



ZOG43



july 2002



NARHAMSters (and a Pirate or 2) in tent city at RAMTEC-10
Photo By Scott Schuckert

IN THIS EDITION

- More from ECRM-29
- RAMTEC-10 Reports
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- And MORE!

THE ONLY NAR NEWSLETTER PUBLISHED MONTHLY!!

ZOG-43

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ZOG ROYAL COURT

(NARHAMS OFFICERS)

ZOG FORTY-THREE 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- Forty-Three 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 FORTY-THREE is published monthly and is available to anyone on a subscription basis. Current rate is \$15 U.S. Funds for 12 issues a year, payable to NARHAMS

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For more information.....

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ZOG Forty-Three is edited by Kevin Johnson, and is a six-time winner of the NAR/LAC "Rockwell" Trophy, recognized as the best NAR section newsletter.

Years won: 1969, 1973, 1975, 1990, 1991, & 1992

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

Photographers: Jim Filler, Chris Kidwell, Scott Schuckert

ZOG-43

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NARHAMS ON THE WORLD WIDE WEB

<http://www.narhams.org>

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

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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 four time winner of the NAR "Section of the Year" award.

Years won: 1997,1998,1999, 2001

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 every first and third Sundays 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 Friday of the month from 7:30 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.

July President's Message

I hope that everyone had a great 4th of July holiday and had some time to reflect on how lucky we are to enjoy the freedoms that this great nation affords to us. It really gets me revved up to see the stars and stripes waving in all of their glory whenever the American flag is displayed. To continue our salute to the USA we will be holding our July sport launch at Middletown Park with a patriotic theme. Bring out your red, white and blue rockets and any other patriotic decorations that you may have in order to demonstrate our national pride.

Our year as the reigning NAR National Champions is drawing to a close. The championship banner that we have held will be returned to the NAR at NARAM 44 in August. This year the banner and our NARHAMS flag have flown over our sport launches, club contests, RAMTEC and at BATTLEPARK 2002 in Culpepper. And we received some unsolicited publicity at NYPOWER 2002 on July 4-7 in Geneseo, NY from John Viggiano who reminded the large crowd that NARHAMS is the current National Championship section. Good luck to all of the club members who will be traveling to Texas to compete at NARAM 44.

Two of my goals as president this year have yet to be fulfilled. The first is to locate a new flying field. Although many leads have been investigated, we have still not secured a good, large field. Please redouble your efforts in scouting out new field locations and contact Khim Bittle or myself for assistance in presenting our request for access to the landowner. We have some very good information to present in our behalf.

The second unfulfilled goal is to amend the club constitution to make it more workable for the club. This process is about 95% complete. Much effort has been put into the revised constitution and I believe that we will have the process completed by the fall of 2002.

My other goals of increasing the membership and having some more fun events have been met. We continue to add members due to our efforts to publicize the club more. A lot of new members have come from sign-ups at our sport launches and outreach programs. If you need club flyers or membership applications, please see me or any other officer. Our fun events and special launch themes are enjoying good success.

Khim Bittle is taking nominations for the upcoming club officer elections in September. Now is the time to step up and throw your hat in the ring if you wish to run for any of the positions.

Please be sure to contact me at any time with any ideas that you may have that will help the club to meet the needs of the membership and to promote rocketry.

Happy flying,

King Zog

LAUNCH WINDOWS

SPORT LAUNCH

Patriotic Themed Rockets
Middletown Park
10:00am –4:30pm
July 13th

SPORT LAUNCH

Tethered Spot Landing
Middletown Park
10:00am –4:30pm
August 10th

SPORT/NIGHT LAUNCH

Middletown Park
Sport launch starts at 12:00pm
Night launch pending
September 14th

ECRM-XXIX

Launch Coverage

By: Jim Filler NAR # 27862

The twenty-ninth edition of the East Coast Regional Meet, was held on May 18 & 19 at Middletown Park in Frederick County. Due to some unknown phenomenon from the cosmos, the weather was uncooperative. The acronym for ECRM could certainly have been for a number of other meanings including but not limited to Extremely Cold Regional Meet, East Coast Rainy Meet, Extremely Cold Rainy Meet, etc. Did I mention the breeze? Thank goodness we have the built in stop on the wind meter at 19 mph.

Saturday morning arrived and I must say I was in no hurry to get to the field. Only living 7 miles from the field can have its advantages at times. The truck was loaded the night before and safely parked in the garage nice and dry. The schedule had called for the meet to open up at 10 am. I had told some of the club members, who were coming to set up, that I would arrive by 8. For those who know my track record from my tenure as the King Zog, automatically assumed that I was simply running late. I must say, that this was not the case. I got up plenty early, had everything packed, had no models that needed to be finished, I simply didn't want to drive the truck and all of the equipment to the field in a driving rain storm. So I decided to wait by watching the weather channel and decided to finally leave about 10 am. The Weather Channel was showing that the rain (which was quite heavy all morning) was going to end around noon giving way to sunshine and breezy conditions. When I arrived at the park, a group of about 15 flyers were gathered in the parking lot looking a little bit like a lynch mob. I explained that I was quite concerned with the weather and didn't want the equipment to get soaked before it ever got set up. This simply wasn't going to fly with the angry mob! By this time the crowd didn't want to fly either. I put it up to a vote of the gathered interested parties, to reconvene at

noon to reassess, or to cancel Saturday all together and fly the one-day regional. The crowd voted to go with the one day regional. So I instructed everyone to come early, we would try to start at 8am.

The angry wet and cold mob reconvened at the Golden Arches Inn in Frederick to enjoy some dry and warm surroundings and a cup of Joe. We decided to gather at 2pm to set up as much of the launch system as we would normally leave up after a day of flying. Some of the group made the trip over to Hobby City to do some shopping. When we arrived back at the field, we found the field to be still nice and soggy as well as the breeze between 15-19 constant. By the time we set everything up, the breeze had begun to calm down. I called for the sacrificial launch, and sure enough four flyers prepped models in a moments notice. After a few minutes of fiddling with the McCoy launch box, we had success and launched four sport models to start and finish the flying on Saturday. We broke down the range back to unhooking the electronics and called it a day.

Sunday morning true to my word I show up at 7am sharp, however the rest of the crowd didn't start showing up in numbers until about 8. Thank goodness the park ranger was early that morning (the park actually doesn't open until 8) and showed up about 7:30. Once I was done setting the trackers, with a little assistance from Tom Lyon), we proceeded to set up the rest of the range. We gathered all the flyers for a quick contestants briefing and started flying.

"C" Dual eggloft altitude was up first. Engines were limited to the new Estes "C11" C5 or the Apogee C10 or Apogee C6. The Estes and Quest versions of the C6 just don't have enough the handle the 114+ grams of payload. The most notable flight was by Rod Schafer and Steve Foster flying from the tube style launcher. They were able to set a new record in team division with a flight of 160 meters. Of course with this prestige came a little treat as well. When Jim Brower from NOVAAR flew his model, it decided to prang into the Pittsburgh prep tent and literally spray the guys with egg.

Jim wasn't done thrilling the crowd. When his X-wing plastic conversion flew, it decided to prang into the check-in area taking out a couple cartons of the eggloft eggs in the process. For the most part, plastic model conversion was fairly un-eventful. Thanks to Doug Pratt for being our judge. We tried to limit his work by asking modelers to fly first before being static judged, but only 2 models decided to DQ themselves.

¼ A Rocket glider was a test of the Middletown conditions. With the breeze, it was tough to get these mini-glidgers to perform well after not much of a boost from the mighty ¼ A power plant. Many believe the ejection charge in the Estes ¼ A is just as powerful or more powerful then the propellant burn.

Open Spot landing rounded out the field of competition events. Even with a breeze we had several flights of less then 5 meters. Only having 4 events made the event much easier to cram into one day. Flying contests in just one day can be a real exercise. Thanks go out to all those that stepped up and helped with range duty and to those that did more then just their shift.

The BBQ finished the day's event. Thanks go out to everyone who chipped in and helped get everyone fed. My wife Lori did most of the cooking over the grill; my mom & dad went the store and picked up the food fresh. We handed out awards for 4th through first in each event. We also gave

out door prizes from our sponsors, so please be sure to say thank you to each of them by placing an order with them. Thanks go out to Pratt Hobbies, Edmonds Aerospace, and Aerospace Specialty products. Additionally we handed out prang awards and last but not least, the Ole Ed dead Last but Finished Memorial Roving Trophy. This year's winner was newcomer Tom Ha. Thanks to Tom Lyon for doing extra tracking duty, thanks to Chris Kidwell for tabulating the results with his Contest Manager Software, and Thanks to all that came out and participated including those that helped with setting up and tearing down the range.

RAMTEC- 10 Launch Reports

I recently asked for club members who attended the RAMTEC launch hosted by SPAAR last month to send me their impressions of the meet. I did this for 2 reasons.. 1) this is **your** newsletter, too and I think everyone should write at least one article for it; and 2) I'm basically lazy and didn't want to write the article myself. So I present here two of the responses that I received. I hope that you, gentle reader, are sufficiently motivated to write me an article for next month!

Balsa Falls From Sky

By Tom Ha NAR # 76754

The Ha family filled the skies with balsa when they attempted to fly B Helicopter multi-round at RAMTEC-10. Tom initiated the fun with a helicopter flying on an Apogee B7-4 that ripped one rotor off and then burned through the body tube to drop the fin section separately also. Next up were Chris' two attempts, both ending with shreds. The final embarrassment was Tom's trial of his C RG (QCR/Edmonds canard) that lost two pieces of it's wing in flight. It has been repaired to try again at the next sport launch, in hopes that it will fly okay at NARAM-44.



Team Ha Ha Ha set up with help from Mom. Photo By Chris Kidwell

In better news, Chris Ha beat his Dad again by claiming a first place in 1/2A PD with a 99sec. flight that missed a new record by two seconds, and a second place in A RG with his Edmonds Ecee glider. However, Tom was able to claim a new event that Chris has not entered yet, by entering an AMRAAM AIM-120 in the Sport Scale competition. With a feeling of great relief, Tom noted that he was not dead last in that competition, although he was probably dead last within the

NARHAMS group overall at RAMTEC-10. This cements Tom's hold on the Ed Pearson "Dead Last but Finished" Trophy for the year (see previous issue).



KB1 and KB4 taking a duty shift as timers at RAMTEC. Photo by Jim Filler

For more details of the rankings and points earned at RAMTEC-10, go to www.spaar.org and head to the contest section.

Reviewing Another Month's Totally Excellent Competition

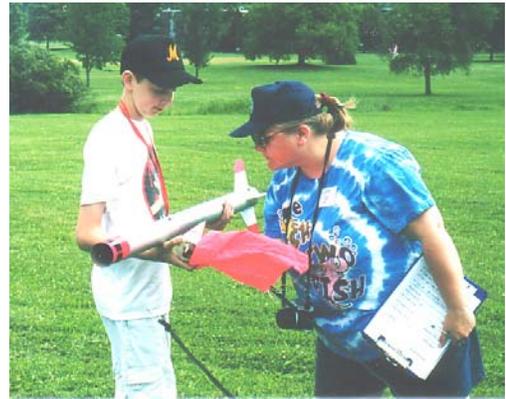
By Dr. Chris Kidwell NAR # 45225

RAMTEC is known for hosting the toughest competition outside of NARAM, and this year was certainly no exception. Nine clubs were represented, and the 15 trophies went to 11 different people. One of the first flights of the meet was Wolf von Kiparski's 1/2A PD that stayed up 5 min 27 sec. It didn't get any better after that -- Trip Barber had 2 great flights of 3+ minutes each to secure first place in C Division. Jennifer had some good times too and bumped me down to 3rd place in PD.

I built my RG with a small (so I thought) amount of turn in the rudder to keep it from flying away. It worked fine during the glide, making nice turns. Unfortunately, it also did some not-so-nice turns during boost. I lost nearly half the altitude from the decidedly non-vertical boosts and ended up in 3rd place, again behind Trip who took 1st.

I also tested out a new design for B HD, similar to the "Chicago Chopper" but with the rotors stuffed inside a BT-50 tube for better aerodynamics. That much worked great, with straight, high boosts, but then the rotors always found a way to separate from the body on ejection. Flight 1: kevlar ripped through engine block anchor; flight 2: knot in kevlar gave way; flight 3: kevlar (90-lb) broke. Time to go back to the drawing board and come up with a better connection scheme before I upscale it for C HD at NARAM.

Set Altitude (175 m) was a lot of fun. Lots of people had spent hours running simulations and test flying, but when it came down to it, luck played a huge factor. The week before at Middletown, Jim Filler got closest in the test flights with 181m using a Prowler on a D12-5. This time, it tipped off the pad and only managed 85 m. I tried using an Alpha III on a B6-6. The first flight was straight up and marked at 186 m, but with 15% closure. The second flight in exactly the same configuration went 30 degrees off vertical and only got 133 m. Go figure.



SpSc judge Bubbles checks Kris' Kappa for damage. Photo by Chris Kidwell

Sport Scale saw many models pulled off the shelf and dusted off for decent showings. Among the returnees: my WRESAT, Rod Schafer's Jayhawk, Kris Bittle's Kappa-7, Kindra Bittle's Sandia Sandhawk, and Matthew Filler's Nike Tomahawk. Steve Foster took 1st in C Division with a huge Nike Apache which gobbled up mission points with a successful staging on the 2nd flight. Josh and Jessica Tschirhart came up from southeastern Virginia with two beautifully detailed models of the Black Brant XII and Iris and took 2nd and 3rd.

I also tried to get in some flights on my R&D project while the tracking scopes were up. (In case you haven't seen it, my project is a BT-80-based beast with 10 different altimeters mounted inside. The goal is to compare the results to optical tracking and computer simulations.) The first flight was perfectly straight, but caused quite a few gasps when the parachute didn't come all the way out at apogee. Of course I wasn't worried as I knew there were redundant ejection charges installed. Sure enough, the second charge blew the parachute clear for a graceful landing. I quickly



Two views of Dr. K's G motor CATO. Photos by Chris Kidwell

downloaded all the data and prepped for a second flight. That one produced even more gasps from the crowd, myself included this time. The motor appeared to chuff at first, then started spewing out big clouds of smoke before finally going quiet, leaving on the body tube smoldering. After some quick work from Trip with a fire extinguisher, I was able to examine the remains. The forward end of the motor casing blew off, and the delay train and ejection charge burned, but (thankfully) not the propellant. This also set off my backup ejection charge and burned about halfway around the body tube. All of the electronics survived without damage, so I just need to rebuild the booster and get ready for more flights at NARAM.

Space News

Compiled by Jennifer Ash-Poole NAR # 61415

CONTOUR LAUNCH POSTPONED

The launch of NASA's Comet Nucleus Tour (CONTOUR) spacecraft aboard a Boeing Delta II rocket has been postponed to no earlier than Wednesday, July 3. During installation of the launch vehicle fairing around the spacecraft on Thursday, possible particulate contamination was observed on the top solar array panel. As a precautionary measure, this particulate is being analyzed to determine its composition and what further action, if any, is necessary.

Should launch occur on July 3, the launch time would be 2:47:41 a.m. EDT. The prelaunch press conference would be held on Monday, July 1, at 1 p.m. EDT. The CONTOUR launch period extends until July 25 without affecting the mission.

Tests delay debut of Atlas 5 rocket by a week

SPACEFLIGHT NOW

Posted: June 27, 2002

The inaugural launch of Lockheed Martin's Atlas 5 rocket has been pushed back a week -- to no earlier than August 6 -- so engineers can re-run a series of tests.



An Atlas V test vehicle is fueled on the pad.

Officials decided to repeat tests on the umbilical retraction system to gather more data before the first liftoff of the next-generation launcher, a spokesperson said.

The third and final countdown dress rehearsal, which had been slated for this week, has been rescheduled for July 15 through the 17th. The rocket will be moved from its vertical processing building to the open-air pad and fueled during the three-day simulation at Cape Canaveral Air Force Station's Complex 41.

The demonstration ensures the rocket and ground equipment will operate correctly during the real launch countdown. In addition, the launch team is able to practice by controlling the countdown on a timeline similar to the one planned for launch day.

The Atlas 5 will launch the Hot Bird 6 direct-to-home TV broadcasting satellite for Eutelsat. Built by Alcatel Space in France, the craft was shipped from Cannes to the Cape on June 12. It arrived at Kennedy Space Center's Shuttle Landing Facility and was trucked to the AstroTech commercial processing facility in nearby Titusville to begin final pre-launch preparations.

Atlas 5's new launch date takes the slot previously booked by an Air Force Titan 4 mission to loft of a classified reconnaissance cargo. The Titan 4 has been delayed until the end of the year, due to continued payload issues, freeing up the August 6 date on the Cape's launch schedule.

Titan 2 rocket launches polar-orbiting weather eye

BY JUSTIN RAY SPACEFLIGHT NOW

Posted: June 24, 2002

A leftover relic of the Cold War launched a civilian satellite Monday on a \$298 million mission to continue a 40-year legacy of tracking Earth's global weather from space.

The Titan 2 rocket, which once stood as a nuclear-tipped Intercontinental Ballistic Missile in Little Rock, Arkansas from 1969 to 1987, was converted to the peaceful means of launching the NOAA-M weather observatory to space.

"NOAA-M is locked, cocked and ready to rock," a spacecraft launch team member announced as clocks ticked off the final minutes of a 26-hour countdown.

At 1823 GMT (2:23 p.m. EDT; 11:23 a.m. PDT), the Titan 2's first stage fired to life, building up nearly a half-million pounds of thrust before explosive bolts holding the rocket to Earth were popped.



A former Titan 2 ICBM launches a weather satellite.

The rocket was swallowed by low clouds and fog as it cleared the pad's tower, a trademark occurrence for launches from Vandenberg Air Force Base on California's Central Coast.

The Lockheed Martin-built Titan performed successfully, releasing the satellite on a ballistic sub-orbital trajectory six-and-a-half minutes after launch.

A solid-fueled kick motor on NOAA-M then fired, giving the craft the extra boost needed to achieve orbit 450 nautical miles above the planet.

"We're off to a great start," said Karen Halterman, the satellite program manager at NASA's Goddard Space Flight Center. "The spacecraft is now in orbit and all data indicate we have a healthy spacecraft."

With its successful arrival in orbit, officials renamed the satellite NOAA-17.

Built by Lockheed Martin, NOAA-17 is the third in a series of five Polar Operational Environmental Satellites with improved imaging and atmospheric sounding capabilities that will operate to the end of this decade.

NOAA-17 will replace a sister-craft launched four years ago, ensuring an uninterrupted flow of data such as imagery, temperature measurements and atmospheric profiles, the building blocks of weather forecasts. The satellites also build long-term databases for climate monitoring and global change studies.

"The launch of NOAA-M will maintain the continuity of polar satellite data and services that started over 40 years ago," said Mike Mignogno, NOAA's polar satellite program manager.

Users of the satellites range from NOAA and the National Weather Service, to the Department of Agriculture, U.S. military, Federal Aviation Administration and foreign governments.

The NOAA relies on two polar orbiters, each covering the globe every 12 hours. In the past, one crossed the equator at 7:30 a.m. local time and one at 2 p.m. NOAA-17 will replace NOAA-15 as the morning orbiter, but officials opted to place the craft in a 10 a.m. orbit to increase the amount of data it can obtain.

"This will be first satellite for NOAA that we have in this mid-morning orbit. Because of the better lighting at 10 o'clock vs. the normal morning satellite time of 7:30, we will be able to generate better imagery-based products than we have in the past," Mignogno said. "In addition, we will be able to operate an ozone instrument to monitor atmospheric ozone on this satellite, and again this is because of the higher sun angles that are associated with this particular orbit.

"The low-light conditions at 7:30 in the morning prevent us from doing certain products that are based on our imager -- the Advanced Very High Resolution Radiometer, the AVHRR. By moving to 10 o'clock, the sun angles are that much higher and the reflectivity off the surface gives us better input into the imager at that time and therefore the products are higher quality.

"The other advantage it gives is we typically only fly one ozone instrument and that is in the afternoon. A requirement for ozone, again it's because of the reflection that we are looking for, has to be plus or minus three hours of 12 o'clock - - so any time between 9 o'clock in the morning and 3 o'clock in the afternoon becomes a viable orbit. Of course 10 o'clock fits into that."

The remaining two NOAA polar orbiters in this series -- NOAA-N and NOAA-N-Prime -- will be launched by Boeing Delta 2 rockets in 2004 and 2008, respectively.

Monday's launch was the 11th for a refurbished Titan 2 since 1988. All have been successful. Two more are scheduled -- the October launch of the much-delayed DMSP F16 military weather satellite and the January flight of the Coriolis ocean wind research craft.

Extended Launch Forecast

July 3 Delta 2*CONTOUR

Launch time: 0647:41-0647:47 GMT (0247:41-0247:47 EDT)
Launch site: SLC-17A, Cape Canaveral Air Force Station, Florida

Boeing Delta 2 will launch NASA's Comet Nucleus Tour spacecraft, or CONTOUR. The probe is slated to encounter at least two and possibly more comets in our solar system. The rocket will fly in the 7425 vehicle configuration. Delayed from July 1 due to analyze contamination found on the spacecraft's top solar array panel.

July 5 Ariane 5* Stelat 5 & N-STAR c

Launch window: 2321-0018 GMT (1921-2018 EDT)

Launch site: ELA-3, Kourou, French Guiana

Arianespace Flight 153 will launch the Stelat 5 communications for French operator Stelat and the N-STAR c communications satellite for Japan's NTT Mobile Communications Network. Postponed from June due to delay in delivery of N-STAR c to launch site.

Aug. 6 Atlas 5*Inaugural flight

Launch time: TBA

Launch site: SLC-41, Cape Canaveral Air Force Station, Florida

The maiden flight of Lockheed Martin's Atlas 5 rocket (AV-001) will launch the Hot Bird 6 direct-to-home TV broadcasting satellite for Eutelsat. The Atlas 5 was developed as part of the Air Force's Evolved Expendable Launch Vehicle (EELV) program. The rocket will fly in the 401 configuration. Delayed from May 9 because payload would not be ready in time. Delayed from July 8 to await delivery of payload and put more padding back into pre-launch schedule.

Aug. 11 Delta 2*GPS 2R-8

Launch time: TBD

Launch site: SLC-17B, Cape Canaveral Air Force Station, Florida

Boeing Delta 2 will launch the NAVSTAR Global Positioning System 2R-8 military navigation satellite. The launch will be run by the U.S. Air Force. The rocket will fly in the 7925 vehicle configuration.

Aug. 14 Pegasus XL*GALEX

Launch window: 1150-1350 GMT (0750-0950 EDT)

Launch site: Cape Canaveral Air Force Station, Fla.

An Orbital Sciences air-launched Pegasus XL rocket will carry NASA's Galaxy Evolution Explorer (GALEX) satellite into space. Delayed from Jan. 19 due to spacecraft issue.

Aug. 15 Proton*Astra 1K

Launch window: TBA

Launch site: Baikonur Cosmodrome, Kazakhstan

An ILS Proton will launch the Societe Europeenne des Satellites' Astra 1K telecommunications spacecraft. The Ka- and Ku-band satellite was built by Alcatel Space.

Aug. 22 Shuttle Atlantis *ISS 9A

Launch time: TBD

Launch site: LC-39A, Kennedy Space Center, Florida

STS-112 will be the fifteenth U.S. mission to the International Space Station. The flight will deliver the first starboard truss segment, the S1 Truss, and the Crew and Equipment Translation Aid (CETA) Cart A to help spacewalkers move around the station's exterior.

Aug. 31 Delta 4*Inaugural flight

Launch window: TBA

Launch site: SLC-37B, Cape Canaveral Air Station, Florida
 The maiden flight of the Boeing Delta 4 rocket will launch the W5 commercial telecommunications satellite for Eutelsat. The rocket will fly in the Medium+ (4,2) configuration. The Delta 4 was developed as part of the Air Force's Evolved Expendable Launch Vehicle (EELV) program.

Have you seen a 43?

We all know that the number 43 has special meaning to NARHAMS, but some club members have professed that 43 is making it's way into their everyday lives. If you have been blessed by a vist from the magic number, let us know! Send us photos or scans of where you have seen 43.

King Zog's Flea Market

Contact Kevin Johnson to place items for sale or trade.

Don Brown

4 used Estes launch pads – each with a 1/8 rod and blast deflector \$10.00 each

3 used Estes "Electron Beam" launch controllers \$10.00 each

1 new Estes "Mongoose" rocket kit, unopened \$8.00
 replacement fin(s) needed for Aerotech Warthog



Steve Foster recovers his B Heli entry. Photo by Jim Filler



Kindra and Beth Bittle watch as Kindra's model roars of the pad. Photo by Scott Schuckert



A pair of G powered lampshades flew several times at RAMTEC-10. Photo by Chris Kidwel



Jim Filler takes a turn as LCO at RAMTEC. Photo by Scott Schuckert



King Zog stands back as his Warthog lifts off. Photo by Scott Schuckert



Kevin Johnson loads his A-9 built from a Norris Rocket kit. Photo by Scott Schuckert



Bubbles takes a break from scale judging to launch a B Heli model at RAMTEC. Photo by Scott Schuckert



Kevin Johnson's V-2 flies on an E9. Photo by Scott Schuckert



Calendar of Contest and Special Events for 2001-2002

- Jul 12 - (note moved from Jul 5)** Business Meeting, B unRG led by John McCoy. Tom Anderson to demo patriotic rockets
- Jul 13** – Sport Launch, patriotic theme
- Aug 2** - Business Meeting, Discussion of elections and tethered spot landing. Open building session
- Aug 10** – Sport Launch, tethered spot landing (rocket must be tied to the ground somewhere. you get to choose where)
- Sep 6** – Business Meeting, Elections and night launch discussion led by John McCoy and Khim Bittle
- Sep 7** - Night launch building session, location TBD, start noon
- Sep 14** - Sport Launch starts at noon, night launch pending approval
- Sep 21** - College Park Air Fair
- Sep 29** - AIAA launch, Johns Hopkins APL
- Oct 4** – Business Meeting, Movie night and slides by Jim Barrowman. Cake and Internats review
- Oct 12** - Maryland Funny Meet, John McCoy CD
- Oct 19-20** - SCST-2 contest hosted by PSC
- Oct 26** - Planning meeting, College Park Airport, starts at 9:00
- Nov 1** – Business Meeting, Planning meeting review
- Nov 9** –Sport Launch, Thanksgiving theme
- Nov 16** - Building session at College Park Airport Museum
- Dec 6** - Holiday party potluck, Raffle
- Dec 14** – Sport Launch, Non-Denominational Winter Solstice theme

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 between the hours of noon and four PM. Call ahead to confirm launch and waiver availability.

Business meetings are held at the College Park Airport Annex Building. Meetings begin at 7:15pm with building sessions or presentations and last until 9:00pm or so. Regular Business meetings follow until 10:00pm. If no presentation or building session is scheduled, please bring whatever project you are working on currently.

Questions? Call Club President Don Brown at 410-781-7539.

Visit NARHAMS online at <http://www.narhams.org>

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