



The DXer

April 2010

The Official Publication Of The Northern California DX Club

President's Message

By Craig Bradley, AE6RR

Hello Everyone,

The March meeting was another good one! Bud Drummond, W3FF put on a good show with a mix of Caribbean DXpedition and tricks for using portable antennas (Buddipoles) on bicycles and in other interesting situations. He had some great tips that are also useful for other antennas. Also, checkout his great QSL card on <http://www.qrz.com>.

The bands have continued to be good (great compared to the last couple of years), club members have been working some good DX on the higher bands including 12 meters. 17 M has been open to Europe in the mornings quite often.

I am pleased to announce that the NCDXC has again selected a George (AA7JV) & Tomi (HA7RY) DXpedition for the NCDXC President's Award for the best small DXpedition of the year. This one is for the TX3A expedition to Chesterfield Reef in November of 2009. The first one was for their VK9GMW DXpedition to Mellish Reef last April. These guys do a great job and their travels are fun to follow. For only two guys in a small boat they sure do know how to put on a great expedition and put out a great signal! I will be talking about award at the Saturday night banquet in Visalia. I can hardly wait to hear what their next DXpedition will be!

George has given us permission to reprint his article on the TX3A DXpedition in this issue. Our editor, Phil, W6TQG plans to print it in two installments. It is great reading, enjoy!

I need to get back to the WPX now, there are

(continues)



2009 Chesterfield DXpedition
Article on page 4

**NO APRIL MEETING DUE TO
THE IDXC IN VISALIA**

Next Meeting:

Thursday **May 20**

at Holder's Country Inn

998 S. De Anza Boulevard

San Jose, CA

Details will be in May DXer

The YI9PSE DXpedition plans to operate from April 2 at approximately 1100 PST until very late in the evening on April 11 using CW, SSB and digital modes. See the latest plans at <http://www.yi9pse.com/plans.html>.

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Attention

International DX Convention is in Visalia, April 16 - 18!

Visit <http://www.dxconvention.org>

New Member

**Bill, W6TU, became a member at
March meeting. Welcome to the
NCDXC, Bill!**



President's Message, continued:

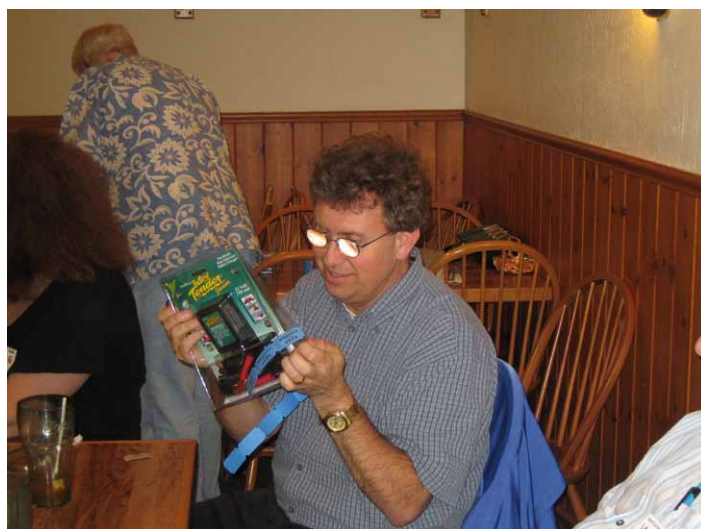
some new ones for me out there.

Remember that there is no April meeting due to the IDXC in Visalia. The May meeting will again be at Holder's Country Inn on DeAnza Blvd in San Jose on May 20th.

See you at Visalia!

For now, 73, and good DX!

- Craig, AE6RR
ae6rr (at arrl.net)



Photos from March meeting

New Column - DXCC Awards

More DXCC Award is needed! Please notify the editor, [dxer \(at ncdxc.org\)](mailto:dxer@ncdxc.org) if you or any other member received DXCC awards or endorsements during 2009 or 2010.

Amateur Radio Technology Day Saturday, April 24 - 8am to 9pm

At the SLAC National Accelerator Laboratory
<http://www.fars.k6ya.org/amtechday>

The DXer is published monthly by the Northern California DX Club and sent to all club members via the web. Please obtain permission from the author to re-publish any article in this publication.

Silent Key

With deep regret we record the passing of KI6T, Gary A. Stilwell on Monday March 29th. With 338/384 countries, Gary was at the top of the DXCC Mixed Honor Roll. He was also a DXCC field checker, sorter at the Sixth District QSL Bureau, past president of the Southern California DX Club and officer for the Mother Lode DX/Contest Club (MLDXCC). A Celebration of Life will be held on Saturday April 24th, 1 to 5pm at 7632 Woodland Lane in Fair Oaks, CA.

Two Guys, A Radio And A Tent

The 2009 Chesterfield DXpedition, Part 1

By AA7JV, George Wallner

Re-published with the permission of the editor, George Wallner, AA7JV

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

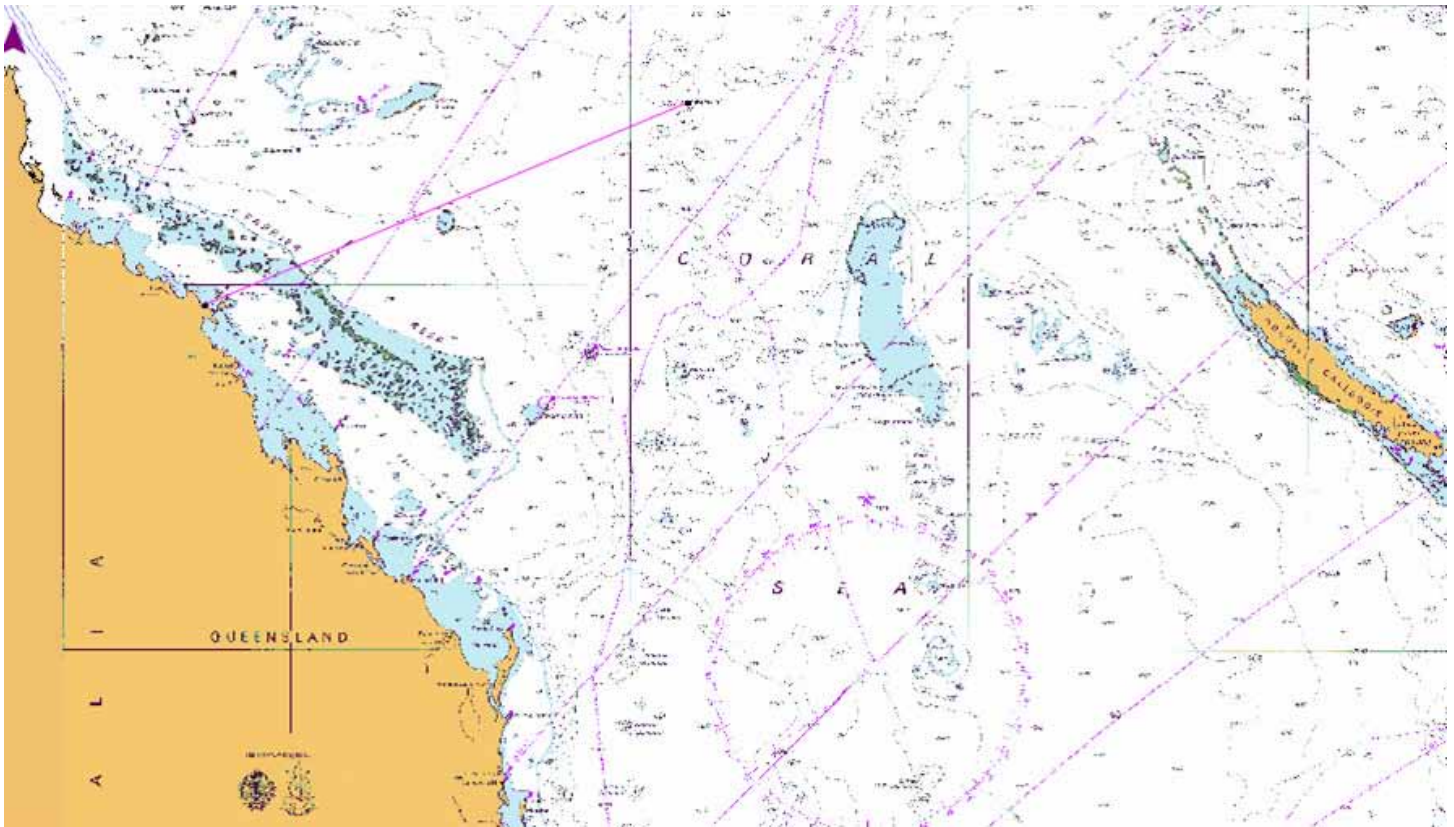
have to have good TX antennas and you need specialized RX antennas. We also wanted our TX antennas to stand in salt water, which requires unique gear and techniques!

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.

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.



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.

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 (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 from 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



Pedro II
Not pretty, but sturdy and reliable.

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.

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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.



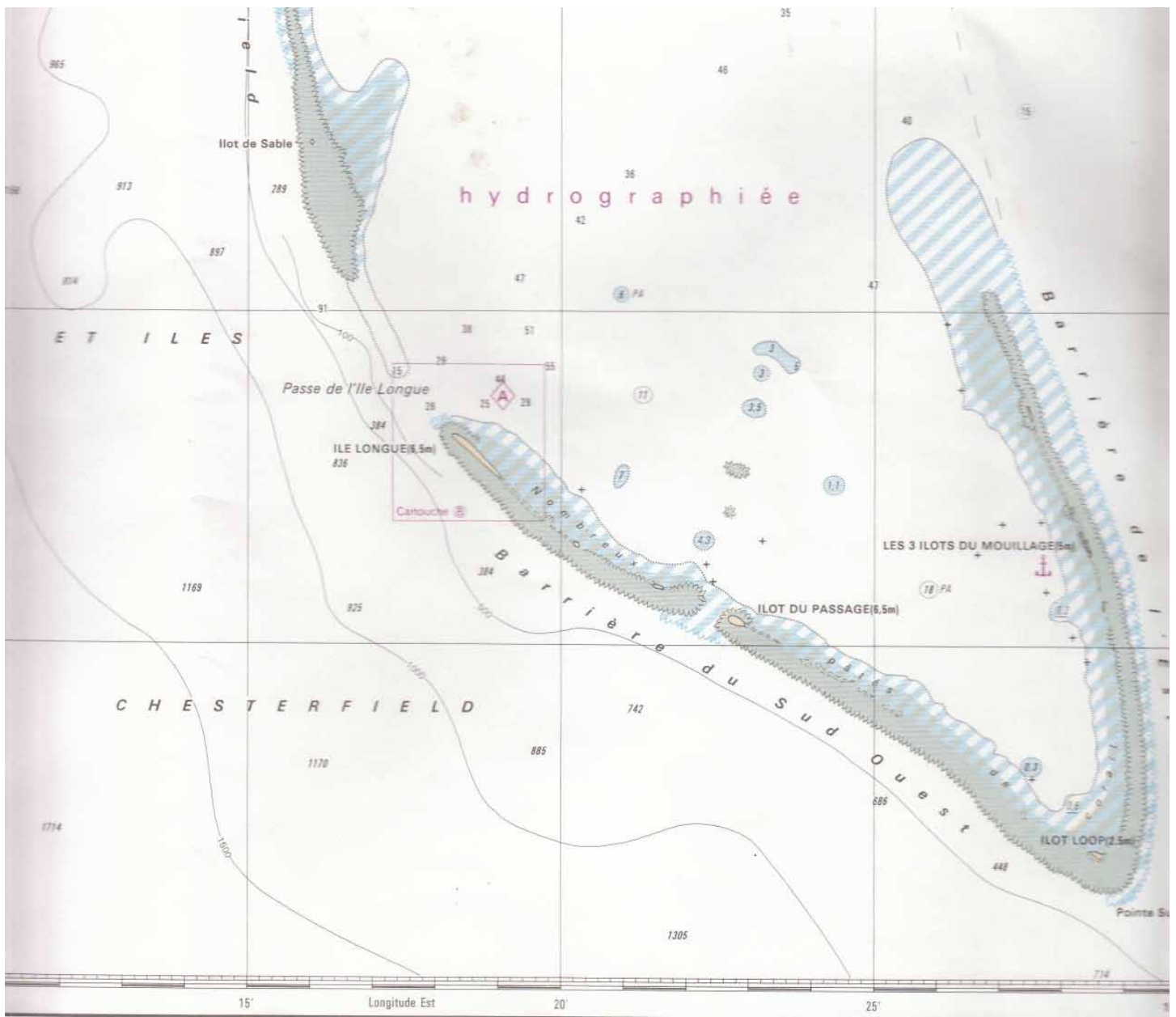
At Anchor Behind Saumarez Reef

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 from 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.



Chesterfield Reef

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

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.

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 shal-

low 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.

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 anten-

nas. 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!



The Antenna Lagoon

The lagoon is located between the northernmost and the center island of the Les 3 Ilots Du Mouillage. On the east side the lagoon is protected by a row of low rocks, while on the west side a shallow sand-bar provides protection. 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.

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 lowband 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.

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 not carry RF return currents that could distort the radiation pattern of the antenna (especially on the higher bands).

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.

To be continued in the May DXer ...

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