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GoddardView

Goddard Year in Review 2005

Return To Flight

By Susan Hendrix

Space shuttle Discovery successfully completed a complex flight—the first mission since the Columbia accident in 2003—to the International Space Station. The mission included breathtaking maneuvers, spacewalks and tests of new procedures and safety equipment. The flight was successful, but engineers are still concerned about external tank insulating foam. NASA is committed to solving this problem before launching the next shuttle mission.

For images and information visit: http://www.nasa.gov/returntoflight
Image Credit: NASA

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Cover: STS-114 Mission Specialist Stephen K. Robinson is attached to a foot restraint on the International Space Station's Canadarm2.

Photo Credit: NASA

GoddardView Info

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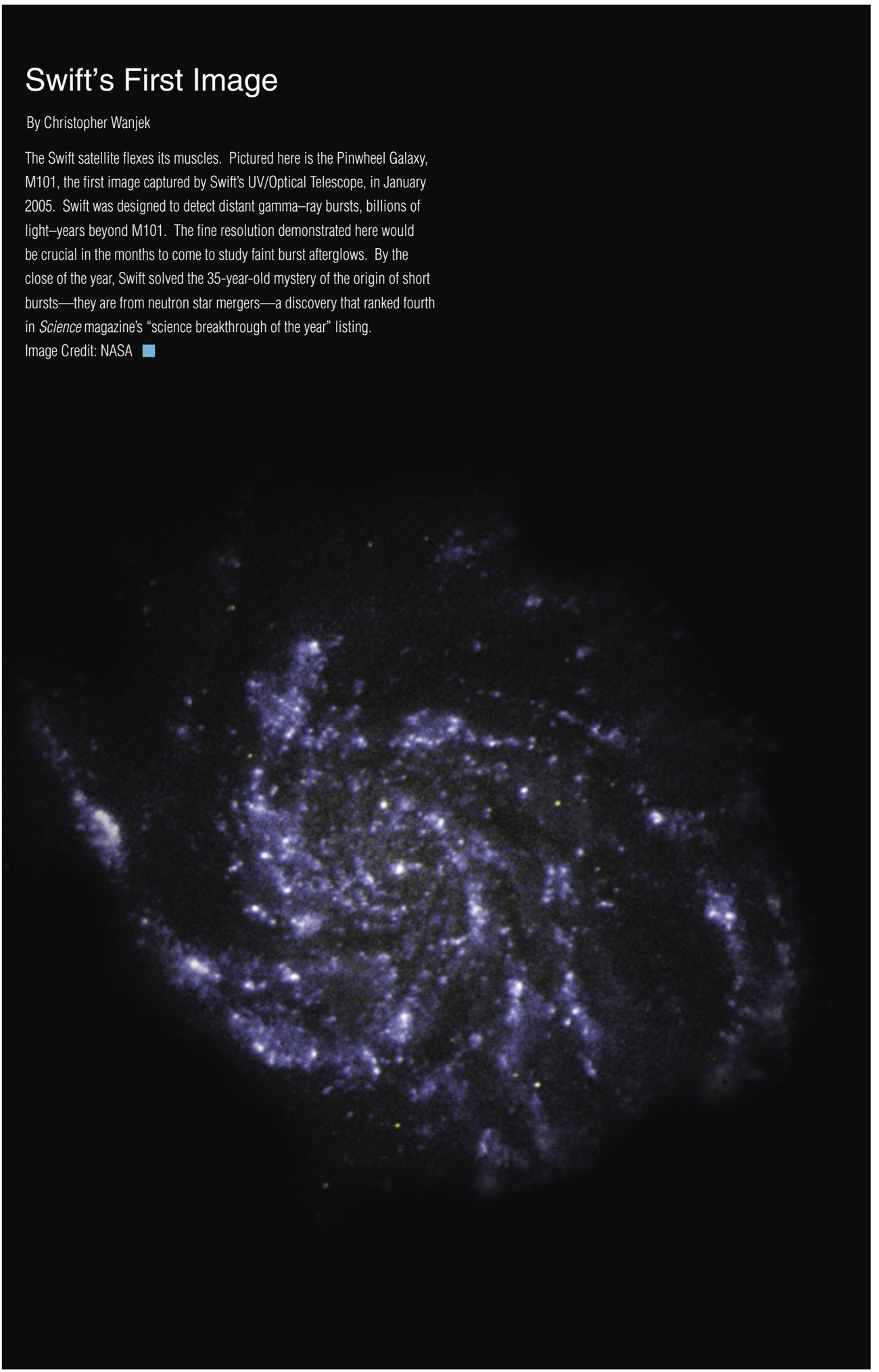
Managing Editor: Trusilla Steele
Editor: Alana Little

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

Swift's First Image

By Christopher Wanjek

The Swift satellite flexes its muscles. Pictured here is the Pinwheel Galaxy, M101, the first image captured by Swift's UV/Optical Telescope, in January 2005. Swift was designed to detect distant gamma–ray bursts, billions of light–years beyond M101. The fine resolution demonstrated here would be crucial in the months to come to study faint burst afterglows. By the close of the year, Swift solved the 35-year-old mystery of the origin of short bursts—they are from neutron star mergers—a discovery that ranked fourth in *Science* magazine's "science breakthrough of the year" listing.
Image Credit: NASA ■



Goddard 2005 Photo Review

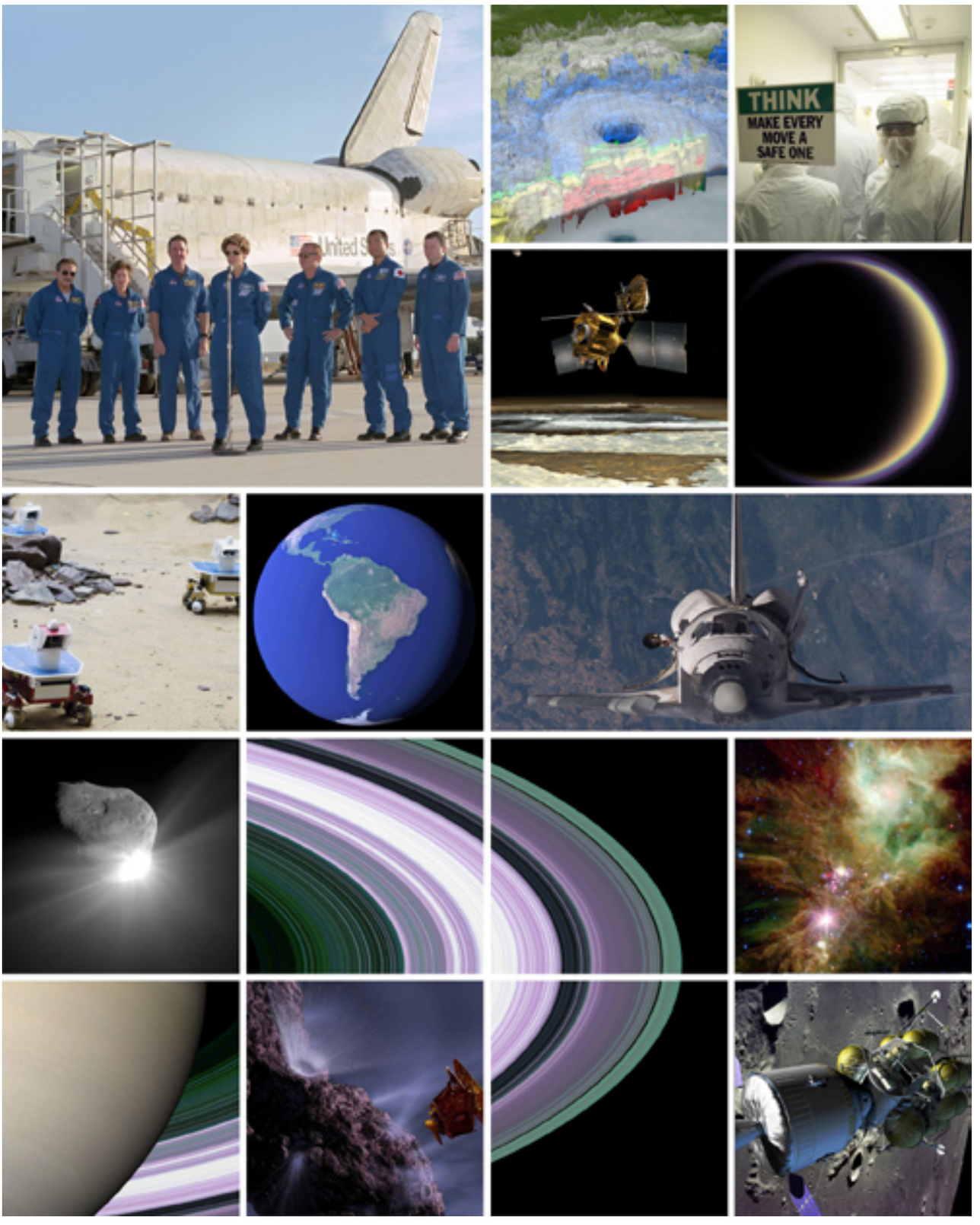


Photo Credit: NASA/TISB

Goddard 2005 Photo Review

Photo Credit: NASA/TISB

NASA Satellites Track Record Breaking Hurricane Season

By Rob Gutro

July 2005 was a record–setting month in the world of Atlantic Ocean hurricanes. That's because there were more named storms recorded in the month of July than ever in the hurricane history books.

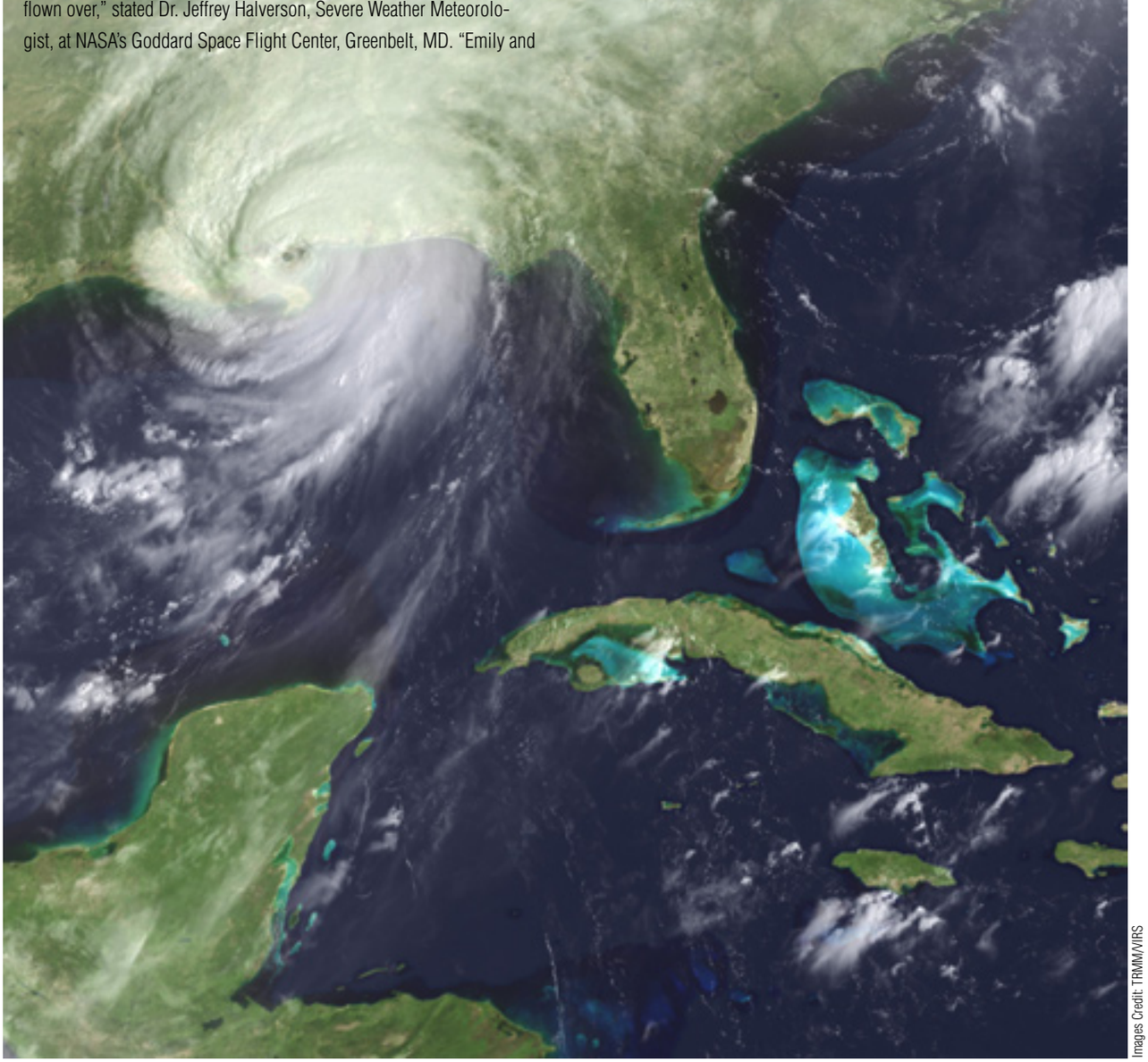
Satellites from NASA and the National Oceanic and Atmospheric Administration (NOAA) had a busy month in July following the five named storms: Cindy, Dennis, Emily, Franklin and Gert.

During July, 2005, NASA and NOAA investigators flew sophisticated research aircraft within and above several of these storms, as part of NASA's Tropical Cloud Systems and Processes (TCSP). TCSP was undertaken to better understand the processes that lead to the birth and intensification of hurricanes.

"Hurricane Emily was the most powerful hurricane that NASA has ever flown over," stated Dr. Jeffrey Halverson, Severe Weather Meteorologist, at NASA's Goddard Space Flight Center, Greenbelt, MD. "Emily and Dennis were both strong hurricanes, meaning Category 3 or higher; it is highly unusual for two strong storms to develop in close succession as early as July in the Atlantic hurricane season."

NASA provides researchers and forecasters with space–based observations, data assimilation, and computer climate modeling. NASA also provides measurements and modeling of global sea surface temperature, precipitation, winds and sea surface height, all ingredients that contribute to the formation of tropical cyclones (which is the general name for typhoons, tropical storms and hurricanes).

What was the reason for this record setting number of named storms? According to NASA satellite data, the winds and sea surface temperatures were perfect during the month of July to help these five tropical cyclones form. ■



Images Credit: TRMM/VIRS

TRMM image of Hurricane Katrina as seen over New Orleans.

Goddard Responds to Call for Aid

By Alana Little

On Tuesday, September 13, employees received an urgent message from Dr. Ed Weiler stating that the employees and families at the Stennis and Michoud Centers were in dire need of aid due to the devastation left by hurricanes Katrina and Rita.

Center employees responded quickly doing what they do best—organizing and mobilizing—to get the maximum results in the shortest amount of time.

Photo Credit: Debbie McCallum

The relief effort became a three-tiered approach: get those people food, water and necessities; find out what the damage to the area was; and send people down there to help with the relief effort.

Mindy Deyarmin from the Hubble Project Office volunteered to head the non-perishable donation effort and Karen Flynn from the Management Operations Directorate volunteered to coordinate the monetary donations. Bill Lowry, the Goddard Emergency Preparedness coordinator, and our representative on the NASA Emergency Operations Center (EOC) orchestrated the gathering and shipping of supplies and equipment such as emergency generators and satellite phones to aid in the recovery.

Volunteers Andre Fortin, Chris Wilkinson, Ed Macy and Kevin McCarthy were deployed to the Hurricane-ravaged areas and have been performing amazing reconstruction/reorganization work in the damaged areas. ■

Huygens Probe Descends to Titan

Edited by Alana Little

On January 14, 2005 Goddard Dr. Edward J. Weiler offered congratulations to the European Space Agency (ESA) and the Goddard community on the successful touchdown of its Huygens probe on Saturn's moon Titan.

"NASA's Cassini-Huygens mission to Saturn has been an incredible success… and today, not only do we have three Goddard instruments in orbit around Saturn studying the ringed planet and the Saturnian system in detail, but there is also a Goddard instrument on the surface of Saturn's largest and most interesting moon, Titan," said Dr. Weiler in a message to Goddard Space Flight Center.

Huygens is the first spacecraft to land on a world in the outer solar system and it will provide scientists with the first direct sampling of Titan's atmosphere and the first photographs of Titan's surface.

The Cassini-Huygens mission to Saturn is the most ambitious effort in planetary space exploration ever mounted and a remarkable example of an international effort which combined the talents of the ESA, NASA and the Italian Space Agency.

Photo Credit: NASA

This image of Titan was taken on December 26, 2005 and received on Earth December 27, 2005. The camera was pointing toward TITAN at approximately 57,509 kilometers (35,734 miles) away.

To learn more about the Cassini-Huygens' instruments, please visit:
http://www.nasa.gov/mission_pages/cassini/main/index.html
To learn more about the Huygens probe's instrument, please visit:
http://huygensgcms.gsfc.nasa.gov ■

Hubble Prospects the Moon for Resources

By Susan Hendrix

To prepare for our return to the Moon and beyond, NASA scientists are using the Hubble Space Telescope to hunt for resources, such as oxygen, that are essential for human survival on the lunar surface.

Hubble's snapshots of the moon represent the first time that scientists have used the telescope to support human space exploration. Scientists enlisted Hubble's help because they needed to use ultraviolet light to help find signatures of lunar materials enriched in oxygen. Since ultraviolet light is blocked by gases in the Earth's atmosphere, ground–based telescopes can't use it to observe the lunar surface. However Hubble, orbiting above Earth's atmosphere, can see in ultraviolet light. The telescope mapped variations in reflections of ultraviolet light off the lunar surface to search for specific mineral fingerprints.

NASA's Top Space Exploration Stories of the Year

NASA completed a successful year of milestones and discoveries in 2005. The year included returning the space shuttle to flight, the announcement of plans for America's next generation spacecraft and numerous scientific milestones. Top stories for year 2005 in space exploration include:

NASA's Next Generation Spacecraft

NASA announced plans for its next generation spacecraft and launch system, which will be capable of delivering crew and supplies to the International Space Station, carrying four astronauts to the moon and supporting up to six crewmembers on future missions to Mars. The new crew vehicle will be shaped like an Apollo capsule, but will be significantly larger.
For images and information, visit: http://www.nasa.gov/exploration

Deep Impact Encounters Comet

The Deep Impact spacecraft traveled approximately 268 million miles to meet comet Tempel 1. Its impactor collided with the target's nucleus, giving researchers the best-ever comet data and images.
For images and information, visit: http://www.nasa.gov/deepimpact

International Space Station Marks Five-Year Milestone

NASA and the 15 international station partners marked the fifth anniversary of continuous crewed operations in November. NASA scientists have gathered vital information on the station that will help with future long–duration missions, as the station has a unique microgravity environment that cannot be duplicated on Earth.
For images and information, visit: http://www.nasa.gov/station

New Mars Recon Craft Successfully Launched

NASA's latest Mars mission, launched August 12, will rendezvous with the red planet on March 10, 2006. The Mars Reconnaissance Orbiter (MRO) will view the planet from low orbit and provide more data than all previous Martian missions combined.
For images and information, visit: http://www.nasa.gov/mro

CREAM Creams Flight Record

A long-duration scientific balloon carrying the Cosmic Ray Energetics and Mass (CREAM) experiment set flight records for duration and distance in January 2005, flying for nearly 42 days and making three orbits around the South Pole. The previous endurance record for a balloon this size, 450 feet in diameter, was two orbits over 31 days and 20 hours. In addition to gathering information on cosmic rays, the flight also tested the capabilities of the NASA Ultra-Long Duration Balloon (ULDB) support system developed at Goddard's Wallops Flight Facility in Virginia. The ULDB is being developed to extend flights up to 100 days. After the flight, the experiment and support system were recovered, refurbished back in the United States, and launched on a second flight over Antarctica on December 15, 2005.

Spitzer Detects First Light from an Extrasolar World

NASA's Spitzer Space Telescope captured the first light ever detected from two planets orbiting stars other than the sun. Spitzer picked up the infrared glow from the Jupiter–sized planets. The findings mark the beginning of a new age of planetary science, in which extrasolar planets can be directly measured and compared.
For images and information, visit: http://www.nasa.gov/vision/universe/newworlds/spitzer-032205.html

NASA Swiftly Solves 35-Year-Old Mystery

Through coordination of observations from several ground–based telescopes and NASA'S Swift and other satellites, scientists solved the 35-year-old mystery of the origin of powerful, split–second flashes of light called short gamma–ray bursts. The flashes are brighter than a billion suns, yet last only a few milliseconds. They had been too fast for earlier instruments to catch.
For images and information, visit: http://www.nasa.gov/swift

NASA and NOAA Team Up on the GOES-R Mission

The Geostationary Operational Environmental Satellite-R (GOES-R) Program, which was implemented in March 2005, represents a new kind partnership between NOAA and NASA. For GOES-R, NOAA will be responsible for leading the development and approval of acquisition strategies. NASA formerly led these activities. NASA Goddard Space Flight Center (GSFC) in Greenbelt, MD, will be responsible for implementing the flight project, including the development of the command and control system and for supporting advanced technology developments for instruments and spacecraft subsystems on GOES-R and future NOAA geostationary programs. GSFC is the project implementation center for NASA. The NOAA Program Office is working with GSFC to complete an Inter-Agency Agreement that defines the roles and responsibilities of the two agencies.

NASA's Voyager Reaches the Final Frontier

Voyager 1 entered the solar system's final frontier. After traveling approximately 8.7 billion miles from the sun, it entered the heliosheath, the vast, turbulent expanse where the sun's influence ends and the solar wind crashes into the thin gas between stars.
For images and information, visit: http://www.nasa.gov/voyager

Astro-E2 Launches from Southern Japan

By Susan Hendrix

Photo Credit: Dr. F. Scott Porter NASA/GSFC

Astro-E2 launches from Southern Japan.

The Astro-E2 team here at Goddard helped to successfully launch the Astro-E2 spacecraft from the Uchinoura Space Center in Japan on June 10 at 12:30 p.m. local time (July 9 at 11:30 p.m. EDT).

Astronomers hope the 5-year mission will help answer several key questions, such as 'When and where are the chemical elements created? What happens when matter falls onto a black hole? How does nature heat gas to X-ray emitting temperatures?'

The Suzaku Guest Observer Facility, located at Goddard, will enable U.S. astronomers to make the best use of the mission science. "Suzaku will fill a gap in our understanding of the X-ray universe," said principal investigator Dr. Richard Kelley of GSFC.

Suzaku complements NASA's Chandra X-Ray Observatory and the European Space Agency's XMM-Newton mission.

For more information on Astro –E2, please visit:
http://www.nasa.gov/mission_pages/astro-e2/main/index.html

Hubble Celebrates 15th Anniversary

By The Hubble Heritage Team

During the 15 years NASA's Hubble Space Telescope (HST) has orbited the Earth, it has taken more than 700,000 photos of the cosmos; images that have awed, astounded and even confounded astronomers and the public. NASA recently released views of two of the most well–known objects Hubble has ever observed: the Whirlpool Galaxy (spiral galaxy M51) and the Eagle Nebula. These new images are among the largest and sharpest Hubble has ever taken. They were made with Hubble's newest camera, the Advanced Camera for Surveys (ACS). The images are so incredibly sharp, they could be enlarged to billboard size and still retain stunning details.

For the 15th anniversary, scientists used the ACS to record a new region of the eerie-looking Eagle Nebula. The Eagle Nebula image reveals a tall, dense tower of gas being sculpted by ultraviolet light from a group of massive, hot stars. The new Whirlpool Galaxy image showcases the spiral galaxy's classic features, from its curving arms, where newborn stars reside, to its yellowish central core that serves as home for older stars. A feature of considerable interest is the companion galaxy located at the end of one of the spiral arms.

For more information on Hubble Space Telescope, please visit:
http://www.nasa.gov/mission_pages/hubble/index.html

Image Credit: NASA

Tilting up on the Eagle Nebula the camera reveals the fine details captured by Hubble's Advanced Camera for Surveys of a monolithic pillar of gas and dust.

Honored Delegates Visit Goddard

By Alana Little

On Wednesday, August 3, 2005, Goddard Space Flight Center (GSFC) played host to honorable members of the Maryland Congressional Delegation in honor of Maryland Congressional Day. At the personal invite of Dr. Edward

Photo Credit: Chris Gunn

Senator Barbara Mukulski addresses Goddard employees at all-hands meeting.

Weiler, director of GSFC, Senator Paul Sarbanes, Senator Barbara Mikulski, Congressman Benjamin Cardin, Congressman Roscoe Bartlett, as well as staff members from other Congressional offices, attended an all-day event which included a tour of GSFC facilities, and an all-hands meeting in the Building 8 auditorium.

Photo Credit: Chris Gunn

Maryland Delegation at the all-hands meeting.

Dr. Weiler wanted to take this chance to thank these special members of the Maryland Delegation for all their continued support of Goddard, IVV and Wallops, and to showcase GSFC's accomplishments and upcoming missions, in particular, GSFC's role in the Vision for Space Exploration.

Mike Griffin Visits NASA Goddard

By Alana Little

Mike Griffin began his tenure as NASA Administrator on April 14, 2005. In order to get acquainted with each agency, he scheduled a series of official visits to each of the NASA Centers. On September

Photo Credit: Chris Gunn

26, 2005, Mr. Griffin visited NASA GSFC for a tour of the facilities and a chance to speak with GSFC employees. His visit included a round table discussion with GSFC senior leadership, a tour to visit with and discuss Center projects and a stop in Building 28 for a poster session discussion.

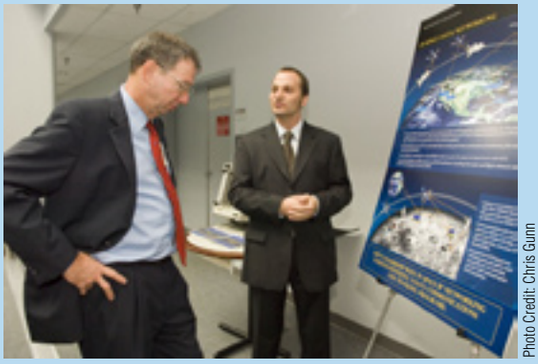


Photo Credit: Chris Gunn

NASA Administrator Mike Griffin speaks with Dave Israel about his Communications/Navigation poster during the Building 28 poster session.

NASA Honors

LISA Mission Contributor Wins 2005 Nobel Prize

By Susan Hendrix

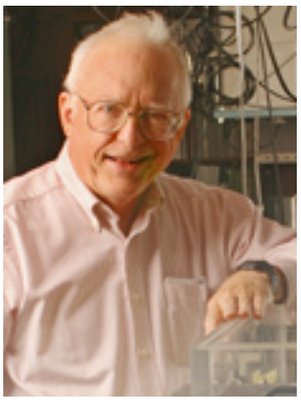


Photo Credit: University of Colorado at Boulder, Office of News Services

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

Presidential Rank Award Winners

By Alana Little

Each year, the President honors a group of career members from the Senior Executive Service (SES), Senior Level (SL) and Scientific and Technical (ST) corps who are selected for their outstanding leadership accomplishments and service over an extended period of time in the Federal Government. The 2004 Presidential Rank Award recipients were recognized by NASA Headquarters for their 2003 accomplishments.

John Campbell (SES award recipient) is the Director of Suborbital and Special Orbital Projects.

Richard Day (SES award recipient) is known throughout the Center and NASA as the GSFC Systems Management Office (SMO) Director.

Wentworth Denoon (SES award recipient) now retired, became the director of Safety and Mission Assurance (SMA) in September 2001.

Norden Huang (ST award recipient) is the chief scientist for oceanography in the Earth Science Directorate at GSFC and an internationally recognized authority on sea-surface physics.

Samuel Moseley (ST award recipient) is a senior astrophysicist at GSFC.

Joanne Simpson (ST award recipient) was the chief scientist for meteorology in the Earth Sciences Directorate at Goddard and a Goddard Senior Fellow before retiring.

Nicholas White (SES award recipient) is the Chief of the Laboratory for High Energy Astrophysics (LHEA) at GSFC.

Goddard Employee Spotlight

Thanks to all of those employees who gave of their time to participate as a *Goddard View* Employee Spotlight. GSFC is a better facility for all your hard work and accomplishments both on and off Center.

If you know of someone who should appear as an Employee Spotlight please contact Alana Little, Editor of *Goddard View* at X60691 or alittle@pop100.gsfc.nasa.gov.

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