm will present simulations of the formation of the first stars and quasars, discuss their impact on the intergalactic medium, and describe ways to probe their signature with the WMAP and JWST missions. The first supernovae are responsible for the initial metal enrichment of the cosmic gas. Also Bromm will describe the properties and statistics of high redshift Gamma-ray Bursts. The Swift satellite is ideally suited to test these ideas.

**When: April 1**

**Who:** Carolyn Porco, Space Science Institute will speak at this special colloquium on the topic entitled, *This Just In: The Latest from Cassini Imaging Science at Saturn*

**When: Thurs, April 7**

**Who:** Sean Carroll, Univ. of Chicago will discuss *Why is the Universe Accelerating?* This phenomenon cannot be accounted for by ordinary matter and conventional gravity. The simplest explanation is to invoke a vacuum energy of 120 orders of magnitude less than the expected amount. Carroll will give an overview of the theoretical proposals for explaining the acceleration of the universe and the observational constraints which any model must satisfy.

**When: April 8**

**Who:** Jagadish Shukla, George Mason Univ. will examine the topic *From Weather Predictions to Climate Predictions: Past Accomplishments and Future Challenges*

**When: April 15**

**Who:** Greg Neumann, Massachusetts Institutes of Technology will give *New Perspectives on Old Impacts: The Crustal Structure of Moon and Mars*

**When: April 22**

**Who:** John Beacum, Ohio State Univ. will provide insight *Towards First Glimpse of the Universe in Neutrinos*. Emerging developments give us great confidence that "first light" on extragalactic neutrino sources will soon be attained by terrestrial neutrino detectors. Beacum will highlight the prospects for what we may learn about what lies beyond the standard model of particle physics and about the dynamics of the invisible universe.

**When: April 29**

## Engineering Colloquia

All Engineering Colloquia are held in Bldg 3 Goett Auditorium at 3:30 unless state otherwise

**Who:** Dr. Dana McKenzie, noted free-lance science writer based in Santa Cruz, Calif. will discuss *The Big Splat or How our Moon Came to Be*. Dr. Mackenzie will review the history of the theories of the Moon's origins, the ways in which all three of the pre-Apollo theories failed to pass physical tests, and how a fourth theory -- the giant impact theory -- has superseded them. The giant impact theory, in which the Moon was formed in the aftermath of a collision between Earth and a Mars-sized planet named Theia, fits in very well with our current understanding of the dynamics of the early solar system, which was a much more chaotic place than the theorists of previous generations realized.

**When: April 4**

**Who:** Dr. George Crabtree, Argonne National Laboratory will speak on *The Hydrogen Economy: Challenges and Opportunity*. Hydrogen offers a compelling solution to the energy challenges of supply, security, pollution, and climate change. Although today's technology enables several routes for producing, storing, and using hydrogen, none of them are yet competitive with fossil fuels for cost, performance, or reliability. The current state of hydrogen technology and the research challenges for creating a viable hydrogen economy will be discussed.

**When: April 11**

**Who:** Dr. John Logsdon, George Washington Univ.'s Elliot School of International Affairs will discuss *NASA in Historical Perspective*. This talk will provide both a historical perspective on NASA's current situation and an overview of the agency's current challenges.

**When: April 18**

**Who:** Frank Cepollina, deputy associate director of NASA's Hubble Space Telescope Development Project will provide insight on *The Hubble Space Telescope Servicing Mission*. This talk will present the overall architecture for this first-of-a-kind robotic mission and discuss the technologies required for its success.

**When:** April 25

### Center Director's Colloquium

All of the Center Director's Colloquia will be held in the building 3 Goett Auditorium from 10 a.m. to 11 a.m. with afternoon group discussion at 2 p.m. in the bldg 1 training facility.

**Who:** Ms. Ann McGee-Cooper, Founder, Ann McGee-Cooper & Associates, Inc. and Ms. Christina Johnson, Marketing Manager, Southwest Airlines (SWA) will discuss the principles of servant-leadership and how SWA responded to one of the worst tragedies of our time, Sept. 11, 2001

**When:** Wed, April 6

**Who:** Dr. Nancy Dixon, an expert in the field of organizational learning, will address what each of us can do to meet the goal of the President's Space Exploration Vision; to advance U.S. scientific, security and economic interests through a robust space exploration program by creating conversations that cause knowledge to be generated, shared and exchanged.

**When:** Wed, May 4

### Evening Scientific Colloquium

**What:** NASA's Goddard Space Flight Center is hosting a series of free public lectures and discussions on cosmology and astrophysics, entitled *Eyes on the Sky: Peeking into the Universe's Past, Fathoming the Future*. In celebration of World Year of Physics 2005, the centennial of Einstein's miraculous year of discoveries, this event will feature some of the world's leading scientists and showcase NASA's cutting-edge scientific endeavors. Admission is free, but due to limited seating, on-line reservations is encouraged. Please register at <http://university.gsfc.nasa.gov/eyesonthesky/>. This colloquia series is appropriate for high school and college level participants.

**Who:** Neil Gehrels, Goddard's Exploration of the Universe Division will discuss *Gamma Ray Bursts: The Brightest Explosions in the Universe*. Gehrels will present the amazing early results from Swift; the NASA launched satellite to observe gamma-ray bursts in a new way.

**When/Where:** Thurs., April 7 at 7pm in NASA's Goddard Space Flight Center's Visitor Center Auditorium

### Annapolis Book Festival

**What:** NASA/Goddard Space Flight Center is participating in the Annapolis Book Festival. This is a FREE, interactive, intergenerational celebration of the written word. This year NASA joins in, providing visitors with a variety of fun activities. Have your picture taken in a NASA Photo Op Space Suit. Check out the science area where Goddard outreach specialists will conduct solar-based activities, such as observing the Sun using sun spotters and solar telescopes, studying the light spectrum and learning the structure and features of the sun. CBS News

### Book Festival (cont'd)

correspondent Bob Schieffer is scheduled to appear, along with NASA Astronaut Paul Richards and others.

**When/Where:** Sat., April 16 from 11 a.m. to 6 p.m. at Key School Campus, 534 Hillsmere Dr, Annapolis, Md.

The Key School Parents' Association sponsors the event. For additional information, visit: [www.keyschool.org](http://www.keyschool.org)

### Information & Science Technology Colloquia

Goddard's Assistant Director for Information Sciences and Chief Information Officer host the Information & Science Technology Colloquia that are held on Wednesday in the Bldg. 3 Goett Auditorium at 3:30 p.m. with refreshments at 3 p.m.

**Who:** Dr. Steve Andler, professor University of Skövde, Sweden will discuss *Information Fusion from Databases, Sensors and Simulations - A Research Program in Cooperation with Industry*.

**When:** April 6

**For more info, visit:** <http://isandtcolloq.gsfc.nasa.gov/spring2005/speakers/andler.html>

**Who:** Roger King, professor of Electrical and Computer Engineering, Mississippi State University will speak on *Data Fusion and Data Archiving and Distribution*.

**When/Where:** April 20

**For more info, visit:** <http://isandtcolloq.gsfc.nasa.gov/spring2005/calendar.html>

### Upcoming Training

Please visit <http://ohr.gsfc.nasa.gov/DevGuide/Catalog.htm> for a complete listing of the OHR Course Catalog.

You may also contact Tracey White at x6-7823 or [Tracey C. White.1@gsfc.nasa.gov](mailto:Tracey.C.White.1@gsfc.nasa.gov) to enroll in any of the listed courses.

### One-On-One Career Coaching...

Whether you are contemplating a career change, in need of assistance with resume writing, interviewing techniques, or trying to develop an Individual Development Plan (IDP), a career coach can help. To schedule a confidential one-on-one appointment, contact Tracey White at x6-7823. This service is provided to civil servants only.

### Goddard Child Development Center Open House

**What:** The Goddard Child Development Center welcomes all to come and see what our center has to offer you and your child. During the **week of April 4**, parent and staff representatives will be available to answer questions in the cafeterias from 11:30 a.m. - 1:30 p.m. GCDC will also host an open house on Friday, April 8, from 10:30 a.m. - 12:30 p.m. in Bldg. 90 (the GCDC facility). For more information, visit <http://childcare.gsfc.nasa.gov/>.

### Systems Engineering Seminar

**Who:** Capt. (Select) Steve Iwanowicz/ NAVSEA 07 NAVSEA SUBSAFE Program, Director Henry N. Hartt, ARES Corporation and Don Vecellio, ARES Corporation will discuss establishment and current activities of the NASA/Navy Benchmarking Exchange (NNBE) and results of benchmarking activities thus far.

**Systems Engineering Seminar** (cont'd)

**When/Where:** Tuesday, April 5 at 1 p.m. in the Bldg. 3 Goett Auditorium

The seminar will be webcast live to the NASA domain at:

[http://128.183.174.165/Colloquia\\_asx/NASA/Live/3NASALive.aspx](http://128.183.174.165/Colloquia_asx/NASA/Live/3NASALive.aspx)

All Employees and visitors with a Goddard badge are welcome.

For more information call Tom Bagg, 301-883-4075, email at [Thomas.C.Bagg.1@gsfc.nasa.gov](mailto:Thomas.C.Bagg.1@gsfc.nasa.gov), or visit: [http://seacd.gsfc.nasa.gov/SE\\_Seminar/](http://seacd.gsfc.nasa.gov/SE_Seminar/)

**We Help Bring Partners Together**

**What:** Technology Transfer Investment Workshops; a series on forming high-impact partnerships for technology spin-out. This workshop includes:

- Five indicators for evaluating your innovation's market potential
- Case study exercises
- Real-world insights from a scientist turned entrepreneur turned start-up consultant
- Recap of earlier workshops (prior attendance not required)

**When/Where:** Thurs., April 21 from 8am to noon at the Greenbelt Marriott Hotel

To register visit: <http://techtransfer.gsfc.nasa.gov/venturecapital/reg.php>

**Goddard Library Host World Year of Physics Event**

**What:** To celebrate the World Year of Physics, the Goddard Library will host a talk by Dr. Nicholas White, Chief Scientist of NASA's Beyond Einstein program. Dr. White is the Chief of the Laboratory for High Energy Astrophysics, Director of the HEASARC, and the Chief Scientist for the Beyond Einstein Program.

Beyond Einstein explores three questions that are raised from Einstein's legacy : What powered the Big Bang? What happens to space, time and matter at the edge of a black hole? And what is this mysterious dark energy pulling the universe apart?

**When/Where:** Wed., May 4 at 2 p.m. in the GSFC Library (Building 21)

**Weight Watchers**

Get ready for summer, healthy and lean by joining the at-work, Weight Watchers "2-system program." Registration for the 12-week session at \$150

**When/Where:** Wed., April 20, at 11:30 a.m. in Bldg. 11, Room S203. For additional information or to join, contact Ellen at x6-8043 or Daphne at x4-5288.

**Earth Day Volunteer Opportunity**

**What:** Did you know that the GSFC campus is part of the Chesapeake Bay Watershed? What goes down our drains matters to the health of Bay. To help keep that in mind, the Safety and Environmental Division is looking for volunteers to stencil our GSFC storm drains for "Chesapeake Bay Drainage".

**When:** There will be two days of volunteer opportunities on **April 20 and April 22** between the hours of 11 a.m. - 2 p.m.. A rain date is set for April 26th. To sign up and learn more go to: <http://earthday.gsfc.nasa.gov/> and you will be contacted by our staff for area assignments.