# T.H.O.R.

## The Heartland Organization of Rocketry


**November/December 2003 ---FREE--- Volume 10 Number 7**

**Eric Kopiasz and his Estes Baby Bertha at the La Vista Sports Complex on October 5th.**

## Fall Meeting Schedule

Tuesday November 4th, Tuesday December 2nd, and Tuesday January 6th. Each meeting will start at 7:00 PM at the La Vista Community Center.

## November/December 2003 Calendar

### *November*

**Event:** Low Power Launch.
**When:** Sunday the 2nd, Noon to ?
**Where:** La Vista Sports Complex.
**Fee:** Free.
**Description:** Low power sport flying.
**For More Information:**

**Event:** High Power Launch.
**When:** Saturday the 15th, 9:00 AM to 5:00 PM.
**Where:** Pickrell, NE.
**Ceiling:** Our standing waiver is 10,000 MSL (8,650 AGL) for the majority of the day, with a window to 15,000 MSL (13,650 AGL) from 1PM - 3PM.
**Fee:** $5.
**Description:** Mainly a high power event, but regular model rockets are flown, too.
**For More Information:** Check the rocketry hotline (1-402-896-2069 or 1-888-546-0396) for any delays or cancellations if weather looks questionable.

### *December*

**Event:** Christmas Party.
**When:** Friday the 5th.
**Where:** Denis Gilbert's house.
**Fee:** Free… but make sure to bring food and drinks.
**Description:** THOR's annual Christmas party!
**For More Information:** Final details for the party will be determined ahead of time. A map for directions to Denis' house is posted on the THOR web site.

## *Rocket Challenge* Broadcast Schedule

Below is the broadcast schedule for the three scheduled episodes of *Rocket Challenge* on the Discovery Channel during the month of November. All times are Central. Refer to www.discovery.com for the full broadcast list and any changes.

**Sunday November 9th**: 7:00 PM – 1:00 AM
**Thursday November 13th**: 7:00 PM – 1:00 AM
**Saturday November 15th**: 11:00 AM – 2:00 PM
**Saturday November 22nd**: 4:00 PM – 7:00 PM

## Have You Rolled Over?

*By Bruce Kelly, reprinted from High Power Rocketry magazine, July 2003 (Vol. 34, No. 6)*

The hobby of rocketry is hurting right now. You are all aware of the regulatory struggles of the past few years that have led us to this point. The effects of the Homeland Security Act on rocketry have been the most damaging thing we have encountered. But there is something even more damaging and it is happening from *within* our organization and from *within* the hobby.

Our fellow rocketeers are in a "dark place" right now. This "funk" that has spread over us is more suffocating than federal regulation. Oh, sure, regulation has caused this, but our apathy will drive the dagger even deeper into the hobby.

No one can say for sure where the regulatory relief process will end; whether we will get relief or not. However, any physician will tell you that even with the best of cures, if a person loses the will to live – game over. And that is exactly what is happening to Tripoli and to the hobby.

People are not coming to launches, they are not renewing membership in large numbers, and they are just sitting in their dark place feeling funky. They are withdrawing the very thing we need to fight the federal government – their support.

Unfortunately, humans are, more often than not, shortsighted. Most can only see what is apparently in front of them; they cannot see afar off. Without hope in the future there is only despair. And people think, of all things, that if they withdraw from rocketry that will be the end of their emotional suffering and aggravation. In the words of John Wayne, "Not hardly."

*"Our society will be judged, ultimately, by the things we are willing to tolerate." – Bruce Kelly*

Our current regulatory struggle is not just about rocketry. It is about basic freedom. For the sake of political correctness, we are now guilty until proven innocent. Isn't this amazing? The Constitution has already been flipped upside down and turned inside out and the government is getting away with it. And they are getting away with it because (a) the apathy of the general population allows it and (b) those of us who are in the dark places are ready to "roll over" and let them do to us what they will without any real or sustained resistance.

This is the classic case of the symptom being worse than the disease. Yes, I said that right. The disease is over-regulation and the symptoms of overwhelming oppression, despair and apathy will not allow us to fight to the level we are capable of. We had better get ourselves out of this funk, or we will literally throw more than just our hobby away. Our society will be judged, ultimately, by the things we are willing to tolerate.

# Offutt 2003 Air Show
# August 23rd – 24th

*Article and pictures by Richard Burney*

This year marked the second time that THOR had a presence at the Offutt Air Force Base air show/open house. Throughout the two day duration of the show, several hundred flyers along with many promotional cards provided by NASA's Space Place program were handed out to interested spectators. Last year's air show brought in several new members and families into THOR; hopefully we will see some new faces in THOR in the months ahead.

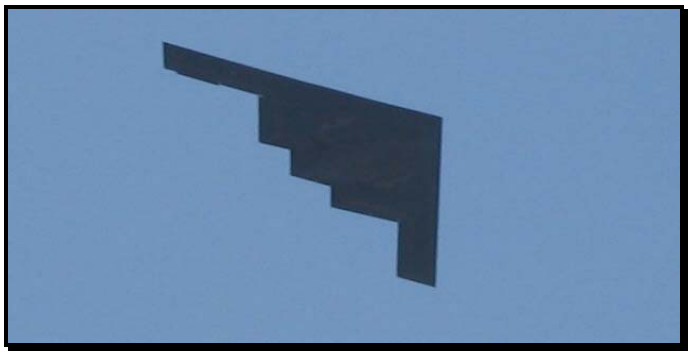
A special thanks goes to Offutt AFB for once again having THOR as its guest and a special thanks goes to all THOR members who ran the display throughout the weekend.

**THOR's display at the air show. Since the fin canister of the Bomb Pop was destroyed at LDRS, Bruce took the top section of the Bomb Pop along with the bottom stage of the CSXT prototype to make a brand new attention getter!**


**Kevin Trojanowski and others manned the THOR display throughout the entire weekend.**

**Yours truly standing in front of an F-117 Nighthawk. This was one of the two F-117's used in the opening night attack of *Operation Iraqi Freedom*.**


***"Let's Roll!"* – many veteran aircraft of *Operation Enduring Freedom* and *Iraqi Freedom*, such as this F-15E Strike Eagle, carry this logo or a variation.**



**A Northrop Grumman B-2 Spirit makes a pass.**

**An F-16 Fighting Falcon and a P-51 Mustang fly in formation as part of the Heritage Flight program.**

## THOR Sport Launch
## La Vista, NE – September 7th

*Article and pictures by Richard Burney*

Besides being a regular sport launch, the 7th annual Field of Wings was held in conjunction with our launch. Besides model rockets, the sky was also filled with R/C planes and gliders. Lots of aviation fun!

**Bruce Lee launches an Alpha on an A8-3.**

**Tony Nicklin launches a Big Daddy on a D12-5.**

## THOR High Power Launch
## Pickrell, NE – September 13th

*Article and pictures by Richard Burney*

The September 13th high power launch was a cloudy, cool day. Even though this was just a "normal" launch, Kent Burnett of Giant Leap Rocketry made the drive from Kansas to provide us rocketeers with motors and parts. Thanks for your services, Kent!


**Joe Michel and his 2.5x upscale of the classic Estes Der Red Max. This was Joe's Level 1 flight.**

**Lift off on an AeroTech H180. A successful flight!**

# THOR Sport Launch
# La Vista, NE – October 5th

*Article and pictures by Richard Burney*

Though the day was perfect for flying – lots of sun, nice temperatures, and very little wind – the only people to show up were Larry and Eric Kopiasz, Jon Damme, and myself. Oh well, at least some of us took advantage of the conditions!

**Jon Damme and Larry Kopiasz watch on as Eric Kopiasz launches an old Estes Aerospace Club kit.**

**Larry and Eric's A8-3 powered Generic EX-2.**

**Spectacular shot of my Titan IIIE being stuck on the pad due to the wires catching a fin pod. Talking about a major waste of a perfectly good D12!**

**Jon Damme's D12-3 powered *6 Ringy Dingies*.**

# China Launches Its First Piloted Spaceflight

*By Jim Banke - Senior Producer, Cape Canaveral Bureau (posted: 03:45 am ET 15 October 2003 at www.space.com)*

**China's first manned spacecraft Shenzhou 5 lifts off from Jiuquan Satellite Launch Center in northwest China's Gansu Province Wednesday, Oct. 15, 2003. China became the third country to send an astronaut toward orbit, four decades after the Soviet Union and the United Sates. (*AP Photo/Xinhua, Li Gang*)**

CAPE CANAVERAL, Fla. -- China reached a milestone in human history Tuesday with the launch of its first piloted spaceflight into Earth orbit.

Blasting off from a remote space base in the Gobi Desert atop a Long March 2F rocket, a single Chinese astronaut named Yang Liwei is circling the planet every 90 minutes aboard the Shenzhou 5 spacecraft, according to the official Xinhua News Agency.

As a result, China has become only the third nation on Earth capable of independently launching its citizens into orbit. The former Soviet Union was first in 1961, followed by the United States in 1962.

"I feel good," Yang said 30 minutes into the flight, according to Xinhua. He then reported his blood pressure and other vital signs were normal and said "See you tomorrow."

It is expected the three-part capsule, whose more modern design is largely based on the Russian Soyuz spacecraft, will make 14 orbits and remain in space for about 21 hours before executing re-entry and a parachute landing onto Chinese soil.

**First Chinese astronaut Yang Liwei waves when boarding China's first manned spacecraft Shenzhou 5 before its blasting off at Jiuquan Satellite Launch Center in northwest China's Gansu Province Wednesday, Oct. 15, 2003. (*AP Photo/Xinhua, Li Gang*)**

Liwei, 38, is an avid ice skater and swimmer, according to Chinese news media. He was raised in the northeast province of Liaoning and comes from a family of teachers. He had been a pilot since 1987 and an astronaut since 1998.

"I will not disappoint the motherland. I will complete each movement with total concentration. And I will gain honor for the People's Liberation Army and for the Chinese nation," Chinese news media reported Yang as saying before the shot.

Liwei already is a hero to the Chinese people.

And if successful, observers say the communist nation will have demonstrated improved technological competence and scored a propaganda victory in the world community. How the rest of the planet actually reacts remains to be seen.

When the Soviet Union launched Yuri Gagarin into orbit in 1961, and having already lofted the first artificial satellite in 1957, a full scale Space Race to the Moon was begun with the United States in an effort to prove which economic and political system was better.

And clearly, one of China's aims is to enhance its prestige, said Dean Cheng, a China space specialist for the CNA Corporation in Arlington, Va.

"By the very fact that it is a space power, China already has set itself apart from most other nations, and certainly all the other Asian states," he said in a recent forum on China's space prowess.

China's space infrastructure, its array of launchers, its space industries, Cheng said, and now a piloted space mission, "place them above even the Japanese, in terms of demonstrated space capabilities. Instead, they are in the same category as ourselve and the Russians."

And with NASA's shuttle fleet grounded because of the Feb. 1 Columbia tragedy, China's new capability appears at an interesting time. Moreover, the U.S. military is likely to keep a close eye on future developments.

In fact, according to a Pentagon report released in July, China's space program will result in making them a greater military threat.

"While one of the strongest immediate motivations for this program appears to be political prestige, China's efforts almost certainly will contribute to improved military space systems in the 2010-2020 timeframe," the report to Congress said.

The report quoted a Chinese naval captain, Shen Zhongchang, as writing: "The mastery of outer space will be a requisite for military victory, with outer space becoming the new commanding heights for combat."

Another view, expressed before the launch, comes from The Times of India, which in an editorial Monday called the Shenzhou 5 launch a "joke."

"It would be better to call it China's Late Creep Forward, given that Beijing is attempting to showcase a four-decade-old technology. If this is China's idea of arriving, then it's come at a time when the other two spacefaring nations have left it light years behind," the publication said.

The mission began at 9 p.m. EDT Tuesday (0100 GMT Wednesday), which was early morning at the Jiuquan Space Launch Center in Inner Mongolia. A last minute decision to not broadcast the launch on live television prevented millions from seeing the 19-story-tall rocket climb toward space.

Chinese president Hu Jintao was at the launch site to witness the shot in person and called it "the glory of our great motherland."

"The party and the people will never forget those who have set up the outstanding merit in the space industry for the motherland, the people and the nation," Hu said.

NASA Administrator Sean O'Keefe added his congratulations in a statement released late Tuesday.

"This launch is an important achievement in the history of human exploration. The Chinese people have a long and distinguished history of exploration. NASA wishes China a continued safe human space flight program," O'Keefe said.

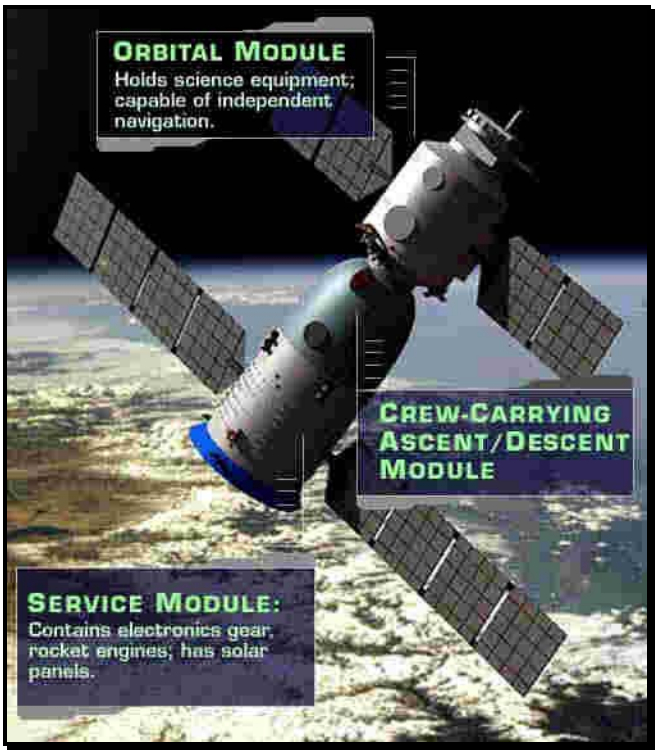
In Washington, Pentagon spokeswoman Cheryl Irwin said, "We wish them success and for their astronaut's safe return."

It took 10 minutes for the Long March 2F to carry the Shenzhou 5 spacecraft into orbit. Shenzhou is Chinese for "divine vessel."

The Long March 2F is a two-stage rocket equipped with four liquid-fueled strap-on boosters. An escape tower attached to the Shenzhou spacecraft topped off the launch vehicle.

The spacecraft is capable of holding up to three astronauts, which some are calling "taikonauts" based on the English translation of the Chinese word for space. Others are using the word "yuhangyuan," which means travelers of the universe.

Flying alone for this first mission, Liwei was among 14 astronauts who have been training for several years. Some of the pilots spent time at Star City near Moscow, where Russian cosmonauts prepare for their missions.




**Schematic of Shenzhou 5 (*Simon Zajc/Elizabeth Lagana*)**

Although the Shenzhou spacecraft is based on the Soyuz design, it is slightly more advanced and uses more modern computers to manage operations and navigation.

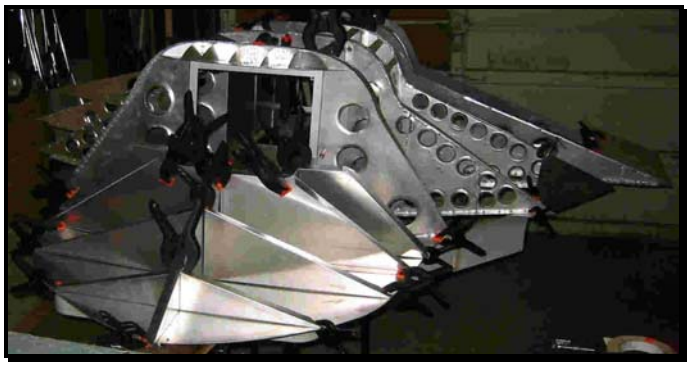
Beijing insists, however, that everything sent into space was developed and made in China. State media, trying to dispel suggestions that its triumph depended on foreign know-how, has refered to Shenzhou as "China's self-designed manned spaceship."

*Christopher Bodeen of the Associated Press contributed to this report from the launch site in the Gobi Desert.*

## *Bluebird* Update

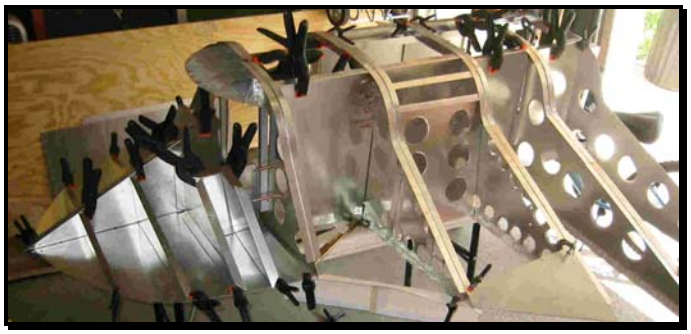
*Pictures by Dave Pares*

For those not familiar with Dave Pares' *Bluebird* project, Dave is working on his own 3-man-crewed space plane. It is designed to be towed behind a jet fighter to over 50,000 and then will be propelled by a rocket engine up to over 60 miles. To prove his design, Dave has been in the process of building a scaled down replica for quite some time. It will be M powered, remote controlled for its unpowered landing, and will serve as his Level 3 attempt.



**Front view of *Bluebird* prototype.**

**That's a lot of clamps! Top-rear view.**



**Front-left side view. Dave hopes to have the Bluebird prototype finished by next year.**

## Rocket man aims for certification day and bigger launches

*By Bev Wieler, Reporter, West Point News*
*Reprinted from www.wpnews.com*

**Andrew Wimmer can't put into words what fascinates him about rockets, but said it's a good feeling when the rockets have a good launch and landing. (*West Point News*)**

Andrew Wimmer may be only 13 years old but he often thinks about lift off, drag and parachutes deploying.

Like most young men, he likes to see things fly into the air and occasionally blow up. Wimmer is a rocket hobbyist with an intense interest in aero space.

His interest in rockets was stirred when his older brother, Elliot, was enrolled in a 4-H rocket project. Now, five years later Andrew reads everything he can about rockets and can talk endlessly about them.

Wimmer's first rocket was probably an Estes starter kit, and that is what he advises new hobbyists to purchase. The kit should include everything they need for a successful launch.

Those first launches will probably be with an A or B motor, which are the smaller rocket motors. Motors increase in size all the way to O motors. The biggest motor Wimmer has ever worked with is a K.

"An O motor should be able to lift 300 pounds," he said. "An O motor measures six inches in diameter, is four feet long, has 29 pounds of propellant and weighs 52 pounds."

Of course an O motor costs a lot more than the $1.50 A motor. An O motor is also a motor that should be used by a certified rocket hobbyist. Wimmer isn't old enough to be certified, but he has been studying for the day he does turn 18 and can register for certification. After all, that is only five years away and most rocket hobbyist take at least two to three years to reach their level three certification.

"I plan on having all my testing done before I turn 18," he said. "To certify you have to take three levels of testing and fly a rocket in one of each of the three levels. Each level of certification requires more knowledge and uses increasingly sophisticated rockets."

Wimmer knows the difference between the lettered motors. He can also go into detail about the numbers that follow the letters and what they mean.

"The letter is the total impulse (total power)," Wimmer said. "The first number is the average thrust in newtons, and the next number is the delay in seconds until the recovery device deploys. Each letter from motor to motor doubles the power of a rocket motor."

Past the technicality of the motors, there is the rocket itself. The rockets can be purchased as kits and painted and finished by the hobbyist.

Wimmer has purchased the kits. He has also bought material to design his own rockets. One of those self-made rockets looks like a giant bottle rocket. The first launch of that rocket was the biggest disappointment in Wimmer's rocket life.

"It should have gone 500 feet up," he said. "It only went up 50 feet."

It was back to the drawing board. Wimmer added a new stick and a bigger motor. The rocket now uses an 11 inch wooden dowel and is launched from an eight foot piece of PVC pipe.

A lot of small rockets left the Wimmer launch pad before Andrew sent up the bottle rocket. Many of them were special to him, and even though the rockets are equipped with parachutes, they don't always land where they're supposed to, or in good condition.

"That's why you start out with small kits," Wimmer said.

Launching rockets includes learning about how far a rocket will go, how the wind affects where it lands, and a lesson on loading parachutes or other recovery devices.

"The smallest rockets only weigh about a quarter of an ounce," Wimmer said. "So they don't need a recovery device. They just drop to the ground."

As the size of the rocket increases, the recovery devices go from streamers to parachutes. The larger the rocket, the larger the parachute. Some rockets are even equipped with more than one parachute.

Wimmer knows what kind of lift off to expect from various sizes of motors, how to pack parachutes and, most importantly, the safety rules.

"You have to be at least 15 feet away when you ignite a rocket," he said. "Most of the time you have to be even farther away."

Wimmer has been in those circumstances more than a few times.

This summer was one of them. He and his father, George, and mother, Ann, went to the LDRS (Large and Dangerous Rocket Ships) National Launch in Argonia, Kansas.

Wimmer was on one of eight teams that built a rocket from the ground up and then launched and recovered it.

"It was a contest," he said. "We were timed on building the rocket, including painting it. The rockets used K motors. They were inspected before we launched them and the competition included recovery."

After the contest the team divided the parts of the rocket. Wimmer brought home the parachute which is large and can be reused in another rocket launch.

Motor tubes for larger motors can also be reused, and if not too damaged, rocket bodies are used again for launches.

At the LDRS, more than 1,200 rockets were launched, not all at one time, but the people at the launches weren't all focused on the same attraction. Occasionally a rocket doesn't go straight up.

"They blow a whistle when a rocket goes crazy," Wimmer said. "You better pay attention when you hear the whistle."

The rockets at the national launch included a lot of unusual shapes and some fancy paint designs. Others were perhaps an unusual shape for a rocket, especially the one that was built from a porta potty.

It didn't have the usual pointed tip, but it went up, Wimmer said. He and his family videotaped the porta potty rocket's launch.

As Wimmer's launch skills grow, so does the time and effort he puts into the design of his rockets.

He is currently working on a cork screw rocket. It is 6 inches in diameter, will use a motor in the H through L category, and use a 36- inch diameter parachute. Helping Andrew with the project is his dad.

Ann has also joined the two at launches. The three traveled together to Kansas and Ann even launched her own rocket. Unfortunately it landed on it's nose which is now wrinkled.

The rocket hobby has turned into a family affair and probably will stay that way as long as Wimmer needs a driver to take him to launch his rockets.

It's also good to have someone else watch where the rocket goes after lift off to help hunt when it lands in a vegetated area.

Wimmer isn't launching rockets every day, or even every week. Once a month he participates in a club launch with the THOR Rocketry Club at La Vista.

"I've learned a lot from club members," he said.

As part of the club he also was able to help with the Offutt Air Show.

The winter months allow Wimmer the time he needs to do research on the internet, read magazines on rockets and build them.

As each winter ticks by, Wimmer is getting closer to the age of 18 and also closer to pursuing his career which he hopes will be in aero space design.

NASA's Space Place

http://spaceplace.jpl.nasa.gov/index.shtml

## Hurricane Team Work

*by Dr. Tony Phillips*

On a gray breezy day last month thousands of people got in their cars and reluctantly left home. U.S. east coast highways were thick with traffic. Schools were closed. Businesses shut down.

Perfect!

When powerful Hurricane Isabel arrived some 38 hours later nearly everyone in the storm's path had fled to safety.

Days later Vice Admiral Lautenbacher, in a briefing to President Bush, praised the National Atmospheric and Oceanic Administration (NOAA): "Without NOAA's excellent track forecasts, hurricane Isabel's toll on lives and property would have been even more devastating. This is NOAA's first year of providing 5-day forecasts-and the 5-day forecast for Isabel was as good as our 2-day forecasts have been over the last decade."

Many people in NOAA played a role. A team of pilots, for instance, flew Gulfstream-IV High Altitude Surveillance jets right up to the approaching hurricane, logging 25,000 miles in the days before landfall. Their jets deployed devices called dropsondes-little weather stations that fall toward the sea, measuring pressure, humidity, temperature and wind velocity as they plummet. The data were radioed back to the aircraft and transmitted to forecasters on shore.

While two Gulfstream-IV crews flew night and day around the storm, a NOAA satellite named GOES-EAST monitored Isabel from above. (GOES is short for Geostationary Operational Environmental Satellite.)

**GOES-East satellite image of hurricane Isabel as it makes landfall on September 18, 2003 at 1715 UTC.**

From an orbit 22,300 miles above the Atlantic Ocean, GOES-EAST had a unique view. "It could see the entire hurricane at once," says Ron Gird of NOAA. "Scientists used infrared spectrometers onboard the satellite to estimate the height of the storm clouds, their temperature and water content. GOES can also measure the temperature of the ocean surface-the source of power for hurricanes."

Constant streams of data from GOES and the Gulfstream aircraft were fed to supercomputers at NOAA's Environmental Modeling Center in Maryland where sophisticated programs, developed over the years by meteorologists and programmers, calculated the storm's most likely path.

Supercomputers. Satellites. Jet airplanes. Scientists. Programmers. Pilots. It took a big team using a lot of tools to predict where Isabel would go-accurately and with time to spare.

Says Vice Admiral Lautenbacher: "I hope everyone at NOAA shares the pride of being part of a team effort that so effectively warned the public of impending danger and enabled citizens to take action to protect themselves and their loved ones."

Well done, indeed.

To learn more about the GOES, see www.oso.noaa.gov/goes/ . For kids, the SciJinks Weather Laboratory at scijinks.nasa.gov has lots of fun activities and fascinating facts about the wild world of weather.

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

## THOR Meeting Minutes

*Compiled by Richard Burney, Secretary*

### THOR Meeting Minutes 9/2/03

**Attendance:** *Richard Burney, Bruce Lee, Dave Pares, Arley Davis, Sherri Bosworth, Rick Bosworth, Andrew Wimmer, Doug Holverson, Doug Buhrman, Nathan Warner, Scott Pearson, Kevin Trojanowski, Greg Rothman, Jon Damme, Troy Muller, Larry Drake, and Denis Gilbert.*

**Meeting starts at 19:15.**

Nothing has advanced any further regarding either the proposed legislation in Congress or the lawsuit.

According to Bruce Lee, *High Power Rocketry* magazine will be increased to 12 issues a year.

An interview with Bruce will be appearing in the next issue of *Extreme Rocketry* magazine.

Rich Burney is finishing work on the next 2 newsletters. Both are dedicated to LDRS XXII coverage.

Jon Damme talks about a how he gave a 15 year old a Commanche 3 and the problems that came up on the rocket's maiden flight.

Saturday November 8th is the planned airing date for the first episode of *Rocket Challenge*. (*Editor's note: see below for updated broadcast schedule*).

Nathan Warner shows the Vaughn Brothers Extreme 54 he recently got to replace the one he lost at Pickrell a few weeks ago. Nathan is in the process of building an oven in order to cure epoxy on fiber glass.

Doug Holverson shows some rockets he built based on some old Centuri and Enerjet kits. Doug is also working on a flying wing, balsa boost glider.

Andrew Wimmer shows a custom built launch controller he recently built. It is designed to be hooked up to a car battery. Andrew recently built and flew an F-powered spool rocket as part of a 4H display.

Rick Bosworth passes around a signed lithograph from the Royal Air Force Nimrod crew that was at the Offutt Air Show. Sherri Bosworth and the rest of the THOR crew at the show helped get the RAF guys some shade (they didn't have a tent for their display).

Arley Davis passes around the model rocket that Estes did of the CBU-87 cluster bomb. Arley shows the old Centuri SSV Scorpion that he recently finished after 6 months of work. Awesome job!

Dave Pares shows the work he has done to date on his *Bluebird* prototype. Influence in the design and construction comes from the Convair B-36 Peacemaker along with the flying wings of Jack Northrop and the Horton Brothers of Germany.

Treasurer's Report: $330 is in our account, but there are lots of expenses coming up and we could end up short.

Greg Rothman may have a new launch control system built for us for next year.

**Meeting adjourned at 21:30.**

## THOR Meeting Minutes 10/7/03

**Attendance:** *Richard Burney, Bruce Lee, Jeff Moon, Arley Davis, Andrew Wimmer, George Wimmer, Denis Gilbert, Bill Richardson, Nathan Warner, Doug Buhrman, Scott Pearson, Kevin Trojanowski, and Rick Bosworth.*

**Meeting starts at 19:12.**

All three episodes of *Rocket Challenge* will be shown on the evening of Sunday November 9th on the Discovery Channel. The shows will be rerunned six times. Frank Uroda of PML is working on getting commercial time secured during these shows to help promote rocketry and shine light on the regulatory issues. There is a "mega raffle" to be held in conjunction with this.

The most recent attempt to fly Ky Michaelson's CSXT/Space Shot was canned once again due to poor wind conditions. Balls, which followed just days later, was a much more eventful event. Pretty much any flight under an O was "ignored"! Bruce Lee was involved with a Q class hybrid rocket that went up to 25,000 feet!

Bruce is hoping to use Ky's rocket back pack that Ky's son used in the 1970's to set a roller skate speed record. Bruce is producing his own 80% hydrogen peroxide in order to use the back pack at Ky's Super Bowl Party in January.

An interview with Bruce is in the latest issue of *Extreme Rocketry* magazine.

At LDRS XXIII or another future event, Bruce and Ky are talking about setting up an apartment setup in the middle of the field… all of the appliances and furniture would be flyable and possibly launched in one salvo!

Tim Covey (of I-SOAR) attempted a long, 3" diameter, N-powered nitrous rocket at Balls. It was designed to reach 65,000 feet! Due to the low initial thrust, the rocket took a cruise missile flight path instead, landing somewhere miles away.

Rich Burney passes around the LDRS XXII pictures of his *Mobile Rocket Gundam* he received from Nadine Kinney recently. Rich also recently received a petition from the National Space Society involving the recent rocketry regulatory issues.

Rick Bosworth shows his finished Estes Patriot kit. Rick redesigned it for F and G motors!

Kevin Trojanowski shows some of his Ratt Works motor parts. Their nitrous K can easily be upgraded to an L.

Scott Pearson talks about some of his experimental rocketry plans.

Doug Buhrman is planning on getting into hybrids.

Kevin reports that the November 15th high power launch will now be held at the Pickrell site. Due to the Air Force's priority over our airspace, the Breda site will probably not be used in the future.

Nathan Warner shows a fiber glass job he did on a new rocket of his. Nathan's curing oven is up and running.

Bill Richardson passes around some carbon fiber fins he made. They are lightweight and VERY strong.

Andrew Wimmer got a LOC Caliber ISP kit for his birthday. He plans on stretching it. Andrew and his rocketry activities will be appearing in an issue of the newspaper for West Point, NE.

Arley Davis shows one of the new Estes rocket cars. Arley also shows some of the Flis Kits he recently got.

Treasurer's Report: Just a little over a $100 left in the account. We are close to broke, but we have few expenses left for the year and more income should be coming soon from membership renewals.

THOR's Christmas Party will once again be at Denis Gilbert's house on Friday December 5th.

**Meeting adjourned at 21:25.**

## CLUB OFFICERS

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**NAR SECTION #562 LEADER** – ***Bruce Lee***

**NEWSLETTER EDITOR** – ***Richard Burney***

# THOR on the Super Information Highway!

## *http://www.nerocketry.org/*

***What is THOR?***

**T**he **H**eartland **O**rganization of **R**ocketry (**THOR**) is both an officially sanctioned prefecture of the Tripoli Rocketry Association (Tripoli Nebraska #46) and is an officially sanctioned Section (#562) of the National Association of Rocketry. THOR conducts low through high power model rocket activities through out the year. THOR strictly adheres to the safety guidelines that have been established by the NAR and Tripoli.

***When and where does THOR meet?***

Meetings are usually held the first Tuesday of the month at 7:00 PM (different days or times will be announced in advance) at the **La Vista Community Center** at **8116 Parkview St., La Vista, NE** (turn east at the Sinclair Gas Station on 84th St. and go a block east). Visitors are welcome to attend.

***For additional information…***

For club launch times, launch locations, or for those with additional questions call THOR at **(402) 896-2069** or toll free **1-888-546-0396** (there is a voice mail option at the end of the message). Interested parties may also write their inquiries to the address to the right and are also welcome to contact any of THOR's officers.

## THOR Membership Application

### Personal Information

**Name:**_____

**Address:**_____

**City:**_____

**State:**_____ **Zip Code:**_____

**Phone Number:**_____

**E-mail:**_____

### Hobby Information

How long have you been in model rocketry:_____

Do you belong to a national rocketry organization (enter your number to the applicable organization):

**NAR#**_____ **TRA#**_____ **NERO#**_____

Are you certified for high power rocketry (check mark your applicable TRA or NAR Certification Level):

**Level 1**____ **Level 2**____ **Level 3**____

### Membership Rates

½ year memberships will divide by 2 and add $1. Write your check payable to "The Heartland Organization of Rocketry" or "THOR". Mail it to the below address or pay at the next meeting.

**Family Membership - $36**
**Senior Membership– 18 and over - $24**
**Junior Membership – Under 18 - $12**
**Correspondence Membership - $10**
(Members over 50 miles from Omaha)
**Newsletter Only** (6 issues a year) **- $6**

I agree to comply with THOR's policies as pertains to the safety guidelines set forth by the NAR and Tripoli. Failure to do so is grounds for expulsion.

**Signature:**_____

**Dated:**_____

**The Heartland Organization of Rocketry**
**6211 South 141st St.**
**Omaha, NE 68137**

**Membership in The Heartland Organization of Rocketry is open to all interested parties.**