ISSUE 85 - JULY 19, 2002

APOGEE PEAK OF FLIGHT NEWSLETTER

RockSim V6

What Are The New Features?

Why Do We Like Rockets?

Try Explaining to Your Friends Without Using the Word "Cool"

Shrox Plan - Javelin

The Future of Atmospheric Sampling Designs

APOGEE COMPONENTS
1130 Elkton Drive, Suite A
Colorado Springs, CO 80907 USA
www.ApogeeRockets.com
orders @ApogeeRockets.com
phone 719-535-9335 fax 719-534-9050

ISSUE 85 - JULY 19, 2002

APOGEE

PEAK OF FLIGHT

ROCKSIM 6.0 NOW SHIPPING!

This is just a reminder that the newest edition of RockSim is now shipping. I took a bunch with me to LDRS, and they sold out quickly. But you can get your copy immediately from our web site.

The big question everyone is asking: "*What's new in version 6*?"

The big change is that we modified the file format. This is huge news for you; since RockSim will now allow other programs to access the design files.

For example, if you create a design in RockSim, other programs will be able to easily open those files. Then, you'll be able to do stuff that currently isn't possible in RockSim.

The first programs are already starting to appear. The FinSim program (available on the Apogee web site) will perform a structural analysis of your design. What this means is that it will be able to tell when the fins will be stripped off the rocket. That's important information if you plan on flying high-speed rockets, or models with huge fins.

There is also the free "Fins Fun" application that allows you to print two types of fin alignment guides from your RockSim v6 files. You can download it from: http://spazioweb.inwind.it/lbenassi/FinsFun/

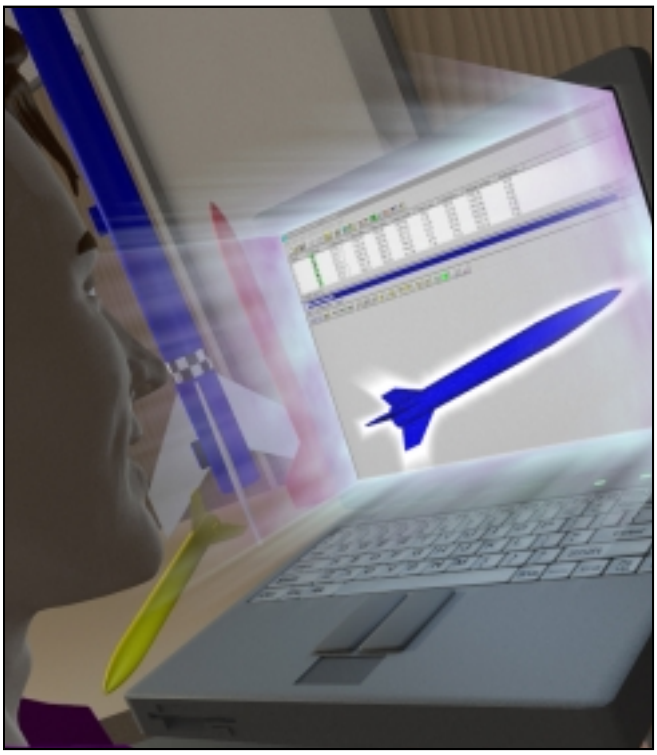
There are also about a half dozen independent programmers writing software for the new format. They tell me that they are working on things like:

1.) Conversion of RockSim files into dxf files that can be opened in AutoCAD.

2.) Printing utilities that will reformat the RockSim output, so you can customize the way your drawings are displayed.

3.) Conversion of RockSim files to Palm Pilot and other PDA devices. So instead of taking your laptop to the field to see flight summaries, you can bring just your little PDA device.

4.) Utilities that will scale up a design. For example, if you have a scale model you'd like to make into a big scale rocket; the new application could tell you what tubes you'd need to buy to make the new one.



When will these new programs will be ready? At this time, I don't know. You know how programmers are — I'm not even sure if they'll finish them at all. But we've been encouraging the programmers to work as fast as possible because we know you want these types of applications. It will take your existing RockSim designs to whole new levels of sophistication and functionality.

why did we change the rocksim file format?

We look at it this way: we get a literally hundreds of feature requests from users on how RockSim could be made better. Unfortunately, we can't get to them fast enough. We needed a way to satisfy those desires quicker, or we risk letting our customers down.

On the other side of the coin, there are a lot of programmers that would like to add features themselves. They've been

cont. on pg. 3

ISSUE 85 - JULY 19, 2002

APOGEE

PEAK OF FLIGHT

ROCKSIM V.6 NOW SHIPPING!

cont. from pg. 2

hounding us for a long while too, since the old RockSim format didn't allow them to do anything. The new one does; and it is pretty easy to read.

I think that in a few months, there will be a lot more things you can do with your RockSim files. Basically, you create your design just once in RockSim, and then use these other programs to get those desired features. In the end, it will make the value of your RockSim files even more important to you.

By the way, if you're a programmer, and you'd like to work with the new RockSim XML format, you'll find the help file in your RockSim folder. Filename: RS_XML.txt

Please note that this XML help file is auto generated from the Perl script that generates the file I/O layer for RockSim. Paul (RockSim's author) is working on generating a more user-friendly help file PDF, and HTML document from the script.

Paul says "Please feel free to ask lots of questions. I am excited that other developers will be extending RockSim's functionality."

RockSim Also Exports to AeroCFD!

The other big feature we added to this version is the ability to export data to AeroCFD. Unless you own AeroCFD, this may not be a urgent reason to upgrade. However, I am convinced that CFD programs like AeroCFD and HyperCFD. offer a much better way to improve the accuracy of the simulations. That's why we're putting so much effort into it. I just have to convince you in some tangible way that it is really worth it to buy AeroCFD and use it along side RockSim.

The only "gee-whiz" feature added to RockSim is the way Optimum Mass for a rocket is determined. In the older versions, you'd have to make a guess at an optimum mass first to start the process. In the RockSim v6.0, you just click a button and the program finds the number instantly.

Bug Fixes and Speed Improvement

The number of bug fixes in this new version are too numerous to list here. But you can find a list of them on the Apogee web site at:

http://www.apogeerockets.com/rocksim_history.asp

These bugs weren't show-stoppers — after all, version 5 is still a phenomenal program. But they were a nuisance to deal with for complex designs. And besides fixing them, Paul also did many changes to how RockSim handles memory allocation. This really speeds up the sims and the rendering of the 3D rocket surfaces. You'll definitely notice an increase in simulation speed, especially on old, slower computers.

Database Additions

Version 6.0 also has expanded motor database files. We scoured the web looking for motor files from your favorite manufacturers. All the Aerotech Redline motors, econojets, Cessoroni motors, and the Estes C11 and E9 motors have now been added. (Note: it doesn't include the AMW motors, since those thrust curves are not available yet).

The parts databases have also been revised. Barry Lynch at L.O.C. Precision has given us data files for all the parts that L.O.C. offers. This will please a lot of people that have been unable to sim the L.O.C. kits.

You might have heard about a few glitches we've had with this initial release. For example, there was a Microsoft library file missing, and there was a bug that appeared on older OS computers (Win95, Win98, and Windows ME) that caused the program to halt. But we are happy to report that these bugs are now behind us. Here are a couple of comments we've gotten so far:

Jonathan Rose writes: "*PS: So far I really like the updated stuff in version 6. The way parts are displayed is very nice. Sims seem to running much faster. 3D display manipulation is much smoother*."

Tom Horton wrote: "*I looked at one of the RKT files with a text editor. I can't believe the number of parameters involved in each part. Very cool."*

All in all, I think you get a lot more value for the small price change of just $10.

To purchase the program, or to upgrade from a previous version, you can either call us, or use our secure ordering system on our web site.

http://www.ApogeeRockets.com/rocksim.asp

APOGEE COMPONENTS

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

ISSUE 85 - JULY 19, 2002

APOGEE

PEAK OF FLIGHT

WHY DO WE LIKE MODEL ROCKETS?

By Tim Van Milligan

My family doesn't get it. They don't understand the reasons why I love model rocketry. I'm sure you've probably experienced something similar with your family. Maybe you've even tried to explain it to them. I know that it is difficult to do so without somehow saying that "rockets are cool!" But they don't know what "cool" means.

I've been doing some research into what motivates people like you and I that makes us gravitate to rocketry. And I think I can give you some ideas on how to explain our passion for rocketry to your family members without using the words "it's cool."

And since I recently returned from LDRS, I'll try to expand on this topic, and give my opinions on why we build and fly "BIG" rockets.

But before I go further, let me say that this is purely an opinion piece. And it may be more difficult reading that my other articles. It contains a bunch of psychology and other mumbo-jumbo. It's touchy-feely, which is hard to describe. You may have to read it twice to figure out what the subtle meanings the sentences contain.

why we love rockets

I recently came across a book called "*Handbook of Consumer Motivations*" that attempts to explains why us males have a fascination with high performance sports cars. As I was reading it, I was struck at how the same reasons we love sports cars also apply to our love for rockets. Makes some sense, doesn't it?

It all begins with the nature of mankind. There seems to be some underlying or innate desire in us humans to be masters of the world around us. We don't feel complete unless we are in control.

One reason for this is a survival instinct. Mastering the world around us and getting around is one of the prime motivations without which 'survival' is impossible. Think about it. It is one thing that separates humans from other animals - we move around to where life is better. If we can't, we'd go extinct like numerous other species that once inhabited the planet. It's wired into our brain — we need to have the ability to move around, or we feel like a caged animal.

In a way, because of this desire to move around, you and I feel the urge to control rockets. We are forward looking people — and after all, rockets are just a vehicle. They are a means of

locomotion. And they are the only way we have leave the planet (should that become necessary for survival).

I believe that rocketeers are similar in that one respect. We probably also share it with Trekkies and space enthusiasts. We feel the urge to be masters of our surroundings. But unlike Trekkies and space enthusiasts, we are doing something about it. We're building and flying rockets using our own hands. It gives us a sense of being in control of our own fate, and the future of mankind. We're explorers because we're survivalist's.

The book explained it this way: "Man wants to conquer space and subdue distance, speed, and any obstacles for the purpose of mastery and survival." You may need to read that profound sentence again. It is for this reason that we have this overpowering desire to build and fly rockets.

To people on the outside (including our family members) that have lost touch with their inner human desires, they just don't understand it. They just chalk it up to being a distraction from our daily work; it's just a strange hobby they say. They express it by saying 'we love rockets.' But you and I know different. To us, we feel it is a matter of survival.

Look at it this way. Why did Christopher Columbus learn how to sail ships? Was it just to sail around in the harbor? Or why did the Wright brothers learn about everything they could about airplanes? Was it just to fly around their house in Ohio?

The answer is that in both cases, these men were trying to be

cont. on pg. 4

ISSUE 85 - JULY 19, 2002

APOGEE

PEAK OF FLIGHT

WHY DO WE LIKE MODEL ROCKETS

cont. from pg. 5

masters of the world around them. They were conquering the oceans of the sea and of the air.

These obstacles have now been mastered. There is just one that remains. The final frontier that we have yet to conquer is "space." And to be masters of space and to move through it, we need to build and fly rockets. It's in our bones. It is our purpose. We have to do it.

That is my explanation of why we "love" rockets. Once you understand this, the next part is much simpler to grasp.

Why do we love big rockets?

"*Like the sword of the knight—the heavier, the more expensive, the more covered with jewels, the more eloquently it expresses the hidden power of the warrior.*"

Big rockets evoke a feeling of immense power. And that is somewhat of a status issue with us rocketeers. **We demonstrate that we have mastery over rocketry when we launch and can control the "big ones."**

When I was a boy, I helped my father put shingles on our garage roof. I can remember trying hard to pound in the nails with the hammer. Being a small kid, it took tremendous effort for me to keep from bending the nail. I'd have to concentrate and carefully strike the nail several times to drive it into the roof. I didn't have much control over the hammer. It mostly controlled my actions.

But my dad—he could slam that nail through the shingles with a single blow of the hammer. That is what I call mastery of the tools.

It doesn't take much to learn how to use a hammer; and as a kid I eventually figured it out. And I can remember the feel of exhilaration at being able to use a single blow to drive the nail into the roof. But the hammer is small and easy to wield.

My dad also had mastery over the big 20 pound sledge hammer. I can remember him quickly smashing an old concrete sidewalk into tiny bits of rubble. But as a kid, I could barely lift that big sledge hammer; let alone hit anything with any accuracy.

The same analogy can be applied to rockets. We can all build and fly little rockets. Heck, with the ready-to-fly rockets, you can almost shake them out of the box and onto the launch pad. Where's the skill or accomplishment in that?

But with big rockets, it still takes skill and knowledge to gain mastery. If you screw up a little thing, it will have big implications when you launch it. So there is a huge sense of accomplishment when you can successfully build and fly a big rocket.

If you talk to anyone that has just achieved any level of high power certification, they'll tell you about the thrill they've just experienced. It is the thrill of having mastered a new skill, and something they'll remember for the rest of their lives.

Look at it this way. The Level 1, 2, or 3 high power certification is the modern symbol of initiation. It is like turning 16 years old and getting your driver's license. The license, to a 16 year-old, is a valid admission to adult society. The same goes for a high-power certification; when we get it, we've gained admission to the exclusive club of "masters of rocketry." It is a status symbol.

What comes next? We can continue to reach for new heights by tackling new projects like liquid fuel rockets and experimental propulsion systems. And many people do just that. The quest continues. But many people still fly just "big" ones that use certified rocket motors. Why?

In other words, once we've reached the certification milestone and gained entry into the inner sanctuary of high power, why do we continue to fly them?

For one reason, each launch of a big rocket symbolizes success. The ability to start start a big project, overcome obstacles, and get it back safely gives the modeler a feeling of successful achievement. Our lives are made up of these minor success. While we're waiting to tackle the next level of achievement, we need the small successes to prove we are steely eyed missile men. A rocketeer may say: "I enjoy launching big rockets immensely. It is almost a passion, a feeling of power; it gives me a sense of freedom, a sense of accomplishment."

The rebellious motivation

Flying big rockets may also be a form of rebellion and aggression that is a tool of *mastery in the society* at the same time.

cont. on pg. 6

Archives of this newsletter

All the articles that have appeared in this newsletter are archived at http://www.apogeerockets.com/education/newsletter_archive.asp

APOGEE COMPONENTS

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

ISSUE 85 - JULY 19, 2002

APOGEE

PEAK OF FLIGHT

WHY DO WE LIKE MODEL ROCKETS

cont. from pg. 5

Tim, what are you saying? What the heck does "mastery in society" mean?

It means that we as individuals have the ability to control the actions of the people around us. We all feel like small pawns at times, and we want to find a way to stand out. We want to be noticed. And if we can't be noticed by society for who we are, maybe we can be noticed for our actions.

For example, when a guy launches a big rocket at a quiet family-type launch, the noise that he makes is deliberately designed to destroy the tranquility and the smug conservatism of those around him.

It's an in-your-face attitude where we're saying: "Yea... I'm here. What are you going to do about it?"

The same thing is apparent at LDRS. But this time, we're trying to get the attention of our peers. It is the big, time-consuming projects that draw the most attention from spectators. But you know what, I don't see anything wrong with this. I'd probably do the same thing myself if I could afford it.

In conclusion,

I just want to say that I'm just like you. "**I love rockets—they're cool**!"

I also want to say that I understand your desires for rocketry. If you decide to become a customer of Apogee Components, you'll be treated as a fellow traveler on the road to becoming a "master of rocketry." I want you to succeed as much as I want to succeed myself. And hopefully, I can show you some tools and techniques that will make your journey enjoyable and more successful.

About the Author:

Tim Van Milligan is the owner of Apogee Components (http://www.apogeerockets.com) and the new rocketry education web site: http://www.apogeerockets.com/education. He is also the author of the books: "Model Rocket Design and Construction," "69 Simple Science Fair Projects with Model Rockets: Aeronautics" and publisher of the FREE e-zine newsletter about model rockets. You can subscribe to this e-zine at the Apogee Components web site, or sending any message to: ezine@apogeerockets.com with "SUBSCRIBE" as the subject of the message. This article may be reprinted as long as this paragraph is included with the text.

Balsa Machining Service
Bill & Mary Ann Saindo
11995 Hillcrest Dr.
Lemont IL 60439
http://www.BalsaMachining.com
phone: 630-257-5420 fax:(0341)

Premium White Body tubes now in stock for immediate shipment.

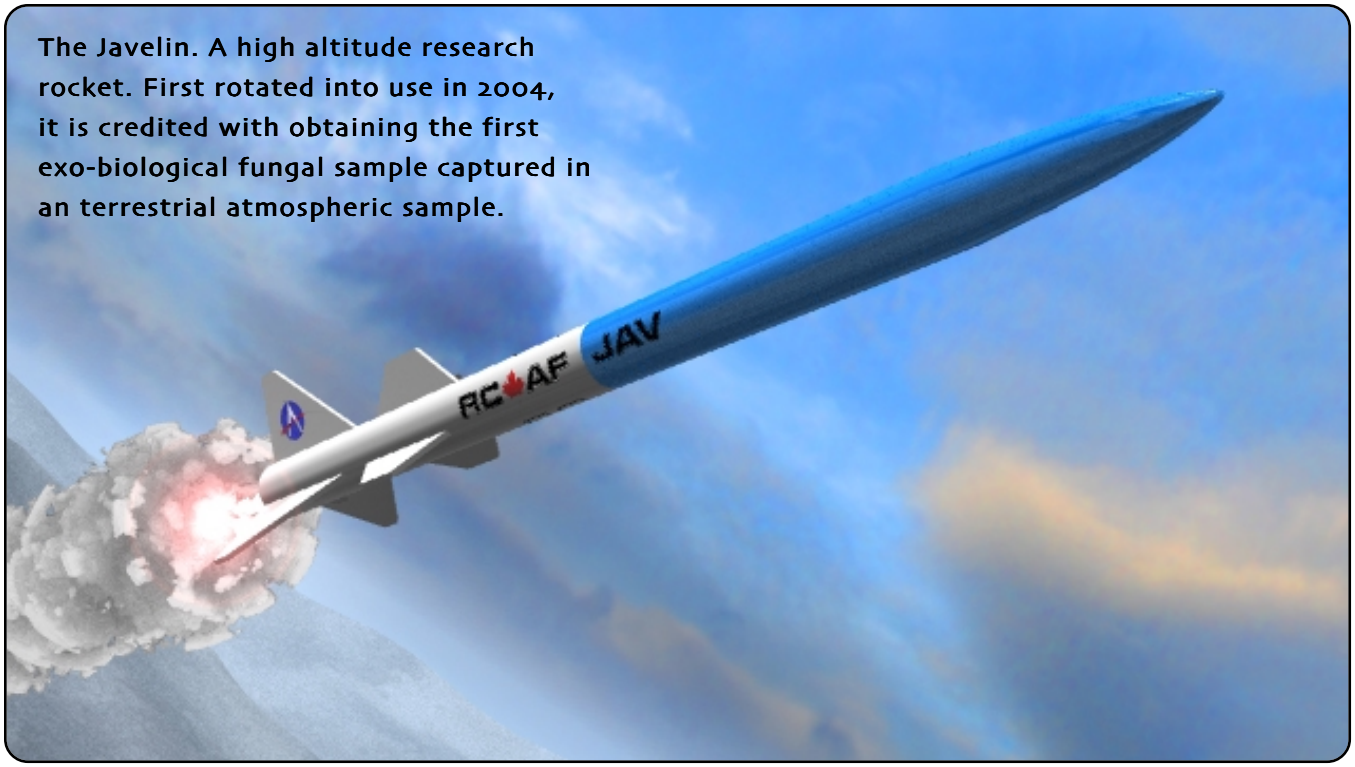
Balsa Machining Service now carries T-4,4+,5, 20, 20Q (quest BT20), 50, 55, 60, 204, 70, 80 as well as coupler stock for T50. All these (except coupler stock which is plain kraft) are 34" white glassine tubes manufactured by Euclid Spiral Paper Tube corp. You may order using our secure web site "shopping cart" style web store for immediate same day shipment if order received before noon.

ISSUE 85 - JULY 19, 2002

APOGEE

PEAK OF FLIGHT

JAVELIN BY SHROX

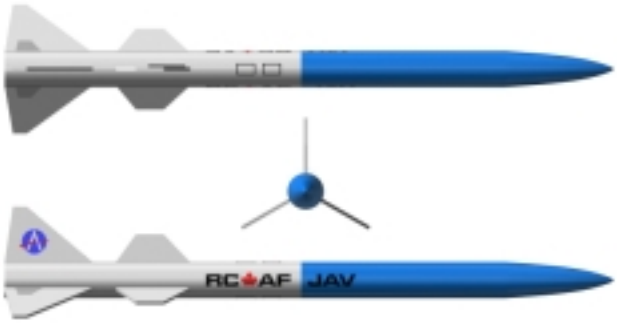


The Javelin. A high altitude research rocket. First rotated into use in 2004, it is credited with obtaining the first exo-biological fungal sample captured in an terrestrial atmospheric sample.

DOWNLOAD THE ROCKSIM PLANS AND DECALS

The data file you will need is at: http://www.ApogeeRockets.com/shrox/Javelin.asp

(1) - 19400 - Apogee Nose Cone, PNC-24A .976 dia.
(1) - 10099 - Apogee Body Tube, 24mm x 13.5 in.
(2) - 10085 - Apogee Body Tube, 18mm x 2.75 in.
(1) - Apogee 1/8" X 1" Launch Lug
(3) - 13031 - Apogee Ring, CR 18-24
(1) - 29110 - Parachute, 8 in.
(1) - 29505 - #300 Kevlar 36" line
(1) - Shock cord mount
3/32 in. Fin stock (balsa or basswood)



GET WHAT YOU NEED. CALL APOGEE AT 719-535-9335

APOGEE COMPONENTS

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