



Minutes of the Propagation Studies Committee

Meeting by video conference

02 November 2024

Attendees:

Steve Nichols	G0KYA	Chairman
Dr John Worsnop	G4BAO	Vice Chairman
Dr Chris Deacon	G4IFX	Secretary
Prof. Gwyn Griffiths	G3ZIL	Member
Dr Peter Duffett-Smith	GM3XJE	Member
Prof. Barry Chambers	G8AGN	Member
Jim Bacon	G3YLA	Associate Member
Sam Jewell	G4DDK	Associate Member
Gwyn Williams	G4FKH	Associate Member
Carl Luetzelschwab	K9LA	Associate Member
Bill Liles	NQ6Z	Associate Member

1. Apologies for absence

Apologies had been received from Alan Melia and Ron Smith (Members).

2. Matters arising from the minutes of the meeting held on 11 May 2024

These minutes had previously been approved via email and posted on the RSGB website. Matters arising therefrom are dealt with under the relevant agenda items below.

3. PSC membership and roles

No changes required.

4. Topics for discussion

4.1. RSGB website – PSC pages

Held over to the next meeting.

4.2. 28 MHz beacons

Steve, G0KYA recently made 18 changes, including new beacons in Belize, Saudi Arabia and Brazil - thanks to Alan G3NYK for handling the update. The bulk of the changes were to US-based beacons. Steve believes that the list now more accurately reflects the current state of "beacon life" after he completely started afresh about a year ago and used the RBN to compile a new one. Any changes to the list are always welcome.

Steve also reported that the beacon list in the current RSGB Yearbook is very out of date.

4.3. Les Barclay Award

After discussion, a nomination was agreed for the 2025 Les Barclay Award. It will be put forward to the Board in due course by the Chairman. A citation will be drafted by G4IFX in consultation with other committee members.

Action: G0KYA/G4IFX

4.4. Propagation articles for *RadCom*

It was noted that we are continuing to find and publish roughly one propagation article per RadCom issue, plus the HF propagation predictions. It was agreed that efforts should be made to continue at that level.

Propagation-related articles published in RadCom this year include:

- MUF and a November storm, Peter DeNeef, AE7PD. Jan, p26
- MUF and solar cycles, Peter DeNeef, AE7PD. Feb, p53
- Maximum Usable Frequencies in winter, Peter DeNeef, AE7PD. Apr, p66
- Trans-equatorial propagation, Nicholas Shaxted, G4OGI. May, p44
- HF absorption in winter, Peter DeNeef, AE7PD. May, p73
- The October 2023 Annular Eclipse, Gwyn Griffiths, G3ZIL. Jul, p40
- The Big Auroral Event of May 2024, Steve Nichols, G0KYA. Jul, p44
- Measuring height of reflection at HF, Gwyn Griffiths, G3ZIL. Aug, p42
- Magnetic storms in spring and autumn, Peter DeNeef, AE7PD. Sep p25
- April 2024 eclipse: the effect on transatlantic HF propagation, Gwyn Griffiths, G3ZIL. Dec, p36
- HF F-layer Propagation Predictions, Gwyn Williams, G4FKH. Jan-Dec

4.5. PSC ‘Science Workshops’

It was agreed to consult with the full PSC circulation list about topics for potential future Science Workshop sessions.

Action: G4IFX

5. Projects and potential projects

5.1. BAA Meteor Scatter Beacon

The meteor beacon is on the air and has been running reliably. The web-based waterfall is streaming half a dozen receivers now at <https://ukmeteorbeacon.org/beaconclient/>. The ‘full’ solution is still under development but will provide continuous buffering of data with automatic spotting of pings and avoidance of aircraft reflections. When a ping is detected, the IQ data will be saved for further analysis.

5.2. HamSCI 'Personal Space Weather Station'

Gwyn Griffiths showed results collected by Nigel, G4HZX and stored in the Grape central database. The results show that signals from WWV can be received very well in the UK (Beckenham), with interesting results e.g. over the pole propagation from WWVH.

The PSWS captures the entire spectrum then performs a Fast Fourier Transform (FFT) to select the desired frequency ranges, then a reverse FFT is performed on the selected bands and the selected data is stored as IQ data for later processing. There was a discussion about what PSC-sponsored UK PSWS site could add, and it was agreed that an RF quiet site, with good access to polar paths, could be a great addition to the HamSCI network.

A discussion followed about potential sites. The Met Office at Exeter has been suggested, but Jim Bacon commented that it is unlikely to be radio quiet there. There was general agreement that a site at the Ofcom monitoring site at Baldock could be an ideal solution, and it was agreed to seek contacts there to see if it might be possible.

Action: G0KYA/G3ZIL/G4BAO

5.3. 24 GHz web SDR

John, G4BAO reported that experiments with automatic monitoring of beacons via the 24GHz webSDR are underway, although an upgrade is required to improve frequency accuracy and stability. He displayed analysis by G3ZIL of received signals from the webSDR, monitoring GB3PKT and showing interesting variations.

John proposed that this should now become a PSC-sponsored project, allowing endorsement of funding proposals; this was agreed. An initial proposal will be produced for consideration and sent to the PSC Chair.

Action: G4BAO

6. Chairman's report - Steve, G0KYA

(items not already covered elsewhere in these minutes).

6.1. GB2RS

Steve continues to prepare GB2RS each week with help from G4BAO, G3YLA and G4DDK (the latter when G4BAO is on holiday). The team have never missed a deadline, although the deadline itself has been a moveable feast recently due to the Newark Hamfest, RSGB Convention and sickness at RSGB HQ.

Writing a forecast on a Thursday for the following week continues to be difficult, but they can talk generally about trends for the month at this point in the sunspot cycle, which seems to work well.

6.2. Newark Hamfest

Gwyn, G3ZIL and Steve, G0KYA attended the Hamfest this year. Steve was disappointed to find when he got there that PSC didn't have a booth and were expected to go to a table

in the “RSGB village”. After Steve expressed his disappointment at this, Richard G3UGF was kind enough to let PSC share a booth with the RSGB QSL card bureau, for which Steve was grateful. Apparently, arrangements were supposed to have been made via the PSC RSGB Board rep, but for some reason that didn’t happen. Next year Steve will make sure our requirements are known before the event.

Gwyn promoted HamSCI with handouts and a large scientific poster, which described his solar eclipse experiment using WSPR. Steve promoted PSC with our usual array of posters and PowerPoint displays. It was a great event with lots of chats with visitors - tiring, but worthwhile. Steve expressed his thanks to Gwyn for coming along.

During the Hamfest Steve met up with Martyn Baker, G0GMB who runs the NRC at Bletchley Park. Steve agreed to provide the NRC with a quarterly propagation update, and they have now had the Autumn one. An update focusing on winter will be provided soon.

6.3. RSGB Convention

PSC had a good turnout at the Convention with five propagation-related presentations by PSC members:

“Why is Sporadic-E propagation so weird?” by Chris G4IFX

“Tropo, Rain Scatter and Sporadic-E: What’s the forecast?” by Jim G3YLA

“HamSCI - Ham radio Science Citizen Investigation - connecting communities” by Gwyn G3ZIL

“Solar Cycle 25 - prediction v reality” by Steve, G0KYA

“It’s a WebSDR, Jim, but it’s on 24GHz” by John G4BAO.

There was also a talk entitled “HF propagation tips to improve your performance in DXing and contests” by Frank W3LPL.

6.4. Other items

Steve recently gave a talk to the Harwell ARS on “HF Propagation Questions – and some possible answers”, which was well received.

7. Other activity by PSC members

7.1. Gwyn, G3ZIL

Gwyn has produced three propagation studies articles for RadCom and delivered an online talk to the Mid-Sussex club. Gwyn also presented at the RSGB Convention and is planning to attend the HamSCI Workshop in March. He also showed some interesting experimental results, exhibiting bimodal Doppler shift - two peaks in a Doppler spectrum at 25 MHz. He is interested to develop ways of tracking those Doppler data. A recording is available.

7.2. Chris, G4IFX

Chris has been doing more 50 MHz operating than research recently, enjoying the current ‘solar max’ F2 propagation. He presented at the RSGB Convention and also delivered a version of that presentation to the Reading club. Two articles have been published in the UKSMG magazine ‘Six News’ based on amateur-friendly versions of chapters from his thesis. He is hoping to review his research progress and direction with Prof. Cathryn Mitchell in a few weeks’ time; he is also hoping also to be at HamSCI Workshop in March.

7.3. Carl, K9LA

Carl has now stepped down as Director of ARRL Central Division, so he will now have time to do more propagation work. He will be at HamSCI and possibly even RSGB Convention in 2025.

7.4. Peter, GM3XJE

RadCom duties are the major priority just now. Progress on his LDE project is still stalled, waiting for software development by Heather Nickalls, who will not be able to produce anything until next year now.

7.5. Jim, G3YLA

Jim believes he has reached a bit of a 'crisis point' on Propquest and he is now planning to take back control of the software. Development priorities will include (for instance) adding display of some data on the height of the Es layer and potentially adding displays of other data from other ionosondes, possibly to show propagation moving across Europe.

7.6. Gwyn, G4FKH

Gwyn still produces the monthly RadCom propagation forecasts. Some medical issues have recently held him up with other work, unfortunately. He has just written an article for RadCom comparing the effectiveness of a number of ionospheric propagation prediction engines.

7.7. Barry, G8AGN

Barry has recently given talks at the Microwave Roundtables and at Finningley, mainly about his 30 THz millimetre wave work. His experiments are now reaching 500 – 700 m path lengths, but for practical reasons they have to be done over local reservoirs and the path is inevitably not much above the water level. He has observed interesting variations in signal strengths (using BPSK signals) which are yet to be explained but possibly related to the proximity of the water. He also had a new article in RadCom Plus recently, and another one is imminent. It will probably springtime before he can do more tests, because of upcoming hospital time.

7.8. Sam, G4DDK

Sam has been conducting 8m beacon tests with G4OGI and they have identified a possible tidal effect along the path across the Thames Estuary. He will shortly be giving a talk to the Felixstowe club about 23 cm and propagation.

7.9. Bill, NQ6Z

Bill is now an acting co-editor of QEX while they look for replacement editors. Meanwhile, he is working signal processing software for NOAA satellites.

7.10. John, G4BAO

John has now got back into 50 MHz. He gave a talk at the RSGB Convention and is on the reserve list for the Microwave convention in Telford.

7.11. Ron, G3SVW (by email)

Ron was unfortunately unable to join the meeting because of a medical appointment. He reported by email that he had completed a list of LDE references as agreed. Carl had also sent him some references to include, which he was grateful for. Some progress has been



made on an article for RadCom that PSC committed itself to. He will be asking advice on how to arrange technical illustrations, and how to resolve copyright issues on photographs.

8. Any other business

None.

9. Date of next meeting

Provisionally Saturday 3 May 2025.

**Chris Deacon G4IFX
PSC Secretary**