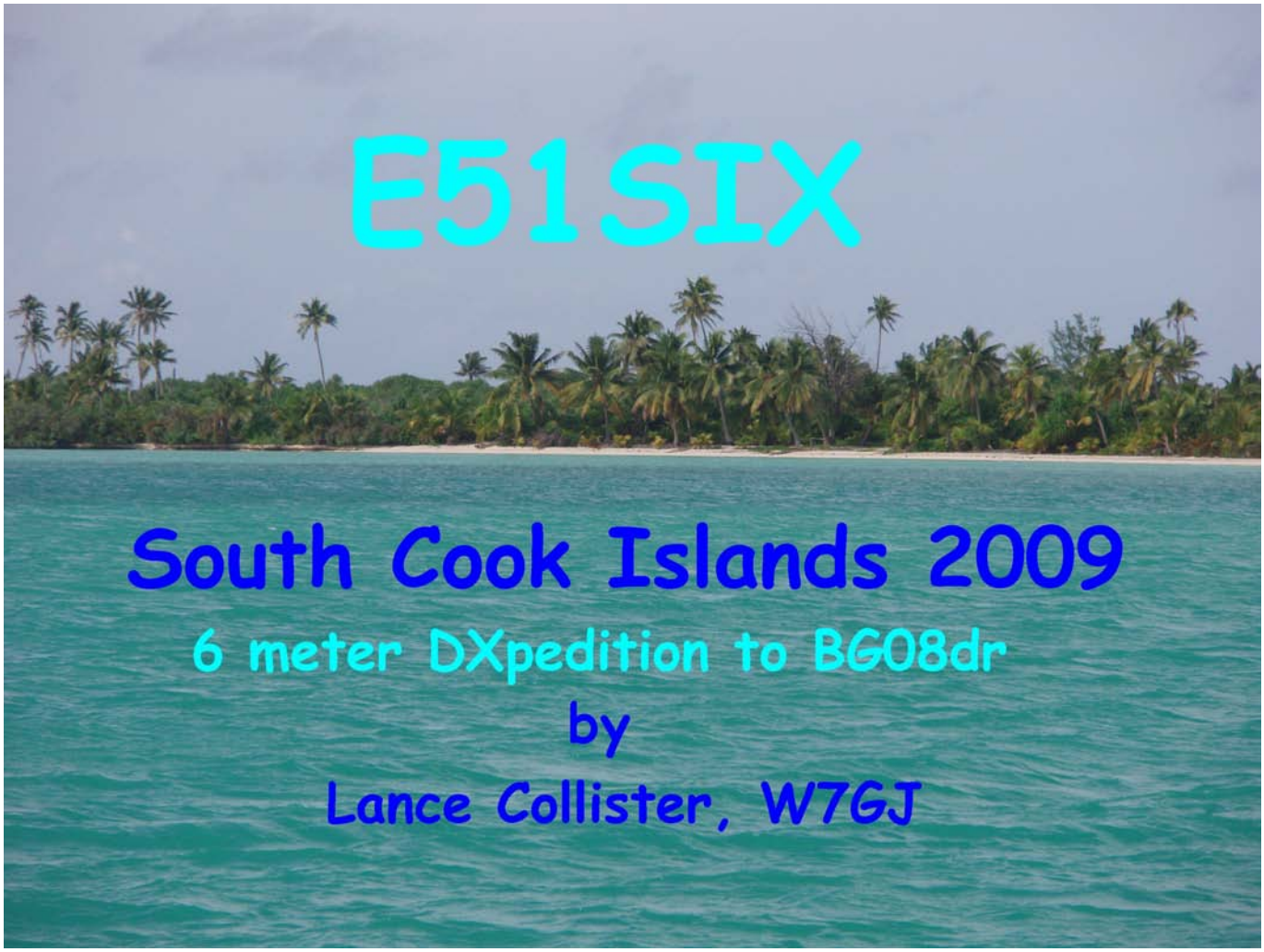
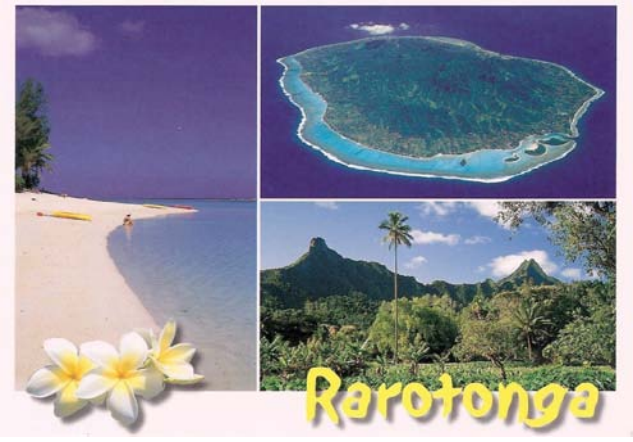


INTRODUCTION

You very well might wonder, "Why in the world would anybody go the opposite side of the world on a 6m DXpedition at a time of year with no Es and at a time of the solar cycle with no chance of F2 propagation?" The answer, of course, is to take advantage of the superb EME conditions afforded at this point in the solar cycle! If you are thinking about a trip, you might as well go someplace VERY rare so you can hand out a new DXCC in virtually every contact. I was very pleased to complete JT65A contacts with 26 stations in 8 countries and 10 states (14 contacts in Europe and 12 in the USA), and to copy additional stations in 3 more countries and one additional state. I only had EME propagation, and the antenna was elevated for most of the stations, so there was no ground gain on my end.

RAROTONGA

Rarotonga is the largest of the far flung Cook Islands, and the location of the capital, Averua. It is basically a rugged volcanic island ringed by a coral reef, located at 21 degrees south latitude, approximately 3000 miles south of Hawaii.



My good friend and experienced EME'er, Bob Sutton, ZL1RS, informed us that he was planning on renting a house on Rarotonga for a family vacation that would be combined with a 2m EME operation. Since there was an extra bedroom in the rental house, we quickly jumped at the chance to share expenses and do our part to activate the country on 6m. Bob previously had spent extended time on Rarotonga, and recommended it because of the reliable AC power, and comparatively easy access.

The plan was to operate from Muri Beach, on the southeast coast, which would afford a good over water shot at moonrise (in between the lagoon's "motu", or little islands) – at least when the moon rises more from the east than the northeast, as it would on more southerly declinations.

THE STATION

I immediately contacted K6MYC at M2 Antennas to inquire about the possibility of borrowing a highly portable 6m antenna for the trip. To my great delight, Mike immediately set out to design and fabricate a new trip yagi that had all the features I had always imagined as being part of the ideal DXpedition antenna!

The new antenna had over 12 dBD gain, was relatively lightweight, easily assembled and fit into a very transportable 6" diameter by 40" long nylon bag. Mike spent several days testing the new 6M8GJ out on a trailer-mounted mast during moonrises and it seemed to perform very well. In addition, Mike offered me the use of a water cooled solid state amplifier using a pair of MRF157 transistors, along with a 52 VDC switching power supply to run it.

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I had previously obtained a PR6 PHEMT preamp for portable use of my K3 with the idea of taking it on such trips. I fabricated a heavy-duty antenna mount for manually elevating the yagi, and began gathering up the odd parts such as guy anchors that would be needed for the trip. Bob said that Victor, E51CG, had offered the use of a couple of old tower sections, so it was beginning to look like we were seriously in the 6m EME DXpedition business!

Frenchtown, Montana is not at the actual end of the world, but on a clear day I can see it with binoculars from the ridge behind the house. So the question of how to get to Rarotonga loomed as a significant challenge. However, once again ZL1RS came to the rescue, informing me that Air New Zealand had a direct flight once a week between Los Angeles and Rarotonga! Of course, it took almost as long and cost almost as much for us to get from Montana to Los Angeles, but things were starting to fall into place.

THE TRAVEL ADVENTURE

On Sunday afternoon March 22, we loaded up the car with all our gear. All the fragile electronic equipment was wrapped in foam padding and transported in carry-on luggage. The coax, connecting cables and snorkeling great was packed in our largest suitcase. Similarly, the 6M8GJ yagi in its 44" long nylon travel bag was sent as checked baggage and two other small suitcases with clothes and other personal items were sent along as checked baggage. My laptop computer case –loaded also with small electronic devices - was my "purse".

We drove to the Missoula airport and worked our way through the security inspection, having to unpack most of the electronics in our carry-on.

We finally got off to Denver, after one aborted take-off attempt due to an of an indicator light malfunction. Still, the 35 minute delay and second roll down the runway in Missoula didn't hurt us at all because we still had plenty of extra time to catch our United Airlines connecting flight from Denver to Los Angeles. The flight from Denver finally got off about 30 minutes late, again because of an indicator light problem of some sort. However, the touch and go landing attempt at LAX cost us another 30 minutes as we circled around for another landing attempt in the unusually high cross winds. Unfortunately, our connection to the once-a-week Air New Zealand flight was tight even with a punctual arrival in Los Angeles. We travelled as fast as we could to the international terminal, only to find that Air New Zealand considered us 15 minutes too slow.

While we panted at the Air New Zealand terminal at 2330 local time, the very helpful counter agent said that he could re-route us through New Zealand but we would have to spend all day Monday waiting in LA for a flight to Aukland, and then all day Wednesday waiting in Aukland for a flight to Rarotonga. Although we were sorry to see the first two days of our vacation (which we had already planned to spend on the little island of Aitutaki,) vaporize, we were very happy not to wait until the following weekend for the next direct flight to Rarotonga!

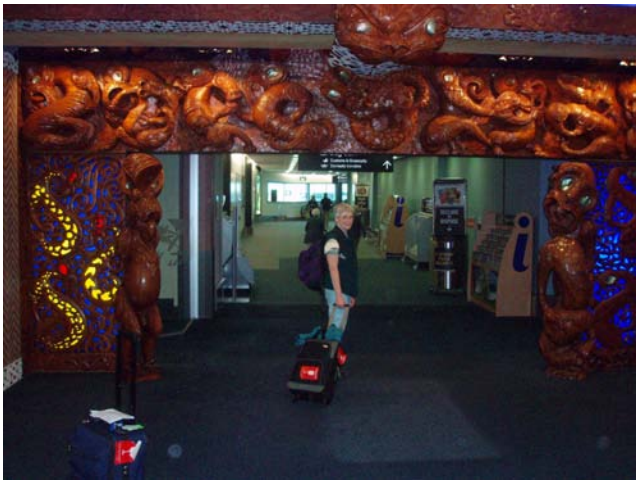
At around 0130 after we got to the hotel, I was able to get on the internet and cancel our flights between Rarotonga and Aitutaki, and obtain a refund voucher. I also ran into ZL1RS on Messenger, and informed him of our change in schedule. He confirmed that he and his wife Barbara were on the same flight as us from Aukland to Rarotonga, and asked that I check back with him before checking out of the hotel in the morning.

Monday morning I found Bob on Messenger up very early and he surprised us by telling us that there were tickets waiting for us to fly from

Aukland up north to Keri Keri to visit them! We were very excited that we were going to get a chance to visit Bob and Barbara in New Zealand – what a fantastic consolation prize!

After a bus tour of Los Angeles, visiting Venice Beach, Rodeo Drive, Beverly Hills and Hollywood Boulevard, we returned to the airport to check in for overnight flight to Aukland.

Wednesday morning we awoke and deplaned in Aukland (Tuesday just vaporized somewhere around the International Dateline).



The weather was beautiful and we were treated to quite scenic views as we flew up from Aukland to the Bay of Islands airport.

We arrived right on schedule and were met by Bob and Barbara at the Keri Keri airport. ! After touring a historic tour of the early Maori settlements and the first European building constructed in New Zealand, we were treated to a visit to the beautiful site where they are building their home. What a view and also a great place for antennas! After lunch and a hike through an old growth Kauri tree forest, we all drove down together to Aukland

We arrived in Aukland at sunset and departed on the late night Air New Zealand flight to Rarotonga. Since we crossed back over the International Dateline again, we retrieved the day that previously had vanished mysteriously!

RAROTONGA FINALLY!

We were greeted in Rarotonga at 0300 local time Wednesday morning March 25 by Victor E51CG and his charming wife Eleanor. We crashed for a couple hours at Victor and Eleanor's house across from he airport, but I was up early examining the tower sections beside Victor's shop…they were a bit larger than I had imagined but they would certainly do the job nicely!

Bob and I headed out to get some bolts for the tower, and were first in line for driver and ham licenses as soon as the places opened. Everyone was very friendly and efficient and we obtained all the necessary documents without delay.

STATION SETUP

By 1330 we had obtained the keys to the rental house and transported all the luggage and tower sections to Muri Beach. .

.I really felt like a magician when I pulled the 6M8GJ out of the little nylon travel bag! Since Bob did not plan to operate 2m until Friday, I was very fortunate to get his help with the yagi and tower. The actual tower raising also required the muscle of the XYL's and a brawny Brit named Tony who was staying next door.

The prototype 6M8GJ used an adaptation of a "Pawsey Stub" to convert the 50 ohm balanced dipole impedance to 50 ohm unbalanced for the coaxial cable feed. I shielded the stub and connections from the heaviest moisture by placing a plastic pill bottle over them.

The antenna assembly was punctuated by downpours, typical of the weather for the first week. At least the tropical rain was warm!

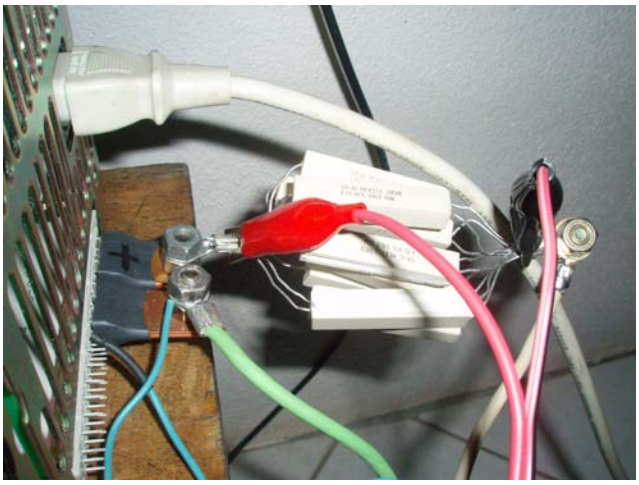
The tower was raised and guyed. Because the antenna was moved manually in azimuth and elevation, only very simple angle indicators were used. A plastic protractor was used to indicate azimuth. The protractor was installed inside the tower and lined up using the first sunrise as calibration. My program GJTRACKER provides the position of the sun as well as the moon, so it is very convenient to obtain data for alignment, provided you can see the sun at some point. The moon itself was not visible until the last few days of the trip, so it was necessary to use the protractor to determine proper antenna aiming.

An elevation mount was constructed prior to departure since it was clear that I would have to elevate the antenna in order to see the moon for contacts with horizon-only stations during the moonsets across NA. Because we were going to the windward side of the island, the mount was made quite rugged, with HDPE bearing plates. Since the antenna was being elevated, the boom truss could not be attached to the main antenna mast. Instead, a short mast was used only to hold the antenna. The short mast was inserted into a sleeve which was secured to the tower with stainless steel hose clamps.

The upright that was used to support the boom truss lines was a piece of angle aluminum bolted to the moving portion of the elevation mount. Because of the way it was mounted on the tower and the orientation of the tower, elevation was limited to about 38 degrees.

The antenna was set up before dark on Wednesday March 25, but the equipment still had to be set up and checked out so I could be moonrise at dawn (since it was new moon). I set up the 6m station that evening, including pails of water to use in cooling the amplifier.

The AC power outlets were all New Zealand style 230 VAC, which I filled with adapters to USA style heavy duty extension cords to power my 230 VAC power supplies.



Neither the power supply nor amplifier had any metering. and I needed to monitor the current drawn by the amp. Just before departing on the trip, I went down to my local Radio Shack store and bought ten 1.0 ohm, 10w resistors to put in parallel so I could read the voltage across them. I used a very inexpensive little digital voltmeter to display 3.9 volts for 39 amps of current.

However, when I hooked everything up, I could not get the amplifier to reliably switch into transmit. It had worked fine at home, but now only randomly switched over.

After a considerable amount of time (it is amazing how slow things go at 0200 local time, which was 0600 according to my body and Montana time), I determined that the culprit was the small changeover relay inside the amp, that was being powered by a 28 VDC regulator.

During my probing inside the amp, I inadvertently shorted out the regulator and solved the problem when the full 52 volts supply voltage was applied to the little relay! The amp then switched on very reliably every time the relay coil was grounded and it performed flawlessly for the rest of the trip. I finally was able to get to bed at 0300 in time to catch a few hours' sleep before the first moonrise

OPERATION

Moonrise at dawn on Thursday March 26 was out over the ocean, and I enjoyed good ground gain between about 4 and 11 degrees. I had expected that at least these first few days - when my moonrise was first thing in the morning - I would be free of any blockage from ionization toward the northeast. Although it was new moon, one of the great things about the bottom of the solar cycle is the fact that the sun is usually pretty quiet. I was very pleased to quickly work three stations before I had to start elevating. I copied four additional stations after I elevated the antenna, but failed to make any other contacts that first morning. I had informed people before the trip that I thought I would concentrate on my moonrises, which were the same as the European moonsets.

To concentrate the activity, I had planned on only operating for the North American moonsets during the last weekend in March, so NA stations were not expecting me to be on after the European moonset on Thursday. That left the afternoon free to do some exploring and string up a 20 m dipole aimed at California so I could touch base with K6MYC from time to time and pass along my updates. I also tried to provide what little assistance I could to Bob as he pretty much single handedly assembled his 2m array.

Friday morning the moon also rose out over the ocean, and I was able to complete with 5 more stations (K6MYC, IW5DHN, W1JJ, OZ4VV and GM4WJA) and I copied two others (K6QXY and G4IGO).

After the EU moonset, I took a few hours off for a walk down the beach with the XYL to a kayak rental place for a snorkel trip out to a little motu followed by lunch at a beachside restaurant.

I was then back again at the shack and started in again as advertised, in order to be active for the USA stations as the moon set across North America. That afternoon, I only completed with one NA moonset station (KJ9I), and heard one other (VE3CDX/W7). However, I knew that the word was getting around that I was being heard, and I was encouraged for moonrise on Saturday.

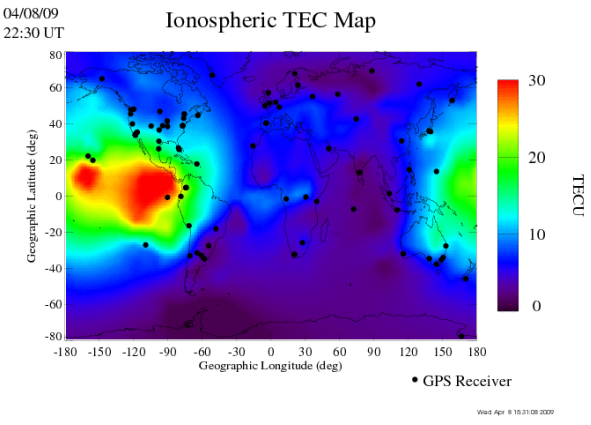
The extra operation to keep going as the moon was setting across NA really put the pressure on me to keep the water cool in the reservoir bucket for the amplifier. Rather than replace the water every 20 minutes or so, I found that I could get a couple hours of operation by adding blocks of ice to the bucket. My XYL, Karen, became the the "Ice Queen", cutting up all our empty water bottles and filling the freezer with them to make a supply of ice blocks for each operating session.

Before I had left Montana, I alerted people that they should send reports if they were copying me, and the stations should spread out every 200 Hz to avoid interfering with each other. I am sure that one of the reasons I was copying people so well was because they were spreading themselves out very well. In addition, I would tell which stations were copying me by their sending of reports, and I could reply first to those stations. If I didn't see any stations sending reports as they answered my CQ's, I would pick one and call him until he began to hear me, or I saw another station who was copying me. This technique is described in more detail in my webpage on 6m DXpeditions at:

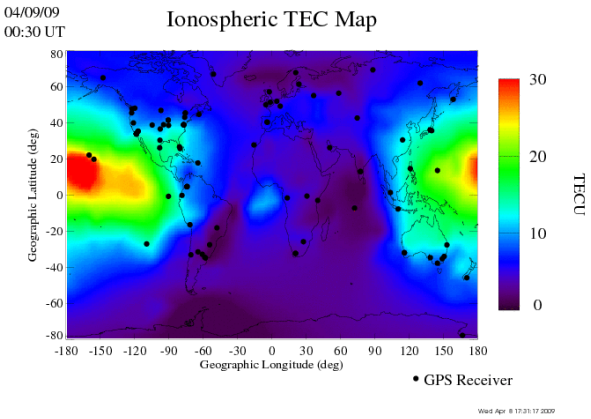
www.bigskyspaces.com/w7gj/DXPEDITIONS.htm

Saturday March 28 moonrise was quite a change! The moon had moved far enough north that I now was aiming into the neighbor's house only 1.5 boom lengths away to the northeast. There was no ground gain because of this blockage and there also was very intense RFI from the house. In addition, because the moonrise time was progressively moving later toward the middle of the day, I was quite concerned that the rising TEC (Total Electron Content) in the ionosphere that is so typical in the TEP Zone.(the area within 25 degrees north or south of the geomagnetic equator, where Trans Equatorial Propagation is common in the late afternoon and evenings) was starting to shield me from the moon. I copied no EU moonset stations at all on Saturday.

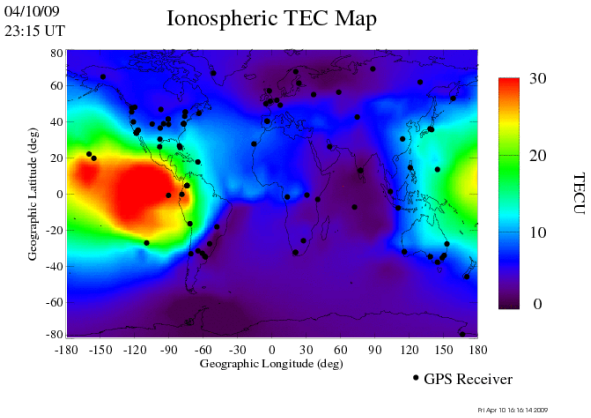
The following maps for two days were downloaded from the JPL TEC site the week after I returned home. While they don't show the exact conditions during my E51 operation, they are representative of the typical ionization that moves in from the northeast during the middle of the day in the TEP zone.



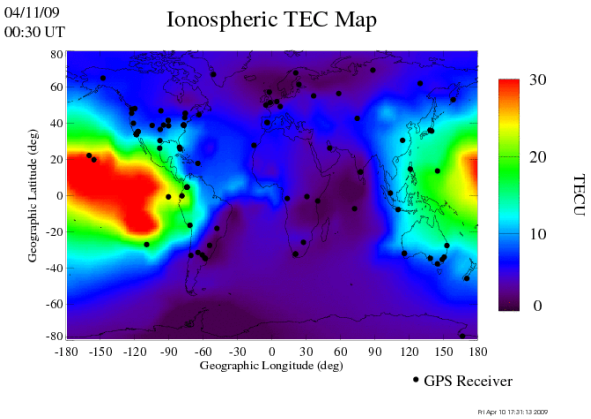
1330 local time in Rarotonga



1430 local time in Rarotonga



1315 local time in Rarotonga



1430 local time in Rarotonga

On Saturday afternoon, I again got on for the USA moonset. I was pleased to complete with N5DG, W7IUV and ES6RQ, and copied W7CE.

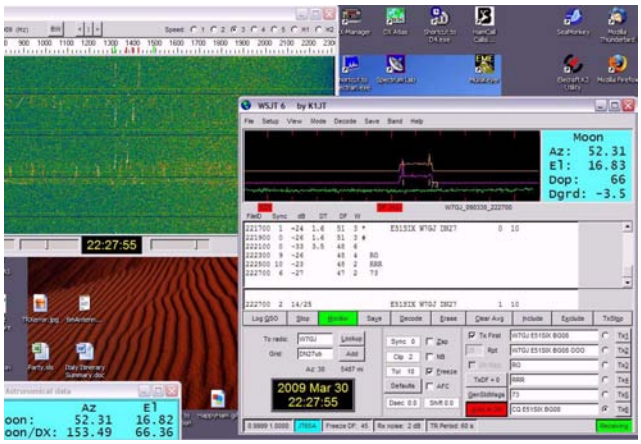
Sunday morning March 29 moonrise was also a total bust. In addition to the previous problems facing me at these mid-day moonrises blocked by various things, I had static crashes from thunderstorm activity. However, once I was elevated and cranked in WSJT's "CLIP" blanker, I was able to complete with SM7FJE and G5WQ. Once again I copied G4IGO, but no contact was made.

After completing with G5WQ, I walked 10 minutes down the road to the local internet café, and learned that MM0AMW still had moon and was on calling me. I promised to him that I would never leave the station again while he still had moon!

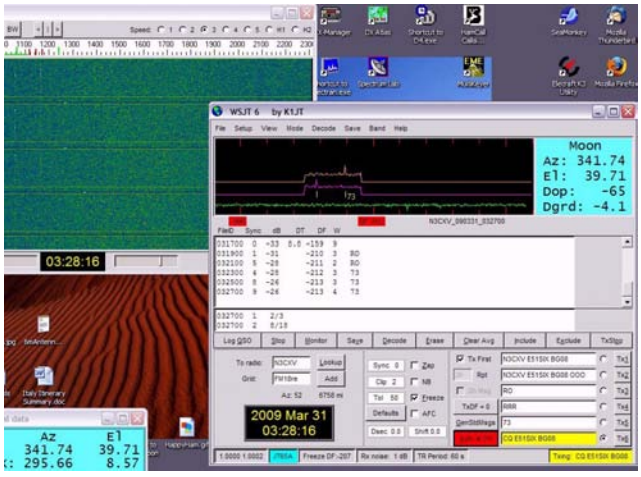
After a few hours' break, I got on again that afternoon for the moonsets across NA. I copied K1WHS and W7CE again and completed with K2ZD. I knew that Mario had to head back down to his home and work in New Jersey that night, so I was very happy to connect with him over the weekend. I also worked OH2BC on his moonrise using four 6M5X yagis.

Monday March 30 on the EU moonset I copied GD0TEP, G4IGO, F6BKI and worked OH2BC and MM0AMW. Apparently this was the first time that F6BKI had heard a 6m EME signal (we easily completed his first EME contact when I returned home to Montana).

Despite the noise toward my moonrise, I also worked my home station which was activated by AJ7LL. Don had practiced JT65 with me not just to activate W7GJ for a contact with E51SIX, but also because he is setting up to operate 2.3 GHz EME!



Originally I had not planned on staying on during the week to try for NA moonset stations, since I figured the weekend would probably have been enough opportunity for those who were serious about working me. But given the propagation problems that I was having, and the fact that we seemed to be having a lot of one-way propagation (locked up cross-polarity), I decided I would just see if anybody on the East Coast was on before we went out to the "Island Night" Maori dancing and dinner down the beach. I am sure glad I made the effort to get on for a couple of extra hours! I completed with N3CXV in Maryland with his single 6M5X yagi during his moonset – the smallest antenna that I worked! That just goes to show what I have always said about 6m EME, "The only SURE thing is that you won't make a contact if you don't try!" There sure are a lot of surprises and real magic out there if you make the effort to try!



On April 1 and 2, conditions were not very favorable for EME operation. My moonrise (in the middle of the day) was still quite far north, so the antenna would be pointed into the neighbor's house, and the elevation required to match the NA moonsets was too high for me the way the mount was attached to the tower. So we took advantage of that window of opportunity and after our "Rarotonga Island Night", we packed up our snorkel gear for a short off-island trip.

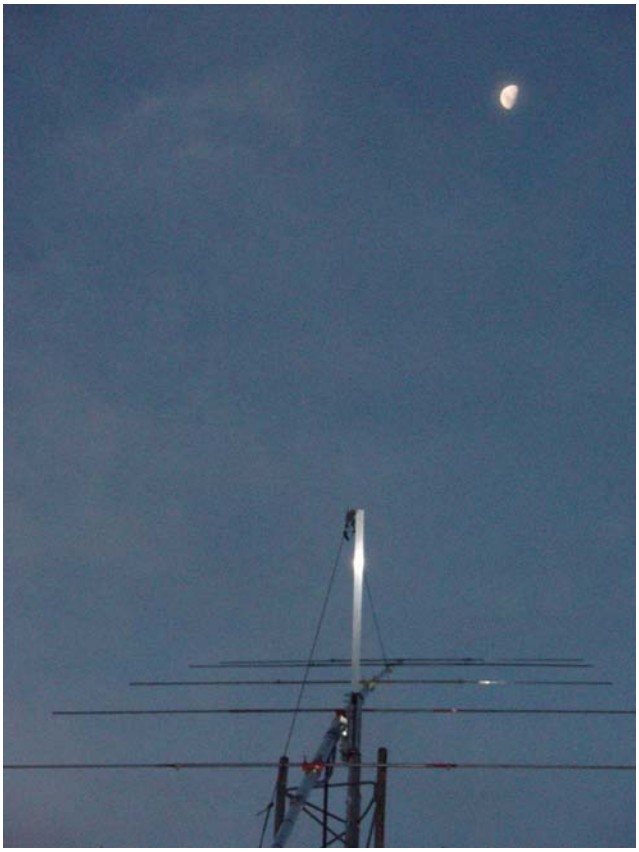
The next morning, we used our Air Rarotonga travel vouchers to take a side trip to beautiful Aitutaki Atoll to the northwest of Rarotonga.

The snorkeling out by One Foot Island, a motu at the southeast side of Aitutaki Atoll was beautiful. We saw many fish, and giant clams.

We departed Aitutaki with regret, but we were happy to see that the weather improving. It was great finally to see the sun and moon again!

We arrived back on Rarotonga in time for the EU moonset on Thursday, April 3. I was anxious to see how moonrise worked now that the moon was getting far enough south so moonrise was out over the ocean again. I was very pleased to complete with SM7AED, G4IGO, and G8BCG, although I copied nothing until my moon rose to 18 degrees. I knew the moonsets in EU were getting very late for them, and it was gratifying to see these stations getting on in the middle of the night to take advantage of the rapidly improving EME conditions.

After the moonset in Europe, I was pleased to complete with K1SG and K7AD. I also copied N8JX and W5UN answering my CQ's, although I did not complete with either station.



Friday April 4 was my last day of operation, and I was looking forward to the continually improving EME conditions, although moonrise so late in the day meant we still had blockage from high TEC toward the northeast.

Once the antenna was elevated, I was very encouraged to copy GD0TEP again, and I replied to reply to him for quite a long time, but the polarity never rotated around so we could complete. I also was very pleased (and quite surprised) to copy G0LCS from his urban QTH. However, I was unable to complete with any European stations on their last moonset.

The improving conditions really showed when I was calling CQ during the NA moonset, though! I completed easily with N8JX and NR0X. Then I copied, but did not work W5UN, N6RMJ, KR7O, W7CE and ZL3NW. My best signal report for the entire trip, was from OH2BC who copied me while I was sending OOO reports to W7CE on that last night. At 1020Z April 4 when my moon was down to 21 degrees elevation, and Kari's moon had risen to 1.8 degree, he copied me at -12 dB!. You sure have to love those great horizons in Finland!

The moon now was far enough south that I was aiming across the neighbors' nice flat yards again on my moonset (rather than more to northwest into their rooftops) and I knew there was a good chance of some ground gain, if any EU stations were on Saturday morning for their moonrise. I copied ES6RQ calling me when my moon was still up around 11 degrees elevation, so I dropped the antenna to the horizon, hoping for a boost from ground gain. We completed, and Ants was my final contact from E51.

Saturday morning I was up early disassembling the station and packing up the equipment. As soon as some helpers were up, I lowered the 6M8GJ down from the tower, and disassembled the antenna and packed it up again for transport.

After lowering the tower and taking the sections apart, we transported it back to E51CG and helped Victor put it up at his QTH.

Victor has plans to add a few more sections to the tower, with an HF beam and his 6m beam on top. From his ocean front QTH, the antennas will overlook the ocean toward both NA and EU. Currently, however, Victor does not have a rig that covers 6m, so he is hoping to be able to find something with that band by the time the terrestrial propagation begins.

The afternoon was spent packing, unwinding, and saying farewell to Muri Beach. We had a great last dinner out at Trader Jack's restaurant in Averua before heading to the airport to catch our late night flight back to Los Angeles…this time we made the direct connection!

ANALYSIS

At the end of this summary, I have attached a summary of my logbook, with additional notes regarding each station's antenna and the signal strengths recorded at E51SIX and each of the other stations. As it turned out, my actual windows with ground gain possibilities were very limited by a number of factors. Such opportunities for ground gain were actually far

fewer than originally anticipated. So how did the operation turn out to be so successful?

With the exception of the few contacts that were made when my beam was aimed at the horizon and generated extra ground gain, almost all the contacts were made while the antenna was elevated. If I had been limited only to "horizon-only operation" instead, I probably would have been limited to 6 or 8 contacts. There were a few major factors contributing to my success:

1) Elevation capability
2) Calling procedure
3) Gain

Adding the very crude manual elevation mount was certainly not very complicated, and it did not add much more weight or bulk to the equipment. In fact, the very rugged elevation mount that I built was certainly more than was required for this trip, but I wanted to make sure it would withstand severe weather and survive for re-use in future DXpeditions.

Having the callers spread out every 200 Hz and send reports if they were copying also was a big help. But these factors alone won't explain it.

As most people who have experienced the thrill of half million mile contacts on 6m are aware, it is very difficult to make EME contacts using a single yagi without the extra boost you get from ground gain. The margin between a successful contact and not detecting any signal at all is often only a few dB – usually this is the extra gain that is provided through clear smooth terrain and ground gain. I usually don't suggest even trying elevation unless the antenna has 14 dBD gain.

If you examine the information in the logbook summary table, you will notice that in many cases signals were just a few dB above the background noise. I am convinced that it was possible to successfully elevate and barely make many contacts because of several key reasons.

First, the 6M8GJ yagi has 12.1 dBD free space gain. That is certainly not the 14 dBD that I recommend to people for a home station that will be elevated, but it clearly is a lot of gain, and it made a difference in pulling out the signals. I honestly think that if I had used even a relatively good antenna such as the 6M7JHV (with 1.4 dB less gain) it would have really hurt. I was very pleased with the performance of the 6M8GJ and impressed that the SWR barely changed even while tropical rainstorms were pouring water on it. It is a very effective and comparatively broadband antenna, and the way it disappeared into the 44" long travel bag was itself magic!

Second, I used an excellent feedline. Sure it was heavy, but the 50 feet of Times Microwave LMR600 Ultra Flex coaxial cable had only 0.3 dB loss. This not only preserved the low noise level on my receiver so I could copy the very weak signals – it assured that most of my watts would make it to the antenna. I truly believe this is an essential ingredient to success when signals are barely detectable.

The 800 watts provided by Mike's water cooled amplifier provided an additional edge that allowed people to copy me more reliably or at all. In many cases, my signal was only a few dB above the threshold of detection for the other station, and if I had brought my own 500 watt amplifier I am confident that that 2 dB of lost power would have cost me precious contacts. A good portable kw amp is really needed.

And finally, the K3 with its low noise preamp provided a very sensitive front end along with a very flat, broad passband that permitted me to easily spot and decode multiple JT65A mode callers up to 800 Hz above and below my frequency. Of course the fact that the K3 has a built-in computer interface obviates the need to carry along another piece of equipment to work digital modes, and that is a very attractive feature when you are on a DXpedition! The rig met all my expectations and performed great!

In summary, I believe the high performance equipment I took with me enabled me to get away with using elevation, and that resulted in the unusually large number of contacts. My recommendation to others heading out on 6m EME DXpeditions is to take a 6M8GJ with very low loss feedline, a kw amplifier and some elevation capability. Of course, if you can time the outing to take place when the degradation is around 1 dB or so, that will further open up the number of stations you will be able to work – just make sure that the degradation is not more than 4 or 5 dB or you will only work the largest stations.

So there is the recipe for success that I plan to use again the next time I go to some very rare place. Please go out and show me that you can beat my record of 14 million miles of contacts in a week of operation because we all are very anxious to contact you on YOUR 6m EME DXpedition!

MAJOR SUPPORTERS/SPONSORS

I want to express my deep appreciation to the following contributors who very generously assisted in defraying the costs of this very expensive operation.

M2 Antennas	K6MYC	K2LZQ	
ON4IQ	K2ZD	OH2BC	
SM7FJE	OZ4VV	KJ9I	
W1TMZ	MM0AMW	W1JJ	E51CG

With the generous help of supporters such as these, I hope to be able to contact even more stations next time from some equally rare spot.

CONCLUSION

There certainly are a LOT of rare little DXCC islands out there! It is .just a matter of time and money to activate them. I now feel quite comfortable with the effectiveness of the portable station that I am assembling for these operations, and now is a great time for EME!

It was quite exciting going someplace exotic that was a new DXCC for so many people in NA as in EU. Many of these islands in the South Pacific simply just aren't easily worked on 6m even at the peak of the solar cycle (at least not from NA and EU). I really think that if I could pick the right location without any QRM and a good shot out over the water on moonrise and moonset, and set up there during a period of optimum low degradation, it should be possible to easily make 30 or 40 6m EME contacts in a week of operation. After all, the 28 contacts I made from E51 were during less than ideal degradation, I was blocked on most of my moonrises, and I had terrible noise on most of my moonrises. And, of course, more and more stations are putting up four yagi arrays with full elevation on 6m, which will make it even easier to make even more contacts during the next trip!

One of the big lessons learned from this trip is that any EME operations from the TEP Zone need to take place during the middle of the night when there is no ionospheric blockage in the direction of the moon, or elevation of the array is an absolute necessity.

Thanks to the contributors, all who made the effort to get on and call me, and special thanks to my wife. Karen helped lug all the equipment through security inspections and onto airplanes, took many of these photos, and accommodated my extended periods of operation.

I also am indebted to Bob Sutton, ZL1RS, for his valuable assistance in assembling and disassembling the tower and antenna, for making the arrangements for the house and van rental in Rarotonga and providing us the very exciting tour of northern New Zealand!.

May you all work lots of magic band DX and I hope to work you from the next rare place!
“May the Tones be With You!”

VY 73, Lance, W7GJ

LOGBOOK

GMT DATE	DEG dB	QSO #	DX CALL	E51 dB	DX dB	ANTENNA	NOTES
3/26	3.5	1	ON4GG	-26		4x6M9KHW	EU Moonset
		2	ON4IQ	-14	-20	4x6M9KHW	“
		3	PE1BTX	-20		4x6M7JHV	“
			IW5DHN	-15		4x7JXX6	“
			OZ4VV	-31		9 el M2	“
			G4IGO	-29		2x6 el hb	“
			W1JJ	-25		4x6M9KHW	“
3/27	3.4	4	K6MYC	-24	-23	4x6M9KHW	EU Moonset
			K6QXY	-27		8xDS50-5	“
		5	IW5DHN	-24		4x7JXX6	“
		6	W1JJ	-26	-20	4x6M9KHW	“
		7	OZ4VV	-26		9 el M2	“
			G4IGO	-28		2x6 el hb	“
		8	GM4WJA	-27	-25	7 el hb	“
3/28	3.6	9	KJ9I	-26	-28	13 el C3i	NA Moonset
			VE3CDX/W7	-28		6M7JHV	“
3/29	4.3	10	N5DG	-25	-24	EF0610	“
		11	W7IUV	-24	-26	7 el DK7ZB	“
			W7CE	-23		6M9KHW	“
		12	ES6RQ	-17		4x6	“
	4.2	13	SM7FJE	-23	-21	4x9	EU Moonset
			G4IGO	-27		2x6 el hb	“
		14	G5WQ	-20	-28	4x5 wl hb	“
3/30	4.0		K1WHS	-23		4x7 el hb	NA Moonset
		15	K2ZD		-26	6M7JHV	“
		16	OH2BC	-21		4x6M5X	EU Moonrise
			W7CE	-23		6M9KHW	“
		17	W7GJ	-20	-24	4x6M9KHW	EU Moonset
			GD0TEP	-23	Nil	6M11JKV	“
		18	OH2BC	-24	-23	3x6 el SteppIR	“
			G4IGO	-28		2x6 el hb	“
			F6BKI			9 el hb	“
3/31	4.0	19	MM0AMW	-27	-27	7 el Trident	“
		20	N3CXV	-26	-26	6M5X 12’ high	NA Moonset
4/1		--------	----------	------	------	----------	QRT - Off Island
4/2		--------	----------	------	------	----------	QRT – Off Island
4/3	3.3	21	SM7AED	-21		4x9 el	EU Moonset
		22	G4IGO	-28		2x6 el hb	“
		23	G8BCG	-25		6M7JHV	“
		24	K1SG	-24	-25	4x6M5X	“
		25	K7AD	-28		4x6M7	“
			N8JX	-29		7 el Ariane	NA Moonset
			W5UN	-29		6M7JHV	“

GMT DATE	DEG dB	QSO #	DX CALL	E51 dB	DX dB	ANTENNA	NOTES
4/4	1.8		GD0TEP	-20	Nil	6M11JKV	EU Moonset
			G0LCS	-27		2x5 el	
	1.6	26	N8JX	-24	-26	7 el Ariane	NA Moonset
		27	NR0X	-21	-25	2x6M9KHW	
			W5UN	-28		6M7JHV	
			N6RMJ	-23		4x6M5X	
			KR7O	-26		2x6M7JHV	
			W7CE	-25		6M9KHW	
			ZL3NW	-21		10 el hb	
		28	ES6RQ	-25		4x6 el hb	EU Moonrise

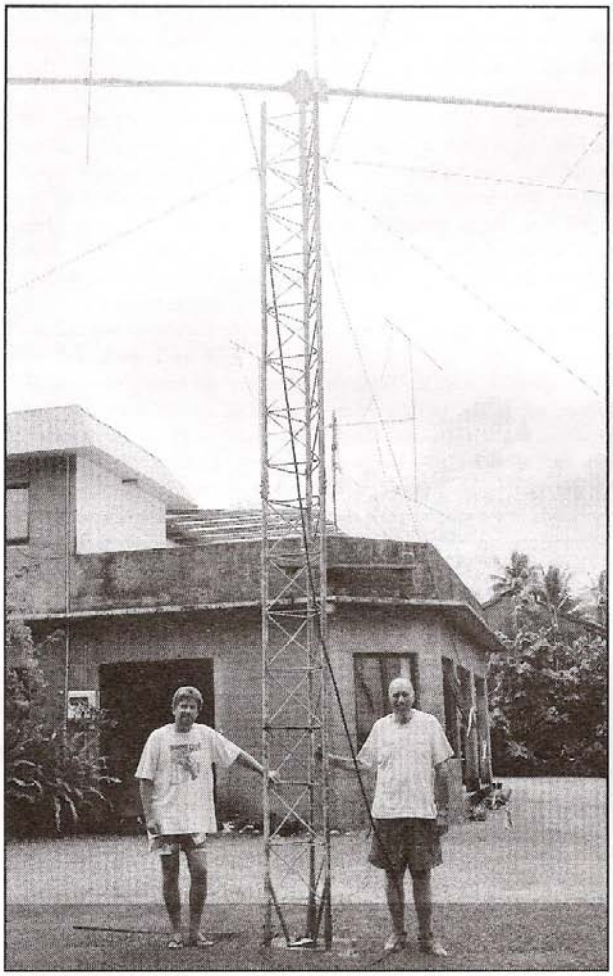
NOTES:

1) **DEG dB** is the approximate dB Degradation during that day. It is a value that compares the orbital conditions of the moon at that time to the optimal position of the moon, which would have zero dB degradation (if moon were at perigee and in front of the quietest part of the sky).
2) **QSO #** indicates a completed contact. If no number appears, the calls shown were only copied.
3) **E51 dB** is the maximum strength of the JT65A mode signals as received at E51SIX.
4) **DX dB** is the maximum strength of E51SIX's JT65A mode signals as received at the DX station.

LOCAL MEDIA COVERAGE

Bouncing off the moon

Talking to a moon beam



Bob Sutton and Lance Collister next to the antenna used by Lance. In the background is the antenna used by Bob.

By Charles Pitt

Speaking to others on the other side of the world by bouncing signals off the moon?

That's what two overseas ham radio enthusiasts are doing from their holiday accommodation in Muri.

Lance Collister from Montana, USA, has a tall antenna on the lawn of the sea side property at Muri and Bob Sutton from New Zealand has his array of antennae on the first floor terrace of the same house.

Both are speaking to colleagues on the other side of the world by directing extremely weak VHF signals to the moon and bouncing them off. Both are using very sensitive digital software and rely on line of sight to line up the antennae with the moon. The signals travel over 200,000 miles, taking 2.5 seconds to reach the moon.

Both antennae rotate and elevate. On a cloudy day said Bob, they have to calculate the moon's position.

When the Herald visited Bob and Lance on Tuesday morning, the moon was due to rise at 12 noon. Cloudy conditions meant they would be calculating its position.

Bob has managed to make over 80 contacts so far and Lance over 20.

Bob Sutton and Lance Collister