

# Kilowatter

The voice of the KW Amateur Radio Club

February 2005

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 February 7th 2005  
**Time:** 7:30pm  
**Place:** RCAF Wing 404 Club. End of Dutton Dr. Waterloo. Off Weber St. N  
**Topic:** Show 'N Tell Night

## UPCOMING EVENTS

<a href="#">Big Event 27</a> The Niagara Peninsula Amateur Radio Club Saturday, February 5, 2005, St Catharines ON	<a href="#">Burlington Spring Flea Market</a> Burlington Amateur Radio Club February 26, 2005, Burlington ON
<a href="#">Whitby Amateur Radio Clubs #3 Annual Hamfest</a> Whitby Amateur Radio Club Saturday, April 16, 2005, Oshawa ON	<a href="#">Durham Region Amateur Radio Hamfest</a> North Shore ARC and South Pickering ARC Saturday, April 23, 2005, Whitby ON
<a href="#">Peel Amateur Radio Club</a> / Mississauga Amateur Radio Club Saturday, April 9, 2005, Brampton ON	<a href="#">Central Ontario Hamfest &amp; Fleamarket</a> Guelph ARC & Kitchener Waterloo ARC Saturday, June 11, 2005, Fergus ON
<a href="#">Whitby Amateur Radio Club Hamfest</a> Whitby Amateur Radio Club Saturday, June 18, 2005, Oshawa ON	<a href="#">Annual K.W.A.R.C. Field Day</a> Doon Pioneer Village June 24th - 25th

### KWARC Directors 2003-2004

<b>President</b>	Ben Sasiela	VE3ST	748-0445
<b>Vice President</b>	Gord Hayward	VE3EOS	744-7205
<b>Past President</b>	Bill Graham	VE3ETK	576-3578
<b>Treasurer</b>	Dave Schwartz	VA3DGS	884-3594
<b>Secretary</b>	Larry Gorman	VE3LGN	884-6782
<b>Director</b>	Tedd Doda	VE3TJD	634-5949
<b>Director</b>	Bob Pelling(Acting)	VE3XNB	895-9995

### The Executive Committee Chairs

<b>Program</b>	Bill Riddell	VE3WFR	571-9875
<b>Technical</b>	Tedd Doda	VE3TJD	634-5949
<b>Packet</b>	Tedd Doda	VE3TJD	634-5949
<b>Database Mgr</b>	Dave Schwartz	VA3DGS	884-3594
<b>Bulletin Editor</b>	Dennis Tabbert	VA3DLT	463-9641
<b>Edu. Co-Ord</b>	Ron Gimbel	VE3DBD	584-2009
<b>Chief Examiner</b>	Vern Stroud	VE3RVS	743-9342
<b>Auto Patch</b>	Ben Sasiela	VE3ST	748-0445
<b>ARES Manager</b>	Larry Gorman	VE3LGN	884-6782
<b>CANWARN Mgr.</b>	Vacant		
<b>QSL Manager</b>	Gord Gibson	VE3NQG	893-5148
<b>Inventory</b>	Ben Sasiela	VE3ST	748-0445
<b>Field Day</b>	Bob Pelling	VE3XNB	895-9995
<b>Webmaster</b>	Dennis Tabbert	VA3DLT	463-9641
<b>Bereavement</b>	Marg Cassel	VE3RE	634-5139
<b>Flea Market</b>	Bob Pelling	VE3XNB	895-9995
<b>QCWA Rep</b>	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 Yes	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	VE3EUC	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
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

# Kitchener Waterloo Amateur Radio Club Presidents Report



Another great year has gone by quickly, and we are now facing 2005's remaining winter grip on our community. It seems that for those like me that do not like the out door cold any more, there's not much to do but to listen to our ham radio's and keep in touch with friends over the airways. I spent a few cold hours the other day adjusting my out door satellite dish, but finally gave up after both fingers and toes became num from the blowing wind. This is one job that I am going to put off until the spring weather. So far, the ham antenna's weathered the snow falls, and remained operating with occasional high swr's due to snow on the traps, but then the propagation on our bands have been less than favorable in recent times, so nothing lost as I see it. I have been able to make some good DX contacts from the mobile when I took the time to clear off the salt off the antenna and also to talk to local hams in Ontario through the various HF nets that operate. One neat way of hearing the various weather conditions across our land, as well as brief chats with great operators. Our local club repeaters seem rather silent and I suspect its because we have a tendency to do less driving of our cars during the winter. Its still nice to hear repeater activity during the cold snaps, and I would encourage ham operators to listen on our clubs equipment that they may be able to assist motorists that are in need on the road. Members that attended our clubs Christmas Social meeting, donated over 95 lbs of food to the local food bank while enjoying some great entertainment from our own musically talented members of Rich, VE3DCC, and Gerry VE3DYY leading us through Christmas songs. Thanks Guys for a wonderful musical night. The annual festive noon luncheon gathering of club members brunch at the Transylvania club gave yet another opportunity for good times and companion ship, with lots of door prizes, not to mention the feast of scrumptious food. Coordinators Bill VE3WFR and Tedd VE3TJD once again this year assured a pleasant afternoon with numerous door prizes. Check out the clubs web site for smiles on members holding their door prizes.

During the January club meeting, and hearing all the devastation as a result of Tsunami, I had asked if members would donate something to this disaster on behalf of KWARC for the Red Cross of Kitchener/waterloo. "The hat", actually, it was a box, was moved through the membership, and a total of \$300.00 was gathered that evening. Our treasurer Dave VA3DGS delivered the funds to the Red Cross along with a covering letter from KWARC the following week. A copy of the covering letter is/will be posted on our web site to acknowledge members of this generosity. My sincere thanks goes out to

everyone that dug deep into their pockets and made this possible. Well-done folks!

February is the time for "show-n-tell" night, that popular evening where members have an opportunity to bring in those unusual pieces of equipment or projects that they are working on, or have acquired. Hopefully, the weather will co-operate and enable a good turn out for this popular event. No matter how big or small your project is, I'm sure members would like to see/hear about it.

Their has been some discussions as to the continued necessity of operating the phone patch and costs that the club pays for on our repeater VE3KSR, which is located on Baden Hill This patch is very limited in the numbers that are available for local calling area and sees little use from members or guest hams. With the bargains now in cell phones, the usage of ham phone patch activity has greatly diminished on this repeater. KWARC also operates and pay for a second identical phone patch on club repeater VE3RCK. This repeater sees much more patch activity and has a much larger calling exchange capability. More local numbers that are available to call toll free. The patch features and speed call options are identical on both repeaters, but in the interest to eliminate duplicate costs and services, the question is "do we need to continue with both locations and duplicate costs in these tight times of increasing insurance and operating costs". I would like to get some feed back from our members on this matter. Please e mail me ([ben.s@sympatico.ca](mailto:ben.s@sympatico.ca)) ([ve3st@rac.ca](mailto:ve3st@rac.ca)) or call my home number 748-0445 and offer your suggestion and choice to keep or disconnect the phone patch on VE3KSR Baden Hill. If I'm not here, leave your message on my answering machine. The club executives want to hear from you, the member.

There was no issuance of a club newsletter for the month of Jan 2005. With the December meeting being held the second Monday 13<sup>th</sup> and Jan club meeting held immediately after the New Year, the amount of club activity for the few weeks between and congestion of the Christmas holiday period, we felt that there was little content to report that warranted the high cost of mailing stamps. So the executive decision was to for go the newsletter for Jan 2005 and save the club a lot of mailing costs.

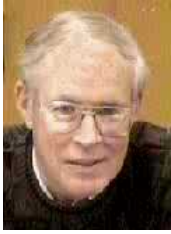
The remaining year of club activities include the annual field day emergency simulation weekend, as well as the Flea market which the club co-hosts with the Guelph Amateur radio club, and of course, some future great speakers and presenters to our regular Monday evening meetings.

Larry VE3LGN, our ARES manager is working hard to bring us some quality Canwarn training by EC of Toronto, and Larry will advise us of the time and site location where kwarc members can attend.

Now, if we can only get the weather man to give us some warmer weather, I have been asked to help with many antenna projects to which I am looking forward to, but only if its warm, Hi! Hi!

73 to all members, and see you at the February meeting,  
Ben Sasiela

## [KWARC -January/ 05 Club meeting](#)



The first meeting of 2005 opened at 7:35 PM with 38 members and guests present. President Ben VE3ST welcome all, and offered best wishes for good hamming in the new year. With the S. Asia tsunami disaster still dominating the news, the president put out a request for member donations to the local Red Cross relief fund. A collection was taken and at the end of the meeting our treasurer reported that over \$ 300 had been collected. Ben thanked the most generous audience, and then announced that break time coffee and donuts were to be at no cost this evening.

Linda VE3LWH was given an ovation by all present for passing another annual milestone. She is now at least 30+!

Peter Bon VE3PTB, a science teacher at Monsignor Doyle CSS was asked to give an up date on his progress with the RAC approved High School Student Amateur Radio Project. It is one of the few approved by RAC and being initiated across Canada. Peter gave a report on the enthusiastic support of school administration , students council and student population... This is the first tem for the pilot project and Peter has 9 senior students, both male and female currently enrolled. The group has been able to acquire some necessities such as study guides, and some feed line. Peter put out a request for useful hardware from your high end Junk Boxes – preowned radios, power supply etc. Your big chance to aid new hams into the hobby. Contact Ben [VE3ST@rac.ca](mailto:VE3ST@rac.ca) if you can make a donation.

February meeting will feature Show and

Tell, always a popular event. Contact Bill [VE3WFR@rac.ca](mailto:VE3WFR@rac.ca) if you have an interesting idea or project to demonstrate. OR -just show up with it as a last minute surprise.

The highlight of the evening was a RAC supplied video with antenna guru Frank Rutter K4AW as presenter. It was an “Everything you ever wanted to know, or wondered about antennas”. Over 60 powered up miniature models were demonstrated for directionality and overall efficiency. An absolutely fantastic and very realistic demonstration. (Drew VE3AOR was overheard to say to another incognoscenti “Did you understand any of that?”) After the break Fred Loue VE3OQB walked away with the 50/50 prize.

Business: The December meeting food drive collected 96 pound of food, taken to the Alpine Dr. food bank.

A financial report was made by Treasurer Dave VA3DGS.

Gord VE3NOK reported a current count of 194 QSL's on the club station.

Ron VE3DBD asked members to spread the word about the Basic Ham course being planned for this spring. Dates and venue yet to be announced.

Larry VE3LGN reminded everyone that the Annual CanWARN spring refresher presentation is being organized and that it will be of interest to all hams and friends. Date and venue to be announced. Meeting adjourned 9:30PM  
Moved VE3WFR. Seconded by VE3MWE.

Larry VE3LGN

## [Field Day Report Bob Pelling VE3XNB](#)



Once again it is THAT time of year. It is time to start thinking about FIELD DAY. Again this year we are going to be at DOON. We are in need of BAND CAPTAINS. Presently ALL bands are up for grabs. So take your choice and let me know what BAND and MODE you desire. The choice is done on a FIRST COME FIRST SERVED basis.

Please Email me with your desire. Also if you have ANY suggestions on how we may be able to improve our FIELD DAY experiences just drop me a note at my Email address at [VE3XNB@RAC.CA](mailto:VE3XNB@RAC.CA) . Lets make this FIELD DAY the best one ever.

## [Tech report for February 2005](#)



Greetings:

I have a few issues to report on. The first being the packet system for our area. Before Christmas, my QTH was hit by a near lightning strike which destroyed 2 of my UHF radios and 2 TNC's. Without the BBS on line, no communications can be made between KWO (Marsland Centre) to the KSR stack on Baden Hill. During the same storm, the TNC that talks to VE3DTV in Hamilton was severely damaged.

This raises some issues with me to whether we should let packet die in this area, as it has done all around us. My BBS, VA3SED is the last BBS to remain operating from Chatham to Barrie. I need YOUR feedback on this, so please attend the next KWARC meeting in February as we will be discussing the future of packet in this area. If you can't make the meeting, you can email (ve3tjd@rac.ca) me to voice your concerns.

Some have you noticed that VE3RCK (146.865) occasionally sounds horrible. The tech committee believes this is caused by a bad receive crystal within the Mastr Exec II receiver. A couple weeks ago, a new crystal was ordered and has been received. As soon as the weather gets better, we will swap the entire oscillator.

Time to try another band? Lately, a bunch of locals have found a new mystery band. It's one that the club invested a big pile of money on about 10+ years ago. Do you know which band I'm referring to?

If you said the 1.25 meter band (ok, ok, better known as the 220Mhz band!) you were right. It's a very quiet band (QRN, not QRM) which shares many of its traits from both of its neighboring bands, 2 meters and 440. Excellent performance and manageable antenna sizes. I've been on this band since our own VE3IXY repeater was put on the air (224.34 minus 1.6 split). Since then, its been the same 6 or 7 guys using it!

The sad part about this band is that very few Ham manufacturers make a radio for it. There are a few commercial radios that can be modified, but they require extensive modifications. More then what the average Ham can do. The only new mobile radios you can buy come from Alinco or ADI, but I've heard that the ADI unit has been discontinued. Many of the tri or quad band HT's have 220Mhz, but at output of 300 mW, you aren't going to get very far, hi!

On a personal note, I've bought a few 220 radios over the last couple months, both HT's and mobiles by looking in the right place. If you don't mind spending top dollar, check out Ebay. If you want to look for a deal, check out <[www.eham.com](http://www.eham.com)> and my BEST source is the rec.radio.swap Newsgroup. You can also find "fixer-uppers" in both places!

So go look for a deal, and join us on the 1.25 meter band!!

On the topic of 220, Bill VE3WFR (one of the new guys on this band) and I were looking for a solution to be used as a base antenna. We came across plans for a J-Pole antenna made from ½" copper tubing. Some of you have built one for 2 meters, and I would like to say that the 1.25 meter version works just as well. You only need about 6 feet of tubing and one 90 degree elbow and one "T" connector. Construction time was about 15 minutes and performance is incredible. Bill and I built 2 units in my shop this past Saturday, and used a Motorola SWR bridge to adjust it. With 25 watts of forward power, the reflected power was less than ½ watt! Below are some pictures that I took showing all the parts required, and some shots of Bill aligning all the pieces before soldering.

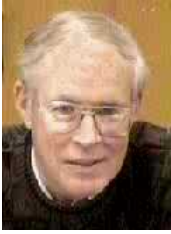
Till next month,

Tedd, VE3TJD

Tech Chairman of the KWARC Inc.



## KWARC -EXECUTIVE Jan 4 Minutes of Meeting



The meeting opened at 7:30 at Ratz Bechtel Hospitality Centre

Present: Ben VE3ST, Bill VE3WFR, Dave VA3DGS, Gord VE3EOS, Bob VE3XNB, Gord VE3NOK, Larry VE3LGN Guest

Peter Bon VE3PTB

1: Club Executive formally acknowledged that Ron VA3TVS has relinquished his position as CANWARN manager, due to other interests.

Motion . Moved by President Ben: That we accept the resignation and recognize Ron for his contribution. Seconded by Larry. Carried.

Motion: Moved by Larry: That we delay replacement plans until a later date. Seconded by Bill. Carried

2. Ben received an invitation for club participation in the Regions Emergency Preparedness and Disaster Management course, to be held January 26-28. Larry requested that we send 2 representatives from the ARES. Further discussion followed. This course will run from 8:30 am to 4PM each day and will include an on site lunch. The program is being run by the Provincial Ministry responsible for Emergency Preparedness in Ontario., and has a limited enrolment of 28 participants. Participants are expected to attend all sessions. The total cost is \$65 per person.

Motion by Larry: That the club send two participants who are active in our Emergency Services program and who an fulfill the requirement to attend all 3 days. Seconded Ben. Carried

3. Peter Bon VE3PTB was asked to speak further about his expectations for the participation of our club in the RAC sanctioned HS Amateur Radio project. RAC expects some form of local club support, and sponsorship. Peter is asking for club membership contributions –in used equipment, and possibly some financial support.

RAC is prepared to give some financial support . It has a limited budget-(based on membership dues.) His budget allowance at the school is \$500

Some manufacturers have been approached. No replies to date.

Ben suggested that the club will consider

financial support at a later date. We have a Yaesu 101 HF rig currently in storage that we might loan..

VP Gord VE3EOS proposed a motion that we offer a free years membership in KWARC to successful students. Seconder Ted. Carried.

4. Program Chairman Bill VE3WFR was asked to have the upcoming programs posted on the website. February – Show and Tell, March a speaker on old vs new security systems. April – Al Macdonald VA3TET and the “Elmira Group” will demonstrate a successful screwdriver experimental antenna, and explain how they perfected it.

May The Hammond Travelling Museum will our main feature.

June is election month.

5. Central Ontario Hamfest: (June 11) Bob VE3XNB has offered to be our rep to this joint GARC-KWARC venture. Larry VE3LGN will again manage the admissions desk.

6. Field Day: Where this year ,and who will manage it?

In spite of some problems Doon Heritage Crossroads is still our best venue. Bob VE3XNB will serve as organizer. 4th weekend of June 25 – 26 this year

7. Club Web Master. The resignation of our web site creator/web master VE3SY was officially recognized. Our current web master is Dennis VA3DLT.

Meeting adjourned 9PM Moved Bob VE3XNB . Seconder Ted VE3TJD

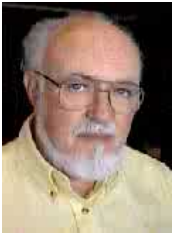
Secretary - Larry VE3LGN

A reminder that Radio Amateurs Canada , our voice with Industry Canada regarding management and preservation of Amateur bands, and sponsor of Ham interests such as DX contests, is renewing memberships. Not a member currently? Consider supporting this vital organization in 2005.

[www.rac.ca/store](http://www.rac.ca/store), or phone 1-877-273-8304 (toll free)

The Canadian Amateur magazine has numerous pages of Amateur radio equipment advertisements, and our Gary Hammond has an amazing pictorial article in every issue.

## *The leading edge in antenna technology* *Bill VE3ETK*



You may have seen some of us walking around the club meetings with rather strange antennas. What we had were a completely new concept – small antenna for 20 metres. It was

Al VA3TET who brought this concept to my attention, and it's well worth your time to follow up on it. These antennas could also be ideal for Field Day use, so see what you could cook up by June. The following is an excerpt from W5QJR's website which should interest all of you who have limited space for HF antennas.

The EH Antenna has useful applications in all areas of communications and offers many advantages to Hams. It is a very high performance antenna and is also very small. This allows many Hams to get on the air that were otherwise restricted due to lack of space [for standard size] antennas. How can it be small and have high performance? This is a new concept in antenna theory; therefore it does not need to follow the rules of other antenna concepts. The Hertz antenna has been around since about 1880 and there are an unlimited number of variations on that theme. However, each of those is constrained to be a resonant antenna. The wires may be straight or bent into various shapes, but they must be resonant or resonated with an antenna tuner. Resonance is necessary to allow maximum current flow. Hertz antennas are based on the concept that current flow on a wire causes the development of a magnetic (H) field, and a changing magnetic field creates an electric (E) field. Because one field creates the other, they have a time phase difference of 90 degrees. The speed at which the two fields travel is different. Therefore, the two become in time phase

at a nominal distance of about 1/3 wavelength from the wire. This is called the far field. When they have the proper phase, amplitude, and physical relationship radiation is created.

Compare that to the EH Antenna where the E and H fields are in time phase at the antenna. Because the two fields are very efficiently integrated, the radiation resistance is higher than a wire antenna. A major factor is that the elements of a EH Antenna have a much larger diameter than a wire, and the two elements therefore have high capacity between the elements. This large capacity and high radiation resistance combine to provide very wide bandwidth and high efficiency. All of this in an antenna that may be less than 1% of a wavelength, compared to wire antennas that are 50% of a wavelength.

Keep in mind that the cylinder length to diameter ratio sets the antenna radiation pattern. We typically use a ratio of 6 for all Ham bands above 40 Meters and a ratio of 12 for 40 meters and below. When the antenna is mounted as a vertical, the larger ratio allows high angle radiation. The bandwidth of the antenna is determined by the diameter.

You will find information to allow you to copy antennas for various Ham bands, as well as technical information that will allow you to roll your own [in the Library section of our website]. We hope you enjoy this information and the use of the antennas you build. There are an untold number already on the air and many more added every day. [Please see the website at <http://www.eh-antenna.com/>].

Ted W5QJR

Kitchener-Waterloo Amateur Radio Club

January 4, 2005

Canadian Red Cross, Kitchener-Waterloo Branch  
186 King St. S.  
Waterloo ON  
N2J 1P9

Dear Sir or Madam:

At the suggestion of our president, Ben Sasiela, a collection box was passed around at our club meeting last night for the Asian Earthquake and Tsunamis Relief Fund. Due to the generosity of the members in attendance, \$300.00 was raised.

Please accept the attached cheque on behalf of our members.

Sincerely,



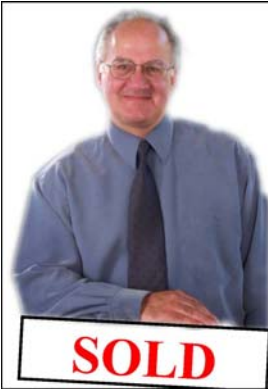
*Ben Sasiela*  
Ben Sasiela  
KWARC President

*Dave Schwartz*  
Dave Schwartz  
KWARC Treasurer

Serving K-W Radio Amateurs since 1922

The K.W.A.R.C. Scrapbook





"Your home is probably the most important investment and the single largest piece of equity you own. That's why I know you would want to deal with a person who puts your interests above all else. In dealing with changes in your Real Estate ownership, Buying, or Selling, call VA3MRJ for professional Real Estate service."

**David Johnson**, Sales Representative  
Coldwell Banker Peter Benninger Realty  
508 Riverbend Drive, Kitchener  
742.5800 ext. 2169  
David-Johnson@coldwellbanker.ca



### 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, just your month and day are needed.

<b>PLEASE MAIL TO: Kitchener-Waterloo Amateur Radio Club</b> 133 Weber Street North, Suite #3-138 Waterloo Ontario N2J 3G9		
<b>First Name</b>	<b>Call:</b>	<b>Last Name:</b>
<b>Address1:</b>		<b>Address2:</b>
<b>City:</b>	<b>Postal Code:</b>	<b>Email Address:</b>
<b>Phone Number: (     )     -</b>		<b>Birthday:     Month     Day</b>
<b>This is a [ ] RENEWAL or [ ] NEW APPLICATION</b>		<b>Kilowatter Preference [ ] MAIL [ ] From WEB</b>
<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" @ \$5.00
		Speed Dial number request: _____
<b>Comments:</b>		
<b>Total Amount Enclosed: \$</b>		<b>Your Cheque Number :</b>



## 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 --- (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**