Walter Chance, M0GRO SK.

It was with great sadness that the club heard the news in March that Walter M0GRO has passed away suddenly at home aged 65 years. Walter was confirmed bachelor having spent many years looking after his mother before she died some 10 years ago. Walter joined the Wythall Radio Club in 2008 to take his foundation licence via our training courses and went on to pass both his Intermediate and Advanced the following year. Walter had a great love of things mechanical, including classic cars and motorbikes. It is believe he had three motor cycles at his home when he passed away; a Kawasaki, a Matchless and a Triumph, one of which was in his back room in bits. He was also supposedly working on repairing a classic Hillman at the same time.

Walter, or "Wal" as his family knew him, was born in Yardley not far from the Hobs Moat and worked in the electrical and building trades as well as stints as a driver, when he wasn't caring for his mother. He had a love of camping and touring and would often take himself off for days at a time touring around the country on a motor bike or in his car and was reported to have climbed both Snowden and Ben Nevis in his time. He also had an allotment which is probably why he chose the callsign M0GRO, but being an intensely private and quiet person never told anyone about the connection. He was keen brewer of his own ale. Although an irregular visitor to our club he was much liked and often took part in our outdoor activities and contests. We have named the 2014 Easter Contest in his memory and have produced two trophies in his name. Although a quiet and private man, he was also a thinker and a bit of a philosopher.

Quite a number of club members turned out for Walter's funeral and the wake afterward was held in Wythall Commu-

nity Club. The family have made a generous gesture saying that Walter's radio equipment can by donated to the club to support club funds and activities. At some appropriate time we will be asked to clear this from his home. RIP dear friend, your friends at WRC will miss you.

Mills On Air

On Saturday 10th May we will be operating special event station **GB2DGW** from the shack to celebrate Mills on Air weekend. Whilst we have, in previous years, enjoyed the hospitality of Avoncroft Buildings Museum, this year we were unable to reach agreement with them with regard to venue and access and so have had to make alternative arrangements at short notice. Strangely enough, the mill we celebrate is Danzey Green Windmill which although now relocated at Avoncroft, was originally located at Tamworth in Arden, so having a station at Wythall isn't such a silly idea.

Callum M0MCX is planning to set up his TS990S in the classroom operating into the doublet and we reckon to be operational from 10am onwards. The bar will be open at 12am but we will provide coffee and tea facilities. We will operate until around tea time, or longer if there is demand. So come and join us and work the pile ups on 40m

Chris G0EYO

Trying to Build a Successful HF Contest Station

As many of you know I moved house at the end of last year. One of the things we were looking for in the new house was the possibility of building a much better HF contest station than I had at the old one. Of course, this has to take second place to other things like distance to shops, schools, and motorways. The new location does meet the family needs, but also seems to be reasonable for HF.

If you buy the ARRL Antenna Book, which is huge and a great source of inspiration, there is also a CD included with various software. One of the programs is HFTA, HF Terrain Analysis, by Dean N6BV. Whilst the output it produces should not be taken as gospel, it does give a very good rule of thumb for helping to plan new antennas.

As well as installing the HFTA program, you need to do some work downloading data from an old Space Shuttle 'radar mapping mission' which provides topography data. For HF contests, whilst having a good 'all round' take off is quite important, the key directions are to the US, Europe, and Japan, which are the high population areas. HFTA shows that the path to the USA and Europe are great – the land continually falls away, and to Japan is still reasonable with a slow rise peaking 4000 feet away.
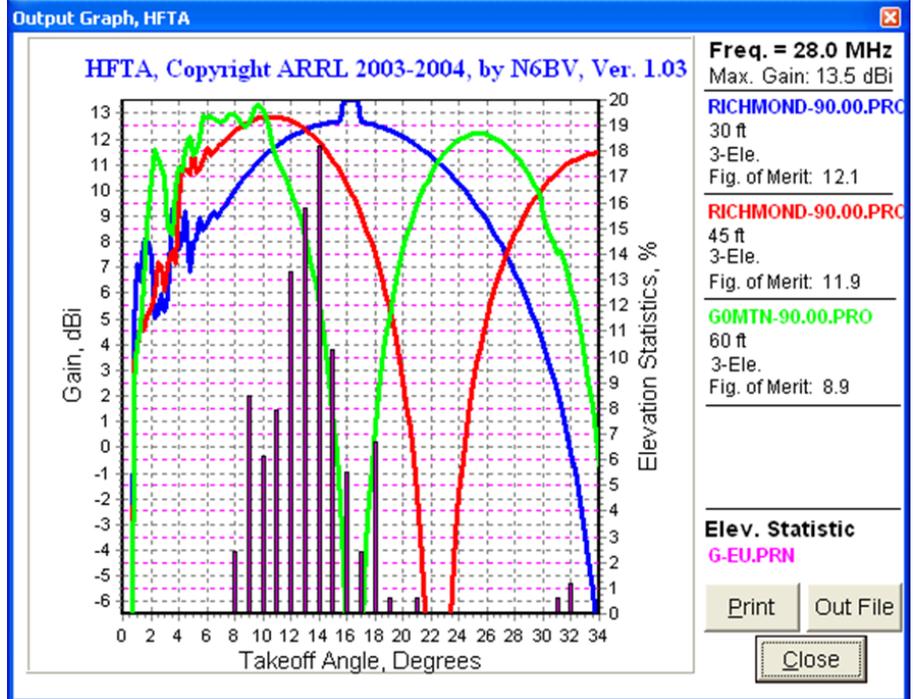

Figure 2: Antenna performance for 28 MHz, G to Europe.
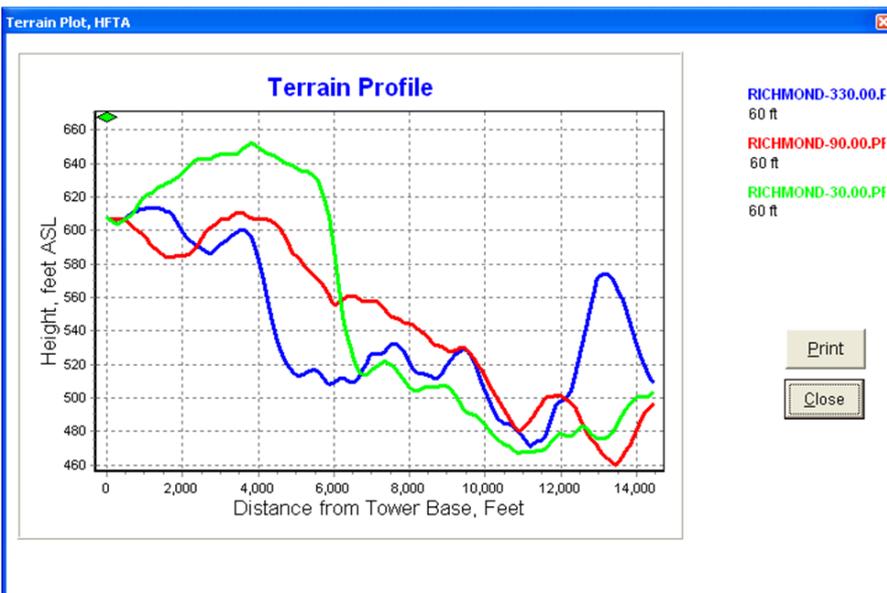On 14 MHz it's a different story, where the higher antennas perform better:

Figure 1: Terrain profile for 330 degrees (USA), 90 degrees (Europe) and 30 degrees (Japan). Green diamond in the top left hand corner would be an antenna at 60 feet.

a particular take off angle are received. In the picture above , the vertical bars represent the proportion of signals arriving at a particular angle on the "G to EU" path on 28 MHz. Most of the signals will arrive around 14 degrees. Look at the later pictures, which show the same but for 14 MHz on the "G to EU" path, and also then the "G to Oceania" path, and see the differences. So there is no "one best height" for our antennas, as it changes with frequency, target area, and also with the time of year. Compromise is the key if we have a single antenna!

The blue, red and green lines show the amount of antenna gain we would have with a 3 element antenna at 30, 45 and 60 feet respectively. The highest antenna has more gain at lower angles, but has a large null when the take off angle gets to about 16 degrees – i.e. we would not be able to hear some stations. The lower antennas should actually perform better.

There's a common misconception regarding antennas that more height is better, at least on HF. Actually, antennas can be too high. The height of the antenna will determine how RF signals at
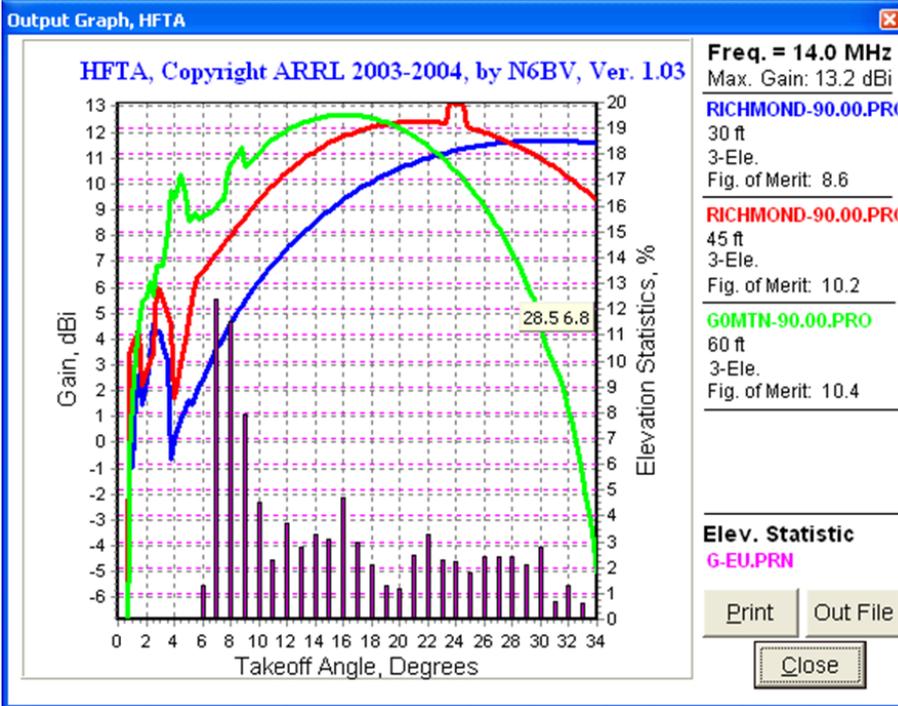
Figure 3: Antenna performance for 14 MHz, G to Europe.

For the long haul path to Oceania, at the key low angles where we will see the traffic, the higher antenna is significantly better. If we plot antennas at 1.8, 3.5 and 7

MHz, the antenna height needed to become effective is even more important. Using HFTA you can also compare your terrain against "flat earth" to see how much gain or loss a nearby hill or slope will give you.
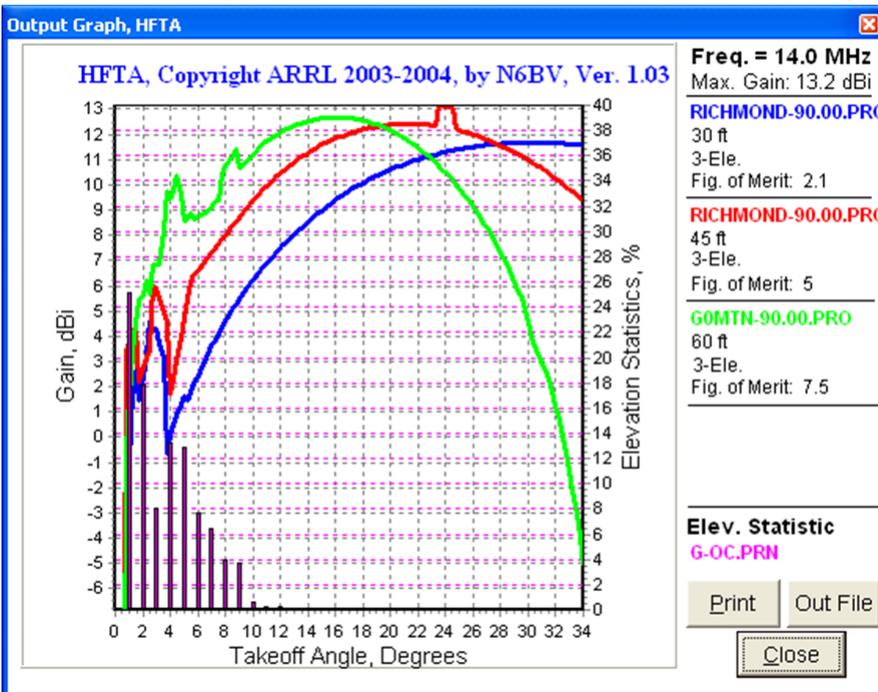
In order

Figure 4: Antenna performance for 14 MHz, G to Oceania

der to have the best gain, but not suffer from nulls, many leading contest stations

will have a stack of HF antennas on their towers at different heights. Even better, they may have multiple antennas at different heights *for each band* to cater for nulls. HFTA will model antenna stacks. This won't be in my plans, although a "high" antenna on a tower could be complemented with a "lower" antenna in a tree, especially for 28 MHz where the nulls are most prevalent. I am planning on being capable for "Single Op 2 Radio" operation, so a separate high band antenna will be needed for that too.

In conclusion the analysis shows that for the higher bands, 50 to 60 feet is probably sufficient to give a significant improvement over the 30 feet high antennas I was using before. Trying for 100 feet is a lot more expensive and complicated, but doesn't give that much extra gain, and you'd need to worry about nulls more. I'd not even try for a 100 foot tower though. There is a balance to find between results and performance, and the amount of cost and maintenance that would need to go into a larger antenna system. Also external factors like visibility of the antennas for family and neighbours will also have an impact. The lower bands will always see improvements with height (80 feet+ would be very useful), and for long haul QSOs, a vertical antenna system should perform better than a dipole, but verticals do require a large ground radial system to work well.

Tune in next time for tips on shack painting, awkward conversations with neighbours, and meetings with planning officers… I'm purposely waiting for the leaves to return on the trees before putting up the first antennas.

Lee Volante G0MTN

A Guide to Successful SOTA Chasing.

SOTA came into being in 2002. Its stated purpose is to "encourage amateur radio based activity from the summits of hills and mountains in countries around the world and to provide an award system for radio amateurs in all DXCC entities." However, while SOTA is seen chiefly as an award scheme combining hill walking with ham radio, there is a lot more to it than that. Besides those who operate from hill tops and mountain peaks, known as "Activators", there are those who work them from the comfort of their shacks, known as "Chasers", and even a section for short wave listeners, where amongst others, chasers can have their "gotaways" contribute to an award.

Let us first have a quick rundown on how SOTA works: more detail can be found on the website www.sota.org.uk/JoiningIn if and when you need it. SOTA is organised into Associations, corresponding to DXCC entities except in the case of large entities, where there is subdivision: the USA, for instance, has an Association based on States or groups of States except for Florida, which has no qualifying summits! For simplicity, the heights of the qualifying summits in each Association are divided into height bands, and a score assigned to each band, one point for the lowest hills, ten points for the highest mountains. An activation must take place from within 25 vertical metres of the actual summit (an area defined as the "Activation Zone"), and to gain the points the activator must contact at least four stations. Now this is where the Chaser comes in: each of the stations worked by the activator can claim the same number of points that the activator earns. The Chasers can claim certificates (rather nice sheepskins!) at scores of 100, 250, 500 and 1000 points. At 1000 points they earn the title of "Shack Sloth" (to parallel the Activator title of "Mountain Goat"!) and can purchase a cut glass plaque engraved with their callsign, plus any special details such as "All CW" or "All VHF".

SOTA runs a second website, which is the "nuts and bolts" of the scheme. This is "Sotawatch" and carries a "Spots" column where current activations can be posted, "Alerts" where future activations can be posted, and a lively Reflector where information, opinions and reports can be found. Most important, though, is the Database, accessed from the other sites, where Activators and Chasers can upload their logs, and be gratified by the appearance of a star that shows that the Activators and the Chasers log entries

agree.

The thing that makes SOTA quite unique amongst the Amateur Radio award schemes is the fleeting nature of the Activations. No sensible ham (yes, they DO exist!) is going to sit on top of a high mountain in freezing cold and howling gale, perhaps with rain like horizontal stair rods, for too long. Get the antenna firmly fixed and settle down in some sort of shelter and you might last for an hour before your inactivity chills you, then the sensible ham packs away and bails out – perhaps to the nearest pub or cafe! The Chaser, then, has to be quick off the mark, keep an eye on the "Spots" column, be ready to change bands at the drop of a hat, and be good at operating in pile-ups. And make no mistake about it, there are indeed pile-ups, and they can contain quite ferociously undisciplined operators! Imagine a DX-pedition on one of the top ten wanted entities – then imagine that it is only going to be there for an hour. Yes, that bad! Another of SOTA's unique traits is that we do not actually tolerate disruptive behaviour in the pile-ups. If we get more than a few complaints about the disruptive behaviour of an over-keen chaser we actually take action against them: initially an email warning them that their behaviour is disruptive and causing problems for the Activator. If this is ineffective then they receive another email telling them that their access to the database is blocked, and will remain blocked until they give a written assurance that they will cease their disruptive behaviour. Any further complaints after such assurances and their access to the database is

permanently removed along with all their log entries and scores. This may sound draconian, but bear in mind that an Activator on a mountain does not want his stay prolonged by bad behaviour, he isn't in a nice warm shack, and the weather in the mountains can change in minutes from pleasant sunshine to a raging blizzard. The Management team feel obliged to do what they can to protect the activators, who already have enough natural hazards to manage.

OK, so having read the above, you fancy having a go at chasing. What do you do? Your first step is to open accounts with Sotawatch and the SOTA database (which is a separate procedure), which makes you a participant. All you have to do then is find an Activation, and exchange reports plus noting the Activators summit designation, from which your score will be found. Enter this in the database – a procedure so intuitive that even I got it right first time – and the database will keep track of your score and your award entitlements. As that dam' meercat says, "simples dit-dit!"

That is it, really, but a few additional points: besides the main award scheme there are a few additional awards to go after, just to add to the interest and tickle the jaded palates of those who have gained their first thousand points. Firstly, and simplest, there is the Chaser Unique scheme, which echoes the nor-

The author on a lightweight operation from Seat Sandal, Lake District
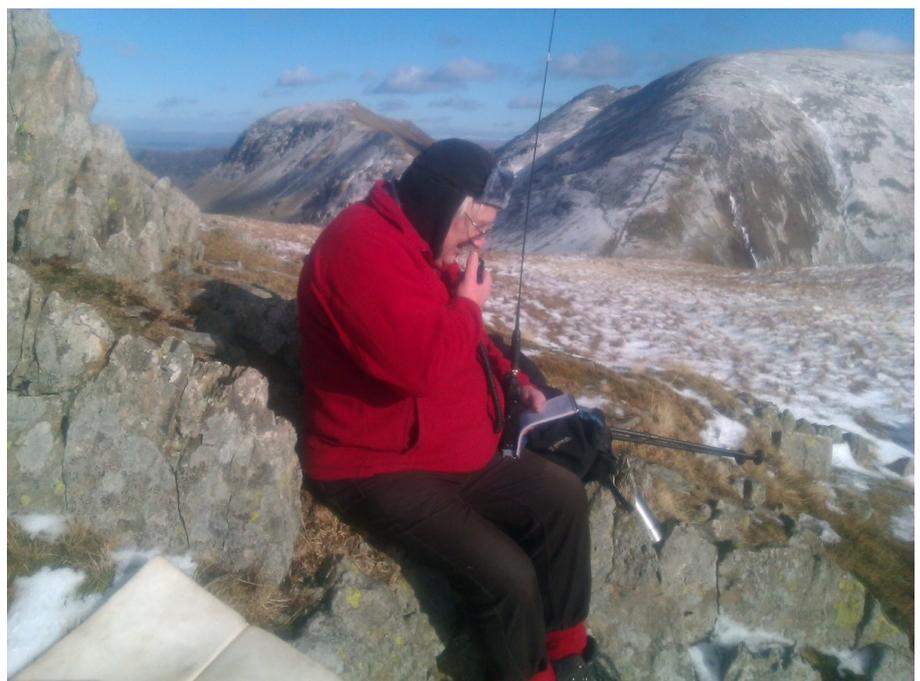
SOTA cont'd

mal Chaser scheme but each summit can only be logged once. More complex is the "Mountain Hunter" award, where the entry level is contacting activations of at least two different summits in each of at least five different Associations, and the higher levels require that claims include more than one continent. Then there are special challenges that are run from time to time; the current challenge is for the 12 metre band but this comes to an end in May. It remains to mention that the most highly valued SOTA awards are none of the above. The first one was instituted when it became apparent that Activators put a special value to "Summit to Summit" (S2S) contacts, egged on by the chivalry of Chasers who stood by to enable the S2S contacts to be completed – and still do to this day! So was born the "Summit to Summit Award" for activators. This led in turn to the "SOTA Complete" (or dog-food!) Award, which is for summits that you have both Activated and Chased, but these lead us into SOTA activating, which might be a topic for a future article!

So that's it, get out and do some chasing: popular watering holes are 7032 CW, 7118 SSB, 14062 CW, 14285 SSB, 5.3985 SSB, 144.333 SSB – and anywhere you can find a space on 2 metre FM Simplex! See you on the air, in the air!

Brian G8ADD

Club of the Year?

The club was delighted to hear that Martin G3UKV had been elected manager for RSGB Region 5 in the recent elections. His appointment means that Wythall Radio Club should consider applying for the RSGB club of the year for 2014. We were voted Region 5 "Club of the Year" in 2009 and 2010, but didn't apply in 2011, 2012 or 2013. Now is the time to have another go and see if we can fulfil our real destiny which is to be recognised as the national "RSGB Club of the Year".

Chris G0EYO

Lew Williams Shield

Now we are into the month of May, the thoughts of Wythall Radio Club members turn to a special event in honour of a special person. Former Club President, Lew Williams was not actually a licensed amateur but was a grand man who taught many members of our club the joys of Morse Code (CW).

When Lew passed away, it was thought appropriate to honour his memory in a suitable manner and so the "Lew Williams Shield" was born.

In order to win this trophy, Wythall Radio Club members are asked to view the 31 days of May as a "Morse Code Activity Month". The trophy is awarded to the club member who has shown some kind of commendable contribution to the event. It will probably involve some evidence of improvement, however small, in some aspect of his/her Morse Code skills.

Chris G7DDN

Training News

March brought exam success for two members of our on-line Foundation Class. Congratulations to John Churchill and Martin Benton, but commiserations to Ryan Lester who failed. Robert Hemming took the exam a few weeks later because of work commitments and passed and is now M6RFY. Jenny Reeve was unable to take the exam due to a family tragedy and will take it later on. The 2nd of May saw club member's Howard 2E0KWH and Terry 2E0XTV both take their Advanced re-sits and we wish them well. At the same session, John Cater from Derbyshire took his exam with us.

We have an Intermediate course scheduled to start on May 12th and running for 9 weeks every Monday night (apart from Whit week, when it is a Wednesday) plus a Saturday. The exam is scheduled for 7th July. We have 7 club members taking the plunge, including our revered secretary Anita M6DUO and three M6's who took their foundation exam in March. This course filled up within 24 hours of being announced and we have a standby list of a couple of members who didn't get their name down in time.
The on-line foundation course experi-

ence has been reviewed and a number of observations made. Although no class room work is required for the main course material, it became clear that the information imparted in a class room over and above the course material is very helpful to students. We did allow 4 hours to do the practical work on a Saturday morning. This was not really sufficient as it allowed no time for any revision of course material. We need to allow two Saturday sessions, one for the practical assessments of say 5 hours and the next one a combination of revision for 3 hours plus an hour for the exam, with a bit of a break in between. It also became clear that the on-line course is only useful to those who have sufficient reading skills to understand the materials and are able to attend the practical and exam sessions at Wythall or can arrange something similar at their local club.

All told 2014 has been a busy year with eight students getting their Foundation licences through Wythall Club.

Chris G0EYO

Easter Contest 2014—dedicated to Walter M0GRO

This year's Easter Contest proved very popular again and on 6th May the club gathered in the shack to hear who the winners and runners up were. Chris G7DDN gave out some statistics and Lee G0MTN gave out the prizes and certificates.

Some 42 members participated (2 up on last year) and nearly 900 QSO's were made over the 5 day period. Half of those participating sent in an entry making 21 entries in total (1 up on last year)

Results
2m FM only section:

The placings are shown in the table but coming third was Gavin M6GWG with 1537 points, second was Mark M0MSE with 1540 points, both of these were first time participants in the contest. Taking top spot in this section was Kev M6NCO with 2376 points proving that he must have never left his shack for 5 days. Well done, guys. As well as his easter egg, Kev got the M0GRO 2m FM trophy

Jamie M6GDI got a certificate for highest placed Foundation licensee, remarkable for a 13 year old who only got his license in March. Well done Jamie

Open Section:

In the Open Section, third place was taken by Rob 2E0MEX with 1953 points with second place won by Simon G4TVR with 2340 points. Winning the open section for the second year running was Stew M0NYP with a mind blowing 2964 points, another one who clearly did not leave his shack for 5 days. As well as his Easter egg, Stew also took the M0GRO trophy for the open section.

Our chairman Mike G4VPD was also awarded a certificate for leading DX participant with his entry from Fuerteventura in the Canary Islands.

Easter Contest Results

OPEN SECTION

POS	CALL	QSOs	BEST	MLTS	PTS
1	M0NYP	108	76	39	2964
2	G4TVR	69	65	36	2340
3	2E0MEX	80	63	31	1953
4	G0EYO	62	48	31	1488
5	G7DDN	25	20	15	300
6	G0ICJ	16	16	15	240
7	G7OKF	12	12	12	144
8	G0NES	6	6	5	30
9	G4RIO	4	4	3	12
10	M6FAB	2	2	2	4
11	M6KET	1	1	1	1

2M FM SECTION

POS	CALL	QSOs	BEST	MLTS	PTS
1	M6NCO	98	66	36	2376
2	M0MSE	76	55	28	1540
3	M6GWG	73	53	29	1537
4	2E0WTH	60	50	26	1300
5=	2E0TBR	47	47	23	1081
5=	G6ZDQ	66	47	23	1081
7	M6GDI	29	29	22	638
8	M0IDR	25	25	17	425
9	M0AEJ	20	17	11	187
10	M0JMM	9	9	8	72

COMPOSITE TABLE

POS	CALL	QSOs	BEST	MLTS	PTS
1	M0NYP	108	76	39	2964
2	M6NCO	98	66	36	2376
3	G4TVR	69	65	36	2340
4	2E0MEX	80	63	31	1953
5	M0MSE	76	55	28	1540
6	M6GWG	73	53	29	1537
7	G0EYO	62	48	31	1488
8	2E0WTH	60	50	26	1300
9=	2E0TBR	47	47	23	1081
9=	G6ZDQ	66	47	23	1081
11	M6GDI	29	29	22	638
12	M0IDR	25	25	17	425
13	G7DDN	25	20	15	300
14	G0ICJ	16	16	15	240
15	M0AEJ	20	17	11	187
16	G7OKF	12	12	12	144
17	M0JMM	9	9	8	72
18	G0NES	6	6	5	30
19	G4RIO	4	4	3	12
20	M6FAB	2	2	2	4
21	M6KET	1	1	1	1

So I Bought a Satellite

I first got involved in the mission to deploy a swarm of miniature satellites into space a couple of years ago. I was browsing through a website called 'Kickstarter', where projects can be 'crowd funded', that is sponsorship is provided by hundreds or maybe thousands of individuals, all over the globe, with the aim of launching someone's idea, where funding would otherwise be difficult or impossible. The venture that caught my eye was proposed by a PhD student called Zac Manchester. Operating out of Cornell University, his proposal was to raise $30,000 to launch a cubesat into low Earth orbit. The cubesat would later release a swarm of 104 'Sprite satellites', each measuring only 3.5 cms square and a few millimetres thick. Zac's successful bid raised over $70,000, all of which was plowed into research for the mission.

The cost of research and development of the 'Sprite' satellites was covered by over 300 backers around the world, but the launch itself was provided free of charge through Nasa's ELaNa programme, which allocates payload space to projects mainly presented by Universities and Colleges in the USA.
So it was that space was found aboard a SpaceX Falcon 9 rocket launching from Cape Canaveral on CRS-3, the third SpaceX resupply mission to the International Space Station (ISS). Kicksat and other cube satellites would be automatically released from the second stage of the Falcon 9 rocket a few minutes after its fuel was spent.
The Kicksat mothership had a beacon on-board and would transmit telemetry, reporting values from various parameters on 437.505 MHz. But what really appealed to me was that anyone willing to spend $300 could buy their own sprite satellite and it too would have its own transmitter, (all the Sprites operate on a single frequency of 437.240 MHz and use Code Division Multiple Access (CDMA)). Whenever the Sprites were illuminated by sunlight, they could transmit 5 characters repeatedly. I chose TSMDB, being the initials of each family member.

After the Sprites are deployed from KickSat, we will track them and record their radio signals using a worldwide network of amateur ground stations to demonstrate their communication capabilities. We will also gather data on how long the Sprites stay in orbit and how well their electronics hold up in the harsh space environment.

Because KickSat would be released into a low-altitude orbit, all of the Sprites will re-enter the Earth's atmosphere within a few days or weeks, leaving no trace of space debris.
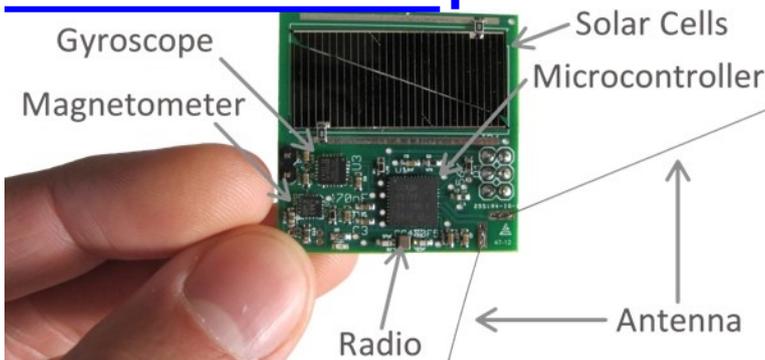
Footnote
As I write this there are grave concerns about Kicksat, which may not now be able to complete its mission as planned. The launch was successful on Friday 18th April, and the Kicksat deployed as expected from the second stage of the Falcon 9. Upon release, a timer began counting the 16 days to deployment of the Sprite satellite swarm. Unfortunately on the 30th April, Kicksat's 'watchdog' microcontroller, responsible for management of subsystems, suffered an unplanned reboot, which resulted in the Sprite deployment timer being reset to zero – there would be a further 16 day delay before the Sprites would be automatically deployed. Since it is likely that Kicksat itself will de-orbit before then it is now unlikely that the Sprites will be deployed unless either a) the Kicksat mother ship stays in orbit longer than expected or b) the on-board battery achieves a charge of 8 volts, (currently steady at 6.5) at which point it will switch on its radio receiver and the ground station will then instruct it to deploy the Sprites immediately. We await developments …

Web links:-
Zac Manchester's Kickstarter project page
https://www.kickstarter.com/projects/zacinaction/kicksat-your-personal-spacecraft-in-space
N2YO.com tracks satellites in real time. Here is their Kicksat tracking page:
http://www.n2yo.com/?s=39685
Kicksat's Google forum (for current status)
https://groups.google.com/forum/#!forum/kicksat-gs

Terry G7NWA

Gyroscope
Magnetometer
Solar Cells
Microcontroller
Antenna
Radio

How to organize the club's annual rally

Some of you will be aware that following the successful rally in March, I decided that after 29 years it was time to give up the role of rally organiser. At the time of writing no one person has stepped forward to take on this role, although it is possible it could be done by a committee. The role is not particularly onerous but does require good organisation and administrative skills and the ability to operte to a timetable. I thought members might be interested to see what the role entails.

August

Agree venue, hire price, parking arrangements and trader space

Prepare table layouts to determine how many traders you can accommodate

See how many existing traders' can be accommodated in new venue

Determine entry price and price per table

Decide what refreshments you will be selling

Decide on things like B&B and talk in

September

Send out advance notice to editors of Radcom, Practical Wireless, Radio User and Radio Bygones

Update rally booking form and covering letter

Decide whether you will continue with trader deposits or ask for full amount

Remember there are some regular traders who will only pay on day

Set up Rally pages on club website, keep layout and trader lists blank, update the booking form, both the paper version and the online version.

October

Using the previous year's traders list, amend to show new columns for current year and previous year. Note the comments against each trader to avoid contacting those who have let us down in the past or want a new location. (having previous year information lets you know if they are having same table space and cost as before)

Using the trader list from previous year send out e mails to all traders advising them of rally date and venue and inviting them to say whether they will be coming this year.

November

Send out booking forms to all traders on the list via e mail

Those few traders who are not on e mail send booking form in post.

As you receive booking forms and cheques e mail trader to say received ok

Note on booking form date of receipt and power requirements

Enter onto traders list, check addresses and e mails/tel nos for any changes

Enter amount paid and amount owed.

Pass any cheques onto Treasurer making a note of traders name, who signed cheque date received and date passed onto Treasurer

Start completing layouts as traders book with you

December no activity except to receive bookings and record them

January

Contact Alex Field of Tidbury Green Venture Scouts if you need their assistance

Send out e mail reminders and booking forms to any traders who have not contacted you

Send letter to Wright Bros ordering tables, do not rely on them reading e mails. Check by phone to see that they have received it.

February

Keep chasing traders who have yet to book

Decide whether there are any parking issues that need addressing, such as using traffic cones.

Do a pre-rally presentation to club to identify work done and yet to be done

Publish first layouts on web rally page

Get caterer on board and agreed terms

(try and get someone else to take this on)

March

Confirm time on site with Scouts (Alex)

Final check with Wrights re time tables required on site

Update layouts and publish on web

10 days before rally send out traders confirmation letters and exhibitor badges by post

Prepare poster advertising rally and encapsulate and get distributed around village

Do final pre-rally presentation Tuesday before rally

Prepare list of items to go up to rally site

Organise volunteers for Sat/Sun of rally weekend

Prepare final layouts and encapsulate

Print off trader labels to put on tables when laid out

Prepare list of monies to be collected by Ian from Traders on Rally day

Receive tables at rally site on the Saturday

Get the club members to;

Put out rally signs on lamp-posts

Layout tables and run in power cables

Put up internal signs re traders halls, no smoking, toilets etc

RALLY DAY get everyone in early

Get the club members to;

Put out traffic cones if using them

Put out road signs approaching rally site

Organise parking marshals, scouts and club people

Get caterer in early and sited, put out dustbins and plastic bags

Have an enjoyable and profitable day.

Knock down tables and clear up at end of rally

Pay Wright Bros for tables when collected.

Take stuff back to club that is stored there.

Easy Really!

Chris G0EYO

The next issue of the Wythall Radio Club Newsletter will be published at the beginning of July 2014