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Goddard's 2007 Safety Awareness Campaign

By Will Conn and Judy Bruner

GSFC's second annual Safety Awareness Campaign begins on April 11, 2007 and continues through the end of April. This campaign is designed to keep GSFC's workforce safe and ensure mission success. Through the Safety Awareness Campaign, employees will better understand the hazards and risks associated with their job, and are provided opportunities to re-examine and earn new strategies to manage those risks.

To emphasize the role each employee plays in safety, each Directorate has designed, and will sponsor, safety activities that will address their specific needs and requirements as part of the Safety Awareness Campaign. Dr. Weiler, Center Director, and Judith Bruner, Associate Director for Safety and Security, encourage you to fully participate in your Directorate's activities and those activities open to everyone. Some of the all-inclusive events planned for this year include: a safety vendor fair, motivational safety speakers, and safety workshops and presentations on a variety of timely and relevant topics.

Because all GSFC organizations are unique with regard to workplace hazards, mitigation strategies, inspection procedures, reporting tools, and other safety elements, the Safety Awareness Campaign's decentralized approach to safety awareness allows Directorate planning teams the freedom to address safety-related issues and topics most relevant to their organizations.

The Center Director, Executive Council, and Goddard Safety Council will personally participate in the various activities and strongly encourage you to take part. As recent mishaps and close calls have shown, we must continue to be proactive when it comes to safety. The Safety Awareness Campaign activities will help employees build safer, more productive work environments by providing current information on a variety of important topics. So, participate in your directorate's Safety Awareness Campaign and in those activities in other directorates that are open to all. Remember: Safety is for Life!

Please visit the Safety Awareness Campaign Web site at: http://safety1st.gsfc.nasa.gov/safetyaware.cfm frequently to view updates and details. ■

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Cover Caption: *This is one of a series of true-color images from NASA's Moderate Resolution Imaging Spectroradiometer (MODIS) showing the portion of the Antarctic coastline that straddles the 180 degree longitude line. The image from November 9, 2001, shows Victoria Land at image left, the Ross Sea in center, and the Ross Ice Shelf at lower right. A rectangular ice berg is anchored near Ross Island near image center. The subsequent images show sea ice breaking up and drifting out to sea as summer progresses.*

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: http://www.nasa.gov/centers/goddard/news/index.html

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.

Goddard Collaborates with Indigenous People During International Polar Year

By Dewayne Washington

NASA Goddard Space Flight Center scientists, through the Global Snowflake Network (GSN) and the 2007 History of Winter (HOW) projects, are enlisting the observations of indigenous reindeer herders.

Recognized as a special science kick-off event for the opening of the Indigenous People International Polar Year (IPY), NASA scientist Peter Wasilewski and educator Katherine Bender began the official dialog on February 15. Through a digital connection, Wasilewski and Bender presented real-time ice pit studies while working in sub-zero temperatures on the ice and snow of Lake Placid, N.Y. NASA scientist Nancy Maynard, who has been working in partnership with reindeer herders, was on location at an Indigenous Peoples' IPY science seminar in the Saami community of Kautokeino, Norway.

IPY is an international research contribution involving over 60,000 researchers aimed at increasing our collective knowledge about the Arctic and the Antarctic. Although there have been two prior IPYs, in 1882–83 and 1932–33, plus the International Geophysical Year (IGY) in 1957–58, the current IPY is the first to include a focus on changes in the societies of the Arctic indigenous peoples.

"I have always been fascinated by ice and snow and thought it would be a good way to enable teachers to be better science teachers, essentially introducing them to the idea of teachers as scientists," said Wasilewski. Working with Robert Gabrys, Goddard Education Officer, Wasilewski created HOW in 2001.

Photo credit: The How Team

Caption: The HOW team at Cascade Lake.

During the two-hour exchange, Wasilewski explained NASA research of the history of ice from just after the Big Bang to the snowflake formations of today. HOW is centered on a "teacher-as-scientist" workshop held annually by Wasilewski and Bender in Lake Placid. They also recently launched the GSN, which is a study of the dependence of the shape of snowflakes at different atmospheric temperatures and moisture content. Through GSN, snowflake types are identified and archived on the Web at global polar and sub-polar collection sites.

"We are trying to produce teams all over the world that look at snow wherever it falls, identify the shape and any other characteristics of the snow, then log the data," said Wasilewski. "The shape reveals temperature and moisture content in the clouds where the snowflake forms and grows before reaching the ground."

With the establishment of GSN, the goal is to provide a collection network for improved understanding of snow changes across the Arctic, a benefit to both NASA and the reindeer herders.

Currently, the warmer Arctic climate is creating problems for the reindeer herds and is one of the most important factors governing the ability of reindeer to find and dig through the snow for winter food or to travel across the Arctic. The data from the new partnership could provide reindeer herders improved information for better predicting and adapting to changing snow conditions, a factor that controls both availability of forage and mobility of their herds.

Maynard has also been collaborating with the herders on NASA satellite- and ground-based data studies of Arctic pastures including the Norwegian IPY project called "EALÁT." EALÁT is a native word representing the Reindeer Herders Vulnerability Network Study and is a project that examines reindeer pastoralism in the light of climate change. With the inclusion of GSN, the joint research and education study will allow further sharing of information of snow conditions and snowflake formation.

The reindeer herders and NASA will exchange data and information. The herders will be using commercial devices that are configured, during the NASA History of Winter (HOW) program, to allow identification and continuous monitoring of temperature during remote expeditions. These expeditions can be reindeer migrations or dogsled expeditions traversing remote terrain in the polar north. "Snow researchers from NASA view knowledge from indigenous reindeer herders as very valuable in our studies to better understand the changes in snow across the North, both from a historical perspective, as well as providing real-time ground truth data gathering in the Arctic," said Maynard.

Over the next year, NASA and its indigenous partners, including doctoral student Inger Marie G. Eira of the Saami University College and the EALÁT project, will collect reindeer and snow data in the field. They will then combine the data sets and collaborate on co-production of their findings on snow for an improved understanding of snow changes. "We feel that this partnership is a good example of the importance of combining indigenous traditional knowledge with scientific observations for better understanding changes in the Arctic, as well as the significance of indigenous peoples' institutions in producing and managing knowledge about the Arctic," said Maynard.

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For more information about HOW, check out the Web site at:

NASA Detects Trends in Rainfall Traits from Drizzles to Downpours

By Gretchen Cook-Anderson

Breaking news in recent years has been swamped with stories of extreme weather—flash floods in East Asia, prolonged drought in Africa, destructive hurricanes like Hurricane Katrina, heavy monsoon rainfall in South Asia, and a historic heat wave in Europe. The effects of these weather crises have been devastating, and their frequency seemingly on the rise. With an understanding that the societal effect of increased rainfall is huge, researchers have asked a key question at the center of a debate among them: "Are rain-producing weather events increasing worldwide, and if so, what is the relationship, if any, between their growth and climate change?"

To detect long-term global rainfall trends, scientists have to overcome major challenges. Because two-thirds of the Earth is covered by oceans, estimating oceanic rainfall relies on satellite remote sensing. However, satellite rainfall estimates are well known to have large uncertainties, because they depend on algorithms derived from assumptions based on incomplete knowledge of the physics of rainfall. Also, long-term rainfall records may have consistency problems because they are made up of segments from different sensors on different satellite orbits, each having their own measurement features.

Therefore, up to now, detection of long-term global rainfall has been considered a "mission impossible," yet the need to know whether trends in rainfall exist is urgent because of how enormously it affects people everywhere. A recent NASA study published in the *International Journal of Climatology* in January resolves this problem by using a new technique to confirm that extremely heavy rainfall in the tropics is indeed on the rise as suspected.

Researchers used a technique based on the concept of a probability distribution function (PDF), a measure of the likelihood that rain will fall with a given intensity over a given area and for a chosen period of time (for example, the entire tropics over 25 years from 1979–2003 for this study). The authors then computed the trend for each rain intensity level, ranging from very light to extremely heavy rain. What they found was that the trends showed a systematic pattern (i.e., positive for heavy and light rain, and negative for moderate rain). Essentially, they found there is a noticeable change in the PDF, even though the mean rainfall does not change very much.

"This study makes for a very compelling story in solving a science puzzle," said William Lau, Chief of the Laboratory for Atmospheres at Goddard, and a climatologist who is the senior author of the study. "We did this by simply asking the right question. The technique is actually very simple. Instead of looking at trends in total rain, we look for possible signals in different categories of rain, defined by its intensity. It is changes in the traits that make up total rainfall that are most telling, not necessarily total rainfall itself." Lau and his coauthor, Goddard's Huey-Tzu Wu, used data from both the Climate Precipitation Center's Merged Analysis of Precipitation (CMAP) and the Global Precipitation Climatology Project (GPCP), which blends outdoor rain gauges and rainfall estimates culled from satellite algorithms. They also used data from independent historical gauge records, and from NASA's Tropical Rainfall Measuring Mission (TRMM) satellite to confirm and interpret their results. Their study is focused on the tropics. Their results show that even though there are discrepancies in total rainfall, the change in the characteristics of rainfall are consistent among all the sets of data they looked at.

"Simply put, I'd compare this problem to trying to figure out why your bank account has an apparent error compared to your own records. You'd review the individual items affecting the total balance to see whether certain withdrawal or deposit items were smaller or larger than you'd believed," said Lau, an expert in atmospheric dynamics with an emphasis on tropical climates. "By doing so, you may be able to find a 'pattern' that tells you whether it is your income, your spending habits, or whether it is the bank that actually messed up your balance. Our goal has been to find out what causes the large credits and debits that are throwing the balance off. We must use this itemized approach to solve the rainfall estimation problem, because we know the rain total (the net balance) is wrong."

"The individual items count in solving this puzzle," Lau added. "Because drizzles occur more frequently, and are associated with clouds that cover large areas, they can control the radiance energy from the Sun more effectively. That makes drizzles just as important as downpours and the range of rainfall in between."

Taken separately, neither TRMM data alone, available for only the last 10 years, nor data from other satellites available only as far back as 1979, are long enough to confirm a relationship between rainfall and climate change, which requires at least 30–40 years of consistent data. According to Lau, it's asking the right question, using the right methodology, and a combination of information sources that has given researchers a clear picture of how rainfall is changing in a warmer climate.

"It's the small signals in rainfall that tell us the big things," said Lau. ■

NESC Academy Delivers Course on Software Engineering

By David Chernicky

The NASA Engineering and Safety Center (NESC) Academy returned to George Mason University (GMU) in Fairfax, Va., for its sixth knowledge-sharing course, "Software as an Engineering Discipline: Learning from the Past and Looking to the Future," with NESC discipline expert Michael L. Aguilar, on March 13–15, 2007.

The participants came from across NASA representing 8 of the 10 NASA Centers. The 29 participants received instruction on everything from the history of software engineering to the development and applications of CAD/CAM and CASE tools, Unified Modeling Language (UML), and State charts. Software engineering is the application of a systematic, disciplined, quantifiable approach to the development, operation, and maintenance of software.

Mr. Aguilar discussed NASA's own software quality assurance program and lessons learned from past space missions, and provided insight into newer software programs. One of Mr. Aguilar's projects at Goddard Space Flight Center (GSFC) has been to help develop test science instrument software for the futuristic James Webb Space Telescope (JWST).

Class activities included viewing a PBS documentary on software engineering that showcased the different applications of software in the design and manufacture of Boeing Aircraft's B-777, and a moderated panel discussion among seven guest speakers and students that sparked thought-provoking questions and lively debate.

The panel members and the agencies represented were:
Dr. John C. Kelly, Program Executive of Software Engineering at NASA Headquarters in Washington, D.C.; Kenneth A. Costello, Chief Engineer at NASA's Independent Verification and Validation (IV&V) Facility; Dr. Rajeev Joshi, Senior Software Engineer at the Jet Propulsion Laboratory (JPL) in Pasadena, Calif.; Thomas Pressburger of the Robust Software Engineering Group at Ames Research Center in Moffett Field, Calif.; Kevin P. Murphy, a Boeing Co. software expert who has worked on the Space Shuttle and the International Space Station (ISS); David M. Pruett, a longtime NASA engineer who worked on real-time software projects, including the ISS; and Garth J. Watney, a software engineer at JPL and member of the Flight Software Applications Group.

This was the sixth in a series of discipline courses that the NESC Academy is offering and the second consecutive course held at GMU, following the Human Factors course held there from December 5–7, 2006.

NESC Academy was established to capture, share, and preserve the lifetimes of experience and knowledge of NASA's senior scientists and engineers; guide the next generation of NASA scientists and engineers as they develop expertise in technical problem solving; and foster interest in NASA careers. NESC, the National Institute of Aerospace (NIA), and Consultants in Business and Engineering Research (CIBER) partner work collaboratively to design, develop, and deliver the three-day classroom experiences led by selected NESC discipline experts in 13 different disciplines.

The next NESC Academy course, "Materials: Learning from the Past and Looking to the Future," with Robert Piascik and Colleagues, will be held from July 17–19, 2007 in Houston, Texas.

You are invited to visit the NESC Academy Web site at: www.nescacademy.org for more information about the lineup of NESC Academy courses, or to view the online version of this or previously offered NESC Academy courses.

NESC Academy courses have been videotaped during the live presentations. These tapes have been edited and an online version of the courses have been created. The courses have a video of the presenters in the left-hand part of the screen with animations, PowerPoint slides, and videos on the right-hand side of the screen. All the audio has been transcribed so the learner can see, hear, and read the information.

You can register for a log-in password and view these under My Academy. Please check this out at www.nescacaemy.org.■

Did You **Know**?

Advanced Plastics:

Both spacecraft and electronic equipment need lightweight, low-cost materials for things like printed circuits in computers. These liquid crystal polymers are also used for food and beverage containers.

Engineers Become "Composites Designers" as Tiger Team Meets to Design Composite Crew Module Pressure Shell

By Lori Keesey

They know their design is not intended to fly, but that's not the motivation for 30 engineers who have begun meeting at the Goddard Space Flight Center to design and eventually test a full-size pressure shell of a crew exploration module made entirely of lightweight composite materials. Their sole mission over the next 18 months is to get experience in composite spacecraft structural design.

"We're not competing with anyone," said Mike Kirsch, a Langley Research Center engineer who's heading the Composite Crew Module team, which includes several Goddard engineers and consultants. "Our only goal is to get hands-on design-, build-, and test experience of a composite capsule."

Chartered by the NASA Engineering and Safety Center (NESC), the team includes engineers from many NASA Centers, the Air Force Research Laboratory (AFRL), and private industry—people specifically tapped because of their expertise in disciplines needed to design, assemble, and eventually test a carbon-graphite-epoxy pressure shell. The group has already created conceptual designs and expects to finalize one over the next eight months.

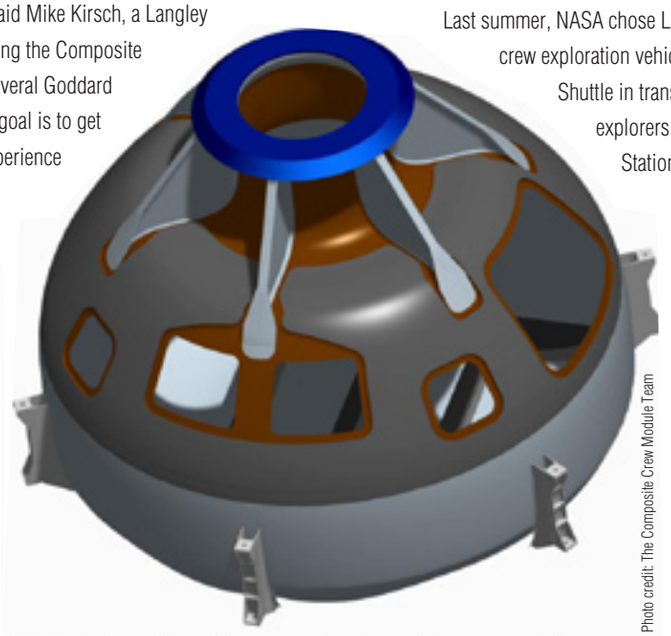

Photo credit: The Composite Crew Module Team

Caption: Artist rendition of the crew exploration module pressure shell.

According to Kirsch, Goddard was chosen as the lead Center because of its extensive experience in space systems design. "At any one point, Goddard seems to have many active projects going on," he said. "It goes through the entire hardware design, build, and test process in a relatively short period of time. With only 18 months to start and finish this project, that type of experience was needed," he said.

After a critical design review in October, the group plans to manufacture the conical-shaped capsule, which will measure about 12 feet in diameter and 10 feet in height, and begin tests at a still-undetermined location in the spring of 2008.

"The advantages for chartering the group can't be overstated, said Jeff Stewart, a Goddard engineer who now serves as the Deputy Project Manager. "From this effort, we gain in-house expertise, which the Agency can then tap when it begins building other spacecraft needed for lunar exploration in the future, including lunar habitats. In essence, we become composite spacecraft designers for human-rated pressure vessels, which is the point of the effort."

Last summer, NASA chose Lockheed Martin to build the Orion crew exploration vehicle, which will succeed the Space Shuttle in transporting a new generation of human explorers to and from the International Space Station, the Moon, and eventually to Mars and beyond. Resembling a larger version of the *Apollo* module that last took astronauts to the Moon in 1972, the new craft will be built of aluminum lithium and will be able to ferry cargo or up to six crew members to the International Space Station by 2014, and up to four astronauts to the Moon and back by 2020.

Stewart related that although engineers have selected aluminum lithium as the primary construction material, the advantages of composites in some applications may be significant. In addition to weighing less, composites offer more flexibility in design. Engineers can design a spacecraft distinguished by more complex shapes. John Higgins, an AFRL engineer serving on the team added that the material also can cut down on the number of parts required to assemble a spacecraft, which again can offer substantial cost savings.

Although NASA did not choose composites for the actual Orion pressure shell, the exercise will give the Agency data from which to compare true benefits. The aerospace industry has begun moving into composites and the cost and weight savings the material promises makes it an ideal contender for future spacecraft. ■

Harvey Moseley Receives AAS Joseph Weber Award

By Lynn Chandler

The American Astronomical Society (AAS) 2007 Joseph Weber award for instrumentation has been awarded to Harvey Moseley, Ph.D.

Moseley, a senior astrophysicist at NASA's Goddard Space Flight Center, will receive the award at the AAS meeting in Honolulu, Hawaii, in May. Moseley received the award for his extraordinary contributions over two decades for the development of astronomical detectors covering a huge wavelength range from x-rays to the submillimeter. These detectors have been used in some of NASA's most successful space missions, from the Cosmic Background Explorer (COBE) to the space infrared observatory Spitzer, that have profoundly changed our understanding of the universe.

Photo credit: Chris Gunn

Caption: S. Harvey Moseley

He continues to focus his creative energies on future missions, most prominently on the development of the microshutter array, a micromechanical device that will allow the James Webb Space Telescope (JWST) to make its most critical observations one hundred times faster. JWST is regarded as the successor to the Hubble Space Telescope, and is targeted for launch in 2013. JWST's new microshutters promise to enable detailed study of the first galaxies to form in the universe after the Big Bang.

The award, named for the University of Maryland physicist who built the first detectors for gravitational waves, recognizes an individual scientist for the design, invention, or significant improvement of instrumentation leading to advances in astronomy.

The Weber Award has been presented annually since 2002; previous recipients include James E. Gunn and Frank J. Low.

As a member of the COBE Science Working Group, Moseley worked extensively on COBE as a member of its Science Working Group. The satellite made ground-breaking measurements of the Cosmic Microwave Background Radiation, which shows the universe soon after the Big Bang. John Mather, Ph.D. and George Smoot, Ph.D. won the 2006 Nobel Prize in Physics for this work.

The acclaimed scientist's accomplishments also include invention of the x-ray microcalorimeter, a sensitive detector used in x-ray astronomy. He has also worked on the following programs that have either flown or are expected to fly: the Kuiper Airborne Observatory, the Stratospheric Observatory for Infrared Astronomy (SOFIA), NASA's Spitzer Space Telescope and Japan's Suzaku (ASTRO-E2) mission.

Moseley grew up in Ebony, Va. He received his bachelor's degree from Connecticut College and his master's degree and Ph.D from the University of Chicago. He is a member of the American Physical Society and the American Astronomical Society.

Moseley currently lives in University Park, Md., with his wife Sarah Moseley. Their son, Samuel J. Moseley, 28, is a mechanical engineer also working at Goddard Space Flight Center. ■

She Made a Difference

By Colin McEvoy of the *New Jersey Herald*

When Kathleen Peterson was named Vernon "Teacher of the Year" four years ago, she was asked if it was the greatest honor of her teaching career. But that moment really came when she received a letter from John Leck, a former third-grade student who told her he was working for NASA because of her inspiration during his childhood.

"When I got that letter from John saying, 'I'm doing something because of you,' a plaque doesn't compare to that," she said. "How many people get that kind of payback? That fulfillment?"

Peterson, 60, taught the then-8-year-old Leck at Walnut Ridge Primary School in 1969, the same year Neil Armstrong took man's first steps on the Moon.

It was her enthusiasm for the class, Leck said, that inspired him to pursue his life-long interest in space all the way to NASA.

"It was just her constant enthusiasm," Leck said. "When they handed me the [NASA] application, I just thought of her. I just had to write to her how much that year in third grade meant to me."

Leck, 46, a former Vernon resident currently working as a NASA education specialist, will show his appreciation by giving Peterson a tour of Goddard where he has worked for four years. "To think that this little boy I knew at eight years old will be giving me a tour," Peterson said. "It's overwhelming."

Photo credit: Claudio Papapietro

Caption: NJH Teacher Kathleen Peterson sits in her Walnut Ridge Primary School classroom. Peterson was recently contacted by former third-grade student John Leck, who credits her with sparking his interest in science.

Leck became an elementary school teacher 19 years ago, and was teaching middle school science in Montgomery County, Md., four years ago, when he was put on loan to the NASA educational program.

As an education specialist, Leck coordinates education activities based on NASA programs and satellite study results, reviews, and works on NASA technology projects, and instructs teachers—from elementary schools to colleges and universities—about modern progresses in the Earth science field.

Leck still remembers his parents waking him up as a child to watch Neil Armstrong walk on the Moon on his family's tiny black-and-white television.

But it was Peterson's class that cemented his passion for space exploration, Leck said. Her classroom was decorated with news clippings of space launches, models of lunar landing module, and photos of such astronauts as John Glenn and Alan Shepard.

"You learn a lot about what you want to be as a person from a teacher," Peterson said. "I always felt the best experience in life came from teachers. You see what you like about a person and what you want to be."

Peterson, now a first-grade basic skills teacher, has been working at Walnut Ridge Primary School for 39 years, and is the longest working teacher in the Vernon Township School District. She was 23 when she taught Leck in what was only the second class in her career. The school was so small that her class had to be conducted in the Highland Lakes Firehouse.

That year, Leck had to contend with the death of his grandfather and one of his best friends, Michael Boeren, a fellow classmate who was hit by a car after sledding down a hill into the road. "She was a great support for me through that," Leck said.

Peterson said the letter Leck wrote her, more than 35 years later, was a particular honor because primary school teachers so seldom learn the impact they had on their students.

"When you're teaching little children, very often you don't get to see them when they grow up," she said. "This is important to me because teachers don't always see how they affect their students."

Peterson will travel to Greenbelt, Md., on Thursday for the tour Friday, where she plans to give the astronaut photos and models from that 1969 classroom to Leck's sons, 13-year-old Nolan and Cullen, 4.

She said she felt the tour was particularly appropriate because, as her career nears an end, her former student will become the teacher during her NASA tour. "This is my career coming full circle," she said. "I guess that's the reward for sticking around so long." ■

*Reprinted with Permission from *The New Jersey Herald.*

2007 Safety Awareness Campaign Poster Contest

By Alana Little

An office environment is one of the safer places to work at Goddard, however the poster submitted by Tiara Butler, a 9th grader at North Point High School in Charles County, Md., reminds us of the hazards we must be aware of while in the office.

Dena Butler of Code 403 told her daughter about the project. “Tiara is such an amazing artist, she can draw anything, especially cartoons. I knew she would make a great poster.” Tiara used her imagination to create a colorful and educational poster based on visits to her mother’s office. The only direction Dena gave was to remind Tiara that the poster had to be “safety” related.

Tiara, an honor student with a 3.625 GPA, is already thinking about college prospects, and when a college recruiter told her she needed to start thinking about her art portfolio, she jumped at the chance to add to it by making this poster. The high school freshman takes Art II where her teacher Mr. Ball sees a lot of potential in her. This poster will be added to her growing portfolio. The budding artist is also taking all Advanced Placement (AP) courses and is getting A’s in Math.

The Safety Awareness Poster Contest was sponsored by the Safety Awareness Council in honor of Safety Awareness Campaign (SAC) 2007. All dependants of contractors and civil servants were invited to use their artistic talents to create a poster which conveys the theme “Safety for Life” as it relates to work performed at NASA/GSFC. A prize will be presented to winning posters within each age category, and posters will be displayed at various locations around the Center during SAC 2007. In addition, a presentation of the winner’s posters will be made at the parent’s respective directorates’ SAC opening event. ■

Photo credit: NASA/*TIMS*

Caption: 2007 Safety Awareness Campaign Poster Contest submission by 14-year-old Tiara Butler.

Goddard Collaborates with Indigenous People During International Polar Year

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http://historyofwinter.org

For more information about the Global Snowflake Network, please visit: http://education.gsfc.nasa.gov/gsn/.

For more information about the Indigenous Peoples' International Polar Year, please visit: http://www.ip-ipy.org.

For more information about he Norwegian IPY EALAT project, please visit: http://www.EALAT.org or http://www.Arcticportal.org. ■

GSFC Gate Closure Notice

From April 16 through June 16, Gate #3, known as the Parkway Gate, will be closed to all traffic. No vehicles will be able to enter or exit through this gate. Explorer Road from COBE Road to the gate house will also be closed to vehicle traffic. The area will be used for staging materials and equipment.

Joggers and walkers are still welcomed to use the path around the pond. If you usually travel through this gate, plan to use one of the other gates.

The Main Gate on Greenbelt Road by Building 9, as well as the North Gate on Hubble Road are open 24 hours. The South Gate at ICESat Road is open from 5 a.m. to 9 p.m., Monday through Friday. Drivers are reminded to watch their speed on Center, especially near the gate houses.

This closure is necessary for the Facilities Management Division to complete security upgrades to the gate house. In 2003, the Facilities Management Division completed a restoration of the Parkway bridge. At that time, the gate house remained open and only vehicle traffic across the bridge was limited.

This closure will be inconvenient, however, the final result in June will make it all worthwhile. Your patience during construction projects is always appreciated. ■

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:

Aerospace Education Service Project (AESP)
Released: 2007-01-22
Proposal Due: 2007-03-30

Ground-Based Studies in Space Radiation
Released: 2007-01-05
Proposal Due: 2007-02-01

NASA Earth and Space Science Fellowship/07
Released: 2006-11-01
Proposal Due: See Announcement

Strategic Education Alliance (SEA)
Released: 2007-03-09
Proposal Due: See Announcement ■

Champions of a Robotics Competition Trump NCAA Stars

By Amy Pruett

Forget the MVPs of the NCAA; the real heroes of March are the engineers, teachers, and high school students participating in the Chesapeake Regional For Inspiration and Recognition of Science and Technology (FIRST) Robotics Competition. While basketball fans completed brackets, celebrated successes, and mourned losses, participants of the FIRST Robotics Competition immersed themselves in the intense, exciting, and inspirational matches held March 16–17 at the US Naval Academy in Annapolis, Md.

Created to be the sport that inspires the next generation of engineers, mathematicians, and scientists, FIRST challenges teams of high school students, mentored by teachers and technical professionals. In early January, each team was given the assignment to build, in only six weeks, radio-controlled robots from a kit of motors, sensors, chassis, transmissions, vision cameras, bearings, and other essentials to perform select functions.

This year's game, "Rack 'N' Roll," required teams to design and manufacture robots that pick up and hang 32 inch diameter inner tubes on racks of varying height located in the middle of a 54 x 26 foot playing field. Adhering to the FIRST credo of "gracious professionalism," the teams did not work alone as they strived to score points, but in alliances of three teams. Winners of the competition proved to be the student-built robots that most efficiently and effectively solve the complex engineering challenge.

Photo credit: Debbie McCallum

Caption: High school students from the East Coast and England compete in an exciting, NASA supported robotics competition held at the U.S. Naval Academy in Annapolis, Md., March 16-17.

While the top teams are awarded medals and/or trophies—unlike traditional sports—they are not the only champions of the competition. Instead, participants leave the event with an experience unparalleled by most other high school opportunities available. Throughout the process, the students are involved in every aspect of constructing, maintaining, and operating their robots. They are the designers, builders, problem solvers, programmers, and drivers, inspiring them for future careers in a way that lecture-based classes cannot.

Rob Taminelli, a 22-year contactor with ManTech, detailed to Code 694 and Field Supervisor of the Chesapeake Regional FIRST Robotics Competition, realizes the importance of the competition that gives students the tools to ultimately answer challenges such as those of NASA's Vision for Space Exploration.

"Working with knowledgeable engineers, we often see theoretical ideas that in reality cannot work primarily due to a lack of hands on experience," said Taminelli. "FIRST gives students a real engineering application where they not only think of the theoretical concepts in terms of the design, but actually construct it and realize what actually works and doesn't work. By teaming with engineers, students learn to understand not only the design process, but real life work challenges such as team work, communication skills, manufacturing process's, scheduling, and budget constraints."

Desiree Taminelli, a Program Support Specialist in Code 201, Rob's sister and three-year Volunteer Coordinator of the Chesapeake Regional FIRST Competition believes in the ability of the FIRST program to inspire the next generation of NASA leaders that will contribute the administration's future successes in space exploration.

"FIRST is a great opportunity for students, teachers, engineers, and volunteers. We have got to think of kids as our future leaders," said Desiree. "During a time when students in the United States are behind in math and science, we need to get them up and interested and one way is through FIRST."

"The NASA Robotics Academy was created to offer graduating seniors of FIRST; Botball (a hands-on learning experience in robotics for high school students); and Boosting Engineering, Science, and Technology (BEST) Robotics, Inc., high-school programs an opportunity to continue developing their expertise and enthusiasm in robotics," said Dave Rosage, manager of the NASA Robotics Academy. Programs such as FIRST are "developing the next generation of robotics experts that will serve NASA and a growing U.S. robotics industry." ■

Employee Spotlight: Russ Werneth

From EVA Engineering to Retirement—a Hubble Engineer's Journey

By Susan Hendrix

Photo credit: Chris Gunn

Caption: Russ Werneth at the Neutral Buoyancy Lab (NBL) facility in Houston, Texas.

The Recreation Center at Goddard Space Flight Center is expected to be crowded with well-wishers on March 30 for Hubble Space Telescope (HST) and ExtraVehicular Activity (EVA) Manager Russell L. Werneth's retirement celebration. Russ is hanging up his Hubble hat after nearly 43 years of Government service—the last 15 years spent working for the Hubble project.

Russ contributed to numerous programs throughout his long Federal career, but he earned the most acclamation for his efforts involving Hubble servicing missions. During this time, he played an important role in several projects, including designing some exceptional and unique tools the astronauts use during their EVAs, or spacewalks, to upgrade and repair the famous observatory.

When asked, most coworkers of Russ agreed his work was much more than a nine-to-five job to him, it was his passion. For this reason, it was a great surprise, as I'm certain it was for others, when he called and told me he was hanging up his Hubble hat.

My initial shock was undoubtedly shared, because during his official announcement to the entire team, each HST team member's face revealed sentiments of astonishment and disbelief. The team, normally chatty, instantly quieted. Without hesitation, Hubble engineer Ed Chueng asked, "You mean after Servicing Mission 4, right?" Russ shook his head and replied, "Actually no. I'm retiring the 30th of March."

When asked what prompted Russ to retire, he said, "It was by no means an easy decision for me. I'll really miss the Hubble people, but I've worked for a long time and would like to go on to other things, like getting back to teaching."

He also shared that he will miss the tremendous teamwork between the Goddard and Johnson Space Center EVA engineers and astronauts. Russ attributes the success of the four previous servicing missions to Hubble to the team efforts of the entire Hubble "family."

Frank Cepollina, Deputy Associate Director for HST Development at Goddard, expressed regret for what will be a great loss to the project. "I knew that Russ would retire someday, but I thought he'd wait until after the next servicing mission," said Cepollina. "His expertise will surely be missed."

During his extended, dedicated service to the Hubble project, Russ was an integral part of the team, developing, testing, and delivering successful, flight-ready astronaut procedures and crew aids and tools. He helped train the astronauts on how to use these specialty tools and how to carry out the procedures his team crafted.

Russ also found time to serve as Goddard's lead manager for NASA's two Return-to-Flight Space Shuttle missions in 1995, where astronauts performed first-of-its-kind spacewalking demonstrations using repair tools the Goddard and Johnson Space Flight Center teams created.

When asked if he would have done anything differently in his career, if given the chance, he quickly responded, "I would have started at Goddard sooner!" According to Russ, every day is an adventure. The highlights of his career have been the final walk-downs of the Shuttle with the astronaut crews prior to each Hubble servicing mission and the pride he felt when each mission's spacewalks were successfully completed.

Russ has been recognized with such prestigious awards as NASA's Exceptional Achievement Medal in 2006 for his work on Return-to-Flight and Hubble missions and the Astronaut Silver Snoopy Award in 1994 for his efforts on the first two EVA-intensive shuttle missions to Hubble. The University of Maryland presented Russ with a College of Engineering Centennial Award, an honor bestowed only to their top 100 engineering graduates.

In addition to the engineer's many professional accomplishments, Russ has achieved numerous personal goals. He climbed Mt. Fuji and accumulated more than 350 hours as a SCUBA diver in NASA's six million gallon water tank called the Neutral Buoyancy Lab at Johnson Space Center.

He also believes in giving back to the community. In 2005, Russ traveled to Mississippi to assist with Hurricane Katrina relief efforts, and he participates annually in the March of Dimes Walkathon and St. Jude's charity events. ■