Radio Controlled Soaring Digest

October 2014 Vol. 31, No. 10

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Back cover: Curtis Suter and his Red Merle, a home-built Supra (only the V-mount was purchased) at the third annual Montana Summer ALES contest held 16-17 August in Helena, Montana. Photo by Amie Spangenberg.
Canon EOS Digital Rebel XTi, ISO 200, 1/500 sec., f11, 300mm

R/C Soaring Digest

October 2014

Volume 31 Number 10

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http://www.b2streamlines.com
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RC Soaring Digest is published using Adobe InDesign CS6

In the Air

Readers looking for a new radio system are encouraged to take a look at Larry Dunn's review of the FrSky Taranis Plus system. The Taranis is one of a new family of 2.4GHz radios which utilize open source software, OpenTx in the case of the Taranis. There are an incredible number of programming options, including assigning any function to any stick, switch or slider, utilization of up to 16 channels, use of JR-compatible RF modules, and a number of telemetry options. Because of open-source software, there are a large number of enthusiasts creating new transmitter options. One programmer has created software which mimics an archaic single channel escapement set-up! (Standard servos are connected to the rudder and throttle and operate exactly as rubber-powered escapements. That's correct, to deflect to the left, the rudder servo actually drives the control surface through right deflection first, and moves through left deflection when returning to neutral following deflection to the right.) Our thanks to Larry for providing a detailed review of the Taranis Plus system.

This has turned out to be a very photo-intensive issue, and we also owe our sincere thanks to all of the photographers who contributed to making it so spectacular.

Trey Wood is looking for a Ben Clerx carbon winged Mako and wants to get the word out via *RCSD*. Trey would prefer an unbuilt one, but will consider one built. He'll also consider a set of wings since he has access to a fuselage. If readers know of someone who might part with their carbon winged Mako, please let Trey know at <grwood1953@gmail.com>.

Time to build another sailplane!

TARANIS Plus

first impressions from a sailplane pilot's point of view

Larry Dunn, ledunn@centurytel.net

First a disclaimer – I've only had my Taranis Plus for about three weeks, so I'm still very early in the learning process. Hopefully, I haven't made any huge errors in this write-up, but if I have, they are my fault entirely.

I think it might be helpful for someone who is considering buying this radio to hear what it's been like for someone who has been active in RC for a long time, but is just getting started with the Taranis

Those of you who already know and love the Taranis, please don't hate me. First impressions are often wrong and can be less than flattering. However, I don't believe in sugar coating sour grapes when I am recommending something to other people. That means you're going to get the good with the bad in this report. Don't worry, it's almost all good! Now, on with the show….

There is a new radio system on the market and it's NOT your grandfather's radio. In fact, I'm willing to bet it's not like any radio you've ever used. Well, at least the programming isn't like any radio you've ever used.

It still has all the same sticks and switches and knobs and they still do pretty much the same things those sticks and switches have always done. The big differences are under the hood so to speak. It's the programming and what you can do with that programming that is so radically different.

The Taranis uses something called OpenTx software. OpenTx is the result of an international collaboration of RC enthusiasts - real RC pilots from all over the world - who are also top notch programmers. They teamed up with FrSky and have come up with a combination that is absolutely breathtaking in its potential power and unprecedented in its flexibility.

That power and flexibility is augmented by a PC/Mac based software package called OpenTx Companion. Companion allows you to do all of your model programming on your personal computer and then up-load it to the transmitter. You can also do your programming the old fashioned way on the transmitter itself and then up-load it to the computer for refinements or to save a copy. If you have been out flying at the field and made changes to the programming, you can download the model files to your computer and save them or modify them again and up-load them back to the transmitter.

Every radio I've ever used in the past – Futaba, JR, Spektrum, etc., uses a menu based programming structure. You make selections from various menus to set up the radio for your model.

A few of the newer models also have computer based programming options, but they are still using basically the same menu driven structure. If there isn't a menu choice that will do what you want to do, then you are out of luck. Need an extra mix to do something? Sorry, the 4 or 6 or 10 built in mixes are all you get. You also typically need to plug in your servos to specific channels for everything to work correctly – aileron on ch1, throttle on ch3, rudder on ch4, second aileron has to be on ch 5 or 6, etc.

The OpenTx software gets you behind the menus. It gets you into the guts of the radio at the most basic levels. YOU get to choose what to do and how to do it with virtually everything there is to control on this radio.

OpenTx is a radically different approach to RC radio programming compared to menu based systems. This new approach will require you to throw out virtually everything you think you know about the subject. You are also going to have to learn a new language, new procedures and new abbreviations that go along with the OpenTx software.

It's not just a new ball game. It's a completely different sport altogether.

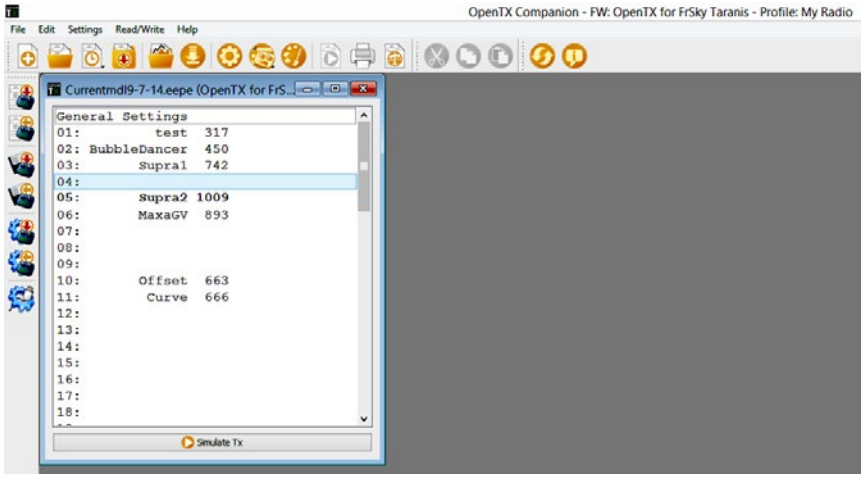
I find that doing the programming on the computer, using OpenTx Companion, is much faster and easier than on the transmitter. You can copy/paste and or drag and drop entire mixes from one channel to another – and – from one model to another, very easily.

If you have different models with similar programming, you can program one model, then just copy or drag and drop mixes and settings directly from one model to another. You can for example, set up a basic template with your normal stick and switch settings and channel options, then just copy that into a new model to get you started. No need to re-enter all that stuff over again. All that's left to do is tweak some mixes, adjust servo travels, directions, etc.

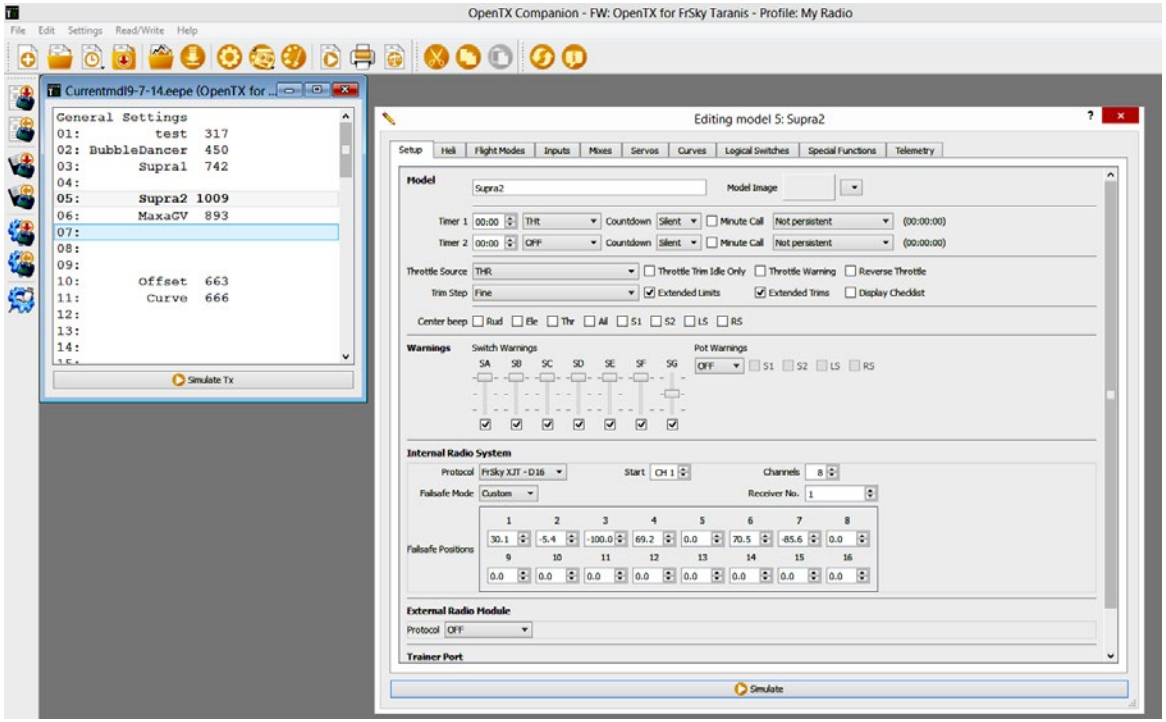
There are also more detailed views available in Companion and of course a much larger screen with more information shown, so it's just better all the way around.

One nice feature of Companion is the ability to run simulations showing what the servos are doing when you move sticks or flip switches or turn knobs. This is very handy for checking to see if the mix you just programmed is actually moving the servos you want in the way you want.

The Companion software also allows you to up-grade the transmitter firmware, load and save your individual model program files (called eepe's – your first new OpenTx word!). You can also download data logs from the



This is the first screen you see when you open a model eepe file in Companion using your computer. All of the models currently available are listed. You can download these eepe files from the transmitter or open them from saved files on your computer. You can have multiple eepe's open at the same time and drag and drop or copy/paste entire models or just individual mixes between them.



When you double click on one of your models, the editing screen for that model pops up. You move between the various tabs to do all the programming for that model. The first tab has the basic setup for that particular model. You can set timers, various alert warnings, failsafe positions for all four basic channels and a host of other things.

built in telemetry that are stored on the transmitter. Those logs as well as model programs and firmware for the transmitter are stored on a micro SD card inside the transmitter battery bay. You don't need to remove the card. The Taranis has a USB connection on the back.

Oh, yeah, the Taranis does telemetry, too!

One of my favorite features in Companion is that it allows you, with the use of a GPS sensor in the model, to send saved GPS flight data directly to Google Earth. With the click of one button and fiddling with a few settings in Google Earth, you can then see a plot of your flight as seen from overhead or from a ground based view. You can zoom in, zoom out and change angles as you please.

I've included some Google Earth generated images of a flight with my scratch built E-Supra along with an altitude log generated by the FrSky . I was very surprised to see just how much ground I covered in a typical flight. I had no idea I was ranging out that far from my launch point.

You may have gotten the impression that I really really like this radio. That's true – when I'm not hating it and (almost) regretting I bought it! Let me explain that a bit before you jump to the wrong conclusions.

I picked the Taranis up about 3 weeks ago from Wayne at Aloft Hobbies <http://www.alofthobbies.com/frsky-taranis.html>.

Wayne is a great guy to deal with, ships almost before you pay for the items, responds to e-mails and phone calls and, by all reports, has the best customer service on the planet. He has certainly treated me very very well.

I almost didn't buy the Taranis.

Several months back, I heard some stories on RC Groups about this new "super radio" and it sounded interesting, so I looked into it a bit. The first thing I found out was that it was really cheap – under $200 - and made by some company I had never heard of – FrSky. How do you even pronounce that? On top of that, I found it needed all the switches and sliders replaced as well as the gimbals and the speaker and there were other quality issues.

My immediate reaction was "No way. I only fly quality stuff. I'm not trusting a sailplane I've spent 6+ months building from scratch on some cheap junk!" So, I walked away with my nose firmly in the air.

Some time passed and I kept hearing about things this radio could do that seemed pretty amazing. That kept getting my attention, but not enough to overcome my doubts. More time passed and I started hearing good things about it from people I trusted. People who fly hi-end sailplanes and generally are pretty smart folks. So I looked into it again in more detail.

It turns out FrSky has actually been listening to their customers and making regular up-grades and improvements to the transmitter. When does that ever happen? On top of that, Aloft Hobbies stands behind the thing 100%.

The newest version, the Plus model that I just received, has all new gimbals, switches, sliders, display screen and a new speaker that has improved sound. So far, I find all these things have acceptable quality. My trusty old Futaba 9C has a more solid feel and the gimbals, switches and sliders do feel like they are better quality. However, the Taranis seems to be just fine as it is – especially when you consider the price. I don't instantly feel the need to up-grade anything except possibly the springs on the gimbals. They are a tad soft for me, but still acceptable.

In the meantime, I had become interested in trying GPS sailplane racing – which requires telemetry and the appropriate sensors. The Taranis does telemetry and has inexpensive sensors for vario and GPS as well as a host of others. The really intriguing thing is that the Taranis will talk to you and give you all the telemetry data you want without having to look at the screen. It can even give you turn directions by voice with the appropriate optional programming.

FrSky variometer module. See page 16 for an altitude plot created with this sensor on board an E-Supra.

FrSky GPS module. See pages 16 and 17 for GPS plots created with this sensor on board an E-Supra and visualized via Google Earth.

By then I was starting to get really interested. I could feel my resistance eroding. I kept reading about things this $200 radio could do that my trusty Futaba 9C couldn't even come close to doing. Finally, I talked myself into taking the chance and ordered one from Wayne. He sent me the shipping notice – and actually shipped the radio - 2 hours after I placed the order! When has that ever happened to you?

I was getting excited now. I had justified all the negatives in my mind and this was now the BEST possible radio for me - I hoped. I was still secretly worried I had made a huge mistake!

I started an intensive study program while waiting for the radio to arrive. There are at least half a dozen major threads on RC Groups plus several other websites with tons of good information as well as dozens of 'how to' videos on YouTube. So I started doing my homework.

One thing I had not fully appreciated, until I had it in my hands, was how radically different this radio's programming really is from any other radio on the market. The way it is programmed is nothing like anything you have seen before. Remember my opening comments about the power and flexibility of the software? It turns out that, at least for me, that power and flexibility is also the single biggest problem for a new user to overcome. The learning curve is very steep.

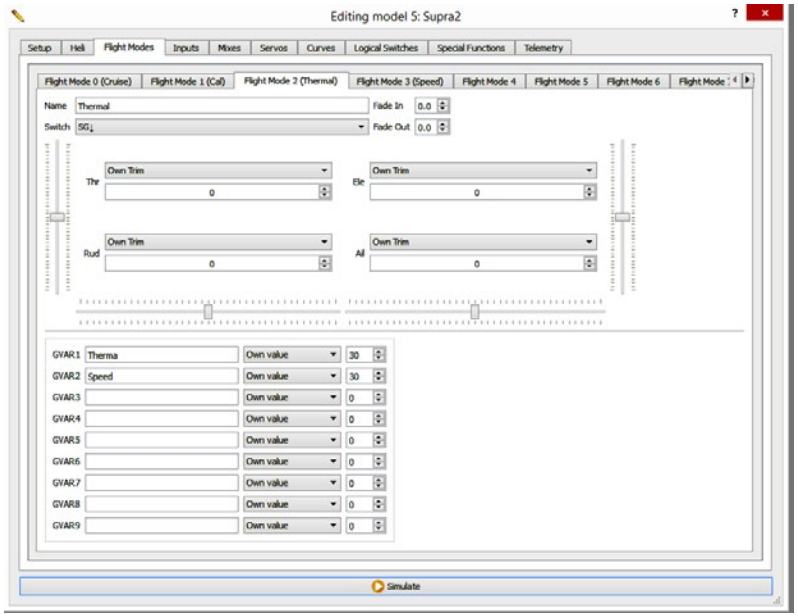
For starters, there is no single source of documentation that covers everything the programming can do in detail. The paper documents that come with the radio will get it turned on and charged but good luck trying to program a sailplane based on what's in it. To be fair, that's not so different from most any radio user guide.

Most of the difficulty with the documentation is, once again, that power and flexibility. There are so very many things to document that I am amazed the people doing it have gotten as far as they have. They are doing a great job trying to tackle a huge undertaking. I can't thank them enough.

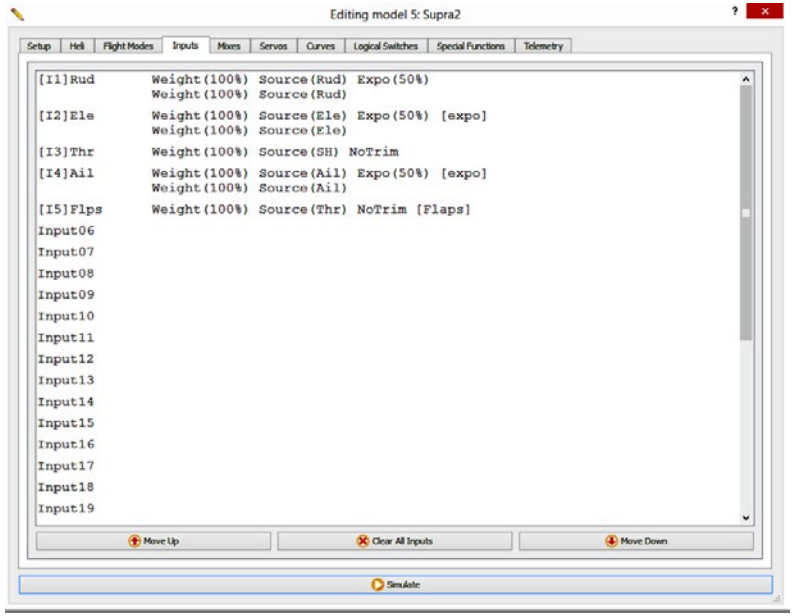
There are literally hundreds of options and choices and things you can do that you never before imagined you could do with a radio. For the most part, there is no single "right way" to do anything. There are options galore and many different ways to accomplish almost any goal you can imagine.

Just for starters, any switch, any slider, any trim switch and even any stick, can be assigned to do anything. You can easily have the aileron trim switch change the rudder trim and vice versa – cross trims. Or you can have the throttle trim adjust your aileron differential or your camber or your elevator offset or, or, or… all at the flick of a switch – any switch – while in flight.

Then there are things like logical switches (your second new word), which are virtual



In the Flight Modes screen, you set various options for each flight mode. You can name the mode, fade it in or out on activation, select which switch turns it on or off, adjust how the individual trims for the primary channels operate, and define up to 9 Global Variables that can be used for advanced programming options.



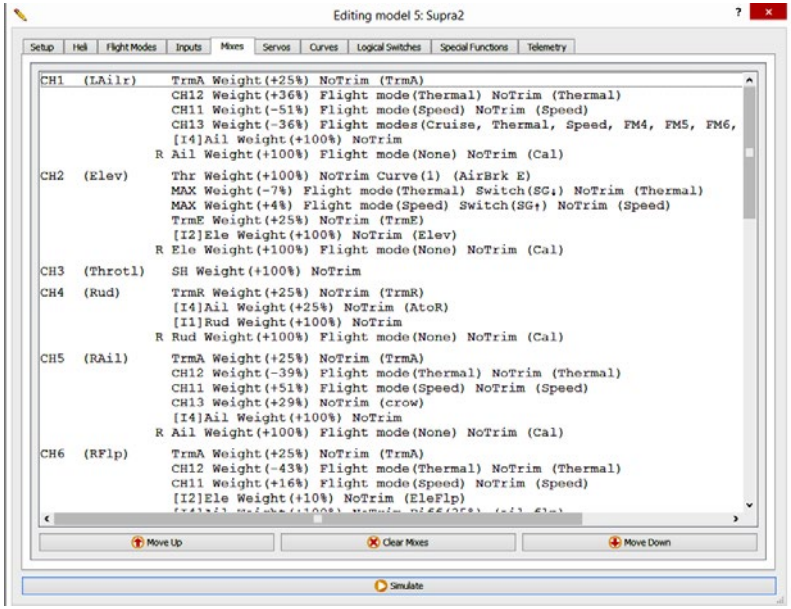
Inputs is where you setup the main stick functions and define things like expo and dual rates. For example, my [I5]Flps line sets the throttle stick as the source for flap control with a weight of 100% and no active trim switch. Input line [I2]Ele sets the elevator stick as the source for elevator with expo set to 50% and the elevator trim switch active as normal.

switches with incredible power. Things you have never been able to do before this radio came along. There are also Special Functions (new word #3) which allow you to do amazing numbers of things. You can turn on or off the data logging, announce your GPS heading whenever you want, control volume of the speaker, announce low voltage warnings, low receiver signal warnings, altitude, vario information or tones and dozens of others. It can even serenade you with your favorite pre-recorded tunes while you're flying.

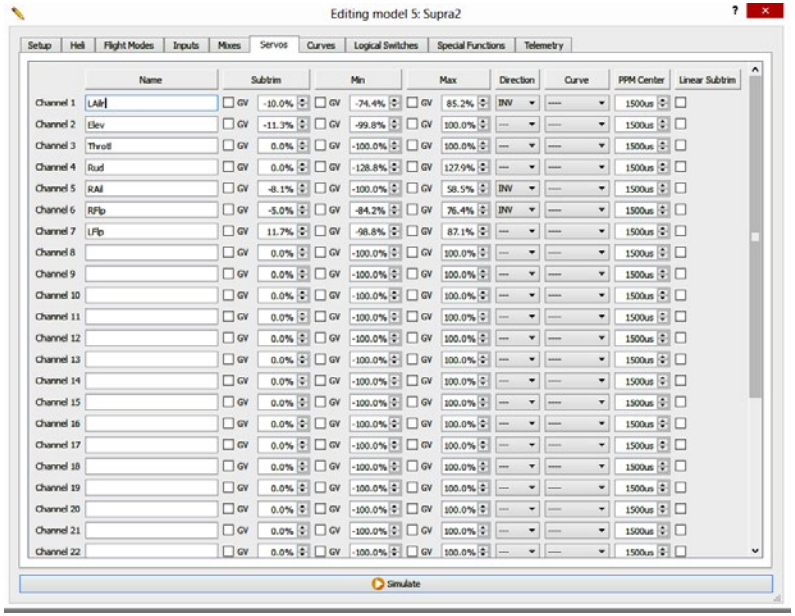
No channels are fixed. You're not stuck with ch 3 as throttle or #1 as aileron. Your second aileron can be on any channel you chose. It doesn't have to be ch 5 to fit into built in programming. There is no fixed built in programming. Make a note of that. There is no "easy button".

The number of mixes is virtually unlimited. Really. Unlimited mixes. On any channel. Using any switch or knob or any logical switch or Special Function or curve. Or any combination of any of the above. You have up to 32 curves you can use on any channel with up to 17 points on each curve. Yes I did say 32 custom curves with up to 17 points on each curve. Takes your breath away doesn't it?

You can mix anything you can imagine any way you can imagine - and many you have never thought of before. You can even have mixes based on telemetry feedback. You can have up to nine



The Mixes screen is the meat and potatoes of your model program. Here you assign your "Inputs" to the specific receiver channels you want them to control and then add in all the mixes. The choices are almost endless.



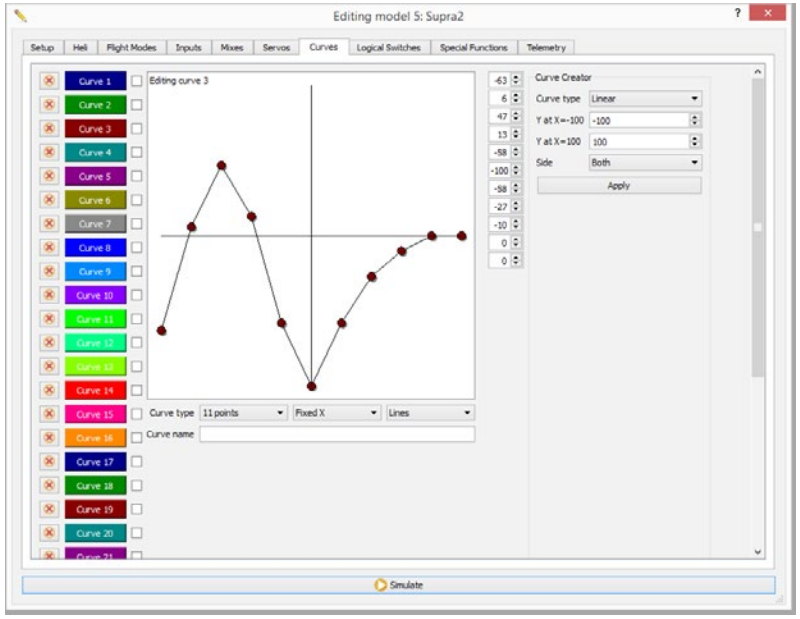
Servos is where you control the individual servos that are plugged into the specific channels you selected in "Mixes." You can adjust everything there is to adjust on each servo from end points, to direction to subtrims (two different kinds) and center point. Note that the Global Variables (GV) from the flight modes can be used to dynamically change and control almost every aspect of the servos behavior. The servo movement can also be defined by a curve with up to 17 points!

separate flight modes. Each of them can have separate trims on throttle, rudder, elevator and aileron or they can use trims from other flight modes. Each of them also has up to 9 Global Variables (new word #4). I don't fully understand Global Variables, but they can be used to adjust almost any mix as well as things like camber, offsets, trims, expo and differential to name a few. They can also be used in other ways I have not figured out yet.

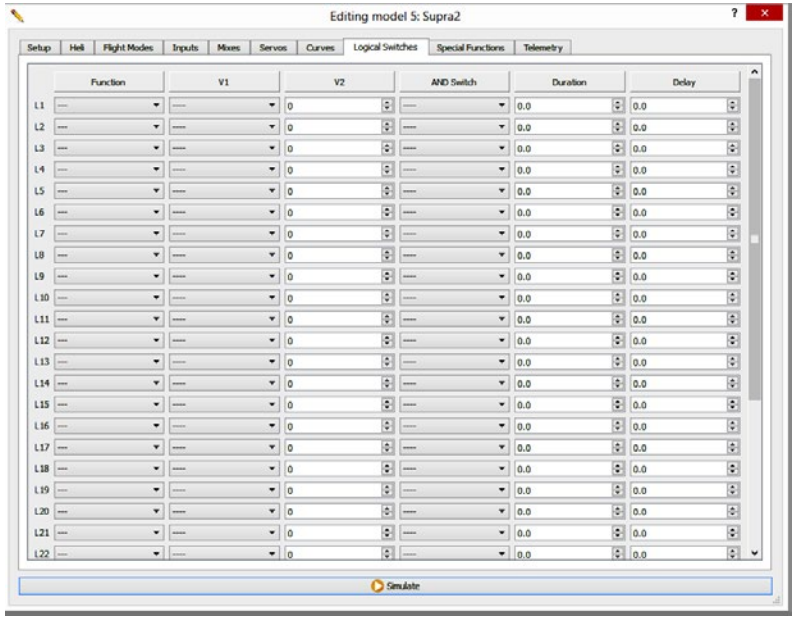
I haven't touched on nearly everything this radio and its software can do but I hope you are starting to get the idea. However, as I mentioned on above, there is a downside.

All of that power and flexibility, a new language with dozens of new acronyms and a completely new programming procedure, all adds up to a great deal of complexity and a very steep learning curve when you are first getting started. Once you start to get the hang of it, it gets easier very quickly, but the first few days might involve some hair pulling!

Fortunately, there are also a great many sources of information available on the web to help you get through that learning process. Unfortunately, that means you have a lot of searching and reading and video watching to do before you can start programming your sailplane models into this radio. Also unfortunately, your past experience with



The Curves screen makes choosing and adjusting each curve easy and intuitive.



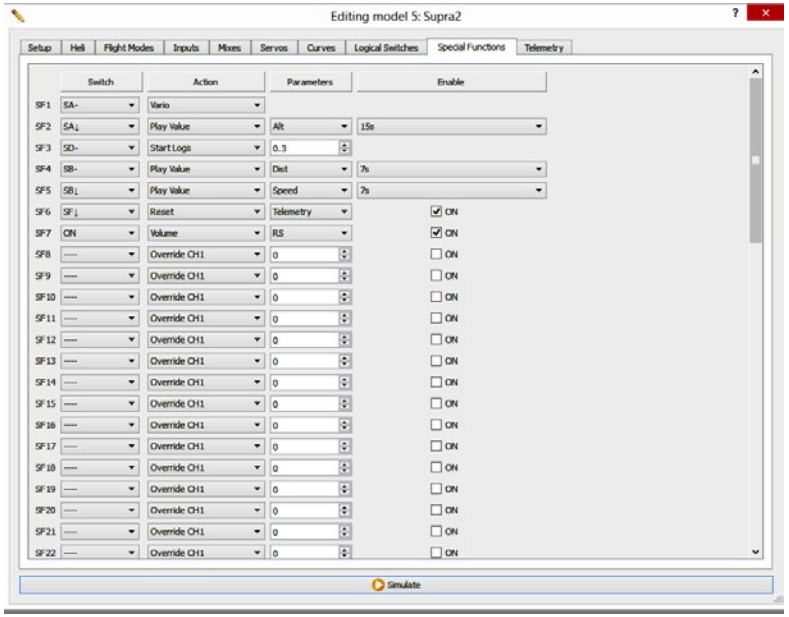
I don't fully understand Logical Switches, so I haven't used any yet. They allow you to do a wide variety of things with virtual switches involving a number of math and logical functions. They can be used in Flight Modes, Mixes and in Special Functions.

programming Futaba or JR or any other radio will do you very little good when you pick up this radio for the first time.

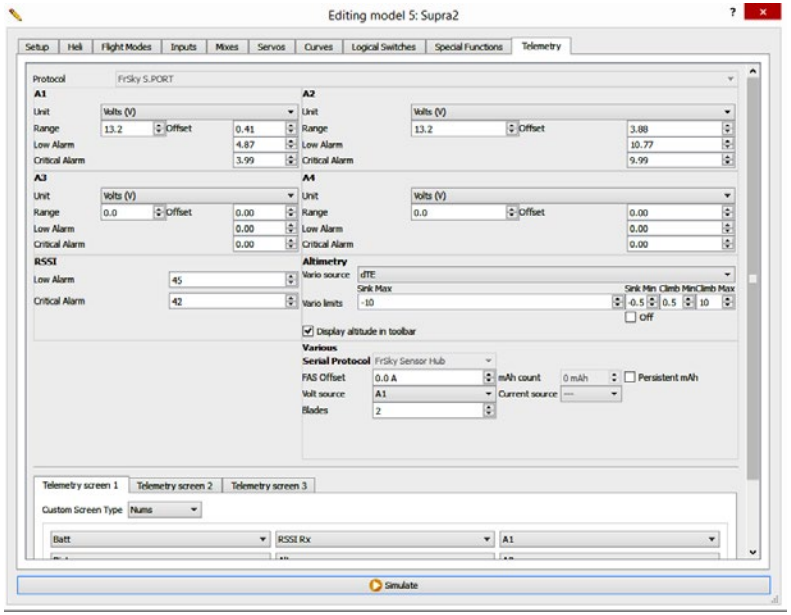
I'd suggest you start with something simple for your first model. The Quick Start Guides and the lessons on OpenTx University (see links at the end) will easily get you through a basic model. I started with my Bubble Dancer, which was a little more advanced than would have been ideal as a first project. I made it through successfully, but I did have to ask several questions in the threads on RC Groups. For more advanced programming, you will have to do some homework on the web. I will provide some links to help get you started at the end.

OK, I have given you the heavy duty warning, but it's really not all bad news. Once you get your head around how the programming flows in OpenTx, it's actually very logical and straight forward. Now that I'm over the initial learning hump, I find it easier to program complex setups than with my Futaba. Much easier. It's also faster to set up new models. To some degree, that's because it's just flat impossible to do many of these things with my trusty 9C, but the way OpenTx works is just better for doing the things we do – especially the more advanced 'fun' things we want to do.

However, be prepared to endure moments of frustration and spend hours on the internet when you are first trying to get started.



Special Functions are another area I haven't mastered yet. They allow you to control all sorts of things from the speaker volume to data logging, telemetry and voice announcements and many many others. The "switch" that activates them can be an actual physical switch, including a trim switch, or it can be a Logical Switch or a Flight Mode.

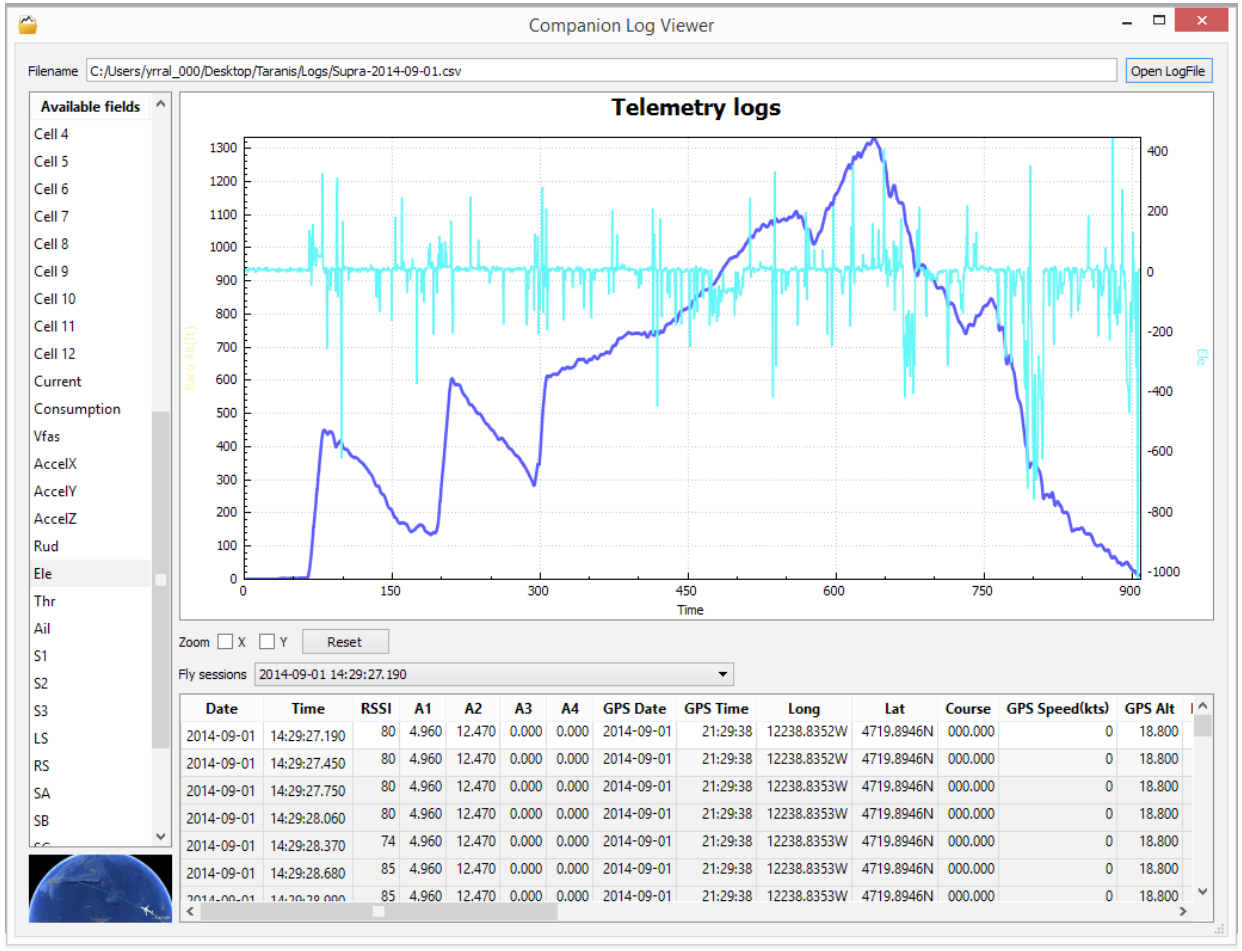


The Telemetry screen allows you to customize the multiple telemetry displays available on the transmitter. You can also calibrate the voltage readings from the receiver (A1) and optional flight pack voltage sensors (A2) so that the telemetry data matches closely to the actual voltages. There are also adjustments for the RSSI warning levels and how the vario tones work as well as many others.

I began with my E-Bubble Dancer. It's about the simplest model I'm flying at the moment. It took me about two intensive days of reading, watching videos and asking questions on RCGroups to get it working well enough to do the first test flight. Then it took me one or two more intensive days to figure out what I had done wrong and get answers to my questions on how to fix it. After those few days, I had a model that did exactly what I wanted. I also had working telemetry from the vario, GPS and voltage sensors. All of those were working with screen and voice announcements set to various switches with choices for vario tones or altitude voice announcements, GPS distance and speed and data logging.

When I started on the Supra, it took me about the same number of days to do a much more complex model and get it ready to test fly. De-bugging the Supra took another couple of intense days. I finally realized that I had made too many mistakes and kludges in the Supra program and decided to just start over from scratch. That only took me about 4 hours and I ended up with a relatively clean model program that works exactly like I want. I was finally starting to "get it".

As I'm sure you can imagine, there was a great deal of cussing and hair pulling and frustration involved in that learning process. I feel like I am now over the initial hump and I'm confident about



This screen opens when you want to look at your data logs from a flight. You can select from all the sensors you have installed as well as RSSI, receiver voltage and even stick, switch and pot positions while in flight. For example, ever wanted to know how smoothly you're flying at altitude? This graph shows my elevator inputs during the flight shown in the Google Earth images. It's a handy tool, but pretty embarrassing! Or you could look at RSSI values compared to your models distance from your launch point or altitude. There are some missing functions and customizing I would wish for, but it's a pretty powerful tool as is. This is also where you start when you want to generate those Google Earth images.

programming the rest of my models. Even so, there is still a monumental amount left for me to learn about this radio and the software. I have barely begun to scratch the surface of what it can do. Just one example is Lua programming (how many new words is that now?). Lua is another programming language you can learn that allows you to run "Lua scripts" on the radio to do even more amazing things. I am looking forward to using some Lua scripts in the near future to talk me around a GPS triangle course. How cool is that?

I also haven't even mentioned the wide range of receiver options available – with and without telemetry – or the other sensors that are available or the optional transmitter modules that will allow you to use your existing Spektrum reciever's or the s-bus options or a host of other things. Some of the links at the end are good places to do more research.

I will make a few comments on the sensors I have used to date. The two hi-precision varios I have seem to work very well as varios. They are very sensitive to altitude changes and are easy to setup. The only problem I have noted so far, is that they seem to be off as far as the reported altitude AGL. My tests indicate that they read low by anywhere from 13% to as much as 20% depending on conditions and altitude. I need to do more testing on that though. Other users

are also doing tests but there are limited results back so far.

FrSky has said that they are checking into the problem. When was the last time a problem got reported to a manufacturer and they immediately responded with a promise to look into it?

The GPS sensor I have also works just fine. It even gets a lock inside my house. The only issues I have are that it takes several minutes to get its first lock of the day and it seems to have a significant lag in reporting changes in heading or location. The second and later times it powers up at the field, it locks on much faster. Neither of these issues are game stoppers – especially when you factor in the low cost of the sensors. I also have a couple of voltage sensors that work perfectly.

I just realized I haven't mentioned RSSI at all. That is your next new word and it stands for Received Signal Strength Indication. Basically that is a number sent back by any of the telemetry receivers which tells you how good the signal the receiver is getting. No extra sensors needed – it's built in to the telemetry receivers. Your Taranis will automatically give you voice warnings when the RSSI number drops into dangerous levels. You also automatically get receiver voltage telemetry with customizable warning levels.

I've probably forgotten a dozen other very cool and very important features of this radio. I hope I haven't missed anything critical.

So, do I recommend this radio for sailplane use? Absolutely! I love it!

In fact, I recommend it for any model from 2 channel ARF's to the most complex FPV setups to giant scale models and of course, sailplanes.

I am to the point now that I don't think I could stand to go back to menu based programming and it's built in limitations. That would feel like going from a new touch screen tablet back to DOS!

However – be prepared for new challenges and a steep learning curve. I happen to find that kind of thing (mostly) fun, but that hasn't stopped me from cussing like an old sailor and tearing at my hair at times over the last three weeks!

I also need to add that one of the biggest positives with this radio is the support community that you can find on-line. There are a great many wonderful people who are more than willing to help you work through any questions or problems you may run into. Many of them have contributed huge amounts of their time writing tutorials and doing videos to help you get started.

Here are a few links that have helped me tremendously.

The quick start and user guides are from links on Aloft Hobbies website. Note these are works in progress and change or get up-dated from time to time:

You don't NEED to use Logical Switches or Special Functions or Global Variables or LUA scripts or even Flight Modes in your models. You can do everything a Futaba 9C Super can do – and far more – on a full house sailplane without having to use or understand anything about those options. Setup, Inputs, Mixes and Servos are all you need to program any sailplane out there. With those other options added into the 'mix,' virtually anything is possible.

<https://docs.google.com/document/d/1qlh09LzxtpPt7j_aqG8yiOu2yoYMzP9XA-PJA81rDJQ/edit>

<http://www.alofthobbies.com/files/Taranis_Quick_Start_Guide.pdf>

OpenTxUniversity <http://open-txu.org/> is probably the best single source for a new user to help you get started. He has a list of terms with basic definitions (many many more new words!) as well as a series of tutorials on setting up the radio and programming your first models and lots of how to videos. It is also a work in progress. New tutorials and videos are being added all the time.

Open RC Forums <http://openrcforums.com/forum/> sections on OpenTx and Taranis. Much like RC groups and as difficult to search, but still has tons of good information.

Open-Tx <http://www.open-tx.org/> is a site for programmers mostly as far as I can tell. It has the OpenTx program and Companion files, change logs, progress on new versions, bug reports, etc. It also has several good documents you can download with additional programming information.

Mike Shellim's website <http://www.rc-soar.com/opentx/> is a great place to get started with advanced sailplane programming and especially for learning about servo calibration. I highly recommend you study the parts on servo calibration if nothing else. That is critical information you need when setting up any model.

RCSettings <http://rcsettings.com/> has quite a few eepe program files available for all kinds of models. These are copies of specific model programs (eepe's) that people have programmed and then uploaded for others to use or study.

Note that it is not always easy to just use someone else's eepe on your model. It will almost always require that you make adjustments to servo directions, throws, mixe percentages, channels etc. They are, however, great sources of ideas and tricks and programming techniques.

And of course, there are the RC Groups threads with tens of thousands of posts and - lucky for us - lots of very very helpful people who can give you quick answers to stupid newbie questions.

The "Owners Thread" at <http://www.rcgroups.com/forums/showthread.php?t=1913902&pp=100>.

The mega thread - 35,000 posts all on its own – about anything Taranis. <http://www.rcgroups.com/forums/showthread.php?t=1866206&pp=100>

The OpenTx 2.0 and beyond thread - intended for OpenTx Companion and OpenTx software discussions, but it's the internet, so off topic is the norm. This one only has about 5000 posts. <http://www.rcgroups.com/forums/showthread.php?t=2178865&pp=100>

My current favorite is the 'How To' thread. <http://www.rcgroups.com/forums/showthread.php?t=1914834&pp=100>

And let's not forget the Hardware Hacks thread – discussion on hardware mods, improvements etc. <http://www.rcgroups.com/forums/showthread.php?t=1966664&pp=100>

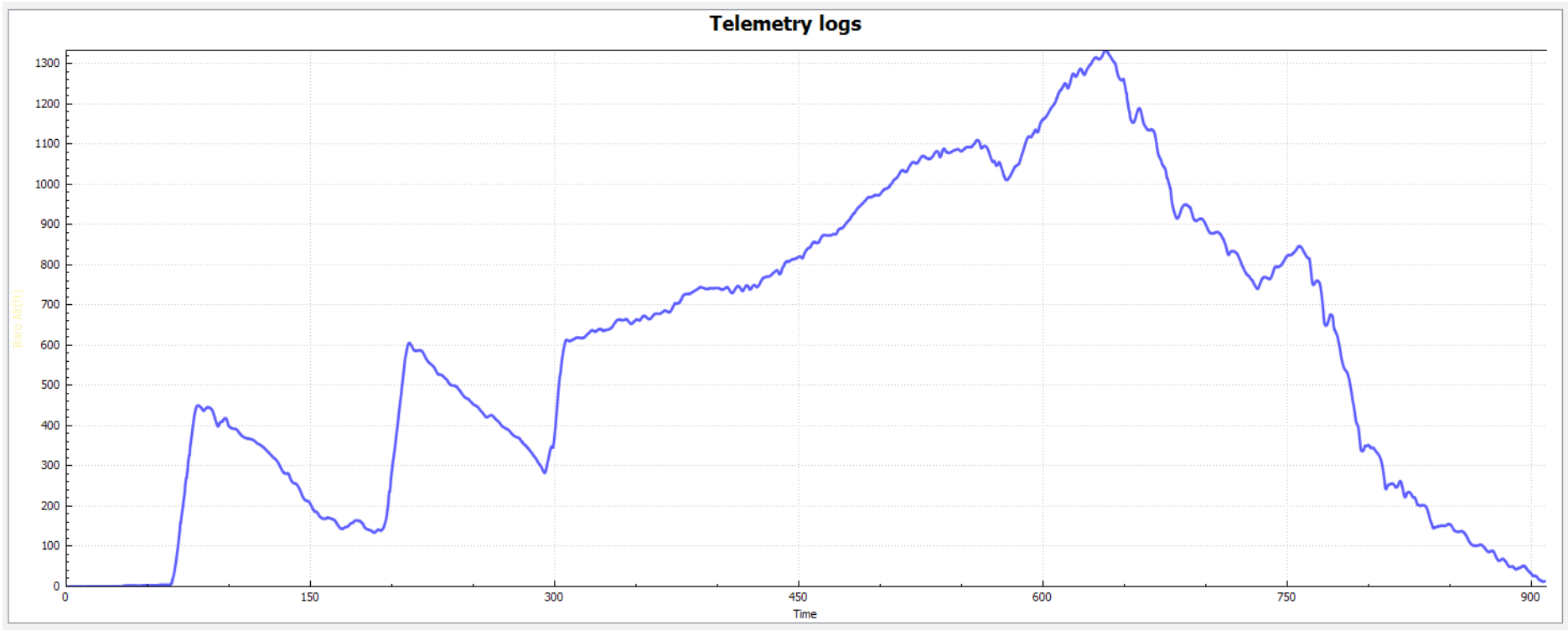
Finally there is a sailplane specific thread with some good tips. <http://www.rcgroups.com/forums/showthread.php?t=2138164&pp=100>

FrSky also has forum discussions on their website - which seems to be down at the moment. My link doesn't work so you will have to search for that one on your own.

In addition, there are active discussions on most of the other RC internet forums like HeliFreak, RCU, etc., but I need to eat and sleep at least once every three or four days and I like to fly every once in a while, so I don't follow them all!

_____

The following pages show what can be done with the data collected by various Taranis system sensors. There's an altitude plot from a single flight of my E-Supra along with plots of the resulting flight path as seen from various perspectives via Google Earth.


Telemetry logs
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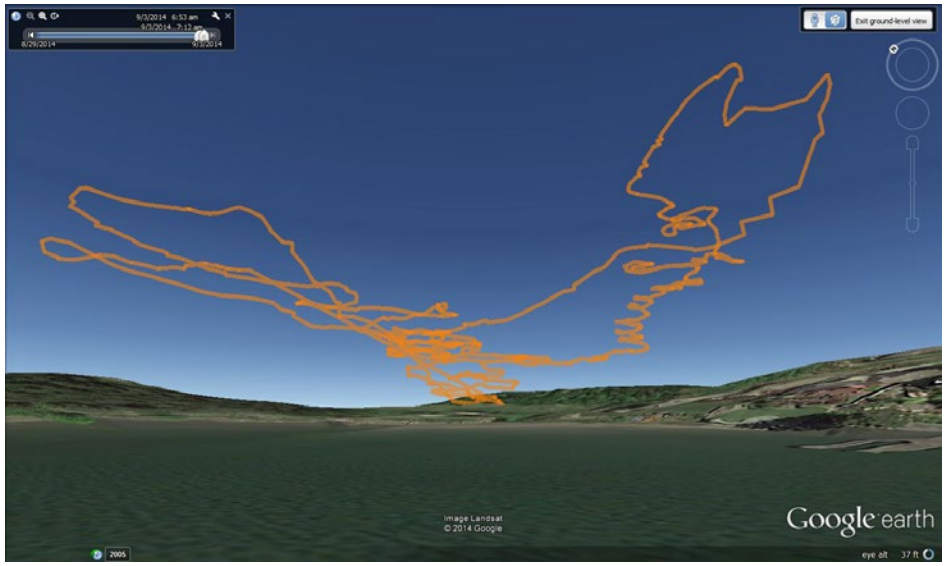
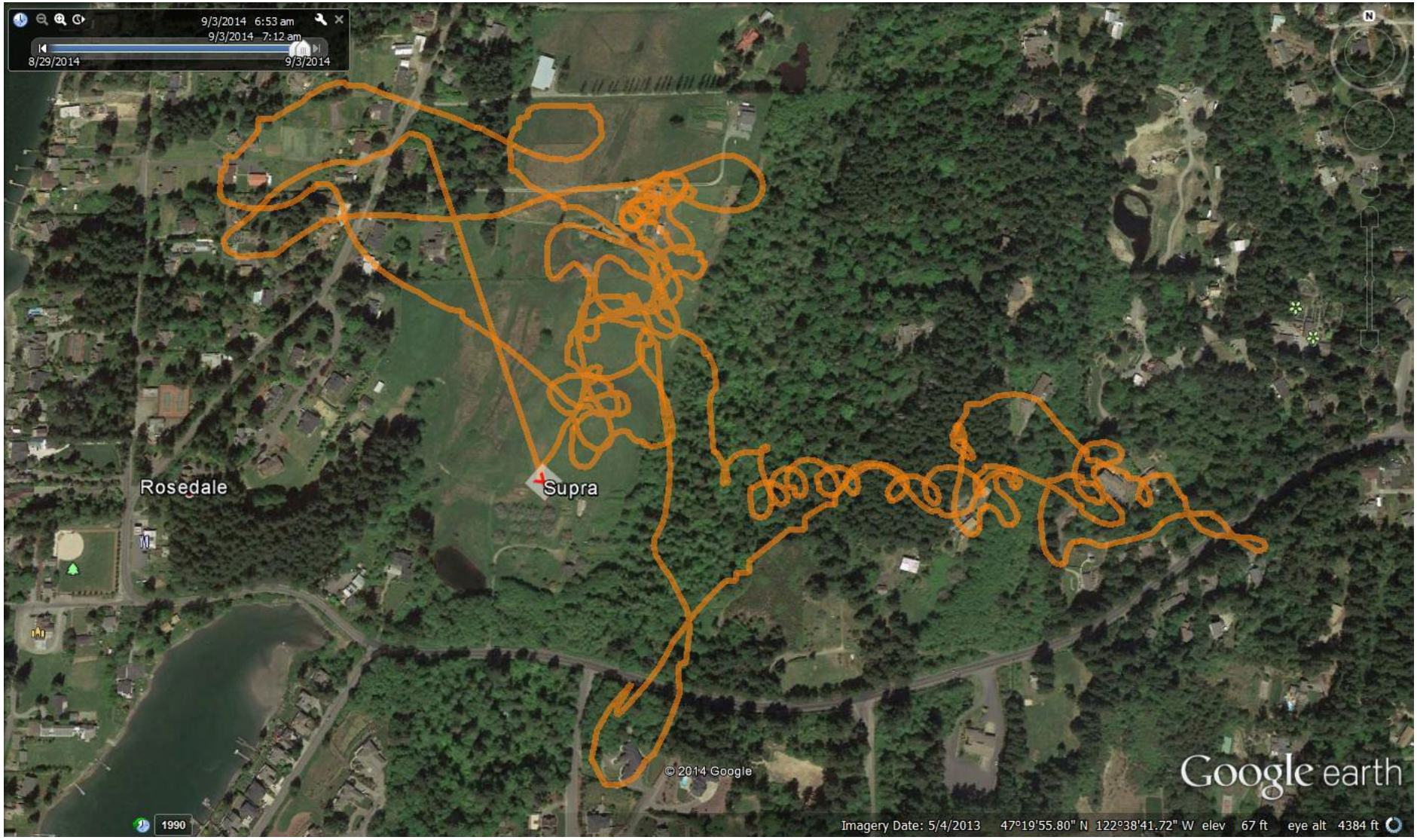
Google earth


Google earth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Google earth
1990
Imagery Date: 5/4/2013 47°19'55.80" N 122°38'41.72" W elev 67 ft eye alt 4384 ft

Scene at the Danish Sjællands Championships

Jesper Jensen, who came in second in the competition, leaning back for a powerful launch of this own model.
Photo by Morten Envoldsen, skjorten@gmail.com
Canon EOS 10D, ISO 100, 1/200 sec., f6.3, 26mm (18-50mm lens)

PHOTO ALBUM

Meeting XII
Club Aeromodelismo Aragón
Aerotow, 19 and 20 July, 2014

Dear friends,

Another year and Aragon Aeromodelling Club has its GPR (Grandes Planeadores Remolcados/ Large Gliders Towed) meeting. For those who do not know us, our field is located in Peñaflor, Zaragoza, Spain and we practice various modes of flight, especially gliders. [41° 46' 39.70" N / 0° 45' 21.12" W]

Each season a group of pilots come from different parts of Spain and France to meet at our field. At this time of year it is usually very hot, so we prepared a bar with beer and a soft drink dispenser and included it with registration so everyone was well hydrated.

On Friday afternoon, while assembling tables and tents, participants begin to arrive and complete the logistical work, and we sit around a table to talk about the events of the year.

The Saturday morning meeting officially begins the event, and flying is continuous after the flight briefing, stopping only for meals.

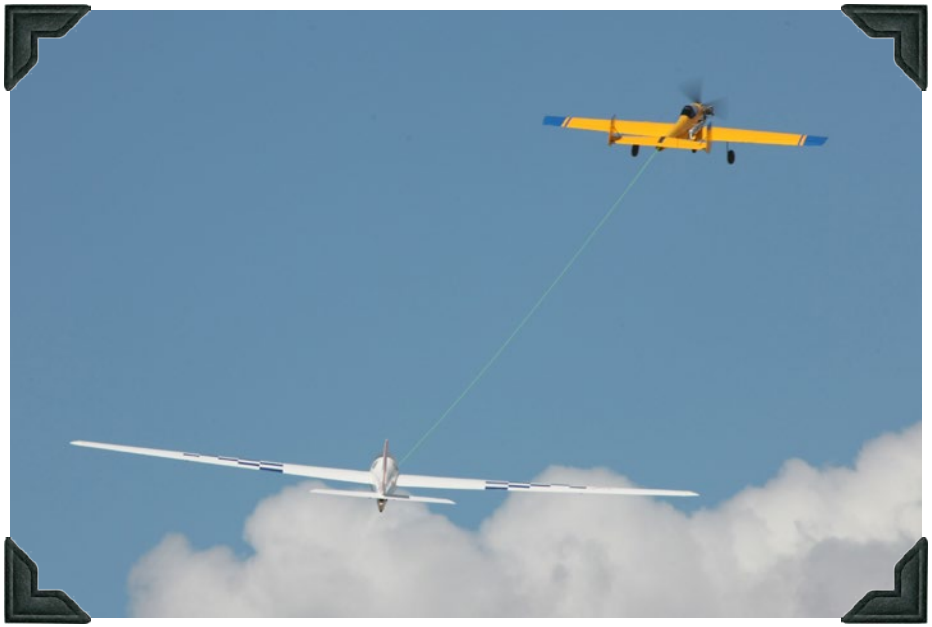
Fortunately, the club has several pilots with tugs, currently these are equipped with different size engines, Bidule 116 ZDZ 80, Pilatus Porter ZDZ 60, TUG DLE50, Big Bison DLE110, Wilga KING 200, and they can tow almost everything that comes along. So be sure you check out the field coordinates and mark your calendar for future editions.

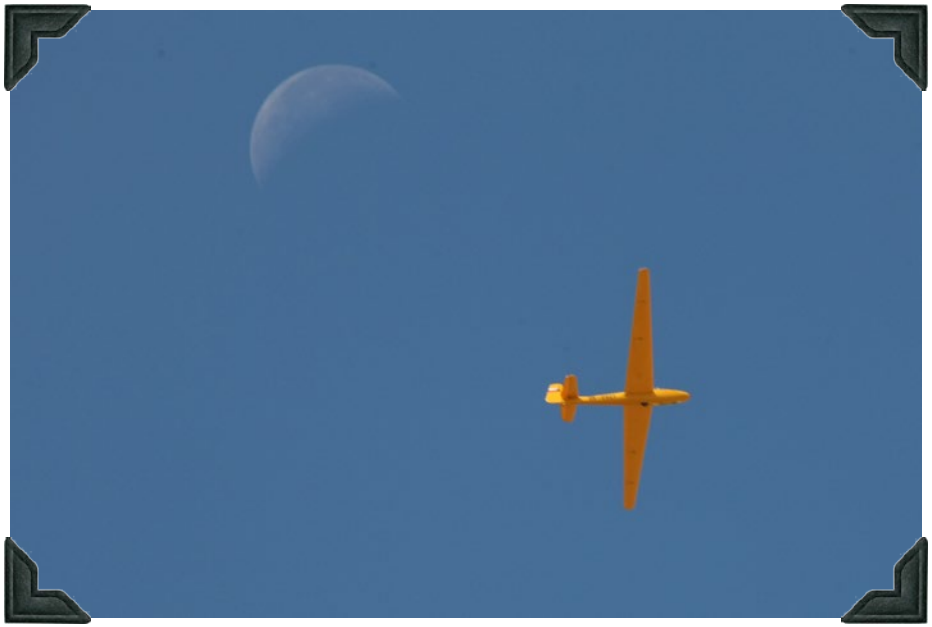
The atmosphere is very family oriented, and some wives work hard with us so that everyone is well. The stoves are lit from the first hour and pots of food are always on the grill.

In recent years we have been fortunate to have a great photographer, José Puente, who spends all of his time to capturing moments of the meet. We want to thank him for his fabulous work here. José has given us his photographs for this story, and we ask you be respectful of them.

Here are some of the moments experienced this year.

— Enrique Royo, enrique@eimer.net





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HB-912

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F-CHSE

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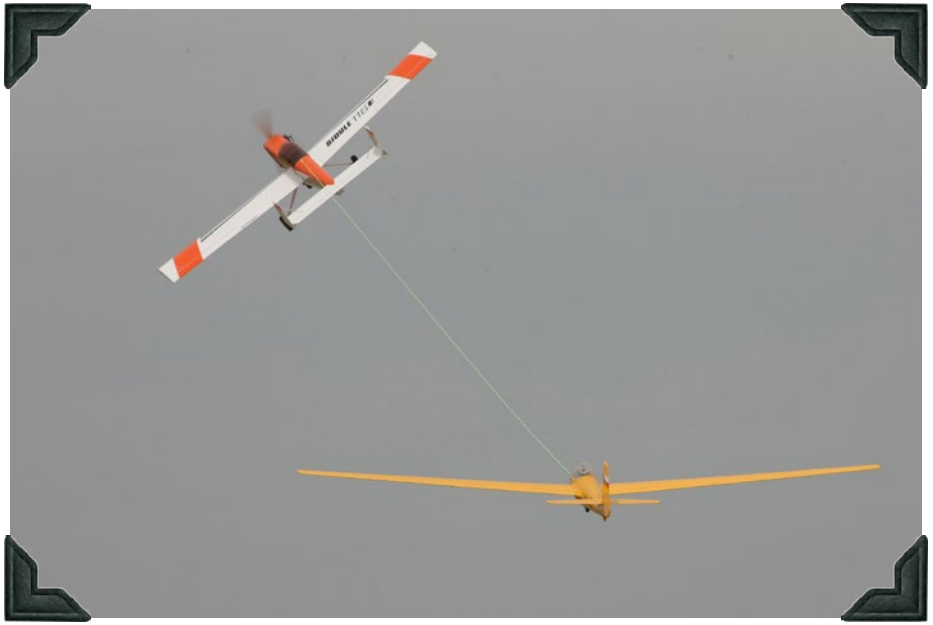

F-CHSE

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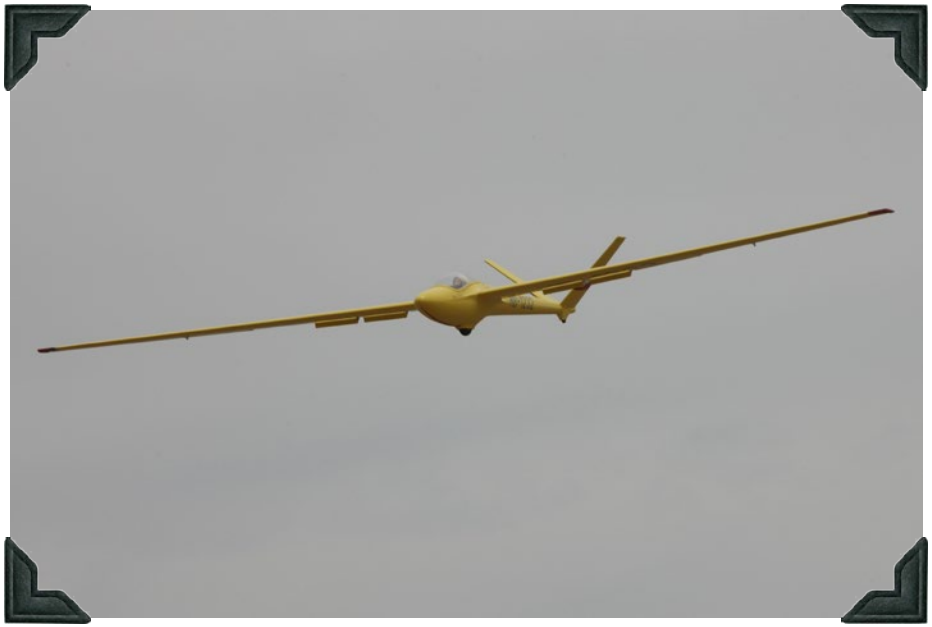


HB-1232

HB-1232

HB-FKM
PILATUS
Pilatus Porter

FX-40
Futaba

EC - JOZ

EC-MMR
DC
N-DC33

4D

WILGA-80
PZL-104
EC-ERI

PILATUS
Pilatus
Porter

ANGUERA
Hobbies

1547

EC-ERI

Tel. 976 15 02 33

HB-912

Tom's Tips

Gluing floating control rods

Tom Broeski
T&G Innovations LLC
tom@adesigner.com

To glue those floating control rods, I use a couple of drops of Gorilla Glue White. Doing so keeps them straight instead of pushed over to the side.

Simply spray a little water after putting the drops on the tubing and it will foam up and make a solid holder for the rods.

I use two part foam in the boom if the rods aren't glued in by the manufacturer.

Slope soaring and horse riding

Great holiday for the whole family at Kupres, BiH

Gorazd Pisanec, Gorazd.Pisanec@gkndriveline.com

If you're looking for a holiday for your family where you can fly and children can ride horses, then Kupres is the place for you. Surrounding mountains offer good flying sites and the horse ranch unforgettable horse riding vacation.

Kupres is a small town in Bosnia and Herzegovina and is 43 km distanced from Livno, 143 km from Sarajevo and 127 km from Split, Croatia. Kupres is located from 1.120 to 1.150 m above sea level in the Dinaric Alps.

Kupres is surrounded by mountains all around. Mountains suitable for slope soaring are mount Stozer for south winds and a smaller mount Gradina for north winds.

I was in Kupres with my friends in June this year as part of our Aerotow camp Livno.

We were slope soaring in Kupres for one day and our host was Mate, former paragliding pilot, who showed us great slope sites in Kupres. He also owns the horse ranch and organises horse riding trips. That is when I realised this could be the ideal family vacation.

The horse ranch is located 3 km from the town centre on a small hill in the countryside. It is an idyllic place with beautiful scenery. They have around twenty horses which are in top condition. Horse riding is possible for both, the beginners as well as professional riders. Children can spend the whole day with horses. There are also other activities like cycling, trekking, swimming in the nearby lake, paragliding, riding all-terrain vehicles, hunting, etc.

The ranch also offers accommodation with food and drinks for very reasonable prices. The food is home-prepared and traditional – excellent. I spent four days with my family on the ranch (11th – 14th August).

Title page: My MPX Solius posing on Skrilja.

Upper: Horses on the meadow

Left: Evening flying with the Horejsi Q12

Of course, the most important is slope soaring. During our Aerotow camp Livno in June we flew on the smaller mount Gradina because the north wind was blowing. Mount Gradina is located 2 km from the town centre and is accessible by an all-terrain vehicle or on foot.

The slope generates constant and consistent lift without turbulence. With the combination of thermal balloons, the slope offers superb flying conditions. Landings are easy. The models can be landed on the top of the mountain where there is a lot of grass. Experienced pilots can land their plane at the edge of the slope. We were flying F3X models and also big scale gliders.

During our stay on the ranch in August I flew on mount Stozer and three small hills on the horse ranch.

On the first day I flew on two small hills for south winds. It took a 10 – 15 min walk from the ranch to get there and it was really enjoyable. The third one is in front of the ranch and suitable for east winds. There I flew the Horejsi Q12.

On the second day I went to mount Stozer. It is 1758 m above sea level and suitable for south and north winds. I flew on the first plateau called Skrilja. The mountain is accessible by an all-terrain vehicle or on foot. It took me 45 minutes to reach the first plateau on foot. That day a south wind was blowing with 10 to 15 m/s speed and gusts up to 20 m/s. I flew my Multiplex Solius glider without a problem. The lift was very strong forcing me to fly in speed mode and making lots of down trims. There were also no problems for aerobatics and deep dives into the valley. The lift was consistent all along the slope without turbulence in the background. Landings were done easily thanks to the big landing area filled with soft grass.

Mount Stozer is also full of wild fruits. There are blueberry fields as far as your eye can see. After flying I was able to pick 0,5 L of blueberries for my family in no time. (See photo below.) There are also raspberries this time of the year.

Can you guess what the first question from my kids was when we got home? When are we going back? Next year we are returning for sure.

Kupres Holiday Horse Riding offers great hospitality and an unforgettable vacation. For more info contact me at gorazd.pisanec@siol.net or the follow links provided below:

<http://www.kupresholidays.com/>

<http://www.facebook.com/kupresholidays.riding?fref=ts>

Above left: The huge landing area on Skrilja. Behind is the ski track.

Above: Group photo after successful flying

Left: Town Kupres with mountain Stozer in the background

Opposite: A Mibo LS8 flies against a cloud backdrop.

LR
I-PLOQ

Opposite: Off she goes! ASK13 by Rado

Above: Scale model ASK13 soaring above the clouds

Right: Scale model ASK13 against the clouds

Stinger with Kupres in the background

Beautiful scenery

Upper left: My daughters enjoying some horse riding at Kupres Holiday Horse Riding

Above: Beautiful horses

Left: Me feeling happy after a great day at the Gradina slope.

Two Oceans Slope Soarers, Cape Town, South Africa

Black Eagle PSS Festival 2014

Kevin Farr, kevin@fvdv.co.za

Once again Two Oceans Slope Soarers hosted the premier PSS event in the Cape slope calendar.

As per usual, the event was scheduled for the 22nd and 23rd June, bang in the middle of winter and right on the solstice. Longest night, shortest day. This would lead one to believe there would be hell and damnation, dark rolling clouds, and a vast downpour of precipitation at some point during the weekend. Nature was having none of that and threw us warm, sunny, cloudless and near calm conditions for the first day. Nice for judging and that's about all.

So a call was made to hold the judging up at the Cannon site above Simonstown as we have done before and, while the static classes were being perused, some flew light craft off the front of the slope.

Herbie Newton and Nico van Rensburg were there to judge for us, and as usual were fair yet unyielding in their questions and probes into the exact markings of this and that aircraft.

There were notable standouts in each class and as soon as we completed the judging and due to the ever so faint a wind dropping off even more, headed for the power field.

Unfortunately for us slope types, the only time powered flight really gets exciting is when the powers off... and so we spent a few mischievous hours spinning the anti-gravitational devices attached to the front end of the planes, and then relished the powerless landings.

Spitfires, Corsairs and a large dash of Sky Climbers held a festival of touch and goes, inverted tail drags and other silly adventures till the end of the day. Much mirth being had by all.

True to form, the lads had a hell of a bash at Dixies <http://dixiesrestaurant.co.za/> in the evening and all and sundry got home safely.

Sunday dawned once again clear, sunny and most annoyingly, fairly windless. Some gathered at the power club, while a few headed to the Chapman's Peak slope and as the morning progressed the wind started to arrive.

Although hot, windy and unusual for this time of the year, there was still some lift to be had and the early flights did lead to a few drop out and fetch sessions.

These were mostly catered for by Noel Cochius, whose enormous fetch of the foam MIG 3 at the base of the slope, 50 meters from where the cliff plunged into the mighty Atlantic ocean, must rate as one of the longest fetches in Chapman's Peak history... and in Noel's personal history as well. Note to attach GPS to Noel for future fetches.

Eventually the flying rounds were called off from a scoring perspective and the prize giving planned.

At this post lunch stage the lift did indeed pick up somewhat and the BEE wings were zipping around much better and the foamie warbirds were into attack mode and a few more fetches were made by Tim Watkins Baker and a few other notables after being taken out by competitors.

Dave Greer sat it out till the last moment before launching his Balsa ME 109 into the valley and having a blast.

Suddenly the chance to get the large scale warbirds airborne arrived and the all crimson Lockheed P-38J Lightning named YIPEE was launched off the slope by ace launcher Steve Meusel and piloted by Kevin Farr in a maiden flight.

This five kilogram (11 pounds) glider still astounds as it takes to the air in the most unlikely lift and even though the conditions were hot and bumpy this craft flew with size and grace through to the pinpoint landing below the slope edge.

This led to Ryan Matchett grabbing the beautifully detailed six kilogram P-51B Mustang, handing it to Steve again and letting it loose off the slope. This too performed remarkably well and both pilots were exceptionally happy to fly and land both gliders sans a scratch.

PSS 2014 Results

Expert Class								
Pos	Name	Entry	Judges		Average Static [180]	Flight Scores		
			Nic	Herbie		Flight 1	Flight 2	Total
1	Schalk Human	Avro Vulcan B2	98,5	98,5	98,5			98,5
2	Ralf Fuchs	F9F Panther	84,5	84,5	84,5			84,5

Sportsman's Heavy Class								
Pos	Name	Entry	Judges		Average Static [60]	Flight Scores		
			Nic	Herbie		Flight 1	Flight 2	Total
1	Ryan Matchett	Mustang P51 B	52	52	52			52
2	Malcolm Riley	Mustang P51	35	35	35			35

Sportsman's Light Class								
Pos	Name	Entry	Judges		Average Static [60]	Flight Scores		
			Nic	Herbie		Flight 1	Flight 2	Total
1	Kevin Farr	P38 Lighting	41,5	41,5	41,5			41,5
2	Tim Watkins-Baker	Impala 480	32	32	32			32
3	Rudi Smook	DO 335	25	25	25			25
4	David Greer	ME 109	24	24,5	24,25			24,25

Combat Class								
Pos	Name	Entry	Judges		Average Static [50]	Flight Scores		
			Nic	Herbie		Flight 1	Flight 2	Total
1	Jeff Steffen	Mustang P51	41	41	41			41
2	Tim Watkins-Baker	K61	39	39	39			39
3	Schalk Human	Thunderbolt P47	36	35,5	35,75			35,75
4	David Greer	ME109	34	34	34			34
4	Noel Cochius	Mig 3	33,5	34	33,75			33,75

In the end the lift won and all participants had a great afternoon on the slope. Hopefully next year we can really cash in on a two day lift band, but that is one of the vagaries that makes these events interesting, challenging and rewarding.

In the end, Schalk Human took the Black Eagle Trophy for the immaculate Vulcan, Ryan Matchett took the sportsman's heavy with the very detailed Mustang P-51B, Kevin Farr took the Sportsman's Light with the somewhat overweight Lockheed P-38J "YIPPEE" Lightning, and Jeff Steffen took the foamie with the humorously named P-51 "Bald Eagle" foamie Mustang.

Without the judges we would not have an event on record, so a large thanks to Herbie Newton and Nico van Rensburg who were on hand to do the duties. Thanks to the food suppliers who as always supplied excellent grub and an equally gracious thank you to our sponsors who created so many prizes that every entrant walked away with a handful of goodies.

A thank you also to Dave Greer and Rudi Smook who once again flew in from Durban for the event. Much appreciated, gentlemen.

Ryan Matchette's P-51B Mustang "INA the Macon Belle" on the slope.

Above: P-51B Mustang interior.

Upper right: Ryan Matchette's P-51B Mustang in the afternoon light at Chapman's Peak.

Right: Steve Meusel's Corsair.

Achtung Spitfire!

Foam rules as the Corsair and Spitfire form up.

Kevin Farr's YIPPEE gets the heave-ho from Steve Meusel.

Celebratory 5000th edition of the P-38 family - YIPPEE.

YIPPEE patrols the Sentinel.

Above: An exciting perspective.

Left: Kevin Farr's Spitfire low and slow when the wind died.

Each class with its own trophy.

Malcolm Riley and the "Ferocious Frankie" P-51.

Our Sponsors:

Aerontec
<http://www.aerontec.co.za/

AMT
<http://www.amtcomposites.co.za/>

AB Models
<http://abmodels.co.za/>

Hobby Warehouse
Kenilworth, Western Cape
Lansdowne Rd, Claremont, Cape Town

Micton Hobbies
<http://www.mictonhobbies.co.za>

RC Hobby Shop
<http://rchobbyshop.co.za/>

Hobby Mania
http://hobbymania.co.za

iHeal
http://www.iheal.co.za/

Schalk Human

Steve Meusel

Schalk Human and the Avro Vulcan B2.

Ralf Fuchs and the F9F Panther.

Rudi Smook from Durban with his Dornier Do-335.

And with that we thank all entrants for being at the event and look to a large field for next year!

A tale of one Petrel

Chris Williams, c_williams30@sky.com

Beauty, in shape and form, is an entirely subjective matter, but many would argue that the Type 13 Petrel was one of Fred Slingsby's more elegant sailplanes.

Based on the 1930's German sailplane the Rhonadler, he gave it a gull-wing, and proceeded to build three examples in his Yorkshire factory.

The first one was involved in an incident involving the non-release of the winch line, writing off both the glider and its pilot. The remaining two exist to this day: BGA 418 now resides in North America undergoing restoration, whereas BGA 651 has been gloriously restored by its current owner Graham Saw here in the UK, and is the flagship of the Vintage Gliding Club. This glider is the subject of this short article, based on two of the models of it that are currently flying on the scale soaring circuit.

It was towards the end of the last century that I built a 1:3.5 scale model of the Petrel and had the plan published in the then *Silent Flight* magazine. There seemed to be little interest until some years later I discovered YouTube and put up a video of her in action, subsequent to which quite a few versions started to appear.

The author and his Petrel prior to the maiden flight at White Sheet.

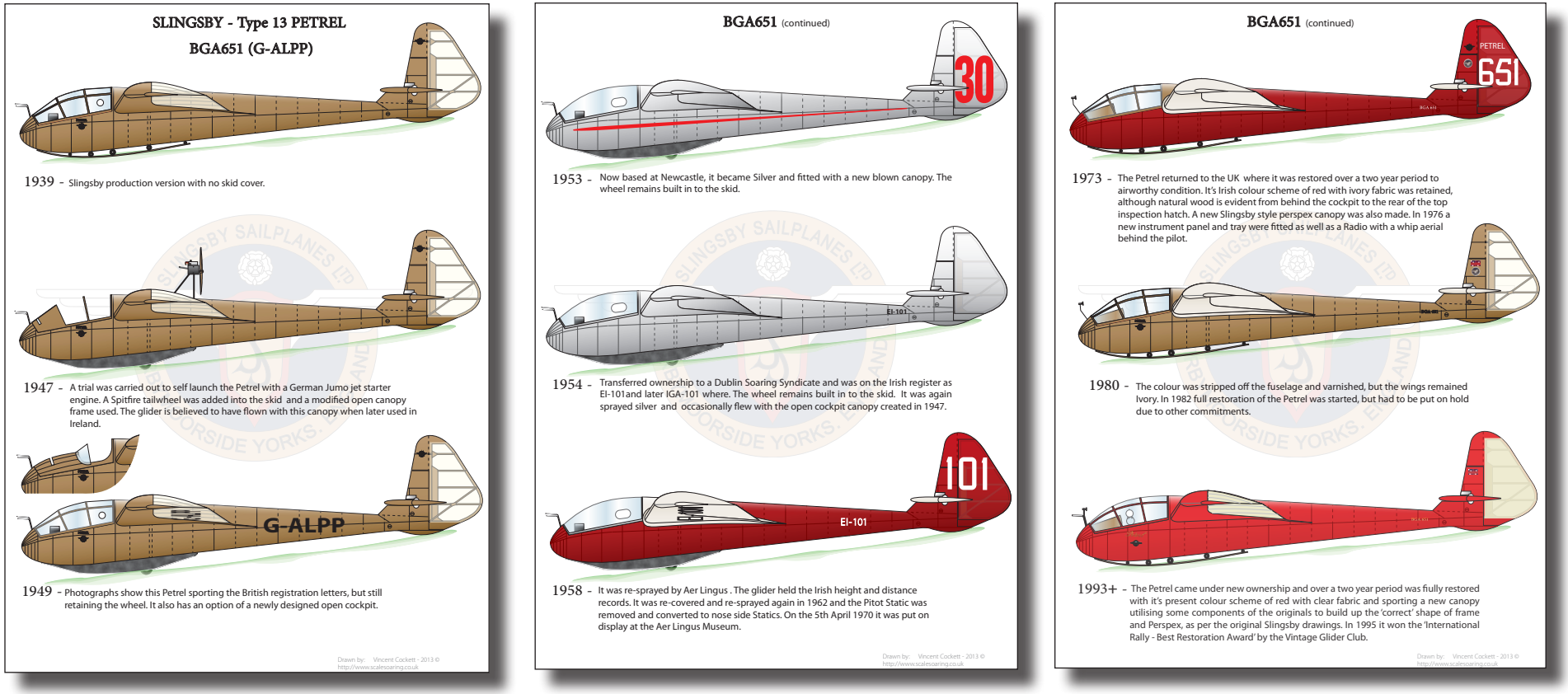
A couple of years ago, veteran modeller Dave Stokes brought out an absolutely beautiful version of BGA 651 as she was when she left the factory all those years ago, all gleaming varnished plywood panels and translucent covering.

Coincidentally, I also had built another version of the same glider, representing her as she exists today.

Scale Soaring UK webmeister Vince Cockett has meticulously researched the history of the Petrel, and the website hosts what must be the most comprehensive collection of data of this historic sailplane in the world today. <http://www.scalesoaring.co.uk/VINTAGE/Documentation/Slingsby%20Petrel/Petrel.html>

My plan was based on BGA 418, which has the all-moving tailplane of the original. 651 has a conventional fixed tailplane, which involves some modification to the rear end, and I've provided the drawings that can be feely downloaded from the SSUK site, where you will also find a comprehensive build log <http://scalesoaring.co.uk/cgi-bin/yabb2/YaBB.pl?num=1324573595/0>. The plan is available from Myhobbystore <http://www.myhobbystore.co.uk/product/18780/sf543-slingsby-type-13-petrel-plan>.

For an up to date video of the this model in action, Google THE RETURN OF THE PETREL



Vince Cockett's excellent drawings of the history of BGA 651. Original sheet size is A4 standard (8.27" x 11.69").

Dave Stokes prior to the Petrel's maiden flight

Dave with the Petrel at Middle Wallop

BGA 651 in action at the White Sheet Scale Fly-in

Left: BGA 651 in action at the White Sheet Scale Fly-in

Below: The Petrel landing at Middle Wallop

Left: The two Petrels together at a TVSA aerotow at Siege Cross Farm

Below: The author's Petrel at a Wessex Soaring Association slope

The author's Petrel turning onto final approach