The News of the

SWAMP FOX CONTEST GROUP

Tales From the Swamp

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March 2022

Presidents Corner

No announcements this month.

Reverse Beacon Network
Information Gathered from RBN site

The Reverse Beacon Network is not a new idea. It is a system of beacons actively transmitting signals, the RBN is a network of stations listening to the bands and reporting what stations they hear, when and how well.

So why should you care? Well, to begin with, you can see band openings in near-real time on an animated map. You can call a quick CQ, and see which reverse beacons hear you, and how strong you are.

But the real breakthrough is in the database of past "spots". You can instantly find out what stations, from a given country or zone, have been heard, at what times and on what frequencies. You can see when you've been spotted, who spotted you, and how loud you were. "But wait," as they say on the TV ads, "there's more!" Now, for the first

time, you can compare your signal with those of your friends and competitors, in near real time or historically. If you wonder how your signal stacked up during last weekend's contests, the Signal Comparison Tool will give you real, quantitative data. Tell it what stations you want to compare, based on signals heard by a given reverse beacon on a certain band at a certain time, and there you'll have it. Of course, whether you like what you see is up to you. The Reverse Beacon Network depends on volunteer stations. Currently, we have a few dozen, some active almost 24/7, others coming up only occasionally. We have decent coverage in North America and Europe, but can always use more. It needn't cost a lot, or tie up your station equipment.

A Short History of the Reverse Beacon Network

(originally published in the US National Contest Journal, September-October 2012)

In only 6 years, the Reverse Beacon Network (RBN) has become an established part of the contesting universe. No serious assisted or multiop contest station can afford not to use RBN spots, which now are distributed via more than 100 DX cluster nodes worldwide.

The Beginning

CW Skimmer, software capable of decoding many CW signals at once, was released in early 2008. At the time, the author Alex, VE3NEA viewed it primarily as a DXing tool, permitting efficient monitoring of pileups. No surprise that contesters soon saw how they could use it to increase their scores, and controversy quickly erupted as to whether contest rules should permit the use of skimmers. After Alex added telnet capability, potentially permitting a local skimmer to feed spots directly to contest logging software, the debate took over the CQ-Contest reflector. Was this assistance, like the DX cluster? Should its use be permitted at all?

Meanwhile, the idea of a Reverse Beacon Network arose out of an e-mail exchange in March 2008 between PY1NB and me. Felipe had been running a unique DX Web site, DXWatch.com, for several years.

It offered DX spot filtering tools and mapped spotted contacts on a world map. I had been working with VE3NEA since late 2007 to test, develop and refine CW Skimmer. Felipe saw a way in which the basic framework of DXWatch could be adapted to display skimmer spots.

Also in March 2008, Felipe wrote the first aggregator software, intended to receive spots from skimmers telnet servers and transmit them to the Web site for display. The Web site was initially the only way to view skimmer spots, and at first we thought of it primarily as a tool for viewing and studying propagation. We began recruiting contesters and DXers to act as reverse beacons in late March, and the RBN was born.

Through the spring and summer of 2008, controversy raged in the contesting community over whether non-assisted single operators should be allowed to take advantage of this new technology. Just in time for the fall contest season, opinion coalesced around putting CW Skimmer and the RBN in the same category as traditional DX cluster spots, limiting their use in contests to the assisted and multiop categories.

For the remainder of 2008 and through 2009, the RBN focused on developing its network of stations distributed around the globe. Nick, F5VIH/SV3SJ, joined the RBN team in 2010. His computer science background was a great asset, and in March, he rolled out the Signal Analysis Tool, a way to graphically compare signals of multiple stations on multiple bands, as heard by a single skimmer anywhere in the world.

Growth Spurt

A couple of key hardware and software developments added momentum to the development. The SDR-IQ receiver offered by RFSpace (**www.rfspace.com**), especially when used with W3OA's SkimScan software, made multiband spotting with a single receiver possible for the first time. Then, Phil, N8VB, released the QS1R software-defined receiver, with a large field-programmable gate array. In summer 2009, VE3NEA released Skimmer Server, software that could simultaneously decode a swath of up to 192 kHz on up to seven

bands, using the QS1R. It was, and remains, a programming tour de force.

As more and more of these receivers made their way into the field, the number of RBN stations continued to grow, and because of these developments, the number of spots received grew almost exponentially. By spring 2010, the RBN was feeling serious growing pains. During the ARRL International DX CW that February, the database server was unable to handle the sheer volume of spots, and it crashed repeatedly.

Adding Telnet

At about the same time Alex neither memories nor records are quite clear it occurred to us that it might be beneficial to provide RBN-derived DX spots to the worldwide contest and DX community through a telnet server, using DX cluster software. Initially, we were very concerned that the large volume of RBN spots would inadvertently overwhelm the traditional DX cluster network, provoking a worldwide backlash, but we decided that, if worst came to worst, we could always shut down the server.

The potential benefit of providing spots in a format usable by any contest logging software was just too tempting not to try it, so Nick wrote software to link the RBNs database server with a Telnet server. In April 2010 the RBN Telnet node debuted, on a server provided by Rick, K4TD. Almost immediately, it proved very popular, to the point where the server quickly reached full capacity. During the 2010 ARRL November Sweepstakes CW, it collapsed under the load, and many spots were never forwarded.

This would not do. As a stopgap, we added a second temporary server, using AR Cluster software and running on a laptop in my shack. In November 2010, just in time for the CW World Wide CW, Dave, KM3T, joined the RBN team, and George, K5TR, contributed an additional server. Nick made important changes to the server and database infrastructure, and Dave, Nick and Felipe worked hard to ensure that the RBN servers would not fail during the contest. They succeeded, and in 48 hours the telnet servers delivered more than 1.7 million spots from 60 to 70 skimmers, without serious incident.

What really saved our bacon, though, was the decision by DX cluster software developers to support skimmers and non-skimmer modes, so RBN spots could be distributed by many cluster nodes, rather than directly from the RBN. In September 2010, VE7CC and VE1DX began distributing RBN spots through their cluster servers. Shortly after that, AR Cluster version 6 was released in beta with similar provisions and an advanced filtering scheme. In March 2011, a telnet server using AR Cluster version 6, donated by Jamie, W2QO, was added to the RBNs facilities, spreading the load and allowing for easy distribution of skimmer spots to AR Cluster version 6 clusters worldwide.

Today

In September 2011, Dick, W3OA, joined the team and produced the first Windows aggregator. The beta was a big success, and in succeeding months he delivered increasingly sophisticated versions of the software, which is now in release 2.6, with 3.0 currently in beta. The RBN delivered close to 100 million spots in 2013. Another omen the number of Skimmers online with the RBN on a typical non-contest weekday rarely dips below 100, and something over 150 different Skimmers were on the network during CQWW CW.

Whats Next?

As far as hardware is concerned, we are in a period of watchful waiting. At some point the database server will max out. This probably will make it necessary to separate it from the Web server, but we seem to have a little way to go yet.

After CQWW 2013, we replaced the original DXSpider Telnet server with another instance of ARCluster V6, because the older, single-threaded software is no longer capable of handling the volume. Felipe is working on a new GUI for the website, to permit more flexible searching and better performance in general.

While the total number of skimmers is growing satisfactorily, we continue to need more coverage in some areas. 2013 saw Chinese amateurs put three new nodes on the air, including one in Urumchi, close to the most remote spot on earth.

Also, in 2013, the Yasme Foundation graciously funded the establishment of a full-capability node in Bangalore, India. We are currently working with IARU Region 1 to secure one or more additional nodes in equatorial Africa. There is no shortage of things to do.

Lessons Learned

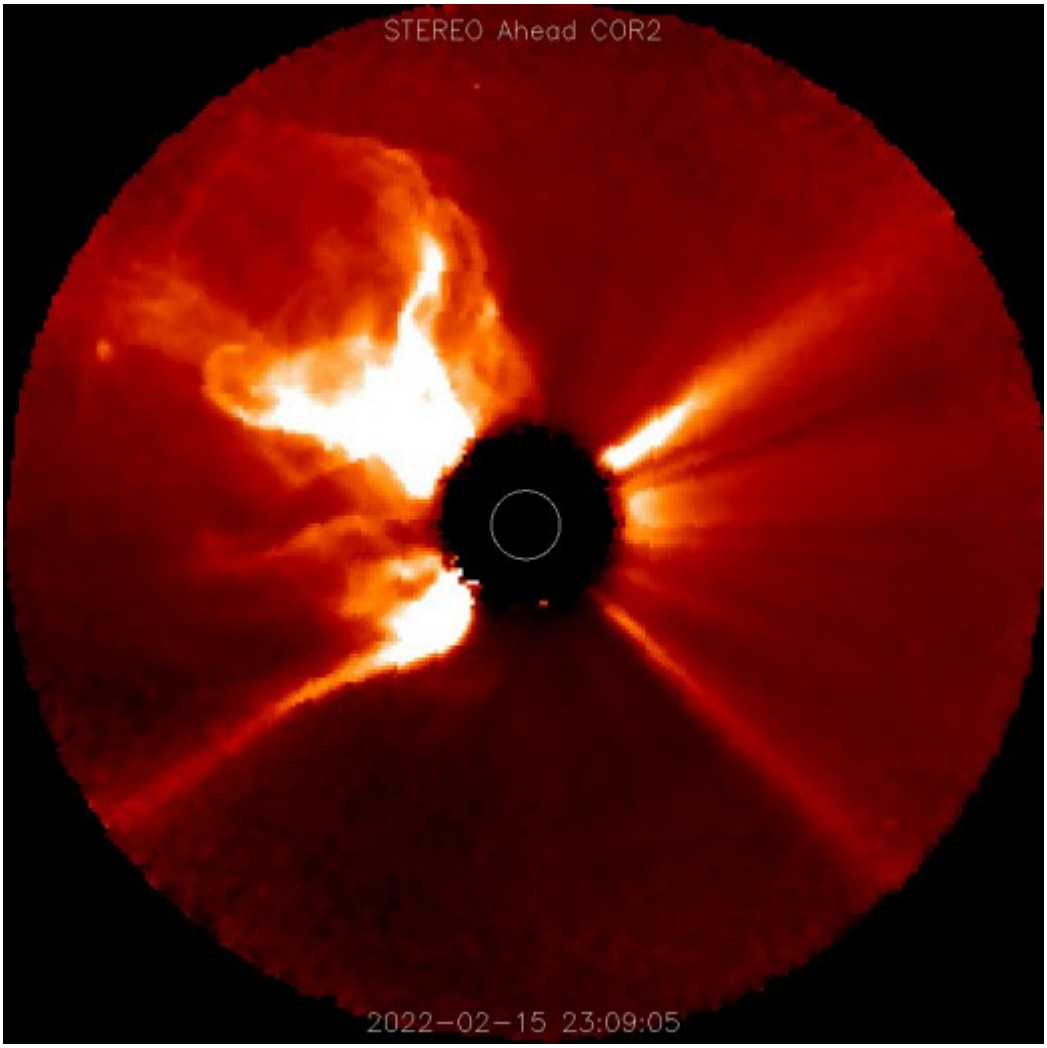
Probably the most important lesson we all learned is that technological breakthroughs can have entirely unexpected consequences, but that, in the end, the genie cannot be put back in the bottle. Nobody knew that Alex's CW Skimmer would have such an impact. My e-mail exchanges with him at that time make interesting reading, if only to demonstrate how little we understood where the technology would take us. Each advance in the use of CW Skimmer and the RBN has been due to the willingness of all those involved to go with the flow.

Volunteer contributions are the key to the RBNs success. Each skimmer setup represents an individual contribution to the project, and except for Felipes DXWatch server, each of the servers has been donated. We've also received hundreds of dollars in PayPal contributions from users around the world. These all have all been plowed back into the cost of expansion.

Coordination of the project would not have been possible without the Internet, and particularly Skype instant messaging, among core participants in France, Brazil and several parts of the United States. When I reflect on how far we've come in the last 20 years, I am amazed. This project would not have been possible two decades ago. All of the pieces hardware, software, the Internet, and especially volunteers have made it happen.

Where will we go from here? Stay tuned!

http://cms.reversebeacon.net/sites/cms.reversebeacon.net/files/2018-04/The RBN and You.pdf



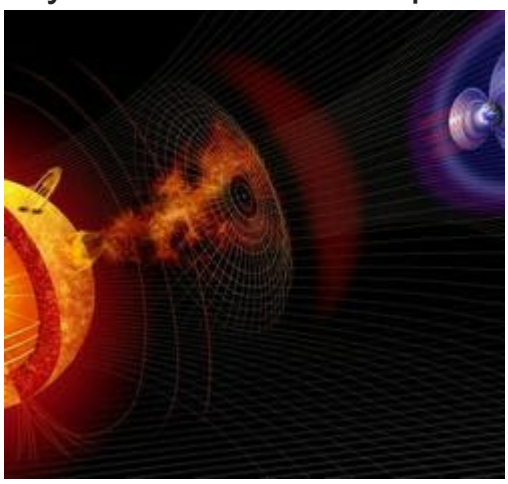
Looks like another huge CME was hurled by the sun on the far side. Looks like Cycle 25 may be like playing Russian Roulette with the sun but instead of an empty chamber it will be empty space. A loaded chamber will be akin to one directed at earth.

Earth might have just dodged a bullet. Earlier today, NASA's STEREO-A spacecraft observed a tremendous coronal mass ejection (CME) emerging from the farside of the sun. Helioseismic maps of the sun's farside suggest that a huge sunspot group may be responsible, and it will soon turn to face Earth.

Geomagnetic Storm Leads to Loss of Up to 40 Starlink Satellites

The Sun can be one of the most beautiful sites visible from our little planet. Other times it can be terrifying. Back on February 4th, the European Space Agency's Solar Orbiter captured an image of a giant solar eruption. During the eruption, the Sun literally belched hot plasma 2.2 million miles into space. This same solar eruption produced the affects below.

A geomagnetic storm on February 4 "significantly impacted" the launch of some 49 Starlink satellites. The company said the satellites were intended to achieve low-Earth orbits after being sent aloft on a Falcon 9 launcher. Starlink is a satellite internet constellation operated by SpaceX to provide satellite internet access. SpaceX said it initially deploys its satellites into low-Earth orbit so that "in the very rare case any satellite does not pass initial system checkouts, it will quickly be deorbited by atmospheric drag." All did not go as planned, however.



"Unfortunately, the satellites deployed on February 3 were significantly impacted by a geomagnetic storm on Friday [February 4]," SpaceX announced this week. "These storms cause the atmosphere to warm and atmospheric density at our low-deployment altitudes to increase. In fact, onboard GPS suggests the escalation speed and severity of the storm caused atmospheric drag to increase up to 50% higher than during previous launches."

The satellites were commanded into a safe mode, where, as SpaceX explained, "they would fly edge-on (like a sheet of paper) to minimize drag -- to effectively 'take cover from the storm' -- and continued to work closely with the Space Force's 18th Space Control Squadron and LeoLabs to provide updates on the satellites based on ground radars."

A preliminary analysis showed that the increased drag at the low altitudes prevented the satellites from being moved into higher orbit, and up to 40 of the satellites will reenter, or already have reentered, Earth's atmosphere.

"The deorbiting satellites pose zero collision risk with other satellites, and, by design, [burn up] upon atmospheric reentry -- meaning no orbital debris is created and no satellite parts hit the ground," SpaceX said.

Other News from Elon Musk

Also if you did not know Elon Musk was asked and he provided Starlink to the Ukraine gov't. Here is a short piece about that below.

AND he commented in his Twitter account, "Hate to say it, but we need to increase oil & gas output immediately," Musk tweeted Friday. "Extraordinary times demand extraordinary measures."

@ElonMusk, while you try to colonize Mars — Russia try to occupy Ukraine! While your rockets successfully land from space — Russian rockets attack Ukrainian civil people! We ask you to provide Ukraine with Starlink stations and to address sane Russians to stand," Fedorov said.

Musk was quick to respond, stating that SpaceX had activated its Starlink internet service in Ukraine and that it was sending additional Starlink tech to the country. "Starlink service is now active in Ukraine. More terminals en route," Musk wrote on Twitter.

And today, just two days later, Fedorov shared the image of the newly-arrived terminals in Ukraine.

"Starlink — here. Thanks, @elonmusk," Fedorov tweeted, to which Musk replied: "You are most welcome."

But Musk is making good on his promise in more ways than one. Not only did the technology arrive in Ukraine, but there are already reports showing that it's up and running.

"Success! SpaceX Starlink is working in Kyiv, Ukraine!" Twitter user Oleg Kutkov stated online. According to Kutkov's post, they were connected with download speeds of 136.76 Mbps and upload speeds of 23.93 Mbps and they were able to access Starlink internet with their iPhone.

Kyiv, a city of 2.8 million people and the capital of Ukraine, is one of multiple areas in the country where Russian attacks have been reported. For days, Kyiv has been bombarded by missile strikes, according to the New York Times.

Kutkov's successful connection in Kyiv was also lauded by astrophysicist and satellite tracker Jonathan McDowell on Twitter. With this access, the Starlink satellites are "providing internet independent of local infrastructure. Kudos to SpaceX," McDowell said.

SpaceX's Starlink internet service is designed to provide high-speed broadband internet access to remote areas around the globe that may lack such infrastructure. This is achieved via a megaconstellation of Starlink internet satellites, which SpaceX has been routinely launching to low Earth orbit. There are currently over 2,000 functional Starlink satellites in orbit and SpaceX has clearance to launch up to 12,000 of the spacecraft, though the company aims to launch 30,000 more.

Some of us may benefit from Starlink in the near future.

Here is a link to a good YouTube video that can answer your questions about CMEs and EMPs that took down 40 Star Link satellites.
https://www.youtube.com/watch?v=onKSxMOK_hI&authuser=0

Below is a link to a YouTube video that explains what the space weather numbers mean. I found it easier to understand than other videos I have watched. If you like it you can find part two pretty easy in YouTube.

(13) RAIN Hamcast #48 - HF Propagation 101 (Part 1) - YouTube

MMANA Antenna Modeling Software
Edited by Scott Brown

Another program for Antenna Modeling and its free! Plus easy to use!

Download MMANA-GAL by MM HamSoft (informer.com)

MMANA-GAL basic (gal-ana.de)

RSGB 2020 Convention Online presentation - Antenna modelling with MMANA-GAL - YouTube (Look what club makes the first comment about this video)

Part 1 - Idiot Guide to Antenna Modelling - Vertical and Dipole - YouTube

Antenna Modelling for Complete Beginners - Model your own Dipole, Vertical or Loop - MMANA NEC - YouTube

From the reflector

Dave Edmonds posted a teriffic link below to interfacing radios to computers. Its a very up to date and everyone should download it! Thanks Dave

https://www.kkn.net/~n6tv/Everything%20You%20Need%20to%20Know%20About%20USB%20and%20Serial%20Interfaces%20by%20N6TV.pdf

Dave also posted this great report> I also heard Bob AA4MC, Bill N4IQ, Matt NU4E and Kevan N4XL knocking on the DX doors.

Lots of very good SF scores this year.

I found it interesting that the DX ops were very patient and they wanted to complete an accurate QSO. I made it my normal practice in this contest to not send a report until the station sent my callsign to me in his exchange. Using this approach my NILs woild be much lower.

I did work a number of stations the i could barely hear. I called and they responded. There were also some rather large piles that i was able to crack with few attempts.

I was able to work multiple JAs with some effort and i grabbed the VKs abd ZLs. I did work TF3, OX7, D4 and 5Z4. I didn't hear many AF stations….not even CN8AA or the other CN stations. My rare 80m DX opportunities really came alive in the contest.

73
Dave AFP

On Sat, Mar 12, 2022 at 9:32 PM Bill Chartier N4iQ <bill.n4iq@charter.net> wrote:

I found the source of my massive noise problem emanating from the NW. It affects most of my HF bands. It is severe enough that it makes a meaningful contest effort impossible.

The houses behind me in the NW direction are about a quarter mile away from me. I can't see them as it is all woods in between. An owner there put in a large set of solar panels this past January. That is when my problems started.

Today I talked to the owners. They are cooperative and want to help but it will require the solar panel installer to also cooperate. On top of that, I wax told two more houses on the street will soon be getting the same solar panels. Now I will have to deal with three sources.

We used to be worried about internet broadband (power line) hf interference but these solar panels (inverters) are a much worse problem. They are being installed everywhere and are being promoted by governments and utilities. And good luck fighting the installers and many of the owners. These solar panel installations are not isolated cases and are becoming pervasive.

I can still operate but I have to find useable spots between the hash. Really disgusting.

--
Bill N4iQ

Many of us commented saying they were glad you determined the issue. Please keep us up to date how this progresses.

https://www.g8jnj.net/

Kevan N4XL posted the above link to many interesting articles. I sure everyone can find something of interest.

Soloar cycle 25 is working well. A few great contacts have been made.

I worked Reunion Island FK4KR in the Indian Ocean, zone 39, on 10m.

Ted K7OM

Worked FK8IK in New Cal. Cool Q.

At 101/75 22725

How yall doing?

Dave afp

Was looking for an old email from March or last year and found this from my comments about 2021's contest. Maybe it will help someone this weekend. YMMV.

This is very helpful from Kevan!

"- Rediscovered the benefit of turning the RF gain way down on a crowded band while S&P. It isn't just the better receiver dynamic range that gives, it also helps weaker signals overcome QRM from strong adjacent signals in the audio range as well. It acted like a supplement to good filters. Kept forgetting to turn it back up when I went to the less crowded and quieter bands though."

Kevan N4XL

That is it for this month,

73 N2OG