THE 206-43
The Newsletter of NARHAMS, NAR Section #139.
NAR National Champions 2001, 2004
FEBRUARY 2007 VOL 29 ISSUE 02

Lunar CRater Observation and Sensing Satellite (LCROSS)

The Mission Objectives of the Lunar Crater Observation and Sensing Satellite (LCROSS) are to advance the Vision for Space Exploration (VSE) by confirming the presence or absence of water ice in a permanently shadowed crater at either the Moon's North or South Pole. The identification of water is very important to the future of human activities on the Moon. LCROSS will blast the permanently dark floor of one of the Moon's polar craters with two heavy impactors early in 2009 to test the theory that ancient ice lies buried there. The impact will cause an explosion of material from the crater's surface to create a plume that specialized instruments will be able to analyze for the presence of water (ice and vapor), hydrocarbons and hydrated materials.

LCROSS will also provide technologies and modular, reconfigurable subsystems that can be used to support future mission architectures.

Ames Research Center (ARC) will oversee the development of the LCROSS mission with its spacecraft and integration partner Northrop-Grumman. This is a fast-paced, low-cost, mission that will leverage some existing NASA systems, Northrop-Grumman spacecraft expertise, and Ames' Lunar Prospector experience. Ames will be managing the mission, performing mission operations, and is developing the payload instruments, while Northrop Grumman will be designing and building the spacecraft for this innovative mission.

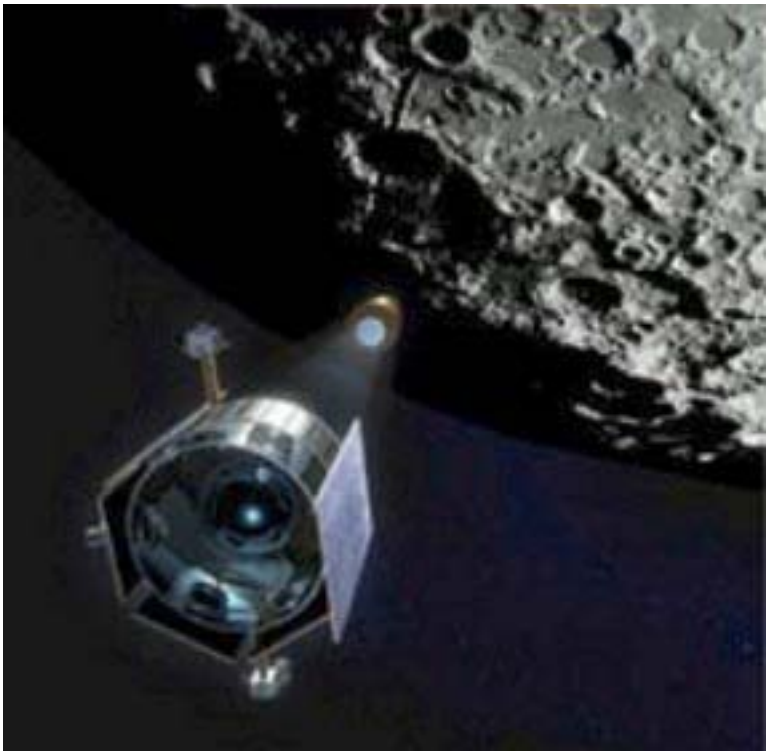
Scheduled for launch in 2008, LCROSS will travel to the Moon as a co-manifested payload aboard the launch vehicle for the Lunar Reconnaissance Orbiter (LRO). LRO is designed to map the lunar surface and characterize landing sites for future missions.

Why LCROSS?

Just like on Earth, water is a crucial resource on the Moon. It will not be practical to transport to space the amount of water needed for human and exploration needs. It is critical to find natural resources, such as water, on the Moon. The Lunar Crater Observation and Sensing Satellite (LCROSS) mission will begin the search for water, leveraging the information we learned from the Clementine and Lunar Prospector missions.

By going to the Moon for extended periods of time before other bodies in our solar system, astronauts will search for resources and learn how to work safely in a harsh environment—stepping stones to future exploration. The Moon also offers many clues about the time when the planets were formed.

http://lcross.arc.nasa.gov/



ZOG-43

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ZOG-43 is the official newsletter of NARHAMS the National Association of Rocketry Headquarters Astro Modeling Section # 139

NARHAMS is the oldest model rocket club in the United States!

ZOG- 43 is dedicated to model rocketeers of all ages, abilities, and interest. We are committed to providing the most current, up-to-date information on model and real world rocketry, and to provide educational material as well as entertaining information. ZOG -43 is published monthly and is available to anyone on a subscription basis. Current rates are $10 for meeting pickup or email or $15 for postal mail U.S. Funds for 12 issues a year, payable to NARHAMS Material in ZOG -43 is not copyrighted. Free and unlimited reproduction is granted with the proper credit to the author and/or ZOG-43.

For more information.....

If you have any questions about ZOG-43 or NARHAMS, or if you have any comment(s), correspondence, free merchandise or if you'd like to submit an article, send them to :

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ZOG-43 is edited by Roy Lappalainen, and is an eight-time winner of the NAR/LAC "Rockwell" Trophy, recognized as the best NAR section newsletter.

Years won: 1969, 1973, 1975, 1990, 1991, 1992, 2003, 2004 & 2005

Photographs: by Roy Lappalainen, except where noted.

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NARHAMS ON THE WEB

http://www.narhams.org

Send and receive E-mail with other NARHAMS members through NARHAMS Web page grouplist via yahoo-groups.

NARHAMS serves Baltimore, the state of Md., Washington DC and the surrounding Metropolitan areas. The club is a section of the National Association of Model Rocketry (NAR) and we are the oldest continuously active model rocket club in the United States, first established as a high school club in 1963, changing our name to NARHAMS when chartered as a NAR section in 1965. NARHAMS is the only five time winner of the NAR "Section of the Year" award.

Years won: 1997,1998,1999, 2001, 2004 and 2006

NARHAMS members regularly fly their model rockets at NASA's Goddard Space Flight Center on Soil Conservation Rd. in Greenbelt Md. The launches are open to the public and are held the first Sunday of every month (weather permitting), starting at 1 PM.

Sport Launches are usually held the third Saturday of every month at Old National Pike Recreation Park near Mt. Airy Md. Check the web page for updates.

NARHAMS welcomes all prospective new members to our monthly meetings. They are held on the third Saturday of the month from 5:30 to 9:30 PM at the College Park Airport Annex Building. Dues are 10 cents a week, with an initial 50 cents up front (good for 5 weeks) as a sign of good faith.

NEW: Monthly meetings available on-line via chat-room , simply go to the NARHAMS homepage and click on the link.

Directions to College Park Airport:

Follow I-495 to Kenilworth Ave. South. Make a right onto Paint Branch Parkway, then make a right on Cpl. Frank S. Scott Dr. At the airport entrance go straight to the Operations Building, the annex building is adjacent to the "Ops" building.

ZOG ROYAL COURT

(NARHAMS OFFICERS)

ZOG (President)

Jennifer Ash-Poole 410-674-6262

PRINCE ZOG (Vice-President)

Roy Lappalainen 410-653-6087

COLLECTOR OF THE ROYAL TAXES (Treasurer)

Ed Pearson 301-577-7775

KEEPER OF THE HOLY WORDS (Secretary)

Chris Kidwell 571-434-7507

COURT JESTER

(Section Advisor)

Jim Filler 301-524-4447

Refit U.S.S. Atlantis/Interrogator
WWW.SIRIUSROCKETS.COM

NAR S&T NEW MOTOR CERTIFICATIONS

Animal Motor Works:

I195
38mm x 249mm
I195WW-18
358 Newton-seconds total impulse
238 Newtons Peak Thrust
200 Newtons Average Thrust

192.2 grams propellant mass
WW = White Wolf Propellant

I220
38mm x 249mm
I220SK-20
358 Newton-seconds total impulse
312 Newtons Peak Thrust
223 Newtons Average Thrust

301.9 grams propellant mass
SK = Skidmark Propellant

I325
38mm x 370mm
I325WW-18
594 Newton-seconds total impulse
402 Newtons Peak Thrust
328 Newtons Average Thrust

316.8 grams propellant mass
WW = White Wolf Propellant

Aerotech:

F27R
29mm x 83mm
F27R-4, 8
49.6 Newton-seconds total impulse*
37.7 Newtons Peak Thrust*
24.4 Newtons Average Thrust*

28.4 grams propellant mass
R = Redline Propellant
*-Sea level corrected value

G71R
29mm x 124mm
G71R-4, 7, 10
107 Newton-seconds total impulse*
117 Newtons Peak Thrust*
71.0 Newtons Average Thrust*

56.9 grams propellant mass
R = Redline Propellant
*-Sea level corrected value

G79W
29mm x 146mm
G79W-4, 7, 10
108 Newton-seconds total impulse*
93.9 Newtons Peak Thrust*
72.9 Newtons Average Thrust*

60.1 grams propellant mass
W = White Lightning Propellant
*-Sea level corrected value

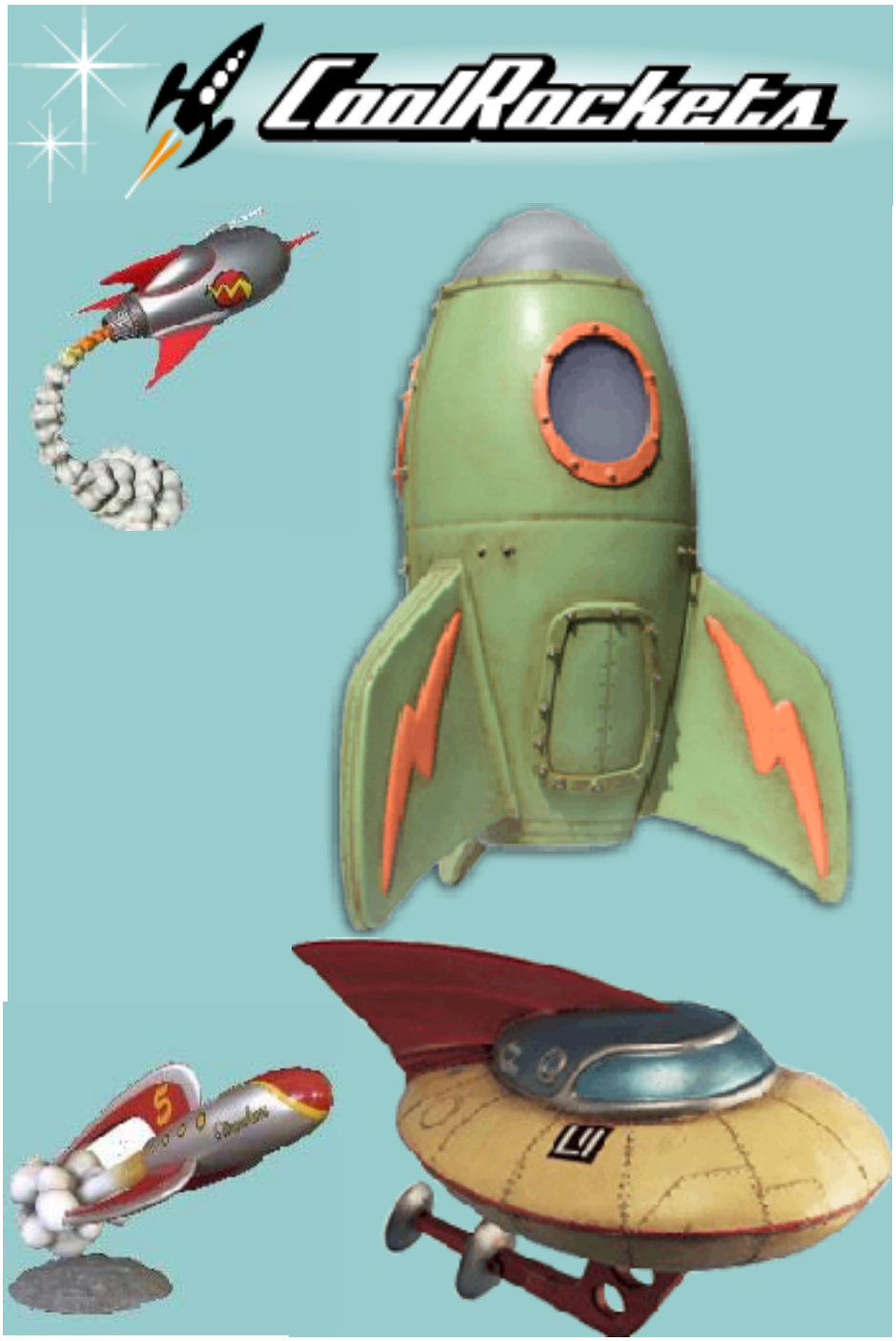
GOT CONTENT?

Don’t let this be the new look for YOUR newsletter!
Send in your stories, articles, photos, designs, etc.
zog43editor@yahoo.com

Calendar of Events for 2007

Jan 06	05:30 – 10:00 pm	Monthly meeting, Helicopter Building
Jan 07	01:00 – 02:00 pm	Goddard public launch
Jan 20	10:00 – 02:00 pm	Sport Launch
Feb 03	09:30 – 01:00 pm	Cadet building session
Feb 03	05:30 – 10:00 pm	Monthly meeting, Scale discussion
Feb 04	01:00 – 02:00 pm	Goddard public launch
Feb 17	10:00 – 02:00 pm	Sport Launch
Mar 03	09:30 – 01:00 pm	Cadet building session
Mar 03	05:30 – 10:00 pm	Monthly meeting, Streamer/Spot Landing
Mar 04	01:00 – 02:00 pm	Goddard public launch
Mar 08-11		NARCON
Mar 17	10:00 – 10:00 pm	Sport Launch, HSQM-40
Apr 01	01:00 – 02:00 pm	Goddard public launch
Apr 07	09:30 – 01:00 pm	Cadet building session
Apr 07	05:30 – 10:00 pm	Monthly meeting, C-RG building
Apr 21-22	10:00 – 04:00 pm	ECRM-34, Sport Launch
Apr 29	09:00 – 04:00 pm	Rockville Science Consortium
May 05	05:30 – 10:00 pm	Monthly meeting
May 06	01:00 – 02:00 pm	Goddard public launch
May 19	06:00 – 06:00 pm	Team America Finals, Great Meadows, VA
May 19	10:00 – 40:00 pm	Sport Launch
Jun 02	05:30 – 10:00 pm	Monthly meeting, missile building session
Jun 03	01:00 – 02:00 pm	Goddard public launch
Jun 16	10:00 – 40:00 pm	Sport Launch, C-Cargo Copter fun event
Jul 01	01:00 – 02:00 pm	Goddard public launch
Jul 02	05:30 – 10:00 pm	Monthly meeting, UFO building
Jul 15		Goddard Contest
Jul 21	10:00 - 04:00 pm	Sport launch
Jul 28 -		NARAM-49
Aug 03		NARAM-49
Aug 04	05:30 – 10:00 pm	Monthly meeting
Aug 05	01:00 – 02:00 pm	Goddard public launch
Aug 18	10:00 – 04:00 pm	Sport Launch
Sep 01	05:30 – 10:00 pm	Monthly meeting, build “A rocket”
Sep 02	01:00 – 02:00 pm	Goddard public launch
Sep 15	10:00 – 10:00 pm	Sport Launch, night launch, R/C fun fly 2 pm
Oct 06	05:30 – 10:00 pm	Monthly meeting, Sputnik building session
Oct 07	01:00 – 02:00 pm	Goddard public launch
Oct 20	10:00 – 04:00 pm	Sport launch, FAI Practice
Nov 03	12:00 – 05:00 pm	Planning meeting
Nov 03	05:30 – 10:00 pm	Monthly meeting, glider building session
Nov 04	01:00 – 02:00 pm	Goddard public launch
Nov 17	10:00 – 04:00 pm	OPOSSUM-12, Sport launch
Dec 01	05:30 – 10:00 pm	Potluck Dinner
Dec 02	01:00 – 02:00 pm	Goddard public launch

Sport launches are held at Old National Pike Park from 10am-4pm, waiver up to 3.3 lbs and “G” motors not exceeding 62.5 grams of propellant. All flights “E” power and above are restricted to 5 degrees from vertical and Questions? Call Club President Jennifer Ash-Poole at 410-674-6262 or visit NARHAMS online at http://www.narhams.org



Essence's Model Rocketry Reviews (EMRR) is pleased to announce our second year of this uniquely-EMRR contest. Yes, here we are with the 2007 version of:

DESIGN THIS SPACESHIP CONTEST

This year, we are especially pleased to have a partner in the contest: CoolRockets. Their designs* became the inspiration for this RETRO Spaceship design contest.

This contest also serves as a bonus item for the 2007 EMRR Challenge, but it is not necessary to participate in the Challenge to participate in this contest... but, why wouldn't you?

That's right, above you will find six (6) Spaceship pictures that we found on the web. Each of these pictures induced that "I'd love to build that" feeling in me, so I figured we would see what you could do.

WWW.ROCKETREVIEWS.COM

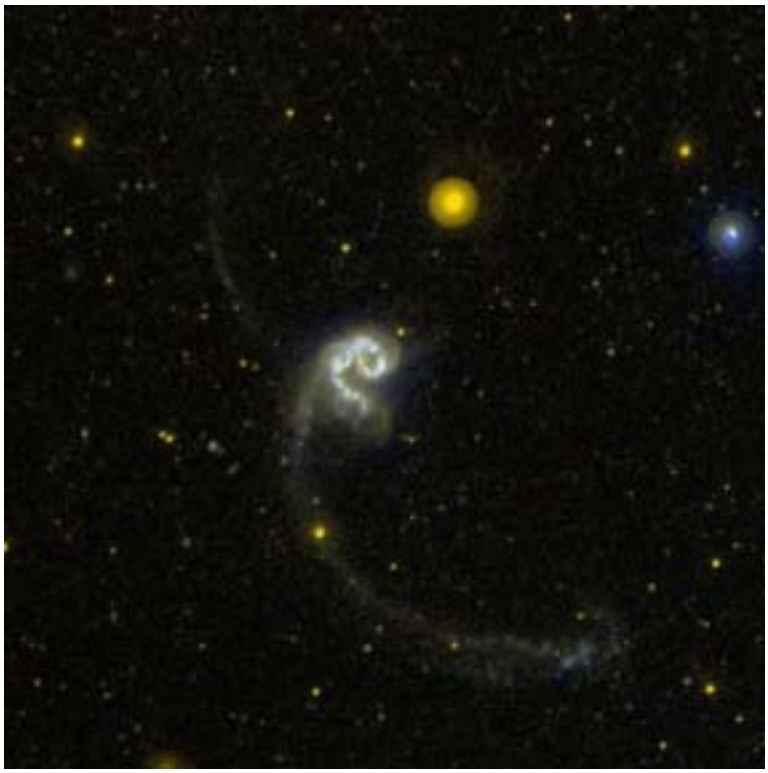
NASA Space Place

A GREAT BIG WRECK

By Dr. Tony Phillips

People worry about asteroids. Being hit by a space rock can really ruin your day. But that's nothing. How would you like to be hit by a whole galaxy?

It could happen. Astronomers have long known that the Andromeda Galaxy is on a collision course with the Milky Way. In about 3 billion years, the two great star systems will crash together. Earth will be in the middle of the biggest wreck in our part of the Universe.



This GALEX UV image of the colliding Antennae Galaxies shows areas of active star formation, which is not in the tidal tails as one might expect.

Astronomer John Hibbard isn't worried. "Galaxy collisions aren't so bad," he says. A typical spiral galaxy contains a hundred billion stars, yet when two such behemoths run into each other "very few stars collide. The stars are like pinpricks with lots of space between them. The chance of a direct hit, star vs. star, is very low."

Hibbard knows because he studies colliding galaxies, particularly a nearby pair called the Antennae. "The two galaxies of the Antennae system are about the same size and type as Andromeda and the Milky Way." He believes that the Antennae are giving us a preview of what's going to happen to our own galaxy.

The Antennae get their name from two vast streamers of stars that resemble the feelers on top of an insect's head. These streamers, called "tidal tails," are created by gravitational forces—one galaxy pulling stars from the other. The tails appear to be scenes of incredible violence.

But looks can be deceiving: "Actually, the tails are quiet places," says Hibbard. "They're the peaceful suburbs of the Antennae." He came to this conclusion using data from GALEX, an ultraviolet space telescope launched by NASA in 2003.

The true violence of colliding galaxies is star formation. While individual stars rarely collide, vast interstellar clouds of gas *do* smash together. These clouds collapse. Gravity pulls the infalling gas into denser knots until, finally, new stars are born. Young stars are difficult to be around. They emit intensely unpleasant radiation and tend to "go supernova."

GALEX can pinpoint hot young stars by the UV radiation they emit and, in combination with other data, measure the rate of star birth. "Surprisingly," Hibbard says, "star formation rates are low in the tidal tails, several times lower than what we experience here in the Milky Way." The merging cores of the Antennae, on the other hand, are sizzling with new stars, ready to explode.

So what should you do when *your* galaxy collides? A tip from GALEX: head for the tails.

To see more GALEX images, visit www.galex.caltech.edu. Kids can read about galaxies and how a telescope can be a time machine at spaceplace.nasa.gov/en/educators/galex_puzzles.pdf.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

ZOG-43, THE *ONLY* NAR SECTION NEWSLETTER PUBLISHED *MONTHLY*!

ZOG - FORTY THREE
7OO CLIVEDEN ROAD WEST
BALTIMORE, MD 21208

Launch Schedule

PUBLIC LAUNCH
Goddard Space Flight Center
Visitors Center
1:00PM - 2:00PM

Feb 4th

SPORT LAUNCH
Old National Pike
10:00AM - 04:00PM

Feb 17th

PUBLIC LAUNCH
Goddard Space Flight Center
Visitors Center
1:00PM - 2:00PM

Mar 4th