



National Aeronautics and Space Administration
Goddard Space Flight Center
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Safety – Our Number One Value

Scientific "Fireworks Display" Set For East Coast in July

NASA will set off its own Independence Day fireworks during a series of nighttime rocket launches from July 2 to 20. Designed to study "space weather" -- the interaction of the solar wind with the Earth's magnetic field and atmosphere -- the experiments will focus on improving our understanding of electrically charged atoms at the edge of space.

During the 19-day period, two suborbital rockets will be launched on each of two nights between 9:30 p.m. and 4 a.m. EDT from the NASA Goddard's Wallops Flight Facility in Virginia.

Two of the experiment packages will release a chemical that will form large glowing clouds in space. These luminescent milky-white clouds should be visible to the naked eye for several hundred miles from the launch site, encompassing the mid-Atlantic region and portions of the northeastern and southeastern United States. The clouds should be visible for 10 to 20 minutes to the southeast of the launch site at about 70 degrees elevation (approximately three-quarters of the way between the horizon and the point of the sky that appears to be directly above an observer).

The chemical, trimethylaluminum, will be released in the ionosphere between 43 and 96 miles (69 to 154 kilometers) altitude. The harmless by-products will disperse across thousands of miles as they diffuse into the upper atmosphere.

The experiments will take place in a region above the Earth that at first appears to be empty and very quiet. In fact, the Earth's upper atmosphere actually is bustling with activity. Here the solar wind (a fast-moving stream of particles emanating from the Sun), the Sun's magnetic field and Earth's magnetic field and atmosphere come together. Their interactions can create disturbances just above Earth's lower atmosphere.

These disturbances can affect radio, television and satellite communications. By better understanding these interactions in the ionosphere, scientists hope to gain information that will ultimately help improve the reliability of radio and satellite communications.

The specific aim of these experiments is to explore metallic ion layers (regions of electrically charged particles) that exist about 60 miles (100 kilometers) above the Earth and to understand how their interactions with wind in the upper atmosphere create large electric fields and turbulence. The metallic ion layers are formed by material from meteors that have collided with the Earth's upper atmosphere.

Each mission will consist of a one-stage Black Brant V rocket and a two-stage Taurus-Orion rocket. The Black Brant V, which will carry instruments only, will be launched first. The Taurus-Orion, carrying the chemical package, will be launched approximately three minutes later.

The status of the launches can be found by calling the Wallops Flight Facility launch status line at (757) 824-2050 or on the Wallops web page at: <http://www.wff.nasa.gov>



FUSE Handover: Jim Moore, Director of the Flight Projects Directorate, hands over the key for FUSE operations to William Oegerle, the Head of FUSE Science Operations, at John Hopkins University in Baltimore. After launch, control of the spacecraft shifted to the Johns Hopkins University.

Goddard Scientist to Participate in Chandra Briefing

Dr. Kimberly Weaver, an astrophysicist in the X-ray Astrophysics Branch at Goddard, will participate in the Chandra/AXAF science briefing on NASA TV, on July 7 at 10:30 a.m. EDT. Although not part of the formal Chandra science team, Weaver will act as a guest panelist for the briefing.

The Chandra (STS-93) flight will make history with NASA's first female mission commander. Eileen Collins and her crew will carry Chandra, the heaviest payload ever deployed from the Shuttle, into space. Chandra will be deployed approximately seven hours after its 12:36 a.m. EDT launch on July 20. This

observatory will allow scientists to obtain unparalleled X-ray images of exploding stars, black stars and others to help them understand the structure and evolution of the universe.

NASA Honor Award Honorees

Below are the Goddard employees and groups that have been selected to receive NASA Honor Awards on July 16 at 2 p.m., in the Building 8 Auditorium. A reception in the lower lobby will immediately following the ceremony. Congratulations to all awardees.

Distinguished Public Service Medal

Dr. Robert E. Williams/440/STSI

Outstanding Leadership Medal

John E. Hodge/220

Bernard D. Seery/440

Edward T. Powers/540

Dennis J. Andrucyk/560

Robert J. Sodano/581

Dr. Edward S. Cheng/685

Exceptional Achievement Medal

Timothy A. Klein/426

Thomas A. Gitlin/451

Karen N. Halterman/480

Sandra L. Hare/500

Shaun R. Thomson/545

Dr. Susan R. Breon/552

Anthony J. Martino/554

Ms. Janet L. Barth/562.1

Scott A. Glubke/574

Maria M. So/710.2

James M. Free/730

Exceptional Service Medal

A. V. Diaz/100

Gail S. Williams/150

Paula A. Gal-Edd/155

Barry N. Green/221

Arthur L. Wade/235

Marietta J. Young/300

Richard D. Claffy/303

C. Michael Tasevoli/401.6

Debra L. Henry/408

F. Gary Cunningham/415

David A. Di Pietro/470

John M. Vranish/544

John H. Henninger/548.2

John G. Hagopian/551.1

Quang H. Nguyen/561

Dr. Edward M. Gaddy/563

Vickie E. Moran/563

Willis S. Jenkins, Jr./565

Thomas J. Budney/570

David C. Folta/571

James A. Jackson/572

Raymond Whitley/582

Dr. Theodore P. Stecher/681

William F. Lau, Jr./810

Exceptional Scientific Achievement Medal

Dr. Daniel S. Kimes/923

Exceptional Engineering Achievement Medal

Warner H. Miller/564

Equal Employment Opportunity Medal

Sharon B. Johnson/114

Public Service Medal

Alan Dressler/440

(Carnegie Institute of Washington)

Vanessa G. Johnson/450

(LMSOC)

Francis Vandenburg/682

(European Space Agency)

Wallace W. Meyer/740

(Ball Aerospace Technology)

David L. Burkhead/803

(CSC)

Erich F. Klein, III/820

(NSBF)

1998 Presidential Rank Recipients

Distinguished Executive in SES

Dr. Vincent V. Salomonson/900

Meritorious Executive in SES

Mary E. Kicza/100

Dr. John H. Campbell/440

John A. Hrastar/600

Dr. Anthony J. Busalacchi/970

Group Achievement Award

Name of Groups

NASA Grants Management Process Team/100

Outsourcing Desktop Initiative for NASA (ODIN) Team/200

Tropical Rainfall Measuring Mission (TRMM) Logistics Support Team/230

NASA Industrial Property Management Information System (NIPMIS) Team/235

EOS Terra (AM-1) Spacecraft Integration and Test Team/421

HST Multi-Layer Insulation Failure Review Board/545

Compton Gamma Ray Observatory (GRO) Mission Team/581

AM-1 Alternative Architecture Mission Operations Center (AMOC) Team/584

Solar and Heliospheric Observatory (SOHO) Recovery Team/630

NASA Sounding Rocket Team/810

SeaWiifs Project Science Team/970

Public Service Group Achievement Award

Name of Group

Hurricane "Bonnie" Equipment/450W

Evacuation Team in Coquina Beach, NC

Swales Team Selected for SMEX-LITE Technology Commercialization

Swales Aerospace of Beltsville, Md. has been selected for the Small Explorers (SMEX)-Lite Technology Commercialization Space Act Partnership with NASA's Goddard Space Flight Center in Greenbelt, Md.

This partnership is intended to transfer the SMEX-Lite spacecraft architecture and related technologies from NASA to industry as part of NASA's growing spaceflight technology program.

The Space Act agreement calls for NASA to transfer to the Swales team, which includes support from AlliedSignal Technical Services Corporation of Lanham, Md. and the Hammers Company of Greenbelt, the capability to design, fabricate and operate spacecraft based on the SMEX-Lite spacecraft and subsystem design. The partnership also permits SWALES to sell spacecraft based on the SMEX-Lite architecture to commercial customers and to government agencies.

"This type of partnership will benefit both the contractor and the Government by providing, through Swales, spacecraft that will be commercially available, thus reducing the cost of this technology through more utilization," said Wayne Hudson, Chief of the Technology Commercialization Office at Goddard.

The Swales team's proposal, one of two that Goddard received from its solicitation, had several major strengths that proved to be the deciding factors in the selection, said Hudson. "For one, their proposal identified the intention to propose the SMEX-Lite architecture to the Rapid Spacecraft Development Office (RSDO), allowing other government customers ready access to this spacecraft design to consider for their applications." Swales has been successful in getting other spacecraft included in the first RSDO catalogue. "This stated intent would meet a primary objective of this Goddard/SWALES partnership, which is to develop as many spacecraft options as possible for application to future Goddard missions."

Another deciding factor was the scope of the tasks the Swales proposal offered to the Triana Project, the first NASA mission to use the Goddard-developed SMEX-Lite spacecraft. Triana will be the world's first Earth-observing mission to L1. Triana is an exploratory mission to investigate the scientific and technological advantages of L1 for Earth observation.

The Triana mission will carry three independent instrument groups mounted on the SMEX-Lite spacecraft. The spacecraft will be launched from the Space Shuttle (as a secondary payload) to provide continuous scientific measurements of the Earth's atmosphere and surface from the Lagrange (L1) point between the Earth and the Sun, the neutral gravity point between the Earth and the Sun. The Triana observation point offers a unique observation capability for Earth science. From this viewpoint, instruments have a continuous view of the entire sunlit face of the Earth, from sunrise to sunset and pole to pole. Every point on the Earth rotates under the view of the instruments providing a full day's data - a capability not available from any other orbit.

"This technology transfer activity will be conducted as an integral part of the Triana Project, said Jim Watzin, who serves as the Triana Program Manager at Goddard. "It is Goddard's intent to provide the Swales team an opportunity to learn about this spacecraft design and all of its associated technologies from the designers as they adapt it to the requirements of the Triana mission. The Swales partnership will gain knowledge about this new architecture and will effect transfer of that knowledge as they participate in the first flight application through the Triana project.

"The hands-on participative partnership approach to technology transfer has the potential to be a very effective and efficient way to transfer technology, especially one of such large scope as this," said Watzin, who is also the Small Explorer Project Manager at Goddard. "This new approach has great potential for application to many of Goddard's new technology intensive projects. If similar partnerships are established at the inception of the new project, the benefits to the partners should have even greater value."

Goddard Contractors Association Elects New Officers

Effective July 1, the new officers for the Goddard Contractors Association is as follows: President, Donald Finnegan from Jackson and Tull; Vice President, Frank Kraus of Lockheed Martin Corporation; Secretary, Ron Estes of Raytheon ITSS; and Program Chairperson Larry Campbell of Unisys.

NASA Materials on the Web

NASA's Vision Statement states, NASA is an investment in America's future. As explorers, pioneers, and innovators, we boldly expand frontiers in air and space to inspire and serve America and to benefit the quality of life on Earth. NASA also has a mission statement, a strategic plan, and a performance plan. You can learn more about the Agency's goals and missions as outlined in the Strategic Plan by going to this web site:

<http://www.hq.nasa.gov/office/codez/plans.html> And for information on the NASA performance plan, go to this site: <http://www.hq.nasa.gov/office/codez/pplan99/home.htm>

The Badge Is in the Mail

Goddard's ISO registration audit is quickly approaching. The audit dates for Greenbelt and Wallops are Aug. 23 through Sept. 1. Any employee may be asked by the auditors if they know the Center's Quality Policy Statement and what ISO 9001 means. Do you know the Quality Statement? Do you know about the processes and procedures?

As part of the Center wide awareness campaign for Goddard's upcoming ISO Registration Audit, a badge was designed for each Goddard civil service employee to use as a quick reference to the "Quality Policy Statement" and documenting processes and procedures. Every Goddard civil service employees should receive their badge by July 9. If you do not received yours by that date, please contact Darlene Ahalt on extension on 6-8101 or Rebecca Elliott on 6-8956.

IG Hotline

The NASA Inspector General hotline number is 1-800-424-9183 for the reporting of fraud, waste or abuse of the government system.

Safety

Safety permeates everything we do at NASA, and the entire NASA workforce is committed to safety as a priority. The NASA management team is held accountable for safety. We foster an environment with zero tolerance for mishaps. We must protect the safety and health of the general public and the NASA workforce on and off the ground. By focusing on the safety of our missions, we also focus on improving quality and decreasing

schedule and cost. Additional information about the NASA Safety Initiative can be found on the following Web page: <http://www.hq.nasa.gov/office/codeq/safety/index.htm>

Investigation Finds Design Errors Caused WIRE Spacecraft Failure

A NASA board has found that NASA's Wide-Field Infrared Explorer (WIRE) failed because of an incorrectly designed electronics box that prematurely fired explosive devices, causing early ejection of the instrument's telescope cover.

The WIRE Mishap Investigation Board found that the design of the instrument's electronics box did not take into account subtle, but known, start-up characteristics of one component within the box. Electrical power created at the start-up of this component reached explosive devices, called pyrotechnics, meant to eject the telescope's cover later in the mission. The power reached the pyrotechnics within a fraction of a second after the box was turned on, and the cover was ejected.

With the premature loss of the telescope's cover, the frozen hydrogen used to cool the telescope's sensitive infrared detectors was exposed to the Sun. As the telescope warmed, the hydrogen converted into a gas and vented entirely into space within 48 hours of launch. Without the frozen hydrogen, the instrument could not conduct its scientific mission.

"There was no component failure," said Darrell Branscome, chairman of the eight-member WIRE Mishap Board and Deputy Associate Administrator (Enterprise Development) for NASA's Office of Space Flight, Washington, D.C. "This was simply a case of a design error that allowed power to get to the explosive charges before it should have. The system operated the way it was designed. Unfortunately, the design was flawed."

The report added that simulators and other support equipment used for design and verification tests lacked the fidelity required to detect this potential failure.

"A significant contributing cause of the anomaly was the failure to identify, understand, and correct the electronic design of the pyro electronics box," the report said. "Design errors in the circuitry, which controlled pyro functions, were not identified. The pyro electronics box design was not peer reviewed, and other system reviews conducted by the instrument design team did not focus on the electronics box."

WIRE was launched from Vandenberg Air Force Base, Calif., March 4 aboard a Pegasus XL launch vehicle. WIRE's mission was to detect infrared light in the background cosmos to learn more about the formation of stars, galaxies and the current state of the universe.

NASA has already taken additional steps to ensure that design engineers are aware of this condition. A NASA Parts Advisory was issued on May 27 at the request of the Mishap Board informing design engineers of the need to consider the startup behavior of electronic devices to prevent unwanted or unexpected power discharges.

The team's report also included recommendations for future spacecraft designers. These include the use of independent, separate inhibiting devices for pyrotechnics for mission-critical or irreversible events; additional testing for anomalous start-up behavior; detailed, independent reviews to assess the system design; and consideration of the design, location and mounting of external vent hardware in the event of a worst-case venting scenario.

The WIRE spacecraft is now in a stable orbit with its other systems and electronics in good working order. Ground controllers will proceed with tests on new flight-control technology aboard the spacecraft.

The WIRE mission was the latest in a series of Small Explorers, a project under the Explorers Program managed by Goddard. Goddard also built the WIRE spacecraft. The Jet Propulsion Laboratory, Pasadena, Calif.,

managed development of the WIRE instrument, which was constructed by the Space Dynamics Laboratory at Utah State University, North Logan, Utah.

The full text of the executive summary of the report is available on the World Wide Web at:
ftp://ftp.hq.nasa.gov/pub/pao/reports/1999/wire_summary.pdf

Mission Success Starts with Safety

If you would like to offer comments or ask questions concerning the content of the Goddard News for this week please address your e-mail comments to: James.Sahli.1@gsfc.nasa.gov

If you would like to offer comments or ask questions regarding the HTML (on-line) version of Goddard News for this week please address your email comment to: Lynn.A.Jenner.1@gsfc.nasa.gov