THE NUGGET

The Newsletter of the Mother Lode DX/Contest Club

May 2020 **Volume 25 Number 5**

From the President – NC6R

Hi there! How's everybody doing?

With the shelter in place still with us, what kind of around the house projects have you been doing? For myself there has been no shortage of things on the "to do" list, ranging from shack projects, outside work and getting a new RF consulting business off the ground.

I hope all of you have been able to log in and take advantage of the MLDXCC online Zoom meetings. A big thank you goes out to MLDXCC VP Bob W1RH for lining up great presenters.

Speaking of online presentations, here a good one you'll not want to miss. The South Orkney DXpedition was one that MLDXCC supported and featured club member Steve W1SRD as a team member. Make sure you register in advance to view the presentation which is being host by NCDXF. Your **Name**, **Email** and **Callsign** will be needed to log in.

https://us02web.zoom.us/webinar/register/WN_OeZnXr7RQc6_vWNak2EUbw

Since I last wrote I have completed 17 meter WAS. With DX being somewhat sparse, I've now started in on 12 meters. Last count was 32 states confirmed, but I'm finding that band quite a challenge given the current solar situation.

How many of you have discovered FT4? Wow, a there's been a ton of DX from Northern Europe on the last several mornings. It seems like the West Coast as been non-existent for these folks as I'm in a constant pile up, so come give this new mode a try. To date I've got 51 countries confirmed in my quest for FT4 DXCC which also gives my CQ Marathon numbers a big boost. Remember the CQ DX Marathon is a yearlong marathon of DX entities. It doesn't matter if you've them worked in years past, just as long as they're new in your log for this year. With your efforts MLDXCC continues to climb the ladder in Marathon rankings.

If you missed the Contest University online presentation, it was well worth the time and effort. This presentation was scheduled to be given at the "Dayton Hamvention", but has now been made available thank to MLDXCC member N6TV (aka TV Bob). Per Bob "For those who missed watching the Contest University presentations live yesterday, the entire session has been captured online in very high quality at the link below, including some amusing (?) Chit-chat between the presenters during the noon break, and also at the very end of the session."

Here's an online link to the presentations, thanks to Bob N6TV - https://www.youtube.com/watch?v=fEEUpsWUtAA

As always, here are websites to view upcoming contest and DX announcements -

Contest calendar dates are listed at - https://www.contestcalendar.com/index.html

DX operation announcements can be found at - https://www.ng3k.com/misc/adxo.html

73 & good DX,

Steve / NC6R

From the V.P. - W1RH

Every time a new DXpedition is announced, the first thing I do is to see if I've worked them and, if so, what band/modes. My current count is 330 worked and 325 confirmed. I've often said that I am an absolutely horrible DX'er and the only reason I've got this many is number of years doing it and contesting. I have LOTW to thank for most of my confirmed Q's. When I first started DXing in the late 1980's, I never bothered to QSL, so it still amazes me when a contact I made that far back shows up in LOTW. Unless it's a major DXpedition, I have never really watched the DX blogs, daily spotting sites, DX reflectors, etc. It's pretty much for that reason that I still need:

Bouvet Island

Cocos (Keeling) Island

Crozet

North Korea

Glorioso Island

Kerguelen Island

Macquarie Island

Pratas Island

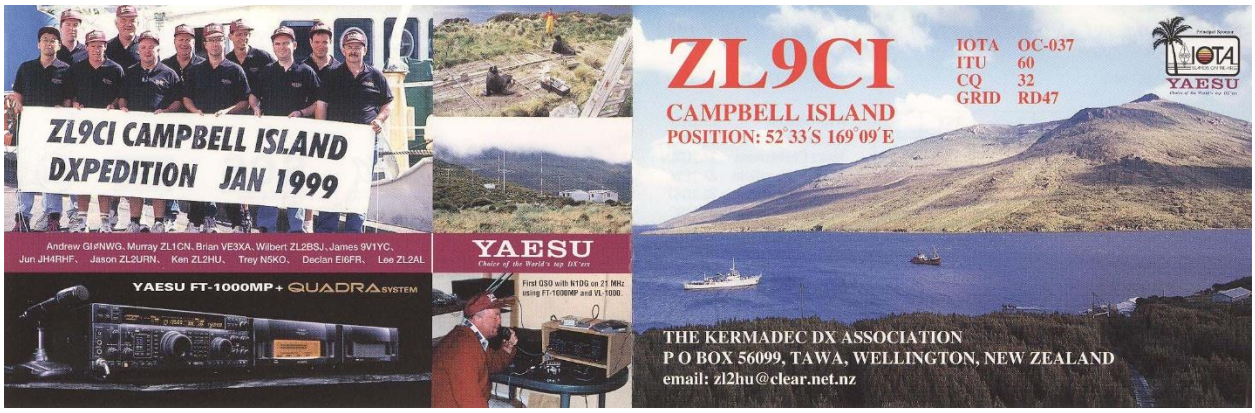
Somalia

Temotu

There's really no use in not working any of these except, perhaps, for North Korea. I can't begin to tell you how many DXpeditions I missed when I was living in Boston, mainly because of work and just not following the DXpedition announcements. All I cared about was contesting and that's where the bulk of my DX contacts have come from.

But, I digress.

So when the Perseverance DX Group recently announced a DXpedition in 2021-2022 time frame to the New Zealand Sub Antarctic Islands (DX'ers generally consider this Campbell Island), I did check my log and, yes, I did work ZL9CI when I was in W1. Specifically on 12, 15, 20, and 40 CW and 15 phone. I don't have them confirmed on 12 or 20 CW, so I guess they either busted my call or I thought I worked them and didn't. As is always the case, I never followed through with asking them if they had W1RS, K1RH, or whatever in the log at a particular time, etc.



ZL9CI was a major DXpedition with nearly 100K Q's total. Of note is that they did make make 95 Q's on 6 meters but were not active on 60 meters. They did have some RTTY activity but no digital Q's on 160.

There was another DXpedition to Campbell in 2012. I never tried to work ZL9HR and probably wasn't even aware of the DXpedition. Total Q's were 21,144.

ZL9A was a small DXpedition to the New Zealand Sub Antarctic Islands, which included Campbell. According to ClubLog, the Q count was 4,661, This is another one I did not work.

You can bet I'll be trying to work the upcoming DXpecdition. It will be a bit more difficult for me than South Orkney because at the 219 degree heading my beam is skirting the side of the ridge. Brute force power, however, should allow me to fill in some of those blank band-slots. The pileups should be huge. This one currently sits at #24 on the ClubLog Most Wanted charts.

As we all know, Steve, W1SRD, is our inside track to working Campbell. This will be Steve's fourth DXpedition with this great group of guys, having already been to Chesterfield, Ducie and South Orkney. I really encourage our club and our individual members to support this DXpedition. We all know how much it costs and they do depend on the DX community for support.

I do have Steve on the list of future speakers, once we start doing real, in the flesh, lunch meetings again ad I'm sure Steve will have a few things to say about Campbell after he finishes his South Orkney talk. In the meantime, look for the great South Orkney article in this issue of the Nugget.

This weekend I'm gearing up for the CQ WPX CW contest. It's a great way to add to your band/slot totals and, if you're a NCCC member, it is one of NCCC's major focus contests. Get on the air, have fun, and submit your log on behalf of NCCC for this one.

Our next MLDXCC meeting is scheduled for June 6th. Expect another Zoom meeting. Hopefully, in July we may be able to meet in person.

Bob W1RH

Next Meeting

Date: June 6th

Time: TBD

Location: TBD

Presentation: TBD

MLDXCC Treasurer - K6SZQ

MLDXCC Treasurer's Report- April 2020

3/31/2020	Opening Balance		$2,490.89
	Income		$40.00
	2020 Dues - Paypal	$20.00	
	Donation - Paypal	$20.00	
	Expenses		$319.53
	Arnolds - Badge Order	$119.53	
	ARRL Club Insurance	$200.00	
4/30/2020	Ending Balance		$2,211.36

From the Secretary - KI6YYT

MLDXCC May 16, 2020 Meeting Notes

President Steve, NC6R, was unable to attend, so the Zoom conference meeting was called to order by Vice President Bob Hess, W1RH. There were at least 35 members and guests on line. VP Bob took a roll call of members by county. Note from Secretary: If Zoom meeting participants would sign in using their call sign and name, it would be much easier and more accurate taking attendance.

There was no Treasurer's report.

Bob asked if there were any announcements from club members on recent achievements. There were a couple, but again on a Zoom meeting it is almost impossible to identify who said what. I did hear that someone did work Sri Lanka.

The formal portion of the meeting was then adjourned.

The speaker for our Zoom meeting was John Miller, K6MM, in San Jose. His presentation was on his Dxpedition experiences in 2013 to Wake Atoll, operating under the call sign, K9W. The team goal was 100,000 contacts. When the main stations were disassembled, they were short a 100 or so contacts of their goal. They set up a spare rig and antenna and pushed the total over the 100k goal. Their final number was 100,031. When the expedition started Wake was #14 on the most wanted list. It's now at #34. John went over in detail the other goal was to honor the "Forgotten 98". These were civilian contractors that were executed by the Japanese invaders, in WWII. The challenge of just setting foot on Wake was a major bureaucratic endeavor, so the possibility of a future expedition is not very likely. The expedition website is still up, so go to http://www.wake2013.org/index.html for more information.

CLUB Dues

2020 dues are due!

The Dues period runs from Jan 1 to Dec 31. Dues are $20.00 individual, $30.00 family

PayPal – Send to: MotherLodeClub@gmail.com. Use the Friends and Family option.

Cash or Check - Given to a club officer at a meeting. Or mail to the Treasurer - Sue Allred K6SZQ, 17610 Red Mule Rd. Fiddletown, CA 95629

Contest Results

7QP is over, how did you do?

Club Log Standings

Overall

1	N6JV	Norm Wilson	188
2	K6YK	John Lee	165
3	WU6W	Rick Palio	151

CW

1	K6YK	John Lee	153
2	N6JV	Norm Wilson	141
3	NA6O	Gary Johnson	90

Phone

1	NC6R	Steve Allred	114
2	K6YK	John Lee	96
3	WC6H	Rich Cutler	90

Data

1	N6JV	Norm Wilson	137
2	K7QDX	Michael Steiner	128
3	WU6W	Rick Palio	119

Club Log Standings are based on worked entities during the calendar year.

Member Reports

K7XC

Busy building a 60ft, heavy duty, 2.5" OD, Steel, mil surplus mast to hold a 7element 36ft long 6M LFA Yagi. Working on Modifying a HP ESP120 3KW, 50V, Blade Server, Switching Pwr Supply & integrating a 6M Solid State Amp For Use This Summer. Needing to work only 18 more very rare 6M grids to earn the FFMA award (for Working every 6M grid within the contiguous US) I have done all this to increase the odds of Completing the award this Summer, as many people are going out portable and activating grids people need.

73s de Tim - K7XC - DM09jh... sk

Adapt, Overcome, Succeed!

NK7I

It's an exciting time at NK7I.

For those that have followed the (eternal?) saga of building a station at my new home, this week the HF radios are being moved into the new shack. Since arriving here, they have been upstairs with coax running out a window to the antennas. For the last 6 months, a laptop managed the SteppIR control (and rotor) via wifi, from the position upstairs.

It doesn't mean that the shack is done; once the weather allows, an entrance box still needs to be mounted, connect the conduits into that box then through the wall into the shack.

But it means that the new room is finally a shack.

Space in the garage was used to build the ~10x13' (insulated) room; it has been furnished with a used solid wood desk ($40), chair, refrigerator and microwave.

A 50" 4K TV (and Dish 'Joey') was added to be a monitor (works GREAT!), an equipment table was built, with legs designed as a rack, the rack mounted power supply was added (with room set aside for the Kenwood TKR-750 repeater, IRLP EchoLink node), wood was placed on the wall for mounting (mobile) radios, a ground buss bar (copper pipe) was installed to bond ground network to the equipment and the first radio (a dual band) was installed. A shelf was added to hold items in view without taking up valuable desk space (and speakers). It's time to move in!

The Elecraft K3, P3 (and its 22' display mounted on the wall next to the large display) will sit on the desk, and the KPA1500 (already in place) will at last be put on the air (two years after arrival). The KAT500 and the KPA500 will be held as backup. A K4 is being considered.

The Pacific Inland Northwest SHALL be heard; legal limit on all HF bands; an Inverted L for 160M (replacement this summer), a rotating dipole on 80/60M, 3-4 elements on 40-10M and 6 elements on 6M, all at 60'. Two antennas, 160-6M coverage; clean and simple.

The station isn't completed yet is fully functional, 160-6M plus 144/440. For now, a futon will provide nap space/guest seating.

Besides replacing the Inverted L (relocating and making it into an 80/160M L), a low band RX antenna system is intended for this summer with some thought given to sharing via SDR, online (limited Internet bandwidth may preclude that).

Noise; the bane of all radio operations... This location, while not in the prime (easy) propagation zone of the south, has already proven itself to be a quiet site. The noise floor is often at the limits of the receiver, S-0 instead of 20 over 9 noise. In many cases, this location can hear first and last (longer windows) than my previous location. But the down side of having quiet, is that the OTHER station can be heard yet their noise floor doesn't allow them to hear you even at QRO; somewhat frustrating but familiar to most DXers. Reduce your noise floor!

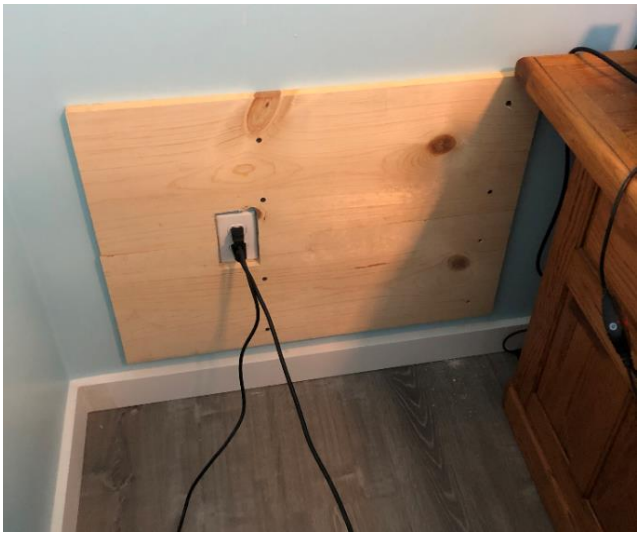
The entire station can be operated remotely (for those cold winter mornings); RV parking (some hook-ups) and a guest room are available. In the 'spare' time, landscape, field and garden maintenance has to happen. This summer will also see a new computer to manage the station, I'll spec that out soon but planned space for it.

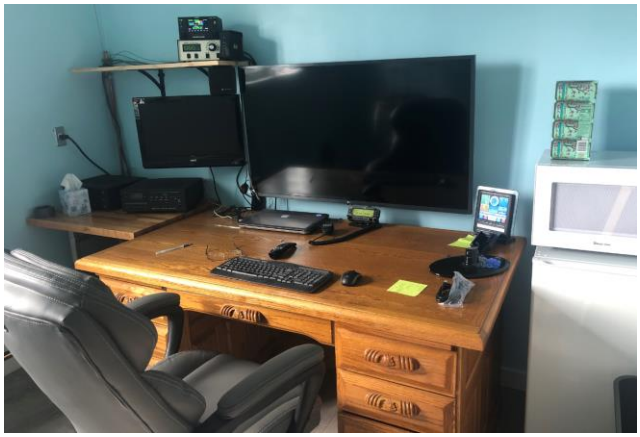
Besides HF, I've also been dabbling in meteor scatter and sporadic E on 6M with limited success. The mountains east and west preclude low angle EME (to about 20 degrees above horizon)

For someone that started with a chunk of wire tossed it out of an apartment building window hooked to an borrowed receiver (thanks Dick, K6LRN) over 40 years ago; a dream is coming true. What a road that has been. And for me, the perfect locale too.

See you on the air (some already have)!

Rick NK7I





WE6Z's TCS-6 Project:

This months project is the restoration of a Navy TCS-6 set. Three years ago I picked up this set from an estate. I was told it probably worked, but has been sitting for many years. I put it on the backburner, the I'm going to get to it someday pile. Well with all this lockdown stuff, I decided to pull it out and see if I could make it work. My goal was to put it on the air and see how the signal sounded. Looking it over, it is a matching serial number TCS-6 transmitter, receiver, and power supply. The tubes were date coded from 1943. It appeared to be in original condition and not modified. It even came with the interconnecting cables.

I started with the receiver. I tested all of the tubes, and they tested good. I brought it up on a variac slowly. No smoke or explosions. The first problem I ran into was that there was no audio. In fact, no receive at all. I hooked up my service monitor and put a very strong signal into the antenna and nothing… I went to go measure the voltages of the tubes, but the bottoms of the tube sockets were inaccessible. So I built a tube extender so that I could measure them easily.

After checking all of the voltages and all of the resistances of the tube sockets, I found a few issues. Most of the high wattage carbon resistors had drifted up in value. Some of them had almost doubled! I replaced all of the out of tolerance resistors and tried again.

Still no audio. I then proceeded to replace all of the bathtub style capacitors, two of which were leaky. Still no audio. In going through the manual, it finally dawned on me that the transmitter has to be hooked up to the power supply, because it has a relay or jumper in it that enables and disables the receiver.

After hooking up the transmitter, BAM! Audio. It sounded excellent on my Hallicrafters R42 speaker. After that, I did a full alignment of the IF and RF sections using the procedures in the Navy instruction manual.

Next I put the transmitter on the bench. I pulled all the tubes and checked them. Two of the four 1625 tubes were shorted so I had to look for replacements. As fortune would have it, I have a box of 1625 tubes. I found two NOS 1625 tubes marked

US NAVY and hand written on the outside of the boxes was “tested ok 2-2-47”. These 1947 tubes tested excellent, and in they went.
I wasn’t able to bring the transmitter up with the variac because the relays were chattering due to the low voltage. So I just brought it up to full voltage. Everything came up without smoke or noises.
So to recap, all I replaced was half a dozen caps, a dozen resistors, and two tubes, and this set came to life.

I did some on the air tests and I was able to load it into my fan dipole on 40 and 80 meters.
I was able to chat with some friends in Cameron park and Elk Grove and they reported no noticible chirp. I did some CQing and the reverse beacon network picked it up as far as Utah and Washington.
I’ll call that a success with less than 20 watts and a set built in the year 1943 ☺

To see more pictures and details see my blog.

Navy TCS restoration

Doug WE6Z

ARRL Contesting Certificates

If you have participated in ARRL Contests by submitting your log, enter your call sign and see your available certificates. You can view and download them. The certificates show where you placed in the contest.

http://contests.arrl.org/certificates.php

Awards Checkers ARRL

Ken Anderson, K6TA

(DXCC, WAS, VUCC, 160M)

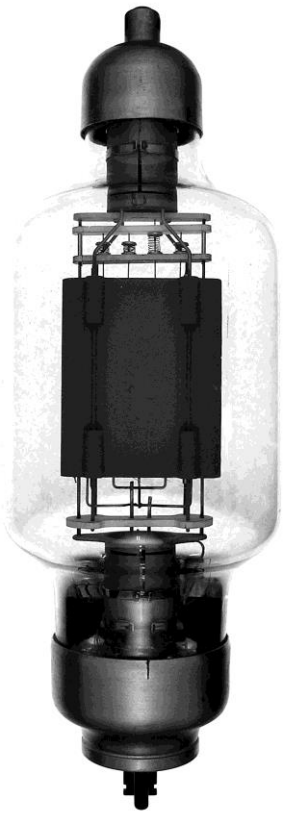
Rick Samoian, W6SR

Tube of the Month

851

The size evolution of the "250 watt" type tubes like the 204A and 849 ended when they started making the 851 in the mid-1920s. This tube wouldn't be in common use until the late 1930s in preparation for World War II. The 851 was an 849 with a thyroid problem. The diameter had been expanded to 6 inches to handle the 750 watt dissipation. The tube frequency was still limited to 3 MHz, but it was a good choice for the modulator stage of a very high power AM transmitter. The 851 wasn't very popular with hams due to the price. In 1934 an 851 would cost you 350 depression dollars. After WWII, the

tube became available in large quantities and at a low price. The military designated it the VT-41, CG-2172 or the 38151. In the 1940s and 50s, it was the heyday of high power ham AM phone stations. Old-timers may remember W6ITH's wall of racks that were featured in handbooks. The surplus 851s, running class A, would modulate a KW amplifier. The days of a penny a pound are still remembered and sadly missed.



Visit the museum at N6JV.com
Norm N6JV

MLDXCC Focus Contests

The following lists all contests in which MLDXCC would appreciate your efforts.

ARRL SS CW/PH
ARRL DX Phone*
ARRL DX CW*
ARRL 10M*
ARRL 160M*
California QSO Party

*Proposed and approved at the November 12, 2016 MLDXCC general meeting.

Northern California Contest Club (NCCC) announced their focus contests at their August 2018 meeting. This list can be found in the Aug 2018 NCCC newsletter.

ARRL RTTY RU
CQ WPX RTTY
CQ WPX SSB
CQ WPX CW

MLDXCC – Outgoing ARRL Bureau

The Mother Lode DX/Contest Club will provide Outgoing QSL Bureau services to current paid club members. The policy is as follows:

The club will cover packaging, shipping, and the $7.00 ARRL fee. Members will be responsible for the $1.15 per ounce fee, payable to the club. A scale will be provided at the designated meetings to weigh the cards.

Twice per year, at the March and October meetings, members may bring their outgoing cards (or have delivered by another club member) to the meeting for collection and collating.

All regulations set forth by the ARRL must be met, including:

Members must be ARRL members to use outgoing bureau.

Must provide proof of membership (QST mailing label, ARRL membership card)

Cards need to be sorted according to ARRL requirements when brought to club.

The after-meeting program at those meetings would be dedicated to weighing, merging the cards, and making sure the paperwork is in order.

For more information regarding the ARRL Outgoing Bureau, please visit http://www.arrl.org/outgoing-qsl-service

QSL bureau rates have changed.

Outgoing QSL Service

QSL Service Fee Structure (effective May 15, 2019)

ARRL members — including foreign members, QSL Managers, or managers for DXpeditions — should enclose payment as follows:

Effective May 15, 2019, the rate structure is:

$2 for 10 or fewer cards in one envelope.

$3 for 11-20 cards in one envelope, or 75 cents per ounce, for packages with 21 or more cards.

[For example, a package containing 1.5 pounds of cards -- 24 ounces, or about 225 cards -- will cost $18.]

Under the new fee structure, there are no transaction service fees.

You should use an accurate scale to weigh your cards. Most post offices have scales that you may use.

Please pay by check (or money order) and write your call sign on the check. Send cash at your own risk. DO NOT send postage stamps or IRCs.

Please make checks payable to: "The ARRL Outgoing QSL Service."

Packages received with insufficient payment will not be processed until the balance is paid in full.

The outgoing QSL bureau does not keep money on account.

The NOAA Solar Update

Click the link below to display the latest NOAA solar predictions.

http://www.swpc.noaa.gov/products/weekly-highlights-and-27-day-forecast

UPCOMING Events

For the latest contest info, click on the following link:

http://www.contestcalendar.com/contestcal.html

UPCOMING DX and DXpeditions

Click the link below to display upcoming DXpeditions.

http://www.ng3k.com/Misc/adxo.html

MLDXCC Reflector

The MLDXCC reflector is maintained at groups.io. Visit https://groups.io/g/mldxcc

We also maintain a spotting reflector at https://groups.io/g/MLDXCC-Spots

We are also on Facebook! https://www.facebook.com

Classifieds

Members are requested to review their classified ads each month for accuracy and to resubmit their ads or confirm their desire to keep it running in the next issue.

New! "The Serial Box" (SBOX) by N6TV – Combination Serial Port Splitter, ACOM / Elecraft / SPE Amplifier Interface, FSK/CW/PTT keying interface, and Breakout Box

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https://www.eham.net/reviews/detail/13971
Serial Box

Serial Box
"The Y-BOX" by N6TV – 4-way Elecraft K3/K3S ACC port splitter, Elecraft Amplifier Interface, and Breakout Box
https://www.eham.net/reviews/detail/13296

Y-Box
N6TV

Need QSL cards, business cards, club banners? Contact Vina K6VNA vina@sign-tek.com

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Force-12 C31XR tri-band yagi, good condition with instruction book, $950 or reasonable offer.

Thanks & 73,
Doug - N6BU

I have a HP 608D signal generator for sale. It works. $50.00 Doug WE6Z

2020 Meeting Dates

January - 25
Feb - none
March - 14
Apr – 18 Zoom
May -9 Zoom
June - 6
July -
August -
September -
October -
November -
Dec -

Dates are arranged to accommodate major contest dates. Meeting dates are subject to change. MLDXCC traditionally holds a mid-year combined meeting with NCCC.

Special feature - VP8PJ

By Gene Spinelli K5GS and Dave Lloyd K3EL

Introduction to the South Orkney Islands

FIGURE 1SOUTH ORKNEY ISLANDS LOCATION

The South Orkney Islands group is located in the Southern Ocean, some 600km(375 mi) north-east of the tip of the Antarctic Peninsula and 1,400km(850 mi) south-west of Tierra del Fuego at the southern tip of South America. The islands have a total area of about 620 square kilometers (240 sq. mi). The largest island, Coronation, is mountainous with peaks rising to nearly 1,300 m above sea level and is mostly covered by glaciers. We operated from the smaller Signy Island which is also rugged and glaciated, its highest point rising to around 290 m. The ground is generally rocky, with the little vegetation comprising mainly of mosses. The temperature is moderated due to the surrounding ocean; however, the South Orkneys are buffeted by strong winds and receive much rain and snow throughout the summer.

The islands are claimed both by Britain and by Argentina, but since they are within Antarctic Treaty territory such claims are now held in abeyance. Britain and Argentina both maintain bases on the islands. The British Antarctic Survey base, Signy Research Station, was established in 1947. Initially operated year-round, it is now open only from November to April each year (southern hemisphere summer). Our operating location was approximately 1 km from Signy Research Station. The permanent residents of the South Orkneys include Antarctic fur seals, elephant seals, three different penguin species and various nesting species of sea birds.

Planning and Preparation

Shortly after the very successful VP6D Ducie Island 2018 DXpedition, members of the Perseverance DX Group (PDXG) identified several possible entities for our next project. All were remote islands, so we contacted Nigel

Jolly K6NRJ, owner of the RV Braveheart, inquiring about Braveheart's availability for the listed entities with South Orkney being one of them.

Nigel's reply was positive for a South Orkney Islands project. He outlined his commercial project schedule for August, 2019 through April, 2020 which included the VP6R Pitcairn Island DXpedition in October, 2019, several diving contracts, and a January, 2020 project near the Falkland Islands. Nigel wrote that he could pick up a radio team in Punta Arenas, Chile on February 15th, take us to Signy Island for a two-week DXpedition, and return the team to Chile on March 12th. After reviewing his proposed contract and pricing we accepted the proposal. Braveheart and Nigel have a long history of providing outstanding support to the DXpedition community; Nigel's son Matt was the skipper for this project.

The South Orkneys proved to be a popular choice and our on-island team was quickly named. Our international team comprised: Dave K3EL, Les W2LK, Gene K5GS as

FIGURE 4VP8PJ TEAM AT PUNTA ARENAS (PHOTO K3EL)

Team Leader and Co Team Leaders, respectively, Heye DJ9RR, Mike WA6O, Vadym UT6UD, Steve W1SRD, Walt

FIGURE 3 PREFABRICATED FLOOR (NG3H PHOTO)

FIGURE 2 VP8PJ CAMPSITE (W7XU PHOTO)

N6XG, Laci HA0NAR, Ken NG2H, Arliss W7XU, Rob N7QT, Hans-Peter HB9BXE and Alan VK6CQ. Many of the team members knew one another from previous PDXG or other DXpeditions or had met at ham radio events. We knew there would be significant interest from the DX community since the South Orkneys most recent major DXpedition was VP8ORK in 2011, nine years previous to our proposed date. Anyone licensed or taking up DXing since 2011 would need VP8O and they would now have an opportunity for a contact.

In preparing for the expedition we held several pre-expedition planning teleconferences. Topics included living on the island, antenna planning, operator scheduling, travel planning, permitting and licensing. The detailed plans were documented in the VP8PJ Operations Manual and shared with everyone prior to departure.

Operating from any Antarctic location is a challenge because even during the Austral summer bad weather can be expected. An early priority in planning was to identify shelters that would stand up to the expected weather conditions so that the team could operate safely and effectively. We were able to secure two WeatherPort portable buildings with which we established a single campsite on the island. A separate smaller tent contained a toilet. One building housed the radio equipment with seven operating positions as well as a small camp kitchen in which we could reheat prepared food brought daily from the Braveheart. The other was equipped with 14 bunks for sleeping. Detailed layouts of the tents were prepared prior to departure to make sure everything we needed would fit and to facilitate setup on arrival.

We were concerned about the weight of material that we had to transport and the time it would take to put up the shelters. To address these issues, we designed and built a prefabricated floor system using plywood sheets supported on metal construction studs. The plywood was cut into sheets that were small enough for one person to handle in windy conditions. These would be laid down next to each other and joined together to form a solid floor. Several team members traveled to California in the summer of 2019 to prepare the WeatherPort buildings and prefabricate the floor. We decided to operate from the same site that VP8ORK used, near Water pipe Beach on the eastern side of Signy Island. This site has a sheltered anchorage, and the camp location slightly inland is protected from the worst of the wind by several low rocky knolls immediately surrounding the camp.

The island is well-positioned for propagation to Europe (EU)and North America (NA), however the location of our camp with hills immediately to the north and east made the take-off for NA less favorable than that to EU, which is straight over water. Asia (AS) and much of Oceania (OC) are challenging from the South Orkneys with a path over the South Pole. Both South America (SA) and Africa (AF) are relatively close with excellent propagation much of the time. These considerations were key design factors for the expedition. At the bottom of the solar cycle, only a few bands would be open at any one time so the antenna plan and station design were developed to address propagation and paths, allowing two or more stations to operate simultaneously on the most active bands. Much of the antenna preparation work was performed by Walt N6XG and Steve W1SRD. Several team members met in California to help consolidate, assemble, test and pack antennas and equipment for sea shipment.

The South Orkney Islands are located at, and below, 60 degrees south, which places them under the Antarctic Treaty System. A DXpedition is considered a tourist activity which is permitted under the Antarctic Treaty, but requires an environmental assessment and a waste permit, issued by a signatory country of the Antarctic Treaty System. Being an American led project, we interacted with the US Department of State (Polar Affairs), the National Science Foundation and the Environmental Protection Agency. The permit process took about 8 months from start to finish. We had input from Ralph K0IR, who managed the process for VP8ORK.The various agencies were helpful throughout the process, and keenly focused on their mission of protecting the environment in accord with the provisions of the Antarctic Treaty. We created two detailed documents that answered many questions about the project including explanations of our intended activities, and of the capabilities of the Braveheart. While a travel visa is not required to visit Antarctica, each team member was responsible to ensure he had the proper documents to enter Chile.

The radio license and call sign proved to be surprisingly elusive. Previous DXpeditions to the South Orkneys applied and received the license/call sign from the Falkland Islands telecommunications authority. We were unable to get a license from the Falkland Islands; while we were organizing the expedition the Falklands telecommunications authority was being restructured and their licensing process was temporarily suspended. After a conference call with the ARRL we decided to use VP8/VP8DXU. Team member Arliss W7XU was the holder of VP8DXU, so it made sense to use his call. Subsequently, Alan VK6CQ joined the team. Alan held VP8PJ issued during his working years in Antarctica. His license was specifically issued for the British Antarctic Territories, which include the South Orkney Islands, so it was an easy decision to change to this call. Using the shorter call sign was applauded by the DX community.

Travel and Set-Up

The team met in Punta Arenas, a popular transit point for visitors to Antarctica and Patagonia.
We spent a few days buying last minute items, including a three-day supply of emergency food should the weather make replenishment from the Braveheart impossible. We enjoyed a visit with members of the Radio Club of Punta Arenas, CE8RPA, and took in the sights.

On February 14th our equipment was loaded aboard Braveheart. We departed Punta Arenas on February 15th for the planned six-day transit to Signy Island. A Garmin inReach personal locator allowed many of you (and our families) to follow our progress across the South Atlantic and the Southern Ocean. The seas were reasonably calm and the winds helpful. About a day away from Signy we

started seeing ice, and for the last night the vessel proceeded very slowly while keeping extra watch for the smaller bergs that might not be seen on radar yet may be capable of putting a hole in the ship. We arrived at Signy

FIGURE 5 L-R DAVE K3EL - GENE K5GS (W7XU PHOTO)

earlier than planned but were disappointed to find access to our intended landing spot blocked by upwards of 100 m of pack ice. The skipper and team members investigated the extent of the ice and concluded it would be too dangerous to land people and equipment. Alternative landing sites were evaluated and we contacted the staff at Signy Research Station to tap into their local knowledge. They told us that the ice had blown in the night before, and a change in wind direction was expected that evening which would likely move the ice out. The next morning the ice was dispersed enough to begin ferrying people and equipment to the island using an aluminum hulled boat especially constructed to operate around ice.

FIGURE 6 PACK ICE ALONG SHORE LINE (K3EL PHOTO)

The radio and campsite equipment were ferried ashore. Being relatively late in the season, there were very few fur seals at our landing site on Waterpipe Beach so we were able to transfer equipment across the slippery, rocky foreshore. The Braveheart crew and the radio team moved the equipment approximately 300 meters up a steep and rugged slope to the camp location. A second location was used for landing of personnel, by stepping out of the boat onto boulders and then climbing up rocks to reach the campsite path. To facilitate this landing the crew constructed a temporary ladder that was removed at the end of the project.

The first priority was to establish shelter, and the prefabricated tent flooring was placed on the ground and the buildings erected. This was followed by parallel work streams of antenna construction, equipment setup, and furnishing of the sleeping and operating tents.

Signy Island is mountainous, with many hills and very rocky and uneven ground. One had to be careful when walking as losing one's footing could be dangerous. Being outside could be hazardous since the weather was cold and windy, with rain and snow most days, and very little sunshine. The temperature hovered around freezing most of the time, and the wind and precipitation made it feel colder. Assembling antennas and anything else with small pieces of hardware was difficult in the harsh climate.

Meals were taken on the island. Breakfast foods were stored on the island and regularly replenished by Braveheart. Weather permitting, each day two hot meals were brought ashore. Except for an occasional trip back to the ship for a shower and a warm bed everyone stayed on the island for the duration of the DXpedition.

We were well-supported by manufacturers and distributors of amateur radio equipment: Elecraft loanedeightK3s transceivers, KPA-500 amplifiers, P3 panadapters,KAT-500 tuners and a KPA-1500 amplifier; DX Engineering donated coax, connectors, tools, antenna parts and accessories; WiMo (Europe) donated two triband and two WARC band Moxon antennas. Spiderbeam provided a substantial discount on the telescoping masts and Arlan Communications loaned (and later discounted) their RadioSport headsets. Low Band

Systems discounted high power band pass filters which were a great help in reducing inter-station interference. The DX Store and ON5UR QSL Print Services subsidized QSL card production. Inmarsat Government donated communications equipment and services. Mastrant and Clamcleat each donated guying ropes and fittings. The generosity of these manufacturers and distributors is greatly appreciated.

Team members provided SPE and OM Power amplifiers. Logging computers were Lenovo X-230 laptops belonging to PDXG. Many of the Pelican and other shipping cases were loaned by Paul N6PSE (Intrepid DX Group) and Jim K8JRK, while others came from the team.

The antennas included: two EAntenna triband Moxons, two EAntenna 12/17 WARC Moxon antennas, verticals on 60, 80 and 160, four squares on 30 and 40, a dipole for 40, and VDAs for HF. The high wind conditions proved to be a challenge for the verticals, with regular maintenance

FIGURE 8MOXON AND VERTICAL ANTENNAS (W7XU PHOTO)

required to keep them up; better guying using stakes rather than attachment to surface rocks improved wind survival. The Moxons were situated on the Marble Knolls, low rocky ridges that surrounded our camp. This gave them enhanced effective height above. The EAntennas and Spiderbeam aluminum masts withstood the rigors of Antarctica and performed well in this exposed location.

The terrain and location of our campsite prevented us from having internet access from the island; we were too close to the mountains to the north. Braveheart was just far enough away from the mountains to get a signal but the weather conditions made the landing too hazards for us to go back to the ship every day. We kept in contact with the Pilot team using our Garmin inReach's texting capability, not perfect for long detailed reporting, but good enough to pass pilot reports. When back on the ship we used our Inmarsat satellite phone for voice calls to home and to the chief pilot, Glenn KE4KY, and the Inmarsat BGAN to upload logs and exchange emails with the pilot and support teams.

Radio Operations

The first contact was made on 40m CW with DL2HRF on 22 February and the final contact was on 30m CW with WA6RRI on 6 March. A few minutes after the first QSO was logged two additional stations came on line. The next morning, the team continued antenna and campsite build out and by the end of that day most stations were operational. We were delighted to find good propagation and reasonably strong signals to many parts of the world, with EU being the best. Later into the expedition

FIGURE 7ALL STATIONS OPERATIONAL (NG2H PHOTO)

conditions dropped off a little, but overall, we had few complaints about propagation.

During periods of good propagation all seven operating positions were in action. As high-band propagation waned during the night SSB usually dropped out first. The SSB operations would shift to FT8, where a single operator could handle multiple FT8 stations simultaneously. The radio operations plan included a rack of high-power

bandpass filters manufactured by Low Band Systems. Even with our Moxon and vertical antennas in close proximity to one another the combination of Elecraft radios and LBS filters proved to be very effective and we had very little inter-station interference.
An important aspect of VP8PJ planning was operator scheduling. We used a similar plan to the one that was used on Ducie Island, VP6D. For each four-hour shift operators were scheduled on four or five stations, depending on expected band activity, with the remaining stations available for any other team member to use. The scheduled operators worked under a designated shift captain who decided which bands/modes had priority during their operating shift. Operators using an open station could choose to do whatever they wanted so long as the band/mode was not already occupied by a scheduled operator since the scheduled operator always had priority. This process ensured that all team members had a sufficient amount of operating time, while providing an opportunity for extra time on-the-air for those who wanted more radio time. Every few days each of the three radio teams would move their start time by four hours, thus over the project's duration each team experienced different geographic openings and band conditions.

After the WSJT-X (RR73) machine generated dupes were removed, the QSO count was 83,782. Thousands of these duplicate QSOs were removed by the PDXG Log Search/OQRS software. The application looks at each FT8 contact and deletes subsequent QSOs for that call sign within a two minute window of the first QSO, i.e. the machine generated duplicate QSO(s).

QSO distribution was: EU 52.7%, NA 34.8%, AS 6.4%, SA 4.5% and AF/ OC 1.6%, with 20,523 unique call signs and 168 DXCC entities, see Figure 9 for additional details.

We had773 "Not in Log" (busted call) inquires, which is a very small number for 83,782 QSOs. This was a good indication that the VP8PJ operators paid close attention to logging accuracy. However, there were a few pirates operating and unfortunately some claimed QSOs were for dates, times and/or bands when we were operating elsewhere or off the air.

Each morning we'd look at the N1MM+ graphs and see that we were making between 5,500 QSOs per day from the first full day of operating to 9,200 QSOs per day on the best operating day. Considering the propagation and less than perfect paths, signals from all over the world were good. Pilot reports and over the air reports indicatedwe were being heard without too much difficulty on most bands,and even 10and 12 opened a few times. We usedWSJT-X software version (2.2.0) with the fox/hound operating mode and most callers understood the FT8 operating protocol. However, some callers didn't get the message straight away and were calling below 1,000 Hz. This improved as more people got the hang of fox/hound operation.

As with VP6D, it was interesting to see the popularity of FT8 not just amongst the callers, but also with the DXpedition operators; perhaps the chance to remove the headphones and relax was a welcome break from the adrenaline rush of working a pileup on the other modes.

BAND/MODE	CW	FT8	RTTY	SSB	TOTAL QSO	TOTAL %
160 m	1232	828	0	0	2060	2.46 %
80 m	2515	2563	0	190	5268	6.29 %
60 m	0	1559	0	0	1559	1.86 %
40 m	6824	5704	14	1979	14521	17.33 %
30 m	8799	5226	737	0	14762	17.62 %
20 m	8396	3534	1232	5762	18924	22.59 %
17 m	6920	4985	417	4719	17041	20.34 %
15 m	4089	1925	40	1351	7405	8.84 %
12 m	1083	595	0	46	1724	2.06 %
10 m	285	233	0	0	518	0.62 %
TOTAL QSO	40143	27152	2440	14047	83782	100 %
TOTAL %	47.91 %	32.41 %	2.91 %	16.77 %	100 %	

FIGURE 9 BAND - MODE STATISTICS

During the voyage to Signy Island we operated as ZL1NA/MM and also had a WSPR station operating as VP8PJ.

Departure

A DXpedition team needs to create a departure plan. It begins by merging the team's plan into the skipper's departure schedule, and removing non essential equipment from the island as soon as we determined what was not needed. Antennas will gradually be removed, stations disassembled and packed for shipment. This process typically begins about three days before the planned departure date, but of course the actual departure will depend on weather and sea conditions. The skipper was providing regular weather forecasts, and the day before our planned shutdown, he told us we would have one more day to operate.

FIGURE 10 WATERPIPE BEACH STAGING AREA (K3EL PHOTO)

The tides and sea conditions would be more favorable if we left on the morning of March 7th.Also, an early morning departure would give us better visibility in navigating the ice fields as we departed. This new schedule meant we would have a final day of very intense activity, taking down the remaining antennas, equipment, and tents, transporting everything to the shore and transferring it to the Braveheart. By the afternoon of March 6thmuch of the equipment was staged on Waterpipe Beach, and we were revitalized with a cup of hot soup near the beach. Then three team members went back to the ship to assist the crew with stowing equipment as it came back from the island, while the remainder of the team transferred equipment down the beach and through the waves to the small boat which made multiple trips between the beach and the Braveheart. This required several team members wearing waders to stand in the very cold water for several hours. With everything properly stowed and a walk around to ensure nothing was left on the island, the remaining team and crew returned to the ship.

The return to Punta Arenas was uneventful. With following seas, we arrived sooner than expected. We were greeted in Punta Arenas by immigration and customs officials, a health inspector and our customs broker. After several hours of formalities, we were permitted to leave the ship and our equipment was transferred to the customs broker.

Reflections

Once back in Punta Arenas we became fully aware of the worldwide Covid19crisis. Team members had previously booked return flights between March 13 – 17. Several of them rebooked for an earlier departure.

With time to relax we looked back over the past several weeks. Very few people in the world get to walk on Antarctica, even fewer are permitted to camp overnight. The consensus was that VP8PJ had been a successful expedition for the island participants. We hope it was a good experience for those of you chasing us in the pileups. We enjoyed hearing from people who contacted us, be they a mega-station looking for a full house, or a QRP operator needing an ATNO.A consistent theme from many who wrote was they had "fun" working VP8PJ, and we had fun working you.

We setup a Groups.io reflector prior to departure; many of your comments were summarized by the pilots and forwarded to us. Other island activities included collecting marine sediment samples for scientific research and partnering with several schools to supplement STEM education through classroom presentations about the expedition.

One of the most meaningful comments on the reflector was written by John Miller K6MM, President of the

Northern California DX Foundation, addressed to Chief Pilot Glenn KE4KY:"Kudos to both the on-island team, and to you and the other members of the off-island team. VP8PJ has been one of the most well-run DXpeditions in the last decade "

Wrap Up

We would like to acknowledge the help and support of many groups and individuals who contributed to South Orkney Islands 2020. We appreciate the major financial sponsorship from the Northern California DX Foundation (NCDXF), the German DX Foundation (GDXF), The American Radio Relay League Colvin Award, Clipperton DX Club and the Far East DX-ploiters for their very generous support, and that of the many other clubs and foundations. Please review the list of Corporate and Club/Foundation sponsors at sorkney.com, they deserve your support.

Over 1,700 individual donations were processed via the website, including 103Premier Donors (contributing $200, or more) and over 1,600DXers added a contribution to their OQRS confirmation request. The on-island teams were supported by many individuals, and in particular we would like to recognize our Chief Pilot Glenn, KE4KY, and his pilot team of: Mason KM4SII, Cesar PY2YP, Bjorn ON9CFG, Alex 4L5A, AndreV51B, Hiro JA1WSX and Luke VK3HJ.

Managing the early donor program was Doris K0BEE, and Tim M0URX who processes your QSL confirmations and uploads your LoTW confirmations.

Among the highlights of the project were giving many DXers an ATNO and/or band fills, putting people on the Honor Roll, logging thousands of FT8 contacts, the first 60-meteroperationfrom Signy Island, and working with a fantastic team of amateur radio operators.

We must also recognize Matt Jolly and his Braveheart crew who were as much a part of the project's success as the radio team.

Until the next time, thank you for your interest in VP8PJ South Orkney Islands 2020.

Area Clubs

Northern California Contest Club - https://www.nccc.cc

Lodi Amateur Radio Club - http://www.lodiarc.org

Stockton Delta Amateur Radio Club - http://www.w6sf.org

Pizza Lovers 259 -

https://www.pl259.org

El Dorado Amateur Radio Club - http://edcarc.net

Sierra Foothills Amateur Radio Club - http://www.w6ek.org

Redwood Empire DX Association - http://www.redxa.com

Calaveras Amateur Radio Society http://calaverasars.org/

Please contact the editor to have your club listed here.

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