

Kilowatter

The voice of the KW Amateur Radio Club

June 2007

Since 1922

Kitchener-Waterloo Amateur Radio Club

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

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MONDAY'S MEETING

Date: Monday May 7th 2007
Time: 7:30pm
Place: RCAF Wing 404 Club. End of Dutton Dr. Waterloo. Off Weber St. N
Topic: Our AGM (Annual general Meeting) and Election of Officers for next year

UPCOMING EVENTS

Central Ontario Hamfest & Fleamarket Guelph ARC & Kitchener Waterloo ARC June 9, 2007, Fergus ON Doors open 8:00am	Ontario Hamfest 2007 Burlington Amateur Radio Club Inc. July 7, 2007 Milton, ON
Hamfest 2007 The Brantford Amateur Radio Club August 18, 2007 Burford, ON	VHARA Hamfest 2007 Victoria-Haliburton Amateur Radio Association August 25, 2007 Lindsay, ON
Ottawa Amateur Radio Club 11th Annual Hamfest Ottawa Amateur Radio Club, Inc Saturday, September 1, 2007, Ottawa (Carp) ON	Hamilton Amateur Radio Club "HAMFEST 2007" Hamilton Amateur Radio Club Saturday, October 13, 2007, Ancaster ON
Annual K.W.A.R.C. Field Day Doon Pioneer Village June 23rd - 24th	Central Ontario Hamfest & Fleamarket Guelph ARC & Kitchener Waterloo ARC June 9, 2007, Fergus ON

KWARC Directors 2006-2007

President	Bob Pelling	VE3XNB	885-9995
Vice President	Dennis Tabbert	VA3DLT	463-9641
Past President	Gord Hayward	VE3EOS	744-7205
Treasurer	Al Macdonald	VA3TET	741-0281
Secretary	Ben Sasiela	VE3ST	748-0445
Director	Tedd Doda	VE3TJD	634-5949
Director	Bill Riddell	VE3WFR	571-9785

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.	Ben Sasiela	VE3ST	748-0445
QSL Manager	Gord Gibson	VE3NQG	893-5148
Inventory	Ben Sasiela	VE3ST	748-0445
Field Day	Gord Hayward	VE3EOS	744-7205
Webmaster	Dennis Tabbert	VA3DLT	463-9641
Bereavement	Marg Cassel	VE3RE	634-5139
Flea Market	Dennis Tabbert	VA3DLT	463-9641
QCWA Rep	Harold Braun	VE3DWH	884-2388

KWARC Owned Repeaters/Nodes

Mode	Call	Freq.	PL	patch	Location
Voice	VE3KSR	146.970	131.8		Baden Hill
Voice	VE3RCK	146.865	131.8	Open	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		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

VOTE VOTE VOTE



It is time once again for elections. Mondays Meeting will be for the election of a new executive. It is an opportunity to give your input to the future of the Kitchener-Waterloo Amateur Radio Club. While there are candidates for some position all are still open to be contested if you feel you would like to try out. PLEASE attend Mondays meeting.

Positions are still available for Field Day as well. Gord VE3EOS & Lynda VA3LWH are Field Day Chairpersons this year. If you want a particular band contact them and they will see what they can do. I have invited the Guelph Club to join us this year at Doon for Field Day. Hopefully by combining the two clubs we get a good turn out of operators.

Volunteers are needed for the Flea Market as well. There will be signup sheets at the meeting for anyone that has some spare time to come and help out. The more people to help out the quicker it gets done and the better everyone enjoys it. I believe help is needed in almost all positions.

At this time, on behalf of myself, Bob VE3XNB, my better half Bonnie VA3BLM, and the entire KWARC executive, I wish you all a safe, happy and healthy summer. Remember the September meeting is the 2nd Monday of the Month September 10. Remember also to monitor VE3KSR during bad weather for the CANWARN nets. If you are CANWARN trained or if not your input could be valuable. Don't forget to get in a little operating time as well. I am told there is some fantastic DX floating around out there in the Summer months.

See you in September.

73 de Bob VE3XNB

Kitchener Waterloo Amateur Radio Club

May 7 2007

General Meeting Minutes



Introductions.

Meeting brought to order at 7.30 pm

President Bob VE3XNB welcomed all attendants and guests and passed the microphone amongst the members for introductions. Forty-one members attended this meeting.

Presentation

Dr Chandra Kudsia on Satellite Development

The first satellite that was placed in orbit was the Sputnik on October of 1957. This began the evolution of space technology and the start of a new era of communications.

Dr Chardra Kudsia displayed a very informative power point presentation on the evolution of satellite development revolving around the first attempts of world signal coverage to modern

day digital wireless communications. Dr Kudsia detailed and explained several wireless communication break through and their significance in achieving to days technological levels of global radio coverage. Dr Kudsia compared the economics of satellite placement and their longevity and technological capabilities in adapting to changing communication modes to the costs of establishing fiber optic land links capable of large bandwidths of data transmission in non-sparse areas. The complexity of precisely controlling satellites in the yaw, pitch, and roll axes to align exactly to ground receivers with precise antenna arrays is expensive and very complicated. Satellites must withstand extreme cold or heat variances while in orbit, orbital drift, possible damaged from solar flares as well as a multitude of other variances, makes design and construction of satellites extremely expensive. Dr Kudsia indicated that high power communication satellites require high output solar arrays that in some cases need to produce over 20 kw of power to sub stain operation.

Dr Kudsia answered questions from the membership after the presentation, and took some time to clarify the many complexities that he faced when designing orbital communication satellites while employed by ComDev. Dr Kudsia is presently retired but is active in his consulting business on satellite communications and is sought world wide for his expertise. Dr Kudsia was presented with a certificate of appreciation from the membership of KWARC for his very informative presentation.

Coffee Break

General Items and club Business items.

Past President Gord Hayward VE3EOS reviewed the process of selecting these years' awards to members chosen for their contribution to the club and amateur radio during the past year. Awards to be presented will be "Amateur of the Year" which will be done in accordance with the club by-laws.

June is the General Meeting selection of Officers to serve on the club executive for the 2007/2008 periods. Gord Hayward VE3EOS is seeking nominations of names that are interested in serving on the executive. Please contact Gord.

Door Prize

Lucky recipient was VE3YBM

Field Day

Doon Pioneer Village on Homer Watson Drive will be the site of the clubs field day this year. Contact Gord Hayward VE3EOS if you wish to reserve a operating band.

Flea Market.. June

Dennis Tabbert VA3DLT is representing our clubs involvement in this year Flea Market that is held in Fergus Ont. Please contact Dennis; he is looking for volunteers that can put in a little bit of assistance during set-up and to run the event.

Motion to Close Meeting

Motion by Bill Riddell, VE3WFR, second by Gord Gibson. Carried

Thanks to every one that attended this meeting and enjoyed Dr Kudsia Presentation on Satellite Technology.

Minutes by VE3ST

Ben Sasiela

Secretary KWARC

[CANWARN -Severe Weather Monitoring](#)



The Severe weather season has already put in a couple of punches, and "summer" is still awaiting us, as is the hurricane season.

Robert Kuhn, Environment Canada's Ontario Severe Weather Analyst, and our spring CANWARN Refresher presenter sent this note along re the thunderstorm of 15 May.

"'twas a good downburst indeed. I observed an estimated 80-90 km/h squall lasting about 5 minutes just after I got home (Kitchener) from a spotting trip at 6.50 PM. Only the isolated tree limb down in our neighbourhood, but with a plethora of trees down in the Glasgow Street - Wellington Street corridor!"

We have Terry VE3NSV to thank for getting up a net when this sudden onslaught hit. (See item elsewhere)

The club's Net Control group has just been set up for this year and will include Ben VE3ST, Bob VE3XNB, Tedd VE3TJD, Al VA3TET and myself, working on a rotating schedule until the end of October. The nets will operate on VE3KSR. (146.970)

A few reminders when any Severe Weather Net is running. During condition Green - A Severe Thunderstorm - "Watch", normal repeater use is fine, but please pause occasionally to allow for Net Controllers and Spotters to check in.

Keep in mind that hand-held radios have only 5 Watt maximum output and cannot break through a 25 -50 watt transmission. Consider dropping down to 5 watts (LOW). VE3RCK (146.865) and VE3ZMG are also available for chats.

Anyone who sees severe weather is encouraged to make a report.

Larry VE3LGN

KWARC Emergency Services.

[Boatanchor Rehabilitation - The Viking Pacemaker](#)



The pacemaker is the first transmitter that I did. It's a phasing SSB transmitter that has a main panel control to unbalance the modulators to insert a carrier to get AM. As the first Viking SSB rig there were only a few made, probably because the circuit was quite complex. The audio and RF are fed at 0 and 90 degrees to two balanced modulators and when combined, one sideband cancels out. The output is 90 watts on SSB and CW but 35 watts on 'fake' AM - that's carrier with one sideband.

After the initial inspection, found a broken switch. It was one of the multi section rotary ones with custom wafers to minimize the size. It took a while, but I analysed its operation and replaced it with a 4P5T rotary which just fit in the space vacated by the broken one. I replaced the AC section with a key switch in a hole drilled by a previous owner. I did the usual power cord and electrolytic replacement.

When I powered it up, it came up with key down and there was lots of RF. I killed the power and found that I has one of the electrolytics in backwards. It was on the -150 bias which blocks the finals with key up. The negative doesn't always go to ground! The funny Y pattern on top of the cans is there for a reason. The can tears along those lines when it blows rather than exploding like the old ones did.

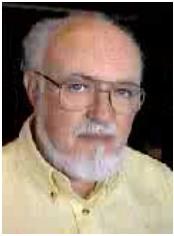
Then there were more problems. A different shorted switch had the finals on in zero (spotting) mode. This is where only the exciter is on so the operator can zero beat the VFO with the incoming signal. Another switch had some conductive dirt so the carrier level was different with the CW key and the AM push to talk. The key sparked. The key pulls the -150 volt bias to ground to turn on the finals so the problem was a capacitor across the key. I replaced it with a lower value and the problem was solved.

Alignment and tuning are a pain because there are many interacting stages, but I got it done. Neutralization was as much fun as doing the compressor on the Viking II. The adjustment screw is live to +750 volts so again the long fiberglass screwdriver, hand in pocket and all that. Always be careful because this operation violates several commandments but the important one is:

(8) Verily, verily I say unto thee, never service high-voltage equipment alone, for electric cooking is a slothful process, and thou might sizzle in thy own fat for hours on end before thy Maker sees fit to end thy misery and drag thee into His fold.

In operation it worked well, but there was one major blunder that I did with it. I was tuning it but forgot to pull in the TR switch. Tuning an open line is a bad idea. It wouldn't load, so I kept cranking the load until there was a loud bang. The voltages in the final compartment kept getting bigger as I tuned it until it flashed from the chassis to the plate choke. The spark blew a crater in the choke but when I checked the resistance it looked ok. I filled the crater with corona dope and the set still runs.

Antenna Angle of Radiation



A few months ago I wrote some articles for the Kilowatter about Propagation. Here, I'd like to relate this to the importance of the angle of radiation of your antenna.

First, however, we need to understand something about the Maximum Useable Frequency (MUF). Various amateur radio computer tools and website provide the MUF at any given moment in time. It is often believed that this is the maximum frequency you can transmit on at that time to achieve a DX contact. That is not true! You also have to know your angle of radiation.

The MUF is measured every hour by such sites as the Rutherford Appleton Laboratory in Oxfordshire, UK. This is done by transmitting a brief pulse at a high frequency straight up. The pulse frequency is lowered for the next transmission. The first pulse that is received back (a fraction of a second later) is the frequency used for MUF.

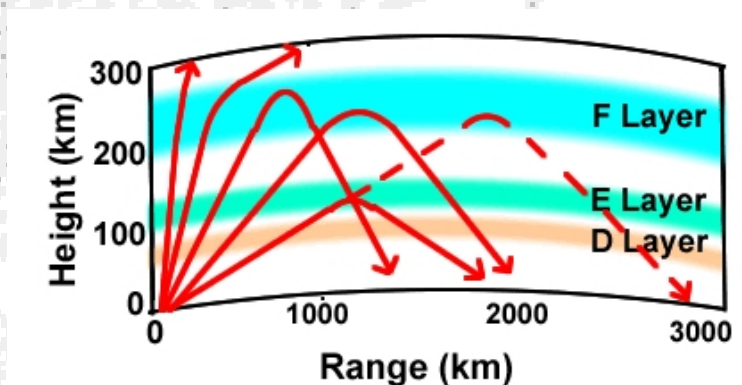


In this picture of the Oxfordshire site, the antenna on the left is the one used for the vertical pulse transmission, while the one on the right is for the receiver.

The difference between these measurements and amateur radio transmissions is that we don't send our signals straight up.

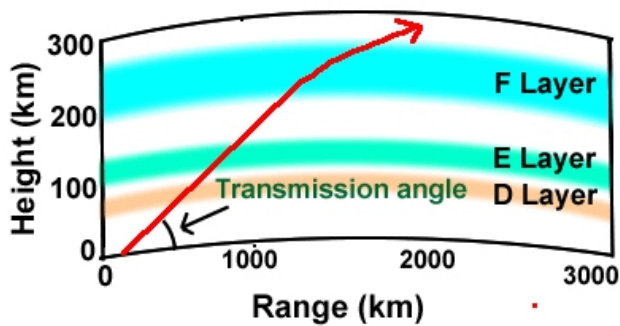
A clearer understanding may come from this diagram:

Signals transmitted at a high angle may pass right through the F Layer, while lower angles of transmission are reflected back to earth. The lower the angle the further the signal will reach. Diagrams courtesy of the US Navy.



As a HF signal is transmitted upward it reaches a point in the F Layer known as the Plasma point. This is the point where the layer is dense enough to reflect that frequency. The Plasma point is generally lower in the layer if the angle is low. In effect, the signal meets more ionization if it enters the layer from a low angle. The MUF changes due to the ionization of the layer, which is due to the amount of X Ray radiation from the sun (Sunspots). In the daytime the sun does ionize this layer, but without the stronger X Rays the ionization fades quickly after sunset. Think of this layer as one of those plastic gizmos that you can charge up from a light, and when the light goes out it continues to glow. The greater the charge-up the longer the glow lasts. The X Rays from sunspots can charge the F layer up so that it lasts many hours into the night.

Now, let's tie these things together. How can we determine what the MUF for our antenna and frequency is?



From this diagram we can see that the transmission angle is measured from the ground to the maximum path of transmission.

The formula for determining what the MUF may fall to, and will be such that you can still make a DX contact is:

$$EVF = QRG * \cos (90 - \text{radiation angle})$$

Where EVF is the Effective Vertical Frequency and QRG is the operating frequency.

For example: at an operating frequency of 14.2 MHz and the radiation angle is 20 degrees, the EVF is 4.85 MHz. Therefore, the MUF could be reported as low as 4.85 MHz and you could still make a DX contact on 14.2 MHz if your radiation angle was 20 degrees.

For those of you who are not into these math things I've prepared the following table for the 20 meter band:

At 14.2 MHz

Rad. Angle	EVF
70 deg.	13.4 MHz
60 "	12.3 "
50 "	10.9 "
40 "	9.1 "
30 "	7.1 "
20 "	4.8 "
10 "	2.5 "

For other bands just scale the frequency – at 7.1 MHz and 70 deg. EVF = 6.7

Of course, you don't want your Radiation Angle to be so low that your signal is plunging into your neighbour's house and disappearing into his stereo set, but this article may convince you to start investigating and possibly changing your antenna angle of radiation.

It's not only a matter of being able to work at lower MUF's, but the increased distance you can reach.

The Following have passed their exam (Club Course).

Bruce Holden of Guelph; Jeffery Croutch of Kitchener; Michael DeBoer of Palmerston; Tim Steinman of Tavistock; James Robinson of Elmira.

Central Ontario Hamfest 2007 – June 9th

Central Ontario Hamfest 2007 – June 9th

Set-up at 6:30pm on Friday the 8th

A new ham, Henry Huyskens VE3APC Milton (905-854-0222), is a broadcast journalist and film producer with ties to CTV, NBC, and CBS. He has discovered ham radio and wants to publicize it by making a documentary. He has organized a film crew and is visiting events like hamfests to interview hams who've done something the public should know about such as emergency assistance, storm watch, and related volunteer work, etc. Look for him and his film crew there.

The volunteer committee is now pretty much complete, but Hamfest will not be successful without the dozens of club members that show up to help out on Friday and Saturday. We are still desperate for you guys and ladies to come out and help us get this show off and running.

See you there!

Please note that the following jobs are still open:

Direction signs

Back Security

For more information, or to volunteer, please call:

Mike at 624-7352, or Dennis at 463-9641.



Well, my tenure as treasurer is nearly over. I have certainly had an opportunity to meet many of you and had a first hand insight as to how the club works and plays.

I don't think many of you appreciate the amount of work that the executive puts in on your behalf, nor do I think that many of you understand the frustration that lack of membership participation has on your executive. Too few are trying to keep things running. If our club is to stay viable, more of you must contribute! Less than half of our members have ever served on the executive or in committees. Even attendance has dropped off – even though we have had some super presentations at the meetings. I implore you to attend the June meeting and take an active roll in the election of officers.

Please step up and take your turn.

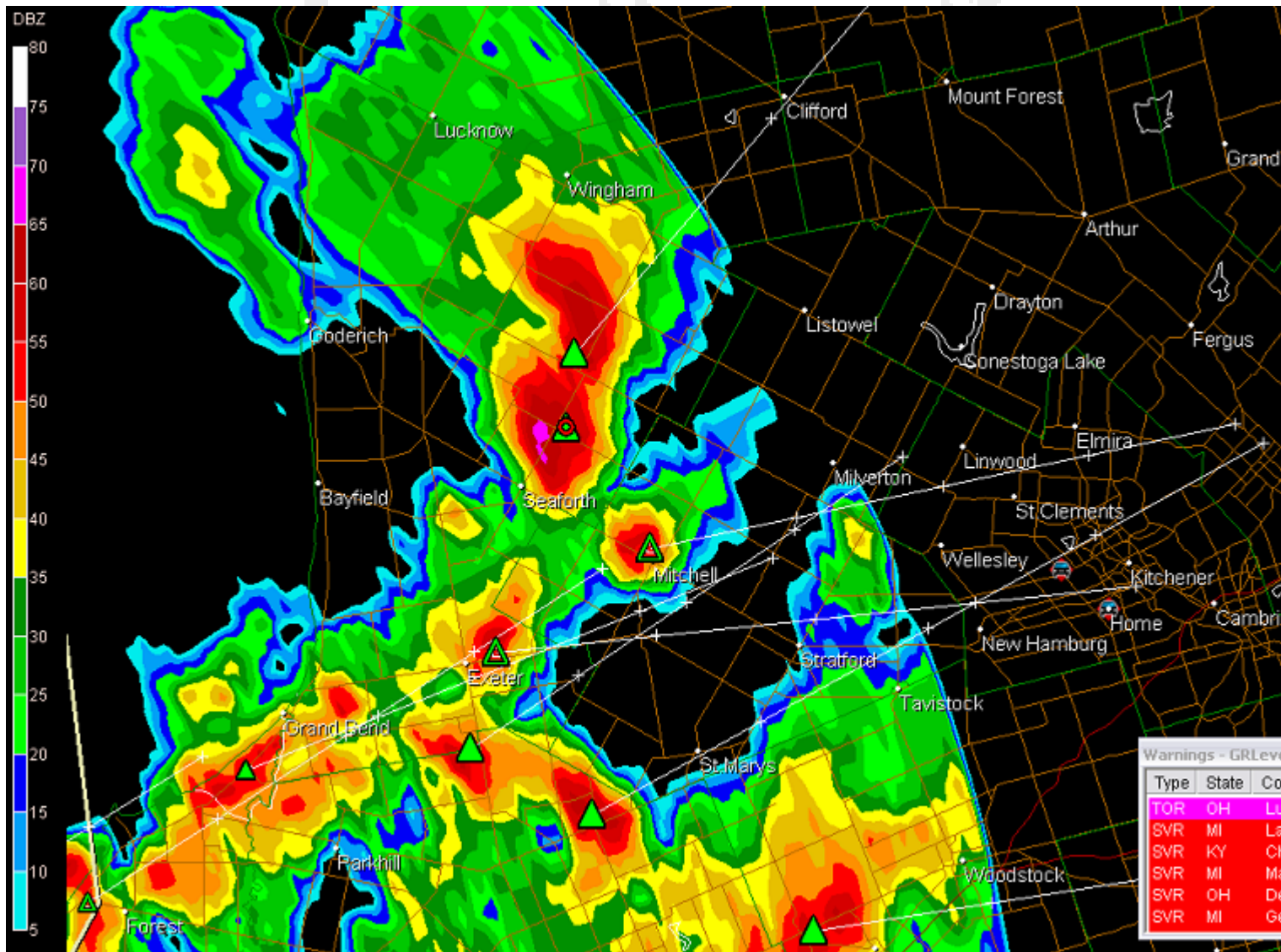
Enough!!

As treasurer I am pleased to report a current bank balance of over \$4000.00. There are no outstanding bills and renewals are coming in at a good rate – 20 last month including 3 new members.

VE3YKF Condition Yellow Terry Green VE3NSV



Well no sooner than 3 weeks had passed since the Kitchener-Waterloo Canwarn training session and we already receive our first taste of severe weather. The models had been predicting a severe weather outbreak days prior to the event but nobody would have guessed it would be this intense. The thunderstorms starting popping up around 3:30pm on that Tuesday afternoon but had all been steering south of Waterloo Region. That all changed when a Supercell had crossed Lake Huron into the Goderich area around the supper hour and damage reports starting streaming in via the various Weather groups and by listening to the various rural Fire Departments on my scanner.



By now there was a small crowd that had gathered on the repeater and a formal net was called under condition green. After taking a few rounds of check-ins and reading off the latest EC issued warnings we were quickly forced into condition yellow with various reports of trees and power lines down along with a measured wind speed of 102km/h at Baden Hill. With the latest radar image showing the storm in the heart of Kitchener I called upon Bill VE3WFR for a report. I could barely hear his response for the wind and rain hammering his house and he advised he was heading for the basement to seek shelter. His weather station has suffered damage but not before measuring winds at 104.5km/h. By

this time the local Emergency Services were running wild with trees and power lines down including a few that had landed on houses before all Emergency services has lost Communications due to a reported lightning strike. I quickly called in a report to the Weather Office and I later found out that they had also received reports from Rob Kuhn with an estimated sustained wind of 100km/h in Stanley Park and a measure wind speed of 113km/h at the Regional Airport. Soon after the repeater was returned to normal operation and I made a quick departure due being paged out for yet more storm related communication issues in town.

I would like to thank everybody who checked in and gave reports that night which I will list below in no particular order.

- VA3PTB - Peter
- VE3WFR – Bill – 104.5km/h measure wind speed
- VE3AYZ - Art
- VA3KWI - Wally
- VE3QB - Bruce
- VE3KIS - Ron
- VE3TJD - Tedd
- VE3RKS - Roger
- VA3QF -
- VA3TW -
- VE3CRF -
- VE3HTU -
- VE3SVO

Special thanks to Paul VE3SY for some off the air reports.



To the following members

- VE3ESE Don Fisher
- VE3ETK Bill Graham
- VE3DWH Harold Braun
- VE3SY Paul Cassel
- VE3XN Garry Hammond

I would like to take this opportunity to " THANK-YOU " for your help , in the working for the DXCC award.

We have been very fortunate in the operation of the Call sign VE3IC.

Over the time we have been able to have over 200 ++ countries confirmed.

This has been with the efforts of the above. If , I have missed anybody , I do apologize. We also very lucky to have members that have also obtained their own DXCC

73 Gordon Gibson VE3NQQ /
VE3RGG.

David Johnson
dbjohnson@rogers.com



519-579-4110
Office



I HAVE MOVED!

My Real Estate Business is now located at
Remax Twin City Realty Inc. Brokerage
901 Victoria St. N, Kitchener
I look forward to meeting you at
the new location.

KWARC Membership Renewal

Please cut out the following renewal form and enclose it with your payment as your renewal date comes due. When you enter the birthday information, information; just your month and day are needed.

PLEASE MAIL TO: Kitchener-Waterloo Amateur Radio Club 133 Weber Street North, Suite #3-138 Waterloo Ontario N2J 3G9	
First Name	Call:
Address1:	Last Name:
City:	Address2:
Postal Code:	Email Address:
Phone Number: () -	Birthday: <u> </u> Month <u> </u> Day
This is a [] RENEWAL or [] NEW APPLICATION	Kilowatter Preference [] MAIL [] From WEB
<input type="checkbox"/> Full Membership @ \$20.00 <input type="checkbox"/> Family membership adder @ \$5.00 <input type="checkbox"/> Seniors Membership @ \$10.00 <input type="checkbox"/> Student or Challenged individuals @ \$10.00	<input type="checkbox"/> Associate (non voting) @ \$10.00 . I am a member of the _____ Club. <input type="checkbox"/> Printed Kilowatter Newsletter "Mailed" @ \$8.00
Comments:	
Total Amount Enclosed: \$	Your Cheque Number :



INFORMATION GATEWAY SERVICES

Kitchener-Waterloo Cambridge and Guelph

Information Gateway Services
(Kitchener-Waterloo) Inc.
151 Frobisher Dr., Suite E-118,
Waterloo, Ontario, N2V 2C9

Owner Operator : Don Sinclair VE3ICD

Information Gateway Services (IGS) provides a complete range of Internet services ranging from entry level personal accounts for beginners, right up to the requirements of large commercial organizations.

SPECIAL OFFER TO KWARC MEMBERS

- No activation fee on standard personal accounts for KWARC members. A **\$25.00** saving
- \$50 per six months or \$75 per year paid in advance for 5 hours/month --month --- (extra hours at \$2.00 per hour).
OR \$15month \$150 year for 30 hours/month (*this popular package has just been increased from 20 hrs*)
- N E W Now get **UNLIMITED FREE time** from midnight until 7am
- One free KWARC e-mail address *urcall@kwarc.org* for KWARC members
No coupons or other discounts can be used in conjunction with these special offers to KWARC members ONLY.

For complete details, call Don Sinclair VE3ICD at 884-7200