

Inside Wallops

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'FIREFLY' Cubesat Mission To Study Link Between Lightning And Terrestrial Gamma Ray Flashes

Massive energy releases occur every day in the upper reaches of Earth's atmosphere. Lightning may give rise to these bursts of radiation. However, unlike the well-known flashes of light and peals of thunder familiar to Earth-dwellers, these energy releases are channeled upward and can be detected only from space. Our atmosphere protects us from the effects of this radiation, but the mechanisms at work can impact Earth's upper atmosphere and its space environment.

A new nano satellite mission, called 'Firefly,' sponsored by the National Science Foundation (NSF) and led by NASA's Goddard Space Flight Center will explore the relationship between lightning and these sudden bursts, called Terrestrial Gamma Ray Flashes (TGFs).



USRA Graphic

NASA's Compton Gamma Ray Observatory (CGRO) first discovered TGFs in the 1990s. Designed to look outward at cosmic sources of gamma rays, CGRO also caught rare but tantalizing glimpses of gamma rays coming from Earth.

TGFs are likely produced by beams of very energetic electrons, which are accelerated in the intense electric fields generated by large thunderstorm systems. Before CGRO, many scientists thought these very energetic types of radiation could be generated only near the Sun, or in black holes, large galaxies, or neutron stars.

"These electron beams are more powerful than any produced in near-Earth space,

and understanding their acceleration mechanisms will shed light on a physical process that may occur on other planets, or in astrophysical environments, as well as in the sun's corona," said Doug Rowland, principal investigator for the Firefly mission at NASA Goddard's Space Weather Laboratory.

Firefly will explore which types of lightning produce these electron beams and associated TGFs. In addition, Firefly will explore the occurrence rate of TGFs that are weaker than any previously been studied. The result will be a better understanding of the effect that the millions of lightning flashes that occur worldwide each day have on the Earth's upper atmosphere and near-Earth space environment.

The Firefly mission also emphasizes student involvement as part of the ongoing effort to train the next generation of scientists and engineers. Students at Siena College, in Loudonville, N.Y., and the University of Maryland Eastern Shore, in Princess Anne, Md., will be involved in all phases of the Firefly mission.

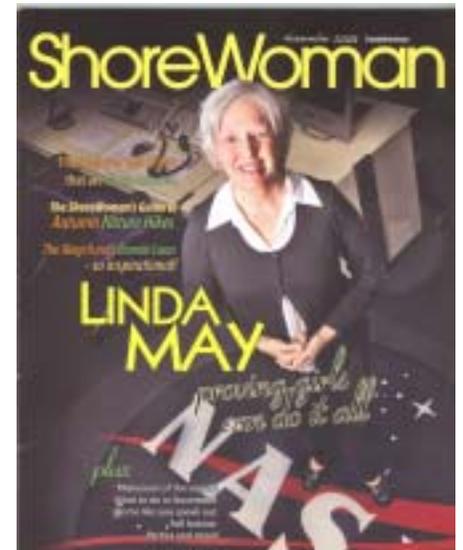
Firefly is funded and managed by the National Science Foundation, and will be developed as a collaborative effort by NASA Goddard Space Flight Center, Universities Space Research Association (USRA), Columbia, Md.; Siena College; University of Maryland Eastern Shore, Princess Anne, Md.; and the Hawk Institute for Space Sciences, in Pocomoke City, Md.

NASA Goddard, USRA, and Siena College will provide the instrument payload, while the Hawk Institute will build the CubeSat. NASA's Wallops Flight Facility will provide technical oversight for the integration of Firefly to the launch vehicle.

Firefly's launch date is likely to be in 2010 or 2011. The micro satellite will fly as a secondary payload inside a Poly-Picosatellite Orbital Deployer (P-POD) provided by California Polytechnic State University, San Luis Obispo, Calif.

Wallops Engineer Featured in Local Magazine

Linda May, a software engineer for Honeywell supporting the Near Earth Network Services contract at NASA Wallops Flight Facility, has landed on the cover of *ShoreWoman's* November issue. May also is featured in the cover story, "Formula for a well-rounded life".



The monthly magazine, published by the Delmarva Media Group of Gannett Co., Inc., features prominent local women and provides news and advice on such subjects as family, health, careers, food, and entertainment. The publication is exclusively for and about women.

Wallops Shorts.....

In the Field

NASA Balloon Program Office personnel and a team from the Columbia Scientific Balloon Facility have arrived in McMurdo to support the winter Antarctic Campaign.

Wallops personnel are at the Poker Flat Research Range, Alaska, preparing for the January sounding rocket campaign.

On the Road

Henry Cathey, NMSU Physical Science Laboratory, gave presentations on the NASA Balloon Program and the upcoming balloon flights from Antarctica to the 5th grade class at Kegotank Elementary School on November 24.

Electric Consumption Rankings

The following is a list of buildings on the Main Base and Wallops Island and electric consumption for the period Oct. 21 to Nov. 20, 2008, as compared to the same period last year.



(-) indicates a decrease, (+) indicates an increase and the dollar value of each.

Building F-4 moved from third place to first.
Building E-100 fell from first to 14th place.

Decrease in consumption:

1. F-004	-67.3 %	(\$1,574.80)
2. E-134	-53.9 %	(\$1,044.20)
3. F-010	-38.6 %	(\$14,762.00)
4. F-001	-32.1 %	(\$192.10)
5. V-050	-28.6 %	(\$366.30)
6. X-015	-23.0 %	(\$402.20)
7. B-129	-19.6 %	(\$230.90)
8. W-015	-19.2 %	(\$75.60)
9. N-159	-18.4 %	(\$1,986.80)
10. F-005	-16.9 %	(\$179.10)
11. F-160	-16.1 %	(\$383.10)
12. X-075	-13.6 %	(\$105.20)
13. V-024	-11.2 %	(\$2,907.30)
14. E-100	-10.2 %	(\$112.50)
15. E-002	-9.1 %	(\$482.50)
16. E-104	-8.8 %	(\$235.80)
17. D-010	-7.9 %	(\$141.80)
18. D-008	-6.7 %	(\$300.20)
19. AEGIS	-6.1 %	(\$8,430.40)
20. E-107	-5.1 %	(\$324.90)
21. N-161	-3.9 %	(\$101.00)
22. E-106	-3.6 %	(\$269.70)
23. M-020	-1.7 %	(\$23.80)
24. X-055	-0.7 %	(\$0.90)
25. F-019	-0.1 %	(\$1.50)
26. A-001	-0.1 %	(\$1.00)

Increase in consumption:

27. F-006	+0.7 %	\$11.00
28. N-162	+4.4 %	\$644.60
29. B-031	+12.2 %	\$41.80
30. M-015	+12.6 %	\$174.50
31. W-020	+13.0 %	\$420.80
32. E-105	+14.4 %	\$417.90
33. F-016	+14.8 %	\$537.60
34. E-007	+15.4 %	\$78.90
35. F-002	+19.3 %	\$381.10
36. F-003	+22.9 %	\$118.70
37. X-035	+40.0 %	\$276.70
38. F-007	+45.7 %	\$1,938.20
39. Z-040	+60.9 %	\$282.60
40. D-001	+64.0 %	\$3,849.40
41. E-109	+103.8 %	\$3,995.40
42. Y-015	+354.1 %	\$806.30
43. N-222	+474.7 %	\$238.30
44. W-040	+1164.1 %	\$415.60

Have some pie?



Jacob Owen Photo

Jeff Reddish prepares for the “pie-in-the-face”.

The winner by a large margin was non-other than a very surprised, Geoff Reddish. Although caught totally off-guard by the come-from-behind attack, Reddish donned the cape and took the pie to the face.

Things didn't turn out exactly as planned when Jeff Reddish, Wallops Combined Federal Campaign (CFC) Chairperson, came up with the idea of a “Pie-in-the-Face” contest as a fund raiser for this year's CFC.

Wallops senior managers agreed to be ‘candidates’, their pictures were pasted to cans, and employees dropped money in the can of their choice.

Caroline Massey held the lead briefly until someone emptied their coin jar into Craig Purdy's can. The voting was fierce right up to the end when a surprise “drop-in” ballot surfaced and saved the senior managers.



Annual Awards Ceremony
December 12
Building E-100 Auditorium

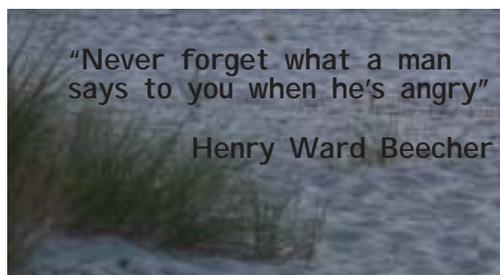
Followed by the
Wallops Exchange and Morale Association
Holiday Party
Building F-3, Rocket Club

Did you know...



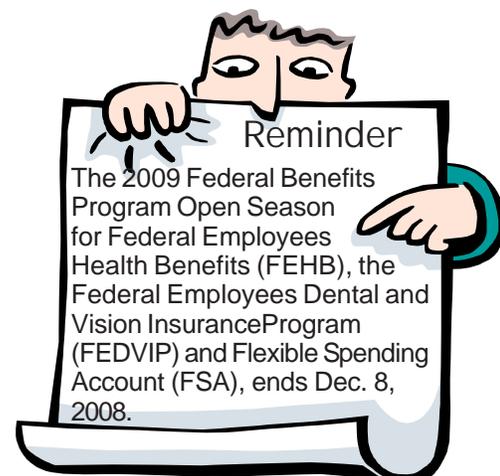
The Wallops Aerobics Club uses music designed to provide the optimum beats per minute for aerobic and toning activities. Step aerobics music is slightly slower than floor aerobics music.

Participants are welcome to help select the music type -- 50's, 80's, top 10, rock, house, pop, country, Latin, or even hip hop.



“Never forget what a man says to you when he's angry”

Henry Ward Beecher



Reminder
The 2009 Federal Benefits Program Open Season for Federal Employees Health Benefits (FEHB), the Federal Employees Dental and Vision Insurance Program (FEDVIP) and Flexible Spending Account (FSA), ends Dec. 8, 2008.

Inside Wallops is an official publication of Goddard Space Flight Center and is published by the Public Affairs Office, x1584, in the interest of Wallops employees. Recent and past issues of *Inside Wallops* also may be found at: <http://www.nasa.gov/centers/wallops/news/newsletters.html>

Editor
Asst. Editor

Betty Flowers
Rebecca Powell