

G3WSC
G6RC
GX3WSC

CARC News Bulletin

Crawley Amateur Radio Club

June - July 2017
Editor: John G4PEO
qslmanager@carc.org.uk
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Other Clubs

Horsham ARC (HARC)

www.harc.org.uk

1st June: DMR, Dennis G0OLX

6th July: Pirate Radio, Mick G4EFO

Crystal Palace REC

www.g3oou.co.uk/cprec

2nd June: Undersea Cables at

Enderby Wharf, Richard Buchanan

7th July: GPS, Nick Stapley

Sutton & Cheam

<http://scrs.org.uk>

16th June: The Sun & Sky. How
Space Weather Affects Radio

Signals. Dr Colin Forsyth

20th July: The IC7300, Mike G0KAD

Mid Sussex ARC

www.msars.org.uk

2nd June: Construction Contest

7th July: Chairmans BBQ

28th July: Fox Hunt Burgess Hill

CATS (Coulston)

www.catsradio.org

13th June: 2m DF Hunt, Banstead

11th July: 2m Activity Evening

Dorking & District Radio Club

<http://www.ddrs.org.uk/>

27th June: Wireless, My Early Days,

Ken M3CFC

25th July: South Downs Evening

Bromley & District ARS

www.bdars.org

20th June: DF Evening, Steve

2E0DIZ

18th July: Morse Code, G4NPD

Other Meetings/Events

18th June: Newbury Radio Rally

30th Anniversary. Newbury

Showground, J13/M4 - RG18 9BB

www.nadars.org.uk/rally.asp

1st - 2nd July: VHF Field Day

See G0KAD or M1YAP for details.

14-16th July: Friedrichshafen

Web site: [http://www.hamradio-](http://www.hamradio-friedrichshafen.de/)

[friedrichshafen.de/](http://www.hamradio-friedrichshafen.de/)

CARC DATES

June 28th (Wednesday)

Nick, G3RWF, RSGB President

July 26th (Wednesday)

PCB Production, Matt, M0NJX

August - Summer Break

(club still open)



CARC meetings are held in our clubroom at
Tilgate Park, Crawley, West Sussex.

Every Wednesday: 8pm

Every Sunday: 11am - 1pm

Formal events are normally held on the last
Wednesday of the month, 7-30pm for 8pm.

Updates to the CARC Programme:

<http://carc.org.uk/events>

or contact **Richard, G3ZIY:**

Richardg3ziy@gmail.com

For further information about CARC, please

Contact the Hon Secretary, **Phil, M0TZZ:**

secretary@carc.org.uk



Mills-on-the-Air, GB0IWM, operated by CARC members at Ifield Watermill. See Page 4

Local Repeaters

GB3MH: 145.625/88.5(FM) **GB7MH:** 439.6375(D-Star/DMR)

GB7EG: 439.7625(DMR) **GB3WS:** 145.750/88.5(FM) **GB3NX:** 430.850/88.5 (438.450)(FM)

GB3NS: 439.675/82.5(FM) **GB7NS:** 439.1625(DMR) **GB7ID:** 430.975 (438.575)(FM/Fusion)

GB3HO: 430.8875/88.5 (438.4875)(FM) **GB3HY:** 430.900/88.5 (438.500)(FM)

Local DX Cluster

GB7DXS : Telnet 81.149.0.149 Port 7300

Chairman: Keith Evans (G3VKW)

Vice Chairman: John Pitty (G4PEO)

Training Lead Instructor: Malcolm Harman (G3NZP)

QSL Manager/News Editor: John Pitty (G4PEO)

Committee Member: John Longhurst (G3VLH)

Shack Manager: Mike Davies (G0KAD)

Hon Secretary: Phil Moore (M0TZZ)

Hon Treasurer: Howard Palmer (G4PFW)

Exam Secretary: Phil Moore (M0TZZ)

Committee Member: Richard Hadfield (G4ANN)

Committee Member: Alex Sheppard (M1YAP)

Programme: Richard Drinkwater (G3ZIY)

Calendar Items - June & July 2017

Wednesday June 28th. Nick, G3RWF, RSGB President - will be visiting CARC.

Wednesday July 26th. PCB Production at Home - Matt, MONJX. Matt will briefly outline circuit design, and then demonstrate how to transfer the design to copper, followed by the etching process using methods that are repeatable, predictable and reliable. Audience participation is expected and encouraged!

Previous Meetings & Events

3D Printing for Amateur Radio - Stewart G3YSX

Do you want to create and manufacture bespoke objects, and, potentially at a cost significantly less than off the shelf or single production items, (apart from your initial equipment outlay), then a 3D printer may be your answer as explained by Stewart in his very interesting talk on 3D printing.

Examples that Stewart gave were the 'usual' items such as phone cases, figures, dinosaur bones(!), hinges etc, whereas examples more relevant to amateur radio, were SMA spanners and specialist element mounts used for the construction of amateur satellite antennas.

A very useful source of information relating to 3D printing can be found here:

<http://www.creativebloq.com/tag/3d> whilst if you need to print an object, someone has likely already designed and placed the plans here - <https://www.thingiverse.com/> - meaning usually all that is needed is a memory stick to copy the files to, and then plug into your machine - i.e. totally standalone.

Stewart explained there were many different printers available, for which there are numerous suppliers in the UK, and of course the same can be said for printer consumables - Google (and others) is your friend!

Printers of course need software to drive them, and as such if you need to design a bespoke item then there are many 3D printer CAD programmes and software tools available, many of which are free. A good example given by Stuart is TinkerCAD: <https://www.tinkercad.com/> As always, many thanks to Stewart for taking the time to put together a talk on a very interesting and evolving subject.



VHF/UHF Propagation - Mike GOKAD

Rather good timing for a very interesting characterisation of VHF/UHF propagation by Mike now that summer is here! Mike presented us with a wealth of detail and examples relating to tropospheric ducting, tropospheric scatter, aircraft scatter, meteor scatter, auroral backscatter, sporadic E and EME.

For instance with tropospheric ducting, (inversion layers), 2m can be closed but at the same time great results can be obtained on 70cm/23cm. There is a very useful website, known as the Hepburn Forecasts, that enables amateurs to check (worldwide) for tropospheric ducting:

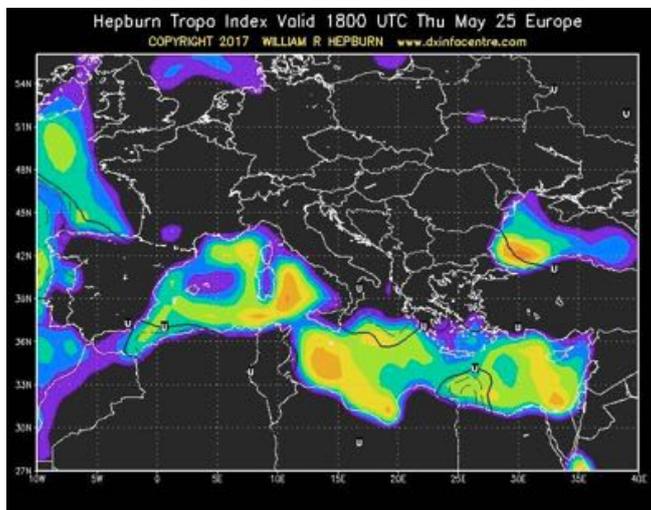
http://dxinfocentre.com/tropo_eur.html

Tropospheric scatter (as used by oil rigs for instance) is more common and employed on a regular basis with a range of about 900-1000km. The GB3NGI Northern Ireland beacon (IO65vb) can be heard virtually all of the time from the CARC shack on 2m by this method. Another very useful website for the VHF dxer as noted by Mike, is www.mmmonvhf.de (*make more miles on VHF*) which apart from propagation forecasts/news, databases etc, also contains up to date beacon information/maps.

Another reliable mode of propagation is aircraft scatter, which can enhance a signal by up to 10dB compared to troposcatter.

Normal range by this method is about 700km with aircraft at 38,000ft, with skeds being arranged when a path is apparent when 'spotted' via one of the many aircraft tracking websites. Mike noted that our best friend is the A380 on a Dover departure out of Heathrow/Gatwick for skeds into Europe! A useful website for aircraft scatter prediction is: www.airscout.eu

Meteor scatter - grains of dust that ionise the E layer, is normally best in the early morning (slow burn) and later in the year, April onwards. It is propagation well suited to high speed data modes i.e. FSK441, MSK144 & JT65M. Real time data courtesy the University of Oulu (Finland): <http://www.sgo.fi/Data/RealTime/meteorRadar.php>
Meteor scatter for beginners by GW8JLY: <https://youtu.be/n8coTrJOJQE> Skeds can be arranged via the ON4KST chat rooms: <http://www.on4kst.com/chat/start.php> Many thanks to Mike for the very informative talk and links.



Hepburn Forecast (Europe) illustrating the different levels of projected (6 days) ducting intensity. Image courtesy William Hepburn. See website for more detail.

Club News

CARC Tower & Antennas

As mentioned in the previous Bulletin, the CARC tower and aerials were in need of some TLC. To that end a cunning plan to effect removal of aerials and replacement of the mast over three days spanning 3 weeks in April was devised by **Mike, G0KAD**.

In actual fact, the plan worked so well, helped by the weather being very kind to us, that only two days were required for the the heavy removal and replacement work, with refurbishment/repair and re-fitting of aerials undertaken by Mike following the successful mast changeover.

Thanks to all those involved - day 1, **G0KAD, G3YSX, G3VKW, G4PEO & M0WID**, day 2, **G0KAD, G3YSX, G3VKW, G4PEO, M1YAP, M0TZZ, G6NQO & M6HNJ** which ensured a very successful outcome.



Day 1 - Aerial removal



Day 1 - Bare mast



Day 2 - 'Old' mast dismantled & ground post removed



Day 2 - Removal of replacement mast from trailer



Day 2 - Muscle power required!



Day 2 - Alex, M1YAP tightening the bolts



Day 2 - 'Old' mast onto the trailer; 'new' mast partially built.



Day 2 - Job done - test erection of mast.

Photos - G4PEO



Club News - cont:

Training Topics - Malcolm Harman (G3NZN) CARC Lead Instructor.

In the April News Bulletin I mentioned that we were about to run a series of Sunday afternoon "drop in" sessions for those wishing to obtain their Intermediate licence. I'm now delighted to report that five students duly completed their nine practical assessment elements, including a radio related construction project.

Then after studying the recommended RSGB course book succeeded in passing the examination on May 21st. Thanks to the very efficient RSGB examinations department their calls signs could be added to this celebration photograph of happy faces before going to press.



Dick Lupton
MORXH
(Instructor)

Jake
Shepherd
2E0EJI

Ewan
Potter
2E0EJJ

Malcolm
Harman
G3NZN
(Instructor)

Marco
Dominguez
2E0EJC

Merlin
Skinner
2E0MQS

Tom
Perry
2E0EJG

Now if all that wasn't excitement enough, three of the students pictured above have signed up for an Advanced exam of Sunday 25th June. There are also two others who have been preparing either by self study or the Bath Distance Learning Course, even so its my intention to offer a couple of tutorial seminars to focus on any remaining subjects of concern.

Lastly there is a distinct possibility that a fast track Foundation course will be going ahead for three known budding radio amateurs sometime late June. And there was I thinking of giving up the role of Lead Instructor!

Mills-on-the-Air, GB0IWM, Ifield Watermill.

As reported on the front page, a small team, consisting of **Howard, G4PFW** and **David, MOWID**, plus assistance from **Richard, G3ZIY**, took part in the Mills-on-the-Air event as **GB0IWM** on the 14th May, from Ifield Watermill, Crawley. (<http://www.crawleymuseums.org/watermill/>)

Equipment used by **David, MOWID** was his Kenwood TS530 and vertical wire antenna, whilst **Howard, G4PFW** employed his Yaesu FT897 to a G3VKW 40m dipole. Unfortunately HF conditions were not very favourable, although by the late afternoon 40m came alive with mostly 59+10 reports from most of the UK, whilst best DX on 20m was K8GM/Michigan. Fortunately the weather co-operated enabling all involved to have an enjoyable radio day out!



Howard, G4PFW operating GB0IWM

Frequency Counter Project - Alan, M/VK5ZFJ alanjam@senet.com.au

Most of the first batch of kits have been distributed and one has been completed already. In building his counter, **Richard G4ANN** found and identified a couple of errors. The remaining kits were then able to be corrected before anyone else was caught out. Thanks to **Adrian, G3VJM** for supplying replacements for the incorrect component, and also providing spare components (especially for that 'ping' moment!) for the pre-scaler (see below).

Owing to increasing interest a further 5 boards have been purchased from designer Alan O'Donovan. It will take a couple of weeks to complete these kits. All 5 have now been ordered by members so hopefully everyone who wants a kit will shortly receive one.

A number of people have expressed interest in the on-board pre-scaler which would allow measurement of frequencies up to 750Mhz. **John, G4PEO** has begun assembling some kits (10 - involves SMD) for this. If interested, please see him at the club or contact him at john@g4peo.net Similarly John has identified a suitable box and components to enclose and complete the counter so please contact him if you wish to participate in a group order.



Member News

Adrian, G3VJM, has forwarded a photograph showing his aerial mast a couple of centimeters off its concrete stand in an apparent act of levitation...

It is a genuine photograph, and the actual explanation is the tree the pole is tied to has grown and taken the pole with it!

There is no truth in the rumour that this is actually a plan by Adrian to increase the height of his antenna at nil cost, albeit very slowly!



2017 Rallies - The rally season is upon us again, (was it ever closed?), and various club members have made the pilgrimage to a number of them. Although cancelled this year, the Eastbourne Rally (SERF) will be held next year on Sunday, 6th May. It is intended that a Sunday in May will become SERFs 'regular' spot. *(Photos G4PEO)*



Harwell Rally - large hall plus a number of smaller rooms. Notably a large but packed/uncomfortable refreshment area.



Kempton Park Rally - Still going strong, although without ML&S or W&S this year, and, despite the rumours, it was announced the rally will still be with us until at least 2022.



Dunstable Downs Radio Club Bootsale. Photo only shows a part of the event held in pleasant grounds with a friendly atmosphere, together with a cafe and outdoor seating within the park - well worth a visit especially if the weather is kind as it was this year.



Amateur radio wasn't the only attraction at Dunstable, traction engines were also in attendance in the very pleasant Stockwood Park grounds. What more could you ask for!

Stewart, G3YSX has forwarded a number of interesting and useful links which are well worth investigating:

G0FTD has produced a spreadsheet/chart looking at WSPR spots over roughly an 11 year (solar cycle) period, that shows the peaks and troughs within that period: <https://sites.google.com/site/g0ftdradio/wspr-solar-cycle>

SV1AFN - Design Labs, has a very interesting web site dedicated to articles and projects, some of which can be ordered as full kits: <https://www.sv1afn.com/projects.html>

K1RF has put together a presentation detailing ideas/sources via Ebay for low cost test equipment: <http://gnarc.org/wp-content/uploads/Low-Cost-Test-Equipment-that-you-can-buy-on-EBAY-RevB.pdf>

Chairmans Report - Keith, G3VKW



Hi all,

As we head rapidly towards summer now the sun has been out, the thoughts of portable operation comes to mind, and two club members **Howard G4PFW**, and **David MOWID** operated from Ifield Mill for the Mills on the Air weekend, sadly the conditions were fairly dismal, however they both had fun. If you are interested they may be thinking of a “Museums on the Air” station later this month, if this sort of activity interests you then contact either of them for the latest info, or perhaps get on the list for next year’s event(s).

The VHF contest team were out for the RSGB Postcode Contest weekend 20th and 21st of May, they seemed to be getting a fairly good score when I heard them. I made a paltry 18 qso’s over about 2.5 hours using my old Kenwood TS700 running just 10w to a Log Periodic antenna on my chimney; see the QSO hits on the adjacent map.



On the VHF theme, the big annual event “VHF Field Day” is rapidly approaching for the 1st weekend in July, helpers are always needed for antenna rigging, and dismantling, tea making and other tasks that go with this type of event.

Alan Jamieson VK5ZFJ has finally got the redesigned PCBs and made up the kits for the Frequency Counter which is the present club project. There is also a companion Pre Scaler kit now available. Alan and John G4PEO were thinking of opening up the Club House on a Tuesday for a construction advice session, but they sadly had very little up take on the offer. If anyone would like to take advantage, and not heard of the Tuesday build it day, perhaps if there is enough interest, it may be reconsidered.

I have to apologise, as I haven’t finalised the WSPR scores yet, I will try to post them very shortly.

Later this month the club will be visited by a Scout Troup from Balcombe, we may need a few helpers on Sat 24 June, if you have any experience in entertaining Scouts while we demonstrate Amateur Radio to them please contact **Phil MOTZZ** or myself. The event is a precursor to some possible Foundation courses later in the year.

Just another reminder that those of you that may want a reasonably small antenna for 80 /40m, and some other HF bands, then do take a look at the G7FEK design. There is a lot of info about it on the internet, and it would be nice to hear some familiar call sign’s on 80m or 40m locally.

Regarding local call signs, the Mid Sussex Lunchtime Net takes place weekdays at 1330 local, all callers are welcomed. Always a useful local net to checkout your antenna if you have been tweaking it.

73 Keith G3VKW