



# NCDXF newsletter

www.ncdxf.org

Spring 2016

## VP8 ~ South Georgia & South Sandwich Islands

Ned Stearns, AA7A

THE SOUTH GEORGIA AND SOUTH Sandwich Islands, part of the British overseas territories, are approximately 1,500 kilometers east of the Falkland Islands in the Antarctic Convergence zone and are accessible only by boat, which must navigate through the strong Antarctic Circumpolar Current and deal with the strong, prevailing westerly winds as well as the occasional iceberg.

The separate DXCC entities of South Georgia and South Sandwich Islands had not been active since 2002 — by the Microlight Penguins DXpedition team as VP8THU and VP8GEO — causing them to work their way up to the infamous Top Ten lists. A whole generation of DXers and DXCC Challenge participants has been anxiously awaiting a return visit to these remote islands.

The Intrepid DX Group — an international group of active radio Amateurs who visit places around the world that present a challenge to the routine traveler — took up the challenge to assemble a team and muster the necessary finances and material support to conduct a major DXpedition to these remote island groups. The Intrepid DX Group also promotes goodwill, shares its expertise and experiences through on-site training and helps to educate students at home and abroad. The formidable environments of the Antarctic certainly represented the ultimate challenge for a DXpedition team from the Intrepid DX Group. Its two-year effort to plan and execute this highly complex and wildly successful DXpedition to the South Georgia and South Sandwich Islands culminated by



*Intrepid DX Group's VP8 DXpedition Team (standing), Paul, N6PSE; Arliss, W7XU; David, WD5COV; David, W6DR; Michael, K9AJ; Roger, N4RR; Axel, DL6KVA; Dmitri, RA9USU; Jun, JH4RHF, and (kneeling), Dave, K3LP; David, W5XU; Jay, K4ZLE, and Ned, AA7A.*

activating VP8STI on Thule Island in the South Sandwich Island group from 18-25 January 2016 and VP8SGI on South Georgia Island, 29 January to 6 February 2016.

### Lots of planning

The Intrepid DX Group team for VP8STI/VP8SGI was led by two savvy team leaders: Paul Ewing, N6PSE, from San Jose, CA, and Dave Collingham, K3LP, from Mt Airy, MD. This experienced pair of DXpeditioners divided the leadership responsibilities in this effort in a manner that has been shown to be quite effective. Paul, N6PSE, was primarily responsible for securing landing permits, financial support, logistics and team formation. He produced a comprehensive bio security and safety contingency plan

that was required before final permission and a permit were issued. Dave, K3LP, a 2014 CQ DX Hall of Fame inductee, was primarily responsible for station architecture, vendor support, site construction and station operations. These

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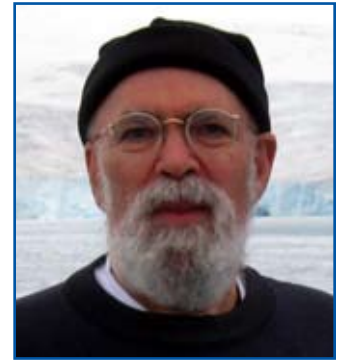
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## From the President's desk



DX HAS BEEN FANTASTIC THIS SEASON EVEN though sunspot Cycle 24 is in sharp decline. Palmyra, South Sandwich, South Georgia, Heard and Juan de Nova are now (hopefully) in your logs. NCDXF sponsored the DXpeditions activating these Top 10 entities. I trust they brought you lots of enjoyment. More great expeditions are in the works. The emphasis of some DXpedition organizers is shifting, with the declining sun, to emphasize low band operation.

I just returned from the International DX Convention in Visalia which is, for me, a highpoint of the Amateur Radio year. I enjoy meeting face-to-face the Hams behind the calls competing with me in the pileups and in my contest logs. I especially enjoy quiet and deep discussions with bold folks planning future DXpeditions. The Visalia program is full of DXpedition reports, each one providing its audience a vicarious trip to some exotic entity. Between last Visalia and this, DXpeditions were QRV to which NCDXF granted a total of \$155,000. These DXpeditions put 425,000 QSOs into their logs.

One presentation at Visalia particularly caught my attention. NCDXF Director Ned Stearns, AA7A, gave a sobering talk, "Managing Disposition of an SK's Station." Ned has done this difficult job several times and he talked us through two cases, extrapolating from them to draw up a playbook. And that got me thinking about my radio estate.

In the immediate term, I mean, suppose I died on the way home from Visalia. Does my family know: How to put my antenna system in a safe state? How to remove power from my station? What hazards exist in the shack and around the tower? Which Hams to call to help disconnect and dispose of my equipment?

In the longer term, have I: Thinned out my collection of obsolete gear? Labeled borrowed, inoperable, broken, incomplete projects? Identified my wishes for donation of specific items? Identified my wishes for disposition of sales proceeds?

And that brings me to the NCDXF Cycle 25 Project. Our goal in this project is to increase the NCDXF endowment so that we can continue through the upcoming Cycle 25 to provide necessary financial support for well-organized DXpeditions to rare, expensive, difficult DXCC entities. We have established the Cycle 25 Fund for this purpose, with the goal of raising at least \$1 million through the combined estate planning of the DX community. Those who direct a portion of their estate to NCDXF for the future of DXing before the peak of Cycle 25 will become members of the Cycle 25 Fund. They will receive a commemorative pin and recognition on the website. They will deserve the thanks of every future DXer.

Since I've started talking about the Cycle 25 Fund I've discovered that some DXers have already made estate provisions for NCDXF. So, of course those people are members of the fund, and the fund is, therefore, off to a good start. Won't you join them? For further information please look at [ncdxf.org/cycle25](http://ncdxf.org/cycle25) and/or contact NCDXF Director Craig Thompson, K9CT.

See you in the pileups,

*Tom ND2T*





*Moving material up the rock-faced cliff at VP8STI.*

two gentlemen spent endless hours over the two years while preparing for this trip.

The balance of the team consisted of a mix of experienced DXpeditioners and a few first timers. In addition to the co-leaders, the team included Axel Schernikau, DL6KVA; Jun Tanaka, JH4RHF; Jay Slough, K4ZLE; Michael McGirr, K9AJ; Dmitri Zhikharev, RA9USU; David Jorgensen, WD5COV; Roger Hoffman, N4RR; David Assaf, W5XU; David Ritchie, W6DR; Arliss Thompson, W7XU, and myself, Ned Stearns, AA7A. An original member of the team, Krassy Petkov, K1LZ, was unable to accompany us due to a last minute personal issue; however, his efforts to assemble the significant low frequency antenna systems were vital in achieving some of our results.

The team chartered the infamous remote location support and research vessel, R.V. *Braveheart*, with boat owner Nigel Jolly heading the crew. The *Braveheart* has unique expeditionary capabilities that make it the vessel of choice for Antarctic DXpeditions. Nigel and his fantastic five-man crew provided endless physical and moral support on this arduous journey. One of the unique aspects of the *Braveheart* is the wall of fame display in the ship's galley where numerous DXpedition of the Year plaques and QSLs from the Who's Who list of

famous DXpeditioners are prominently mounted. To me, it was quite humbling that we had headed out on this voyage on a vessel with such history. The past accomplishments of such storied teams were a significant inspiration and it was our common hope to possibly fit into this distinguished community with our efforts.

### Putting it all together

Paul, N6PSE, headed the task of coordinating all of the gear. The shelters, radio equipment, antennas, computers, station accessories, cables, ropes, camping gear, power distribution components and so much more was amassed in San Jose, CA, during the early summer of 2015. With the help of NCDXF's newest board member, Kevin Rowett, K6TD, the material was all inspected, tested and then placed in numbered containers, which were used in shipping the equipment as well as for storage while on the islands. In order to avoid the normal crisis of checking in bags and possibly losing

them in transit, team members shipped their personal camping gear and cold-weather duds to Paul, N6PSE. All these materials and supplies were put into a 20-foot shipping container and sent off to New Zealand in July 2015 to be subsequently loaded on the *Braveheart*.

Team members started their personal journeys to the Falkland Islands to meet up with the *Braveheart* on 7 January 2016, most converging on Santiago, Chile, on 9 January to catch the weekly LAN Airlines flight to the Falklands. Upon landing we were immediately transported in Stanley Harbor and the awaiting *Braveheart*, which set sail at first light the following morning.

### Out to sea

A total of 16 days of our journey was at sea — taking five days to reach South Georgia Island, and then three days to reach Thule Island, and the return trip. The time spent on board the ship in Antarctic waters was a significant challenge for some. To fill idle time, there was more detailed planning on the upcoming island assaults, and all team members joined in the regaling of past adventures. Much of the time, however, was spent in the bunks sleeping, reading or holding on to anything we could. It was in those times and under those trying conditions that the team really came together. Most members had not worked together before and needed to learn each other's skills and interests in order to divvy up the tasks that lay ahead.

We sailed into South Georgia's King Edward Cove on 14 January where we were required to meet with officials in order to complete training for all members as well as conduct some critical inspections of the vessel for operations in these islands. We all mustered ashore and took advantage of the opportunity to stand on terra firma and visit Sir Ernest Shackleton's grave and then took a walking tour around the South Georgia



*VP8STI operating site with HF Yagis on top of the ridge.*



*VP8STI following the storm on 24-25 January with the Bio Station tent and a second sleeping tent buried under the snow.*

museum in Grytviken, inspecting the many artifacts from the whaling.

During the three-day sail from Grytviken to Thule we discussed landing options, of which there were two: 1) wading ashore in the Antarctic surf, wearing survival suits (which none of us brought) or, 2) scaling a rock-faced cliff using means that may have been left behind by previous expeditions. Clearly, neither option was terribly appealing. Three team members — AA7A, JH4RHF and WD5COV — volunteered to take Option #1, using survival gear available on the *Braveheart* and, along with two *Braveheart* crew members, they would wade ashore to confirm whether Option #2 was even possible.

On 17 January, the initial assault team went ashore in Ferguson Bay on the southeast side of the island early in the morning and walked across the peninsula, making several vital discoveries. The first was significant: a polypropylene rope in place at the rock-faced cliff on the other side of the peninsula that would easily support a slightly more elegant means of gaining access to the island for the remainder of the team. Another vital discovery was that the rescue hut facility on the island was in shambles and totally unusable. The third significant discovery was that over a million penguins inhabited the island, not to mention the foul odor of guano, which hung heavy in the air.

The decision was made to use the rock-faced cliff as the primary means of accessing the island and the *Braveheart* sailed through the strait between Thule and Cook islands to take a position near

where the rest of the team could disembark on a large, flat rock before having to scale the cliff. After each climber regained his composure at the top of the cliff, he joined the initial assault team to inspect the island and weigh the options for positioning the operating tents and the various antennas. A final plan was put in place and the process of building the VP8STI station started by mid-morning.

### **Daunting task**

Everyone knew there were going to be days when the physical effort would be extreme. The process of moving every stick of aluminum, every ounce of fuel and drinking water, every generator, every roll of coax and every other item for this complex DXpedition station out of the bowels of the ship, over to the island, up the cliff and then up the rock-strewn slope to the operating site was an incredible effort.

Once the process started, it had to be completed since we needed to have our basic survival capabilities in place as soon as possible for the coming night's stay on the island. It is important to note that not one single item was lost or damaged in the process of unloading all of the gear off the boat and over to the operating site, although one of the large generators was nearly lost in a handoff at the base of the cliff. Following the daylong process, we had no problem sleeping that first night on the island while we tested the capabilities of our cold-weather camping gear in two, unheated tents.

Antennas were quickly raised on 18 January and VP8STI was soon on the

air. Basic capabilities on 40M through 10M were available on the first day and we added 80M, 160M and 6M in the days to follow, completing the initial setup, after which the team began the process of activating every available band on the six stations in the operating tent. The process of scheduling operating time slots for all the operators was quite dynamic and band conditions proved to be quite variable so it took several days to find the right approach to assure that the right operator was on the right band in the right mode at all times. We uploaded logs daily using satellite communications and received significant feedback via our pilots who helped us optimize our operating plan. We also continued to add capability to the antenna farm right to the end in an attempt to squeeze the last ounce of performance that we could from the pile of material that we assembled.

### **Mother nature blows in**

The weather on this leg of the trip was not an issue for the first six days of operation on South Sandwich, even with the occasional dusting of snow and near-continuous low-level winds. However, on 24 January, the weather started to turn. The winds shifted to the west and picked up steadily as snow started to form drifts, making it difficult to walk between the sleeping and operating tents — a distance of only four meters. During the next night, the winds approached (and likely exceeded) 70 knots and snow started to bury the two tents — and at one point both tents collapsed in one mighty blast of wind. We stopped all operations and everyone quickly donned their full cold-weather gear. Together we worked quickly to remove snow from the tent tops and repositioned some tent guys. We also set up human walls to push back on the inside of the tent's west walls to keep them from completely collapsing. This went on through the night and well into the next morning before the winds finally abated.

The decision was made to shore up the tents and make repairs to a few damaged antennas to get through one more night of operations before shutting down the following day. We had completed repairs to all the tents and antennas and were well underway on all the bands that afternoon when Captain Jolly contacted the shore



*Ned, AA7A,  
operating  
RTTY at  
VP8SGI.*

team and ordered an immediate evacuation. The recent storm had broken off a large area of pack ice and the wind was moving it west toward the strait between the islands and he feared that it would make access to the island impossible. To prevent an unplanned stay for up to a week in this condition, he ordered the evacuation of the shore team to the *Braveheart*, which would then move out of the straits into safe seas in Ferguson Bay. The plan was then to inspect the conditions in the strait at first light in order to determine the means, if any, to recover the gear that had been deployed on Thule.

By first light at 0400, an 11-man team was sent to recover all the gear in an eight-hour window; the remaining members remained on board to receive the gear, clean it and stow it away for the voyage.

Under some of the harshest conditions yet, the shore team made upwards of 50

trips up and down the rock-strewn slope with all the gear, then lowered it down the cliff onto awaiting launch boats. Once on board, it was stored away or tied down and we were underway to South Georgia by mid-afternoon on 26 January. This unplanned process actually put us on schedule for the original plan for activating the two islands.

As we all tried to recover from the day's struggle, we decided to move on to South Georgia and use what material we could to give it our best effort. It might have been easier to simply throw in the towel and claim it was just too hard, but we all decided that we had come this far and that we should follow through with the original plan and activate South Georgia as best we could. This was a proud and defining moment for our team.

### South Georgia

Three days hence, the *Braveheart*

arrived at Husvik Bay on South Georgia Island. The harbor looked like a scene from a fairytale, complete with grand, snow-capped mountains; a picturesque valley with a stunning, abandoned whaling village; gently rolling, green grassy lands; waterfalls, and a smattering of groups of sea lions lolling about in the sun. We landed on the beach and stepped into ankle-deep water to access our designated camping area.

During our voyage to South Georgia, we had settled on a plan to erect a single operating tent and conduct radio operations with two teams, alternating between day and night operations. This plan significantly reduced the effort needed to build the site and we completed the setup by sunset, allowing the night team to start radio operations on all bands at VP8SGI on 30 January. Six stations were set up in the operating tent and each was manned 24-hours on the best available band.

The radio conditions on South Georgia greatly improved over those experienced on Thule and we quickly discovered that we had effective paths to North America and to Japan. The team spent extra efforts to work these thought-to-be tough paths in order to maximize the impact of our trip to this rare DXCC in order to hand out a new one to as many as possible.

Working VK and ZL was a challenge at these two sites since we had to rely on paths through the polar absorption regions that were activated and subsequently disruptive to radio circuits as a result of the effects of recent solar ejecta. With the improved conditions and mild weather, the QSO rates that were produced on South Georgia exceeded



*80M two-element array, 40M 4-square and 160M two-element array and spare aluminum at VP8SGI.*



Paul, N6PSE, inspecting the VP8SGI campsite following the storm on 5 February.

those on Thule, as well as any projections we had made during planning. With the mild weather and available space at the VP8SGI site, the team expanded the low frequency antennas to the maximum extent possible.

On 6 February, the wind started to change its gentle behavior and showed us a more serious side. Winds started to pick up once again from the west and light snow began during the day. The day team struggled to keep the tent adequately guyed in the elevated winds, approaching 50 mph.

### Another rough night

The night crew took over the site at 2200Z and spent a few minutes resetting the guys on the antennas that had become loose. Radio operations proceeded normally until the middle of the night when the winds increased to the point that it became impossible to copy CW, even while wearing headphones. The winds caused the tent to start flapping in such a state that it was like sitting inside a 20-foot-diameter speaker cone with the amp cranked up to maximum. The audio level was easily at rock concert decibels and it was nearly impossible to hear the person sitting next to you.

The tent finally collapsed at 0200 and we had to disassemble the stations and place all critical gear underneath the operating tables for protection. We left the tent and stood outside in the raging storm, weighing our options while in communication with the *Braveheart*.

The ship could not launch its boats under the conditions without adding additional peril so the shore team had two options. They could venture over to the whaling village and take up refuge in the manager's hut or hunker down in the remains of the tent until the *Braveheart* could safely launch its boats in the morning.

Although the first option was quite attractive, the hut was in an off-limits area and we were strictly forbidden to go there for any reason. After contemplating that option for a few minutes, collectively we went with the second option to see how it would play out. The winds continued to build through the night, eventually reaching 80 mph, but soon after daybreak a launch boat came ashore and after a few trips we were all back aboard.

At that point, the DXpedition to South Georgia was complete and once again the team started the process of recovering gear from a hostile Antarctic island under less-than-ideal conditions. Mid-morning on 7 February, the day team sent a skeleton crew to start the process of packing up the stations. Unfortunately, the storm was not over and the winds continued to build, reaching 100 mph, forcing the skeleton crew to weather out the storm, sitting on the badly disabled tent to keep it from blowing away.

The *Braveheart* crew was also struggling with keeping the boat anchored in the harbor. A pleasure boat in the harbor that morning did not fare so well and eventually lost its mooring and subsequently foundered on the rocks. The

Results for VP8STI on South Sandwich Island

Band	Phone	CW	Digital	Total	Total %
160	5	1,169	0	1,174	2.1
80	955	2,105	0	3,060	5.6
40	1,215	7,341	19	8,575	15.7
30	0	6,004	1,174	7,178	13.1
20	4,513	6,379	1	10,894	19.9
17	3,892	6,328	0	10,220	18.7
15	1,824	4,062	2,004	7,890	14.4
12	841	2,943	3	3,787	6.9
10	813	1,051	0	1,864	3.4
6	0	0	0	0	0
Total	14,058	37,382	3,201	54,642	

VP8STI by continent

Continent	Total QSOs
Africa	894
Antarctica	2
Asia	3,674
Europe	30,307
N. America	16,585
Oceania	473
S. America	2,707
Total	54,642

### Results for VP8SGI on South Georgia

Band	Phone	CW	Digital	Total	Total %
160	0	1,580	0	1,580	1.9
80	511	3,389	0	3,900	4.7
40	3,386	7,125	1	10,512	12.7
30	0	8,178	1,675	9,853	11.9
20	4,660	9,103	834	14,597	17.6
17	4,573	8088	0	12,661	15.3
15	3,656	7651	3,195	14,502	17.5
12	1,865	7,051	0	8,916	10.8
10	1,972	4,353	1	6,326	7.6
Total	20,623	56,518	5,706	82,847	

### VP8SGI by continent

Continent	Total QSOs
Africa	902
Antarctica	9
Asia	6,814
Europe	38,831
N. America	31,924
Oceania	366
S. America	3,983
Total	82,847

passengers were dear friends of Captain Jolly and he was deeply torn between offering assistance to their crippled vessel and managing his own affairs. All in all, this was a challenging day for everyone.

By noon, the storm stopped completely and the waters in the harbor became as glass. With an eye on the satellite weather charts, the Captain sent everyone ashore to recover the gear during the short, four-hour window as the eye of the storm passed over the island, which they quickly did before the winds started to build again.

### Wrapping up

The time at sea following an island DXpedition is a unique experience. There is no glorious event at the end of this leg of the trip except going home. Everyone has already shared his last tall tale and time passes slowly as one ponders all the amazing things that transpired in the journey.

The *Braveheart* left Husvik Bay on 8 February and arrived back in Stanley Harbor five days later; its spectacular view again mesmerized the team with its stark beauty.


In general, VP8STI had eight days of radio operation where the LF antennas were erected a few days after the start. VP8SGI had nine days of radio operation where all antennas were ready from the start. Radio conditions were more heavily affected by solar events at VP8STI, which mostly affected the higher bands. Openings to NA and to Asia (mostly Japan) were more limited at VP8STI, most

likely due to the effects of the local terrain.

There is a nearly endless list of people and organizations to thank for supporting this trip. The financial support from NCDXF, INDEXA, many DX clubs and organizations around world was absolutely essential in executing this complex and demanding DXpedition, and the number of individuals who contributed graciously to this operation is incredible. Hopefully, we have managed to personally thank each and every contributor to this operation. A number of suppliers of Ham Radio goods also stepped up to support this operation and we are especially thankful to Elecraft for providing the use of a suite of highly durable K3, KPA-500 and KAT-500 ATUs for this operation. We also thank Force 12 for the

HF Yagis and 40M verticals that survived some rather incredible environments. In addition, we thank DX Engineering for the LF vertical arrays that made many 160M and 80M operators do the DX dance at numerous times during this adventure. The 403A multiplexers and band pass filters were a vital capability for this operation and performed flawlessly. The headsets provided by RadioSport allowed the unique capability of conducting CW and SSB operations, side-by-side, in the oft-times noisy tents. The full list of vendors, clubs and individuals who supported this operation can be found at the Intrepid DX team's website ([www.intrepid-dx.com/vp8](http://www.intrepid-dx.com/vp8)).

For me, participating in the VP8STI/VP8SGI DXpedition was a once-in-a-lifetime opportunity. It has been, and may continue to be, difficult to justify a trip of this nature to all of your non-Amateur Radio friends or even to your immediate family. Taking a cruise ship adventure to the Antarctic is a common event these days, but the opportunity to live on and explore these islands while participating in your favorite hobby is a truly rare experience. In addition, this trip provided me the opportunity to meet or expand relationships with a number of interesting, success-driven, like-minded Amateurs.

I am often asked if this will be that last time I get on a boat for a long ride and my current answer is "Not any time soon." 



73 from the VP8STI/VP8SGI team and the *Braveheart* captain and crew.

# K5P Palmyra 2016

Glenn Johnson, WØGJ

ONE OF THE NORTHERN LINE ISLANDS southeast of Kingman Reef and north of Kiribati, Palmyra is located about 1,000 miles due south of Hawaii with its nearest continent almost 3,400 miles northeast. The atoll, consisting of a reef, two lagoons and some 50 islets, is 4.6 square miles and located just 5° north of the equator.

## Palmyra background

Palmyra was first sighted in 1798 by captain Edmund Fanning, master of the American merchant ship *Betsy*, on a voyage to Asia, and, in 1859, Palmyra Atoll was claimed for the United States by Dr. Gerrit Judd of the brig *Josephine*. In 1862 Palmyra was formally annexed to the Kingdom of Hawaii and eventually purchased by the Fullard-Leo family for \$15,000 in 1922, but the US Navy took over the atoll from 1939-1947. After the war, the Fullard-Leo family sued for the return of Palmyra Atoll and in 2000, The Nature Conservancy (TNC) acquired the atoll from the Fullard-Leo family for \$30 million and all but Cooper Island was deeded to the U.S. Fish and Wildlife Service.

After WWII, Palmyra remained uninhabited, yet there were many bizarre happenings and experiences, the most famous of which occurred in 1974, a mysterious and grisly double murder that remains unsolved. At the very same time this was happening, the first ever Kingman Reef DXpedition (KP6KR) took

place by W6RJ, N6RJ, W6OAT, W6OOL and KH6CHC. They also operated from Palmyra as KP6PA and would have stayed longer had suspected killers not been still at large.

In 2009, the Pacific Remote Islands Marine National Monument, comprising Palmyra Atoll, Baker Island, Howland Island, Jarvis Island, Johnston Atoll and Kingman Reef, was established and these refuges host a number of unique terrestrial and marine life.

## Ham history

On 5 January 1980, a Lockheed 18 Lodestar, carrying seven Amateur Radio operators from Honolulu to Palmyra, swerved off the runway and collided with trees while approaching the airstrip in a pre-dawn squall. There were no fatalities but the aircraft was totaled. One passenger sustained fractures, including the spine, and a Coast Guard C-130 was called in to evacuate the person. A few days later, another person was bitten by a shark and needed Coast Guard evacuation. The Lodestar was eventually pushed into the trees on the southwest end of the runway, where it remains.

Astronaut Chuck Brady, N8BHQ, was



on Palmyra (and one day on Kingman) in 1998 and the last major DXpedition was in 2000. In 2005-06, Mike Gibson, KH6ND and Kimo Chun, KH7U, worked on Palmyra for TNC installing infrastructure and communications equipment and they were active during their off-duty hours. There has been no activity since early 2006, 10 years ago.

Overall, Palmyra (/Jarvis) is ranked #9 Most Wanted worldwide, and it was #2 Most Wanted in Europe, which is, for all practical purposes, antipodal with difficult very long path propagation through the aurora zones. Some of our best propagation predictions suggested that we might be able to get as much as 5% of our log filled with Europeans.

## Permission and restrictions

The Pacific Island DX Group (PIDXG) is led by Lou Dietrich, N2TU and Craig Thompson, K9CT and for years, just like the KP1-5 Project working in the Caribbean arena, the leaders have been working with the U.S. Fish & Wildlife Service (USFWS) to obtain landing and operating permission for Palmyra. After years of applications, appeals, denials and appeals to the highest levels, the USFWS allowed TNC to accept proposals for an operation on Cooper Island, the only island of the Palmyra Atoll where non-USFWS personnel are permitted.

Interestingly, Lou and Craig were team members of the January 2015 K1N Navassa DXpedition and it was there that Lou and Craig received word that their



Above: The Lockheed 18 Lodestar, N163R, before Palmyra.

Right: The plane as it sits on the island today.







*Aerial view of Palmyra Atoll.*

application was the one accepted for operation on Palmyra.

The PIDXG was given the time slot of December 2015 to February 2016, as this was period in which no research was conducted on Palmyra and the population would be a minimal maintenance crew, thus allowing for accommodations.

Logistically, a real challenge loomed, as the departure date for the annual supply barge from Honolulu was six weeks away. Thanks to generous donors and the incredible help of Kimo, KH7U, in Honolulu, all of our gear, antennas, coax and everything needed for a major DXpedition made it onto the barge

in time. No other vessels or ships are allowed to enter or land on Palmyra.

Radios and laptops would be shipped later to Kimo and then taken as checked baggage with us on the irregular (read: on demand) flight to Palmyra which could accommodate 12 operators.

All antennas had to be verticals since horizontal antennas would be an invitation to bird landings and possible injury. We would be allowed to operate from the boathouse and only had use of the wharf — 300 feet (100 meters) long and less than 100 feet wide at the widest — for our antennas, so as not to disturb any other natural area.

## Goals

ATNO & EU emphasis — There is no question that there was a lot of pent-up demand in Europe (and the rest of the world) for making just ONE all-time new contact. With the location, propagation and antenna restrictions working against us, we knew we would really have to work hard for those short openings to Europe. We expected a daily short path and a daily long path opening on most bands but central and western Europe would be the most difficult.

Murphy and the Palmyra curse were



*Palmyra International Airport terminal.*



*Dick Williams, W3OA; Jerry Rosalius, WB9Z; Craig Thompson, K9CT; Glenn Johnson, WØGJ; Lou Dietrich, N2TU; John Miller, K6MM; Mike Tessmer, K9NW; Tom Berson, ND2T, and Hal Turley, W8HC.*

always watching us. About six weeks before departure we were “advised” that we could not take our planned team of 12 because the FAA determined several months earlier that the plane that had been flying to Palmyra for the past dozen years was now not certified to use an unimproved runway, as regulations had changed. TNC scrambled and found a certified plane, but with a capacity for only nine passengers. We could have worked in an extra flight, but the incremental cost was unthinkable at this late stage of the game so three gracious operators backed out. Now our team size and the number of stations for our limited time started to horn in on our operation, too. The only good news was that with the new plane and its schedule, we ended up with an extra day of operation!

The team arrived in Honolulu on 9 January and met Kimo, KH7U, the following day at the private air terminal to store our checked baggage (radios, amplifiers and station equipment) and that evening we had dinner with TNC and USFWS officials.

Originally the plan was to be at the airport at 6 a.m. for a 7 a.m. departure, but that evening we learned that we couldn’t leave until at least noon because they were waiting on a replacement part. However, we were told that because of our delayed flight, we could stay an EXTRA day! We had NO problem with that!

Upon arriving at the terminal we had a mandatory briefing by USFWS followed by a pilot briefing. After which we were told that, with the checked bags on board, there was no more room for our carry-on



*The 22-year-old Battle Creek Special. World record holder for ups and downs!*

baggage that contained our clothes and toiletries. We were given the choice of leaving everything behind or seeing how much we could each get into a large Ziplock® bag that we could hold on our laps. Everyone complied and when we finally boarded the plane shortly after noon, we all knew how sardines felt. We were PACKED!

We asked our pilot to fly over Kingman Reef and he complied. There was very little left exposed above water and later, when we checked the tide tables, we saw that we flew over Kingman at low tide.

### The operation

After a mandatory briefing by TNC on rules and how the camp operates, we quickly threw our belongings into our assigned cabins and headed to the Dry Lab and wharf area to begin our deploy-



*West SteppIR BigIR and 80M Spiderpole vertical in background.*

ment. We were able to get one SteppIR BigIR vertical up and operational before dark and finished the second one with illumination from our headlamps. Two stations were operating all night with massive pileups!

At dawn we went QRT and everyone pitched in to finish our antennas. The 22-year-old Battle Creek Special (BCS) was assembled and went up without a hitch. On the wharf, we had the BCS in the middle with a SteppIR BigIR vertical at each end. Many radials of each of these antennas were in salt water. We negotiated with TNC and were able to put a third SteppIR BigIR vertical in a clearing on the opposite side of the Dry Lab and, in another clearing, we put up a 20M SVDA array aimed at central Europe.

We had an SAL-30 receive array, which we initially put up near the Dry Lab, but there was a lot of desense and noise picked up from laboratory equipment. We were able to move it 800 feet further and found that location extremely quiet! Without this antenna we would not have had the success we had on 160M and 80M. We had the usual tropical QRN, but surprisingly little in the way of local



*The operating positions in the Dry Lab.*



The operators at work: (top) Hal, W8HC; Jerry, WB9Z; Mike, K9NW; John, K6MM; Lou, N2TU, and Dick, W3OA. (Below) Craig, K9CT; Glenn, WØGJ, and Tom, ND2T.

thunderstorms, having only heard one clap of thunder while we were there. The SAL-30 really helped with that noise.

The island's curse never left us alone. The BCS only worked on 40M. We took it down—always a six- to seven-person operation—retightened and clamped the 40M trap and put it back up but it then only worked on 40M and 80M. Taking it back down, we reconfigured the 80M trap at the top and it then worked on all three bands... until the third QSO on 160M. Of course, it was dark and we had to wait until morning for repairs. To make a very long story short, we set a record, having raised and lowered the BCS at least 13-14 times. The internal capacitance mechanisms had failed after 22 years of traveling and being in salt-water environments. We bypassed the 40M and 80M traps and extended the "L" to make a resonant inverted-L for 160M use only.

Since the SteppIR BigIR verticals were a compromise on 80M, we had one 62-foot Spiderpole we made into a full-size 80M ground plane, again, with plenty of radials and many in saltwater.

To say that is was hot and humid is an understatement. The Dry Lab is so-called because it is the only air-conditioned building; hence it is dry and protects the sensitive laboratory equipment from the extremely high humidity outside. We had plenty of desk space in there to set up four stations and an additional station for our 6M beacon. Elecraft generously provided K3Ss and KPA-500s for five stations.

We divided into three teams and operated in two four-hour shifts followed by a three-hour shift. This allowed us to slowly rotate each team through the day/night and follow the propagation. Three stations were always on the air during the daytime, with the fourth being occupied by an "off duty" operator. Late at night,



160M, 80M and 40M were always open. When 30M was open at night, one station would usually alternate between 160M and 80M.

We had excellent propagation into Asia, Oceania and North & South America as expected. We knew from studying the propagation charts and forecasts when to expect European openings and paths and with that information and help from our pilots, we greatly exceeded the expected 5% of our logging Europe to over 11% at the end. Not only are we on the down slope of Cycle 24 and with solar flux being only 95-102 and very high A-indices, we had another curse to contend with: a large Total Electron Cloud hovering directly over us for the first 10 days or so of our operation. This attenuated both outgoing and incoming high angle signals.

In the first few days we were plagued with noise right in the middle of our 160M operating area and eventually tracked down the source to be the solar

inverters. The SAL-30 made a huge dent in the noise, making the band quite useable.

Another issue was the "Dragon" or Over-The-Horizon Radar (OTHR). There were times it would really interfere with our rate.

I brought along my FlexRadio 6500 and new Maestro interface, using the 6500 mostly on the low bands because of the noise handling characteristics of the radio. Those who used the FlexRadio saw another dimension to the low bands that had not existed until now.

The TNC staff was very interested in our activities and often stopped by to watch and/or listen in on our QSOs and became good at predicting how many Qs would be posted on the white board in the dining hall at each meal time. At least one staff member is working on getting study materials to apply for a Ham license!

The days passed by all too quickly as we had our noses to the grindstone.

The Palmyra Yacht Club.





Some of the island's fauna: coconut crab (which can grow up to three feet), hermit crab and king spider.

## Success!

We went QRT at 1845Z on 26 January with 75,210 contacts in the log. We kept two stations, then one, on the air as long as we could, and by nightfall everything had been dismantled and packed for shipping. We were exhausted!

missions and patience in working with us to make this DXpedition successful. Without the support and infrastructure of TNC, our logistics would have been much more complex and even more expensive.

Thanks also to our equipment spon-



Lou and his buddy, Rayn, the camp's red-footed booby.

We worked 157 DXCC entities with 18,263 (24.3%) unique call signs. Continental breakdown: North America, 46.1%; Asia, 34.2%; Europe, 11.3%; Oceania, 4.6%; South America, 3.4%, and Africa, 0.6%. We know Europeans were frustrated with conditions and weak signals, but with our efforts to find the openings to Europe, we more than doubled our expected number of predicted contacts.

The beauty of CW really came through with weak signals and poor propagation. About 57% of our contacts were CW, 30% SSB and 13% RTTY.

For nine operators, limited antennas and limited propagation, we all felt a sense of accomplishment, and had a very good time doing it!

## Thanks

We cannot express enough gratitude to the USFWS and TNC for their per-

sors, especially Elecraft, Expert Amplifiers America, SteppIR Antennas, DX Engineering, Array Solutions and other vendors who went beyond the extra mile to insure that we were well supplied with radios, amplifiers, antennas and

everything else needed for a successful operation.

We cannot thank our global pilots enough for their daily suggestions to help

with finding the right time and frequencies to our most difficult propagation paths.

Most importantly, without the financial help of donors like NCDXF, INDEXA and others, many clubs and organizations, and many, many individual DXers, this DXpedition could not have taken place. Thank you very much for your support and faith in us. Having "seed money" before the DXpedition gets on the air makes it all possible. We cannot thank you enough.

## Where do we go next?

At the time of this writing, we have no definite plans. We are working from various angles and positions on other entities somewhere near the top of the Most Wanted list, but there is nothing to report or even hint at. Most places controlled by USFWS and/or the military require long periods of time, tons of paperwork, negotiations over restrictions and equipment/antennas/personnel, etc. for a successful operation, and then come transportation issues and logistics. There is a reason why many entities are on the Most Wanted list. They are politically, physically and financially remote or, as we have seen, have issues like the Palmyra curse. With planning and working diligently, many of these obstacles can be overcome... sometimes with a little luck thrown in.

To paraphrase Admiral Farragut, "Damn the Palmyra Curse, full speed ahead!"



Sunsets never get better than this!



# The VK9WA story



IMAGINE THE FEELING OF HAVING worked for 10 months planning a DXpedition, having a charter boat arranged and half the expedition team formed, only to see it cancelled two weeks prior to announcing it to the world? This is the start of the VK9WA story.

We were days away from announcing a DXpedition to a Top 25 location but we were beaten to the press by another team. Needless to say, we were very disappointed after having worked so hard putting the plans in place.

We gave Bernie McClenny, W3UR, a call asking for his advice on how best to proceed given what had just unfolded. Bernie's words were, in effect, "The world is a big place, with so many other locations needing to be activated. Here are a few places that come to mind..."

Armed with Bernie's words of wisdom and encouragement, team leaders Rob Fanfant, N7QT, and Jared Smith, N7SMI, quickly refocused on Willis Island. It was No. 32 on the Club Log's most wanted entities list at the time and had not had a significant activation since 2008. Once we were confident that landing rights and a call sign could be obtained, we announced to the world that we would be activating VK9/W and formed the rest of the team – Sandro Nitoi, VE7NY; Adam Blackmer, K7EDX; Hawk Eriksson, SM5AQD; Gus Widell, SM3SGP;

Allan Buckshon, VE7SZ, and Hal Turley, W8HC.

DXCC entity Willis Island is comprised of three small coral islands (cays), located 450km off the east coast of Australia beyond the Great Barrier Reef in the Coral Sea and are home to millions of sea birds, turtles, crabs and other animals. They are part of the Coral Sea Commonwealth Marine Reserve and access is provided only via boat under a government-issued permit.

The largest island, Willis, is home to a manned meteorological station and while Willis was the easiest to land on, we quickly learned that we would require additional permissions to operate from there so we set our sights on Middle Cay, the smallest of the islets at only four acres and just three meters above sea level. Middle Cay had been activated before and had a less difficult approach and landing than North Cay.

*by the VK9WA team*

## Expedition goals

We set important expedition goals that included providing all time new ones (ATNOs) to as many stations as possible and intended to accomplish that by focusing on fewer band slots/modes during the expedition so that we would increase the percentage of unique stations worked. We also wanted to provide QSO percentage equity among the big three — Asia, Europe and North America — while also providing opportunity to other regions, such as Oceania, Africa and South America. Lastly, we wanted to minimize expenses to under \$1 per contact. It was a very strong belief among the team that "We can do more for less."

## Station equipment

With eight team members, we decided to have four stations on the air, each

*Station equipment was staged and tested well before departure.*





*Would all of our gear fit on board the Phoenix?*

designed to have nearly identical equipment and support for all modes — CW, SSB and RTTY — which enabled any team member to operate at any station with minimal adjustments and configuration.

Our equipment consisted of Elecraft K3S transceivers; two Expert 1.3K-FA and two Elecraft KPA500 amplifiers; in the way of antennas, we used four SteppIR CrankIR (10M-80M) verticals, one modified 60' CrankIR (80M/160M) vertical and one SteppIR two-element beam; 80M/160M RX antenna, plus a TX3A DHDL; for RTTY/CW we had a W3YY interface; CW keyer, K1EL Winkeyer USB; Panadapter, LP-PAN SDR with Xonar external sound card (used for CW skimmer); we used Array Solutions single-band pass filters, and RadioSport RS60CF headphones.

To minimize costs, we primarily used individual team member's personal equipment, and because the team would be meeting for the first time in Cairns, Australia, just two days prior

to our departure, it was imperative that the equipment list be accurate. With limited luggage allowance, duplicate equipment was limited to only the most critical items.

### Planning

Once we determined the government agency responsible for issuing landing rights, we applied for permission to land and operate on Middle Cay, which was issued roughly 30 days later and required that we minimize the environmental impact on the island. The call sign application was straightforward, though it took roughly four months for the VK9WA call to be issued due to technical and bureaucratic delays in the Australian licensing system.

At the recommendation of our Parks Australia contact, we selected Bianca Charters ([biancacharters.com](http://biancacharters.com)) based out of Port Douglas to provide transportation to and from Middle Cay. Captain Peter Sayre knows the Coral Sea better than perhaps any man alive.

Our equipment list was continually refined up to the day we departed for Middle Cay. This would be the team's first expedition to an uninhabited island and it was difficult to determine what was going to be needed, considering the mostly unknown weather conditions, sand/soil type, island layout, etc. Based on data from the nearby weather monitoring station, we did, however, know it was going to be hot with temperatures around 90°F (32°C) and windy at all times, with the possibility of gusts of at least 40-45 knots and a chance of significant rain. Gene Spinelli, K5GS, who participated in the TX3X DXpedition to Chesterfield Island, provided helpful recommendations on what to expect.

Armed with this knowledge, we selected canvas spring-bar tents reinforced with steel supports and plywood tent flooring, using three tents for operating and one for resting. We also took ample sandbags and plenty of metal anchors/stakes between three- and six-foot-long.

Station power was supplied by four Honda EU20i generators, chosen based on their reliability and being RF quiet. We also purchased external fuel tanks to allow for extended running time and refueling without the need to shut down operations.

To provide constant feedback to the community and minimize duplicate QSOs, we chose to regularly update Club Log during the expedition and that required a wireless network on the island, allowing all stations to sync to a master N1MM+ database. To limit the amount of satellite internet/data traffic, a \$30 Raspberry Pi computer with custom-built software was used to manually initiate log uploads every few hours via an iSatHub satellite phone. Michael Wells, G7VJR, was instrumental in adding Club Log functionality to support uploading of compressed ADIF log files, further reducing our satellite data charges. In the end, the total data usage for incremental log uploads and daily e-mail communications with pilots and family members was only 15MB at a cost of just \$71!

A DeLorme inReach device was also taken to allow satellite text message communication with pilots and family

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members, and to allow them to track our location on the voyage.

## Execution time

The only equipment shipped to Australia ahead of time was 1,300 feet of coax. Other items purchased in Cairns included generators, plywood, tents, long stakes, rope, sunscreen, fans, chairs, etc. Everyone pitched in to complete the equipment purchases and then stage the equipment at the home of Paul Newman, VK4APN.

We can't reiterate enough the importance of staging equipment prior to departure, as well as having a local contact who is familiar with the operating environment. Paul was instrumental in pointing out shortcomings in our original planning. For example, we discovered that in Australia high amperage (15 amps and higher) electrical plugs are physically different than lower amperage plugs. Paul saved us from a significant problem by pointing out that the extension cords we had originally purchased would not plug into the generators! Paul also deemed that our baseball caps would be insufficient to protect us from the sun. Locally purchased \$5 sun hats proved to be a very welcome last-minute addition to our cargo.

A week prior to our departure, Bianca Charters advised us that our departure point had to be changed from Cairns to Port Douglas, a one-hour drive north of Cairns and that required some quick adjustments to our original



plans. We hired a moving truck that arrived the morning of our departure at Paul's home to transport our gear, which barely fit in the large truck. The team then boarded a charter bus with our few remaining supplies and headed up the coast.

We were all ready and excited for this adventure to really begin, yet anxious about the unknowns. Would all of our gear fit into the vessel? How would we fare over the 30-hour boat ride? Did we forget or overlook anything? Had we planned on enough fuel for the generators? Would everyone remain healthy and safe? The list of unknowns was extensive, yet we had confidence in our planning.

## Underway

The team arrived in Port Douglas around 16:00 as MV *Phoenix*, a 65-foot diesel-powered, aluminum-hulled cruiser, was being fueled for the trip. It can accommodate 12 passengers, plus four crew, and we were thrilled to find the captain and crew extremely competent and helpful — truly the operation would not have been a success without them!

After loading the *Phoenix* and having supper in Port Douglas, we departed for Middle Cay around 22:00; our late departure would ensure an early morning arrival.

The 30-hour voyage to the Willis Islets was rough with large swells, but only a couple of team members became seasick. Early on Saturday we awoke to a sunny morning and were greeted by numerous seagulls and boobies gliding in the wind along the *Phoenix*. We could see the silhouette of nearby Middle Cay on the horizon.

Arriving at Middle Cay was exhilarating, to say the least. It's likely that more people have been in space than have set foot on Middle Cay. We had examined a few old photos of the island and talked to some of the very few people who have landed there, but to actually be there brought relief after months of intense planning.

The *Phoenix* navigated the dangerous coral reef heads surrounding the island and anchored about a quarter-mile offshore. Upon landing, we found a position





*One of the local island residents.*

on the north shore, 500 feet from the landing site, to be optimal; not only for propagation to the north, but the steep slope of the shore would minimize impact on nesting turtles. Making 20 trips in the small dinghy and carrying two tons of gear over the difficult 500-foot expanse of sand was difficult and the soft, white sand added to the sun's intensity. Despite several applications of SPF 50 sunscreen, many team members found themselves sunburned on the first day.

It took almost 10 hours to get tents, antennas, stations and generators set up, and just before dusk on Saturday, 14 November, with all four stations operational, we were finally ready to call "CQ CQ VK9WA."

### On the air

The initial pileups were large and intense, and over the course of the next 10 days they let up little. While propagation numbers and forecasts weren't great, it was astonishing that we were hearing and being heard so well.

All team members were scheduled for up to 10 hours of operating per day, with longer rest periods every few days. For the first three days, the entire team took a lunch break on the vessel from noon to 2, local time, when propagation was the weakest. We used this opportunity to debrief and refocus the team, discuss strategy (what was working and what wasn't), coordinate band and operating schedules, service and repair generators and antennas, shower, as well as get some much needed rest. The ship's crew delivered breakfast and dinner to the island so the team could continue operating during the critical gray line openings.

We ate very well.

Our pilots provided valuable feedback and recommendations, apprising us of critical band openings, times in which we should focus on specific regions to maximize opportunity and geographic equity among EU, Asia and NA, and also helped us provide opportunity for SA, AF and OC stations.

The first few days were extremely long and hard given the high humidity and the extremely intense sun. The air was filled with the thick stench of guano from the many thousands of sea birds whose home we had invaded; their noise constant and so very loud. Evening temperatures of around 80°F, combined with a constant SE wind, made it comfortable.

After a few days of nice weather, however, conditions worsened with winds increasing to over 30 knots and intermittent rain. Due to the very strong surf, it became too dangerous to land the dinghy on the island and for nearly four days, the team was stranded on the island without showers or planned overnight rest periods on the ship. One of the *Phoenix* crew members swam from 50 yards off-shore, towing coolers full of hot meals and fresh water twice daily. Despite uncomfortable conditions on the island, the team remained in good spirits and increased our operating time and efforts.

The high winds and blowing salt water mist were very problematic; the salt water found its way onto and into everything and that required some adjustments and repairs to antennas and tents. Significant and fast-spreading corrosion affected everything that could corrode. Our brand-new generators, which ran in

an enclosed wooden structure, suffered a mass internal corrosion after only 10 days of operating. Upon our return, a majority of our radios and antennas had to be serviced, cleaned and treated with DeOxit due to corrosion.

For the last two days of the DXpedition, the weather significantly improved and at 1900 UTC on 23 November, VK9WA went QRT with 61,738 QSOs in the log.

It took many hours to disassemble and transport our gear and equipment back to the ship and then we were on our way back to Port Douglas and our homes.

We truly cherished our time on little Middle Cay. The thousands of sea birds, spectacular sunrises and sunsets and the 10-minute walks around the island amongst the millions of crabs and gigantic sea turtles provided memories for a lifetime. Despite long days and difficult conditions, the VK9WA team got along spectacularly and we all had an incredibly fun time. (Check out the drone footage video of our camp and beautiful Middle Cay at VK9WA.com.)

### Recommendations

Our VK9WA team was privileged to get a preliminary peak of the article by Martti Laine, OH2BH, "It Takes Two to Tango," (*NCDXF Special Edition, Fall 2015*), and the recommendations helped us strategize operating proce-



*In a partnership with the Tangaroa Blue Foundation, we conducted an island cleanup and inventory of debris for the Australian Marine Debris Initiative.*



dures to minimize QRM and frustration in the pileups. Thank you, Martti, for the advice.

We had only minimal problems with deliberate QRM, stations calling out of turn, or stations in one region preventing us from working other regions. We would like to commend the overall Amateur Radio community for working together to make this happen. Thank you!

Special commendations are due to the Japanese radio operators for standing by — often for very long periods — while we worked openings into other parts of the world. We could work Japan at almost any time of the day and the VK9WA team expresses our appreciation to JA DXers for being extremely considerate and patient!

Many operators in the SSB pileups had significantly too high microphone gain and/or compression levels. Many pileup stations were unintelligible and made it difficult to work others in the vicinity of their TX frequency. We stress the importance of listening to your on-air audio.

We found that many stations would repeat their own call sign after we called them, even though there was no doubt that we had called them. These repeats often caused us to question whether we had initially logged them correctly, resulting in unnecessary repeats and confirmations. If you hear the DXpedition station correctly give your call sign, do not repeat it, give only a signal report in reply.

With the prevalence of panadapters and skimmer software, we found that numerous stations would call at the exact same location as the last station logged. Because of this, we rarely would work more than one or two stations before moving our RX location. Unless you have a very loud station, moving just above or below the last station will likely get you in the log faster. All team members operated in fairly regular patterns. Listening and then strategizing your location in the pileup is much more effective than calling blindly or jumping on the frequency of the last station logged.

While operating RTTY, we would frequently find stations tail-ending or transmitting on top of the station we were trying to work, thereby preventing the called station from completing his or her exchange.



*The VK9WA Team: Rob, N7QT; Adam, K7EDX; Sandro, VE7NY; Hawk, SM5AQD; Gus, SM3SGP; Hal, W8HC; Allan, VE7SZ, and Jared, N7SMI.*

Overall we had very little to complain about, so thank you all.

### Band selection

Band selection was fairly straightforward by simply following the sun's gray line. At sunrise, we would place several stations on the upper bands and primarily call for NA/SA. As the morning progressed we would see the NA stations falling off from east to west, then would call Asia/Oceania through the afternoon, at which point Asiatic Russia, India and China stations and then Europe would start to come through as daylight progressed west across the globe. We found that the upper bands would often stay open well past our sunset, allowing us to work Europe even though we were in complete darkness.

At dusk we would leave one or two of the stations working Europeans on the upper bands, and move the remaining stations to the lower bands and work NA/SA to AS/OC to EU/AF throughout the night. This cycle was generally repeated for the duration of our DXpedition, allowing Amateur Radio operators around the world the ability to know when and where to expect we would be calling into their region.

We were all surprised that 20 Meters was completely dead at our sunrise for several hours, counter to our experience

with and expectations for 20 Meters. Because of the incredible high band openings, we had great success on these bands. 12 Meters was our most successful band with 11,405 QSOs.

Mode	CW	SSB	RTTY	Totals
160M	343	0	0	343
80M	1,815	467	0	2,282
40M	3,255	3,923	0	7,178
30M	4,198	0	615	4,813
20M	2,028	3,810	1,805	7,643
17M	4,253	3,353	329	7,935
15M	4,796	5,314	408	10,518
12M	5,689	5,519	197	11,405
10M	4,740	4,881	0	9,621
Totals	31,117	27,267	3,354	61,738

### QSO Data

We made efforts to provide QSO equity to major geographic areas. VK9WA ended with the following continent percentages – NA 32.8%, EU 32.1%, AS 30.2%, Oceania 3.3%, SA 1.1%, and AF .5%.

### Financials

A primary goal was to minimize DXpedition costs. Excluding airfare and hotel costs (team members were

responsible for their round trip airfare to Australia and accommodations) and post-operation QSL costs, our total expenses were less than \$1 per QSO! This is nearly unheard of for a DXpedition of this scope and size to an uninhabited island. With the charter vessel comprising 70% of our total expense, we're thrilled to have put on a highly successful DXpedition at minimal cost.

We express special appreciation to our sponsors and the many who have donated to support the VK9WA operation. We are especially grateful to the Northern California DX Foundation, INDEXA and the German DX Foundation for their primary sponsorships. Other sponsors were SteppIR, Elecraft, the UK DX Foundation, West Virginia DX Association, SouthWest Ohio DX Association, Mississippi DX/Contest Club, Swiss DX Foundation, DXNews.com, Bridgerland Amateur Radio Club, Western Washington DX Club, Utah DX Association, HB9ON Radio Club, LA DX Group, European DX Foundation, RadioSport, Southeastern DX Club, Array Solutions, Mediterranean DX Club, Orca DX and Contest Club, Lone Star DX Association, the Carolina

DX Association, Clipperton DX Club, GMDX Group, Telepost Inc., Expert Linears America, DX Engineering, KF7P Metalwerks, The RF Connection, North Alabama DX Club, Danish DX Group, Willamette Valley DX Club, Spokane DX Association, DX University, Madison DX Club, Arkansas DX Association, RF Solutions, Mile-Hi DX Association and Club Log.

**In conclusion**

We'd like to thank our pilots Mike Greenway, K4PI; Cédric Morelle, F5UKW, and Andre Pretorius, V51B, for the amazing service they provided during the DXpedition. We would also like to extend a heartfelt thank you to Paul Newman, VK4APN, for his hospitality and guidance, before and after the VK9WA expedition.

We were elated by the service provided by our crew and Captain Peter Sayre of Bianca Charters. They all were an absolute pleasure to work with and we look forward to working with them again in the future.

We thank everyone who donated to and supported the VK9WA DXpedition, and those who contacted us.

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wishing to show them at their meetings. There is no charge to use the programs in the **FOUNDATION'S** library, but clubs borrowing materials are responsible for postage in both directions. To view the complete listing of programs available for your club's use, visit our website, [www.ncdxf.org](http://www.ncdxf.org), and click on "Videos."



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