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GoddardView

Space Shuttle *Endeavor* Lift-Off A Success

Excerpted from the NASA.Gov Web site



Image credit: NASA/Kim Shiflett

Caption: The STS-118 crew strides out of the Operations and Checkout Building for launch of Space Shuttle Endeavour at 6:36 p.m. EDT. Seen here are (left to right) Mission Specialists Alvin Drew, teacher-turned-astronaut Barbara R. Morgan, and Dave Williams, who represents the Canadian Space Agency.

Space Shuttle *Endeavour* lifted off Launch Pad 39A right on time for a flawless beginning to mission STS-118. With engines and boosters roaring and spectators cheering, the Space Shuttle headed spaceward as it cut through the late afternoon sky over Florida's east coast.

Pilot Charles Hobaugh, and mission specialists Tracy Caldwell and Rick Mastracchio will use the shuttle's robotic arm to unberth the Orbiter Boom Sensor System (OBSS) to take an extensive and detailed look at the orbiter's thermal protection system. Mission specialists Dave Williams and Barbara Morgan join Mastracchio for the latter part of the survey.

In preparation for *Endeavour's* rendezvous and docking with the Space Station, crew members will install a centerline camera. It will help Commander Scott Kelly pilot the orbiter during its approach to the station docking port. Crew members also will check out rendezvous tools and extend the Orbiter Docking System ring. *Endeavour* is scheduled to dock at 12:53 p.m. Friday.



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Cover Caption: Space Shuttle *Endeavour* races into the sky trailing columns of fire from the solid rocket boosters as it begins mission STS-118.

Photo credit: NASA

GoddardView Info

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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.

Educator Astronaut Barbara Morgan Demonstrates Her Passion for Education and Discovery

By Amy Pruet



Image credit: JSC

Caption: The patch for the STS-118 mission represents Space Shuttle Endeavour on its mission to help complete the assembly of the International Space Station and symbolizes the pursuit of knowledge through space exploration.

When Space Shuttle *Endeavour* again escaped Earth's atmosphere, Mission Specialist Barbara Morgan became NASA's first Educator Astronaut in space. Morgan proved that anyone can join the ranks of astronauts no matter their profession or background.

Morgan began her journey to become an astronaut/teacher as an inquisitive child growing up during the "Space Race." Like many of her generation, she was enthralled with the events of the *Apollo* days and dreamed of pursuing a career as an astronaut.

She earned a degree in Human Biology from Stanford University in 1973 and obtained her Teaching Credential at the College of Notre Dame in Belmont, Cal., and began a career of inspiring our next generation.

"People go into teaching and stay with it because it is its own reward," said Morgan. "It's challenging. It's inspiring. It's invigorating. It's an enormous responsibility, it's an enormous challenge, and it's enormously rewarding."

A passionate educator, Morgan was always seeking additional opportunities to enhance her curriculum. In 1985, when the President announced the inception of NASA's Teacher in Space program, Morgan saw this as an opportunity to inspire students and to fulfill a dream. She never imagined it as an opportunity to change professions.

"I was sitting at home and the President came on the news and announced that they were going to send a teacher in space," recounts Morgan. "I shot straight up and said, 'Wow!' because as teachers, we're always looking for opportunities to bring the world to our classroom, to gain more experiences, and gain more knowledge about our world so that we can make our classroom a better place for our kids."



Photo credit: NASA

Caption: Astronaut Barbara Morgan adjusts her helmet while suiting up for mission STS-118 aboard Space Shuttle Endeavour.

Morgan applied to the Teacher in Space program without delay and was selected on July 19, 1985 as backup for the late Christa McAuliffe.

From September 1985 to January 1986, she trained with McAuliffe and the rest of the *Challenger* crew at the Johnson Space Center in Houston, Texas.

Tragically, shortly after STS 51-L launched on January 28, 1986, *Challenger* and its crew, including McAuliffe, was lost. Immediately, the Shuttle was grounded and Morgan stepped in, assuming the duties of Teacher in Space Designee, which included speaking to educational organizations throughout the country.



Photo credit: JSC

Caption: Educator astronaut Barbara Morgan speaks with students during Space Center Houston's "Meet an Astronaut Day" on Jan. 19. Morgan has been named as a crew member for the STS-118 mission, scheduled to launch in the summer of 2007.

In the fall, Morgan re-entered the realm of formal education teaching second and third grades while maintaining a working relationship with NASA's Education Division. With the experiences gained while training for STS 51-L Morgan was able to enhance her teaching and inspire students to pursue their dreams.

Twelve years went by, but in 1998 her dream of space travel was again within reach when she was selected to become a Mission Specialist. The teacher in Morgan viewed the selection as another great opportunity to tutor our youth about how to overcome adversity and challenges of seemingly insurmountable odds.

While some thought the inherent risks of space might deter Morgan, she quickly disregarded them. "The risks are the same for an educator, physician, engineer, pilot, chemist, or anyone else who flies in space," says Morgan. "We're doing it to learn. We're doing it to explore. We're doing it to discover. We're doing it to help make the world a better place. And we're doing it to help keep those doors open so that they [the next generation] can too." ■

NASA Satellite Captures First View of “Night-Shining” Clouds

By Cynthia O’Carroll

A NASA satellite has captured the first occurrence this summer of mysterious, shiny polar clouds that form 50 miles above Earth’s surface.

The first observations of these “night-shining” clouds by a satellite named “AIM,” which means Aeronomy of Ice in the Mesosphere occurred above 70° N latitude on May 25. People on the ground began seeing the clouds over Northern Europe on June 6. AIM is the first satellite mission dedicated to the study of these unusual clouds.

These mystifying clouds are called Polar Mesospheric Clouds, or PMCs, when they are viewed from space, and referred to as “night-shining” clouds or noctilucent clouds, when viewed by observers on Earth. The clouds form in a layer of the Earth’s atmosphere called the mesosphere during the Northern Hemisphere’s summer season, which began in mid-May and extends through the end of August, and are being seen by AIM’s instruments more frequently as the season progresses.

“These observations suggest a connection with global change in the lower atmosphere and could represent an early warning that our Earth environment is being changed.”

AIM is providing scientists with information about how many of these clouds there are around the world and how different they are, including the sizes and shapes of the tiny particles that make them up. Scientists believe that the shining clouds form at high latitudes early in the season and then move to lower latitudes as time progresses. The AIM science team is studying this new data to understand why these clouds form and vary, and if they may be related to global change.

Once the summer season ends in the Northern Hemisphere around mid-to-late August, the Southern Hemisphere spring season starts about three months later in the period around mid-to-late November. AIM will then be watching for shining clouds in the Southern Hemisphere from November through mid-March when the season ends.



Caption: This image shows one of the first ground sightings of noctilucent clouds in the 2007 season.

They are also seen in the high latitudes during the summer months in the Southern Hemisphere.

Very little is known about how these clouds form over the poles, why they are being seen more frequently and at lower latitudes than ever before, or why they have been growing brighter. AIM will observe two complete cloud seasons over both poles documenting an entire life cycle of the shiny clouds for the first time.

“It is clear that clouds are changing. This is a sign that a part of our atmosphere is changing and we do not understand how, why, or what it means,” stated AIM Principal Investigator James Russell III of Hampton University, Hampton, Va.

AIM is managed at Goddard Space Flight Center, Greenbelt, Md., and the AIM Project Data Center is located at Hampton University.

For more information about NASA and the AIM mission, visit: <http://www.nasa.gov/aim> ■

Photo credit: Veres Viktor of Budapest, Hungary, taken on June 15, 2007.

Wallops Mission Checks Health of Greenland's Ice Sheet and Glaciers

By Elizabeth Flowers

A NASA-led research team has returned from Greenland after an annual three-week mission to check the health of its glaciers and ice sheet. About 82 percent of Greenland is made up of a giant ice sheet. During the Arctic Ice Mapping Project, researchers measured critical areas of the island's ice sheet, as well as its glaciers, and monitored changes that may be connected to global climate change.

The science team, using laser and radar instruments aboard aircraft, has been closely monitoring the changes in the ice cover since 1991. Past measurements from the team have shown that areas of ice along the Greenland coast have been thinning, while inland areas have thickened. However, when these changes are taken as a whole; Greenland has experienced a significant loss of ice.

The data from past mapping missions and from Earth-orbiting satellites such as NASA's Ice, Cloud, and Land Elevation Satellite (ICESat) have shown that the ice sheet and glaciers have been melting at an increasing rate over the past several years.

"Knowledge of how ice sheets and glaciers like those on Greenland are changing provide an indirect measure of sea-level changes and indicate trends in world climate," said Bill Krabill, lead investigator of the Greenland mission from the NASA Wallops Flight Facility. "Some of the island's major glaciers have sped up since the turn of the century with documented thinning from 65 to nearly 100 feet per year. With this mission, we measured what's happening to Greenland's ice with a low-flying state-of-the-art laser from just a third of a mile above the surface."

It has been estimated that a 9-inch change in the average height of the central Greenland ice sheet would result in a 0.12 inch change in the sea level of the world's oceans.

"This mission builds on our existing data from past flights and aids in correlating data from the ice-observing satellites," said Krabill. "The 16 years of very precise data we've gathered over the same flight paths gives us a very good look at the health of Greenland's ice cover."

The 19-person research team, which headed for Greenland on May 1, used a Wallops-built scanning laser system aboard a GPS-guided NASA P-3B aircraft to take detailed measurements of ice elevations with accuracy within a few inches.

An ice-penetrating radar system from the University of Kansas, Lawrence, provided elevation measurements of the bedrock as far as two miles below the ice sheet's surface. From the measurements of these two instruments, researchers determine the thickness of the ice.

"Each year we refer to the views of glaciologists, NASA radar data, and information from other Federal agencies to locate areas where thinning may be occurring and fly out to those critical areas that may be changing more rapidly," said Krabill. "In the end, weather conditions always dictate our data gathering success. We were terrain-hopping at just a third of a mile above the surface with a laser-pulsing 5,000 times per second that cannot shoot through the clouds. So low-lying clouds could have prevented us from capturing any data."

This year, the aircraft also carried two new high-altitude ice-measuring radars tested by their developers, Ohio State University, Columbus, and the Johns Hopkins University Applied Physics Laboratory, Laurel, Md. If effective, the new sensors could serve as precursors to instruments that could be used aboard a future satellite mission.

Multiple aircraft lifted off from the former U.S. Air Base Kangerlussauq and Thule Air Base, both in Greenland, and primarily covered flight paths flown nearly every year since 1991.

"The aircraft performed in outstanding fashion this year with no down time in the field. The crew was outstanding on what were relatively long eight-hour missions," Krabill said. "All of our objectives for the sensors onboard were accomplished. In about two months, we'll finalize results that will offer researchers around the world a glimpse of what we expect will indicate a continuing trend of ice loss on the island." ■

Goddard and LogicNets Collaborate in the Building of a Test-bed Environment for an Intelligent Robotic System

By Nicole Quinnell

A new agreement between NASA Goddard Space Flight Center and LogicNets, Inc., is enabling collaborative development of an intelligence modeling and runtime environment for autonomous robotic systems. These intelligence models will be embedded into a variety of vehicles and will control the vehicles during various missions and tasks in different environments. The test-bed framework will also provide a means for testing new exploration technologies, procedures, and techniques. The potential applications for intelligent autonomous vehicles are vast, including: mapping, exploration, and monitoring of land and water surfaces on Earth, as well as unknown planetary surfaces.

Benefits of Technology Transfer

- NASA will benefit by applying the robotic system to exploration of the Moon, Mars, and Jupiter's moon, Europa, as well as potential exploration of other planetary surfaces.
- NASA will be able to test any number of robotic vehicles using the new system without having to first invest the time and expense in hard coding each potential vehicle.
- In a modular and plug-and-play manner, NASA will be able to test new instruments, sensors, algorithms, and procedures independent of the vehicle being used.
- LogicNets will be able to apply the new, tested robotic system to other industries such as manufacturing, as well as the automotive and airline industries, among others.
- The general public may benefit from a new, flexible, and economical technology that will enhance search-and-rescue operation missions, as well as tracking and monitoring of dangerous environmental agents, homeland security operations, and others.

About LogicNets

LogicNets has provided an easy-to-use, affordable, online knowledge automation software platform since 1999. Based in Washington, DC., the company serves customers in North America and Europe, and provides the ability to distribute expertise to thousands of users as professional Web services.

Innovation Through Collaboration

Looking for new methods of exploration on the Moon, Mars, and Europa, Goddard scientists are researching many different autonomous robotic vehicles. Custom-making each vehicle, including hard coding procedures, are very cumbersome, tedious, and expensive. Researchers need a uniform,

consistent, and standardized framework in which to test the vehicles without committing time and funds to coding everything about the vehicles and their environment.

Working with LogicNets, NASA Goddard scientists will develop an artificial intelligence (AI) test bed with the capability to predict if/how a vehicle will work in various exploration scenarios before time and funds are committed to vehicle development and mission deployment. Based on LogicNets' expert system application modeling and runtime environments, the system will also be able to control real vehicles and to make the decisions for the interaction between the robotic vehicle systems and the environment. Goddard will contribute software procedures and rules to develop the robotic test system, thereby populating the LogicNets framework with vehicle and environmental information and parameters for testing. The two organizations will also collaboratively test learning algorithms and develop a software framework independent of any specific type of vehicle.

The Transfer Process

LogicNets has been working for many years on its main product, which creates procedural models for the business world using an expert runtime environment. Goddard was looking for a company with expertise in this area and a product that could evolve into an autonomous system for robotic vehicles. Goddard was also seeking a company with motivation to invest its own resources in developing an AI test bed that would be applicable to NASA and had the flexibility for growth to accommodate new vehicles, vision systems, sensors, actuators, and other technologies that NASA may deploy for future missions. LogicNets was one of a few companies that fit the bill. Working diligently with Goddard's Innovative Partnerships Program (IPP) Office, Goddard scientists and LogicNets arrived at an agreement that is mutually beneficial. The work, performed under the non-reimbursable Space Act Agreement signed in March 2007, will answer NASA's need for a robotic vehicle test system while increasing LogicNets' competitive advantage and potential market penetration.

Looking Ahead

With an agreement in place, researchers at both organizations are collaborating to develop a robotic system that can be defined and tested in any exploration scenario. They expect the work to take at least two years to complete, at which time testing and evaluation may be followed by implementation in NASA exploration missions.

For more information contact:
Innovative Partnerships Program Office
NASA Goddard Space Flight Center
Phone: 301-286-5810
E-mail: techtransfer@gssc.nasa.gov



AMASE-ing Expedition: Searching for Mars on Earth

By Cynthia O'Carroll



Researchers from NASA
Goddard Space Flight
Center are trekking off to
Svalbard, Norway on an
AMASE-ing expedition to
unravel the mysteries of
the frozen Mars-like world
that exists here on Earth.

The objective of the Arctic Mars Analog Svalbard Expedition (AMASE) is to study an extreme Mars-like environment using instruments and techniques that may be used for future planetary missions. The goal is to understand how this harsh environment is conducive to life by studying the geology, geophysical features, biosignatures, and possible life forms of volcanic complexes, warm springs, and sedimentary deposits; settings thought by researchers to be analogous to sites on ancient Mars.



Photo credit: Kjell Ove Storvik/AMASE.

Caption: The Sverrefjell volcano at 80° N in Svalbard, Norway erupted through a thick ice sheet about 1 million years ago. Sverrefjell is one of the AMASE field sites where rover testing and mission style operations will be done in the 2007 season.

The AMASE expedition will be conducted from August 12–26 and consists of an international crew of scientists, engineers, and filmmakers.

Paul Mahaffy, Chief of Goddard's Atmospheric Experiment Laboratory, will participate in the expedition along with Jen Eigenbrode and Kirsten Fristad, both members of the Lab. After the expedition, Fristad will begin her Fulbright studies in Norway. Mahaffy is also the principal investigator for the Sample Analysis at Mars (SAM) instrument suite scheduled to launch on the Mars Science Laboratory in 2009.

"Notes from the Field" will be published on weekdays as the expedition progresses.

For more information please visit:

http://www.nasa.gov/mission_pages/mars/news/amase/index.html ■

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:

National Space Science and Technology Center Research and Support

Released: 2007-06-22

Proposal Due: 2007-08-03

NSBRI Announcement Soliciting Postdoctoral Fellowship Applications

Released: 2007-06-15

Proposal Due: 2007-08-01

Goddard August 2007 Retirees

The following employees have retired after 30 years, or more, of service to the Federal Government:

Connie S. Higgs—August 3, 2007 Code 273

John R. Thurber—August 3, 2007 Code 410

Thank You For Your Service!

Retired NASA Scientist Received Award for Work on Jupiter and Saturn's Largest Moon, Titan

By Nancy Neal Jones and John Bluck, NASA Ames

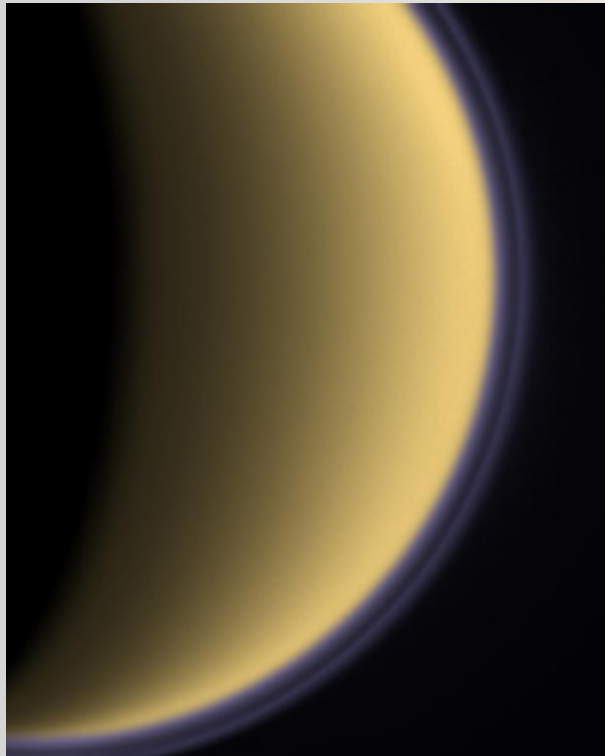


Image credit: NASA

Caption: Encircled in purple stratospheric haze, Titan appears as a softly glowing sphere in this colorized image taken one day after Cassini's first flyby of that moon.

[A retired NASA scientist whose instruments probed the atmospheres of Jupiter and Saturn's largest moon, Titan, recently received an award for his work.](#)

Hasso Niemann, who recently retired from NASA Goddard, received the Al Seiff Memorial Award on June 25, 2007, during a technical meeting in France. The award honors researchers for outstanding contributions to the understanding of atmospheres of planets or moons through the use of high-speed probes that enter those atmospheres.

"Niemann devoted his career to the development of mass spectrometer technology and harnessing its capabilities to measure the composition of unknown planetary atmospheres," said Jim Arnold who retired from NASA Ames Research Center in California's Silicon Valley as Chief of the Space Technology Division. Mass spectrometry is a method that scientists use to reliably identify ionized molecules by measuring their mass. Arnold, now a scientist with the University of California, Santa Cruz, nominated Niemann for the award.

"Atmosphere entry probes present a unique opportunity for performing qualitative analysis of extraterrestrial atmospheres in cases where remote sensing alone may not be sufficient and measurements with balloons or aircraft are not practical," Niemann and others observed during a technical presentation.

Al Seiff, for whom the award is named, spent most of his career at NASA Ames and was a colleague of Niemann's. Niemann, the first recipient of the award, began collaboration with Seiff on the 1971 Planetary Atmospheric Experiments Test (PAET), which demonstrated that a probe could return accurate data about Earth's atmosphere. Years later, Seiff served as the principal investigator for the atmospheric structure investigation of the Jupiter Galileo entry probe that analyzed the structure of the huge planet's atmosphere.

"Hasso Niemann was the clear leader in upper atmosphere Earth and planetary neutral mass spectrometry investigations for more than 30 years," said Dr. Paul Mahaffy, Chief of the Atmospheric Experiments Laboratory. "Of particular note is Hasso's groundbreaking work in securing fundamental measurements of the Jovian atmosphere in December 1995 with the Galileo Probe Neutral Mass Spectrometer. A highly successful Venus orbiter mass spectrometer and Titan Probe measurements are also among his numerous contributions to planetary science."

Niemann served as the principal investigator for the Galileo Probe's mass spectrometer. The probe entered Jupiter's atmosphere at 29.2 miles per second (47 kilometers per second), and parachuted downward. Niemann and his team designed, built, tested, and calibrated the probe's mass spectrometer at NASA Goddard.

The spectrometer made the first direct measurements of the Jovian atmosphere. The instrument measured methane and traces of other organic molecules, ammonia, water vapor, hydrogen sulfide, phosphine, and rare gases. Scientists also found that Jupiter's atmosphere was drier at the probe entry site than they thought it would be.

[Niemann was the principal investigator for the gas chromatograph mass spectrometer that rode the Huygens Probe, which entered Titan's atmosphere January 14, 2005. The Huygens probe, released from the Cassini spacecraft, made the first direct measurements of Titan's surface and lower atmosphere. Readings confirmed that the moon's atmosphere is mostly made of nitrogen and methane, and found the surface was likely to be rich in hydrocarbons.](#)

Niemann received the award during the fifth International Planetary Probe Workshop, which took place June 23–29, 2007 in Bordeaux, France. Niemann also delivered the keynote address at the workshop. ■

Goddard Space Scientists Earn Prestigious NASA Honors

By Rob Garner

Several space science teams and individuals have recently been awarded honors at NASA's Goddard Space Flight Center in Greenbelt, Md. The various awards cover the Wilkinson Microwave Anisotropy Probe (WMAP) team and discoveries in merging black holes.

NASA Achievement Medal Goes to Gravitational Astrophysics Laboratory

For groundbreaking work in black hole research, Joan Centrella, head of the Gravitational Astrophysics Laboratory (GAL) and a Silver Spring, Md., resident, was presented with the NASA Exceptional Scientific Achievement Medal. The NASA administrator awards the medal each year based on significant accomplishments that contribute to the Agency. Centrella, who has led the GAL since 2004, was recognized for work simulating gravitational wave signals from merging black holes.

According to Einstein's math, when two massive black holes merge, all of space jiggles like a bowl of Jell-O as gravitational waves race out from the collision at light speed.

In the past, computer crashes plagued simulations because the math was far too complex. But the GAL team found a method to translate the equations, based on Einstein's theory of general relativity, in a way that the computers could handle.

"These mergers are by far the most powerful events occurring in the universe with each one generating more energy than all of the stars in the universe combined," Centrella said last year when the breakthrough was made. "Now we have realistic simulations to guide gravitational wave detectors coming online."

"Calculating the gravitational waves emitted when black holes merge is a problem that scientists have been working on for more than 30 years," Centrella said.

Though Centrella received the award, she said credit for the accomplishment goes to the entire research team.

"Our breakthroughs were made by a team of outstanding scientists that I have the privilege of leading," she said. "I am both honored and thrilled that our work has been recognized by this award."

Centrella is from Winsted, Conn. She completed undergraduate coursework at the University of Massachusetts at Amherst. Her doctoral degree is from Cambridge University, United Kingdom. She came to Goddard in 2001.

Postdoctoral Fellow to Receive Otto Hahn Medal

Matthias Kadler, an astrophysicist who works in Goddard's X-ray Astrophysics Laboratory, was in Kiel, Germany, last month to accept the Max Planck Society's Otto Hahn Medal for his study of active galactic nuclei in radio and high-energy astrophysics. Kadler, who lives in Baltimore, Md., took the opportunity to visit his hometown of Brake, Germany, from June 20–22, before receiving the medal at the end of the month.

The society, which encourages young researchers to continue in scientific or academic careers, is named for prominent German physicist Max Planck, who is generally considered the father of quantum theory. The medal is named in honor of the society's first president. The medal and a monetary gift are awarded for outstanding scientific achievements.

"The main question behind my thesis was, 'How do super-massive black holes form relativistic jets?'" Kadler said. "I have conducted a detailed scrutiny of some individual objects. In one special case, in the active galaxy NGC1052, I found a direct link between the accretion flow and the jet production. This link is now being investigated in a large multi-wavelength campaign."

"I am of course very pleased that my work is recognized like this," he said. Kadler said his work at the Max Planck Institute for Radio Astronomy in Bonn, Germany, and his current research in Goddard's Astrophysics Science Division, "can enable us to understand the universe in a much deeper way than ever before."

Kadler joins 600 other recipients who have received medals since the society started presenting them in 1978.

WMAP Science Team Earns Group Achievement Honors

The Wilkinson Microwave Anisotropy Probe (WMAP) science team has earned NASA's Group Achievement Award for their work measuring ancient microwave light revealing the origins of our universe.

Continued on Page 10

Goddard Space Scientists Earn Prestigious NASA Honors

[Continued from Page 9](#)

The WMAP team's full-sky polarization measurements provide new clues about events that transpired in the first trillionth of a second of the universe's existence.

In March 2006, the WMAP team released the first evidence for an inflating universe. For 25 years, inflation has been the leading theory of the early universe's nature, but not until WMAP did the theory have solid proof behind it. To make the extremely detailed observations needed, the probe had to be able to measure microwave light variations down to 1 part in 10 million.

"The WMAP team has made measurements that have ushered in a new era of precision cosmology," according to the team's award nomination. Dr. Gary Hinshaw, WMAP's Data Analysis Lead, accepted the award on behalf of the team.

John C. Lindsay Memorial Award for Outstanding Contribution

[Drake Deming, Chief of Goddard's Planetary Systems Laboratory and a resident of Bowie, Md., is the 2007 recipient of the John C. Lindsay Memorial Award. Goddard honors one of its civil servant space scientists each year with this award, which is the Center's highest honor for outstanding contributions in space science. Deming received this award on June 15, for his investigation of planets orbiting other stars, called extrasolar planets. His work was able to detect light from these alien worlds for the first time using a special technique. This capability galvanized the extrasolar planet science community, and led to a flurry of follow-up studies that have revealed critical information about the temperature and composition of the planets themselves, and turning data points into actual worlds.](#)

Deming pioneered a technique to observe extrasolar planets that cross the faces of their host star. By observing the planet and star together, then subtracting the light taken when the planet passes behind the star and is thus hidden from view, astronomers can measure the temperature of the planet and glean information about its atmosphere.

In 2004, Deming and his team used NASA's *Spitzer* Space Telescope to measure a 1,580° F temperature of a planet orbiting the star HD 209458. Earlier this year, Deming, Jeremy Richardson, and their team published the first spectrum of an extrasolar planet called HD 209458. They found silicate dust in its upper atmosphere.

"I am greatly honored to receive this prestigious award, which has previously been given to some of Goddard's most distinguished scientists," said Deming, who came to Goddard in 1980 after a four-year stint as a lecturer in astronomy at the University of Maryland.

Deming points out that even more exciting discoveries will be made in the future using his technique. NASA's *James Webb* Space Telescope (JWST) will take spectra of planets orbiting in the habitable zones of cool, low-mass stars known as red dwarfs. "JWST will harvest enough light from these planets that we can look for biomarkers," says Deming. "We might find the first habitable planet beyond Earth, although the world will not be an Earth twin because it will orbit a different kind of star."

In 2006, Deming shared NASA's Exceptional Achievement Medal with David Charbonneau of the Harvard-Smithsonian Center for Astrophysics. Deming earned a bachelor's degree in mathematics from the University of Chicago in 1970 and a Ph.D. in astronomy from the University of Illinois at Urbana-Champaign in 1976. He hails from Terre Haute, Ind.

The Lindsay Award commemorates the 1962 launch of the first of eight Orbiting Solar Observatories, which was built by John C. Lindsay and others.

"I am thrilled to congratulate all of the scientists who have been awarded for their achievements. The NASA awards represent recognitions at the Agency level of the superb work being undertaken by the Astrophysics Science Division," said Kimberly Weaver, Associate Director, Astrophysics Science Division, NASA Goddard.

[NASA Goddard is home to the nation's largest organization of combined scientists and engineers dedicated to learning and sharing their knowledge of the Earth, Sun, solar system, and the universe. ■](#)

Research Course Inspires Two High School Science Fair Winners

By John Leck and Rob Garner



Photo credit: Lisa Bruck

Caption: Margaret Glancey (left) and Stamatina Hunter (right) hold numerous awards received for their hard work at the Frederick County Science Fair.

Stamatina Hunter and Margaret Glancey each took first-place honors in their projects' categories at the Frederick County Science Fair in March.

Both girls took the Earth System Science Research (ESSR) course at Catoctin High School in Thurmont, Md. The course, aimed at increasing student interest in the sciences through research projects, is the result of a partnership between Goddard Space Flight Center and Frederick County Public Schools.

Hunter and Glancey, who each graduated this past spring, took the course as juniors and rounded out their senior years by using their new skills to complete independent research projects in Earth System Science.

Hunter's prize came in the Earth Science category for her project, "An Investigation on the Effects of the Solar Cycle and Milankovitch Cycles on Global Temperature Anomalies vs. Anthropogenic CO₂ Emissions."

Aside from placing first in the Earth Science category and winning four specialty awards, Hunter's project earned her a \$2,000 scholarship from the American Meteorological Society.

Glancey's project, "The Effects of Southern Oscillation Index on Epizootic Outbreaks of Rift Valley Fever in the Horn of Africa," won first prize in the Medicine and Health Sciences category and collected five specialty awards. The inspiration for her project came from Goddard scientist Dr. Asaaf Anyamba.

Hunter will attend Pennsylvania State University this fall to study meteorology, and Glancey will begin pre-med coursework at Villanova.

Lisa Bruck teaches the science research course at Catoctin. At least seven pupils from this school of less than 1,000 students have completed the ESSR course and gone on to careers in the fields of science, technology, engineering, mathematics, or geography. Three of her students have participated in Goddard internships, making the daily commute of 64 miles—each way—and two have been named on published scientific papers.

Two students from Bruck's first science research course in 2002 have gone on to do field research for their universities. Their research in high school helped them get the skills, and the inspiration, to pursue these opportunities. ■

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NASA Civil Servant employees are able to access the health resources of the Mayo Clinic EmbodyHealth Web site, 24/7 by visiting <http://www.ohp.nasa.gov>.

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

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

In Memoriam: Sgt. John S. Janny

By Alana Little



Photo courtesy of the Janny Family

Caption: John S. Janny

You may never have met him, but we all owe a lot to John Janny. As the Goddard Armorer, he trained every officer on Center in the use and care of their weapon, ensuring that each officer was highly trained. "He knew every gun by sight and by serial number," said Janny's supervisor, Mark Freedman, Project Manager for the Sectek Inc, Code 240. Not only did he know his work, but he was dedicated in a way that you seldom see anymore. Friedman said Janny never took a sick day and worked up until he got too ill to come in.



Photo courtesy of the Security Office

Caption: John S. Janny was honored with a full military burial at Arlington National Cemetery on July 31.

I never met John Janny, but in my interview with his colleagues, a picture was painted of a true soldier, "humble, dedicated, passionate; a prince of a man." They told me about a man who loved his country and served it during World War II in the Army in campaigns in Northern France, the Rhineland, and Central Europe, and was a veteran of the Battle of the Bulge with the 702nd Tank Battalion, known as the "Red Devils." History calls these men "Patton's Troubleshooters." Terry Janes, author of a book titled *Patton's Troubleshooters*, describes these men as "feared, hated, and branded as criminals by Adolf Hitler's Nazi Government. These heroic American soldiers were a vital key to the Allied victory of World War II in Europe. Formed as an independent tank battalion, designated 702nd Tank Battalion,

Goddard lost a true officer and a gentleman when family, friends, and those special people who honor the "home going" of soldiers, laid to rest 42-year employee, Retired Army Master Sgt. and Goddard Armorer, John S. Janny.

its members quickly gained the name 'Red Devils' for their exploits in the famed 'Tennessee Maneuvers.' This armor/infantry combination was to get the dirtiest combat missions in order to consolidate the gains of General George S. Patton's history-making drive across the continent of Europe."

So, not only do we owe Janny our thanks for our day-to-day safety, but you could make the case that we also owe him, and all of our soldiers, for the current freedom we enjoy every day.

His military duty extended from March 1943 until his retirement in June 1964. Among his decorations were the World War II Victory Medal, the Bronze Star, and a Good Conduct Medal with four clasps.

Janny began his career at Goddard in 1965 as a security officer, and then moved to the "pulping" department where he was responsible for keeping Government information secure, and finally coming to work in the Security Office.

Born October 8, 1924, in Nazareth, Pa., to the late John and Mary Janny, Janny graduated from Nazareth High School in 1941.



Photo credit: Debbie McCallum

Caption: A flag was flown at half staff in honor of the burial procession for John S. Janny.

Janny, a longtime resident of Odenton, Md., died July 17 at the Genesis ElderCare Network, Severna Park Center, at the age of 82.

He is survived by his wife Nina P. Janny, who he could never stop talking about. Rhonda McCarter, co-worker and friend of Janny said he would pull out a picture of his wife to anyone and say "Come and see my sweetie." Janny was also survived by one son, Johnny Janny.

And another Red Devil rolls on. ■