3B7C

on Ile du Sud in Saint Brandon

The story by Paul O'Kane EI5DI

3B7C was the fourth major DXpedition organised by FSDXA, the Five Star DXers Association. FSDXA has its origins in the Chiltern DX Club (CDXC) – initially a UK-only group of DX and contest enthusiasts, but now with members worldwide.
Their first DXpedition was to Spratly Island (9M0C) in 1998, and the second to the Comoros (D86C) in 2001 broke all records – with 168,000 Q.
D68C QSOs logged by a team of 26.
In 2004, the 3B9C DXpedition to Rodrigues Island logged over 150,000 QSOs, second only to D68C. I was fortunate to be included in the 3B9C team – it was a great experience, and I jumped at the opportunity when invited to join the 3B7C team – on Ile du Sud in Saint Brandon.
This was to be a bit different from previous FSDXA ventures – in particular, it would be Zero Star rather than Five Star. Instead of hotels, many of us would be camping, food would be basic (but sufficient), we had to transport our own generators and fuel, not to mention food and drink. Last but not least, traveling by boat was the only option for the final 400 kilometer leg of the journey across the Indian Ocean from Mauritius.
Ile Sud is little more than a sandbar, about 1km long and 250m wide, but big enough for our planned antennas, and with a couple of permanent buildings, normally used as fishing lodges, with room for the shack and accommodation for 12 people.

Predictions indicated that there could be up to 170 hours of usable propagation each day across all bands, and accordingly a team of 20 operators would be appropriate. Neville G3NUG and Don G3BJ, our joint leaders, made two journeys to Mauritius and Ile du Sud to make all necessary arrangements and to plan the antenna layout.

We would have 12 separate stations and antennas, including two each on both 20m and 80m so that we could run CW and SSB simultaneously on those bands, possibly the only way to reach our target of 100,000 QSOs. There would be 6 Quadra linears which could be shared between the "day" and "night" bands. If those band openings overlapped, we could always run barefoot – 200 watts from the Yaesu FT2000 rigs.

FSDSXA has amassed an enviable collection of antennas, the beams all mounted on 40 ft poles including a complete rigging harness for each one. They remain in storage between expeditions. We had additional receiving antennas, including beverages and K9AY loops.

6m: 7 el Yagi Trident TA6M7LDX

10m: 6 el Yagi Force 12 EF-610

12m: 4 el Yagi Force 12 EF-412

15m: 4 el Yagi Force 12 EF-415

17m: 4 el Yagi Force 12 EF-417

20m: 3 el Yagi Cushcraft 203CD (SSB)

20m: 3 el Yagi Trident TA20M3L (CW)

20m: Pair of Trident phased verticals

30m: 2 el Yagi Trident TA30M2L

30m: Pair of phased verticals

40m: Four-square with elevated radials

80m: Pair of Titanex V80S phased verticals for SSB

80m: Pair of Titanex V80S phased verticals for CW

160m: Titanex V160S 85 foot vertical

Masts for the beams - all at 40 feet

The plan was to arrive on Ile du Sud on Tuesday 4th September, to operate from midnight local time on Friday 7th to 8 am on Tuesday 24th.
Everything went to schedule. I left Dublin on the morning of Sunday 2nd September on a Heathrow flight, followed by a leisurely transfer to Terminal 3 for the evening flight to Mauritius. This flight was full, and long (11h:30m) and uncomfortable and I got hardly any sleep. It arrived on time in Mauritius at 7:30am on Monday 3rd September.
Don G3BJ had arranged taxis across the island to Port Louis, about 30 miles by dual-carriageway during the morning rush-hour, and with traffic cops at every junction. The Mauritius countryside is as green as Ireland, but the crops are different – mostly sugar cane. Away from the towns, the buildings are generally low quality, although better than the ones I had seen in Rodrigues in 2004.

A quiet day on the Indian Ocean

We went straight to the boat (the Sainte Rita) in the port. It's a converted trawler, 34m by 7m, with bunk accommodation for all 20 of us. Nearby, there were a few beat-up Taiwanese fishing boats unloading their catch of frozen tuna.
An advance party had arrived in Mauritius a couple of days earlier and all our equipment - mostly antennas, cables and rigs - had already been loaded, having been shipped earlier by container from Southampton.

The boat left on time about midday – giving us a very nice view of the jagged mountains around the town, and in an hour or so we were into the open sea and getting the taste of the Indian Ocean. A few of the team didn't like the taste, the boat rolled a lot and it was very difficult to move around.
Twelve out of twenty of us were seasick, some seriously, for almost all the 28 hours of the journey.

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I didn't get sick, which I attribute entirely to a life-long policy of clean living and self-denial. Some said it was the sight of others getting sick that got them started, but I was quite happy lying in my bunk while the guy above was gradually filling his bucket. It was difficult to sleep due to the constant rolling. The best approach seemed to be to lie on your back with arms and legs out – that way you were less likely to roll out of the bunk. For an account of another DXpedition to St. Brandon in 1997 where most of the team were also seasick, see www.wr6wr.com/newSite/articles/features/olderfeatures/3B7RF_DXped.html.

By Tuesday afternoon, 4th September, everyone, including the crew, was glad to see calmer water indicating the end of the journey. It was a bit strange seeing Saint Brandon for the first time – there's hardy anything to see! You begin to understand why when you realise it used to be called the Cargados Carajos Shoals. It's little more than a collection of reefs, rocks, shoals and small islands extending some 50 miles north to south and up to 5 miles wide – with nothing else around for hundreds of miles. We were headed else towards Ile du Sud (South Island) – named after its position! The island was hit by a cyclone earlier this year and was completely submerged for a while – this left much of it one metre higher due to coral sand being washed up.

We transferred to small boats and got ashore about 4:30 pm. There wasn't much daylight left and the main priority was to get the tents up, made more difficult by the constant wind.
I had bought a tent in Dublin (it was shipped in the container) and tried it out in the back garden to make sure I knew in advance what to do. I was in it, and asleep by 8pm – catching up on the sleep I had lost on the previous two nights.
We were all up at 5.00 the next morning for a light breakfast, ready to start work at 6.
We spent the morning lugging stuff from the boats up to the shack and along the beach. In the afternoon I was assigned to one of three antenna teams with Don G3XTT, Pete SM5GMZ, and Arnie N6HC. The 40m 4-square was first to be erected, and we finished by 6pm as daylight faded.

There was plenty more work from 6am the next day – our team still had to erect

10m beam almost ready

the 6m, 10m, 15m and 30m monobanders – all at 40 feet and with similar rigging procedures. We dug shallow trenches for sand anchors at each of the four anchor points. The work was finished on Friday morning, giving us a few hours rest before we hit the bands at midnight on Friday (9pm local time in EI).

My first shift was at 4am on Saturday morning on 30m CW and it was tough going. It's in these circumstances that you realize, or remember, that operating in DXpeditions can be mentally very demanding. I had an 8-hour break and was on 20 CW from 4-8pm on Saturday evening. This was also tough, but rates were higher and I ended up with 810 QSOs for the day.

After that, one day tended to blend into another. All you think about is operating, sleeping and eating. Meals were scheduled in two sessions, so that we could eat immediately before, or just after a shift. This didn't always work out so conveniently in practice, as you might be expected to start early, or finish late, to catch possible openings. However, it's fair to say that none of us went hungry. The food was nearly always rice, with either fish or meat, and an appropriate sauce. Spagetti was an occasional welcome alternative to rice. You sleep whenever you can, although it wasn't possible to sleep in the tent during the day because of the heat – but there were other places that did nicely. We had running water and flush toilets and the only real hardship was cold showers. These were a shock to the system at first – there's not much of a tradition of cold showers in south Co. Dublin. After a few days, however, the water seems warmer and you begin to wonder if you're getting a bit odd when you start to look forward to them.

Verticals:
Clive GM3POI was anxious too see how simple vertical antennas would perform compared to the Yagis. The first one we tried was a 30m ground plane, close to the water, with two radials elevated at about 2 metres. It was amazing – better in all directions over the water. This is due to the almost perfect conductivity of salt water, which has the effect of reducing the angle or radiation from the vertical. It was so good that, whenever the pileups became unmanageable, I simply switched to the 2-el 30m yagi for a while. After that, verticals for other bands soon appeared. The only disadvantage was that they were more prone to introducing inter-station QRM compared to using the beams.

We had no problems using CW and SSB simultaneously on both 80 and 20m. This was due to the extensive use of bandpass filters between the transmitter and the linear, and a high-power low-pass filter after the linear. The bandpass filters included stock Dunestar filters together with custom units designed and built by Tony G0OPB. Finally, the CW and SSB antennas were spaced hundreds of metres apart. They were so far apart that power losses in the coax became an issue – being of the order of 2db or more on 20m. There were occasional problems with breakthrough from one band to another, mainly from the 12m station when its beam was pointed to Japan.

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The solution was to turn the beam to Europe!

With regard to turning beams, they were all done manually. A rotator arm was clamped to each mast, and the positions for Japan, Europe, and US West Coast were marked with lumps of coral in the sand. At night, a good torch was essential so that you could avoid any birds nesting in the sand. What direction should you turn the beam? We had propagation charts for each band that gave propagation forecasts (and actual

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QSO charts) for each hour of the day. These were updated and circulated daily by Eric K3NA, and were an invaluable operating aid. For example, 20m closed at about 2200 local time most evenings, but nearly always opened again to the US West coast at 0030 for at least an hour.

We were operating in fairly cramped conditions, up to ten of us at a time in a room about 10m by 6m. It was very impressive to see the room at night, with a pool or light around each op, and the rigs and computer screens glowing, and fingers typing away in atmosphere of almost complete silence – except, on occasion, for one or two renegade SSB ops who didn't always understand what the Mic Gain control is for. Seriously, there is no reason whatsoever to raise your voice when operating SSB. It may OK when you're operating alone, but it's likely to be a serious irritation to other operators. One way of avoiding this problem is to use in-ear or noise-cancelling phones – you can even get ones that combine both features.
In-ear phones form a tight seal when fitted properly, and are very effective at keeping external noise out. They also tend to have a great low-frequency response, just the job for separating CW signals in a pileup – you can adjust the passband and pitch controls on the rig so that the signals resonate on such a low frequency your teeth almost rattle! If you use the typical brand of phones you'll not know about this, but once you've tried in-ear phones you'll never go back.

Operating Statistics:
We had 19 operators, each on for at least 8 hours per day for 17 days. That's approximately 2580 hours for 137,000 QSOs - giving an average of 53 QSOs per hour. As any serious contester knows, that's not exactly a good rate!
I can often do much better from home with just 100 watts. However, DXpedition operating is not the same as contest operation. The pileups can be ferocious and intimidating and we had to face them for 8 or more hours daily, at any time of the day or night, for 17 days - with no time off. It's hard work. Sometimes you get a session when propagation is good, the bands are relatively quiet, there's not too many stations calling at once, and you're on form - picking them off quickly.

Even so, it's hard to get the last-10 rate much above 200 at any stage - you can sometimes get the last-100 rate above 180, but anything over 150 is considered good going. On the other hand, there are times when the bands are dead or dying. My slowest hour accounted for just 4 QSOs, and in another 2-hour period on 20m one night I logged only a dozen stations. It's probably true to say we worked the HF bands dry. If there was an opening, chances are we found it. We may not have worked everyone who wanted Saint Brandon, but it wasn't for the want of trying.

Another reason for the relatively slow rates is that most DXers are not contesters. Contesters don't waste time, but many DXers do! It may not be immediately obvious, but DXpeditions are contests - we're trying to log more QSOs than any other DXpedition, and each operator wants more QSOs than the other team members. Yes, it's a team effort, but personal pride comes into it too. Anything that speeds things up helps the team, the operator and other callers who wouldn't otherwise get in the log.

Home Sweet Home for EI5DI

Wasting Time:
How do you waste time? It's really easy.

1. Send our call. We know who we are, and we know you're calling us. We don't ever want to hear our call.
2. Send your call continuously – without a break. Yes, you may have full break-in, but we can't be certain and this practice is very frustrating.
3. Send your call twice. That's a mortal sin! Chances are we got your call the first time and now you're forcing us to wait until you send it again.
4. Send your call when you can't hear us.

What you should do is send your call once, wait two seconds, then repeat!

Buzzed by a Fairy Tern

OK, you've hit the jackpot. You hear your call followed by 59(9).
What should you not do?

We don't want to hear your call again, unless you're correcting what we sent. In particular, we don't want to hear your call twice (a common JA practice).

We don't want to hear anything other than "Roger five nine" on phone, or "R 5NN" on CW.

We don't want to hear FB TU 5NN 5NN 599 599 GL 73, or any other combination. Reports don't matter, you're not doing anyone a favour by sending "actual" reports. We don't edit reports, they're always left as 59 or 599 in the computer. Finally, don't end by sending your callsign again - for the third time. We know your callsign – didn't you just hear it from us a moment ago? If we got your call correct, say "Roger five nine" on phone, or send "R 5NN" on CW – nothing else.

Break the pileup:
Now the hard bit – how do you get us to pick out your call from all the others who are calling? That's not so easy to answer. In a small pileup, you can match the frequency of the previous caller. However, when pileups are big, too many people try this and end up QRMing one another. In general, it's best to go towards the upper third of whatever split is used. Say, or send, your full call once – and do it efficiently, not always the same as doing it fast. On SSB, if the range is up 5 to 10, try up 7. The worst bet is to call exactly 5 up because fully 50% of callers do that. If you're not stronger than the others, you have to be different in some other way. The next best option is to go up 12 or up 3. The DX operator is looking for an easy life and can easily pick up callers at the edges of the pileup. Listen carefully to what the DX operator says. We might

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say "There's no one on 158" or even just "one five eight" – you can bet that whoever reacts fastest will get the QSO, even if they're not strong. Sometimes it can be a complete lottery. I spent most of one session spinning the tuning knob (within the announced frequency split) after every QSO and working whoever I found on the new frequency. We do whatever it takes to maintain a good rate.

How can you make sure you don't get into the log? It's easy – make a nuisance of yourself. Call when the DX station is working someone else. Call when you can't hear the DX station. Call from EU when we're working NA only. Sometimes I did work renegade callers, but only to get them to shut up. They'll be a long time wondering why they're "not in log".

Another way of wasting time is to call us when you're already in the log. It's understandable if you're not sure about the first QSO, but it's unwelcome when the website has been updated and you know you're in the log. All you're doing is preventing other callers getting through. By the end of the trip our dupe rate was running at more than five per cent. It's not a problem if we're calling CQ and getting no answers, but please don't do it just because you can, or to get a QRP QSO or to try to work all the DXpedition operators.

QRP:
As for QRPers, DXpeditions don't like them. Come to think of it, does anyone like QRPers? All they do is make life difficult for the rest of us. We have to do all the work to copy their lousy signals. A word of advise for anyone who chooses to run low power – you should earn your QSOs on the same terms as everyone else and not beg for special treatment by signing /QRP after your call. It doesn't impress anyone on a DXpedition and it won't be logged. I personally don't work callers signing / QRP except as a last resort. One wasted more time by telling me he was running only 2 watts – I replied that I was running only 200 watts. He was probably proud of what "he" had done.

RTTY:
QRPers may be bad, but RTTYers are the pits. RTTY is a primitive digital mode that cannot be decoded by people. It's a legacy of the electro-mechanical monsters of the 1960s, but now even less relevant in an age when anyone who can string more than two lines of code together can present a new digital "mode"

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to the grateful world. You don't believe me? In October 2007, the ARRL Contester Rate Sheet reported on two new narrow-band digital modes called JT2 and JT4. I intend to hold out until the arrival of JT56 – that should be really effective!

It happens to be easy to get on RTTY, or any other digital mode, because it's mostly done by software and is supported by all modern rigs, but that doesn't imbue it with any particular merit. Most RTTY QSOs consist of little more than a few mouse clicks – about as worthwhile as a game of Space Invaders, but not as much fun. It's a computer-to-computer activity, not person-to-person as amateur radio should be. While operating CW on 3B7C, we used to get constant requests for RTTY. One way of keeping them quiet was to reply with "RTTY 5NN".

How do you get invited to join a DXpedition? It's not too difficult, but it can take a while. Join CDXC – that's a good start. Practice your CW, and get a reputation as a contester on both CW and SSB. You should be proficient at both, and you'll need to know your way around computer keyboards and logging software. 60% of all QSOs on St. Brandon were CW. You don't even have to be a DXer to be useful, although knowledge and experience of propagation never goes to waste.
I got my DXCC in 1964 and promptly stopped counting. Even now I have no idea of how many countries I've worked. I still jump into pileups occasionally, but only for the fun of it and not to chalk up new countries.

Morse Runner by VE3NEA is probably the most useful tool for getting to grips with CW pileups. Several of the 3B7C team used it for 15 minutes each day for a few weeks before the DXpedition. It certainly helped me. When dealing with CW pileups, it's always tempting to use the narrowest filter the rig has, but it can be more efficient to leave the filters on wide and do the filtering in your head. That's because you hear more callers at once, and this increases your chances of getting a full call the first time. Yes, it's harder at first, but it's often the way to work them faster - and that's the main priority on any DXpedition. Morse Runner is free from www.dxatlas.com/MorseRunner.

Costs:
How much do DXpeditions cost? They're not cheap. The direct costs were 2,000 pounds sterling for each team member (about 3000 euros), not including travel to Mauritius – another 1000 euros. I could have bought a nice rig or a fancy tower for that money. On the other hand, I had the satisfaction of being a team member on the third most successful DXpedition of all time, in terms of QSOs logged, and of visiting a part of the world that very few people will ever see.

How much does each QSO cost? We had 20 operators, representing direct costs of 80,000 euros for a total of 137,000 QSOs – or 58 cents per QSO. By the time you consider overheads and the investment (and depreciation) in transceivers, amplifiers, cables, antennas and filters, the true cost is probably double that. Please remember this when sending your direct QSL.
FSDXA could not undertake such DXpeditions if it were not for the generous donations from corporate sponsors and from clubs and individuals worldwide. Irish sponsors were particularly generous – including IRTS, the Shannon Basin Radio Club, and EI2CA, EI2CN, EI2GLB, EI2JD, EI4DW, EI4GK, EI7BA, EI7CC, EI7CD, EI7GY, EI8BP and EI8JR.

Residents:
There are no permanent residents on Ile du Sud. For 8 or 9 months each year there are three or four people looking after fishing parties from Mauritius – it's too dangerous to stay on the island during the cyclone season. There are plenty of "other" residents.

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There are two types of seabird. The white ones are Fairy Terns, and they were almost tame. Most of the time they ignore you, unless you move too fast or get closer than a foot or so. Then they take off, and hover around your head - making it easy to get good close-up photos. The others, called Brown Noddys, were a little more aggressive, and would swoop around at great speed if you got too close to their nesting sites. They're not a bit like "real" birds. They don't chirp and they don't eat bread! Instead, they cackle and squawk and quack and crow, and they eat fish and insects. There was a great racket from them at most times. Often, when operating SSB, I could hear their squawks in the headset (we operated with the rig's monitor on), and so, presumably, could our callers.

There were little crabs that lived in holes in the sand during the day, and came out at night – you had to be careful not to step on them. Ticks were an unwelcome surprise. They are like little black beetles with a hard shell, and from 1 to 4mm across. If you gave them half a chance, they would sit for days getting fat on your blood. The first most of us knew about them was when we found them firmly attached to fingers or toes - but hadn't felt a thing previously. Most of them came from the shack. They would drop from the roof, then march across the table or floor looking for a suitable finger or toe. You couldn't flick them off, and it was very difficult to remove them without using tweezers. I took one from Ivan G3IZD's back (at the dining table) this way, and he said to everybody "It's funny, but the first I knew of it was when I was scratching my back" – I said, "Fine, but don't start scratching anywhere else!" (Actually, I was a bit more specific than that).

There were a few cockroaches too, but generally they weren't a problem. One surprise was the turtles that were hatching all round the island. They tended to get lost in the sand while trying to find the sea – they seem to be programmed only to travel downhill. We all amused ourselves by pointing them in the right direction and watching as they battled the waves to get clear of the beach.
It feels good to liberate baby turtles, even if few of them will survive for long – they're just too small and vulnerable.

We arrived on the island at the time of a new moon. The nights were pitch dark and we had a great view of the Milky Way when the skies were clear. Another surprise was the number of cloudy days, although it was always pleasantly warm. Near the end of our stay the moon was full – it was remarkably bright due to reflections from the white coral sand – no torches were needed when outdoors. Someone had brought a pack of solar lights to mark the path between the shack and the other building – this soon became known as the Champs-Élysées.

Green Flash:
On the second or third day on the island, it was getting towards sunset when Eric K3NA asked us if we had heard about the "green flash"? Apparently, it was something that can occur immediately after sunset – just where the setting sun is. I thought about it for a while and decided that, if there was such a thing, it was probably an illusion caused by staring at the sun for too long. After all, wasn't I in my 60s and I had never heard of such a thing before?
I was busy explaining this to anyone who would listen when Eric said you could also see it just before the sun rose, so it could hardly be an illusion. I kept quiet after that and, sure enough, just as the rim of the sun sank under the horizon, a bright green light appeared and then disappeared after a second or two. Well – that was impressive!
Unfortunately, I wasn't able to photograph it on other days because it was either cloudy or I was operating, but some of the others saw it again.
For a full explanation, just google "green flash".

Going Home

Leaving the Island.
On Monday 23rd September we started dismantling and packing the antennas as bands closed. All operation finished on Tuesday morning, and the remaining antennas came down.

Fairy Terns - almost tame

All coax and electrical cables had to be rewound onto drums, and the whole island scoured for debris. We took the opportunity to pick up other rubbish that had been washed ashore – it was mostly footware, flip-flops in all shapes and sizes. On Wednesday morning the tents were taken down and packed – I left mine with one of the locals, and by 8am we back on the Sainte Rita for the return journey to Port Louis.

It was a smooth journey for most of the day, but after dark the wind rose and the waves grew. This time we were hitting them head-on, with the bow going high in the air and then crashing down again. I was asleep when this started, and when I awoke it was like lying on your back in a roller-coaster. The bunks were right up at the bow and we were weightless at the top of each wave. It felt like floating in air. The usual suspects were sick all over again – I must be doing something right. The next day we had to mooch about for three hours just outside the harbour entrance.
Apparently there had been a fight between some Indonesian sailors and at least one was dead. The police closed the harbour until they nabbed everyone concerned.
We still had time to have a hot shower, followed by a good meal (no rice and no fish) before heading to the airport for the night flight back to London. This time I had a row of 4 seats to myself and was able to sleep a bit.

Anyway, I can thoroughly recommend DXpeditioning to anyone. Remember to go to the edge of salt water and bring a vertical.
Here's looking forward to the next FSDXA operation – if you whisper Pacific and Sunspot Maximum you'll not be too far out.

Paul O'Kane EI5DI
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