

DECEMBER SPORT LAUNCH

By Kevin Johnson

The sport launch was held at Middletown Park on December 10th. The weather was snowy during the week that lead up to the launch, so there were many questions on if we were going to hold the launch as scheduled. Luckily the snow tapered off and the forecast for our Saturday launch was looking good, so I decided to launch on schedule. I knew there would be a few TARC teams showing up to practice, and they really do depend on our monthly launches. It's a good thing I went out, too. The weather was beautiful- clear, sunny and with no wind. If it weren't for the cold temps and the snow, I think it ranks as one of the best flying days this year.

Since our main launch system is receiving maintenance, I picked up System 2 from Ward Poole, since Zog Bubbles was out of town. It's full system with controller and one launch rack with 6 rods. Because of the TARC teams, I only set up 5 rods, with a long extension taking the place of the clips on position 6. I had everything set up and ready to go a little after the 10:00 am start time.

And then I waited. I saw the Middletown TARC team arrive and start prepping. I read my magazine. Hunter and Cesar Diaz and their dad came by and made

some nice flights with their Snitch, which flew beautifully in the calm conditions. It was also pretty easy to find as the bright yellow rocket stood out against the snowy ground. The boys also flew several other Estes rockets.

The Middletown team brought out their "complex" BT-70 based rocket that featured a cluster of D12-7's and a timer to fire a supplemental ejection charge prior to engine ejection. Unfortunately only 2 of the motors lit, and the timer just barely had time to eject before the rocket hit the ground. The snow wasn't much of a cushion though. Later on that day, they flew their "simple" rocket designed by Kris Bittle. The only way I can describe it is a cross between an NAR egg on a stick and cluster altitude bird. The team had 2 flights that bracketed the target 800 foot altitude, but kicked their main motor each flight.

After a while longer, Bob Ekman from Lockheed Martin arrived with his group of rocketry Explorers. Many of them were launching their first model rockets, and the Alpha III was well represented. Several of the rockets had been modified with payload bays for future altimeter flying. There were also several egg lofting

flights made with modified Fat Boys on D12 and E9 motors.

Rob Edmonds arrived before 1 pm and made a couple of attempts to fly RC gliders. He was hampered by the cold- two flights had spotty control due to sapped batteries, and one had either the balsa or glue joint fail due to the cold. Rob was the only club member sport flying.

Long Reach High School sent one of their three TARC teams out to practice. The team's rocket was BT-80 based and flew on a cluster of 2 D12 motors. The rocket was painted like a cow, complete with pink aft centering ring and motor tubes. Their mentor quipped they should approach Chick-Fil-A for a donation. They had 3 flights with mixed success due to spot-

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VOL 28 ISSUE 01**

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NASA Space Place

AND MORE!

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.....

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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

Zog-43 staff typist is none other than Jennifer Ash-Poole a.k.a. Secretary to the Stars !

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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

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 second Saturday of every month at Middletown Recreation Park in Middletown Md. Check the web page for updates.

NARHAMS welcomes all prospective new members to our monthly meetings. They are held on the first 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.

ZOG ROYAL COURT

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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.



Sport Launch Continued ...

welding the chute, or kicking one motor on ejection.

Late in the day, Stephen, Matt, and Nate Johnson arrived to fly some rockets in support of Nate's science project. Nate wanted to take videos of rockets with different CG/CP relationships to figure out how far away from the base of the model he could put the fins. At this point all of the TARC teams had left, and it was just Rob and myself left on the range, so we gave it a whirl. Nate had a well-designed experiment with two rockets. The control was built stock, and the experimental one had a sliding fin unit that could be adjust up and down the body. Hopefully he got good results on his video.

Rob and I packed up the range at 4:00, which was just about the time it started to get really cold. This was my first turn as launch director, and it couldn't have been easier. Jim Filler sent me copies of the forms I needed, and a launch procedure letter that Khim Bittle created that lists everything you need to do to contact the FAA and activate our NOTAM. It had all the phone numbers and told me exactly what to say. If you haven't signed up to run one of the upcoming launches because you think it might be too hard, don't let that worry you! 



CHEAP ROCKETRY - PART 1

BY TOM HA

Like most rocketeers, I started with the kits of the day, Estes and Centuri. From there I bought the parts and sets (like the Estes Designer Special) that would allow me to build my own designs. Once I got into competition rocketry, I went for the gusto, buying G10 fiberglass fin material and special kits, along with mylar parachutes, tracing paper streamers, Kevlar shock cord and all those Apogee motors. Since then, I've come full circle, finding that there are so many things applicable to rocketry in the most mundane (and inexpensive) places.

This is the introduction to an ongoing series on ways to get your rocketry kick without the high cost of buying every item. Each article will focus on a particular part of rocketry, so you can look for what you might need to fix or build that rocket from the things in these articles.

Disclaimer: I do not condone theft of goods or services from any merchant. When in doubt, ask! Many of the items in these articles are given to me "for recycling". Use these things at your own risk.

I came up with this idea when I realized that I had so many things in my rocketry collection that were either free or very cheap. The idea for the articles was reinforced when I spoke with some new rocketeers at the last sport/contest launch. Please note that the stores and web links in

these articles may become outdated, but the concepts are still the same.

The easiest part of cheap rocketry for me is just keeping your eyes open. In the ensuing articles, I'll mention quite a range of stores where I have found rocketry-related items. Some of these are Lowes, Jo-Ann Fabric, Michaels, Walmart, military surplus, KB Toys, Staples, Cabela's and Kmart. I even find things in my own junk mail and on conference trips for work.

This inaugural issue will address recovery, since it is the one area that comes most readily to my mind when thinking of "cheap rocketry".

Recovery

Recovering your rocket is easy. Just put that Estes parachute from the kit into the rocket and start flying! But what happens when you break that short shock cord and your chute drifts away? Make another from the red flag

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Close Encounter of the "43" Kind



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Jeff Green finished 29th overall in the 2005 Nextel Cup Series

Don't forget to report all "43" sightings!

Cheap Rocketry - Continued

material that Lowes offers to its' customers. The red flags are squares of red plastic that are used to flag long loads that hang out the back of vehicles. The last time I grabbed a few, they were handy to the exit doors so that people going out could grab them to stick on their load. When cut into circles, they make great parachutes. The material is lightweight and yet very visible. I use my one-mile-long spool of Nomex® thread I bought from www.cheaperthandirt.com to make shroud lines.

Speaking of shroud lines, I have also used carpet thread from a store like Michaels or Jo-Ann Fabrics, again where a single spool for three dollars or so will make very many parachutes. These stores also provide longer lengths of elastic to help with the short shock cord syndrome I mentioned above.

Trash bags are another great source for chute material. With thicknesses from 1/4mil to 4mil, you can find just the right thickness for each of your

rockets. If you're really cheap, pull the trash bag out from a can, and many times you'll find a spare bag just lying in the bottom, waiting for you to use it!

Another great idea for recovery material comes from Lowes. Use the caution tape or the fluorescent marker tape for streamers. They provide many yards of material and are usually found in the area with the fluorescent chalk (which makes good tracking powder to track altitude flights in contests). I like to cut three strips about 2 feet long and tie them together in the middle, making a six-ended streamer. If you're really cheap, keep an eye on that construction project down the road, and grab what you can when they take down their tape.

There is only part of recovery where I consistently pay full price (such that it is). I buy snap swivels and screw eyes from Walmart generally, though many other stores sell them. These are such a great way to keep chutes from binding and twisting, and you can get a dozen or more for under a dollar. ✨

JANUARY 2006



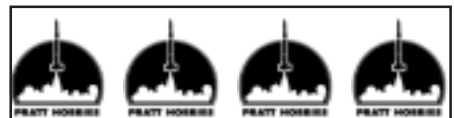
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JANUARY 19, 2006

KSC Pad 41

NASA Photo



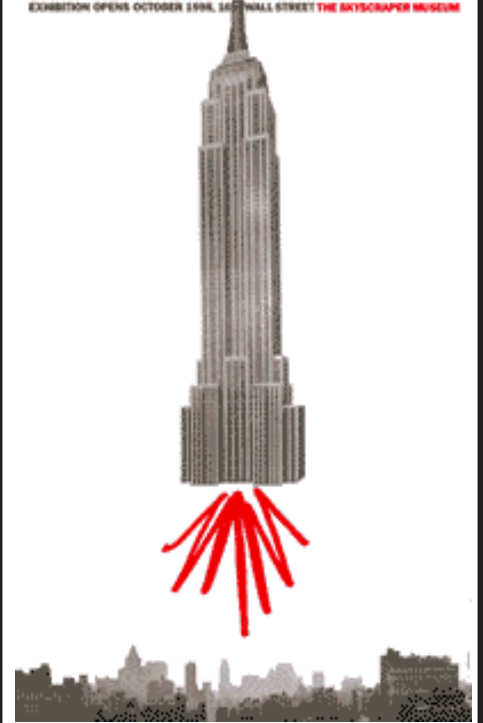
New Horizons heads for its 2015 rendezvous with Pluto aboard an Atlas V rocket

**Coming to a NARHAMS
Function near you!**

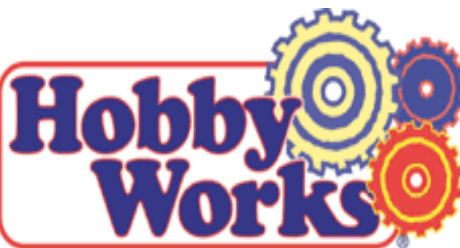
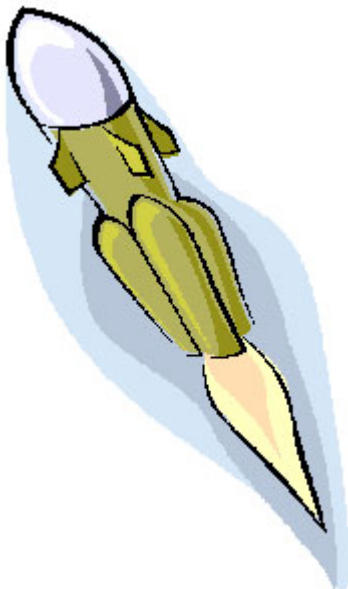
Spot Landing Discussion
Feb 4th 5:30pm

Fly-A-Building!
Feb 18th 2pm

BUILDING THE EMPIRE STATE BEATING ALL CONSTRUCTION RECORDS & RISING
A SKYRAPER A DAY TO BECOME, FOR FORTY YEARS, THE WORLD'S TALLEST BUILDING
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HAPPY NEW YEAR!

Here is my final report on the resolutions for 2005. There is only one I didn't get done, and that would be Kevin's parachute. (Sorry Kevin). Another, I got half done, but the rest of my resolutions did get completed. As a refresher, here were my resolutions for 2005: complete NATREK Silver and Gold (I finished the Silver), try out for the Spacemodeling team (I did that one, didn't make the team, but I tried out), finish painting my rocket room (done), have fun flying rockets this year (check!), finish Kevin's parachute (I think I did sew another panel on his parachute.).

This year, the club will go through some changes of its' own. We will decide whether to move to a new field and when, we moved our launch dates (let me know if you like that or not). We kept our meetings on Saturday for another year, just to see how it would work. We have a new editor (Hi Roy!), and a new section advisor.

So, should I have some resolutions for 2006? Well, I think I really should finish Kevin's Parachute, and the Gold NARTREK. I did get a new compressor for Christmas, so I think I should try painting some models with my airbrush and getting that technique down.

So Happy New Year, and I think everyone should make flying a new rocket a resolution. (Painted of course!)

Zog Bubbles

Calendar of Events for 2006

Jan 07	05:30 – 10:00 pm	Monthly meeting, Build-A-Building building session
Jan 21	12:00 – 04:00 pm	Sport Launch
Feb 04	05:30 – 10:00 pm	Monthly meeting, Spot Landing discussion
Feb 05	01:00 – 02:00 pm	Goddard public launch
Feb 18	12:00 – 04:00 pm	Sport Launch, Fly-A-Building 2 pm
Mar 04	02:00 – 04:00 pm	Cadet building session
Mar 04	05:30 – 10:00 pm	Monthly meeting, Bertha bash building session
Mar 05	01:00 – 02:00 pm	Goddard public launch
Mar 10-12		NARCON, UWI Kenosha, WI
Mar 18	10:00 – 10:00 pm	Sport Launch, HSQM-39, Night Launch
Apr 01	02:00 – 04:00 pm	Cadet building session
Apr 01	05:30 – 10:00 pm	Monthly meeting, Finish unfinished projects building session
Apr 02	01:00 – 02:00 pm	Goddard public launch
Apr 15	10:00 – 04:00 pm	Sport Launch, Bertha fun event 2pm
May 06	05:30 – 10:00 pm	Monthly meeting, club history discussion
May 07	01:00 – 02:00 pm	Goddard public launch
May 13	10:00 – 04:00 pm	Sport launch, Record Trial-2
May 20	06:00 – 06:00 pm	Team America Finals, Great Meadows, VA
May 27-28		RAMTEC
Jun 03	05:30 – 10:00 pm	Monthly meeting, missile building session
Jun 04	01:00 – 02:00 pm	Goddard public launch
Jun 17-18	10:00 – 04:00 pm	ECRM-33
Jul 01	05:30 – 10:00 pm	Monthly meeting, sci-fi discussion
Jul 02	01:00 – 02:00 pm	Goddard public launch
Jul 15	10:00 – 04:00 pm	Sport launch, paratrooper spot landing 2pm
Jul 16		Goddard Contest
Aug 05	05:30 – 10:00 pm	Monthly meeting
Aug 06	01:00 – 02:00 pm	Goddard public launch
Aug 19	10:00 – 04:00 pm	Sport Launch
Sep 02	05:30 – 10:00 pm	Monthly meeting odd-roc, NARAM review
Sep 02-03		RAMTEC
Sep 03	01:00 – 02:00 pm	Goddard public launch
Sep 16	10:00 – 10:00 pm	Sport Launch, night launch, R/C fun fly 2 pm
Sep 19-26		World Space Modeling Championships
Oct 01	01:00 – 02:00 pm	Goddard public launch
Oct 07	05:30 – 10:00 pm	Monthly meeting, "Tactical Turkey" building session
Oct 21	10:00 – 04:00 pm	Sport launch sci-fi 2 pm
Nov 04	12:00 – 05:00 pm	Planning meeting
Nov 04	05:30 – 10:00 pm	Monthly meeting, R/C and glider building session
Nov 05	01:00 – 02:00 pm	Goddard public launch
Nov 18	10:00 – 04:00 pm	OPOSSUM-11, "Tactical Turkey" 2 pm
Dec 02	05:30 – 10:00 pm	Potluck Dinner
Dec 03	01:00 – 02:00 pm	Goddard public launch
Dec 16	10:00 – 04:00 pm	Sport launch

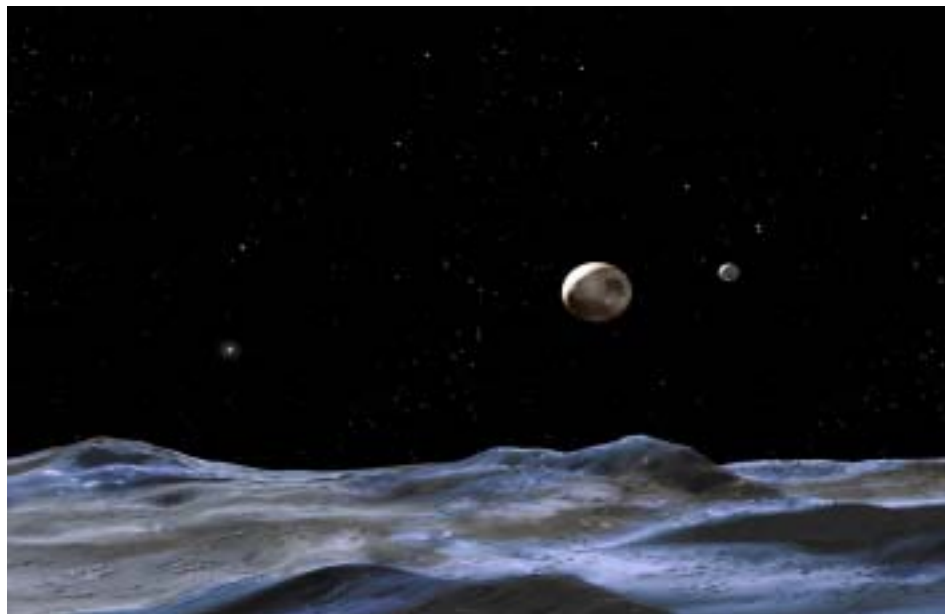
Sport launches are held at Middletown Park from 10am-4pm, waiver up to 3.3 lbs and "G" motors not exceeding 62.5 grams of propellant. All flights "E" power and above are restricted to 5 degrees from vertical and Questions? Call Club President Jennifer Ash-Poole at 410-674-6262 or visit NARHAMS online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

SNOWSTORM ON PLUTO

DR. TONY PHILLIPS

There's a nip in the air. Outside it's beginning to snow, the first fall of winter. A few delicate flakes tumble from the sky, innocently enough, but this is no mere flurry.

Soon the air is choked with snow, falling so fast and hard it seems to pull the sky down with it. Indeed, that's what happens. Weeks later when the storm finally ends the entire atmosphere is gone. Every molecule of air on your planet has frozen and fallen to the ground.



That was a snowstorm—on Pluto.

Pluto and two of its moons as seen from the third moon.

Once every year on Pluto (1 Pluto-year = 248 Earth-years), around the beginning of winter, it gets so cold that the atmosphere freezes. Air on Pluto is made mainly of nitrogen with a smattering of methane and other compounds. When the temperature dips to about 32 K (-240 C), these molecules crystallize and the atmosphere comes down.

"The collapse can happen quite suddenly," says Alan Stern of the Southwest Research Institute. "Snow begins to fall, the surface reflects more sunlight, forcing quicker cooling, accelerating the snowfall. It can all be over in a few weeks or months."

Researchers believe this will happen sometime during the next 10 to 20 years. Pluto is receding from the warmth of the Sun, carried outward by its 25% elliptical orbit. Winter is coming.

So is New Horizons. Stern is lead scientist for the robotic probe, which left Earth in January bound for Pluto. In 2015 New Horizons will become the first spacecraft to visit that distant planet. The question is, will it arrive before the snowstorm?

"We hope so," says Stern. The spacecraft is bristling with instruments designed to study Pluto's atmosphere and surface. "But we can't study the atmosphere if it's not there." Furthermore, a layer of snow on the ground ("probably a few centimeters deep," estimates Stern) could hide the underlying surface from New Horizon's remote sensors.

Stern isn't too concerned: "Pluto's atmosphere was discovered in 1988 when astronomers watched the planet pass in front of a distant star—a stellar occultation." The star, instead of vanishing abruptly at Pluto's solid edge, faded slowly.

Pluto was "fuzzy;" it had air. "Similar occultations observed since then (most recently in 2002) reveal no sign of [impending] collapse," says Stern. On the contrary, the atmosphere appears to be expanding, puffed up by lingering heat from Pluto's waning summer.

Nevertheless, it's a good thing New Horizons is fast, hurtling toward Pluto at 30,000 mph. Winter. New Horizons. Only one can be first. The race is on....

Find out more about the New Horizons mission at <http://pluto.jhuapl.edu>. Kids can learn amazing facts about Pluto at spaceplace.nasa.gov/en/kids/pluto.

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



February 18th
Noon - 4:00PM
Middletown Park
SPORT LAUNCH

February 5th
1:00PM - 2:00PM
Visitors Center
Goddard Space Flight Center
PUBLIC LAUNCH

January 21st
Noon - 4:00PM
Middletown Park
SPORT LAUNCH

Launch Schedule
700 CLIVEDEN ROAD WEST
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ZOG - FORTY THREE

