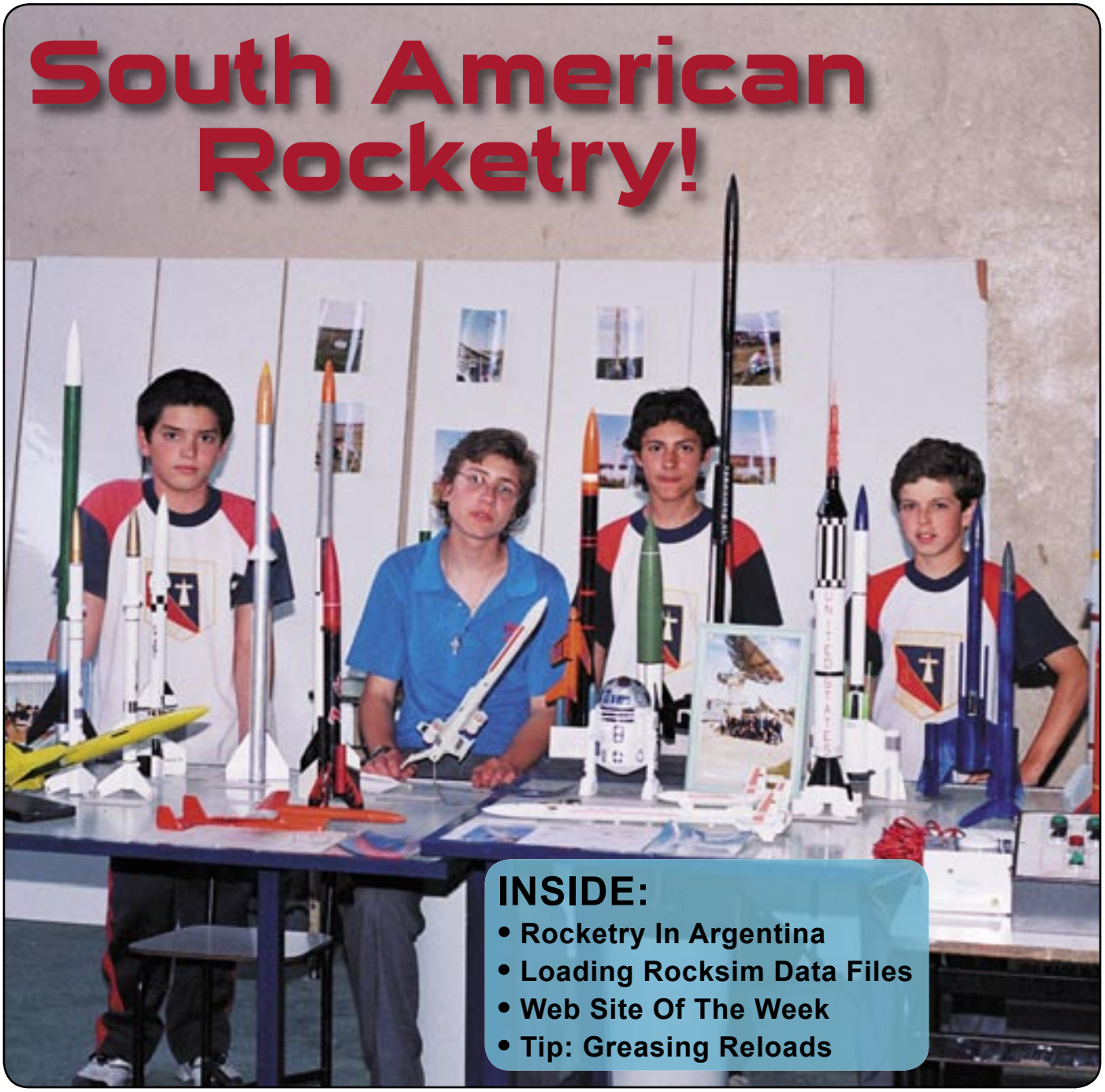
ISSUE 156 - FEBRUARY 2, 2006

# APOGEE PEAK OF FLIGHT NEWSLETTER

# South American Rocketry!



## INSIDE:

- Rocketry In Argentina
- Loading Rocksim Data Files
- Web Site Of The Week
- Tip: Greasing Reloads

Apogee Components
1130 Elkton Drive, Suite A
Colorado Springs, Colorado 80907 USA
www.ApogeeRockets.com e-mail: orders@ApogeeRockets.com
phone: 719-535-9335 fax: 719-534-9050

# Argentinean Rocketry

**by Carlos Daneri - edited by John Manfredo**

*I find it interesting when I come across stories about what is happening in other parts of the world when it comes to the subject of rocketry. Buenos Aires, Argentina is fortunate to have Escuela Argentina de Modelismo Espacial (EAME). Carlos Daneri is the Deputy Director of EAME and wrote to me regarding the work of this group.-editor.*

## Buenos Aires

For 4 years EAME has been dictating space modeling courses in different schools, workshops, and institutes. We have been training new instructors too, in order to expand the hobby all over the country.

Our courses are Levels 1 to 3, and then we have special workshops to continue developing the ability of our students.

At the end of the Level 1 courses, we begin teaching design matters to the students with the help of RockSim in their notebooks, and the students can try out the design before building or flying those models. Then they can compare the real result with the software simulation.

Our students are usually from 8 to 16 years old and are in either primary or secondary school. We also have workshops for adults in addition to ones in which we train new instructors.

Each year we organize the Argentinean Space Modeling Championship, which is divided into two main categories; Junior and Senior. These competitions

Group of happy EAME contest winners

continued on page 3

## About this Newsletter

You can subscribe "FREE" to receive this e-zine at the Apogee Components web site (www.ApogeeRockets.com), or by sending an e-mail to: ezine@apogeerockets.com with "SUBSCRIBE" as the subject line of the message.

Students with cluster rocket

are based on FAI and NAR competitions rules and, of course, the International Safety Code. The Championship is not only for our students to take part in; the championship is open to everyone (actually, I (Carlos) won the 2005 Senior Category Championship).

In 2005, we had training for 140 students of several levels. We also give support to other science clubs, workshops, and colleges all over Argentina and Uruguay, too. This is done by means of providing materials to build rockets, bibliographies, guides on how to develop the activities, organize a club or a rocketry event, and so on.

## Space Activities

Included in their courses are visits to several space activity centers in Argentina that develop space science research or applications. Examples of these would be the Mission Control Communication Satellite "NahuelSat" that controls the Communication satellite "Nahuel 1", the National Meteorological Center, CONAE (Space Activities National Commission), and so on. In the future there are plans for activities that complement and represent a good opportunity to approach the hob-

continued on page 4

Winner of scale model category

by with a vocational direction for the future university level study of our students.

Currently, we are collecting money to buy the upgrade for RockSim from our RockSim 7.01 to 8.0 and learn the new software before the 2006 courses start in April. Usually the school year is from March to early December in the South Hemisphere. The picture on the left shows Nicolas Olmedo, who was the winner of scale tournament with a Mercury Redstone model.

The materials and rocket motors that we use, since the last economic crisis are totally developed by us. This was because

continued

Kids and rockets

the importation ended due to the high cost as consequence from the devaluation of our money. Before it, we used imported materials from USA or Europe. It was a good opportunity to take advantage of the crisis to dominate the complete process of rocketry, including the develop and fabrication of black powder rocket motors in C, D, and F impulse classes.

## An Interesting Project

Seen on the right in the picture on this page posing with a student, Carlos A. Daneri (Charly) is the Deputy Director for the EAME Cóndor, (Escuela Argentina de Modelismo Espacial Cóndor or Condor Argentinean Space Modeling School). He also used to write articles for the Argentinian Air Force Magazine, "AEROESPACIO" (www.aeroespacio.com.ar), which refers to space modeling in his country. The construction of the model on the right, called SLM-2005 ACTITUD, was a very great team effort. (SLM for Multi-purpose Launch System) for educational use, the local version of CanSat of ARLISS project ). The project began on February 2005, and was proposed by Guillermo Descalzo, the team leader who designed the whole rocket and specifically the 1st stage and candy rocket motor H-86, and supplied the Perfectflite altimeter. Carlos offered and made the 2nd Stage rocket motor; an F18-6 black powder. That motor they made for their expert students, educational purposes, and for their projects. Its motor has a very good reliability; just 2 CATOs over 140 motors launched (98.6% effectiveness). They made the motors in a rental workshop at a pyrotechnics factory. Roberto Müller made the 2nd stage body and the inter-stage. He also collaborated with G. Descalzo and designed the recovery system of 1st stage and made the final finishing of the model for Roberto, too.

Finally, the electronic brain's function was to detect the launch condition, start the igniter of the second stage by timer, and fire the igniter to the recovery system of the first stage. The electronic device can drive up to 10 events, but only need two for this flight.

The first stage was designed and developed by the 10 members student team of ORT Argentina Division College, which was lead by Professor Edgardo Baez of the electronic workshop at the college. The launch was on November 2005 and reached 1.5 Km high in altitude. The electronic brain worked very well, but unfortunately the parachute of the first stage didn‘t eject properly and this stage suffered a lot of damage at landing. The second stage operated well and was recovered almost 1 km from the launch site.

Carlos on right with SLM-2005 rocket

## Conclusion

*It's nice to know that rocketeers and educators not only in this country but from around the world are realizing the value in Rocksim! RockSim allows you to take your ideas and flush out the concept to see if they'll be stable when you launch. Not only can you design them, but you can view them in 3D and rotate them around. You'll get to visualize your dreams long before you build them! For more information on RockSim's capabilities, see: http://www.apogeerockets.com/education/downloads/TARC_software_comparison.pdf.*

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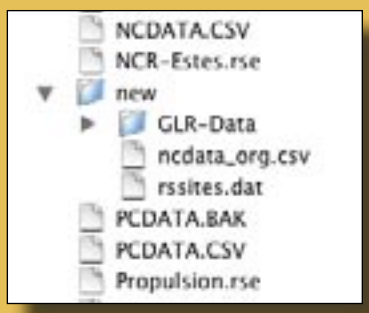
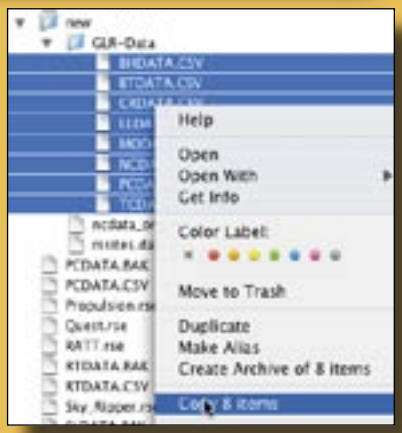
# QUESTION AND ANSWER CORNER

The question for this issue is, "I have Rocksim 8 and recently downloaded new parts files from an internet source but they're not showing up in Rocksim." The solution to this problem is actually easier than you might think. After downloading the file from the internet, you will notice that a lot of these type of files will be "zipped" or "compressed". The instructions will usually tell you to unzip them to the "new" folder which is in the "data" folder of Rocksim. As you can see in the picture on the right, sometimes the data files that you download may be in another folder, such as the "GLR" folder. If this is the case, Rocksim will not find them. All you have to do to remedy this is to copy the files that are inside "GLR" and paste them into the "new" folder to join any others that might be in there. Then, you can just delete the original "GLR" folder and its contents. At this point, if you haven't already restarted Rocksim, go ahead and do so. Now when you look for parts, you should find the company's products that you added into the "new folder. Hopefully, this will help you avoid any frustrations in the future. If you have a question you would like answered, please e-mail me at: johnm@apogeerockets.com



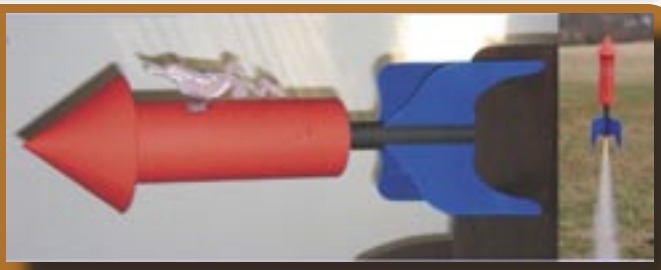



# WEB SITES WORTH VISITING

Well, I have to say that the website for the week is small, yet creative! Susan DeBerg's website, which may be surfed at http://www.drsuesrocketworks.com/index.html, is definitely original! She's been interested in rocketry since she watched the Apollo program and the moon landings on TV, dabbled on it a little bit in the 80's with Estes kits (booooooriiiinggg, she says) and finally dove in head firstabout a year and a half ago after discovering mid-power rockets. (Susan needs to try our Dynastar line).

She is self-employed in the construction field specializing in repairing / remodeling residential and commercial property. She's a member of Tampa-Hillsborough Organization of Rocketry (THOR) in Florida with an occasional trip cross state for a high power launch.

Her creations are brightly-colored and original in design which gives them a very fresh look. One of my favorite things on the picture page (probably because

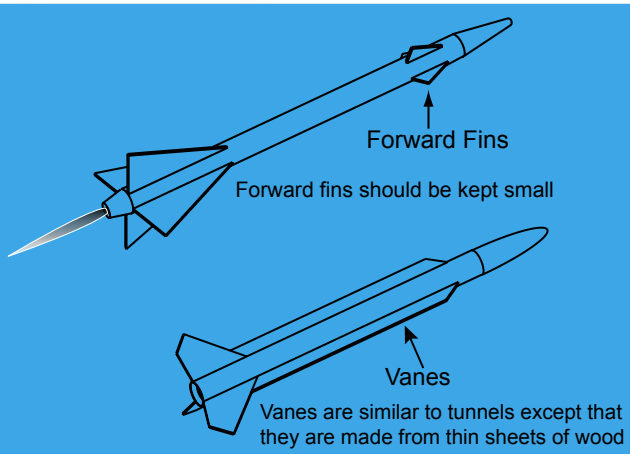


I'm a Road Runner fan) is the "Wiley E. Coyote" rocket (shown above), also known as *Acceleratus Incredibulus!* Sue likes to post original designs of the month and this is one of them. It's just so cool-looking and makes me chuckle when I look at it!

On the "Rockets" page is the "Fireball240" design, which I find very appealing due to its nice design and colorful paint scheme (lower left). Another one that is pretty nifty is the "Darkbird" that sports a central 24mm motor and 2-18mm outboards. Along with the center-break, zipperless design, this BT-70 sized, parallel-staged model with drop-off BT-60 boosters is very cool and has flown successfully! Hey Sue, what was in the 24mm mount? Nice photos of this model, too! There are videos of some of the rockets from both onboard and ground vantage points as well. Well done Susan, we hope you keep it up!

## DEFINING MOMENTS

In addition to having fins at the rear of the rocket, they can be added to the nose, middle, or tail of the rocket. These are called **Forward Fins** and **Stabilizing Vanes**. Vanes are the same as fins but are usually much longer. Examples of these may be seen in the illustrations to the right. Although they add a distinctive look to the model, forward fins and vanes should be kept small in size because they can cause the rocket to become unstable. You should always perform a stability check with RockSim before flying a model which is equipped with forward fins or vanes.



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# TIP OF THE FIN

This issue's tip revolves around reloadable motors. Many rocketeers have asked over the years, "How much lubricant do I put on the parts for the reloadable motor and what kind do I use?" I posed this question myself some years ago on an online forum and received quite a few replies. However, I found one suggestion in particular very helpful. Granted, there are as many answers for this as there are reloadable motor enthusiasts, so remember that this is just one way to do it.

Picture 1

The first part of the answer is the brand of lubricant. The suggestion was to use Radio Shack's "Multi-Purpose Lube Gel". This is shown in picture 1. A tube of this is shown at the left and is very inexpensive. This type, in particular, has a consistency that is thick.

Also, it has a temperature rating that is high enough that keeps it from thinning out and running as the lubricant heats up, as is the case with reloadable motors.

The second part of the answer lies in how much to use. I've found that using the same amount of lubricant as the diameter as the "O Ring" that you are getting ready to grease up is just about right. It doesn't take much and as you can see in picture 2, "a little dab'll do ya!"

Just get the amount on your finger that corresponds with the diameter of the ring you are going to grease and carefully spread it out evenly all around the ring. The finished, greased ring should be shiny but not globbed-up with the lubricant.

Picture 2

Picture 3

In picture 3 you will notice the 38 mm O-ring prior to greasing it and it looks dry as a bone. After I greased it, as seen in picture 4, you are able to see the shininess of the grease on it.

Again, to reiterate the point, don't put any more grease on the part than is necessary to give a nice sheen to it. This method may be used on all parts including grain liners, casings, and threads as shown in picture 5 below.

Picture 4

However, if reloads aren't your thing, we have plenty of single-use motors in stock for you at http://www.apogeerockets.com/rocket_motors.asp

Picture 5