TWO GUYS, A RADIO AND A TENT

TX3A

The 2009 Chesterfield DXpedition

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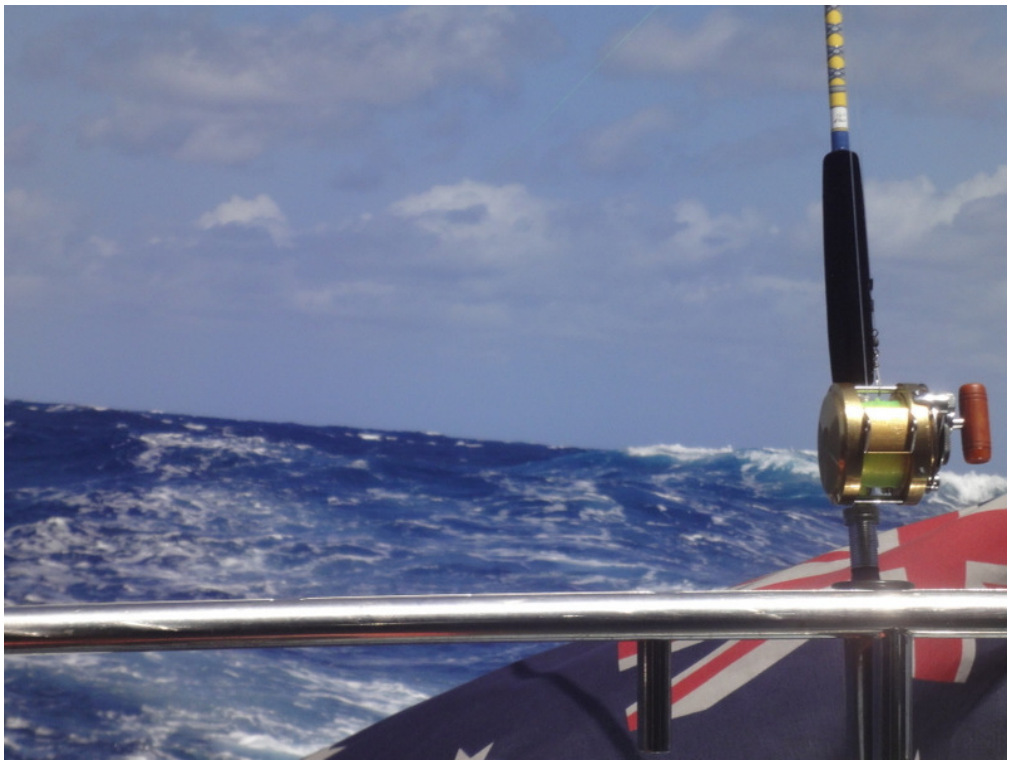
"The boat is slowly making its way west towards Australia. We are in the open waters of the Coral Sea. The waves are huge and the winds are strengthening. Still, we are happy; we are going home from one of the greatest radio adventures."



Big Seas on the Way Home from Chesterfield Reef

Introduction

The TX3A DXpedition of 2009 was on the air from November 3 to November 30 of 2009. The operation was a simple low-band DXpedition by the two of us: Tomi, HA7RY, and George, AA7JV. During 28 days of operation we made over 36,000 contacts. We had no commercial sponsorship although we received a large number of donations from individuals and clubs. We were out there to have fun and give out as many TX3A (FK8/C) contacts as we reasonably could. All along, we wanted to keep things simple; we wanted to put the "amateur" back into Amateur Radio. The following is our story.

Background

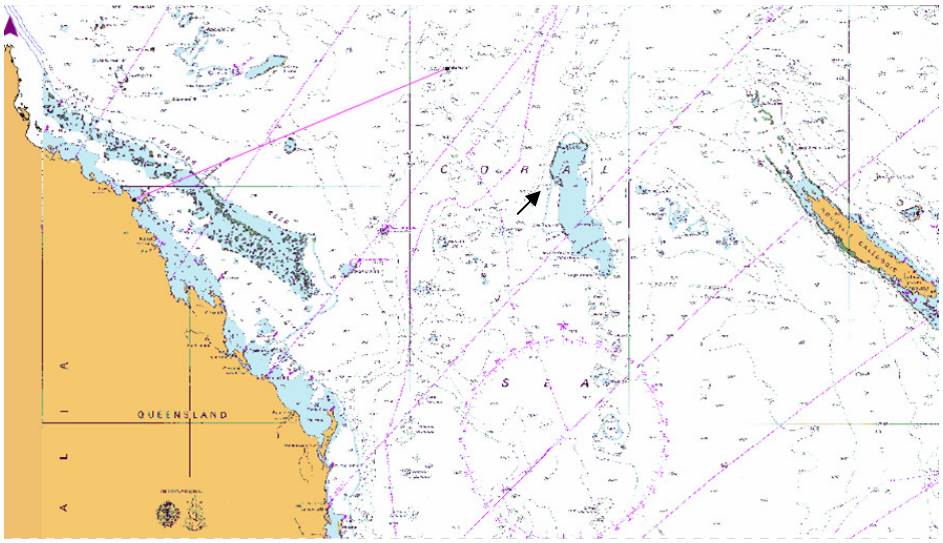
We always wanted to go to Chesterfield. In late 2008 I started working on getting the radio license and the various other papers needed. It became quickly clear, however, that we could not get it all done for our desired time frame of March-April. So we went to Mellish Reef instead. (See VK9GMW.com) At the end of that operation, we half jokingly said: "Here we are, only 200 miles from Chesterfield, and we have all the gear with us. Why don't we go to Chesterfield now?" Well, even if wanted to, we couldn't. We did not have a license, did not have enough fuel and did not have enough food. It would have to be another time.

Thanks to Remi, FK8CP, we were able to obtain the TX3A special license for Chesterfield Reef by July of 2009. Although it was only valid for two weeks – from November 23 to December 6 -- it was a start. We started organizing the operation: get the boat ready, prepare the equipment, build or buy what we did not have. This would be yet another low-band DXpedition, where we would primarily focus on 160, 80 and 40 meters. The low bands require special preparations. You have to have good TX antennas and you need specialized RX antennas. We also wanted our TX antennas to stand in salt water, which requires unique gear and techniques!

We were originally planning to drive the boat from Australia to New Caledonia to complete customs and immigration formalities there and then land on Chesterfield on the way back. This would've meant a 2000 nautical mile (4000 km) round-trip, which would have taken two months! As it turned out, the French authorities gave us a special dispensation and allowed one of us to fly to Noumea to complete formalities there without actually taking the boat there. We quickly applied for an extension of the license to stretch the operation to one month. Vive la France!

Chesterfield Reef

Chesterfield Reef is part of an area of shallow banks, coral reefs and small cays located about 500 nautical miles (1000 km) east of Australia. The area is about half way between Australia and New Caledonia. Iles Chesterfield, a French Territory, includes a 12 km wide shallow lagoon protected by a V shaped barrier reef. Along the barrier reef there are a number of small, uninhabited sand and coral cays.



Chesterfield and Brampton Reefs are shown in the middle of the chart. The small V shaped reef marked by the arrow is Chesterfield Reef and Iles Chesterfield

Based on advice from Jan, DJ8NK and Eric FK8GM, both of whom have been to Chesterfield on previous DXpeditions, our focus was a group of small cays named 'Les 3 Ilots du Mouillage'. These cays are located along the eastern edge of the lagoon just behind the barrier reef; a place where the reefs and cays provide the boat with good protection from the waves of the open ocean. Once there we would decide where exactly to set up the station, hopefully a place where we could easily raise our antennas in the water.

Getting to Chesterfield

Our transport was the Motor Vessel Pedro II. This boat was left to me by my late friend Peter Owen. Indeed, this unexpected inheritance was the beginning of all of our past DXpeditions: VK9WWI from Willis Islets in 2007 and VK9GMW from Mellish Reef in 2009.

Pedro II
Not pretty but sturdy and reliable.

Pedro II (formerly the MV Varzin) was built as a high-speed search and rescue boat. While strong, she is not suited for long off-shore passages. At 8 knots (15 km/h) she has a range of about 600 nautical miles (much less at high speed). As the return trip to Chesterfield is over 1000 nautical miles long, we would have to carry the additional fuel needed in bladder tanks. We would be departing form the Queensland town of Gladstone, which is the closest Australian port to Chesterfield.

The plan called for having all the gear on board and the boat fuelled and provisioned by October 26. We then would wait for a favorable weather. We were hoping to reach Chesterfield sometimes around the second or third of November. We intended to stay on Chesterfield until the end of the CQWW CW contest on November 30. This would mean a total of six weeks: two weeks at sea and four weeks on the island. We would have to watch very carefully not only our fuel, but also our food supplies, as Pedro II has limited refrigeration and dry-storage capacity.

All the gear was shipped from Miami to Australia on October 12. I arrived in Sydney on October 19 and immediately flew to New Caledonia to complete immigration formalities. In Noumea I was greatly assisted by Remi, FK8CP. Remi's help was crucial; without it there would not have been a TX3A DXpedition!

By the 25th of October we were all in Gladstone. We completed fuelling and provisioning in the morning of the 26th. There was a reasonable weather window right then and we would have been ready to sail, except FedEx had failed to deliver two of our boxes full of essential gear. Eventually, we paid a visit to the FedEx depot, where we discovered a sleeping attendant and our missing boxes, which had been sitting there for 3 days! We quickly got our gear, rushed back to the marina, loaded everything on board and got under way in less than an hour.

The weather window was forecast to be short and would only allow us to reach Saumarez Reef. Saumarez Reef lies about half way between Gladstone and Chesterfield Reef, which for us was going to be a relatively convenient stopping point. During the night the winds strengthened, generating large waves that rolled the boat rail-to-rail. We arrived at Saumarez Reef the afternoon of October 27, very glad to be behind the protection of the reef.

At anchor behind Saumarez Reef
The reef provides protection from the large waves outside, which can be seen breaking on the reef. The structure seen in front of the boat is an old wreck.

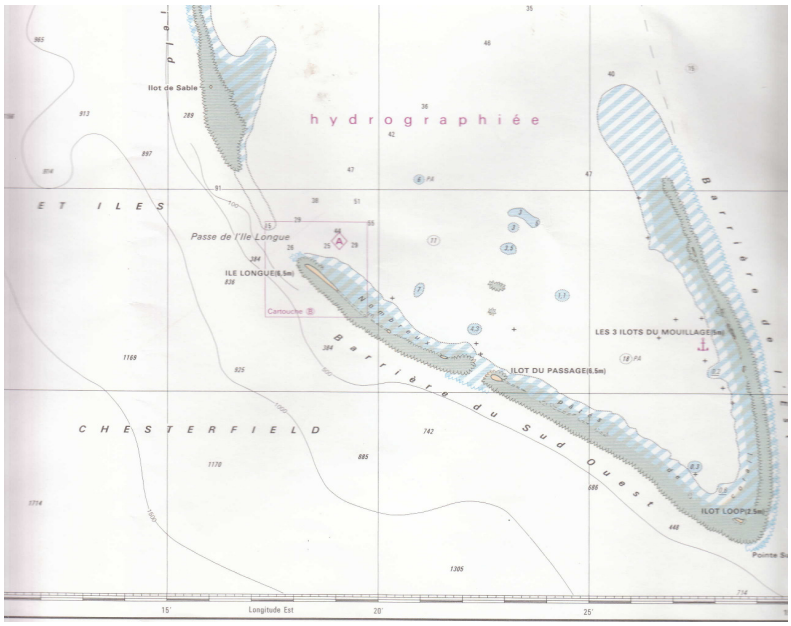
For three impatient days we waited at Saumarez for better weather as we watched the huge waves pound against the outlying reefs and the winds intensify to 30 kts (56 km/hr). Conditions were forecast to improve the next day, but they did not. By the morning of October 31 the winds were down to 19 knots and we decided to venture the 290 nautical mile crossing, despite the prospect of some big seas. As we came out form behind the protection of the reef, we indeed faced some large, steep waves. Although the waves were intimidating, we felt that our timetable and our patience had been stretched far enough and we decided to press on.

The crossing to Chesterfield was long and uncomfortable. The going was slower than anticipated because of strong opposing currents. At times our speed was down to 5 knots! Originally we were planning to arrive at Chesterfield during the late afternoon, with still enough daylight to cross the lagoon, but due to the strong head currents we arrived in total darkness at 2 AM on the morning of November 2. As it is extremely dangerous to move through coral strewn waters at night, we dropped anchor just off Isle Longoue – a dangerous enough exercise in itself – and grabbed a few hours of sleep while waiting for daylight to break.

Navigating through coral waters requires a great amount of caution and good light. While the general depth of the lagoon may be 30 meters – more than ample for a boat that only draws 1.5 meters – in the Pacific coral heads frequently come up vertically from the bottom, often reaching the surface. On a remote reef like Chesterfield, only the largest heads are likely to be charted and there can be thousands of smaller heads lurking just beneath surface. Hitting one of these coral heads could seriously damage a boat and in a remote place like Chesterfield, even the slightest amount of damage to the boat's running gear could spell disaster. The best time to navigate these waters is when the sun is overhead and the coral heads are most visible in the crystal clear waters of the lagoon. Fortunately, Pedro II has a tall tower whose height affords excellent visibility. It is from this tower that we drove the boat the rest of the way.

On Chesterfield

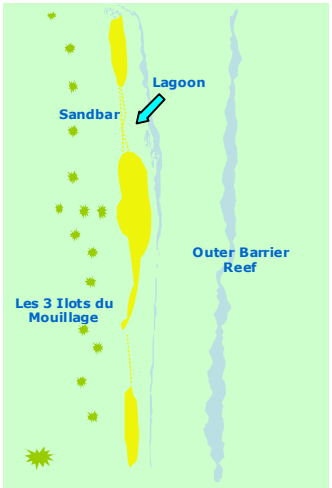
We spent the morning carefully traversing the coral studded waters of Chesterfield Reef. Chesterfield includes two barrier reefs that enclose a 10 km wide, V shaped lagoon located between the Western and the Eastern Barrier Reefs.



Chesterfield Reef
Ile Longue is on the west (left) side. Les 3 Ilots du Mouillage are behind the Estern Barrier Reef. The location is market with an anchor symbol.

By 11 AM we arrived at the island group called Les 3 Ilots du Mouillage. The group consists of three narrow sand cays that run parallel and a few hundred meters behind the barrier reef, which lies to the east. As we inspected the cays from the boat we were looking for a good place for our antennas and a suitable place to set up the station. After anchoring the boat about 500 meters west of the cays, just outside the area of dangerous coral heads, we immediately launched the dinghy and went ashore to look for a suitable site for TX3A.

We landed on the northernmost cay. The cay had some grounds well suited for a tent, but it did not have a good sandy area in the nearby waters where we could site our antennas. Continuing to explore, we walked south on the narrow sandbar that connects the north cay to the middle cay at low tide. We soon found the perfect place: a shallow lagoon between the northern and the middle cays. The area was well protected from waves by a row of rocks to the east and the sand-bar to the west. Although we had very sturdy antenna bases, with wide legs, and we would use guy ropes, we were very lucky to find such a well protected location. It was about two hours before low tide and the lagoon was half dry; it would be almost dry at low tide. That would make working on the antennas easier. We were crossing our fingers that our coax and control cables would be long enough to reach dry land.



The Antenna Lagoon

The lagoon is located between the northernmost and the center island of the Les 3 Ilots Du Moulliage. On the east side (right hand side), the lagoon is protected by a row of low rocks, while on the west side a shallow sand-bar provides protection. The picture shows the lagoon around mid tide, with about 70 cm of water.

We decided to set up the station on flat sandy area on the northernmost point of the middle cay. This was just at the southern edge of the lagoon – and barely within the reach of our coax and control cables. The middle cay is about 800 meters long and 70 meters wide. Its centre is covered with thick bushes which are home to thousands of birds, their nests, eggs and young chicks. These are scattered all across the ground, the branches, and even underground.

We spent the next two days ferrying the gear ashore, building our tent and erecting the antennas. Putting up a new station is neither simple nor easy. Although we try to keep things simple, there was still a lot to do. Nevertheless, by 7 PM of November 3 we were ready to get on the air. As is customary for us, we would start on 160 meters.

The TX3A Antennas

We have a low-band focus and we work hard to build effective low band antennas. Exceptional results can be obtained with a simple vertical antenna, as long as it is standing over sea water. The salt-water ensures low losses and very low take-off angles; all without the need for radials. On the other hand, the sea is a hostile environment: the salt-water causes corrosion (in hours), waves can knock the antenna down, the feed and control cables can get flooded, and so on… Additionally, the rising and falling of tides – 1.5 meters on Chesterfield – can change feed-point impedances and render resonant antennas useless. Some believe that good results can be obtained by locating vertical antennas on the beach, or right on the water's edge. Our experience shows otherwise: for the best performance, the antenna must be standing in the water!

To get the full benefits of salt-water, we are prepared to put up with all of the difficulties listed above and the need to work in the water. We have built rugged antenna bases, we use stainless steel hardware and lots of corrosion preventing grease – and we don't mind the cold water.

The main antenna at TX3A was built around three 18 meter SpiderPoles standing on aluminum bases. The poles were held in place by guy ropes. This structure supported two separate wire antennas: one for the low-bands and one for the high-bands (20 meters and up). The low-band antenna was a classic T configuration, with an 18 meter vertical wire and two 11 meter long horizontal wires. This size was electrically short for 160 meters, but we knew it would radiate well from 30 to 160 meters. The second antenna was a 3 x 2 x 5 meter triangular wire array held up by the guy ropes. Grounding was provided through the metal antenna base that always had in salt-water around it. No radials were used.

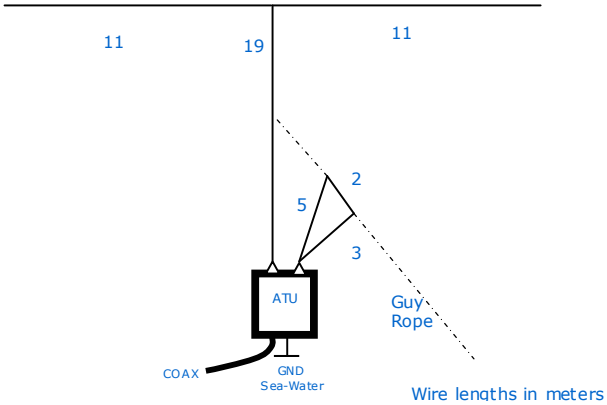
24 Hours Later

The three 18 meter SpiderPoles are standing on four-legged bases which also act as ground connections. Each leg is 3 meters long for good support and for a large contact area with the sea water. The base of the center pole is about 2.5 meters tall with the antenna coupler mounted at its top. The picture above shows the tide at about .5 meters; it will come up another meter at high tide but the waves would not reach the antenna coupler. The feed and control cables are held above the water by stakes. This ensures that there is little chance of water getting into the coax or control cable through nicks or cuts in the cable sleeves. The white lines are guy ropes.

We used four parallel 3 mm diameter stranded insulated wires to connect the antenna coupler's ground terminal to the antenna base. This was done to ensure low impedance and minimum grounding losses. The coax and the control cable were wound into chokes that were enhanced by ferrite cores. This ensured that the coax and the control cable outer shields did no carry RF return currents that could distort the radiation pattern of the antenna (especially on the higher bands).

The diagram to the right shows the antenna dimensions. These are not critical as this is not a resonant antenna. (If the antenna was resonant, the feed-point match would only be good at specific level of tides anyway.)

The dimensions shown ensure low angle radiation on all bands. Also, the high-band "triangle" is essentially just a fat wire. Unlike a single wire, it has wider bandwidth and it would not have very high feed-point impedance on any band, which prevents extremely high voltages from appearing on the coupler's output. The diameter of the T's vertical wire was 3 mm. All other wires were 1 mm diameter.



The Main Antenna

The Antenna Coupler

To overcome the changing feed-point impedance caused by the tides, and to simplify feeding the "non-resonant" antenna wires, we used a low loss home-brew automatic antenna coupler. The coupler has two outputs. One feeds the low-band wires while the other one feeds the high-band wires. The coupler is water and corrosion resistant and can withstand 1 kW on any band.

The 1 kW Automatic Antenna Coupler

First Night on the Magic Band

It is now 1100 UTC on the 3rd of November, we have just finished building the main antenna and our tent is up. We have hooked up the radio, computer, amplifier, antenna coupler, controller, coax and control cables, batteries and battery chargers. The generator is purring happily, the sun has just set over the dark waters of the Coral Sea and the antennas are standing proud in the rising tide of the lagoon.

We switch on the K3 and set it to 1830.5 kHz. The antenna coupler automatically starts tuning and within seconds a green light comes on: we have a good SWR. We slowly increase the power to 1000 watts and are satisfied to see that things are holding: no arcing, no breakdowns – power output and SWR are steady. Within a few seconds, FK8CP sends a quick 599 plus; he knows it is us tuning up. Good. Our signal is getting out! After a quick chat with Remi, VK3ZL calls. Bob is letting us know that he can also hear us at 599+. Even better. Then RW0LT chimes in with another 599. A feeling of relief washes over us: The TX antenna is working!

We go split and the first CQ goes out: "CQ TX3A DWN 5". The first caller is JA2CXF at 1122. He is followed by JI1BEX. Then W5UN punches through with a solid 599 signal at 1123. He is amazingly loud. We are listening down 5 kHz, around 1825.5. For JA-s we go down below 1825.0 and for NA we listen above 1825.0. This strange arrangement is because Japanese stations are not allowed to transmit above 1825.0 kHz. As it turns out, separating JA and NA stations helps. JA-s, on the average, are much louder then NA stations. Having the two separated allows us to copy the NA stations much better. And when work the JA stations below 1825.0 we are faster as we do not have to waste time searching for the weak NA signals in the loud JA pile-up. Noise is about S6 on the TX antenna and we know that within a few days, as we've worked through the big stations, we will need some good low band RX antennas. For now, however, we are doing well with the TX antenna.

As the terminator moves westward over NA, the east coast stations are replaced by Midwestern ones, and soon W6-s and W7-s are calling. We keep working JA and NA stations at high rates until 1301, when UA4LY is the first European caller. Following him, for the next two hours we are working JA, NA and EU side by side. We have to remind ourselves that this is 160 meters, not 40!

Slowly NA fades out and the European contacts move further west. GM3POI is the first UK station at 1621. Astonishing – it must be full daylight there! We continue working EU (and JA) stations until the band to Europe closes at 1903 with YU1FW being the last contact. The sun is up and the first night on TB is over; and we have 517 QSO-s in the log. Oh what a night!

I back-up the log on a memory stick and put it in a zip-lock bag. Tomi is up and we QSY to 80 meters, where he quickly starts working a pile up. I swim to the boat with the zip-lock bag in the back pocket of my shorts. After a quick (hot) shower on board, I will up-load the QSO-s to the on-line log and LoTW, handle e-mails, log fixes and write the daily news update.

Operations

We quickly settled down to a routine. At night we were on the low bands – mostly 160 meters – where I handled most of the 160 meter traffic. Tomi worked 160, 80 and 40 meters during the midnight to 3 AM shift. During the day Tomi handled the pile-ups on whatever band worked best. We did not have an operating plan or schedule; whatever band gave us the highest QSO rate was the one we were on. In the mornings, after swimming to the boat, I answered e-mails, uploaded the log, summarized the previous 24 hours of operation in the news update and at times I uploaded pictures for the TX3A website. Most mornings Tomi came on the boat around 9 AM for a quick shower and breakfast after which he would head back to the island and the pile-ups. I either went to get some fish or back to the island to build new antennas or to make repairs.

Once we completed the second station, I would work a few hours of RTTY or 30/40 meter CW. Our only warm meal of the day was cooked on the boat and was delivered to the island around 4 PM. After dinner we topped up the generator and I would make the final adjustments to the tent and antennas; getting everything ready for the night. I usually went to sleep at 6 PM for two hours and would get up at 8 PM for the opening of 160 meters to NA. On the average, we were on the air about 20 hours a day.

The Equipment

Our radios were two Elecraft K3 transceivers. We used a home brew pair of splitter-combiners to combine two 500W SG-500 solid-state power amplifiers. The combination gave us a full kW. The dual 500 W amplifier system carried its own redundancy. In the event of an amplifier failure, we would simply fall back onto the remaining amplifier, losing only 3 dB of signal strength.

The antenna coupler was controlled by a remote controller located in the operating tent. This controller is fully integrated with the K3 transceiver and the dual SG-500 PA. Band changes cause the controller to automatically disable the amplifiers, key the transmitter and retune the coupler for the new band. Interlocks between the transceiver, controller and the amplifier – including an ALC connection to the radio – ensure that tuning is performed only with low power (about 20 watts). The interlocks also ensure that it is not possible to run the amplifiers into high SWR or to run power into the coupler unless it is properly tuned.

This level of automation and protection is not a frivolous exercise in feature richness for its own sake. The automation ensures that we can not accidentally damage the equipment: even when we are tired or distracted, or half asleep from long nights of operations, or just in a hurry. Replacement equipment is hard to come by on a place like Chesterfield!

Logging was done on laptops connected to the transceivers. We used the N1MM logger, which seemed to have better data-retention than WriteLog, which lost many QSO on Mellish Reef.

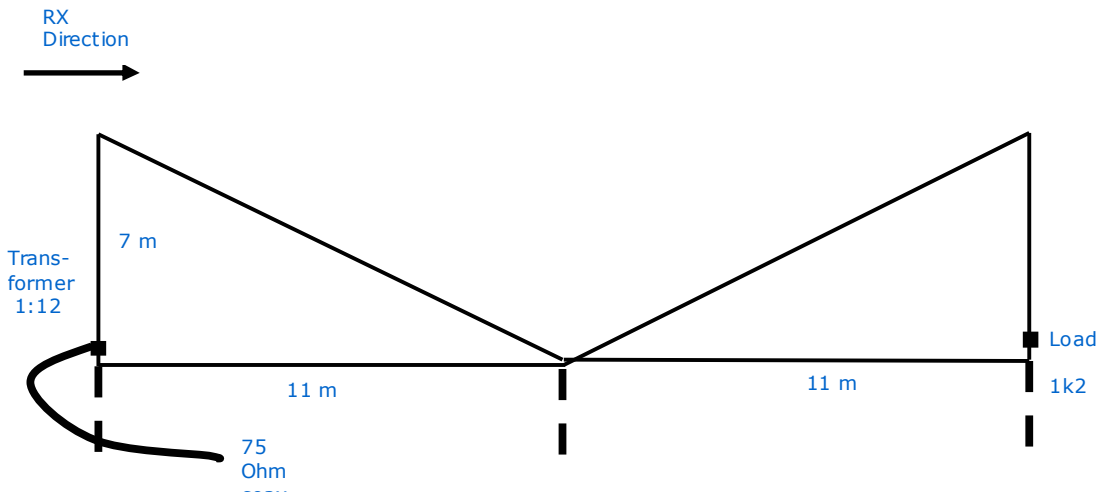
The RTTY station consisted of the second K3 transceiver, an IBM laptop with N1MM and MMTTY software. We used isolation transformers in the audio paths between the computer and the radio. At times we also used this station as a second station to meet the demand for certain bands.

The transceivers, amplifiers and the antenna coupler and controller were all powered by 12 V DC. We used banks of car batteries that were being constantly charged by three separate battery charges. The key advantage of this system, besides the reserve power it provided, was that the batteries acted as buffers and allowed the use of a single low power generator. Indeed, the entire operation was powered by one 1.5 kW Honda AC generator. This was also an efficient configuration as the generator ran with a relatively even load. The total amount of gasoline used during the entire 28 day operation was just over 300 liters. That is less then 11 liters per day (2.8 US gallons per day), or 8.5 ml per QSO!

More Antennas

For the first 10 days we were constantly building or rebuilding antennas. Someone wrote on one of the DXclusters: “Stop building antennas and start operating.” Strange: since the evening of November 3 we have been operating almost non-stop; except when Tomi came onto the boat for two hours each day and one three hour period when we had to lower the main antenna to reconnect wires that were broken by birds flying into them. The rest of the time, even while I was building new antennas, Tomi was continuously on the air handing out TX3A contacts.

Our first work priority was to build RX antennas for 160 and 80 meters. Back on Saumarez Reef, while waiting for better weather, we did some modeling of various RX antennas that we hoped we could erect on the island. Although we had some idea of the layout of the land and knew that there would be a possibility to erect one or two Beverages, the proximity of salt-water caused us to be skeptical about their effectiveness. Earlier, while still back in Miami, I worked with Carlos, N4IS, trying to create a portable and rotatable Waller Flag (see N4IS's website at http://www.n4is.com/wf/NEW_WF.html), but that just did not work out mechanically. (A small enough flag that we could handle has a very poor S/N ratio.) Following on the concept of the Waller Flag and the work done by Dr. Dallas Langford on Phased Delta Flag Arrays, I came up with a new design that interconnects two half deltas to create a phased array without the need for two sets of transformers, two loads and the usual phasing cables and combiner circuits. I call this design the Double Half Delta Loop, or DHDL. The DHDL uses two 8 m poles and one short (1.5 m) central support. It has an RDF of 9.8 dB and is only 20 meters long.



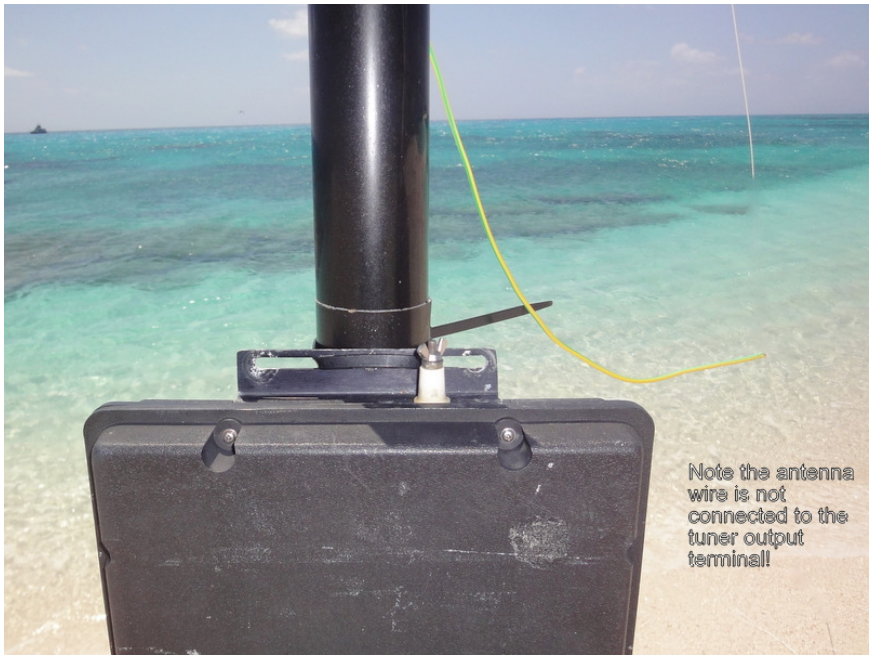
The Double Half-Delta Loop.

9.8 dB RDF and easy to build. Note that wires do not connect to each other at the crossing point. Details at the TX3A web site at http://tx3a.com/docs/TX3A_DOUBLE_HALF_DELTA_LOOP.ZIP .

First we erected one DHDL for NA. It worked quite well. It was much quieter than the TX antenna, which had on most nights S6 noise, sometime S9. The next day we put up a 250 m long Beverage for EU/JA (JA was almost the same direction as EU). The Beverage did not work, so next day we erected a second DHDL for EU, which worked fine. The day after that we put up a Beverage for NA. That didn't work either! Not ready to give up, we built a third Beverage for the EU/JA direction, but this time we kept it further away from the salt-water, although that limited its length to 180 meters. That night we were rewarded with a pleasant surprise: the new Beverage worked. Indeed, it was a little better than the EU DHDL. This was extremely useful as we now had a short Beverage to compare the DHDL with. The Beverage had higher noise than the DHDL but also stronger signals. First we kept the EU DHDL as it had a better angle for Europe and much lower noise. Later, we cannibalized its coax to make the Beverage reversible for LP Europe, which never bore any contacts on 160. But, it heard NZ really well!

Once we had a reasonable RX antenna farm, we built an antenna for the second station, which we intended to use on the higher bands for RTTY. We set up our remaining 8 meter fiberglass pole for a simple vertical fed by an SG-235 auto-coupler. That antenna stood on the water's edge and had three semi-elevated radials. Working in a hurry we forgot to connect the antenna wire to the antenna coupler's output terminal! Still, the coupler tuned up and we did not notice until next

morning that we made over 100 RTTY QSO-s with no direct antenna connection! Obviously, some RTTY operators have very good receivers.



RTTY Station Antenna Coupler on the First Day
We forgot to connect the antenna wire to the coupler's antenna terminal. We made about 100 QSO-s like that.

We were also kept busy with maintenance work. For several days we were having trouble with our generators. We had two 1.5 kW gasoline powered Honda generators. One of them had extensive RF filtering, which we preferred to use. Soon it started to run unevenly and occasionally would completely cut out. We switched over to our back-up generator – the one without the RF filtering – which developed the same problem within a few hours. Eventually, we traced the problem to water and contamination in the feed tank. We used this tank, which came off the dinghy, to extend the fuel capacity of the generator. Unfortunately, over the years that tank had accumulated water and crud, which found their way into the generators. Once we cleaned the tank the problem went away.

On the 10th day we also lost the boat's freezer. We were reluctant to rip it apart as the freezer ran off the same system as the main fridge, which we could not lose. For three days we ate a lot of meat and cooked the rest into a huge curry. (A curry will last in the fridge for over a week.) The day after all that the freezer started working again!

One of our K3 radios also failed; it would not output more than 10 watts. Eventually, we found the problem: a faulty PIN diode in the T/R switch. Fortunately we had a spare PIN diode which we installed and were back in operation again with two radios.

The antennas required constant maintenance. Waves were causing damage and birds were breaking wires. Once we had a bad connection in the antenna coupler. Due to the high winds, we did not want to lower the main mast, so we had to work on the coupler standing in the water. Working on sensitive electronics while standing in 1.2 meters of salt-water is no trivial!

Overall, while maintenance has kept us busy, we rarely had a problem that took us off the air, and never for more than for a coupler of hours. One advantage of using a lot of home-brew gear is that you know how to fix it.

Working the Pile-Ups

The pile-ups were big and rowdy. Although not everybody behaved perfectly, we enjoyed working the pile-ups because the vast majority of the callers were very good and knew how to work a DX.

There were exceptions though. Working a rare DX is naturally competitive, so a pile will always have some shoving and pushing. Some, however, were not "good sports" and caused unnecessary QRM and slowed us – and everybody else – down. Here is a brief list of what operators absolutely should NOT do when trying to work a DX:

1. Don't call while the DX is in a QSO
2. Don't call when the DX is asking for a completely different call-sign
3. Don't call if you can't hear the DX

The most effective way of getting a QSO with the DX is different on 160 meters than the higher bands. On 160 you should send your call-sign at least twice. (On the higher bands, only once!) On 160 the sending speed should depend on conditions: When conditions are poor slow down. But don't slow down below 10 WPM because Long Line Buoys (fish beacons) transmit at 5 to 6 WPM and you don't want to sound like one of them! When there is QSB, speed up to 20 to 25 WPM. Once the DX has your correct call and sends your report, do not reply starting with your call-sign, and most certainly do not send your call-sign repeatedly. The DX may think that he has your call-sign wrong and you may lose the QSO! The best is to send "R 5NN urcall TU". Sometimes it is also useful to send a real report, but do it only when the DX hears you well.

On the higher bands speed is of the essence. Work the DX with the highest speed you are comfortable with and do not send anything that is not important. Send your call only once. When the DX comes back with your call and report, just send 5NN or 5NN TU. Don't worry about pleasantries; the most polite thing you can do is to be quick and move on: others have been waiting for hours (maybe days)!

Tomi, HA7RY, is working the pile-ups during the day. On the left is the RTTY station.

Life on Chesterfield Reef

In addition to the intense excitement of working the pile-ups 20 hours a day, we had a pleasant life on Chesterfield. Tomi was most enamored with the turtles that came to nest on the island. These were giant Green Sea Turtles that came up on the beach at night to lay their eggs. For some reason one of the turtles liked our tent and insisted on coming in. Perhaps she was just curious or she wanted to lay her eggs inside. Sometimes the turtles messed up our cables and one tore a hole in the side of the tent. Still, they were great “visitors” and a nice diversion.

Our camp was situated on the northern tip of the island where we were away from most of the noisy birds, which were nesting in the bushes to the south.

The Camp at TX3A

The generator is visible in the foreground. The small blue tent next to it provides shade for the fuel. The two poles on the right, half way between the generator and the tent, hold the NA DHDL. The pole standing on the beach to the left is the RTTY antenna. The tent is supported on the windward side by driftwood bamboo poles. The antenna lagoon is in the background.

Overall the weather was excellent the entire time we were on the island. There was a stiff breeze blowing on most days, which at times was strong enough to make life on the boat uncomfortable, but it kept daytime temperatures comfortable. At night, however, the breeze often made the mist laden air feel chilly. The mist came from the waves constantly crashing on the reefs just a few meters to the east of us. The strong winds were a problem only when we had to work on the big antennas. The daytime temperatures were around a comfortable 26 to 27 degrees Celsius (78 to 80 F). It only rained a few times and the rains were never too heavy.

The islands were home to a very large number of birds. They were mostly frigate birds, boobies and sooty terns. The birds made a lot of noise day and night. From past experience we knew to bring noise cancelling head-phones, which again proved to be very useful. At nights there were large numbers of hermit crabs, who liked to explore the inside of the tent. They were looking for food scraps and, along with other crabs, were wandering in and out of the tent like they owned it.

Wrapping Up

The nearly 30 days on Chesterfield went like three days! Partly because of the excitement and partly because we were so busy, we hardly noticed the time passing. By November 28 we had over 30,000 QSO-s. As Tomi would be running the CQWW DX contest as a single operator, he spent the night of the 28th on the boat catching up on sleep. I spent the night on 160 meters. Conditions were good and it was very nice to say good-bye to TX3A with 270 QSO-s on Top Band. Tomi came to the island in the morning, when we reconfigured the station for the contest – he would be running low power – and I left him to go diving!

Conditions during the contest were poor and as a low power entry, Tomi was not doing great. Still, by the end of the contest, and the end of the TX3A operation, we had a total of 36,148 contacts! More importantly for us, we made 3,435 contacts on 160 meters. QSO totals for each band and mode are listed below.

Band	CW	SSB	RTTY	Total
160	3435	-	-	3435
80	5285	658	-	5943
40	5078	325	127	5530
30	3971	-	374	4345
20	2707	1287	985	4979
17	2236	957	439	3632
15	3507	1259	238	5004
12	1155	442	-	1597
10	1262	421	-	1683
Total:	28,636	5,349	2,163	36,148

The above numbers clearly show that we are primarily CW operators. One anomaly in the numbers needs pointing out: The 40 meter CW QSO count should be higher. It is low because of the Chinese “Dragon” HF radar, which at times made 40 meter operation difficult.

On Monday, Dec 1, we started tearing the station down early. We wanted to be ready to sail early next day as the forecast was calling for a short weather window, which we didn’t want to miss. Even before the contest was over, we started removing non-essential gear from the island and taking down the RX antennas that Tomi was not using. As soon as the contest was over, we got going at full speed. It was intense and hard work. We took down and disassembled the big antennas, pulled apart the station, packed the radios and amplifiers. We started ferrying the gear back onto the boat as soon as it was getting packed. We took down the tent, rolled up the numerous coax, control and power cables, and finally removed the generator and its remaining fuel. By 5 PM we had everything off the island. I did a walk around and final inspection, picking up any small pieces of trash and taking some last photographs.

The intense of work of washing and cleaning the gear, however, continued on the boat late into the night. It was not until at 9 PM that we were all done. Everything was cleaned and stashed away. We were dead tired but we prepared a big dinner of freshly caught mahi-mahi in bacon and opened our only bottle of wine: a magnum of 1997 Fox Creek Shiraz. We had a small celebration and crashed for the night.

At 7 AM the next morning (Dec 02) we raised the anchor, and in perfectly calm weather, turned the boat to the west and left Chesterfield behind. The first leg of our trip to Frederick Reef was made overnight in very comfortable conditions. We spent two days on Frederick Reef, mostly sleeping, but also doing some diving. By the time we were ready to leave Frederick Reef the good weather was over and we left for the second leg of our journey in strong winds and huge seas. As we were going in the same direction as the waves, the passage was not uncomfortable, and we continued fishing most of the way. Our first contact with civilization was the Australian customs plane that located us 180 miles off-shore. We reached the Whitsunday Islands, just off the coast of Australia, the next evening. We were back and TX3A was over!

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