



Newsletter of the  
Twin City DX Association  
[www.tcdxa.org](http://www.tcdxa.org)

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November, 2010



**Inside this issue:**

<i>Member News</i>	3
<i>KØJUH 160m Monopole Project</i>	5
<i>Member Profile K4IU</i>	9
<i>MWA Contest Corner</i>	12
<i>KØMD Tower Project</i>	15
<i>Handihams Need Your Help</i>	20

**Gray Line Staff**

**KØIEA  
KØJUH  
WØBV**



**KØIR Handles the Big Pileups in Saba at PJ6A**



**On** October 10, 2010, the Netherlands Antilles was dissolved. Curacao and Dutch St. Maarten became autonomous territories of the Netherlands and Bonaire, Saba, and St. Eustatius are now under the administration of the Netherlands. This spawned four new DXCC entities for DXers. I was privileged to be a member of the team activating Saba on 10/10/10. The team was primarily comprised of members of the Southeastern DX Club. VE6CT and I were the two geographical outsiders. Some of the southern boys likened us Yankees to hemorrhoids ---- If they come down and go back up it's not too bad. But, if they come down and stay down, it's a problem.

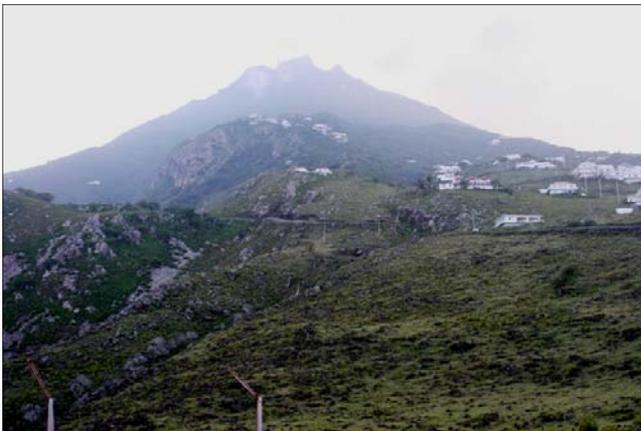
The last leg of getting to Saba is "interesting." Except for the airport runway, there is very little level ground on Saba. And for the runway, only 1300 feet of level ground is available. A sharp cliff drops to the sea at each end of the runway. It's like flying on and off an aircraft carrier. A twin otter flies between St. Maarten and Saba several times each day, wind and weather permitting.

- continued -



Just like taking off from an aircraft carrier!

There is one winding road on the island, aptly called, "The Road." It is steep, with multiple hairpins and switchbacks. One of our team members flew A7s off a carrier, and the road even concerned him.



"The Road."

Unless you want to dive or just spend your time reading and getting away from it all, there is relatively little to do on Saba. Crime is almost non-existent; there is no place to hide and no place to fence your stolen stuff. For a Minnesota boy, it was very hot and very humid.

Our DXpedition occupied three sites: two stations about ¼ mile apart as the crow flies, and the cottages where we slept, about a mile up the road. It was impossible to walk between these sites, so we rented three cars for transportation. That was the entire rental fleet on the island. All the rental cars on Saba have deep scratches on the side from grinding against the rock walls of "The Road."



Of course, propagation was wonderful when compared with what we experience. I operated about 95% CW, and about 80% of my contacts were with Europe. I did not do any 160 operating, but spent a good amount of time on all the other bands. I worked quite a number of Minnesota stations.

I was very impressed with the members of the Southeastern DX Club. They did this in style, and were a really class group. I can't thank them enough for inviting me on this trip.

Ralph, KØIR

*ed.—Ralph will be working DXers next from the South Orkney Islands, beginning January 27, 2011. See <http://www.vp8o.com/> for all of the details.*



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# Member News

## Hello from Cisco!

“Hello guys!

Time sure flies. I hope you enjoyed your summer months.

I have been busy working with the Red Cross. We are installing HF stations in different parts of the country. There has been more rain than last year, and there have been a lot of emergencies.

Here are a couple pictures taken while installing the antennas for the Salvadoran Red Cross. They have asked me to thank you, as I am volunteering my time as a member of the Twin City DX Association. I am also helping the Red Cross personnel obtain their radio licenses.

Next, we are going to a remote town in the mountains, about 2 hours away from San Salvador. The danger is not in climbing the towers, but it is on the way to get there. The crime is increasing, here. You are exposed to danger, even if you are in a Red Cross vehicle.

Take care guys. I'm always thinking of you.

de Cisco, YS1CF”



## A BIG Welcome to Our Newest Members!

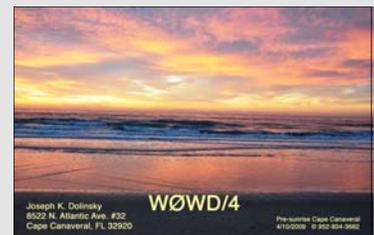
Larry Arneson, VQ9LA  
(NØQM)



Kevin Elliot, KGØMN



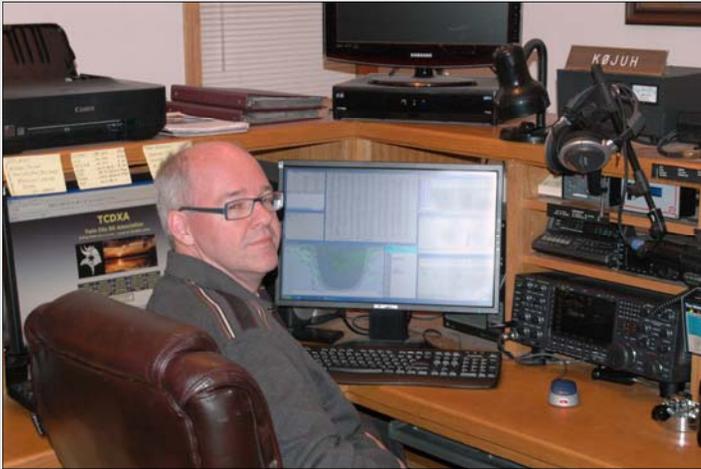
Gary Strong, KOØQ



Joe Dolinsky, WØWD

# Member News

## Henk Remijn, PA5KT Guest Ops at KØJUH



In October, a message appeared on the Top Band reflector from Henk, **PA5KT**. He was in Minneapolis on business, and was looking for someone in the area who would have a station he could use for a few hours during the Stew Perry contest (early warm up) on Saturday evening, October 23, 2010.

Jim, **KØJUH**, answered his email, and invited Henk to his Ham Lake QTH, where he had a chance to try out 160 meters from the US side of the Atlantic.

Conditions were poor, and no EU stations were heard during the few hours after sunset that Henk operated. He wasn't disappointed, as he's very familiar with the unpredictable propagation on the band, as 6 meters and 160 meters are his main passion back home in the Netherlands.

Henk has been employed for 19 years by Minnetonka-based Cargill. His specialty is Plant Information Technology (IT).

## KCØSB Hospitalized

TCDXA member Gary Meyer, **KCØSB** has been hospitalized since October 25th, when he suffered an abdominal aortic aneurysm. To date, he has undergone several surgeries, and is currently stable, but is likely to be hospitalized for weeks.

You can follow his progress through his CaringBridge website at <http://www.caringbridge.org/visit/garymeyer>. If you have never used the CaringBridge website prior to this, you will need to establish a password to access Gary's site. You will be requested for your email address and a password that you would like to use to access the system. Any updates will automatically issue a notification to your email.



## Join TCDXA

**Our mission is to raise *Dollars for DX* used to help fund qualified DXpeditions. Our funds come from annual member contributions (dues) and other donations. TCDXA is a non-profit organization as described in Section 501 (c) (3) of the Internal Revenue Code. All contributions from U.S. residents are tax-deductible.**

**Becoming a member is easy. Go to <http://tcdxa.org/> and follow the instructions on the home page. All contributions (including annual dues) may now be paid on our secure site, using PayPal or credit card.**

# The KØJUH 160 Meter Monopole Project

## Confessions of a Topband Junkie

I have an addiction to 160 meters. Since the middle 90s, I've been chasing DX on Topband with an inverted-V and a Gladiator Vertical. The Gladiator is a "short" trap-loaded vertical antenna 32 feet long, with 4 elevated tuned radials. The manufacturer, R. Myers Communications, is no longer in business.

Even though I've had acceptable results with the Gladiator, I've always felt its performance on transmit was below average. That's because all too often I hear the DX quite well, but they don't hear me!

My ability to hear well is the result of a quiet Ham Lake location. Thanks to buried utilities and being located 10 miles from the nearest commercial and retail center, manmade noise is almost nonexistent. Even though I've been tempted, I've never used separate antennas for receive.

By the way, don't believe everything you hear about verticals being noisy antennas. The truth is, they are quiet antennas when located at a quiet QTH.

After breaking through the "200 wall" during the low band season of 2009 – 2010, and confirming 216 entities on Topband, I knew working additional new ones would become a real challenge. If I was going to improve my chances of being heard on the other end, I needed a transmit antenna with more bark!

## Getting Started

Shunt feeding a tower for 160 meters is not new. It's been done by many low band enthusiasts over the years, and has proven to be a productive antenna for working DX. My motivation for loading the tower came from the success stories by local DXers, who are using the drop wire design.



As you know, the toughest part of most antenna projects is getting started. I have memories of doing antenna work on my towers at Mille Lacs Lake during deer hunting season, when there was snow coming down and strong northwest winds blowing across the big lake. That's history I don't care to repeat.

I vowed this time it would be different. Starting in July would allow me to take advantage of my son Terry's availability to help with the work on the tower, and most important, give us plenty of time to wrap up the project before cold weather set in.

Three locals, **KØKX**, **WØZR** and **WØLS**, had already loaded their towers for 160 meters, which was a huge benefit for me, as I could take advantage of their do's and don'ts with the various phases of design and construction. We particularly owe Steve, **KØSF**, a huge thanks for all his technical advice and coaching.

## Adding Drop Wires and the L/C Tuning Network

For this project, the monopole design uses three drop wires attached to the legs at the 50 foot level. From the attachment point, the wires hang down and are pulled away from each leg a few feet at ground level and attached to a stake.



The three wires are then connected by running a wire from stake to stake forming a loop around the base of the tower. Picture a triangle, and you have a good idea of the drop wire look.



The height at which you attach the wires is determined by trial and error. I chose 50 feet, and it happened to work out. Hose clamps and copper lugs are used for a secure connection to each leg.

The type of wire you use for the drop wires is not critical when the tower is free standing or guyed. In my case, we were loading a crank-up, and now the type of wire you use can become an issue.



Wires are connected to the tower at the 50-ft level.

With a crank-up tower, you don't want stiff wire (solid copper) that will kink and tangle when you lower the tower. You need wire that remains very flexible and drops straight down as the tower is lowered (stranded copper).

Here's where I benefited from Tom, WØZR's, do's and don'ts. Tom advised me early on to use flexible wire, and suggested FlexWeave. I found the product on the internet, and ordered it from the WireMan, Inc. on the east coast. It was shipped UPS and arrived in a few days.

- <http://www.thewireman.com/>
  - FlexWeave 14 awg stranded copper wire. Black PVC insulated ultra violet resistant.
  - Item code 5001544 P/N 544
  - Quantity: 500 feet
  - Cost per foot: \$0.181 500 ft = \$90.50
  - Shipping charges: \$14.64
- Total cost = \$105.14.

## Adding Ground Radials and Tuning the System

The Tri-Ex tower is grounded at each leg to a conventional ground rod. In addition, twenty (20) ground radials were added, covering 360 degrees, and ranging in length from 50 to 130 feet.

Are 20 ground radials going to make the tower an efficient radiator of RF? The experts say probably not. To make the antenna at least 70% efficient will require more radials. Addi-

tional information on verticals and radials is discussed in detail in Low Band DXing by John Develdore, **ON4UN**. If you're a low band "nut," it is recommended reading.

The L/C network at the base of the tower uses a vacuum variable capacitor and a home brew coil to tune the antenna to resonance at 1825 kHz. The SWR curve from 1800 to 1880 is less than 2.0:1, which was a huge increase in bandwidth compared to the Gladiator's 20 kHz.

<u>Freq.</u>	<u>SWR</u>
1800	1.22:1
1810	1.06:1
1820	1.06:1
1830	1.10:1
1840	1.18:1
1850	1.30:1
1860	1.40:1
1870	1.55:1
1880	1.66:1

If I don't gain anything else but bandwidth by loading the tower, I'll be the happiest guy in Ham Lake.

### Project Materials

Mike, **KØBUD**, came to my rescue when he saw my "want ad" for a used vacuum variable capacitor on the TCDXA reflector. He put me in touch with Skip, **K7YOO**, who sold me the capacitor I was looking for.

The inductor is a 12-turn 4-inch coil made from 3/8" OD – 1/4" ID copper tubing. A piece of 4 inch PVC pipe works very well as a form to wind the coil on. The copper tubing is readily available from Home Depot or Menards in a variety of diameters and lengths.

- Used vacuum variable capacitor 750pF/7500volts: \$105
- 20 feet of copper tubing 3/8" OD x 0.311" ID: \$29
- Weather-tight plastic storage container for the L/C capacitor and coil: \$7
- Hardware: (3) turnbuckles, (3) metal stakes, (3) insulators, (3) hose clamps

- (1) SO239 (3) copper wire lugs, (2) feed-thru insulators, (10) #31 ferrite cores: \$100



### A Few Minor Issues Along the Way

With a crank-up tower, the coax and rotor cables always run down the outside of the tower, through standoffs that prevent the cable from getting tangled up and pinched in the sections when lowering them. This puts the cables in close proximity to the drop wires, and just about guarantees problems with interaction.

And that's exactly how it played out. Early on, we discovered the coax and rotor cable had RF flowing on them, making it difficult to tune the system. We resolved the problem by adding #31 ferrite cores to all the cables. Once this was done, tuning the L/C network became a simple task.

### The First QSO with the New Antenna

On 29 September at 1132z, I heard **VK3ZL** CQing on 1824. Along with several other stations, I gave him a call. It took a few calls before he finally pulled me out of the QRM. I exchanged reports with Bob, giving him a 559 and receiving a 479/QRN in return. My first QSO with the loaded tower was in the log!

**BU2AQ** showed up the same morning, but with a much weaker (339) signal. Just before our SR at 1207z, he was the best (449) copy. I called a few times, but the Taiwan station was struggling to pull out a call sign, and I knew

the other stations calling, had the advantage of being located much further south. He finally worked **WD5R** in Arkansas and **KØYW** in Colorado, before I lost copy on him after sunrise. One out of two with the new antenna isn't bad.

### Comparing the Antennas: Monopole (new) versus the Gladiator (old)

I had a chance to compare the two antennas on receive while listening to VK3ZL. The signal was always stronger on the monopole, but not by a wide margin. The S-meter reading varied between S5 and S7, while the Gladiator read S4 to S6.

The real test for the new antenna will come later, when the activity on 160 picks up and the battles in the pileups get going. I don't expect to win all the battles - just a few!

### Disclaimer

The antenna in this story is the work of an old, retired soft drink peddler and some of his friends. Any resemblance to a monopole antenna designed and fabricated to excruciating standards by people who know what they're doing, is purely a coincidence.

See you in the pile-ups!



## DXers Have a Choice!



**The Daily DX** - is a text DX bulletin that can be sent via email to your home or office Monday through Friday and includes DX news, IOTA news, QSN reports, QSL information, a DX Calendar, propagation forecast and much, much more. With a subscription to The Daily DX, you will also receive DX news flashes and other interesting DX tidbits. *Subscriptions are \$49.00 for one year or \$28.00 for 6 mos.*

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# 11 Things

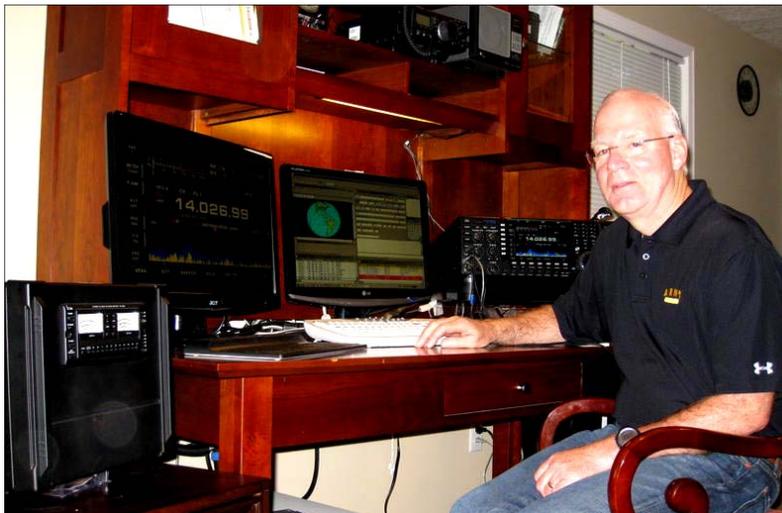
## Shared Wisdom From a Topband Guru

While listening to the noise on 160, waiting for any hint of propagation with the YI9 DXpedition, I used the time to compose a list of 11 things I have learned over the years about Topband DXing:

- 1.) Pay no attention to the juicy DX cluster spots from **VE1ZZ**. You won't be able to hear them, much less work them.
- 2.) Staying up 'till 3am is easier than getting out of bed at 3am.
- 3.) "Walking a Beverage" in your pajamas at 1am is a warning sign of mental illness.
- 4.) Ferrite is your friend.
- 5.) The local power company can't even spell "line noise."
- 6.) Whoever invented the "plasma" TV should be buried alive.
- 7.) Thunderstorms are still the best indicators of outstanding Topband conditions. When a storm puts you off the air, you can be sure the band is in great shape.
- 8.) "Searchlight" propagation always shines on the other guy.
- 9.) A good sunrise peak is a near-religious experience.
- 10.) If you whale on the base of a utility pole with a sledgehammer to "wink out" a noisy streetlight, your neighbors will call the cops.
- 11.) If you can't deal with disappointment, stay off Topband.

Can you relate to any (all?) of these?

73,  
Charles - K5ZK



**Fred  
Regennitter**

**K4IU**

Fred grew up in a small eastern Iowa town, where he got his start in amateur radio. In the summer of 1963, Fred and several of his high school friends developed an interest in electronics. Fred and his friends learned the code using a Navy Instructograph, (using perforated paper tapes), loaned to them by their Elmer, Anton, **KØRLX**. With his code speed solidly at 5 WPM, and after studying the ARRL License Manual, Fred passed his Novice exam, and soon became **WNØHFW**. He upgraded to General in 1964, and graduated to **WAØHFW**.

Fred's first rig consisted of a Knight Kit Ocean Hopper receiver and a Heathkit DX 20 transmitter. This was followed by a Knight Kit R55A receiver, and a Heathkit Cheyenne transmitter. Later, while attending college and dental school at the University of Iowa, he moved up to a Hammerlund HQ-129X receiver, a Swan 270 transceiver, and finally to a Kenwood TS-520 transceiver. After obtaining Extra Class privileges in 1979, he became **ABØV**. At that time, Fred ran a Kenwood TS-830 transceiver with a Drake L4B linear amplifier.

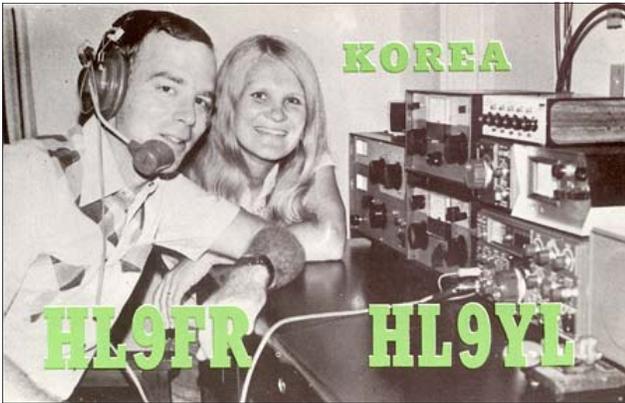
In 1996, while working at the University of Louisville in Kentucky, he applied for a vanity call, and received **K4IU**. He liked the IU suffix from a CW perspective, and it fit well with the University of Iowa, Fred's college alma mater. It was during this period of time that Fred enjoyed a succession of ICOM radios, beginning with a 756, a 756 Pro, and finally a 756 Pro II. His current rig is an ICOM 7700 transceiver and a PW1 solid state amplifier.

Fred is quick to give credit to many of his ham friends for their encouragement and help over the years:

- Anton Vanicek, **KØRLX** helped him earn his license and get on the air.
- Steve Towle, **WØHT** got him interested in DXing back in the 70s. Fred earned his DXCC in 1979.
- Jim Miller, **K4SQR**, ex **KZ5JM**, introduced him to contesting. Jim was owner of Com Tek, before selling it 2 years ago.
- Shelby Summerville, **K4WW** and Tim Totten, **N4GN** encouraged more contesting.
- Scott Wright, **KØMD** is always teaching Fred something new.

Fred had a chance to experience the "DX end" of the QSO when his military career led him to three overseas assignments, where he was licensed to operate.

- 1976 – 1979, **KZ5FR**, Canal Zone
- 1981 – 1983, **HL9FR**, Rep. of Korea
- 1987 – 1990, **DA2RE**, Federal Republic of Germany



Vienna - 1989

Fred's special DX memories include working the Norwegian adventurer Thor Heyerdahl, while he floated down the Euphrates River on a raft. That QSO took place while Fred was stationed in the Canal Zone. His QSO with **JY1**, King Hussein back in the 80s and the very loud Russian Woodpecker while at **HL9FR** in 1983 are other memories that remain vivid with him today.

Fred retired as a full Colonel from the U.S. Army after being on active duty and serving from 1970 to 1995. From 1995 to 2000, Fred taught orthodontics at the University of Louisville in Kentucky, while maintaining a faculty practice in the Health Sciences Center.

In 2001, Fred joined the consulting staff in the Dental Specialties Department at the Mayo Clinic as a certified orthodontist, and continues to work there today as Chief of Orthodontics.

There is no shortage of Hams in Fred's immediate family. **XYL Judy, KØUH** heads the list, followed by brother John, **KCØHO**, brother-in-law Patrick, **N9LWQ**, nephew Tom, **KB1IMF** and niece Kathryn, **KD8AHA**

Fred's son Chris lives in Eden Prairie (3 grandsons) and his daughter Jill lives in Chicago. Chris and his wife Emily both graduated from West Point in 1998 and served in Iraq.



The Regennitter clan - 2010

Fred and Judy live in Rochester, Minnesota on a small city lot. The QTH is very quiet, but the property size restricts Fred's choice of antennas. He refers to his antenna farm as "lame wires." Fred says that his current DX goals are "to work every new one that can hear me!"





# Announcing WØDXCC 2011

July 23, 2011

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Leavenworth, KS

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Sponsored by the Missouri DX/Contest Club and the Lebanon, MO ARC

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- ◆ DXCC card checking, including 160m and deleted countries
  - ◆ Famous Kansas City BBQ Buffet Banquet
  - ◆ ARRL booth and club representatives
- ◆ Local vendors, including Associated Radio, NØTT QSL Cards
- ◆ Radio and Antenna manufacturers, including Icom, Yaesu, Alpha, Force 12 and others—latest equipment on display.
- ◆ Many area points of interest to visit for family fun

See us at <http://www.w0dxcc.com/>





# The MWA Contest Corner

## 2010 CQWW RTTY Contest at KØIR

by Bob Chudek, KØRC

Last year (2009) was the first time Ralph pulled together a RTTY team to run a Multi-op 2-transmitter team from his QTH. As you know, this contest is the kick-off event for the new MWA contest season each year. For Ralph last year, it would be the shake-down cruise of his station and antenna upgrades. When the dust settled, KØIR won the 1st Place North America plaque with 2.4 million points (see page 1 of the July, 2010 *GrayLine*).

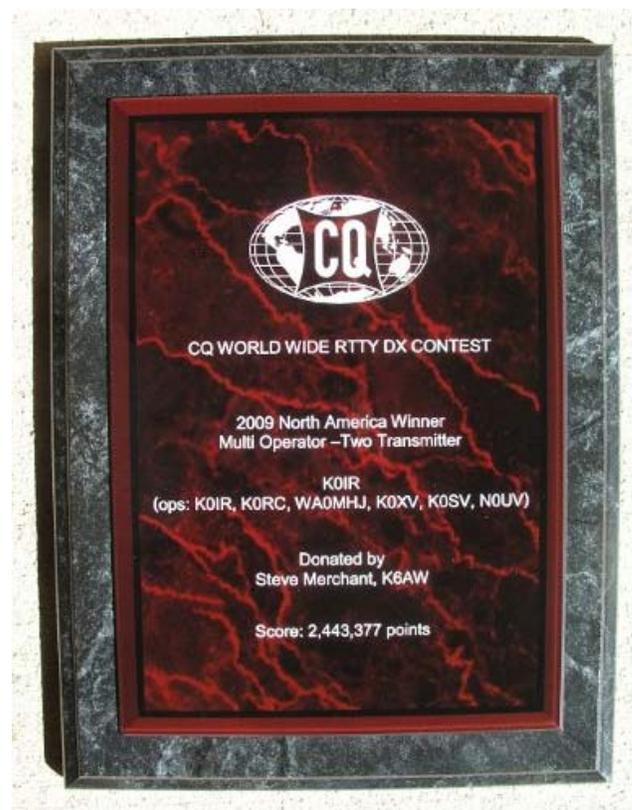
This year, Ralph implemented many improvements, gained from experiences last year. In reality, this time, the station looked "finished" when I arrived... all the ceiling tiles were now in place, adding to the feeling of satisfaction and completion!

Two new K3 transceivers were sitting in "Position 1," ready to go. A pair of IC-756 Pro IIIs were ready in "Position 2." Both operating positions had large LCD monitors to provide the screen space needed for the SO2R configurations.

I arrived at Ralph's QTH about noon on Friday. My task was to re-enable the network and get the N1MM Logger software and macros loaded and communicating. I was having trouble getting the dynamic network addressing working. That configuration had worked fine last year, but with many software updates during the past year, it was a "no-go" for some unknown reason this year. Gary, WØAW arrived about 2:00pm and suggested we try using static IPs. This worked. The network came up and was absolutely stable the entire weekend. Thanks Gary! (I was caught up in the "but this worked fine last year loop" and I couldn't seem to exit that endless routine!)



Ralph, KØIR is at Position 1 (using a pair of K3s) and Bob, WØBV is in the background at Position 2 (using a pair of IC756 Pro IIs). Both Positions are SO2R, each with a Run radio and a S&P radio. Any radio can use any antenna. Switching between antennas is automated. N1MM software is configured to allow some nifty operating tricks (see text).



The other team members arrived later on Friday with Joe, **KØJJR** coming down from Duluth on Saturday morning.

The operating conditions on 20 meters (from our station) on Saturday were really dismal compared to last year. We were hearing and calling EU stations but they were not hearing us very well. We could see them working each other for 1 point each, instead of working us for 3 points. This situation created a little apprehension the first 24 hours, whether we could match last years score or not. Twenty meters was the "money band" last year.

This problem shows up in our final 20m QSO count. It falls about 200 short of last year's total. Ten meters wasn't looking very good either. There had been one opening to SA, where we pulled 7 QSOs off the antennas. Our only joy was knowing this was 7 more QSOs than we logged on 10 meters last year. That limited number stared us in the face all weekend, until Sunday afternoon. There was a burst of activity that shot the QSO count up to 68. Then, it nearly doubled with another strong run of activity before the end of the contest.

Several of the operators were running N1MM Logger for the first time, but this didn't seem to be any great issue. It helps to operate with a team of fellows with different levels of experience (compared to operating Single Op) where, as an operator, you can call out "How do I ...?" and you get a response without having to dig through a manual looking for your answer.

Working on a team always helps build my own expertise, because I get to see how operators approach the software and contesting experience from their perspectives. Personally, I had been apprehensive about SO2R (I only read about it, never experienced it) but now that I have been exposed to it, I am over the "fear factor" level and only need more practice in actually operating in that kind of environment.

Toward the end of the contest, a number of the operators had launched into "Dueling CQ" mode too. This is a feature in SO2R, where you might



Gary, **WØAW** running the pair of K3s.



Mark, **WAØMHJ** at the twin IC-756 Pro IIIs.

be operating 20m on one radio and 10m on the other. The software alternates calling CQ on one radio, then switches to the other radio and calls CQ while you listen for answers on the first radio. This feature helps boost your QSO rate when activity is slower.

Ralph's station design is a work of engineering art. Any of the four radios automatically grab the appropriate antenna, with a simple radio band change.

We also experimented with a newer software feature that allows you to "stack calls." This is helpful when you have multiple stations answering your CQ. The idea is to "build a stack of calls" and send/receive reports one after another, without having to call CQ in between the contacts. We had good success with this, although I think everyone would agree we need a little more practice to bring up our skill levels.

Looking back at the goals I had suggested to the group (3,000 QSOs or 3,000,000 Points) we were able to achieve one of them. If 20 meters had been more kind to us, we might have made the 3,000 QSO goal as well. In any case, we increased last year's score by more than 40%.

My thanks go out to my teammates and to Ralph, our host. It was another great experience operating with you guys and from the KØIR Super Station!

73 de Bob - KØRC



That's me, KØRC.



Joe, KØJJR does a super job at his first SO2R RTTY operating experience.

### CQWW RTTY DX Contest 2010 - KØIR

Multi-Operator - 2 Transmitter

Operators: KØRC, WAØMHJ, WØAW, WØBV, KØJJR, KØIR

#### Box Score

Band	QSOs	Pts	Cty	ZN	Sec
3.5	448	622	46	16	53
7	820	1443	75	29	55
14	940	2218	96	33	48
21	385	904	71	29	31
28	124	202	15	11	35
Total	2717	5389	303	118	222

**Score: 3,465,127**

We had a really great team effort in this one. Each operating position was manned 24/7 with no down time. My thanks to all the guest ops. Everyone did what needed to be done.

The bottom line: We had a great time!

Ralph - KØIR

*Photos courtesy of KØRC. More photos are available on Bob's photo website at: <http://cid-d96c61feb759dc6e.office.live.com>.*

## A New Tower at KØMD!!

by Scott Wright, KØMD  
Photography by Stan Cram, AIØM

The 2007 Dayton Hamvention found me sharing a hotel room and the hamfest with two veteran TCDXA/MWA members: Glenn, WØGJ and John, NØIJ. It was my first Dayton experience, and like all hams who attend Dayton for the first time, I was mighty impressed with the breath and depth of our hobby. I especially enjoyed the evening sessions with Glenn and John. One evening, I raised several questions to both, including: “If you were starting over in designing your antenna farms, would you do it differently?” And, “What would you do if you had my property and wanted to improve your antenna from a single tower and tribander?”

Both were generous with their time and ideas. It is always refreshing to hear how others have done things, since we all learn from our experiences. They were candid, encouraging and practical.

John was especially keen to analyze my situation and help me dream big! I remember mentioning that I could swap out my 48 ft tower for a taller one, and he quickly corrected my thinking: “Never take a tower down, just put another one up.” Good advice! He cautioned me that my wife might not like my ideas after I returned home – he was mostly right!

The 2008 and 2009 WØDXCC meetings had several great forums on antennas, including optimizing them for DXing and contesting. I spent considerable time and effort analyzing my situation, speaking with Glenn and John on the telephone and even had visits from WØAIH and N6BV to my home to help me think through what could or should be done.

The work described in this article is the culmination of 3 years of analysis, planning and execution.

I requested a permit in November, 2009 to put up a 70 ft AN Wireless tower. It was ap-



proved by my township board quickly, but I was not able to complete the installation by May 2010, due to financial and personal reasons.

I went to Dayton 2010 with the intention of buying a tower – and I was leaning toward either a US tower crank up or guyed Rohn 45 system. Glenn again helped me think through my options and I decided to buy a Rohn 55 guyed array. Amazingly, I could not get a bid at Dayton on a complete system. I spoke with a popular hamfest vendor at Dayton, and they asked me to call and email them after the show. I did and did not get a reply. I contacted a large tower and antenna dealer in the South and they were not able to finalize a bid by the end of May for me. I called and the salesman told me that he was too busy to help with my small order that day but would get back to me. I still have not heard from him.

I was a bit perplexed about these obstacles and mentioned it to John one day when he called to see how my progress was. He suggested I contact a fellow MWA member in Duluth, WØTVD. Terry eventually sold me a used Rohn 55g system he had in storage, and in early June, K4IU and I went to Duluth, rented a U-Haul truck and brought the package to Rochester.

I re-applied for a permit, and it was approved in mid June. I was ready to begin installation. I initially hired some college guys to dig the holes for my tower base and guy anchors. Eventually, I had to hire a local tower company to dig those for me, and they did a good job. Each guy anchor hole was 7 feet deep and met the Rohn specs, perfectly. The hole for the tower base was at least 6 feet deep and a perfect 4 x 4 square.

I put my own rebar in and this required multiple trips to Menards and multiple visits by the township building inspector. Several of my neighbors took pity on me and helped me finish the rebar. They were glad to see how much work I was putting into the safety of the system. I finally passed inspection on the fourth visit and we were ready to pour concrete and set the base. I later learned how to do the rebar more quickly and efficiently – if you need advice for your project just call me!

Concrete arrived in early July on a blistering hot day. I paid for 10 cubic yards, and it all went into the ground. Everything was poured and it set just at the last minute, when Paul Bittner and his crew arrived to help me erect the tower.

The first antenna party was called for July 10<sup>th</sup>. Ham friends from all over Southern Minnesota assembled at my house for the installation. Many were TCDXA and/or MWA members, including Glenn **WØGJ**, Pat **WØBM**, Fred **K4IU**, Judy **KØUH**, Ron **WBØSOK**, Stew **WØSHL**, Rich **KI7K**, Terry **WØVB** and Paul **WØAIH**. Others were local club members like Stan **AIØM**, Laurence **KØLCT** and Ernie Vielhaber (no longer licensed).

It was a long day. We started at 5:30am and worked all day until ~ 9:30pm that night. The tower was up and two sets of guys were in place. It was an amazing thing to see a 100 ft Rohn tower in a field that had previously had only a 66 ft vertical for 160 meters and an 80 meter 4 square array made from vertical dipoles. It was even more amazing to have so many hams come from around the region just to help. We have a great hobby!

Paul Bittner climbs towers more agilely than anyone half his age! He has amazing skills. His personal assistant Mary Bittner runs a capstone winch that they use to raise and lower things including human climbers! It is the thing to have for tower projects!

I had elected to go with a triband Yagi stack for 10-20m and a single 2-element 40m Yagi at the top of the tower. I bought the Yagis from Force 12. I bought a new C31XR at Dayton, and then found a good used C49XR that I could



Paul Bittner, **WØAIH** “climbs” the tower the fast, easy way. . . .



. . . while Mary Bittner, **WBØPXM** runs the winch!

not pass up on QTH.com. The seller kindly agreed to deliver the C49 to the Force 12 factory, so Mark Hooper could inspect it, refurbish it and ship it to me in a crate along with the C31XR. The crate arrived in August when I was in Chile. Thankfully, my friend and fellow physician Peter Cross, **WØSA/8P9NX** was able to meet the truck at my house and uncrate it for me. Peter and Bob Dubke (local ham) also partially assembled the two antennas for me, which saved me a few months of evening work!



Final check of the BIG C49XR.



Paul and Glenn position and place the 40m Yagi.

I bought my WARC antenna from Tom, **WØZR**: a used Force 12 4BA. I brought it to Rochester the evening before the tower went up. I continue to laugh at the expressions the motorists gave me that Friday night on 494 as I meandered through the late rush hour traffic with my old suburban and Tom's Yagi strapped to the

car! I think they thought they had just observed a nut!

The antennas for installation had not arrived from Force 12, so Paul and crew agreed to return in the Fall to finish things.



The A-Team in action at the top of the tower.

My life goes on hold in August, as work requires a lot of travel time. After returning from three weeks of overseas travel, I spent Labor Day doing prep work. I worked every free moment after that doing preparation for the second installation day, September 18<sup>th</sup>.

Several local hams helped me finish my antenna assembly, including **WØSA, K4IU, KØUH, KI7K, WØVB** and **AIØM**. I rented a small lift truck to test the two big Yagis - the Force 12 C31XR and the C49XR - prior to installation. I vividly remember calling Stan, **AIØM** at work to please come help ASAP, as the big monster Yagi had inverted in mid air, and we could not get it back down to the ground without flipping it. It was quite a learning experience to have to lasso a 180 pound Yagi with a 49 ft boom!

Whoever said that Rome was not built in a day must have been a ham with an antenna farm. There are 10 to 20 hours of behind the scenes work for every hour of antenna installa-

tion. I had several pages of project timeline sheets, management schema and flow charts to make sure I did not miss anything. I had assembled so much. I never knew there were so many small details for an antenna installation, like picking a phase box for the Yagi stack, finding the best value on multi-conductor cable and then ordering very long runs. I felt like a ham dealer with all of the coax, conductor cable, rotor cable, lightning arrestors and other peripherals arriving at my home. I had to move my car from the garage to have a place to store the peripherals and cable! There are other details about installation such as needing help to remove a rotor from my current Rohn HDBX tower to put on the 55g. I did not want to buy a second M2 Orion 2800!

September 18<sup>th</sup> arrived, and we amazingly got the antennas up on the tower! It was a process to remember. Paul has many neat tricks to get them up. Paul and Mary returned the fol-



Up goes the monster C49XR!



©Stanley Cram Photography

lowing weekend to help me re-attach the Yagis. The initial boom to mast plate attachment on the 40 meter Yagi failed, and it twisted and tilted in a mild September wind. Paul custom-designed the fix, and also helped me attach the third set of guy wires to the tower. It was a cold pair of weekends we worked in September. We might have waited, had we known that October would have such beautiful, warm weekend days!

My current antenna farm includes:

- 1) Tower #1: Rohn 55 G with:
  - a) KLM 2 element 40m Yagi at 108 ft
  - b) Force 12 C49XR Yagi at 100 ft
  - c) Force 12 C31XR at 45 ft on a Tic ring rotor
- 2) Tower #2: Rohn HDBX at 48 ft with:
  - a) Force 12 4BA at 50 ft for 10-17m
  - b) 80m dipole
  - c) 2/440 vertical dipole for local VHF coverage
- 3) 80m 4-square array, made using four Force 12 sigma 80 vertical dipoles
- 4) 160m vertical: the Force 12 Magnum 160vx2

You can see a photo of the entire array at <http://www.qrz.com/db/k0md>. I am asked by hams if I am done? I have learned to say “Not yet.” The maintenance of these arrays is a lot of work and effort. The expense of owning them does not stop after installation. I have interaction issues with my old 40m Yagi and the C49XR. This will necessitate some adjustments or a replacement, hopefully next. I would like to replace it with a nearly full-sized Force 12 2-element 40m Yagi. I do want to be done, though – especially so I can operate.

I initially had some SWR issues when I measured the Yagis at the tower base. The SWR improved substantially at the shack, some 400 ft away. I suspect that the improvement I am seeing is simply feedline loss, and I will need to rent a crane next summer to do some adjustments.



The finished tower - ready for DX!

I really enjoy operating with the C49XR. It has 4 elements on 20m as an optimized wide-band Yagi. It has 7 elements on 15 meters and 14 elements on 10 meters. I have found the signal reports on 10 meters to be amazing. The first QSO was with a South Cook Island ham. He told me I was 10 dB over 9 there, and he did not believe I was a KØ station. If I can hear the DX on 10, I can work it. I have also found the C49 to be a better performer on 15 and 20m than my previous tri-bander (Cushcraft X7). I am hearing more Asian stations, and am working them. I had nice success during CQ WW SSB at working the Indonesian, Phillipine, Korean and Chinese operators which, prior to this season, were much more difficult to contact. I am still waiting to work Zone 23 with this array. I am sure I will, as I have done so with my old tri-bander and even mobile in my yard with a hamstick! Propagation always trumps aluminum!

The biggest difference I have noted is on 40 meters. It is amazing what raising a Yagi 50 ft higher will do. I have not heard so many Middle Eastern and African stations as I have in October. I was able to work QATAR during the contest. In general, if I can hear the signal on 40, I am usually able to work it. I look forward to DXing this winter on 40. and trying CQWW CW. I was able to work QATAR during the contest and missed another Middle Eastern station because WØGJ beat me out in a pile up! There is something to be said about having a 4-element monobander like his!

My array and tower withstood the enormous wind gusts we experienced in late October, without missing a beat. I have to thank the tough standards of our township inspector and the superb work of the AIH installation service for that!

How did all of this happen? First, it happened because so many members of the TCDXA/MWA freely offered advice and help in my planning and analysis stages. Second, I was able to get the tower and two Yagis at a fair price on the used market, saving enough money to make the project doable on my budget. Third, I was the recipient of help from a dozen or so local hams. They donated countless hours to the station that I cannot repay, or thank them enough for. Southern Minnesota is known for its nice people, and the ham community reflects that quite well. Fourth, I appreciate the calls of encouragement and support that I received during the challenges of this project, whether it was during the inspection process or with the SWR issues that plagued us for two plus weeks. Finally, I must express appreciation to my wife and family who tolerate having the array in our field. They refer to it as the Eiffel tower of Rochester. I also must thank my neighbors who have tolerated my antennas and my time in the hobby. If you ever want to put up an array like this, call me and I will gladly share more of the details and planning I did to accomplish it. I hope it raises my contest score and DXCC totals a bit as well.

Good DX!, Scott, KØMD



**How you can help...  
and build a legacy that reaches  
far into the future!**

As you undoubtedly have read in the news, philanthropy is down considerably from years past, due to the current economic conditions, with no relief on the horizon. *Courage Center is forced by these circumstances to concentrate more of its remaining philanthropy on core services.* This means that programs such as ours are being funded less by Courage. We have cut staff hours and cut costs everywhere we can, but we need to build our Handiham endowment fund, and cover current costs in order to keep operating. The endowment fund helps keep our Handiham budget independent of the overall Courage Center budget. When you place the Handiham program in your estate plans or donate to build the endowment, you help make our services more secure far into the future.

For more information on how to include the Handiham program in your estate plan, contact Walt Seibert, **KDØLPX**, at 763-520-0532 or email: [walt.seibert@couragecenter.org](mailto:walt.seibert@couragecenter.org).

The Courage Handiham System is a program service of the non-profit Courage Center, a registered 501(c)(3) charity. Your gift will help people with disabilities enjoy the world of amateur radio. All gifts are formally acknowledged.



By mail - letters and gifts of monetary support:

**Courage Handiham System  
3915 Golden Valley Road  
Golden Valley, MN 55422**

Shipping address for gifts of ham radio equipment:

**Handiham System  
Camp Courage  
8046 83rd St. NW  
Maple Lake, MN 55358**

Please make checks to "Courage Handiham System" or call toll-free: 1-866-426-3442 to donate via credit card, or go to: <http://www.handiham.org/node/270>.

**"Thank you for your support! We really appreciate your help."**

- Patrick Tice, **WAØTDA**, Handiham Manager

**TCDXA Treasury Report**

November 3, 2010

Submitted by TCDXA Secretary-Treasurer Jim Junkert, **KØJUH**

**Income:**

Carryover from 2009	\$ 1,843.68
2010 dues collected	2,940.35
Donations & misc.	539.15
Door prize ticket sales	432.00
WØLUP Estate	<u>100.00</u>
<b>Total YTD income</b>	<b>\$5,855.18</b>

**Expenses:**

Bank service fees	\$ (37.00)
Website: ISP and domain	(118.69)
Office supplies, guest dinners, and misc.	(48.00)
MWA plaque	(75.00)
YI9PSE funding	(500.00)
CYØ funding	(200.00)
E4X funding	(300.00)
ZL8X funding	(499.89)
VP8ORK funding	(1,000.00)
DXØDX funding	(500.00)
Member get well cards and gifts	<u>(101.17)</u>
<b>Total YTD expenses</b>	<b>\$(3,379.75)</b>

Current Checking Balance (11/3/2010):	\$ 2,475.43
Cash on hand	<u>44.00</u>
<b>Total current funds</b>	<b>\$ 2,519.43</b>

VKØIR  
ZL9CI  
A52A  
T33C  
3B9C  
TX9  
CP6CW  
3YØX  
K7C  
5A7A  
VU4AN

K5D  
VK9DWX  
FT5GA  
3D2ØCR  
E4X  
CYØ/NØTG  
VP8ORK



K4M  
TX3A  
9M6LSC  
YS4U  
YI9PSE  
ZL8X  
DXØDX

XU7MWA  
S21EA  
J2ØRR  
J2ØMM  
BS7H  
N8S  
3B7SP  
3B7C  
5JØA  
VP6DX  
TX5C  
9XØR

## TCDXA DX DONATION POLICY

The mission of TCDXA is to support approved DXpeditions by providing funding. Annual contributions from TCDXA members are the major source of funding for this mission.

A funding request from the organizers of a planned DXpedition is directed to the TCDXA Treasurer, who makes an initial evaluation of the request, and discusses the attributes with the TCDXA Board of Directors. The request will be judged by how well DXpedition plans meet several key considerations (see below).

If the Board of Directors deems the DXpedition to be worthy of support, a recommended funding amount is presented to the membership for approval. The TCDXA Treasurer will communicate the outcome of this process to the requestor.

### Key Considerations for a DXpedition Funding Request

DXpedition destination	Website with logos of contributing clubs
Ranking on <i>Most Wanted Survey</i>	QSLs with logos of contributing clubs
Most wanted ranking by TCDXA Members	Online logs/pilot stations
Logistics and transportation costs	Up front cost to each operator
Number of operators and their credentials	Support by NCDXF & other clubs
Number of stations on the air	LoTW log submissions
Bands, modes and duration of operation	Success of previous operations by same group
Equipment: antennas, radios, amps, etc.	Valid license and DXCC approval
Stateside and/or foreign QSL manager	Funding mode: USA and/or foreign financial address

### Guidelines for Level of Funding

\$\$\$\$ First level	A major DXpedition in terms of operators, equipment, duration of stay, and transportation costs. Requires elaborate planning and a huge budget. Always ranks high on Most Wanted Survey. Examples: VKØIR, 3YØX, K5D.
\$\$\$ Second level	Major to modest DXpedition in terms of operators and equipment. Ranking on Most Wanted Survey can vary from high to low. Examples: D68C, 3B9C
\$\$ Third level	Modest operation in terms of operators and equipment. Usually ranks low on Most Wanted Survey. Examples: T33C, K7C
\$ Fourth level	Special requests, and DXpeditions to entities <i>NOT</i> on the Top 100 Most Wanted Survey. Examples: CP6CW, YS4U



To join TCDXA, go to <http://tcdxa.org/> .

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