

Kilowatter

The voice of the KW Amateur Radio Club

March 2006

Since 1922

Kitchener-Waterloo Amateur Radio Club

133 Weber St. N. Suite #3-138
Waterloo, Ontario
N2J 3G9

EDITOR: Dennis Tabbert VA3DLT

PHONE: 463-9641

email: va3dlt@rac.ca

Web site: <http://www.kwarc.org>

MONDAY'S MEETING

Date: Monday March 6th 2006
Time: 7:30pm
Place: RCAF Wing 404 Club. End of Dutton Dr. Waterloo. Off Weber St. N
Topic: Control your rig remotely via the internet

UPCOMING EVENTS

Advanced Qualification Course Peel Amateur Radio Club March 4, 2006, Mississauga ON	Ham-Ex Peel ARC and Mississauga ARC March 25, 2006, Brampton ON
IARC Eleventh Annual Flea Market Iroquois Amateur Radio Club Saturday April 1, 2006, Iroquois ON	30th Annual Durham Region Hamfest North Shore ARC and South Pickering ARC April 22, 2006, Oshawa/Pickering/Whitby ON
Central Ontario Hamfest & Fleamarket Guelph ARC & Kitchener Waterloo ARC Saturday, June 10, 2006, Fergus ON	Annual K.W.A.R.C. Field Day Doon Pioneer Village June 24th – 25th

KWARC Directors 2005-2006

President	Gord Hayward	VE3EOS	744-7205
Vice President	Bob Pelling	VE3XNB	885-9995
Past President	Ben Sasiela	VE3ST	748-0445
Treasurer	Al Macdonald	VA3TET	741-0281
Secretary	Charles Cosby	VE3CHJ	650-1209
Director	Tedd Doda	VE3TJD	634-5949
Director	Bill Riddell	VE3WFR	571-9875

The Executive Committee Chairs

Program	vacant		
Technical	Tedd Doda	VE3TJD	634-5949
Packet	Tedd Doda	VE3TJD	634-5949
Database Mgr	Dave Schwartz	VA3DGS	884-3594
Bulletin Editor	Dennis Tabbert	VA3DLT	463-9641
Edu. Co-Ord	Ron Gimbel	VE3DBD	584-2009
Chief Examiner	Vern Stroud	VE3RVS	743-9342
Auto Patch	Ben Sasiela	VE3ST	748-0445
ARES Manager	Larry Gorman	VE3LGN	884-6782
CANWARN Mgr.	Bob Pelling	VE3XNB	885-9995
QSL Manager	Gord Gibson	VE3NQG	893-5148
Inventory	Ben Sasiela	VE3ST	748-0445
Field Day	Bob Pelling	VE3XNB	885-9995
Webmaster	Dennis Tabbert	VA3DLT	463-9641
Bereavement	Marg Cassel	VE3RE	634-5139
Flea Market	Bob Pelling	VE3XNB	885-9995
QCWA Rep	Harold Braun	VE3DWH	884-2388

KWARC Owned Repeaters/Nodes

Mode	Call	Freq.	PL patch	Location
Voice	VE3KSR	146.970	131.8 Yes	Baden Hill
Voice	VE3RCK	146.865	131.8	Mannheim
Packet	VE3KSR-0	145.010		Baden Hill
Packet	VE3KWQ	145.090		Waterloo
Voice	VE3IXY	224.340	131.8	Mannheim
IRLP	VE3RBM	444.875	131.8	Mannheim
Echolink	VE3SED	53.370	131.8	Baden Hill
Voice	VE3SED	442.200	131.8	Baden Hill
Special Events		147.510		Kitchener

Other Area Repeaters/Nodes

Mode	Call	Freq.	PL patch	Location
Voice	VE3ERC	444.700	N	Elmira
Voice	VE3KFM	442.000	Y open	Kitchener
Voice	VE3RND	145.330	Y	Plattsville
Voice	VE3SWR	146.790	N	Cambridge
IRLP	VE3WFM	147.090	N	Waterloo
Voice	VE3WWW	146.835	N	U of W
Voice	VE3RSS	147.030	N members	Acton
ULR Link	VE3BHR	447.075	Y	Baden Hill
Voice	VE3RKL	443.850	N	Guelph
Voice	VE3ZMG	145.210	N open	Guelph
Packet	VE3VIQ	145.570		Guelph
TCP/IP	VE3MKY	145.570		Guelph
TCP/IP	VE3UOW	145.570		U of W B
Voice	VE3BAY	442.350	Y	Kitchener

Pres Sez Gord Hayward VE3EOS President KWARC



Hello All Last month I said that the winter hadn't been too cold, but it's positively chilly out there now. That means its antenna time. They say that antennas work best when your hands freeze to the mast when you're tying them down. My new antenna just goes around the yard at the fence top so my hands only seized up as I did the 250 zip ties to hold it up. It's not high but it's long. I put it up to hear the special event stations SAQ on 17.2 kHz and KPH on 426 kHz.

VLF needs lots of wire.

I didn't hear SAQ. In spite of

winter conditions with no sunspots for the last few weeks the noise was too strong. It's the journey that counts, though. I now have a great antenna for 160m and below and am ready for the KPH event. I hope you all are pushing the envelope of what you have done so far and are going on to bigger and better things - more DX, more construction or learning more about the world - it all counts. Stay warm and have fun.

73 de Gord, VE3EOS,
Pres, KWARC.

Operate Your Station Remotely



At the March meeting of KWARC, Paul VE3SY and Terry VE3NSV will give a demonstration and talk on the full remote control of Paul's FT-1000MP HF station.

Terry and Paul have been experimenting for the past 6 weeks on providing full control of Paul's HF station providing full frequency agile operation from 160 metres all the way up to 10 metres. This feature now allows Terry to have full HF access to Paul's station when it's not in use by Paul.



As well, when Paul is travelling on business, it now allows him quick and easy access to his HF station from any place in the world where internet access is available.

Recently in Dallas Texas, Paul successfully made numerous QSOs from his Hotel room.

The March meeting will feature a live demo and a How To Do It talk showing what FREE software and hardware is required to remote your station.

Be sure to bring a friend.



Tech Report for March 2006



Greetings:

just incredible.

What a blast! As of the writing of this report we have completed 5 weeks of the KWARC Wednesday Night Net.

Has anyone else noticed that when RCK went QRT, that the other VHF repeater, VE3KSR didn't get any busier? Where are all the users going? I wish I knew.

The check-ins are growing and it looks to me that everyone is enjoying themselves as the topics range from antennas to pictures of the moon.

The Kenwood repeater that was sold to the Elmira club was tuned up and delivered about a week ago. It is running at a temporary site right now (Ralph's home) and should be at their **real** site soon. It's frequency is 444.700 (+) with no tone required. Give it a listen and say hello to the boys.

The net starts at 7:30 PM and goes until I don't get anymore check-ins (the highest number being 18 last night - Feb 23).

That's it for this month, and keep those comments coming!

Scheduling. How hard can it be to get a couple (or three) people together to change an antenna? Yup, still talking about VE3RCK. When the weather is nice, the laneway to the site has 8 feet of snow on it. When the laneway is clear, it's so cold outside that our fingers would freeze instantaneously. This must be the easiest project that the tech committee has to do, and it's the one taking the longest.....

Tedd, VE3TJD

Tech Chairman for the KWARC.

General Club Meeting Minutes

February 6, 2006



Gord Hayward VE3EOS called to order the regular meeting of the Kitchen – Waterloo Amateur Radio Club, Inc. at 7:45 PM on February 6, 2006 in the 404

He showed a shirt from RAC that was printed for the Youth Education Program at Monsignor Doyle High School. These shirts are allowed to be worn by the students as it advertises their school on one shoulder. There are 5 students enrolled in the Basic course at the school and approximately two thirds of the course has been covered.

Wing Club, Dutton Drive, Waterloo, Ontario. There were 25 Members and guests in attendance.

The portable microphone was passed around for the normal introductions.

Bob VE3XNB

Gord announced that this month's meeting would be our Annual Show and Tell and asked for presenters. The theme this year seemed to be portable HF antennas. There were 6 in total and they were as follows:

Came on stage with a 3' piece of 4" Black ABS pipe with a cap on one end, and an inspection cap on the other. It is a case he built to carry his portable antenna, an ATAS 25 all band. He uses this case to keep the entire antenna together including counter poise, tripod and coax to carry to Dxpeditons, etc. The range is 160 meters to 70 centimeters. It is

Peter VA3PTB

coarse tuned by sliding the coil up and down and then twisting it for fine-tuning.

Al VA3TET

Showed us an incredibly short (approx 30") home brewed 20 meter antenna. It has a small motorized tuner incorporated into it. He can get it to a 1:1 match every time anywhere on the band. This antenna has a -6 to 8 dB gain with lower than normal noise levels. It has been shown to tune in stations not picked up by a G5RV in the same vicinity. Al thinks the electrical radiation of the antenna makes it perform superior to others.

Ben VE3ST

Ben brought two mobile HF antennas. They are called Webster Band Spanners. Both versions have an adjustable radiator, one was just longer than the other. The outer sleeve is a fiberglass tube with a coil wrapped inside. The radiator has a brush on the bottom that makes contact wherever it is located and basically shorts out any portion of the coil that is not required for a particular band. The range of the antenna is 10 to 80 meters. Ben marks the radiator once it is tuned for a particular frequency to make finding that position easier next time. The only requirement for the antenna is a good ground so it can be mounted on any type of mount. Ben is currently working with a friend to try and motorize one of these with a non-conductive motor. This antenna differs from a typical screwdriver antenna in that the radiator changes length on a band spanner, as opposed to a fixed length on a screwdriver. The disadvantage of a Webster is that it has a narrow band width without retuning. These are capable of up to 500 watts.

Ron VE3DBD

Ron announced that the Basic classes start March 16th, which is a Thursday this year. It will be held every Tuesday and Thursday evening after that making the practice exam on a Thursday and the final on a Tuesday. Giving the students the weekend to brush up on their weaker areas. The location is the same as last

year, which is Stirling Avenue Mennonite Church. The cost is still \$25 plus books. His show and tell he had to be mostly tell because it was not ready to show. He is using old computer power supplies to try and get enough output to run his Kenwood TS-440, which requires 20 watts. He tried tweaking them to get the 12 volt side up to 13.8 without much success. Then he tried to link 3 in series using the 5 volt side to get 15 volts at 20 amps. Then he put 2 - 20A diodes in to drop the voltage to 13.8. The one gotcha is that you must make sure the case is grounded on only one power supply and remove the "U" grounds on the other 2.

Gord VE3EOS

Gord brought in a small case that is packed with 3 - 7 amp/hr battery packs. Inside is also a small power supply to charge them as well as an ammeter to monitor the charge and battery. In the case he drilled some vent holes so no gases build up as well as wired it for the "Gord" standard wiring system so he can hook it to ANYTHING he owns.

After coffee the following Business was discussed

Al VA3TET said regarding the bank account that we are in good shape and there is over \$3000 in the bank. He also asked any members renewing their membership to put their call sign on the cheque as that is the easiest way for him to access the database.

Tedd VE3TJD the Tech Committee Chair told us that he has nothing to report as the antenna is still down at RCK. He also mentioned that the KWARC Tech Net is running Wednesday nights at 7:30 and urged everyone to check in. Also KSR is now making announcements regarding the tech net.

Gord wanted Larry VE3LGN to update us on ARES but Larry was unable to attend the meeting.

Bob VE3XNB told us that Environment Canada wants to hold the Canwarn course the third week of April but a

definite date has yet to be set.

Gord reminded the executive that the meeting was the following night.

The 50/50 draw was held at the end of the evening by Bonnie VA3BLM and Linda VA3LWH won the draw.

Adjournment

It was moved that the meeting be adjourned by Tedd VE3TJD and seconded by Bill VE3WFR and was adjourned at 9:12 by Gord VE3EOS.

Minutes submitted by: Charles Cosby VE3CHJ



[Minutes of the Executive Meeting Tuesday February 7, 2006](#)

Ratz Bechtal Family Centre
Called to order by Gord VE3EOS
at 7:30 PM

Present were Gord VE3EOS, Bob VE3XNB, Al VA3TET, Ted VE3TJD, Ben VE3ST, Bill VE3WFR

Absent was Charles VE3CHJ

It is VERY important that the March Meeting START ON TIME at 7:30 PM due to a heavy agenda.

Larry VE3LGN wishes to stage a practice exercise of emergency message handling at the meeting. Details will be explained at the meeting. This should not take long and sounds like fun.

Paul VE3SY and Terry VE3NSV are going to give a demonstration of remote control via the Internet of an HF Radio.

In April Garry Hammond VE3XN will be giving a talk on "My Life in Ham Radio". I have heard Gary speak several different times now and he ALWAYS gives a fascinating and interesting presentation, plan to attend this one.

In May Al VA3TET and Bill VE3ETK will do a presentation on antennas.

After a short discussion a motion was made that the Club ask Paul (and Marg) to add a second insert with recommended

procedures and options opened to the bereaved on how to notify Industry Canada and the MTO regarding any Call Letters and Call Letter License Plates.

Motion by Bill VE3WFR 2nd by Ted VE3TJD
Passed Unanimous

Paul is already including an insert indicating that a Memorial Contribution is being made to the CNIB in the name of the deceased club member.

Bill VE3WFR asked on behalf of his son Alex VA3ERX if he (Alex) may borrow a spare UHF Repeater to use as part of a College Final Project. Alex IS a club member and the Repeater WILL be returned.

Moved by Al VA3TET, 2nd Bill VE3WFR
that we lend the Repeater, PASSED
Unanimous

Carl Rooney from the Elmira Club VE3ERC wrote to ask KWARC would be willing sell them one of our spare UHF Repeaters. KWARC will offer to sell the Elmira Club a Kenwood TKR-820 UHF Repeater tuned and set to their frequency of 444.700. This will include the Radio ONLY. Elmira must supply their own Controller, Cavities, Antenna Etc. KWARC will be asking a price of \$600 CDN.

Moved Ted VE3TJD, 2nd Bill VE3WFR,
PASSED Unanimous

KWARC will be indicating to the proper

authorities that we are receptive to the notion of supporting the Region Municipality of Waterloo in its observation of Emergency Preparedness Week May 7-13 2006. We would be willing to provide information and possibly a demonstration station for at least part of the week. Farther information on this will follow.

Adjournment followed Moved by Bill VE3WFR 2nd Ted VE3TJD
Meeting was adjourned at 9PM

Recorded by Bob VE3XNB

Boat anchor Rehabilitation



This month I'll start describing the rehabilitation of a Hallicrafters SX-28.

This was designed in the 1930's and used a lot in military listening posts where it was known as the AN/GRR-2. It's a really good looking unit with a warm orange glow from the tuning dials and S-meter and it has superb audio from a pair of 6V6s. Obviously I couldn't blacksmith this one.

It was grubby, like most radios that finally emerge from years of storage, so the first task was cleaning. Water is good for most dirt and I use tissues on the end of a long surgical clamp to wipe down dirty areas. For more stubborn grime I use WD-40 as a solvent. It eats plastic so again I use q-tips or a tissue in a clamp. At the same time as I do the cleaning, I look for burn marks, charred components or perished insulation. The power cord had lots of cracks so I replaced it with a new 3-prong cord. I've been bitten by too many radios, even some with transformers. The outer case was rusty, so I took the trim off, used a green pot scrubber with detergent to clean it up and gave it a few light coats of grey spray paint.

Another thing to look for is modifications by previous owners. These can give rise to nasty surprises. I've been known to 'improve' sets and I probably wouldn't trust even my own mods if I didn't know the person who did

them. The

SX-28 had two 0B3's added to regulate the local oscillator B+ and a small transformer to keep its filament hot all the time. This was done to stop the set from drifting. The first RF tube had been replaced with a plug in cascode circuit which used two triodes to get higher gain and lower noise. The mods were nicely done.

Now that it was clean and passed the visual inspection the first electrical work started. I almost always replace the electrolytic capacitors on old radios. They dry out and stop working. Some even fail shorted. I've been brave on a few occasions and powered up a unit with its original capacitors.

In some cases there's no problem, but in a few cases the results were each like a mini-Chernobyl with jets of steam and other spectacular releases of smoke. I replaced all of the ones in the SX-28 with at least the same ratings, if not higher. The cathode capacitor on the audio final is particularly one to replace with a bigger one. More capacity increases the bass response. The last thing before power up was tube testing. Only 4 of the 17 tubes were dead.

Power up time. I plugged the set in and no smoke came out. That's a good sign but the bad sign was the glow in the audio finals. It was the nice purple fluorescence of the glass being hit by electrons escaping from an over driven

plate. They got hot - too hot to touch after 30 seconds. This was the first thing that needed fixing.

I started by measuring resistances. As usual, I was doing this without a manual, so the numbers didn't help but the two plate to B+ resistances of the 6V6s weren't the same. I pulled the audio output transformer and it was blown.

Replacements can be hard to find but I got lucky. A local surplus place had a bin of transformers and a few had red, blue and yellow primary leads. For \$2 I could gamble (better return than a lottery ticket) so I bought one. Testing with a signal generator and a scope showed it to be an output transformer for a pair of 6V6s with an 8 ohm output. The stock SX-28 has a 600 ohm output so I was wondering how I would get around that.

Its not worth going there now for one of these transformers - I went back and bought all of them.

The installation went smoothly but I did have to drill another hole. That's bad but its on the side of the chassis and isn't visible. The radio gods will forgive me. Now the glow went away but the tubes were still hot. I looked at the output with the scope and saw huge 500 kHz oscillations. The transformer wiring was too close to the grids! Moving the wires fixed this, but I also increased the 6V6 cathode resistor to bring the plate current into specification.

The set now gave good audio out but still wasn't right. The S-meter was stuck and the RF section needed help. Next month I'll describe the RF work.

FLEAMARKET



Along with the hope for an early spring and the opening of the Baseball Spring Training camps comes another opening, the opening of another season of

HAM FLEAMARKETS. The first reasonably local one will be Saturday February 4 at St. Catharines, followed by Saturday February 25 in Burlington. For more info check the RAC website.

However the really IMPORTANT one will be

Saturday June 10, in Fergus. This is the KWARC-GARC Central Ontario Hamfest. Now is the time to start to dig through all your accumulated treasures and decide what needs a new home, and what can be turned into cash to buy yourself some new treasures.

June will be here before you know it.

73 de Bob VE3XNB

FIELD DAY 2006

Field Day is again fast approaching. Time to grab those band spots. June will SOON be here. **MOST** bands are still available and are on a first come first served basis. With the change in the regulations we now have a crop of previously not so eligible people now eligible to operate on the HF bands. Come on out and join the fun. While it IS true that Field Day IS a sort of Contest, it is **FIRST** and **FOREMOST** a time to come out and have **FUN**. So come and join us. Get a couple

of your Ham Buddies together and pick a Band and sign up. This would also be a **VERY GOOD** time to introduce some of you **NON-HAM** friends to the Wonderful World of Amateur Radio. Bring them along too. **REMEMBER** it is perfectly legal for them to talk on the air as long as a Licensed Ham is in actual control of the station. As long as you are sitting beside them they can talk on the Radio. So sign up now. Contact me either by Email at ve3xnb@rac.ca or in person at one of the

meetings. The sooner the better. Sign-up sheets will be available at the meeting from now until June or all the spots are filled. Lets make this the BEST Field Day ever.

73 de Bob VE3XNB ve3xnb@rac.ca

KWARC Field Day Chair 2006

[A BOWL OF CHERRIES FOR THE PITS](#)



The ham bands are the PITS right now. Why is that? Well, we are in the low end of the eleven year sunspot cycle and it will go on for most of a year. That is really unfortunate as we've just had Industry Canada allow many hams to go on the High Frequency bands with no code. These fellows will want to make use of the HF bands in some meaningful way.

There is a bowl of cherries out of all of this though. The answer is to make use of the new digital modes. Once upon a time, when this happened, we would all switch over and use Morse code. Code is able to get through almost all interference and noise where nothing else will.

Then along came computers and amateur radio software to go with them. Ha! All those people who predicted that the computer would bring about an end to Ham Radio are wrong. Computer programs have brought out methods of communicating we would never have thought possible during the last sunspot low. In fact, some of them are more effective in 'getting through' than anything we've had before.

So, if you want to make some nice contacts read on.

The new digital modes include BPSK31, RTTY (Radio Teletype) by computer, MT63, and even CW with perfect keyboard sending to name just a few. Software is available for free for these modes and many more. Just get on the Internet and type a mode into your search engine, then track down the software. Download and install it and give it a try. If you don't like that program then try another one.

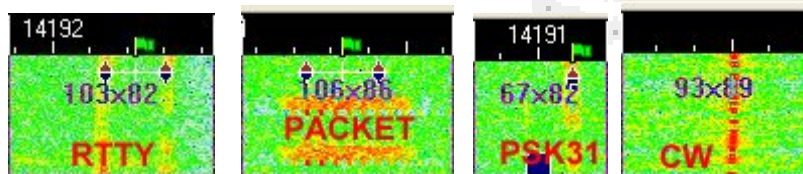
Most of these programs make use of a 'waterfall' to aid in tuning in the signal. Some will tune your rig for you (if it is capable of that), but you don't need that kind of a rig to work with these modes.



[Please disregard the numbers that appear in the center of these pictures – it's a bug I have in my capture program]

The green and blue represents noise, while the red and yellow represent signals. Red are strong signals. Through the software you select the signal you want and the message will be interpreted or decoded onto your screen.

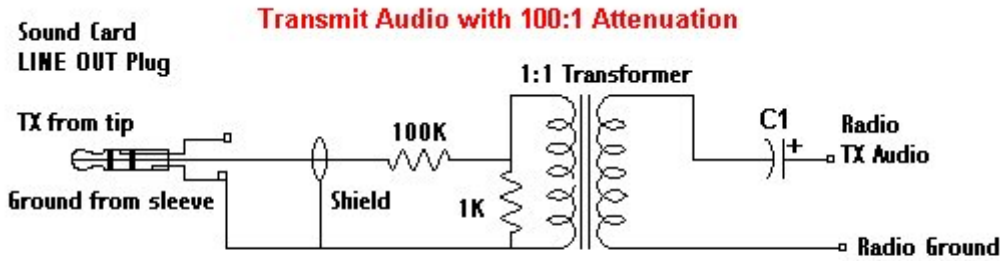
Here are some samples of modes you can try:



Each mode has its own distinctive sound and you will soon learn each of them so you can set up the right piece of software, or choose the mode from multipurpose software.

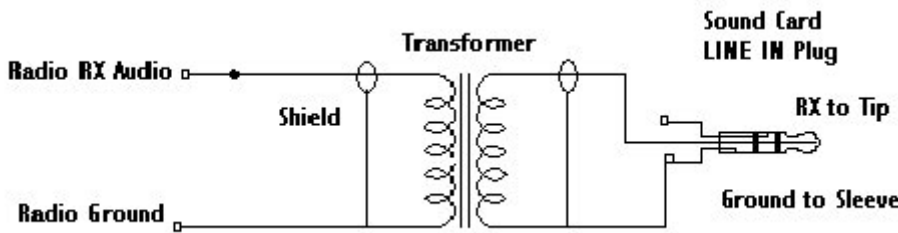
A few nights ago I was tuning the digital portion of 20 metres and while I couldn't hear any signals I noticed a yellow line appear on my waterfall. Tuning to it I discovered it was BPSK31 and my software was decoding it with very high accuracy. This is just one proof that these signals will get through noise and interference when nothing else will. I switched into transmit and made a contact I would never have known was there.

Now, before we get too excited here I must mention that you need some sort of an interface between your rig and your computer. These are available commercially, but they are easy to build and that just increases the fun. First, an audio signal must come from your radio to your sound card. Second, audio from the sound card must go to your rig, and lastly, you may want to include some control so that the software can switch your rig from RX to TX and back again.



C1 = optional capacitor blocks DC voltage; may be required for radios sharing TX and PTT lines, e.g. hand held radios

This simple circuit interfaces audio from your computer to your rig. The transformer is any 1:1 you can lay your hands on.



And this one takes audio from your rig to your computer.

[CANWARN Refresher at UOW](#)

The CANWARN/Weather Watcher refresher offered annually by Environment Canada has been booked for **Wednesday April 26** at the University of Waterloo **EIT** (Environment Industrial Building) Room 1015 at **7:00PM**.

Presenters will be weatherman Scott Keddie and Severe Weather Analyst Rob Kuhn, as well as Serge Besner, Outreach Officer of Environment Canada.

Refreshments will be provided from 6:30PM for early arrivals.

Below is a web site with a map of the campus with the buildings identified so you can get an idea of where everything is.

The **EIT** building is reached by

walking straight through the Davis Centre (DC) computer building and out the rear doors to the next building.

Parking lots are show. **Lot B** is the closest.

The presentation is refreshed and improved every year.

Anyone who has an interest in severe weather –and who hasn't, -should plan to attend.

<http://www.uwaterloo.ca/map/map.html>

Larry VE3LGN
Emergency Services

