

# Message from the London Amateur Radio Club



Promoting Amateur Radio in London  
And surrounding area since 1920

October 9, 2011

## L.A.R.C. Executive

### President

Doug Elliott, VA3DAE

### Vice-President

David Lambert, VE3KKG

### Past President

Doug Tompkins, VE3IDT

### Treasurer

Brian Bouckley, VA3ATB

### Secretary

Ruth Dahl, VE3RBO

### Director, Flea Market

Ann Rundle, VA3EOR

### Director, Membership

John Visser, VA3MSV

### Director

Mike Watts, VE3ACW

### Non-Voting

### Director, ARES & CANWARN

Brett Gilbank, VE3ZBG

### Appointments

### LARC Repeater Coordinator

Brad Seward, VE3NRJ

### Repeater

### Operator/Programmer

David Young, VE3EAY

### Field Day Coordinator

Dave Lambert, VE3KKG

### Webmaster

Doug Elliott, VA3DAE

### Newsletter Editor

John Visser, VA3MSV

### Auditors

Rob Hockin, VA3HO  
William Clothier, VE3BCU

## Next Meeting Topic

The next **LARC meeting** will be on **Thursday, October 13, 2011** at 7:30 PM. We will welcome Gord Mayhew VE3RGM, the founder and president of Spectrum Communications. Gord and his company have been deeply involved in commercial radio communications in the London area for over 30 years, and he'll provide his perspective on the radio business, and where it's going.

## RAC Bulletin 2011-032E - New Office Administrator

October 2, 2011

I am pleased to announce that the Radio Amateurs of Canada has recently recruited Frank Greene as Office Administrator. Frank's appointment comes after an extensive search for just the right person to manage our head office.

Frank comes to RAC with an extensive management and business background. He has worked in sales and marketing, accounting and administration, human resources, staff coordination, facilities management, and project management, and has participated in several consulting assignments from capacity planning to disaster contingency planning.

His mission is to provide exemplary service to our members. Don't hesitate to contact Frank when an issue arises.

On behalf of the RAC Board and Executive I want to welcome Frank to the Radio Amateurs of Canada.

Geoff Bawden, VE4BAW

President and Chair Radio Amateurs of Canada

## Next Meeting is Where and When?

**Reminder: The next monthly L.A.R.C. meeting on October 13, 2011 at 7:30 pm**

All meetings are normally located at St. Judes Anglican Church, 1537 Adelaide Street North at Fanshawe Park Road East in London, Ontario.

The meetings are **normally** held on the second Thursday of the month at 7:30 pm EST during the months of September to June.

Next Meeting will be November 10, 2011. This meeting will be a presentation by

## Area Repeaters

### LARC Repeaters

#### London

VA3LON 147.060 + 114.8Hz

VE3MGI 145.390 - 114.8Hz

### SHORT Repeaters

#### London

VE3TTT 147.180 + 114.8Hz  
Echolink Node 10741

VE3SUE 444.400 + 114.8 Hz  
IRLP Node 2400

VE3TTT 442.200 + D-Star

#### Ipperwash

VE3TCB 146.940 - 114.8 Hz  
Linked to VE3SUE

#### Grand Bend

VE3SRT 442.050 + 114.8 Hz  
Linked to VE3SUE

### Other Area Repeaters

#### London

VA3SIX 53.470 - 114.8 Hz

VE3OME 145.450 - 114.8 Hz  
CANWARN

VA3FEZ 444.100 + 114.8 Hz

#### Grand Bend

VE3RGB 146.760 + 173.8 Hz

#### Stratfordville

VE3DPL 146.655 - 131.8 Hz

#### St. Thomas

VE3STR 147.330 + 114.8 Hz  
Echolink Node: 72886

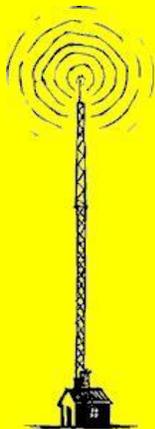
VE3STR 443.825 + 114.8 Hz  
IRLP Node: 2482

#### Goderich

VE3OBC 146.910 - 123.0 Hz

#### Whitechurch

VE3WWD 443.075 + 123.0 Hz



If you have a repeater that should be listed here, please forward the information to John Visser, VA3MSV at [va3msv@hotmail.com](mailto:va3msv@hotmail.com) and I'll add it to the list.

## Membership Certificates

The Club has created membership certificates for its current members. You can see your own certificate at the following link. <http://www.larc.ca/member-list.htm>

Simply click on your surname and it will bring up a PDF of your certificate suitable for printing.

## Flaunt Your Face – Show Your Shack

In our hobby it's not always easy to put a face to all the fellow hams you talk to on the air. To help us all figure who's who, LARC invites its members to submit digital photos of yourself and/or your shack to be published on the membership page of our website. Purely voluntary of course, and if you prefer you can submit just one (depending on whether you think your face or your shack is more presentable).

How will it work? On the membership page, we'll attach your own picture where your first name appears, and the picture of your shack to your callsign. See the entry for Doug Elliott, VA3DAE for an example.

How do you submit your pictures?

Just email them to the LARC site webmaster address, which is: [webmaster@larc.ca](mailto:webmaster@larc.ca)

## Mutual Aid

Would you be willing to answer some questions if a fellow ham needed some advice? Got a problem you can't figure out? Want to try something new but need someone to show you the ropes? Check out our new **Mutual AID page** (<http://www.larc.ca/mutual-aid.html>), a new way to get people who are looking for assistance together with the folks who can help supply the answers. **Let us know** what you think of this new facility.

## Membership Report

Currently the membership is at 122. As of the beginning of the 2010/2011 year we have gotten 20 new members to the club. Of the 17 Honorary Members brought in from the L.S.R.C., 3 have paid for the current 2010/2011 year. Unfortunately 3 past members of the club became a Silent Key this year.

## Nets



### Daily

#### Trans Provincial Net

7.055 MHz 7:00 am – 5:00 pm

#### London Senior's Net

146.400 MHz 7:00 pm – 7:30 pm

### Sunday

#### Swap Net

7.055 MHz LSB 12:00 pm

#### ARES Ontario Net

7.153 MHz 1:00 pm

7.055 MHz 3:00 pm

3.742 MHz 7:15 pm

IRLP Reflector 9005 8:00 pm

### Monday

#### LARC 2m Net

147.060 MHz + 8:00 pm

### Wednesday

#### ARES Net

145.450 + VE3OME 7:30 pm

#### ARES Ontario Net

IRLP Reflector 9005 8:00 pm

### Thursday

#### PROCOMM Net

147.180 + VE3TTT 8:00 pm

444.400 + VE3SUE 8:00 pm

### Friday

#### Tech Net

147.180 + VE3TTT 8:00 pm

444.400 + VE3SUE 8:00 pm

### Saturday

#### VE3TTT 2m Net

147.180 + VE3TTT 7:30 pm

444.400 + VE3SUE 7:30 pm

146.940 - VE3TCB 7:30 pm

442.050 + VE3SRT 7:30 pm

If you have a Net that should be listed here, please forward the information to John Visser, VA3MSV at [va3msv@hotmail.com](mailto:va3msv@hotmail.com) and I'll add it to the list.

## Special Event Station VA3IF - November 5-11, 2011

September 23, 2011

The Guelph Amateur Radio Club is once again setting up a special event station at the birthplace of Lieutenant Colonel John McCrae House in Guelph Ontario. John McCrae was the author of the poem "In Flanders Fields". The special event station, in honour of peace and remembrance, will operate from the McCrae House Museum from November 5 to November 11. We will be operating with the call sign VA3IF on 10m, 15m, 20m, 40m and 80 m, as well as IRLP, node 2260.

Terry Maurice  
VE3XTM

## RAC Bulletin 2011-030E - Simulated Emergency Test - SET - October 15, 2011

2011-09-18

The simulated emergency test is a North America-wide exercise in emergency communications, administered by the ARRL and the RAC Emergency Coordinators and Net Managers. Both the Amateur Radio Emergency Service (ARES) and the National Traffic System (NTS) are involved. The SET weekend gives communicators the opportunity to focus on the emergency communications capability within your community, while interacting with NTS nets. The deadline for receipt of reports at RAC HQ is January 31, 2012.

As you prepare for SET:

- Sign up all available radio amateurs in your area. It's a great recruiting tool.
- Call a meeting of all ARES members and prospective members to outline the plan.
- Contact served agencies and explain the intent and overall purpose of the SET.
- Arrange publicity in local papers and radio and TV stations.
- Set up liaison with one or more NTS local/section nets.
- Formulate your plan around a simulated disaster.

One of the first steps to a successful SET is to get as many involved as possible, especially new Hams. They might like it so much that they stick around.

Please visit the RAC website for all of the rules and guidelines and enjoy!

73

Doug Mercer VO1DM CEC  
Vice President Field Services  
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Tel: 709-364-4741

Cell: 709-697-3319

E-mail: [dougvo1dtm@gmail.com](mailto:dougvo1dtm@gmail.com)

## Upcoming Events

Sat., Oct. 15, 2011

[HARC Hamfest \(Ancaster\)](#) -  
**Hamilton Amateur Radio Club**

Ancaster Fair Grounds  
630 Trinity Road, Ancaster, ON  
Open to Public at 9:00 am

Sat., Nov. 5, 2011

[YORK REGION ARC  
HAMFEST 2011 - 35th  
Edition - York Region ARC](#)

Markham Fairgrounds are located  
at 10801 McGowan Road  
Open to Public at 9:00 am

Sun., Jun. 3, 2011

[Central Ontario Hamfest &  
Fleamarket - Guelph ARC &  
Kitchener-Waterloo ARC](#)

Waterloo Regional Police  
Association Recreation Centre  
R.R. 2, 1128 Rife Rd. North  
Dumfries Township

**Every Saturday Morning** starting  
at 8:30 am.  
Breakfast at the Cottage  
Restaurant. Located across the  
street from the London Police  
Station on Dundas St.

If you have an upcoming event  
that you would like to have  
listed here, please forward the  
information to John Visser,  
VA3MSV at  
[va3msv@hotmail.com](mailto:va3msv@hotmail.com) and I'll  
add it to the list.

## RAC Bulletin 2011-024E – RAC Task Force to Seek an Exemption for Ontario Amateurs.

August 9, 2011

At its Annual General Meeting in St. John's, Newfoundland, Radio Amateurs of Canada announced that a task force has been formed to seek a permanent exemption for Ontario Amateurs from the ban on operating mobile devices in a vehicle under Article 5 in Ontario Regulation 366/09 made under the Highway Traffic Act. It is also commonly known as the Distracted Driving Legislation. The ban would take effect on January 1, 2013.

The task force is composed of Steve Pengelly, VE3STV, Former Honorary Legal Counsel, Ian Snow, VA3QT, Special Advisor to RAC, Jeff Stewart, VA3WXM, Southern Ontario Regional Director, Marcel Mongeon, Honorary Legal Counsel, VA3DDD, Geoff Bawden, VE4BAW, President and Chair RAC, and ex officio to the Task Force. It is chaired by Bill Unger, VE3XT, Ontario North/East Director.

The Task Force has already obtained letters of support from groups that we assist ranging from hospitals, communities, agencies and NGO's. All of the letters indicate that limiting Radio Amateurs. ability to provide communications while mobile would not be in the Ontario's best interests. If you would like to submit a letter of support from an external group to the RAC Task Force, please contact the chair Bill Unger.

The Task Force will present the letters as part of our case to Kathleen Wynne, Ontario's Minister of Transportation, that Amateur Radio operators in Ontario should be exempt from this regulation. The objective of the Distracted Driving Task Force is to convince the Ontario Government that the regulation, as currently written, will actually decrease public safety in Ontario.

Amateur Radio Operators provide countless hours of public service work in their communities and by doing so we are prepared to assist with communications in the event of an overload or total failure or the existing telecommunications infrastructure. The change in the regulations that RAC will request, would align Ontario with seven other provinces and one territory that have introduced exemptions which allow Amateurs to operate while mobile.

The RAC Task Force will shortly initiate discussions with officials in the Minister's Office on the need for this regulatory change. Information on the progress will be updated through the RAC Bulletin system, TCA or the RAC Report. If you are interested in assisting please contact Bill Unger, VE3XT at [ve3xt@rac.ca](mailto:ve3xt@rac.ca)

Bill Unger, VE3XT  
RAC Director – Ontario North/East  
Chair: Task Force – Distracted Driving Legislation/Bill 118

## Homebuilt Repeater Project Wins South Dakota State Fair

Reva, South Dakota  
October 1, 2011



On September 18th, 2011 14 year old Brandon Tenold, KD0KMT received a telephone call from the county extension office to inform him that his home built repeater project won 1st Prize at the South Dakota State Fair in the category of

electronics.

The repeater is a pair of GE MVS VHF radios using a Motorola MSR-2000 amplifier and power supply. The controller is a Zetron model 30 World Patch. The antenna is a Diamond X3000 using a Wacom duplexer.

The repeater is at KD0KMT's home QTH on a hill top in Harding County, SD (second highest point in the county). The ground elevation is 3600' and the repeater antenna is 45' in the air on top of a steel pole barn.

Brandon did all of the work on the repeater by himself including the tuning of the radios and amplifier modifications.

Brandon was first licensed in February 2010 and is active in the amateur radio hobby and is a member of the [Interstate Highway Rest Area Society](#). He monitors the [SD-Link repeater system](#) and is active on 10 meters SSB. He enjoys being on the air and making contacts.

Brandon is currently studying for his general class license and is working on upgrading his HF station. In reward for his 1st place finish the Dakota Amateur Radio Network (DARN) is donating an IRLP node to KD0KMT for his home QTH to increase his operating capabilities from Northwest South Dakota.

Any young hams interested in building repeaters can contact Brandon KD0KMT. His contact information is on his profile on QRZ.com

73

Brian Ward, K0MCM

Administrator

Dakota Amateur Radio Network

[www.darn-ecg.org](http://www.darn-ecg.org)

## VA3XPR: The New Voice of Downtown Toronto

September 29, 2011

On September 25th, 2011, a new voice was added to the Amateur Radio community of downtown Toronto.



This new voice is the **VA3XPR** repeater, which was moved to its new home in **St. James Town**, a neighborhood of downtown Toronto. What

sets this repeater apart from others in the Greater Toronto Area is its unique purpose, which is to:

1. Create a sense of community and promote diversity within St. James Town and adjacent neighbourhoods of Toronto;
2. Act as a catalyst for education & learning and to promote the growth of Amateur Radio;
3. Provide an alternate means of communications in the event of an emergency or natural disaster in the downtown Toronto area.

The VA3XPR repeater can be accessed on **441.950+** with a PL tone of **100.0 Hz**. In addition to its excellent coverage area, it provides licensed amateurs with access

to IRLP and Echolink for global communications. All uses of the repeater that support the above objectives are most welcome and strongly encouraged.



The view of downtown Toronto from the VA3XPR site

For more information on the VA3XPR repeater, please visit its information page, which can be found at <http://www.qrz.com/db/va3xpr>

For further information, contact:

Don Trynor, VA3XFT

[trynor@gmail.com](mailto:trynor@gmail.com)

## Skywarn Training Online

[https://www.meted.ucar.edu/training\\_course.php?id=23](https://www.meted.ucar.edu/training_course.php?id=23) is the URL for online Skywarn training from the National Weather Service.



**SKYWARN**  
**WEATHER.GOV®**

This course covers the basics of being a SKYWARN Spotter. The goal of the course is to provide baseline training for all spotters through multiple modules covering the procedures for spotting (including communication and spotter report criteria) and safety considerations for all hazards.

You can choose to register as a SKYWARN Spotter with the National Weather Service (NWS) by using the checkbox that appears after you Enroll in the course. If you check the box, you will be able to register with the NWS after passing the course.

For questions or more information about the SKYWARN Spotter program of the NWS, visit

<http://www.weather.gov/skywarn/> or the "Frequently Asked Questions" (FAQs) under the "Overview" tab of this course page.

Other Skywarn resources include a [moderated email list](#), a [Skywarn page](#), and the [official Skywarn Spotter page](#).

The new training program is an effort to make Skywarn a uniform program Nationwide. The training is basic but thorough.

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Lloyd Colston KC5FM

Altus, OK USA <http://wx5em.us>

Straight Key Century Club #5676

Croatian Telegraphy Club CTC # 1.931

CARF #294 Ten-Ten #10231 NAQCC #4408

Southcars #8276 QCWA #31935 ARRL #8037325

<http://www.carf.net>

<http://www.ten-ten.org>

<http://norcars.net/>

<http://kc5fm.blogspot.com>

## Greece's National Society Gets 5 MHz Permit

October 7, 2011

The Greek Ministry of Communication has given authorization to the headquarters club station of the Greek national amateur radio society for use a single frequency in the 60 meter band. SZ1SV is being permitted to operate on 5398.5 kHz using SSB, CW and Digital with a maximum power of 100W PEP. The

national society says that it hopes to have a beacon on this frequency soon.

The latest 60 meter amateur radio information worldwide can be found on-line in the 5 MHz Newsletters. Its in cyberspace at [tinyurl.com/6fkhcmf](http://tinyurl.com/6fkhcmf) (G4MWO, Southgate)

## CQ Announces Additional Plaques For CQ DX Marathon

October 7, 2011



An expansion in the number of the CQ Magazine-sponsored DX Marathon plaques to be awarded each year has been made public by that publication. Starting with the announcement of the 2011 Marathon results in the June 2012 issue, additional plaques will be awarded for top CW and top SSB scores, top single band scores, and top continental scores.

The CQ DX Marathon is a year-long activity encouraging DXing on the HF bands. Competition begins anew each January 1st. Details are available on the CQ magazine website at [www.cq-amateur-radio.com](http://www.cq-amateur-radio.com) and on the DX Marathon at [www.dxmarathon.com](http://www.dxmarathon.com).

Also, an additional sponsor for top Digital Mode score is still being sought. Please contact DX Marathon Administrator John Sweeney, K9EL, via e-mail to k9el (at) dxmarathon (dot) com if you wish to sponsor this plaque. (CQ)

## GOP Questions FCC Spectrum Grant To LightSquared

September 30, 2011

Opponents of the proposed LightSquared national broadband network operating adjacent to Global Positioning System or GPS frequencies have new allies. The Republican party.



The proposed LightSquared high speed broadband network appears to be becoming a true political hot potato. This as the GOP raises the question of political favoritism in the FCC granting of a permit to the company to begin experimental construction of the system almost a year ago.



On Thursday, September 8th several leading Republicans questioned why the Federal Communications Commission fast-tracked an initial approval of the LightSquared proposal. A company that the GOP claims to have ties among Democrats. It also questions the use of spectrum that other agencies say disrupts GPS devices that are an integral part of hurricane-tracking systems, military and commercial airlines and millions of civilian users.

At a House hearing, Republicans criticized the FCC for not using its own engineers to examine whether LightSquared's technology posed interference issues. The agency admitted that it relied on tests run by LightSquared and the Global Positioning System supply

industry. But the FCC has defended its process, saying it has led to better understanding of an emerging technology.

Republican lawmakers note that the FCC gave a crucial green light this past January for LightSquared to begin building its system without a full commission vote. This, despite warnings from companies and federal agencies that the satellite network would harm communication systems essential to national security and public safety.

An FCC spokeswoman added that the agency granted expedited approval for LightSquared's proposed national broadband system only on the condition that the company resolves interference problems with GPS providers and other technologies.

But GOP lawmakers and members of a coalition formed by the GPS industry noted that the spectrum used by LightSquared was never intended for cellular telephones or other broadband devices. Rather back in 2002 the FCC granted a license to LightSquared, then known as SkyTerra, on the condition that its primary business would be to provide services for satellite phones.

With Republicans and Democrats in Congress at odds over just about every issue, the LightSquared proposed broadband communications system could find itself trapped in a long and very bitter political power play. (Published News Reports)

## CQ Publishing To Offer All Magazines In Digital Format

September 30, 2011



New York based hobby electronics publisher Richard Ross, K2MGA, has announced that his CQ Communications will launch multi-platform digital editions of all of its magazine titles before the end of 2011. These titles include CQ magazine, CQ VHF, Popular Communications and WorldRadio Online.

According to Editorial Director Rich Moseson, W2VU, the digital editions will supplement, not replace, current print editions, and will feature enhancements not possible in the print medium. Versions will be available for a variety of online and mobile platforms including PC, Mac, iPhone, iPad, Android 2.0 and higher.

Examples of features that will be possible in the digital world include live links to all World Wide Web addresses listed in each issue as well as supplemental content. This will include such additions as photo albums, audio and video files, software and more.

The digital editions of the CQ publications will be hosted by Zinio dot com. Zinio is one of the top names in the e-magazine publishing business. Moseson says that CQ's choosing of Zinio will assure that our magazines will always be able to take advantage of new technology when it becomes available.

The digital launch will begin in late October with the November issue of an enhanced, multi-platform, version of WorldRadio Online, which will again become a paid-subscription publication. This will be followed by the November issue of CQ, which, appropriately, is the magazine's first annual Technology Special. The fall issue of CQ VHF and the December issue of Popular Communications will round out the introductions.

Digital editions will be available by single copy and by subscription. Details will be in the near future in the magazines and on all CQ Communications websites. Moseson noted that many CQ book titles are already available in digital form on CD. (CQ)

## HRD VERSION 5.1 TO BE FREE UPGRADE TO REGISTERED USERS

September 23, 2011

The version 5.1 release of Ham Radio Deluxe will be made available at no charge to registered users when completed. So say Mike Carper, WA9PIE, Randy Gawtry, K0CBH and Rick Ruhl, W4PC.

The trio announced last week that they had acquired the source and rights to the Ham Radio Deluxe suite of software from Simon Brown, HB9DRV. Since then there had been a lot of rumor on the Internet chat sites as to what would happen next.

A lot of that was cleared up with the release of a statement by Carper, Gawtry and Ruhl over the weekend of September 17th and 18th posted on

Facebook and other websites. In addition to making version 5.1 a free upgrade to registered users, the trio say that they plan to continue improving Ham Radio Deluxe to keep it as the best ham radio package available.

Whether or not it will remain free after the release of version 5.1 was not discussed in their news release. Right now Carper, Gawtry and Ruhl say that they are in the process of building a development environment for Ham Radio Deluxe. They say that their main concern is to begin by

addressing some of the bugs in the existing "To Do List" for the upcoming version 5.1 release. (HRD Team)



## 150th Anniversary of North America's First Transcontinental Telegraph Line

October 8, 2011

Monday, October 24, 2011 will be the 150th anniversary for completion of North America's First Transcontinental Telegraph Line.

The First Transcontinental Telegraph network was a milestone in electrical engineering and fundamental to western expansion of the United States of America in the mid-19th century. It served as the only method of near-instantaneous communication between the east and west coasts during the 1860s (Civil War, construction of transcontinental railroad).

Samuel Morse's first experimental telegraph line between Washington, D.C. and Baltimore was demonstrated on May 24, 1844. By 1850 there were telegraph lines covering most of the Eastern states, and a separate network of telegraph lines was soon constructed in booming California. California was admitted to the United States in 1850, the first state not contiguous with the eastern government.

Major efforts ensued to integrate California with the other states, including sea and overland mail and passenger service. Proposals for the subsidy of a telegraph line to California were made in Congress throughout the 1850s, and in 1860 the U.S. Post Office was authorized to spend \$40,000 per year to build and maintain an overland line. The year before, the California State Legislature had authorized a similar subsidy of \$6000 per year.

A federal contract authorized through the Pacific Telegraph Act of 1860 was awarded to Hiram Sibley, the president of the Western Union Company. He formed a consortium between Western Union and the telegraph companies in California: to share the efforts of constructing the overland telegraph, to split up the federal and state subsidies, and to share any profits from operation of the line.

The newly consolidated Overland Telegraph Company of California would build the line eastward from Carson City (the eastern terminus of their lines), using the newly developed central route through Nevada and Utah. At the same time, the Pacific Telegraph Company of Nebraska was formed by Sibley. It would construct a line westward from Omaha, essentially using the eastern portion of the Oregon Trail.

The two lines would meet at a telegraph station in Salt Lake City.

Materials for the line were collected in late 1860, and construction proceeded during the second half of 1861. Major problems in provisioning the construction teams were overcome, and there was a constant shortage of sources of telegraph poles on the plains of the Midwest and the deserts of the Great Basin.

The eastern line from Omaha reached Salt Lake City on October 18, 1861, and the western line from Carson City was completed on October 24.

### Line of Sight (LOS) Propagation

Those of you that read my introduction to HAM TECH in the September issue of Harmonics will be aware that I am starting the series with propagation and focusing on it for 7 issues. You may wonder why. The simple answer is that no technical factor has as much impact on achieving the performance you expect from your station as propagation. Antennas are next in line in impact and will be the subject starting in the spring of 2011. By a year from now you should have the background, the tools including simple equations, charts and computer software and some experience in using them to evaluate your station and trade off your next big investment. Should it be a kilowatt amplifier, a new antenna or a new tower? You will know what each of these will do for you in terms of making QSOs.

VHF/UHF line of sight propagation is relatively simple to understand and calculate as long as you can keep the effects of the earth and its obstructions out of the signal path. Even with antennas near the earth this propagation is rather predictable as long as you don't try to stretch the distance between antennas to the point where the signal is sitting on the horizon. Examples of LOS propagation are short range simplex, ground based repeater and earth to amateur repeater satellite. Of the three the ground repeater is the most widely used. Note also that I am only referring to VHF and higher frequencies for LOS propagation. Below 50 MHz the antennas are electrically too close to the earth to meet the criteria of LOS.

So what limits the range of LOS propagation? For the simplex and ground repeater case the limit is the antenna heights and the earth curvature. For the earth satellite case the satellite must be in view of both stations and the limits are satellite transmitter power, antenna gains, ground receiver sensitivity and signal bandwidth. Let's look at the first two cases.

There is a geometric horizon which is sometimes incorrectly referred to as the optical horizon and a radio horizon. They would all be the same if the earth had no atmosphere like the moon, but it does. Most of us have watched a sun set where we can see the horizon. The sun grows in diameter and changes color due to the effect of the atmosphere. You actually see the sun finally disappear well after it has fallen below the geometric horizon. The atmosphere bends the light and radio signals over the horizon. This is not insignificant since the distance to the horizon grows by about 33 percent for radio signals. To avoid having to draw

curved lines when plotting LOS signal paths, convention has for decades been to increase the size of the earth by 33 percent. This is the basis of the 4/3 earth model. In addition if this model is used and height is measured in feet and distance to the horizon in miles, the calculation of the horizon distance is very simple.

$$D = \sqrt{2h}$$

Where h = antenna height in feet and D = radio horizon in miles.

For example: If h = 50 ft then D = 10 mi. Two hams with 50 foot antennas could each see out to the horizon and could be up to 2(10) = 20 miles apart. If one ham is mobile and his antenna is only 5 feet high his distance to the horizon is only 3.2 miles so they can only work each other at a distance of 10 + 3.2 = 13.2 miles. But wait a minute, they are both putting signals right on the ground so there is going to be lots of interaction with the ground and significant fading. Your useful range will be a little less in each case. Even with relatively high antennas, simplex LOS just doesn't get too far.

Let's switch to the BEARS UHF repeater (444.2MHz) in Bensalem, PA. This repeater antenna is 550 ft. high and the horizon point is slightly over 33 miles. Add to this the 10 miles for your base station antenna and you could reach the repeater at a distance of almost 43 miles, 36 miles while mobile. Two base stations could be up to 86 miles apart if the two stations and the repeater are on a common straight line path. I use the KK3L 2 meter repeater located on a 3000 ft. mountain in Berkley Springs, WVA while on the PA turnpike just west of the twin Blue Mountain tunnels. I have no trouble working other mobiles 125 to 150 miles away calling into this machine. This KK3L machine is linked to the W3WGX mountain top repeater in Seven Springs, PA. With the two I have coverage from where I lose the BEARS linked network at Blue Mountain all the way to Pittsburgh. Repeaters and height makes 2 meters our most popular band and most of it is LOS. Next month we add to our equations to determine the impact of transmitter power, antenna gain and receiver sensitivity in fighting the signal attenuation of LOS propagation.

Do you have questions or comments? Call into the K2AA 2 meter repeater on Monday 8 November at 8:00 PM and I will answer them right after the net closes, about 8:45PM, or E-mail me at the address listed at the beginning of HAM TECH and I will answer on the air followed by an E-mail reply.

# **MEMBERSHIP INVITATION**

*-- Membership application and dues are currently requested.*

*Our term of membership runs from October 1 to September 30 of the following year. Each and every year it is increasingly more difficult to get Amateurs to commit to membership in their local club due to the alternate functions we are asked to fund.*

*The **London Amateur Radio Club** has a long history of providing technical support, social support and repeater facilities. Public service efforts are currently provided by a club affiliation with Amateur Radio Emergency Services (**ARES**) and **Radio Amateurs of Canada (RAC)**.*

*Your Directors work tirelessly to provide meeting topics that are informative and entertaining, events that are timely (Christmas meeting, field day, bus trip) and participate in events that display and promote Amateur Radio in the community.*

*To be effective in its pursuits, the Club needs the support of the local Amateur fraternity through membership.*

*While we obtain financial support from our Annual Flea Market, we require membership support to fund such things as meeting hall rent, repeater sites rent and maintenance, web site fees, membership cards and liability insurance. For what it's worth, none of these things are getting any cheaper.*

*The cost of membership has not changed for a number of years and even in the face of increased cost, we would like to keep it that way.*

*With more than 1000 'hams' in the London area, it's inconceivable that less than 10% support a pastime about which most of us are passionate.*

**PLEASE**, make a choice and do your part to keep the **London Amateur Radio Club** alive and well by purchasing your membership at our next meeting (or by mail – details on our web site). The cost is still only \$25.00 (single) or \$30.00 (family residing at the same address).

