

STARLITE

The Journal for the Stourbridge and district a.r.s.



G6oi
g6srs



issue: january 2023



g4cvk

stourbridge & district amateur radio society
incorporating
OldSwinford Hospital School Radio Club

meetings Normally held at

oldswinford hospital school
heath lane
Stourbridge
[8:00 to 10:00 pm]

visitors always welcome

during covid, The society holds its meetings
Every Monday at norton social club,
osmaston road, stourbridge

rsgb affiliated society

STARLITE

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DY10 3ND

StARS Website URLs:-

www.g6oi.org.uk

StARS Facebook Page:-

<https://www.facebook.com/groups/stourbridge.ars/>

Forthcoming Meetings

January 2 nd	Club Meeting at Norton Social Club. 8pm
January 9 th	Club Meeting at Norton Social Club. 8pm
January 16 th	Club Meeting at Norton Social Club. 8pm
January 23 rd	Club Meeting at Norton Social Club. 8pm
January 30 th	Club Meeting at Norton Social Club. 8pm
February 6 th	Club Meeting at Norton Social Club. 8pm
February 13 th	Club Meeting at Norton Social Club. 8pm
February 20 th	Club Meeting at Norton Social Club. 8pm
February 27 th	Club Meeting at Norton Social Club. 8pm
March 6 th	Club Meeting at Norton Social Club. 8pm
March 13 th	Club Meeting at Norton Social Club. 8pm
March 20 th	Annual General Meeting 2023
March 27 th	Club Meeting at Norton Social Club. 8pm
April 3 rd	Club Meeting at Norton Social Club. 8pm

I have not received any news to include on this page, so I will simply wish you



Foundations of Amateur Radio

Defeating the Pitfalls of Predicting HF Propagation

As you might know, I like to transmit with as little power as possible, known as QRP operation. My own station runs at 5 Watts, since on HF, that's as low as my radio will go. I could go lower by turning down the microphone gain, which interestingly is how some radios actually operate, but for now, 5 Watts seems to be a good starting point and truth be told, even though I've been here for a while, I feel like I'm learning something new every day.

One of the largest challenges associated with using low power on HF is propagation on the HF bands which is more fluid than ever. There's plenty of variables. For example, in addition to the day-night cycle, there's Earth's magnetic field, the impact from coronal mass ejections as well as the solar cycle. As that cycle waxes and wanes, or in my case, wanes and waxes, propagation trends are affected on a longer term basis.

There's all manner of tools to explore this. The Australian Space Weather Service is one of many such bodies that create ionospheric prediction maps showing frequencies and their propagation through the ionosphere. Then there's the derivative ones that use this data to declare if a band is open or closed, spread widely across the globe with little in the way of context, like time, or location.

There are tools like VOACAP which attempt to predict the point-to-point path loss and transceiver coverage dependent on antennas, solar weather and time and date. They also attempt to arrive at a so-called MUF, the Maximum Usable Frequency, defined as the highest frequency at which ionospheric communication is possible for 50% of the days in a month. The LUF, the Lowest Usable Frequency is defined as the frequency at which communication is possible 90% of the days of the month.

All these tools have one thing in common. They're predictions and forecasts. They reflect an attempt at quantifying reality. There is a place for this, but my often repeated encouragement of getting on air to make some noise is advice that covers the gap between prediction and reality.

I've long been a fan of using Weak Signal Propagation Reporter, or WSPR as a tool to measure actual propagation. What I like most about it is that it can be used on your own station, using your own antenna, at any time.

It occurred to me the other day that there must be a relationship between a WSPR signal and a voice signal. Not a mathematical one, but one that makes the difference between establishing a voice contact with another station and calling CQ until you're blue in the face.

With that in mind I took a leap and purchased a ZachTek Desktop WSPR transmitter, capable of operating on all the HF bands that my license permits. It was shipped from Sweden this week and it is expected to take more than a month to get to me, likely most of that travelling between Sydney and Perth, but when it does, I'll be able to set up my own in-house 200 milliwatt beacon that will show me just how far my signal goes on the bands that I pick. As an aside, I'm still looking for a similar solution for 2m and 70cm since there are all manner of interesting propagation phenomena associated with those bands as well.

I'm still digging into how I can best gather the reception data to visualise it and I'm working on a strategy that can send me an alert when a particular band is open from my station at such a level that I can look to operating a particular mode, like FT8, or SSB, or anything

that I might choose.

The data is public, thanks to the various WSPR reporting systems around, so others in my grid square, likely beyond that, will also be able to benefit from my beacon. I'm considering generating a propagation map from my own station and publish that, but it's too early to say what's involved in making that happen.

Right now I've dived into the rabbit-hole associated with finding a suitable antenna. My current station vertical requires a tuner and I don't think that finding a way to tune my antenna every time the beacon changes band is a good solution.

I suspect that I'll also need to come up with a way to have two transmitters share the same antenna, but I'll cross that bridge when I need to.

Once the beacon arrives, it's my intention to start with 10m as my beacon band using my current antenna, since 10m is on the verge of being useful for my QRP adventures and I must confess, I'm looking forward to making a voice contact with the other side of the planet with my station for the first time in a long time.

What kinds of things can you think of that would benefit from a solution like this?

I'm Onno VK6FLAB

• *This article is the transcript of the weekly 'Foundations of Amateur Radio' podcast, produced by Onno Benschop, VK6FLAB who was licensed as radio amateur in Perth, Western Australia in 2010. For other episodes, visit <http://vk6flab.com/>. Feel free to get in touch directly via email: cq@vk6flab.com*

FG4KH Guadeloupe

Philippe, F1DUZ will be active again as FG4KH from Guadeloupe, IOTA NA-102, 20 February - 8 March 2023.

He will operate on HF Bands.

QSL via home call direct, LOTW, eQSL.

Address for direct QSL: Philippe LEVRON, Malvaux, 49570 Montjean-sur-Loire, France.

FP/KV1J Miquelon Island

Eric, FP/KV1J will be again active from Miquelon Island, IOTA NA-032, 27 June - 11 July 2023.

He will operate on 80 - 6m SSB, RTTY, CW, FT8 and FM Satellites.

He will operate also in some contests.

QSL via home call, LOTW.

Address for direct QSL: ERIC A WILLIAMS, 763 PLEASANT ST, MARLBORO, MA 01752, USA.

Back To Basics

Propagation And Ionization

From The Canadian Basic Question Book

Our question for this edition deals with propagation and the ionization of the atmosphere

B-7-4-2 What causes distant AM broadcast and 160 metre ham band stations not to be heard during daytime hours?

- A The presence of ionized clouds in the E region
- B The splitting of the F region
- C The weather below the ionosphere
- D The ionization of the D region

The 535 to 1,705 -kHz frequency band, which broadcast AM occupies, is classified as a medium frequency (MF) radio band. Medium wave signals follow the curvature of the Earth, using ground wave propagation, but can also bounce off the ionosphere at night, resulting in skywave propagation.

With the addition of skywave propagation, AM broadcast signals can travel great distances — 500 miles or more. If you've never tried it, fire up your radio some night and see how many distant AM radio stations you can tune in. As a kid and teen, getting interested in radio, I would often listen to stations from San Francisco and beyond on my inexpensive AM receiver.

The 160-meter band refers to the band of radio frequencies between 1.8 and 2 MHz, just above the medium wave broadcast band. For many decades the lowest radio frequency band allocated for use by amateur radio, before the adoption, at the beginning of the 21st century in most countries, of the 630- and 2200-meter bands.

Amateur operators often refer to 160 meters as the Top Band. It is also sometimes nicknamed the "Gentleman's Band" in contrast to the often-freewheeling activity in the 80-, 40- and 20-meter bands.

While the phenomenon of better night - time radio reception might be foreign to a generation brought up on podcasts and streaming media, anyone who grew up tuning into far off radio channels late at night (or continuing to do so) can attest to the startling clarity a midnight stroll around the radio dial can provide.

Why exactly are distant AM and short-wave radio stations so much clearer at night? While it would be tempting to imagine it has something to do with the cool night air or the silence that typically permeates the evening, the secret lies miles and miles above the surface of the Earth in the ionosphere.

During the day, the ionosphere is bombarded by sunlight which ionizes the molecules in it. At night when the sun is blocked by the Earth, the lower levels lose their ionization while the upper and less dense levels remain fairly well ionized and full of energy. During this period of time, radio waves pass into the upper reaches of the ionosphere where they collide with the highly energized electrons of the ionized molecules.

When the radio wave frequency and the electrons fall into alignment, the electrons give the signal a boost and shoot it back down to Earth. Depending on the conditions, this can happen several times in a row and, in the process, propagate the radio signal well beyond it's daytime range.

In fact, the propagation can be so significant that AM radio stations can easily broadcast in a thousand mile radius and shortwave signals can often bounce around the curvature of the Earth and be heard across oceans.

As a result of this, many AM stations either lower their broadcast power at night or kill their signal completely lest they spill over into other radio station's broadcast territory. There are, after all, only around 100 AM radio channel frequencies in use but thousands upon thousands of AM radio stations. If all stations stayed at full broadcasting power at night, the radio would become unusable across entire continents.

This phenomenon doesn't affect FM broadcasts as FM radio frequencies are propagated almost entirely by a phenomenon known as groundwave propagation.

The shifting of the ionosphere and the increased transmission length produced by extended skywave propagation has little to no impact on FM radio.

So, getting back to our question at the start of this column, the explanation for this exam question, and a couple like it, is that the D layer, lowest of the layers, is fairly dense. Once ionized during daylight hours, it ABSORBS lower frequencies (i.e., 160 m and 80 m). At night it acts like a mirror and reflects signals back to Earth.

The correct answer therefore is 'D' - The ionization of the D region.

~ John VE7TI

CY0S Sable Island

CY0S Team will be active from Sable Island, IOTA NA - 063, 20 - 29 March 2023.

Team - WA4DAN, K4UEE, W0GJ, K5YY, N2IEN, N2TU, K4ZLE, W4DKS, WW2DX.

They will operate on All Bands, CW, SSB, FT8, EME, Sat.

QSL via WA4DAN, ClubLog OQRS, LOTW.

Earlier planned they will use CY0C call sign.

PJ2/DK5ON Curacao Island

DK5ON will be again active as PJ2/DK5ON from Curacao Island, IOTA SA - 099, 4 - 22 March 2023.

He will be active on 160 - 6 m CW, SSB, FT8, FT4.

QSL via home call, LOTW, ClubLog OQRS.

Address for direct QSL:

Andreas - Christian Salder, Senner Hellweg 77a, Bielefeld, 33659, Germany.

Spring VHF/UHF Field Day 26-Nov-2022

VK2MB/portable was active in this year's [Spring VHF/UHF Field Day](#); details are still coming in, so watch this space...

The contest team started arriving at the clubhouse about 9.30am, to sort out the radios and antennas to be used, then headed off to the [JJ Melbourne Hills Reserve](#), about 1km to the south. Locator QF56OH.

A short video including a time lapse of the station setup, plus a few of the early contest CQs and contacts, can be found at <https://youtu.be/BfhCt25i1IU>.

There was a good turn out, with these operators in attendance:

•VK2BDF Phil	VK2BT Tim	VK2EAT Andy
•VK2FS Nick	VK2JPK Philip	VK2SKY Richard
•VK2TGO Geoff	VK2THT Sean	VK2VGW Graham
•VK2WA Geoff	VK2XE Greg	VK2ZYP Zara

Photos below from Geoff VK2WA and Richard VK2SKY (plus one from Tim VK2BT at the end).

Tim also adds:

"And thanks so much to Phil (VK2BDF) for supplying lunch!"

We had a great day, despite the fact that propagation was not favouring us (ie no ZL this year!). We started pretty well with our first contact from Captain's Flat, and our second contact in Orange. But there didn't appear to be too many operators on the band.

At the end of the day we all had some fun, and that is all that ultimately matters!!"

Inspecting the weapons of the day



Station's ready!

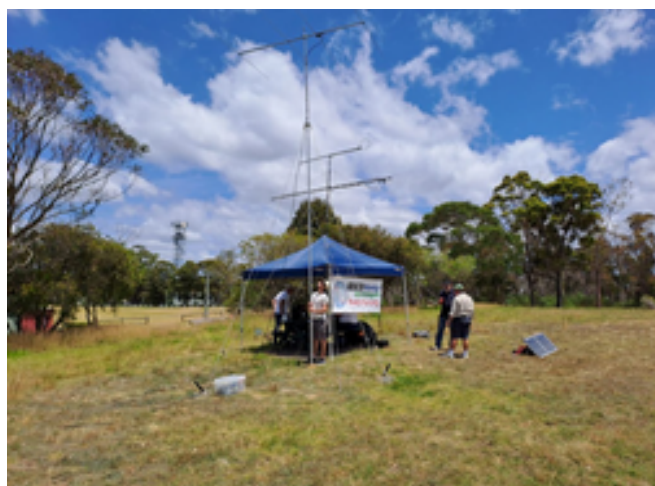


6m, 2m/70cm and 23cm antennas



A full operating table!

The station was up and running, with time to spare by the time the contest started. Greg VK2XE and Geoff VK2WA jumped right in.



Geoff VK2WA swings the 6m beam to the south, using the time-honoured "Armstrong Method"

*Andy VK2EAH and Greg VK2XE at the mics,
Tim VK2BT "Armstronging", and Zara
VK2ZYP keeping social media up to da
perhaps?*



*Richard VK2SKY even had a sneaky little
play on HF (7m squid pole with link dipole in
the background)*

One more station pic, thanks to Tim VK2BT



V47JA Saint Kitts Island

W5JON will be active again as V47JA from Saint Kitts Island, IOTA NA-104, 24 January - 8 February 2023.

He will operate on 160 - 6 m (Including 60m), SSB, FT8.

QSL via home call direct, LOTW.

Address for direct QSL:

JOHN V ABBRUSCATO, 22199 PINE TREE LN, HOCKLEY, TX 77447, USA.

D44TWO Santiago Island Cape Verde Cabo Verde

D44TWO will be active again from Praia, Santiago Island, IOTA AF - 005, Cape Verde, Cabo Verde, 3 - 21 January 2023.

He will operate on HF Bands, CW, SSB, Digital modes.

QSL via M0OXO, OQRS.

Address for direct QSL:

Charles Wilmott, 60 Church Hill, Royston, Barnsley, South Yorkshire. S71 4NG, England.

6W1/WA3DX 6W7/WA3DX 6W6/WA3DX Senegal Dakar Mbao Kaolack Saloum Islands

Earl, WA3DX will be active again from Senegal 22 December 2022 - 20 January 2023 as 6W1/WA3DX, 6W7/WA3DX, 6W6/WA3DX.

He will operate on 40 - 10m FT8 primarily.

He will be active from different locations:

Dakar – 6W1/WA3DX.

Mbao – 6W7/WA3DX.

Kaolack and Saloum Islands – 6W6/WA3DX.

QSL via WA3DX direct, LOTW.

VP2MDX Montserrat Island

Tjaore. W2APF will be active as VP2MDX from Montserrat Island, IOTA NA - 103, 3 January - 28 March 2023.

He will operate on 80 - 10m, CW, SSB.

QSL via W2APF, LOTW.

Address for direct QSL:

THAIRE BRYANT, 441 Stewart Road, PO BOX 68, EATON CENTER, NH 03832, USA.

C5YK Gambia

Andre, ON7YK will be active as C5YK from Bijilo, Gambia, until 24 February 2023.

He will operate on 20 - 10m Bands, Digital modes, CW, SSB, Digital Modes.

QSL via home call direct, LOTW, eQSL.

Address for direct QSL:

Andre Bourbon, Route de Xhoffraix 30, 4970, Hockai-Stavelot, Belgium.

TR8CR Gabon

Roland, F8EN ex CN8EM, FO8BV, 3C3CR, TR50R will be active again as TR8CR from Gabon, 29 December 2022 - 15 March 2023.

He will operate on 30 - 10m, CW.

QSL via F6AJA.

Address for direct QSL:

JEAN MICHEL DUTHILLEUL, 515 RUE DU PETIT HEM, 59870 BOUVIGNIES, France.

HR5/F2JD Honduras

Gerard, F2JD will be again active as HR5/F2JD from Honduras, 23 November 2022 - 13 March 2023.

He will operate on HF Bands CW, SSB, Digital modes.

Recent DX Spots [HR5/F2JD](#)

QTH - Copan Ruinas.

QSL via F6AJA.

Address for direct QSL:

JEAN MICHEL DUTHILLEUL, 515 RUE DU PETIT HEM, 59870 BOUVIGNIES, France.

Your committee



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