

We'll be ZOOMing our next Meeting

Time 7:00 PM February 9  
(Wednesday)

ZOOM: meeting 899 2044 1717

[Here's how to join a ZOOM meeting:](#)

[https://us02web.zoom.us/j/89920441717?  
pwd=U29pSGlXalBJc2lxLy9xVWZJUFhSZz09](https://us02web.zoom.us/j/89920441717?pwd=U29pSGlXalBJc2lxLy9xVWZJUFhSZz09)

There's also a direct link to ZOOM posted at:

[http: www.redxa.com/](http://www.redxa.com/) [Check your email for the "Meeting ID" and password. You should have received an email with this information. If not, contact one](#)

# SUNSPOTS



**REDWOOD EMPIRE DX ASSOCIATION**

P.O. Box 750834, Petaluma, CA 94975

**Volume XXIIIV**

**Number II**

**February 2022**

## **Club Officers:**

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Ed Schuller. K6CTA

### **EDITOR:**

Alan Eshleman, K6SRZ

## **Meeting Announcement**

**We're meeting by ZOOM on February 9**

**Steve Dyer W1SRD will present a program on the  
VP8PJ 2020 expedition to South Orkney Island**

**The expedition Web site is [www.sorkney.com](http://www.sorkney.com)**

## **President's Commentary**

**Come to the meeting to get updates and pro-  
jections as to when we can meet in person!**

## January Meeting Minutes

Our President Bill WX6B chaired the meeting over Zoom. We had up to 13 checkins. We had a good discussion on meeting in person. Bill reported that Daniel from the Boulevard Café says he can now support Saturday .noon meetings. It was decided that March would be first month we would try for to have a Saturday, in-person meeting. All this depends on how the Omicron wave treats us.

We had discussion of how the online roster on the REDXA web site is maintained which led to a decision to cancel the clubs POB and use Bill's POB [shown below] for mail in dues and other correspondence. The REDXA web site, insurance documents, and checks need to be changed to reflect this change.

The club is in the running for a CQP award and Jim K6JS is going to notify NCCC that the roster he sent ARRL should be used for CQP verification.

Bill solicited everyone for ideas on where the club is going and of course contributions to Sunspots are always needed and appreciated.

There was discussion of the club and multiop contest operations but not a lot of interest primarily due to Covid.

The meeting concluded at 8:05PM. The meeting was recorded so those who missed it can view the video.

Roger, N3RC

The new Mailing address for REDXA is:

PO Box 3602, Santa Rosa CA 95402

## On the Road Again with N6YEU

Parks on the Air Activations in Oregon

My wife and I decided to take a trip up north to Brookings Oregon . My original intent was to enjoy some steelhead fishing on the Chetco River but the weather conditions were so poor that no rain had fallen for a couple of weeks and the river was very low and clear which makes it extremely difficult to catch the "fish of a thousand casts". I decided to take advantage of being in an area that had little POTA activity.

We stayed 7 days at Harris Beach State Park just north of town. I strapped my Spiderpole and inverted vee to our trailer and operated 3 different days from our campsite for a total of 403 qsos working 43 states and TI5,JA and KP4 for DX on 20,30 and 40 cw and ssb.

I then decided to go more "portable" and went up river 8 miles to Alfred Loeb State Park K-2811 for the afternoon. I set up down on the gravel bar next to the Chetco River and had a very good day. 173 QSOs on 20 and 17 cw/ssb. Although down in a canyon I had many S9 signals and worked 35 states and XE and HI8. The day before at main camp signals were very weak and seemed to be one way type propagation as I could tell others were copying me but they were ESP at best.

I then decided to go south on 101 to almost the CA state line to a small park called Winchuck State Recreation Area K-9585 which is a small coastal access to the beach and mouth of the Winchuck River. I had a problem with a broken connection on my dipole but was able to use an alligator clip and get back on the air. I had a total of 104 qsos with 32 states plus 2 with a JA on 17 cw and ssb. Checking my logs for the three parks I managed to work a total of 680 qsos with all states except HI,MA and NE. DX was JA,TI,HI,PR and XE Lots of VE also.

Headed home on Sunday 6 Feb. and passed several POTA parks but no time to set up and activate. This is leaving it open for some of you to get out and operate portable there. I have been enjoying POTA and it really has become super popular.





Fred suggests for those who are interested, checking out the Parks on the Air Web site.

<https://parksontheair.com/>



## Antenna trouble shooting with K6SRZ. This is *not* a how-to-do posting



Top: the tiltable lower section of a Tasjian 52 foot tower during installation. Note that the top of the tower can be reached from a 10-foot step ladder.

Below: looking West toward the K6SRZ home with the antenna pointed correctly.



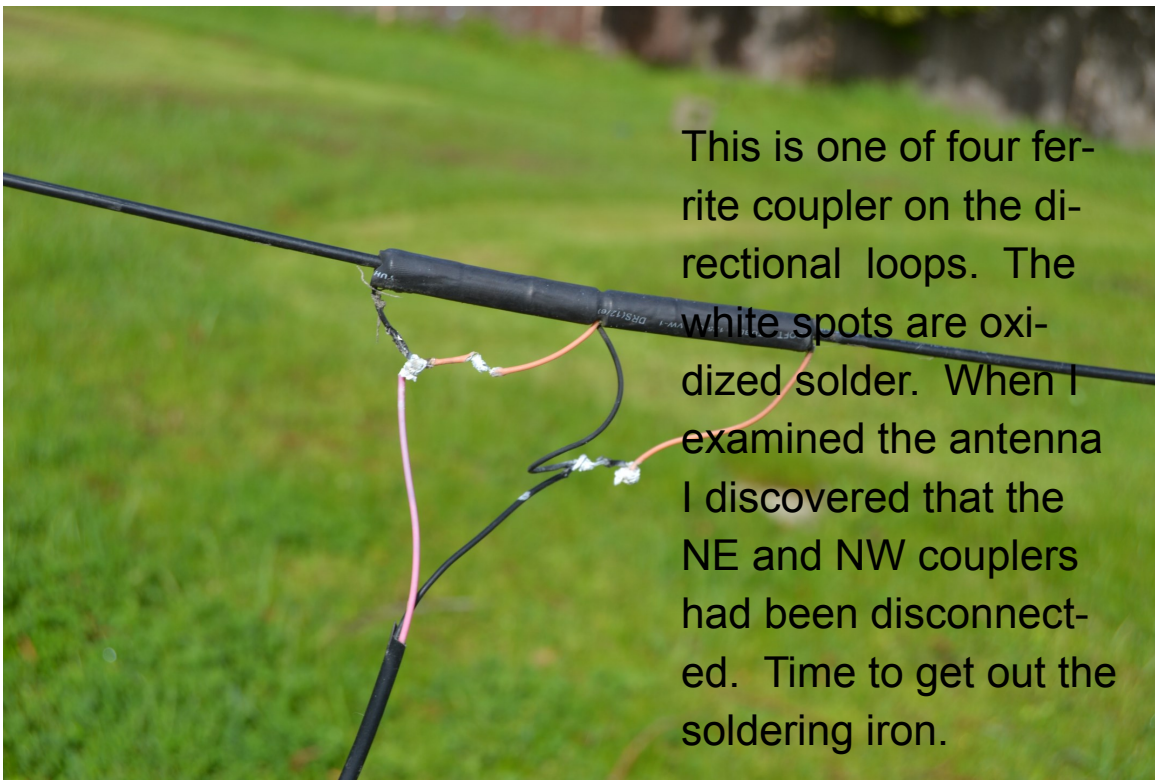
Following the mast-to-boom repairs, I turned my attention to 80 and 160. The SAL 20 receiving antenna was completely out of whack. The NW and SW directions produced no signal at all and the other directions gave strange results. In the directions that did receive a signal, the F/B was non-existent. I went down to the BC band and picked some stations whose location I knew and again poor results. So, it was time to inspect.

Recently a powerful wind storm swept through the Bay Area during the night. When I awoke and went into the shack I noticed the DB18 yagi was pointed due North while the Green Heron controller was reading 70 degrees (where I had left it).

Even though the tower can be lowered by an electric winch and then tilted with a manual winch, it's still a lot of work.

I asked for suggestions on the NCCC reflector. Did the antenna slip on the boom-to-mast clamp or could it be at the level of the rotor, which is not pinned. One respondent even suggested that the rotor may have stripped gears.

I phoned Green Heron Engineering and asked what the guy I spoke with thought. He said that 90% of the time it's the boom to mast clamp. So I dropped the tower. All the cabling was intact so I loosened the many boom to mast clamps. With the antenna boom pointed at 45 degrees (and the controller reading about 115] I rotated CCW until the controller read 45 degrees. I tightened all the clamps and raised the tower. Everything is back in order.

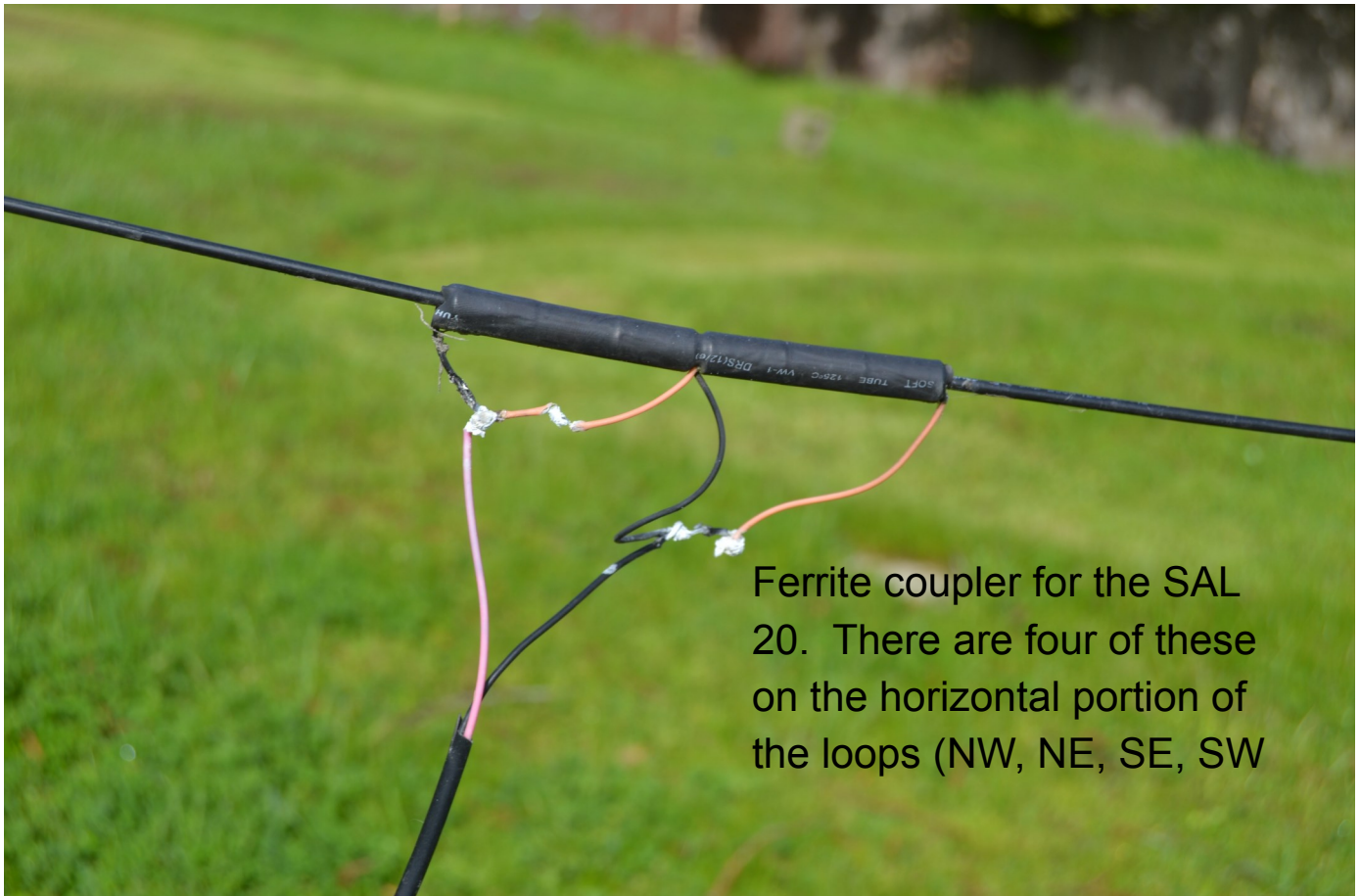


This is one of four ferrite coupler on the directional loops. The white spots are oxidized solder. When I examined the antenna I discovered that the NE and NW couplers had been disconnected. Time to get out the soldering iron.



This is the RG/6 line from the SAL 20 to the shack.

I suspect gophers!



Ferrite coupler for the SAL 20. There are four of these on the horizontal portion of the loops (NW, NE, SE, SW



It's difficult to disassemble the antenna and bring it inside for soldering. This table is an IKEA end table with extensions added to make a field work bench



Taking the SAL 20 apart and taking it into my shop for repairs is not really practical—especially with no one to assist. The solution was to run a 100' extension cord out to this table (a cheap IKEA end table with added stilts to bring it up to a comfortable height) for doing the soldering work. The grey strip is a piece of tile to protect the wood.



After thoughts: The design of the coupler wires on the SAL 20 is prone to failure. This is the third time I've had to do field repairs on the antenna. I don't know what damaged the coax (Dog? Deer? The elements?) but fortunately RG/6 is cheap. 100 feet at Freidman's runs about 20 dollars.

Also, Green Heron staff answer their phone and are willing to talk you through any problems with calibration.

Treasurer's Report for January 2022

Balance as of January 1: \$3,446.70

Income from dues:\$165.00

Outgo: No expenditures

Balance: \$3611.70

FYI: This income part is an approximation as I had to send my report remotely as I am/was in Oregon. There will be some reduction of income due to the fees charged by the Square App for dues and there might be dues waiting in P.O. box but balance should be close to this. I will send an email later to update the exact balance. My apologies!

Respectfully submitted,

Fred-N6YEU Treasurer

## A REVIEW OF THE KIWISDR: 10 KHZ – 30 MHZ WIDEBAND NETWORK SDR

JUNE 28, 2017

(Edited to fit available space in the newsletter. For entire article, go to:

<https://www.rtl-sdr.com/a-review-of-the-kiwisdr-10-khz-30-mhz-wideband-network-sdr/>

Note the date of this article ... the KiwiSDR has benefited from 4 plus years of software improvement since then; the hardware has remained stable.)

The [KiwiSDR](#) is a 14-bit wideband RX only HF software defined radio created by John Seamons (ZL/KF6VO) which has up to 32 MHz of bandwidth, so it can receive the entire 10 kHz – 30 MHz VLF/LF/MW/HF spectrum all at once. However, it is not a typical SDR as you do not connect the KiwiSDR directly to your PC. Instead the KiwiSDR is a cape (add on board) for the Beaglebone single board computing platform. If you're unfamiliar with the Beaglebone, it is a small computing board that is similar to a Raspberry Pi. The KiwiSDR is designed to be a low cost standalone unit that runs 24/7, connects to your HF antenna and internet network, and shares your 10 kHz – 30 MHz reception over the internet with up to 4 simultaneous users.

The KiwiSDR kit retails for \$299 USD ([Amazon](#)) ([Direct from Seeed Studio](#)), and with that price you get the KiwiSDR cape, a Beaglebone Green board, an enclosure, microSD card and a GPS antenna. If you already have a Beaglebone lying around, then you can purchase the KiwiSDR board only for \$199 USD.

Because the KiwiSDR is a network SDR, instead of connecting it to your PC it connects to your home internet network, allowing you to access it from any computing device via a web browser. Direct access to the SDR is not possible (actually it seems that it is, but it's not easy to do), and all the computing is performed on the KiwiSDR's on board FPGA and Beaglebone's CPU before being sent to the network. Thus raw ADC or IQ data is never touched by your PC, your PC only sees the compressed audio and waterfall stream. So a powerful computer is not required to run the SDR. In fact, a mobile phone or tablet will do just fine.

## Hardware

The KiwiSDR PCB plugs directly into the expansion ports of the BeagleBone PCB. On the KiwiSDR PCB is the FPGA which handles most of the DSP processing, two shielding cans which contain the HF and GPS RF front-ends, two SMA ports (one for a wideband HF antenna, and one for a GPS antenna), an Ethernet port, and a 2.1mm DC 5V power jack. There is also a terminal block connector for directly connecting a long wire antenna and ground to the unit.

There is no WiFi on the KiwiSDR so it must be connected to an Ethernet cable, although it is possible to use a cheap wireless Ethernet to WiFi adapter or router like a [TP-Link N300](#) to connect it to WiFi. The KiwiSDR doesn't require much network bandwidth, so WiFi connection speeds are more than adequate.

The GPS antenna is used together with the KiwiSDR's onboard software GPS receiver which is used to enhance the frequency stability of the KiwiSDR. The ADC is a LTC2248 14-bit 65 MHz chip, and it uses a standard non-TCXO oscillator as the clock. However, remember that drift is not a problem as long as you have the GPS antenna connected which will compensate. The FPGA is a Xilinx Artix-7 A35 FPGA.

## KiwiSDR Setup

The KiwiSDR is fairly easy to setup for personal use, but you will need some basic networking knowledge to get it to work over the internet.

When you receive the kit, the Beaglebone's onboard memory should be already preloaded with the KiwiSDR firmware. The kit comes with an SDcard, but this card is only in case you accidentally mess something up and need to revert to the original software. To get going on your local network all you need to do is connect the KiwiSDR to an HF antenna, an Ethernet cable which is on your network and a 5V power supply. (John does recommend that the network have an active internet connection so that the KiwiSDR can automatically update to the latest firmware which will occur on the first boot.) Then run the KiwiSDR scanner at [kiwisdr.com/scan](http://kiwisdr.com/scan) to auto-detect the device, and connect to it!

You can then later connect to `YOURKIWISDRIP:8073/admin` to access the admin page so that you can control things like passwords, KiwiSDR owner info, what's displayed on your KiwiSDR interface, your location, and set whether or not you want to share your KiwiSDR publicly, or password protect the unit so only certain people can use it.

### 5V Power Supply

One minor issue is that the KiwiSDR takes 5V DC via a 2.1mm barrel connector which is on the KiwiSDR PCB. The DC power adapter also must be able to supply at least 1.5A. There is a standard microUSB connector on the BeagleBone PCB, but it is not capable of powering the unit with enough current, so the 5V barrel connector is the only way to apply power. The KiwiSDR does not come with a DC power adapter so you will need to purchase your own 5V DC supply.

KiwiSDR recommend that a 5V *linear* power supply be used to avoid the noise caused by switch mode power supplies. Most power supplies that we're used to (e.g. phone chargers) are switch mode supplies. Linear supplies are generally used by Audiophiles who like to power their audio equipment with them to avoid audio noise. They can be found quite easily on Aliexpress or eBay ([an example supply](#) – note that you need to specify to the seller what output DC voltage and what input AC voltage you require). They start at about \$50 USD including shipping, so this is a potential additional expense. In our testing we did see a noticeable reduction in noise at around 1 – 5 MHz once we changed from switch mode to linear mode power supplies for both our active loop antenna and the KiwiSDR. The image below shows the difference during a daytime test.

## Frequency Stability

Thanks to the GPS disciplined oscillator, frequency stability is excellent. Everything is exactly on frequency and there is zero drift as the unit warms up, or the ambient temperature changes.

## Conclusion

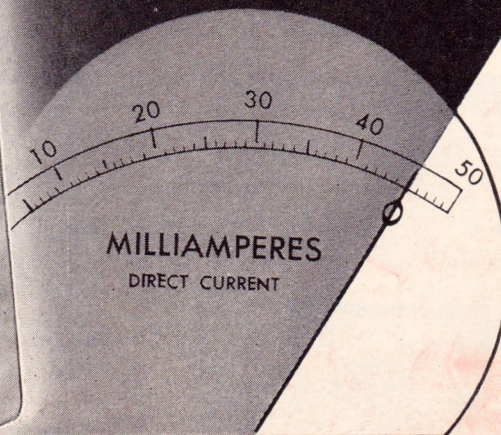
The KiwiSDR is an excellent SDR that gives you access to the entire 0 – 30 MHz HF spectrum all at once. It is an absolute joy to be able to quickly zoom in and out of bands, finding interesting stations. When your own reception is insufficient you can then head over to [sdr.hu](http://sdr.hu) and listen to someone else's KiwiSDR. The price is a bargain at \$299 USD, and sometimes if you follow massdrop or seeed sales it can be purchased for even less.

However, potential buyers need to note that the KiwiSDR is not a standard SDR that runs on your PC. Instead it is a network SDR that is designed to be shared with others over the internet. As such due to the compression algorithms used to make internet streaming efficient the audio quality will never be as crisp as it could be with a regular radio or SDR. But as a network shared SDR it is truly excellent value for the price.

We recommend the KiwiSDR for people who are able to set up a good wideband antenna in an area with good reception and low RF noise, have a sufficient internet data plan, and want to share their excellent reception over the internet. But if you are only interested in DXing, or SWLing for long periods of time, then you might want to consider a regular HF capable SDR or radio as the sound quality will be a lot better. Of course the KiwiSDR can always be used as a supplementary radio, to help you listen while away from your main radios such as when at work.

The best way to decide if a KiwiSDR is for you is to head on over to [sdr.hu](http://sdr.hu) and try out a few KiwiSDR receivers over the internet. Note that many of the KiwiSDRs that are shared are quite subpar in terms of their reception. This is not indicative of the KiwiSDR, but rather of the subpar antenna systems used. Also of course, most receivers will really only come alive at night local time, so check the time zones and locations first. The [sdr.hu](http://sdr.hu) rating system also does not accurately reflect the best receivers. After searching for a while you should be able to find some with good reception.

# GRID MILLS tell the story!



On 10 and 20 fone ...  
PR's put out more  
**DRIVING POWER!**

On the higher frequency fone bands DRIVE is the problem! Plenty of grid mils to the final means top efficiency ... full modulation capability ... longer life for the big bottles ... more watts in the antenna. Drive begins with your crystal stage! That's why rugged PR Precision Crystals are designed to deliver high power output under gruelling amateur conditions ... negligible drift

over wide temperature range ... amazing activity ... sealed against contamination and moisture ... accurately calibrated. Yes, low cost PRs deliver MORE POWER! Available from your jobber for all bands, including ten and eleven! Every crystal unconditionally guaranteed! — Manufactured by PETERSEN RADIO CO., INC., 2800 WEST BROADWAY, COUNCIL BLUFFS, IOWA. (Telephone 2760.)



SINCE 1934

# PR Precision CRYSTALS

<b>10 METERS</b> PR Type Z-5.	Harmonic oscillator. Ideal for "straight through" mobile operation. High activity. Heavy drive without damage in our special circuit .....\$5.00
<b>20 METERS</b> PR Type Z-3.	Harmonic oscillator. Low drift. High activity. Can be keyed in most circuits. High power output. Just as stable as fundamental oscillators .....\$3.50
<b>40 &amp; 80 METERS</b> PR Type Z-2.	Rugged, low drift fundamental oscillators. High activity and power output with maximum crystal currents. Accurate calibration \$2.65

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Here's an idea: The Eurasia HF Championships. It lasts for 9 hours, everybody works everybody, CW and SSB, and there are some pretty good prizes. Check out the Web site

<https://www.eurasia-contest.com>

And see the official announcement below.

GOOD NEWS!

Legendary EURASIA HF CHAMPIONSHIP is coming this week.

<https://www.eurasia-contest.com>

This unique contest has gained popularity since the FIRST time: 3191 participants in 2021 year!!!

We expect up to 4000 people this year.

FEBRUARY 5, 2021. 06-18 UTC, All HF bands, CW & SSB.

All countries are welcome (not only EU and AS)!!!

SPECIAL AWARDS FOR THE COMPETITORS:

- YAESU FT891 Transciever
- SDR QRP Transciever
- SunSDR Colibri NANO
- UHF portable radio
- SmartPhone

and some more:

Please visit official web-SITE TO CHECK THE DETAILS:

<https://www.eurasia-contest.com>

Do not miss this unique event! See you in the contest on Feb, 5!!

Eurasia HF Championship Manager, Alex Kuzmin, RN3TT