

HARCNEWS

The Journal of

Horsham Amateur Radio Club

Est. 1938



G4HRS

July 2007

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Notes From The Editor

It has been a quiet time for input to HARCNEWS which could well be due to the holiday season getting on its way. I am sure you will take your camera along with you on your travels and send in a nice photograph of any radio related (or not) things that you pass. Accompanied with this month's edition is a 6 monthly update to the diary.

In a month's time you will receive a list of paid up club members along with the magazine. When sending in items for this magazine please try and remember to use the correct email address listed for that purpose as it makes life much easier.

On that note I will point out that there have been a few major issues with my ISP email system since it was 'hacked' recently and although things are much better now if for any reason email is returned undelivered please send it again later or let me know about it. Bouncing email is rare but has happened on the odd occasion and sometimes can be due to an incorrect address being used.

You can always send it by snail mail of course! At the July club meeting volunteers will be sought for the SSB Field Day rota on the weekend of 1st to 2nd September and if you are available just for setting up or taking down or just operating or logging you will be very welcome.

Finally a big thanks to Wally G3JKV who stood in at the June club meeting at very short notice as John G0GNA was unable to give the planned talk due to a family bereavement. It is hope that this can be rescheduled early in 2008.

David G4JHI

June Meeting Review:

Tracking Radio Sondes

by Wally Blanchard G3JKV

After leaving school in 1945, Wally joined the Met Office to become a weatherman and interested in radio sondes – the balloon-lifted packages of sensors that send measurements of upper air properties back to ground by radio. He traced their development from the start in 1920 through to the present day.

Four stages in this history can be distinguished by the means used to track the sondes through their flight: in the beginning visual tracking with a theodolite, followed by radar, then by retransmitting data from a Loran C or Decca receiver on board the sonde, and today by transmitting data to ground from an onboard GPS receiver.

Older HARC members had seen the radar method in use during a club visit to the Pease Pottage Upper Air Station before it closed. Flights are launched from stations all over the world at about 0000 and 1200UTC and today this is an automated operation so ground stations can be completely unmanned.

Satellites look down at our atmosphere whereas sondes look up – from ground level up to 85,000ft for regular met flights or up to 125,000 ft. for research flights launched from Cambourne and Lerwick. Sondes are also flown up to 35,000ft by the military for artillery ballistic trajectory corrections.

The nearest upper air station to Horsham is at Herstmonceux (near Battle) and Wally noted that a surprising number of sondes land locally. He foxhunts

them and now has a collection of about 40! From the top the parts of a sonde system are: balloon, parachute, tether 100ft long, and radio sonde.

When working as intended the descent is under a parachute so should not be a danger to anyone on the ground but sometimes icing can prevent the parachute deploying so that the descent speed could be 50mph and that could hurt.

Tests have shown that cockpit windows and engines survive impacts with sondes at aircraft speeds of 600kn. Present day sondes contain:- a 1575MHz GPS receiver with a quadrifilar helix antenna to derive position/time/winds information; a solid state pressure transducer for pressure/altitude;

temperature sensor; humidity sensor; sonde transmitter producing $\frac{1}{4}$ watt of QPSK NBFM (bandwidth 12kHz) in the 401 to 406MHz band (which Wally demonstrated, receiving the buzzing sound signal on a handheld he uses for foxhunting the landed sondes); a special water-activated battery that can deliver 150mA for 6 to 8 hours that powers the electronics (since a flight typically lasts 2 hours there should be plenty of time left over to hunt for a landed sonde).

If the audio from a receiver tuned to a sonde is patched into a computer's LINE input the data can be decoded using SondeMonitor software available from www.coaa.co.uk (a site of interest to radio and astronomy amateurs). We were shown many examples of Wally's decoding results including plots of flight tracks imposed on OS maps as well as upper atmosphere measurements.

The software has to be supplied with GPS ephemeris data from the US Coastguards site and maps from e.g. the OS. Wally uses a 10ele Yagi at home for tracking sondes though, if there is line of sight, a lambda/4 antenna allows tracking down to an elevation of 2 or 3 deg. Foxhunting a landed sonde below a $\frac{1}{2}$ mile range can be done with a handheld and rubber duck (Wally has used a Yaesu VX5 but prefers

the Icom R20).

It is important to have a balun at the connection of the feeder to a direction finding Yagi else there will be a 3deg azimuth error. Herstmonceux (Gingers Green), our nearest station, operates on 403.000MHz exactly and the frequency does not change more than 1kHz despite the temperature during flight varying from -60C to +30C.

The Met Office buys sonde assemblies in 10,000 quantities for £75 each and there is no longer a reward for returning found ones. Instead the electronics package carries a message inviting the finder to simply dispose of it. Indeed the throw away society! Throughout his talk Wally referred to "Vaisala" which is the Finnish company that seems to be the leader in the radio-sonde industry www.vaisala.com and whose foxes he has made a hobby of hunting! Who'll be the first in HARC to catch one?

G4FQR

DAB A Bright Future!

Some have heard of it, many have tried it; others bought it but what is on offer and is it reliable? DAB once stood for digital audio broadcasting, maybe it still does although now it appears to be known as 'DAB' although the pronunciation Dee A Bee is still used! Also the term D A B digital radio is used.

This type of broadcasting has been around for some time although only in the last couple of years has it really started to come on board. However there may be a decline on the way for sales of digital radio sets for this platform but more of that later.

I have known several people who bought a receiver and took it back to the shop for a refund or exchange because they only could pick up a few stations. The DAB platform uses the Mp2 codec system and is in some respects like the present VHF/FM services operating between 88 – 108 MHz known as



(Above) Front view of Pure Evoke2xt

Band II but uses Band III 174 – 240 MHz and is allocated into frequency blocks between 5A and 13F. It is expected to replace the existing analogue services in the future and also offers reception of some stations operating on the medium and long wave bands. Currently only the higher frequency range is being used, that being blocks between 10 and 12 in the UK although the L band 1452 – 1492 MHz is used in some parts of the world.

In Europe, Britain and Denmark are reported to be the only two countries where it has really started to take off. One of the advantages of digital radio is that national radio services can use a single frequency with no retuning over the entire country, which, is of course, not possible with analogue radio without mutual interference in overlapping areas of the transmitters.

A few months ago I bought myself a Pure Evoke2xt DAB portable set mainly so I could get the experience of the

service and also since I was given a voucher last Christmas to spend! This receiver is actually quite heavy for its size even without batteries and is probably best located as a permanent fixture although the carrying handle is very robust. When it arrived I set it up in the kitchen, extended the telescopic aerial, plugged in the mains PSU and switched on.

The first thing that happens is an automatic scan for services takes place which are then stored and before long the dulcet tones of Steve Wright in the Afternoon on Radio 2 was coming in! The quality through the twin speakers was excellent and those used to CD quality sound will not be disappointed. However for efficiency many stations are crammed into each multiplex and some use different bit rates ranging from 64 – 192 kbps and those with lower ones do sound rather poor including the BBC World Service!

You might get better quality from the medium wave frequency of 648 KHz! One of the advantages of this system is to be able to receive even more choice without the need to purchase extra equipment such as a computer, satelliteTV or Freeview. There is of course the downside that on the internal fitted aerial reception may be troublesome with typical digital break up like you get on a mobile phone sometimes but if placed in a room with a computer it is likely that reception is excellent with no interference at all providing the signal is good enough.

Upstairs I found reception of even more stations possible and by careful positioning managed to pull in 53! It was clear that a better aerial was needed and since I had already purchased a 5-element beam 2 years previously at a HARC junk sale for £2.50 I was well on the way for improvements. I took the receiver into the loft and aligned onto the transmitter with the aid of the tuning meter in the radio's menu. This was achieved by selecting the weakest multiplex and then securing the beam to a wooden pole.

I ran double screened CT100 satellite coax down from

there into the computer room and now enjoy excellent reception of all stations. It should be noted that all DAB transmissions are vertically polarised. Those in the Surrey/Sussex area can expect to receive a wide variety of programmes on the multiplexes available.

Here are some examples including the frequency block used in brackets, BBC (12B) which includes Radios 1 -7, Digital One (11D) with Virgin Radio, Core and Classic FM, Sussex Coast (11B) broadcasts BBC SCR, XFM and Southern FM, London 1 CE Digital (12C) hosts Capital, Kiss 100 and LBC. London 2 Switch (12A) BBC London, Galaxy and The Hits, London 3 DRG (11B) Choice FM, Chill and The Arrow.

In the future there will be a new local multiplex for Guildford and Crawley, which may use block 10B. These were to be separate services but it looks that they may be combined. Coverage of the BBC services should be received fairly well in most places, Digital One may be patchy in some areas or

(Below) Rear view of Pure Evoke2xt



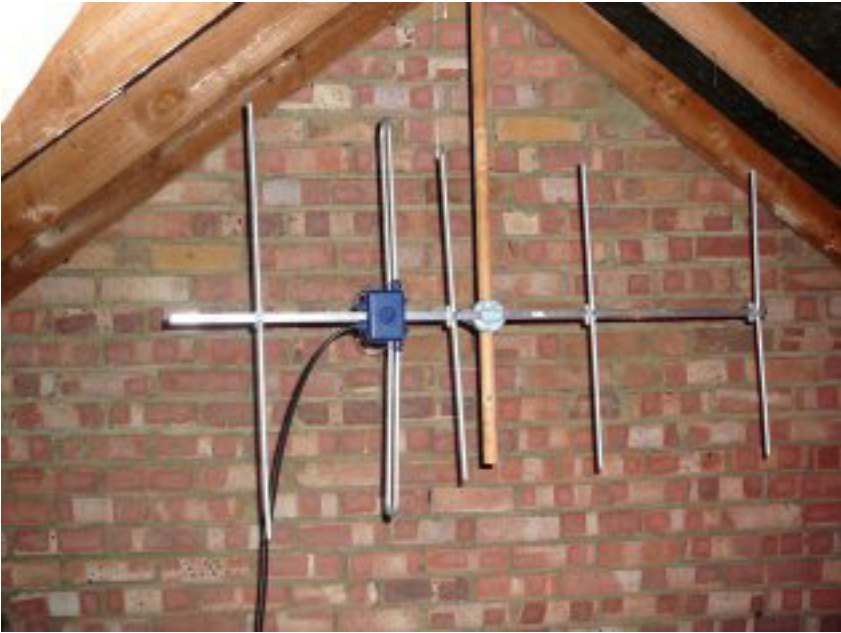
non existent due to lower power being used (although fine in Horsham), Sussex Coast basically covers the coastal areas of Sussex extending 15 – 20 miles north, London 1, 2 and 3 Greater London area extending as far as Horsham and beyond with a reasonable aerial.

It should be noted that London 3 coverage is restricted since it uses the same frequency as Sussex Coast so may not be received much further south than Horsham. The nearest transmitters to our area are Midhurst, Reigate, Guildford, Burton Down (near Arundel) and Heathfield. My aerial is pointing towards Reigate as if you beam on Midhurst it doesn't transmit so many programmes! Powers of the transmitters go from a few watts up to 10 kw.

I did find in the loft strong reception of the Sussex Coast multiplex with my beam before putting in its final position. I didn't put it outside since it was found not to be necessary and less inconspicuous! At one time the BBC tried transmitting DAB from the Wrotham transmitter in Kent but found it didn't work well. The Evoke2xt radio does have many features available simply with the touch of a button.

Up to 6 stations can be tuned into the memories and information about the programme being received can be found along with radio text. The order that stations appear on the tune knob can be altered and any stations that stop broadcasting can be deleted. There is also a Band II FM caperbility and some of the features are handled in a similar fashion. An onboard timer is provided so the radio will turn on to wake you up if required and there are facilities to upgrade the software by computer using the USB port that is very handy.

Line in/out, headphone socket and S/PDIF optical digital output is available. Therefore you can connect an item such an iPod or a recording device. Although the receiver comes with an external PSU, batteries can be used and an optional rechargeable battery pak can be bought if required as I expect the current drain may be high on the DAB tuner!



(Above) DAB aerial in loft

The only real niggle I found was removal of the telescopic aerial which needed a spanner to undo the nut that has to be loosened and is difficult to access without damage to the case since it is in a recess. This wont be necessary of course if you are not going to use an external aerial.

Since modern technology is always moving on a new DAB system has been introduced and is likely to reach Britain in the future which will make all existing receivers on this platform obsolete, as they cannot be upgraded since a new type chip is needed! It is called AAC+ and is more efficient as more stations can be introduced on each multiplex and still maintain good quality or even better perhaps.

Manufactures are being encouraged to make receivers with AAC+ capability and hopefully this will start to happen later this year. But don't worry, the existing system will be around for a while yet since over 5 million DAB radios have been sold in the UK. It is possible that in the future DRM may be

used to fill in gaps in the DAB coverage or by that time they will have invented something else!

Follows is a list of web sites where further information can be found on DAB radio. Some of these have postcode checkers that will give a guide to likely reception at your QTH. However they are all fairly consistent in the results for my postcode in the respect of the stations that may require an external aerial for best reception, which is reasonably accurate.

None of the results produced a complete list of the stations that are receivable here since these postcode databases have been set fairly conservatively! G4JHI

www.getdabdigitalradio.com

www.now-digital.com

www.digitalradionow.com/home.php

www.wohnort.demon.co.uk

www.ukdigitalradio.com/home/default.asp

www.bbc.co.uk/digitalradio

Please send contributions for the August edition of HARCNEWS to the editor by 16th July. Items received after the deadline will be held over until a later edition.

All input is subject to suitability and available space.

For items sent by email please send to this address:

harc.news@g4jhi.co.uk

Invitation

Saturday evening 7th July:

ALL WELCOME - you need not be an IEE (IET) member!

IET History Conference Keynote Lecture and Dinner at Sussex University – “Detectors Galore!” by Dr. Anthony Constable.

6.00 for 6.30 at Chichester Lecture Theatre, University of Sussex, Falmer. See location map at:
www.sussex.ac.uk/about/images/campusmap/map.pdf

Commemorating the work of Heinrich Hertz, the lecture will review the great variety of early devices employed to detect radio waves. Light refreshments provided before lecture. (Optional Dinner following, £23 per head or £29 with wine.)

For more information and to register your place(s) please contact John Narborough at jnarborough@theiet.org or telephone 01273 483537 or 01798 831370 (Amberley Museum).

TV Addict

Today is Saturday Watch and Smile will be a well-known phrase to those of a certain age back in the 70's. Tiswas was the so-called Saturday morning children's TV programme although 55% of the audience was over 18! On June 16th ITV1 screened a special 25th celebration of the programme with a live audience recorded in the original ATV studio in Birmingham.

Presenters Chris Tarrant, Sally James, Bob Carolgees with Spit the Dog, Lenny Henry, Sylvester McCoy (alias Doctor Who), John Gorman, Frank Carson and the Phantom Flan Flinger all made an appearance. This show originally started in 1974 although only screened at that time to viewers in the Midlands and could be actually watched in the Horsham area.

Just by chance I tuned across it (maybe by mistake!) on an old 405 line TV set when I discovered reception on a permanent basis from the 30 kw channel 12 transmitter at Membury in Berkshire which is situated alongside the M4 motorway. This used horizontal polarisation and was virtually invisible to viewers with aerials beamed onto the Croydon or Chilterton Down (IOW) transmitters since they were vertically polarised.

I used an indoor aerial and booster and enjoyed excellent pictures during lift conditions and the rest of the time weak but watchable with some snow! One of the early series main presenters was Peter Tomlinson who was also an ATV announcer. The celebration show even started with the original ATV ident, which was very well known for many programmes made in the Midlands.

For a short period some of the very old series started with the ATV ident run backwards but that didn't last very long probably because they were breaking guidelines! Today the region is run by Central Television



(Left and Right) The Phantom Flan Flinger is ready!



but is certainly no longer the same since the introduction of ITV1 where nearly all the programmes are the same!

Chris came on to the set dressed in a smart suit like the one worn in who wants to be Millionaire and took it off to reveal a Tiswas tee shirt. He introduced Sally and pointed out that 25 years later they still had a cartoon picture of each other attached to the front of their desk but they were still transposed! As the evening went on there were many clips of old times such as Lenny reading the news dressed as Trevor MacDoughnut, then the real newsreader Trevor MacDonald turns up!

Custard pies modern and past-appeared, buckets of water, explosions during a live performance of Status Quo and a variety of guests locked in a cage waiting for the worst! This was the typical mayhem of the show and one thing that was often seen was the cameramen that would normally be expected to be hidden out of site! The regular morning routine would include items such as cartoons, guest interviews, telly selly time (advert breaks) and the famous Compost Corner.

As the years went on other ITV regions took the show and as soon as it was screened in London by LWT there were many complaints! However the show became fully nationwide when Tyne Tees finally took it in 1981, also the year that it all ended. This series set the score for many Saturday morning children's shows with lots of mayhem and ran in direct competition with Noel Edmonds Multi Coloured Swap Shop from 1976.

If you missed it, the celebration show is available on a DVD with an extended version.

(Right) Welcome back
after the advert break
27/05/78



(Left) Tiswas address
placard
09/09/78

The above photos were taken with a polaroid camera of the reception of ATV direct off VHF 405 lines using a 6 element indoor beam with booster from Membury channel 12. The TV used was a Defiant which was made for the Co-op.

Credit to Tiswas Online for the Phantom Flang Flinger picture:

www.tiswasonline.com

G4JHI

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FOXHUNT FOXHUNT FOXHUNT FOXHUNT FOXHUNT
FOXHUNT

The next HARC 2 Metre Foxhunt will take place on the Evening of Thursday July 12th

Details are as follows:

Starting point is Mannings Heath common, NGR TQ 206 290 Landranger 187

N.B. The Fox is expected to be located on OS Map 198, Brighton & Lewes (Might be worth taking OS Map 197, Chichester & the South Downs as well if you have it to hand)

Start time is 7:30 PM

Target end time: 9:00 PM

Transmissions will be every 10 Minutes for 2 minutes

Frequency is 144.725 FM

Callsign is G4HRS/P operated by Adrian G4LRP

Envelopes will be handed out at the start with details of the Fox's lair and the "watering hole"

Please make sure that you have plenty of fuel in your car!!

Radio Diary

Jul 2nd, 80m CW Club Championship 20:00 - 21:30

Jul 5th, Club Night: Introduction to Peter 1 Island DXpedition 2006 & 3Y0X video - by Bryn Tinton, G3SWC

Jul 11th, 80m SSB Club Championship 20:00 - 21:30

Jul 12th, Fox Hunt G4HRS/P Thursday evening 2m Fox Hunt - Fox- G4LRP

Jul 15th, McMichael Rally & Boot Sale - Reading RugbyFootball Club (Near the Herb farm!)

Jul 19th, 80m Data Club Championship 20:00 - 21:30

Jul 26th, Social Evening - The Fountain Inn - Ashurst

All above times are BST

Committee/Club Meetings and Socials start at 8pm