DXCC deep dive

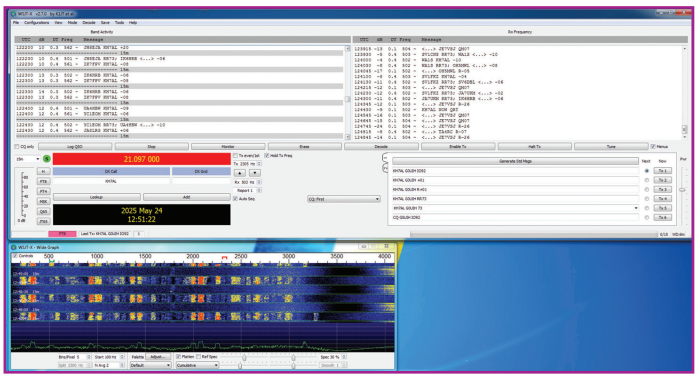

PHOTO 1: KH7AL/KH9 beaming 335° skewed path.

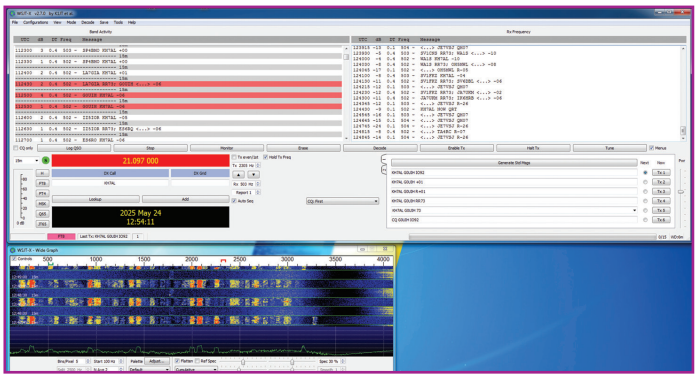

PHOTO 2: KH7AL/KH9 beaming 015 direct path.

Back in the June 2025 edition of *RadCom*, we reported that seasoned DXer Steve, G0UIH had successfully achieved the 'Top of Honor Roll' slot, essentially working all 340 current valid DXCC entities and having a QSL confirmation from each one of those entities.

Following on from this initial short news snippet, the *RadCom* team asked Steve to expand further on how this was done, with the thought of passing some of these useful DX tips on to the younger generation of amateurs and new DXCC chasers.

Background

The DXCC Program **[1]** is administered by the ARRL (American Radio Relay League). To achieve DXCC Honor Roll, an operator needs to confirm contacts with enough DXCC entities to place them within the top 10 of the total number of entities on the current DXCC list. With 340 current entities, a minimum of 331 confirmed contacts are needed. Deleted entities do not count. The top slot, as such, is DXCC Top Honor Roll. This equates to all 340 countries and entities being worked and confirmed. This is quite a feat and represents the pinnacle of DXCC achievement. It signifies a high level of dedication to contacting distant and often challenging locations.

The Top Honor Roll quest today, is considered extremely difficult, if not near impossible, given the current worldwide political climate. Some of the super-rare DXCC entities required to fill this slot haven't been activated for many years. So, whilst this may be everyone's dream, it seems like a no-go for most. So, we'll focus on the prestigious DXCC Honour Roll certificate, for working 331 or more entities. This is no easy feat and is not a walk-over. It may require many years of persistence as DXCC for most is a lifetime quest.

Many operators don't achieve the Honor Roll so don't expect to crack it in a few years. I took 33 years to get to Top Honor Roll slot which was actually pretty fast. I know others who have been active for over 70 years and have yet to crack it! Honor Roll, though, should be more achievable for those with the right mindset.

Whilst some of the present DXCC counters **[2]** are, for various reasons, not active on the bands, some of the more rare ones, such as Bouvet, Peter I Island, South Georgia and St Peter and St Paul Rocks are coming up within the next two years – so chasers should be ready to pounce.

With this in mind, I've put together some tips to aid budding DXCC chasers.

Using newer digital modes to increase your tally

A while back, before mainstream digital modes, – SSB and CW were the modes of choice, but with some RTTY thrown in for good measure. Generally, you needed a reasonably good antenna system and of course QRO would help you get the job done. However, things have changed in the last few years.

Since then, there's a whole array of newer digital modes available such as FT4/FT8 which will enable the chaser to grab that illusive new entity with even a modest set up.

The great thing about new digital modes is that chasers don't need large antenna arrays and kilowatts of power. Digital modes are super-efficient and FT8 can decode at up to -24dB below the noise floor. Nothing else comes close. Those with lower power and a modest antenna setup can successfully work these rare DX stations. We're also seeing that many of the rarer entities fully acknowledge this and are frequently active using modes such as FT8 giving modest stations a chance to work that rare all-time new one (ATNO). The main FT4/8 software in use is WSJT-X **[3]** by Joe Taylor, K1JT.

FT8 also has a couple of neat tricks up its sleeve. It can work multiple stations at one time. Without getting too far into the technical side, DX stations working multiple streams of FT8 using Fox/ Hounds or Superfox modes can rattle out a huge number of stations in a short space of time reducing the waiting time for the hounds to get through – which is good when there is a large pile-up. Also, a station with a -10dB signal received by the DX has the same chance as a station with +10dB. So having high power and large antennas doesn't mean you'll be first in. However, there is a

PHOTO 3: QSL cards to whet your appetite.

PHOTO 4: G0UIH's antennas.

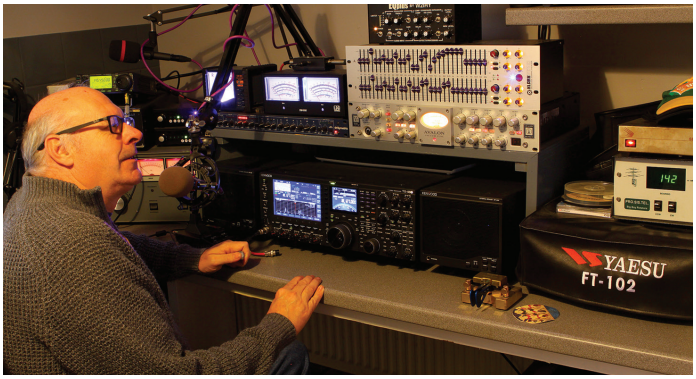

PHOTO 5: The G0UIH shack.

knack to working DX on digital modes and it just isn't a 'fire-forget' and work scenario. It requires knowledge about the mode, propagation, the software and how the DX is working. For instance, in FT8 F/H mode you (the hound), needs to call the fox above 1000Hz. There is a good rundown on FT8 workings of fox/hound (often called DXpedition mode) at DXMaps **[4]**.

I was QRV watching KH7AL/KH9 on 17m FT8 Superfox mode and he was working ten stations per minute. You can be part of this – even with modest equipment.

You'll also often see the major DX stations begging for QSOs during the later part of their activations, having worked all the 'big guns' earlier on. If you have limited resources, then let the big stations in during the first week or so and then start looking the week after. You may be pleasantly surprised.

For instance, here are two screengrabs (**Photos 1** and **2**) from Allen, KH7AL/KH9 **[5]** on Wake Island in the centre of the Pacific which is probably a new one for many. See how the skewed path (335° from the UK short path) signals are between +10 and +14dB – yes you read that correctly! Compare this with the +01 and +04dB beaming direct at around 15°. OK, there's some 'No Decodes' which are shown as <....> mainly due to the polar path from the UK which is known to sometimes interfere with the FT8 signal, but it shows that digital modes are not just a 'fire-and-forget' scenario.

For reference, Allen is a great operator and embraces both SSB and CW. He is very happy to hop on to FT8. He varies his schedule on a weekly basis and is open to skeds to accommodate stations, especially for those from EU. Check out his itinerary and drop him a line – I did!

Also worth a visit is the WSJT-X and the associated IO Groups forum **[6]**. The forum is great for FT newbies and there is advice from a very experienced user base who are happy to help get you going.

There is plenty of additional FT8 advice around online – too much for this article but here is my steer for those wanting to enhance their DXCC numbers using FT8 (Most DXpeditions use FT8]).

Normal FT8

If the 'DX' station is working (normal) FT8 then make sure your Tx frequency doesn't match that of another station, otherwise you'll be competing with the other station. Pick a quiet slot on the waterfall which is not occupied by anyone else. Call the DX station and wait for a reply.

FT8 using Fox/Hound mode

In this case, you are the hound. My number one rule is to not transmit below 1000Hz as the fox will never hear you and you'll just cause QRM. My advice is to pick a vacant slot above 1000Hz but not above 3500Hz unless the fox has previously said they'll be QRV with a wide-banded Rx. In this mode, the fox can transmit multiple streams but the more streams they use, the lower the signal you'll receive. In this mode, the fox will always transmit below 1000Hz. When you are acknowledged, the fox will respond, and the hound's frequency automatically shifts down to the fox's frequency for the rest of the exchange. Fox/Hound mode helps the DX operator work more stations per minute than when using normal FT8. It's probably about 2-3 times as fast. FT8 Fox/Hound is the primary DXpedition mode using FT8.

FT8 Using Super Fox/Hound:

In FT8 Superfox/Hound, the fox transmits full power on 750Hz as a single stream. The hounds can transmit anywhere, although usually each hound would pick a clear frequency. I normally look above 1000Hz up to around 2500Hz. It's usually a good choice. In Superfox/Hound mode the DX operator can be working up to around ten stations per minute. It's great for big pile-ups and if they can hear you (even with your wire and 100W), you will at some point get through, although the time it takes can vary considerably depending on the density of the pile-up. Superfox/Hound is normally only used by major DXpeditions and many report their intentions to use this method beforehand.

How do I get an official QSL confirmation and isn't there something special about having a physical paper QSL card?

QSLing has evolved over the years but here's a few tips on what may help you. Having a physical card is great! We all love a brand new DXCC paper QSL dropping through the mail. As long as the DXCC desk approves the activation (very few fail) – it's the final rubber stamp and the icing on the cake that validates the QSO. It's satisfying to have a new card in the collection but it's also becoming super expensive. So, we'll look at alternatives. To whet your appetite, I have included a handful of QSL cards that would sit well in any collection (**Photo 3**).

Logbook of the World: getting DXCC Confirmation

In the past, getting a hard copy physical paper QSL was always generally considered to be a fairly straightforward and easy affair. However, in the past few years or so, the cost associated with exchanging a paper QSL card has risen to heights that many in the hobby just can't afford. The present levels of contributions are upwards of $3 – and often more.

But it doesn't stop there. Many DXpeditions may ask for up to $6 for a physical card. So, collecting paper cards is becoming a hobby for only the well off. However, if you're not too bothered about a physical card, then Logbook of the World could be your tool of choice and you'll save a packet on QSL costs.

Steve Lawman, G0UIH
g0uihsteve@aol.com

PHOTO 6: GØUIH's Top of Honor Roll Award.

If you're happy, many activations confirm via Logbook of the World (LoTW) [7] for a lot less. Even so, I'm finding that some stations seem to be supplementing their activation costs by also charging for LoTW confirmations – so not everyone plays ball! In my honest opinion, it's not in the amateur spirit of the hobby but if you want DXCC Honor Roll then you may have to take this on the chin, just so you're aware! To be honest, there's no reason for anyone using LoTW to charge for it. It's a simple log upload, nothing more, and the DX station doesn't need to do anything special. There's plenty of debate around this already and would make another feature in its own right. It is, though, one method to help reduce your outgoings and by registering you can help alleviate your expenditure to some degree. OK, you won't get a physical card but you can get confirmation towards your DXCC Honor Roll goal.

I've heard of Clublog. Will this help me on my DXCC journey?

Clublog [8], by UK amateur Michael Wells, G7VJR, is an online statistics system for DXers and Dxpedition log hosting tool. It is thoroughly recommended. There's a large array of DX tools on the site for budding DXCC chasers. Many DX stations use Clublog and enable their own call making it much easier for chasers to get cards. Some DX stations only use Clublog as a means to obtain confirmation.

For instance, the DX station doesn't normally want or require your QSL card. It's the other way round. You require the DX station's card, or at least LoTW, for DXCC. If the DX station has enabled the QSL function, Clublog will let you request the DX card in an easy online fashion meaning you don't have to send.

I will add, though, that the majority of DX stations normally ask for a contribution to cover their own expenses. This can be up to $5 (although many are cheaper) but don't be surprised if some request more. It's actually your own choice whether to confirm via this method but, ultimately, you'll need either a physical printed card or LoTW confirmation. There's no other way round this to get to DXCC.

I work a lot of SSB with modest antennas. What will help me crack a pile-up?

Over the years I found many faults with my own SSB setups. I always liked good 'round and deep' SSB transmit audio. OK, it's fine in a round-table chat working fine with glowing 5/9+ armchair copy reports. This doesn't however work very well for DX with lots of QSB and QRM from others calling in the pile-up.

I'm a big fan of top-notch audio and much of my station is cramped with various microphones and audio processors, but these gizmos didn't always help in the pile-ups that much.

I actually found my go-to mic in chasing DX was the Kenwood MC90. OK, it's mated with my TS990 but with experimentation, I found the following settings gave great SSB audio over a standard 3kHz bandwidth when working DX with the processor enabled and a little compression of around 5dB. Here are my settings used as a default for calling in the pile-up.

Up to 150Hz – Reduce by 4dB
250Hz – Reduce by 3dB
2.8khz - Boost by 5dB
Anything above 3kHz can be ignored (or set flat).

Most audio engineers say that anything above 3kHz (for amateur radio use) is wasted. It's the same as having a big low-end boost that sounds great locally, but will never in 100 years break an SSB pile-up. It will just sound like thick mud. If you use settings close to the above, you'll be in good shape to help break the pile-up or stand a reasonable chance of being heard. Many modern rigs enable you to tailor your audio settings, but the most important area is to enhance the voice frequencies around the 3kHz region. That's the part of the spectrum where you'll get the most benefit.

You can see my antennas and shack in **Photos 4** and **5**.

I'm on SSB and the DX says 5-10 up. What's your advice?

There's no right or wrong here and, to some degree, there's a certain amount of luck involved but I'm commenting here based on my many years' experience on the bands.

I'd say, when working 5-10 up, work 5 or 10 up and stay there. I, many years ago, thought that I'd split the difference in thinking that if I transmitted 7.5kHz up then I'd be heard wherever the DX was listening. Over time, 10 up was normally a good choice.

Good DX operators may give a particular frequency. I've heard more recent activations working between 5 and 50kHz up. That's a really wide area and would normally be a real lottery, but often they'll say 'QRV on xxx' and listen there. It's a case of understanding the habits of the operator.

New DXCC advertised?

There are many activations that are keen to help you get them as a new entity, although asking when they are active is not a good move. If you really need that elusive contact, then drop the team a line asking about their band plans prior to the activation starting. I'm not saying they'll come looking for you, but you can probably get some positive information on their operating habits and where best to find them beforehand. Many activators want to be a new one in your log and will normally help you work them.

73 and good DX!

I hope this has been useful and that readers are successful in making DX contacts.

My Top of Honor Roll award can be seen in **Photo 6**.

References

[1] DXCC Info: http://www.arrl.org/files/file/DXCC/rule%25201_u_v.pdf
[2] DX World: https://www.dx-world.net/category/iota-news/
[3] WSJT-X digital mode software by Joe Taylor, K1JT: https://wsjt.sourceforge.io/wsjtx.html
[4] DXMaps: https://www.dxmaps.com/FT8_DXP.html
[5] KH7AL/KH9: Wake Island Activity Diary: https://kh7al.site/kh9-upcoming-activity/
[6] WSJT-x IO Groups: https://wsjtx.groups.io/g/main
[7] Logbook of the World: http://www.arrl.org/quick-start
[8] Clublog by G7VJR: https://clublog.org/about.php