

# ***RADIO SOCIETY***

of Great Britain\_

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DRAFT/UNCONFIRMED

PROPAGATION STUDIES COMMITTEE

Minutes of a meeting of the Propagation Studies Committee held in Leicester on 9 May 2009, commencing at 1300hrs local.

## **1. Members Present**

Prof. M. Harrison	G3USF	Chairman
Mr S. Nichols	G0KYA	Secretary
Mr A. Melia	G3NYK	
Prof. B. Chambers	G8AGN	
Mr R. Smith	G3SVW	

Apologies for absence were received from Gordon Adams G3LEQ, Marcus Walden G0IJZ, Gwyn Williams G4FKH and Leslie Butterfields G0CIB.

## **2. Minutes of last meeting**

These were approved without change.

## **3. Matters Arising from the minutes**

### **3.1 Automated beacon monitoring**

Steve G0KYA confirmed that he had contacted Alex Shovkoplyas, VE3NEA, the author of Faros, to see if he might be persuaded to write a simple, single beacon monitoring program, along the lines of Faros but which could be used to log single-frequency beacons.

Alex's reply was that the program is only designed to work with the IBP network where a) the beacons are GPS-timed and b) have a known fixed output for the 10-second period. He said that he wouldn't be able to produce any other programs for us.

Steve said that Faros was due to be mentioned in the July issue of RadCom and that he would try to follow this up with a longer article just on Faros. Steve also pointed out that there are many web sites that publish Faros users' output and that a list of these could be found at the NCDXF site at <http://www.ncdxf.org/beacon/monitors.html>

A discussion then followed about the UK beacon group on Yahoo at [http://groups.yahoo.com/group/uk\\_beacons/](http://groups.yahoo.com/group/uk_beacons/) which members are encouraged to join.

Steve also suggested that someone might like to volunteer to write one-page features on VHF/microwave and LF propagation for RadCom to follow on from the series he is currently writing on HF propagation.

### 3.2 Transatlantic beacon project

Nothing further to add from the last minutes, other than that D4C has revised his web page ready for the new Es season to begin.

I believe the URL is:

[http://www.d4c.cc/index.php?option=com\\_content&task=section&id=9&Itemid=26](http://www.d4c.cc/index.php?option=com_content&task=section&id=9&Itemid=26)

### 3.3. Multiband Beacon

Martin G3USF reported that the GB3RAL 28MHz beacon has now been back on the air for many months.

### 3.4 Budgets

Leslie G0CIB reported that he had contacted the RSGB GM who said that he would contact the committee if we went over budget.

But as we don't actually know what the budget is, we don't know what we can spend! Martin G3USF will try to ascertain the exact PSC budget.

We are pretty confident that we are not over budget.

### 3.5 Technical Forum

There is now a technical forum reflector. When articles are submitted to RadCom. Giles or Elaine looks over them and can then post them onto the reflector for suitable reviewers.

All but one of the submissions so far have been unrelated to propagation matters.

See <http://groups.yahoo.com/group/rsgbtech/>

## **4. PSC Membership**

Nothing to report

## **5. Topics for discussion**

### 5.1 RSGB Yearbook

Steve G0KYA will contact Steve White about the propagation section of the 2010 Yearbook as he hadn't heard from him. He is happy to write the section and thought that the only re-write would be to the preamble and not the season-by-season predictions.

Suggestions for images included images from STEREO and an image of the Bz and solar wind speed indicator shown on [www.solarcycle24.com](http://www.solarcycle24.com). Steve already has a great shot of the greyline over Europe, courtesy of NASA.

There then followed a discussion on solar wind speeds and whether anyone knew of any historical data on these and whether there is a known cycle. Mention was also made of a recent article suggesting that solar wind speed is now at a low and that the sun is dimmer.

### 5.2 Leicester Show

This will be the last show at the current Donington venue and we don't know if the PSC will be asked to provide a presence at the two-day event on 4 and 5 September 2009.

Steve G0KYA and Martin G3USF offered to attend both days if need be and Barry G8AGN said he might be able to do Friday.

Steve also said that he would try and source some STEREO and SOHO posters from ESA/NASA for the stand, just in case. Martin will contact the RSGB to clarify if we are needed.

### 5.3 Standard worldwide format for observation

DF5AI had contacted G3USF for the committee's views on whether a standard worldwide format for observations could be adopted to enable us to study anomalous propagation modes, such as double hop Es.

This would be called "The Standard Radio Observation Data Record", with a view to being adopted on DX clusters, within contest and log book software, beacon lists etc to create a worldwide observation database that computers could analyse.

A discussion followed and the consensus was that it would be very difficult to change existing practices and almost impossible to get HF contest operators to include their locator square in any exchange. So the standard would be unlikely to be adopted.

However, output from systems like WSPR now comes close to ideal with both locators, date and time, power output and SN ratio.

Steve G0KYA said that he would talk about WSPR later in the meeting, but pointed out that some of the WSPR data is useless as people are putting in erroneous locators – with US stations purporting to be in the South China Sea etc. Steve said he would contact Joe K1JT to see whether any validation routine for the locator could be incorporated into WSPR to stop user error. And also whether the current dBW method of inputting output power could be changed to Watts to avoid confusion.

### 5.4 Beacon Policy

With GB3VHF having to close down due to costs and the Emley Moor GB3MLE beacon also off air, the RSGB has looked at a policy for beacons.

G4USR has written the paper on beacon policy for the UK and G0CIB has circulated a supporting paper, looking at the minimum number of beacons needed in the UK on VHF/UHF.

The suggested requirement is that we need a minimum of:

50MHz – five beacons  
70MHz – six beacons  
144MHz – four beacons  
432MHz – two beacons

Further information is available in the two documents (available from G0CIB).

Martin G3USF said that would also like to see the UK develop simple beacons for deployment in remote areas, such as used at Z23SIX in Zimbabwe, which is a UKSMG beacon project.

There then followed a discussion on reverse beacons – listening systems using software such as CW Skimmer and SDR radios. The output from the system is then typically put onto the internet. These would be useful in crowded areas where a normal beacon might otherwise deafen receivers or low-noise areas where they stand a better chance of receiving weak signals.

For an example see <http://www.reversebeacon.net/main.php>

A discussion on WSPR and the 10MHz MEPT systems and “grabbers” followed, with a view that few formal propagation studies are generally being done with these systems.

## **6. Projects**

### **6.1 Multiband beacon project**

As mentioned earlier, GB3RAL on 28MHZ is back on the air.

### **6.2 WSPR**

Steve G0KYA gave the committee a quick run down on WSPR, what it is and how it can be used for propagation studies. Readers might find the overview article on WSPR at: <http://www.q4ilo.com/wspr.html> very useful

He suggested that the output at <http://wsprnet.org/drupal/> did have its usefulness for propagation studies, but cautioned that a) there are not many stations on bands such as 80m and 10m, with most of activity occurring on 30m and b) some of the data had to be taken with a pinch of salt due to the wrong or incomplete locator squares being input by users, corrupt callsigns due to user error once again or incorrect dBW figures.

He said that he planned to write a feature on WSPR for his regular RadCom column and also give a talk on WSPR for propagation studies at the RSGB Convention.

### **6.3 6 and 10 reports**

Martin G3USF said that this was still proceeding. He has decided to skip the months between 9/08 and 3/09 and progress with 4/09. He is keeping abreast of the task at the moment, but doesn't know how he will cope in the upcoming Es period.

Martin has also looked at long distance 6m Es contacts in VK/ZL using VKLogger (<http://www.vklogger.com/>). Some must have involved TEP, but there were rather more reports in the 3,000, 4,000 and 5,000km range, which must have been multi-hop.

He referred to an article by Emil Pocock W3EP on the “doughnut effect” with some distances more likely than others. See <http://www.geocities.com/toddemsleie/exoticfmdx.html>

Martin will look at the Australian data to see whether this effect can be seen.

The 6 and 10 report can be found at <http://g7kse.co.uk/6and10/>

#### 6.4 LF Propagation

Alan G3NYK said that he continues to publish a daily LF report on his web site at <http://www.alan.melia.btinternet.co.uk/>. He can't find a useful beacon system on 500kHz at the moment. He said that this winter people have been playing with Murray Greenman's PSK Dopplergram, which is showing interesting data on 500kHz.

See <http://www.qsl.net/zl1bpu/IONO/doppler.htm>

500kHz is affected by deep fading, far more than 136kHz, which does give problems.

There are very few countries with 500kHz licences at the moment - Canada might get the band and the USA has some licensees with approval to work overseas.

Alan said that there are a number of beacon stations in Sweden and Germany. Also, some of the best paths have been from Southern England to Shetland.

Marine NDBs are of no use as they don't use unique frequencies, although they are on slightly different frequencies, which could possibly be separated with Spectrum Lab. But they do drift.

Magdeburg DCF-39 is still being monitored by W3EEE in PA, USA, but he has had some computer problems. Steve G0KYA suggested that Alan might like to write a column for the RadCom propagation slot on LF propagation.

#### 6.5 GB2RS

Both Martin G3USF and Neil G0CAS are finding it hard to find something new to say each week with the SFI and Smoothed Sunspot numbers remaining the same each time.

Steve G0KYA suggested that the occasional explanation of some of the terms used, such as “Bz” and “nano-Teslas” might be helpful.

#### 6.6 Chairman's report

Nothing else to report, other than what has already been mentioned.

#### 6.7 Ron G3SVW

Ron continues to give talks on propagation in his home area of South Manchester and Stockport. He also runs a regular propagation and antenna “clinic” at his local club and attended the NARSA show at Blackpool.

#### 6.8 Microwaves

Sam G4DDK and Alan G3NYK are looking at a possible new beacon site at Bawdsey on the Suffolk coast. This would be for a microwave beacon and possible LF reverse beacon.

Barry G8AGN is also in talks about a 10GHz beacon that could be installed at the University of Sheffield

Sam also reported: "I am currently writing my piece for the DUBUS 2/2009 Microwaves UK section.

"In there I talk about the various super refraction paths around the UK. Of particular note I am including a short 'advert' from GW4DGU about a proposal for a one-week-long autumn activity session to exploit the Atlantic littoral opportunities.

"I'm also submitting something similar for the next GHz Bands column in Radcom, but it probably won't have the 'DGU proposal.

"It is noticeable that this 'more normal' year in terms of spring temperatures i.e. the averages are closer to a few years ago and we haven't had an early spring, that the North Sea (and Irish Sea?) super refraction paths have started to open about the same dates as in past years i.e. around the beginning of the fourth week in April. This comes from 25 years of observing the conditions on the North Sea path from this coastal zone QTH.

"If the sun is really dead then maybe we should take advantage of the higher bands before the lack of insolation kills them as well!"

#### 6.9 5MHz propagation

Marcus G0IJZ confirmed that he had given his talk on the implications of the ordinary and extraordinary ray on NVIS propagation on 5MHz at the IET (The Institution of Engineering and Technology) conference in Edinburgh.

#### 6.10 Gordon G3LEQ

Gordon reported that he is giving a talk to the North Cheshire Radio Club about the current state of the Sunspot Cycle, and shall be musing on the topic "Are we entering a new Maunder Minimum?"

#### 6.11 Leslie G0CIB

Leslie reported that he had given three talks on propagation and beacons.

#### 6.12 Aircraft scatter

Barry G8AGN reported that was still working on aircraft scatter. Taking screengrabs from Spectrum Lab every two minutes is producing tons of data and he is looking for a way of using pattern recognition to reduce the workload involved in finding aircraft scatter.

#### 6.13 Steve G0KYA

Steve said that he is continuing to produce a monthly radio programme for the "This Week In Amateur Radio" Podcast in the USA. He also produced HF predictions for the International Marconi Day, which were used on their web site.

He is continuing to write a monthly HFpropagation column for RadCom, but may turn it over to LF/VHF experts towards the end of the year for their input.

He is planning a talk on WSPR for the RSGB Convention and will repeat his HF propagation planning talk at the Icom-sponsored "Contest University" at the event

## 7. Closure

The next meeting was provisionally booked for Saturday 26 September 2009 at Leicester.

The meeting closed at 1630hrs.

**Steve Nichols G0KYA**  
**PSC Secretary**